DOCUMENT 00 00 00

PROJECT MANUAL

BID # B-01-2018-19

TOYON ELEMENTARY SCHOOL
FIS PROJECT

BERRYESSA UNION SCHOOL DISTRICT

Measure L Bond Program
Berryessa Union School District
1376 Piedmont Road
San Jose, CA 95132

Advertisement Dates: 10/9/2018 and 10/16/2018

Job Walk Date: 10/11/2018 and 10/18/2018

Bid Due Date: 10/31/2018 at 1:00pm

Contract Number: B-01-2018-19

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Flexible Instruction Space (FIS) Project

AT

Toyon Elementary School

995 Bard Street
San Jose, CA 95127

-PROJECT MANUAL-

October 15, 2018
MDG #1711

Berryessa Union School District
1376 Piedmont Road
San Jose, CA 95132

ARCHITECT
McKim Design Group
4595 Cherry Ave. 1st Floor
San Jose, CA 95118
(408) 927.8110

CONSTRUCTION MANAGER
Kitchell
1180 Coleman Avenue- Suite 202
San Jose, CA 95110
(408) 280-7889

DOCUMENT 00 11 16

NOTICE TO BIDDERS

Notice is hereby given that Berryessa Union School District (hereinafter referred to as "Owner") will receive sealed bids prior to the date and time stated for the Bid Opening for:

Berryessa Union School District
Toyon Elementary School
955 Bard Street
San Jose, CA 95127

TOYON ELEMENTARY SCHOOL FIS PROJECT will be constructed utilizing a Single Prime Contractor under contract with the Owner. The Bidder whom is successful and awarded a contract will be referred to as a General Contractor.

As described in more detail in the bidding documents, the following is a list of various Bid Divisions.

Bids will be received for:

TOYON ELEMENTARY SCHOOL: Flexible Instructional Space (FIS)

Work in the Contract comprises: of modernizing an existing library into a Flexible Learning Space and installation of new finishes. This project includes minor restroom work, striping for accessible parking and replacement of site concrete, asphalt paving. Also included is installation of new ornamental and chain fencing and gates.

Pre-Bid Conference/Job Site Visit

Two (2) non-mandatory pre-bid conference/job site visits will be held to familiarize bidders with the project.

TOYON ELEMENTARY SCHOOL F.I.S. Pre-Bid conference

Job Site Visit #1 will be conducted on, October 11, 2018 @ 3:00 pm

Job Site Visit #2 will be conducted on, October 18, 2018 @ 3:00 pm

Pre-Bid conferences/job site visits will start at:

Toyon Elementary School, 995 Bard St, San Jose, CA 95127
Assemble in the parking lot on Bard Ave, under the shade structures.

The lowest bid shall be determined:

1. On the amount of the base bid including contract allowance.

Pre-Bid Questions/RFI's

Requests for clarification or interpretation of the Bidding Documents must be in writing and received no later than:

October 23, 2018 at 5:00pm.

All questions shall be sent in writing and via email to the attention of Mark Casini, with Kitchell CEM, mcasini@kitchell.com, or James Wilson, jmwilson@kitchell.com

Submission of Bids

Sealed bids for the Lump Sum Base Bid for each Bid Division must be received at:

Berryessa Union School District
Bond Office
1376 Piedmont Road
San Jose, CA 95132

Before 1:00 pm on Wednesday, October 31, 2018

Faxed Bids Will Not Be Accepted

Bids shall not expire for a period of 90 days after the date set for bid submission.

The Owner reserves the right to add or deduct any of the additive or deductive items after the lowest responsible and responsive bidder is determined.

This Project is subject to prequalification. If a bidder is not prequalified to bid on the Project, Owner will not accept the bid. The prequalification package is available at the BUSD website. Prequalification packages must be received at BUSD as follows: **10 days prior to receiving bids.**

AB1565: This project is subject to Prequalification. If the bidder is not prequalified to bid on the Project, Owner will not accept the bid. Any M/E/P subcontractors the bidder lists for work must have current prequalified status with owner. Prequalification documents are available for download at www.berryessa.k12.ca.us. Click the link for "Contractor Prequalification" under the Purchasing Department Page.

Addendum
Revisions, additions or deletions will be made by written addenda only as issued by Kitchell and McKim Design Group. The last Addendum, if any, will be issued on/or before **October 26, 2018.**

Basis of Award
Kitchell and the Owner will award the Bid Division contracts in accordance with Section 00 21 13 Instructions to Bidders.

Contractor's License
The successful Bidder will be required to have the appropriate State of California Contractor's License current at the time of submission of Bid.

Class B License

Project Documents
Project Bidding Documents will be available for download at:
http:www.berryessa.k12.ca.us/OUR-DISTRICT/Business-Services/Purchasing/Current-Bids/index.html

For public works contracts awarded on and after January 1, 2015, those public works projects shall be subject to compliance monitoring and enforcement by the Department of Industrial Relations.

As of March 1, 2015, a contractor or subcontractor shall not be qualified to submit a bid or to be listed in a bid proposal subject to the requirements of Public Contract Code section 4104 unless currently registered and qualified under Labor Code section 1725.5 to perform public work as defined by Division 2, Part 7, Chapter 1 (§§1720 et seq.) of the Labor Code.

As of April 1, 2015, a contractor or subcontractor shall not be qualified to enter into, or engage in the performance of, any contract of public work (as defined by Division 2, Part 7, Chapter 1 (§§1720 et seq.) of the Labor Code) unless currently registered and qualified under Labor Code section 1725.5 to perform public work.

Schedule
Duration for completing the Toyon Elementary School FIS Project shall be Ninety-six (96) calendar days from the Notice to Proceed:

FIS: 96 calendar days from the Notice to Proceed.
Site work: (including all demolition, underground work, concrete, asphalt replacement, striping and fencing/gate installation): shall start on 12/24/2018 and be complete by 2/6/2018

Bids will be opened, sealed and filed in the Purchasing Department of the Owner at:

Berryessa Union School District
1376 Piedmont Road
San Jose, CA 95132

On Wednesday, October 31, 2018, before 1:00 p.m. on the clock designated by the Owner or its representative as the bid clock. Facsimile (FAX) copies of the bid will not be accepted.

The Owner will require the successful Bidder to achieve the minimum goal of 3% DVBE (Disabled Veteran Business Enterprises) established in the bidding documents or to provide acceptable evidence of good faith efforts to do so. The DVBE documents must be sealed and filed in the Business Office of the Owner before the Bid Division Trade Contractor specific Bid Dates/Times listed above at which time the bids (including the DVBE forms) will be opened in public.

Bids must be accompanied by a bidder's bond, cashier's check, or certified check for at least ten percent (10%) of the amount of the base bid and made payable to the Owner. If a bid bond is used, it must be issued by an Admitted Surety (an insurance organization authorized by the Insurance Commissioner to transact surety insurance in the State of California during this calendar year), which shall be given as a guarantee that the bidder will enter into a Contract if awarded the Work and will be declared forfeited, paid to, or retained by the Owner as liquidated damages if the bidder refuses or neglects to enter into the Contract provided by the Owner after being requested to do so. The surety insurer must, unless otherwise agreed to by Owner in writing, at the time of issuance of the bond, have a rating not lower than "A-" as rated by A.M. Best Company, Inc. or other independent rating companies. Owner reserves the right to approve or reject the surety insurer selected by Contractor and to require Contractor to obtain a bond from a surety insurer satisfactory to the Owner.

Bids must be accompanied by an executed Fingerprinting Notice and Acknowledgment.

Pursuant to the Contract Documents, the successful bidder will be required to furnish a Payment (Labor and Material) Bond in the amount of one hundred percent (100%) of the Contract Sum, and a Faithful Performance Bond in the amount of one hundred percent (100%) of the Contract Sum, said bonds to be secured from Admitted Surety insurers (an insurance organization authorized by the Insurance Commissioner to transact business of insurance in the State of California during this calendar year). The surety insurers must, unless otherwise agreed to by Owner in writing, at the time of issuance of the bonds, have a rating not lower than "A-" as rated by A.M. Best Company, Inc. or other independent rating companies. Owner reserves the right to approve or reject the surety insurers selected by the successful bidder and to require the successful bidder to obtain bonds from surety insurers satisfactory to the Owner. The bidder will be required to furnish insurance as set forth in the Contract Documents.

The successful bidder will be allowed to substitute securities or establish an escrow in lieu of retainage, pursuant to Public Contract Code Section 22300, and as described in the Agreement Between Owner and Contractor and General Conditions.

The Owner will not consider or accept any bids from contractors who are not licensed to do business in the State of California, in accordance with the California Public Contract Code, providing for the licensing of contractors. In accordance with Section 3300 of said Code, the bidder shall have a "Class X for Modernization and F.I.S." license and shall maintain that license in good standing through Project completion and all applicable warranty periods. Bidder shall state the California contractor license number on the Designation of Subcontractors form for all subcontractors doing more than one-half of one percent (0.5%) of the bidder's total bid. An inadvertent error in listing a California contractor's license number shall not be grounds for filing a bid protest or for considering the bid nonresponsive if the bidder submits the corrected contractor's license number to the Owner within 24 hours after the bid opening, or any continuation thereof, so long as the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

Subcontractors shall maintain their licenses in good standing through Project completion and all applicable warranty periods. Owner reserves the right to reject any bid as nonresponsive if bidder or any subcontractor is not licensed in good standing from the time the bid is submitted to Owner up to award of the Contract, whether or not the bidder listed the subcontractor inadvertently, or if a listed subcontractor's license is suspended or expires prior to award of the Contract. Owner also reserves the right to reject any bid as non responsive if a listed subcontractor's license is not in good standing to perform the work for which it is listed from the time of submission of the bidder's bid to award of the Contract.

The Director of Industrial Relations of the State of California, in the manner provided by law, has ascertained the general prevailing rate of per diem wages and rate for legal holidays and overtime work. The Contractor must pay for any labor therein described or classified in an amount not less than the rates specified. Copies of the required rates are on file at the Owner's business office and are available to any interested party on request.

The Owner reserves the right to waive any irregularity and to reject any or all bids.

Unless otherwise required by law, no bidder may withdraw its bid for a period of ninety (90) days after the date set for the opening thereof or any authorized postponement thereof. The Owner reserves the right to take more than ninety (90) days to make a decision regarding the rejection of bids or the award of the Contract.

Advertise:	1st Publication Date	October 9, 2018
	2nd Publication Date	October 16, 2018

END OF DOCUMENT

DOCUMENT 00 21 13

INSTRUCTIONS TO BIDDERS

SECURING DOCUMENTS:

Project Bidding Documents will be available at:
http:www.berryessa.k12.ca.us/OUR-DISTRICT/Business-Services/Purchasing/Current-Bids/index.html

Contact: Mark Casini, mcasini@kitchell.com
James Wilson, jmwilson@kitchell.com (408) 280-7889

REGISTRATION:

The Owner shall not accept any bid as of March 1, 2015, or enter into any contract as of April 1, 2015, without proof of the bidder's current registration to perform public work under Labor Code section 1725.5.

The bidder shall not accept any subbid as of March 1, 2015, or enter into any subcontract as of April 1, 2015, without proof of the subcontractor's current registration to perform public work under Labor Code section 1725.5.

BIDS:

Bids to receive consideration shall be made in accordance with the following instructions:

1. Bids shall be made on a form therefor, obtained from the Construction Manager, Architect or Owner. Bids not made on the proper form shall be disregarded.

Bid Division 1 – Toyon ES FIS Project

Numbers must be stated in words and figures, and the signatures of all individuals must be in longhand.

Bidder must complete and submit all of the following documents with Bid Form and Proposal:

a. Signed Bid Proposal
b. Bid Bond on the District's form or other security
c. Designated Subcontractors List
d. Sufficient Funds Declaration
e. Non Collusion Affidavit
f. Fingerprinting Notice and Acknowledgement
g. Iran Contracting Act Certification

2. No bid will be considered which makes exceptions, changes, or in any manner makes reservations to the terms of the drawings or specifications.

3. Questions regarding documents, discrepancies, omissions, or doubt as to meanings shall be referred immediately to the Architect who will send written instructions clarifying such questions to each bidder. Oral responses will not be binding on the Owner or Architect or any Construction Manager.

4. Each bid must give the full business address of the bidder and be signed by bidder with bidder's usual signature. Bids by partnerships must furnish the full name of all partners and must be signed in the partnership name by a general partner with authority to bind the partnership in such matters, followed by the signature and designation of the person signing. The name of the person signing shall also be typed or printed below the signature. Bids by corporations must be signed with the legal name of the corporation, followed by the name of the state of incorporation and by the signature and designation of the chairman of the board, president or any vice president, and then followed by a second signature by the secretary, assistant secretary, the chief financial officer or assistant treasurer. All persons signing must be authorized to bind the corporation in the matter. The name of each person signing shall also be typed or printed below the signature. Satisfactory evidence of the authority of the officer signing on behalf of a corporation shall be furnished.

5. Pursuant to the provisions of Sections 4100 to 4114, inclusive, of the Public Contract Code of the State of California, which are hereby incorporated and made a part hereof and these Instructions to Bidders, every bidder shall set forth in its bid:

   A. The name and location of the place of business and the California contractor's license number of each subcontractor who will perform work or labor or render service to the bidder in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the bidder, specially fabricates and installs a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half (½) of one percent (1%) of the bidder's total bid. An inadvertent error in listing a California contractor's license number shall not be grounds for filing a bid protest or for considering the bid nonresponsive if the bidder submits the corrected contractor's license number to the Owner within 24 hours after the bid opening, or any continuation thereof, so long as the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

   B. The portion of the Work which will be done by each such subcontractor. If the bidder fails to specify a subcontractor for any portion of the Work to be performed under the Contract in excess of one-half (½) of one percent (1%) of the bidder's total bid, the bidder agrees to perform that portion itself. The successful bidder shall not, without the consent of the Owner:

1) Substitute any person as subcontractor in place of the subcontractor designated in the original bid.

2) Permit any subcontract to be assigned or transferred or allow it to be performed by anyone other than the original subcontractor listed in the bid.

3) Sublet or subcontract any portion of the Work in excess of one-half (½) of one percent (1%) of the total bid as to which the original bid did not designate a subcontractor.

6. The Director of Industrial Relations of the State of California, in the manner provided by law, has ascertained the general prevailing rate of per diem wages and the rate for legal holidays and overtime work. The Contractor must pay for any labor therein described or classified in an amount not less than the rates specified. Copies of the required rates are on file at the Owner's business office and are available to any interested party on request.

7. All bids must be accompanied by a completed Noncollusion Declaration and Sufficient Funds Declaration (Labor Code § 2810). All bids must be accompanied by an executed Fingerprinting Notice and Acknowledgment.

8. Bids must be accompanied by a certified check, cashier's check, or bidder's bond, for an amount not less than ten percent (10%) of the amount of the base bid, made payable to the order of the Owner. If a bidder's bond accompanies the bid, said bond shall be secured by an Admitted Surety (an insurance organization authorized by the Insurance Commissioner to transact business of insurance in the State of California during this calendar year). The surety insurer must, unless otherwise agreed to by Owner in writing, at the time of issuance of the bond, have a rating not lower than "A-" as rated by A.M. Best Company, Inc. or other independent rating companies. Owner reserves the right to approve or reject the surety insurer selected by Contractor and to require Contractor to obtain a bond from a surety insurer satisfactory to the Owner. Said check or bond shall be given as a guarantee that the bidder will enter into the Contract if awarded the Work, and in case of refusal or failure to enter into said Contract, the check or bond, as the case may be, shall be payable to the Owner and retained as liquidated damages.

9. Bids shall be sealed and filed as indicated in the Notice to Bidders. Irrespective of how a bidder chooses to deliver the bid and other documents to the Owner, the bidder is responsible for ensuring that the bid and other documents are actually received at the location designated in the Contract Documents for receipt of the bid and other documents prior to the time for the bid opening. Bids and other documents for any reason not actually received at the designated location prior to the time for the bid opening shall not be opened or considered.

10. **THIS CONTRACT "IS" SUBJECT TO THE DVBE REQUIREMENTS OF EDUCATION CODE SECTION 17076.11.**

WITHDRAWAL OF BIDS:

Bids may be withdrawn by bidders prior to the time fixed for the submittal of bids or any authorized postponement thereof. A successful bidder shall not be relieved of the bid unless by consent of the Owner or bidder's recourse to Public Contract Code §5100 et seq.

OPENING OF BIDS:

Opening of bids shall be as soon after the hour set as will be possible; opening and declaration to be as set forth in the Notice to Bidders. Any and all bidders will be permitted to attend.

EXAMINATION OF CONTRACT DOCUMENTS AND SITE:

Before submitting a bid, bidders shall examine the drawings, read the specifications, the form of Agreement between Contractor and Owner, and the other Contract Documents. Bidders shall visit the site of the proposed Work; examine the building, or buildings, if any, and any work that may have been done thereon. Bidders shall fully inform themselves of all conditions, in, at, and about the site, the building or buildings, if any, and any work that may have been done thereon.

Pursuant to Public Contract Code section 1104: 1) bidders shall not be required to assume responsibility for the completeness and accuracy of architectural or engineering plans and specifications, except on clearly designated design build projects; 2) however, bidders shall be required to review architectural or engineering plans and specifications prior to submission of their bids and to report any errors and omissions to the Architect or Owner; and 3) the review shall be confined to the bidder's capacity as a bidder and not as a licensed design professional.

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR:

The form of Agreement between Owner and Contractor which the successful bidder will be required to execute, if awarded the Work, is a part of this Bid Package.

ADDENDA OR BULLETINS:

Any addenda or bulletins, issued during the time of bidding, shall form a part of the drawings and specifications loaned to the bidder for the preparation of its bid, shall be covered in the bid, and shall be made a part of the Contract Documents. All addenda or bulletins shall be signed by the Architect and approved by the Division of State Architect.

EVIDENCE OF RESPONSIBILITY:

Upon the request of Owner, a bidder shall submit promptly to the Owner or its designee satisfactory evidence showing the bidder's financial resources, the bidder's experience in the type of work required by the Owner, the bidder's organization available for the performance of the Contract, and any other required evidence of the bidder's or its subcontractor's qualifications to perform the proposed Contract. The Owner may consider such evidence before making its decision awarding the proposed Contract. Failure to submit evidence of the bidder's or its subcontractors' responsibility to perform the proposed Contract may result in rejection of the bid.

AWARD OF CONTRACT:

Rejection of any or all bids, to contract work with whomever and in whatever manner, to abandon work entirely, and/or to waive any informality in receiving of bids is reserved as the right of the Owner. Before the Contract is awarded, the Owner may at its sole discretion, require from the proposed Contractor on the Project further evidence of the reasonable qualifications of such contractor to faithfully, capably, and reasonably perform such proposed Contract and may consider such evidence before making its decision on the award of such proposed Contract.

The Contract shall be awarded to the lowest responsible and responsive bidder as interpreted by the Owner under California law and as specified herein and shall be entered into by the successful bidder within ten (10) calendar days after mailing, faxing or delivery of the Notice of Award of Contract. Owner reserves the right, without any liability, to cancel the award of any bid for any reason at any time before the full execution of the Agreement between Owner and Contractor.

EXECUTION OF AGREEMENT BETWEEN OWNER AND CONTRACTOR:

The Agreement between Owner and Contractor shall be signed by the successful bidder in as many originals as the Owner deems necessary and returned, together with the required Contract bonds, insurance certificates, additional insured endorsement, declarations page, a Public Contract Code section 3006(a) Roof Project Certification, if required, and Independent Contractor Student Contact Form, within ten (10) days after the mailing, faxing or delivering of the Notice of Award of Contract. If the ten (10) day period would expire after the date for commencement of the Work, Contractor must submit the documents before the date of commencement of the Work. If the successful bidder does not comply with this paragraph, Owner may revoke and/or cancel the award to the successful bidder and award the Contract to the next lowest bidder, or may otherwise proceed as allowed by law. A Roof Project Certification is not required if (1) the Owner has ADA (average daily attendance) of 2,500 or less, or (2) the Project involves repair of 25% or less of the roof, or costs $21,000 or less.

CONTRACT BONDS:

As required by the Contract Documents, two bonds, as itemized below and in the forms presented in these Contract Documents, shall be furnished by the successful bidder on the

Project at the time of entering into the Contract and filed with the Owner before the successful bidder commences any work on the Project. They shall be in the form of surety bonds issued by Admitted Surety insurers (an insurance organization authorized by the Insurance Commissioner to transact business of insurance in the State of California during this calendar year). The surety insurers must, unless otherwise agreed to by Owner in writing, at the time of issuance of the bond, have a rating not lower than "A-" as rated by A.M. Best Company, Inc. or other independent rating companies. Owner reserves the right to approve or reject the surety insurers selected by Contractor and to require Contractor to obtain bonds from surety insurers satisfactory to the Owner.

Performance Bond in the amount of one hundred percent (100%) of the Contract Sum to insure Owner during construction, and for one year after completion and during any warranty or guaranty period, against faulty or improper materials or workmanship and to assure Owner of full and prompt performance of the Contract.

Payment Bond (Labor and Material) in the amount of one hundred percent (100%) of the Contract Sum in accordance with the laws of the State of California to secure payment of any and all claims for labor and materials used or consumed in performance of this Contract.

DRAWINGS, SPECIFICATIONS AND ADDENDA OR BULLETINS:

Return by each bidder of all drawings, specifications and addenda or bulletins in an unmutilated condition and without any marks or annotations is demanded within the time limit indicated under **DEPOSIT** in this section.

SUBSTITUTION OF MATERIALS:

The Contractor must ensure that the proposed substitutions by the Contractor or its subcontractors are submitted to the Architect's office a minimum of fourteen (14) calendar days prior to the Bid Opening for review and possible approval of any equipment or materials thought to be equal to or better than those specified in the drawings or specifications. An addendum will be issued seven (7) calendar days prior to Bid Opening, including all equipment and materials deemed equivalent to those specified and approved by the Architect. Submittals shall include comparative spec-data of the specified equipment or material and the proposed substitution as set forth in the Contract Documents. Submittals without this information will be automatically rejected.

PAYMENTS:

Payments to the Contractor on account of the Contract shall be made in accordance with the terms of the Contract Documents.

TAXES:

The Owner is generally exempt from payment of Federal Excise Tax on materials. The Owner will furnish exemption certificates to the Contractor to be used to obtain materials

ordinarily subject to Federal Excise Tax without payment of the tax. Bidder shall deduct Federal Excise Taxes from their bid prices before submitting bids, so that such taxes will not be included in the Contract Sum.

EARLY TERMINATION:

Notwithstanding any provision herein to the contrary, if for any fiscal year of this Contract the governing body of the Owner fails to appropriate or allocate funds for future periodic payments under the Contract after exercising reasonable efforts to do so, the Owner may upon thirty (30) days' notice, order work on the Project to cease. The Owner will remain obligated to pay for the work already performed but shall not be obligated to pay the balance remaining unpaid beyond the fiscal period for which funds have been appropriated or allocated and for which the work has not been done.

TIME OF COMPLETION AND LIQUIDATED DAMAGES:

The project shall commence on the date noted on the Notice to Proceed for which the time line to complete the project shall be as follows:

FIS: 96 calendar days from the date on the Notice to Proceed.
All Site work: shall start on 12/24/2018 and be complete by 2/6/2018

Liquidated damages will accrue and may be assessed as provided in the Contract Documents. Should said Work not be Completed within the time limit as may be extended as herein provided (i.e., the Completion deadline), damages will be sustained by the Owner. It is understood and agreed that it is and will be impracticable or extremely difficult to determine the actual amount of damages which the Owner will sustain in the event of and by reason of such delay, and it is therefore agreed that the Contractor will pay the Owner the sum of **One Thousand Dollars ($1,000.00) per calendar day** for each and every day's delay beyond the Completion deadline as and for liquidated damages, during or as a result of each calendar day by which Completion of the Project is delayed beyond the Completion deadline; in case the Contractor fails to make such payment, the Owner may deduct the amount thereof from any money due or that may become due the Contractor under the Contract. Should such money not be sufficient, the Owner shall have the right to recover the balance from the Contractor or its sureties.

END OF DOCUMENT

DOCUMENT 00 41 26

BID FORM

Berryessa Union School District
1376 Piedmont Road
San Jose, CA 95132

Dear Board Members:

The undersigned doing business under the firm name of:

_____

hereby propose and agree to enter into a Contract, to furnish any and all labor, materials, applicable taxes, equipment and services for the completion of Work described hereinafter and in the Contract Documents:

TOYON ELEMENTARY SCHOOL FIS PROJECT
995 Bard St, San Jose, CA 95127

prepared by: Kitchell CEM
1180 Coleman Ave
San Jose, CA 95110 for the amount of:

1)	Allowance for Unforeseen Conditions One Hundred Thousand dollars,	$ 100,000.00
2)	_____ Dollars $	_____
TOTAL BASE BID:	(Add 1+2) _____ Dollars $	_____

11.1.6.1 HAZMAT UNIT PRICES

Contractor shall bid all quantities listed in the Appendix-A of the Asbestos Abatement and Lead Paint Stabilization Project Specifications under Base Bid. Any and all additional and/or deductions shall be based on the Abatement Unit Prices (Appendix-B) of the said specifications. Contractor is to attach the Unit Prices (Appendix-B) to this Bid Form.

11.1.6.2 UNIT PRICES. The Bidder's Base Bid includes the following unit prices, which the Bidder must provide and the District may, at its discretion, utilize in valuing additive and/or deductive change orders:

Unit Price 1: Concrete walkway - replacement – 10'X10' area. see spec section 01 23 00 for additional information.	Cost per square foot $_____ sf	Total Unit Cost 1 $
Unit Price 2: AC paving – replacement - 10'x10' per area. see spec section 01 23 00 for additional information.	Cost per square foot $_____ sf=	Total Unit Cost 2 $
Unit Price 3: Tackable Wall Panel - 100-sf area. see spec section 01 23 00 for additional information.	Cost per square foot $_____ sf =	Total Unit Cost 3 $
Unit Price 4: Chain Link Gate w/Kickplate – per occurrence (each). see spec section 01 23 00 for additional information.	Cost per occurrence (each). $_____ ea =	Total Unit Cost 4 $
Unit Price 5: Chain Link Fencing – 50 LF length increments. see spec section 01 23 00 for additional information.	Cost per linear foot (LF) $_____ lf =	Total Unit Cost 5 $
Unit Price 6: Ornamental Fencing – 50 LF length increments. see spec section 01 23 00 for additional information.	Cost per linear foot (LF) $_____ lf =	Total Unit Cost 5 $

11.1.6.3 COURSE-OF-CONSTRUCTION INSURANCE REQUIREMENTS

Contractor, during the progress of the Work and until final acceptance of the Work by Owner upon completion of the entire Contract, shall maintain Builder's Risk/Course-of-Construction insurance satisfactory to the Owner, issued on a completed value basis on all insurable Work included under the Contract Documents. This insurance shall insure against all risks, including but not limited to the following perils: vandalism, theft, malicious mischief, fire, sprinkler leakage, civil authority, sonic boom, explosion, collapse, flood, earthquake (for projects not solely funded through revenue bonds, limited to earthquakes equivalent to or under 3.5 on the Richter Scale in magnitude), wind, hail, lightning, smoke, riot or civil commotion, debris removal (including demolition) and reasonable compensation for the Architect's services and expenses required as a result of

such insured loss. This insurance shall provide coverage in an amount not less than the full cost to repair, replace or reconstruct the Work. Such insurance shall include the Owner, the Architect, and any other person or entity with an insurable interest in the Work as an additional named insured.

The Contractor shall submit to the Owner for its approval all items deemed to be uninsurable under the Builder's Risk/Course-of Construction insurance. The risk of the damage to the Work due to the perils covered by the Builder's Risk/Course-of-Construction insurance, as well as any other hazard which might result in damage to the Work, is that of the Contractor and the surety, and no claims for such loss or damage shall be recognized by the Owner, nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

If written notice of the Award of Contract is mailed, faxed, or delivered to the undersigned at any time before this bid is withdrawn, the undersigned shall, within ten (10) days after the date of such mailing, faxing, or delivering of such notice, execute and deliver an agreement in the form of agreement present in these Contract Documents and give Performance and Payment Bonds in accordance with the specifications and bid as accepted.

The undersigned hereby designates as the office to which such Notice of Award of Contract may be mailed, faxed, or delivered:

_____

Our Public Liability and Property Damage Insurance is placed with:

_____

Our Workers' Compensation Insurance is placed with:

_____

Circular letters, bulletins, addenda, etc., bound with the specifications or issued during the time of bidding are included in the bid, and, in completing the Contract, they are to become a part thereof.

The receipt of the following addenda to the specifications is acknowledged:

Addendum No. _____ Date _____ Addendum No. _____ Date _____
Addendum No. _____ Date _____ Addendum No. _____ Date _____

This bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.

A bidder shall not submit a bid unless the bidder's California contractor's license number appears clearly on the bid, the license expiration date and class are stated, and the bid contains a statement that the representations made therein are made under penalty of perjury. Any bid submitted by a contractor who is not licensed pursuant to Business and Professions Code section 7028.15 shall be considered nonresponsive and shall be rejected. Any bid not containing the above information may be considered nonresponsive and may be rejected.

NOTE: Each bid must give the full business address of the bidder and be signed by bidder with bidder's usual signature. Bids by partnerships must furnish the full name of all partners and must be signed in the partnership name by a general partner with authority to bind the partnership in such matters, followed by the signature and designation of the person signing. The name of the person signing shall also be typed or printed below the signature. Bids by corporations must be signed with the legal name of the corporation, followed by the name of the state of incorporation and by the signature and designation of the chairman of the board, president or any vice president, and then followed by a second signature by the secretary, assistant secretary, the chief financial officer or assistant treasurer. All persons signing must be authorized to bind the corporation in the matter. The name of each person signing shall also be typed or printed below the signature. Satisfactory evidence of the authority of the officer signing on behalf of a corporation shall be furnished.

The undersigned declares under penalty of perjury under the laws of the State of California that the representations made in this bid are true and correct.

Print or Type Name: _____

Title: _____

Name of Company as Licensed: _____

Business Address: _____

_____

Telephone Number: _____

California Contractor License No.: _____

Class and Expiration Date: _____

State of Incorporation, if Applicable: _____

( ) Evidence of authority to bind corporation is attached.

Dated: _____, _____

Signed: _____

END OF DOCUMENT

DOCUMENT 00 43 13

BID BOND

KNOW ALL MEN BY THESE PRESENTS that we the undersigned _____ as Principal and _____ as Surety, are hereby held and firmly bound unto the Berryessa Union School District ("Owner") in the sum of _____ Dollars ($_____) for payment of which sum, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to the Owner a certain bid, attached hereto and hereby made a part hereof, to enter into a Contract in writing for the Toyon Elementary School FIS Project in strict accordance with Contract Documents.

NOW, THEREFORE,

a. If said bid shall be rejected, or, in the alternative;

b. If said bid shall be accepted and the Principal shall execute and deliver a contract in the form of agreement attached hereto and shall execute and deliver Performance and Payment Bonds in the forms attached hereto (all properly completed in accordance with said bid), and shall in all other respects perform the agreement created by the acceptance of said bid;

Then this obligation shall be void, otherwise the same shall remain in full force and effect, it being expressly understood and agreed that the liability of the Surety for any and all default of the Principal hereunder shall be the amount of this obligation as herein stated.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract on the call for bids, or to the Work to be performed hereunder, or the specifications accompanying the same, shall in any way affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of said Contract or the call for bids, or to the Work, or to the specifications.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under several seals this ____ day of _____, 201__, the name and corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body. In the presence of:

(Notary Seal)

_____
(Principal)

_____
(Business Address)

_____

_____
(Corporate Surety)

_____
Business Address)

By:_____

_____

The rate or premium of this bond is _____ per thousand, the total amount of premium charged, $_____.

(The above must be filled in by Corporate Surety).

END OF DOCUMENT

DOCUMENT 00 43 36

DESIGNATION OF SUBCONTRACTORS

Each bidder shall set forth below the name and the location of the place of business of each subcontractor and the California contractor license number of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the Work or improvement, or to a subcontractor licensed by the State of California who, under subcontract to the Contractor, specially fabricates and installs a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent (0.5%) of the bidder's total bid, and the portion of the Work which will be done by each subcontractor. An inadvertent error in listing a California contractor's license number shall not be grounds for filing a bid protest or for considering the bid nonresponsive if the bidder submits the corrected contractor's license number to the Owner within 24 hours after the bid opening, or any continuation thereof, so long as the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

If the Contractor fails to specify a subcontractor for any portion of the Work to be performed under the Contract in excess of one-half of 1 percent (0.5%) of the Contractor's total bid, the Contractor shall be deemed to have agreed to perform such portion itself, and shall not be permitted to subcontract that portion of the Work except under the conditions hereinafter set forth.

Subletting or subcontracting of any portion of the Work as to which no subcontractor was designated in the original bid shall only be permitted in cases of public emergency or necessity, and then only after a finding reduced to writing as a public record of the legislative body of the Owner.

As of March 1, 2015, for any bid proposal submitted, and as of April 1, 2015, for any contract for public work entered into, an inadvertent error in listing a subcontractor who is not registered under Labor Code section 1725.5 shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive, provided that either: the subcontractor is registered prior to the bid opening; or the subcontractor is registered and has paid the penalty registration fee specified in Labor Code section 1725.5(a)(2)(E), if applicable, within 24 hours after the bid opening; or the subcontractor is replaced by another registered subcontractor under Public Contract Code section 4107. Failure of a listed subcontractor to be registered shall be grounds under Public Contract Code section 4107 for the Contractor, with the Owner's consent, to substitute a registered subcontractor for the unregistered subcontractor.

Failure to provide this information in a legible manner may result in the rejection of an otherwise acceptable bid.

NOTE: *Reproduce page two of this section for additional listings needed beyond the length of this form.*

Portion of Work	Name of Subcontractor & Phone No.	Location of Subcontractor	California Contractor License Number

I am the authorized representative of the Bidder submitting this Designation of Subcontractors and I declare that each subcontractor listed holds a valid and current contractor license in good standing in California to perform the portion of work for which the subcontractor is listed.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____, 201__, at _____ *[city]*, _____ *[state]*.

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 43 40

SUFFICIENT FUNDS DECLARATION
(Labor Code section 2810)
TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

Owner: Berryessa Union School District

Project: _____

I, _____, declare that I am the _____ of _____, the entity making and submitting the bid for the above Project that accompanies this Declaration, and that such bid includes sufficient funds to permit _____ *[insert name of entity]* to comply with all local, state or federal labor laws or regulations during the Project, including payment of prevailing wage, and that _____ *[the entity]* will comply with the provisions of Labor Code section 2810(d) if awarded the Contract.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and executed on _____20__, at _____ *[city]*, _____ *[state]*.

Date: _____ _____
Signature
Print Name: _____
Print Title: _____

END OF DOCUMENT

DOCUMENT 00 45 19

NON COLLUSION DECLARATION
TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

Owner: Berryessa Union School District

Project: _____

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____, 201__, at _____ [*city*], _____ [*state*].

_____
Signature

_____
Print Name

END OF DOCUMENT

DOCUMENT 00 45 26

WORKERS' COMPENSATION CERTIFICATE

Labor Code Section 3700, in relevant part, provides:

> "Every employer except the state shall secure the payment of compensation in one or more of the following ways:
>
> (a) By being insured against liability to pay compensation in one or more insurers duly authorized to write compensation insurance in this state.
>
> (b) By securing from the Director of Industrial Relations a certificate of consent to self-insure either as an individual employer or as one employer in a group of employers. Said certificate may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees, … "

I am aware of the provisions of the Labor Code Section 3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract. I shall supply the Owner with certificates of insurance evidencing that Workers' Compensation Insurance is in effect and providing that the Owner will receive thirty (30) days' notice of cancellation.

_____
Name of Contractor

_____
Signature

_____ _____
Print Name Date

(In accordance with Article 5 (commencing at Section 1860], Chapter 1, Part 7, Division 2 of the Labor Code, the above certificate must be signed and filed with the awarding body prior to performing any work under the contract.)

END OF DOCUMENT

DOCUMENT 00 45 28

DRUG-FREE WORKPLACE CERTIFICATION

PROJECT/CONTRACT NO.: _____ for the _____ between Berryessa Union School District (the "District" or the "Owner") and _____ _____ (the "Contractor" or the "Bidder") for _____ (the "Contract" or the "Project").

This Drug-Free Workplace Certification form is required from the successful Bidder pursuant to Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any state agency must certify that it will provide a drug-free workplace by doing certain specified acts. In addition, the Act provides that each contract or grant awarded by a state agency may be subject to suspension of payments or termination of the contract or grant, and the contractor or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

The District is not a "state agency" as defined in the applicable section(s) of the Government Code, but the District is a local agency and public school district under California law and requires all contractors on District projects to comply with the provisions and requirements of Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990.

Contractor shall certify that it will provide a drug-free workplace by doing all of the following:

a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace and specifying actions which will be taken against employees for violations of the prohibition;

b. Establishing a drug-free awareness program to inform employees about all of the following:

   (1) The dangers of drug abuse in the workplace.
   (2) The person's or organization's policy of maintaining a drug-free workplace.
   (3) The availability of drug counseling, rehabilitation, and employee-assistance programs.
   (4) The penalties that may be imposed upon employees for drug abuse violations.

c. Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required above, and that, as a condition of

employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will publish a statement notifying employees concerning (a) the prohibition of controlled substance at the workplace, (b) establishing a drug-free awareness program, and (c) requiring that each employee engaged in the performance of the contract be given a copy of the statement required by section 8355(a), and requiring that the employee agree to abide by the terms of that statement.

I also understand that if the District determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of section 8355, that the Contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of section 8350 et seq.

I acknowledge that I am aware of the provisions of Government Code section 8350 et seq. and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 45 30

ROOF PROJECT CERTIFICATION

[*Public Contract Code §3006(a,)(b)*]

I, _____ [*name*], _____ [*name of employer*], certify that I have not offered, given , or agreed to give, received, accepted, or agreed to accept, any gift, contribution, or any financial incentive whatsoever to or from any person in connection with the roof project contract. As used in this certification, "person" means any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals. Furthermore, I, _____ [*name*], _____ [*name of employer*], certify that I do not have, and throughout the duration of the contract, I will not have, any financial relationship in connection with the performance of this contract with any architect, engineer, roofing, consultant, materials manufacturer, distributor, or vendor that is not disclosed below.

I, _____ [*name*], _____ [*name of employer*], have the following financial relationships, with an architect, engineer, roofing consultant, materials manufacturer, distributor, or vendor, or other person in connection with the following roof project contract:

_____
[*name and address of building, contract date and number*]

_____
[*name and address of building, contract date and number*]

_____
[*name and address of building, contract date and number*]

_____
[*name and address of building, contract date and number*]

I certify that to the best of my knowledge, the contents of this disclosure are true, or are believed to be true.

_____ Signature _____ Date

_____ Print Name

_____Print Name of Employer

END OF DOCUMENT

DOCUMENT 00 45 32

FINGERPRINTING NOTICE AND ACKNOWLEDGMENT
(Education Code Section 45125.2(a))

Note: This document must be executed and submitted with the bid.

Business entities entering into contracts with the Owner for the construction, reconstruction, rehabilitation or repair of a facility must comply with Education Code sections 45125.1 and 45125.2. Such entities are responsible for ensuring full compliance with the law and should therefore review all applicable statutes and regulations. The following information is provided simply to assist such entities with compliance with the law.

1. If the Owner determines your employee(s) will have more than limited contact with students, then you must take one or more of the following steps:

   a. Install a physical barrier at the worksite to limit contact with pupils.

   b. Have an employee, who the Department of Justice has ascertained has not been convicted of a violent or serious felony, continually monitor and supervise employees. The entity shall verify in the Independent Contractor Student Contact Form to the Owner that the employee charged with monitoring and supervising its employees has no such convictions. (See attached.)

   c. Arrange, with Owner's approval, for surveillance by Owner's personnel.

   If one or more of these steps is taken, you are not required to comply with Education Code section 45125.1.

2. If you are providing the services in an emergency or exceptional situation, you are not required to comply with Education Code section 45125.2. An "emergency or exceptional" situation is one in which pupil health or safety is endangered or when repairs are needed to make a facility safe and habitable. Owner shall determine whether an emergency or exceptional situation exists.

I have read the foregoing and agree to comply with the requirements of Education Code §§ 45125.1 and 45125.2 as applicable.

Dated: _____ _____
Signature

Name: _____ Title: _____

ATTACHMENT

Under Education Code section 45125.1, no employee of a contractor or subcontractor who has been convicted of or has criminal proceedings pending for a violent or serious felony may come into contact with any student. A violent felony is any felony listed in subdivision (c) of Section 667.5 of the Penal Code. Those felonies are presently defined as:

(1) Murder or voluntary manslaughter.

(2) Mayhem.

(3) Rape as defined in paragraph (2) or (6) of subdivision (a) of Section 261 or paragraph (1) or (4) of subdivision (a) of Section 262.

(4) Sodomy as defined in subdivision (c) or (d) of Section 286.

(5) Oral copulation as defined in subdivision (c) or (d) of Section 288a.

(6) Lewd or lascivious act as defined in subdivision (a) or (b) of Section 288.

(7) Any felony punishable by death or imprisonment in the state prison for life.

(8) Any felony in which the defendant inflicts great bodily injury on any person other than an accomplice which has been charged and proved as provided for in Section 12022.7, 12022.8, or 12022.9 on or after July 1, 1977, or as specified prior to July 1, 1977, in Sections 213, 264, and 461, or any felony in which the defendant uses a firearm which use has been charged and proved as provided in subdivision (a) of Section 12022.3, or Section 12022.5 or 12022.55.

(9) Any robbery.

(10) Arson, in violation of subdivision (a) or (b) of Section 451.

(11) Sexual penetration as defined in subdivision (a) or (j) of Section 289.

(12) Attempted murder.

(13) A violation of Section 18745, 18750, or 18755.

(14) Kidnapping.

(15) Assault with the intent to commit a specified felony, in violation of Section 220.

(16) Continuous sexual abuse of a child, in violation of Section 288.5.

(17) Carjacking, as defined in subdivision (a) of Section 215.

(18) Rape, spousal rape, or sexual penetration, in concert, in violation of Section 264.1.

(19) Extortion, as defined in Section 518, which would constitute a felony violation of Section 186.22 of the Penal Code.

(20) Threats to victims or witnesses, as defined in Section 136.1, which would constitute a felony violation of Section 186.22 of the Penal Code.

(21) Any burglary of the first degree, as defined in subdivision (a) of Section 460, wherein it is charged and proved that another person, other than an accomplice, was present in the residence during the commission of the burglary.

(22) Any violation of Section 12022.53.

(23) A violation of subdivision (b) or (c) of Section 11418.

A serious felony is any felony listed in subdivision (c) Section 1192.7 of the Penal Code. Those felonies are presently defined as:

(1) Murder or voluntary manslaughter; (2) Mayhem; (3) Rape; (4) Sodomy by force, violence, duress, menace, threat of great bodily injury, or fear of immediate and unlawful bodily injury on the victim or another person; (5) Oral copulation by force, violence, duress, menace, threat of great bodily injury, or fear of immediate and unlawful bodily injury on the victim or another person; (6) Lewd or lascivious act on a child under the age of 14 years; (7) Any felony punishable by death or imprisonment in the state prison for life; (8) Any felony in which the defendant personally inflicts great bodily injury on any person, other than an accomplice, or any felony in which the defendant personally uses a firearm; (9) Attempted murder; (10) Assault with intent to commit rape, or robbery; (11) Assault with a deadly weapon or instrument on a peace officer; (12) Assault by a life prisoner on a non-inmate; (13) Assault with a deadly weapon by an inmate; (14) Arson; (15) Exploding a destructive device or any explosive with intent to injure; (16) Exploding a destructive device or any explosive causing bodily injury, great bodily injury, or mayhem; (17) Exploding a destructive device or any explosive with intent to murder; (18) Any burglary of the first degree; (19) Robbery or bank robbery; (20) Kidnapping; (21) Holding of a hostage by a person confined in a state prison; (22) Attempt to commit a felony punishable by death or imprisonment in the state prison for life; (23) Any felony in which the defendant personally used a dangerous or deadly weapon; (24) Selling, furnishing, administering, giving, or offering to sell, furnish, administer, or give to a minor any heroin, cocaine, phencyclidine (PCP), or any methamphetamine-related drug, as described in paragraph (2) of subdivision (d) of Section 11055 of the Health and Safety Code, or any of the precursors of methamphetamines, as described in subparagraph (A) of paragraph (1) of subdivision (f) of Section 11055 or subdivision (a) of

Section 11100 of the Health and Safety Code; (25) Any violation of subdivision (a) of Section 289 where the act is accomplished against the victim's will by force, violence, duress, menace, or fear of immediate and unlawful bodily injury on the victim or another person; (26) Grand theft involving a firearm; (27)carjacking; (28) any felony offense, which would also constitute a felony violation of Section 186.22; (29) assault with the intent to commit mayhem, rape, sodomy, or oral copulation, in violation of Section 220; (30) throwing acid or flammable substances, in violation of Section 244; (31) assault with a deadly weapon, firearm, machine gun, assault weapon, or semiautomatic firearm or assault on a peace officer or firefighter, in violation of Section 245; (32) assault with a deadly weapon against a public transit employee, custodial officer, or school employee, in violation of Sections 245.2, 245.3, or 245.5; (33) discharge of a firearm at an inhabited dwelling, vehicle, or aircraft, in violation of Section 246; (34) commission of rape or sexual penetration in concert with another person, in violation of Section 264.1; (35) continuous sexual abuse of a child, in violation of Section 288.5; (36) shooting from a vehicle, in violation of subdivision (c) or (d) of Section 26100; (37) intimidation of victims or witnesses, in violation of Section 136.1; (38) criminal threats, in violation of Section 422; (39) any attempt to commit a crime listed in this subdivision other than an assault; (40) any violation of Section 12022.53; (41) a violation of subdivision (b) or (c) of Section 11418; and (42) any conspiracy to commit an offense described in this subdivision.

INDEPENDENT CONTRACTOR STUDENT CONTACT FORM

Contractor Name: _____
Supervisor/Foreman Name: _____
Start Date: _____
Completion Date: _____
Location of Work: _____
Hours of Work: _____
Length of Time on Grounds: _____
Number of Employees on the Job: _____

Yes No
[ ] [ ] Employees will have more than limited contact with students as determined by Owner, or if by Contractor, please explain:

_____
_____

If yes, the following steps will be taken to ensure student safety (check):

[ ] A physical barrier will be installed at the worksite to limit contact with pupils.

[ ] Employees will be continually monitored and supervised by an employee who has not been convicted of a violent or serious felony.

Name of Supervising Employee:

_____

Date of Department of Justice verification that supervising employee has not been convicted of a violent or serious felony:

_____

Name of employee who is the custodian of the Department of Justice verification information:

_____

[ ] Owner agrees: Employees will be surveilled by Owner's personnel.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Dated: _____ _____

Signature

Typed Name:_____

Title: _____

Note: This document must be executed and submitted with the executed Agreement between Owner and Contractor.

END OF DOCUMENT

DOCUMENT 00 45 34

IRAN CONTRACTING ACT CERTIFICATION
(Public Contract Code sections 2202-2208)
TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

As required by Public Contract Code ("PCC") section 2204 for contracts of $1,000,000 or more, please insert bidder's or financial institution's name and Federal ID Number (if available) and complete **one** of the options below. Please note that California law establishes penalties for providing false certifications, including civil penalties equal to the greater of $250,000 or twice the amount of the contract for which the false certification was made; contract termination; and three-year ineligibility to bid on contracts. (PCC §2205.)

OPTION #1 - CERTIFICATION

I, the official named below, certify I am duly authorized to execute this certification on behalf of the bidder/financial institution identified below, and the bidder/financial institution identified below is **not** on the current list of persons engaged in investment activities in Iran created by California Department of General Services ("DGS") and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person/bidder, for 45 days or more, if that other person/bidder will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS. (PCC §2204(a).)

Bidder Name/Financial Institution (Printed)	*Federal ID Number (or n/a)*
By (Authorized Signature)	
Printed Name and Title of Person Signing	
Date Executed	*Executed in*

OPTION #2 – EXEMPTION

Pursuant to Public Contract Code sections 2203(c) and (d), a public entity may permit a bidder/financial institution engaged in investment activities in Iran, on a case-by-case basis, to be eligible for, or to bid on, submit a proposal for, or enters into or renews, a contract for goods and services. If you have obtained an exemption from the certification requirement under the Iran Contracting Act, please fill out the information below, and attach documentation demonstrating the exemption approval.

Bidder Name/Financial Institution (Printed)	*Federal ID Number (or n/a)*
By (Authorized Signature)	
Printed Name and Title of Person Signing	*Date Executed*

END OF DOCUMENT

DOCUMENT 00 50 50

NOTICE OF INTENT TO AWARD

DATE POSTED:

CONTRACT NUMBER:

PROJECT TITLE:

Bonny S Gregorius, the Purchasing and Contracts Manager of the Berryessa Union School District, intends to recommend to the Board of Trustees of the Berryessa Union School District the Award of the above-referenced Project to at the _____ meeting of the Board of Trustees.

Deliver to the District FOUR fully executed counterparts of Document 00 52 26 (Agreement). Each copy of Document 00 52 26 (Agreement) must bear your original signature on the signature page and your initials on each page. Please print as single sided copies.

You must provide a scanned signed copy of the agreement before 3:00pm on _____.
You must provide the original completed documents listed below by 2:00pm on_____.

FOR THE BERRYESSA UNION SCHOOL DISTRICT

By: _____

Bonny S Gregorius
Purchasing and Contracts Manager
408-923-1871 ofc
408-926-8329 fax
bgregorius@busd.net

END OF DOCUMENT

DOCUMENT 00 51 00

NOTICE OF AWARD

Attn:

CONTRACT NO.:
CONTRACT FOR:

The Contract Sum:
_____Dollars ($ _____)

1. One electronic copy of the proposed Contract Documents listed below accompanies this Notice of Intent to Award.

2. You must provide the original completed documents listed below by 2:00pm on_____.

   a. Deliver to District TWO originals of Document 00 61 13.13 (Construction Performance Bond), executed by you and your surety.

   b. Deliver to District TWO originals of Document 00 61 13.16 (Construction Labor and Material Payment Bond), executed by you and your surety.

   c. Deliver to District TWO original sets of the insurance certificates with endorsements required under Document 00 72 00 (General Conditions).

3. Failure to comply with these conditions within the time specified will entitle District to consider your Bid abandoned, to annul this Notice of Award, and to declare your Bid security forfeited.

4. Within 10 days after you comply with the conditions in Paragraph 2 of this Document 00 51 00, District will return to you one fully signed counterpart of Document 00 52 26 (Agreement).

5. Before you may start any Work at the Site, you must attend a preconstruction conference. The preconstruction conference may be arranged through Ricardo Reyes, Program Manager, Measure L Bond Program**.** Questions regarding bonds and insurance may be directed to Bonny S Gregorius, Purchasing Manager at 408-923-1871.

6. **SB 854 COMPLIANCE:** No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

   No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

   This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

7. **FURNISHING OF ELECTRONIC CERTIFIED PAYROLL RECORDS TO LABOR COMMISSIONER:**
   All contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (aka Division of Labor Standards Enforcement).

FOR THE BERRYESSA UNION SCHOOL DISTRICT

By: _____

Bonny S Gregorius
Purchasing and Contracts Manager

Board Approval Date: _____

END OF DOCUMENT

DOCUMENT 00 52 26

AGREEMENT BETWEEN OWNER AND CONTRACTOR

This Agreement effective _____, 201__, by and between Berryessa Union School District, Santa Clara County, California, hereinafter called the "Owner," and _____, hereinafter called the "Contractor."

WITNESSETH: That the Contractor and the Owner for the consideration hereinafter named agree as follows:

ARTICLE I. SCOPE OF WORK. The Contractor agrees to furnish all labor, equipment and materials, including tools, implements, and appliances required, and to perform all the work in a good and workmanlike manner, free from any and all liens and claims from mechanics, material suppliers, subcontractors, artisans, machinists, teamsters, freight carriers, and laborers required for:

TOYON ELEMENTARY SCHOOL: FIS PROJECT

all in strict compliance with the plans, drawings and specifications therefore prepared by:

McKim Design Group

and other contract documents relating thereto.

ARTICLE II. CONTRACT DOCUMENTS. The Contractor and the Owner agree that all of the documents listed in Article 1.1.1 of the General Conditions form the Contract Documents which form the Contract.

ARTICLE III. TIME TO COMPLETE AND LIQUIDATED DAMAGES.

Time is of the essence in this contract, and the schedule for the project is as follows:

FIS: 96 calendar days from the date on the Notice to Proceed.
All Site work: shall start on 12/24/2018 and be complete by 2/6/2018

Failure to Complete the Project within the time and in the manner provided for by the Contract Documents (i.e., by the Completion deadline) shall subject the Contractor to liquidated damages. For purposes of liquidated damages, the concept of "substantial completion" shall not constitute Completion and is not part of the Contract Documents. The actual occurrence of damages and the actual amount of the damages which the Owner would suffer if the Project were not Completed by the Completion deadline are dependent upon many circumstances and conditions which could prevail in various combinations and, from the nature of the case, it is impracticable and extremely difficult to fix the actual damages. Damages which the Owner would suffer in the event of delay include, but are not limited to, loss of the use of the Project, disruption of activities, costs

of administration, supervision and the incalculable inconvenience and loss suffered by the public.

Accordingly, the parties agree that the amount herein set forth shall be the amount of damages which the Owner shall directly incur upon failure of the Contractor to Complete the Project by the Completion deadline: **$1,000.00, for each calendar day** by which Completion of the Project is delayed beyond the Completion deadline as adjusted by change orders.

If the Contractor becomes liable under this section, the Owner, in addition to all other remedies provided by law, shall have the right to withhold any and all retained percentages of payments and/or progress payments, and to collect the interest thereon, which would otherwise be or become due the Contractor until the liability of the Contractor under this section has been finally determined. If the retained percentages and withheld progress payments appear insufficient to discharge all liabilities of the Contractor incurred under this Article, the Contractor and its sureties shall continue to remain liable to the Owner for such liabilities until all such liabilities are satisfied in full.

If the Owner accepts any work or makes any payment under this Agreement after a default by reason of delays, the payment or payments shall in no respect constitute a waiver or modification of any Agreement provisions regarding time of Completion and liquidated damages.

ARTICLE IV. PAYMENT AND RETENTION. The Owner agrees to pay the Contractor in current funds _____ dollars ($_____) for work satisfactorily performed after receipt of properly documented and submitted Applications for Payment and to make payments on account thereof, as provided in the General Conditions.

The retention amount on this Project is Five Percent (5%).

ARTICLE V. CHANGES. Changes in this Agreement or in the Work to be done under this Agreement shall be made as provided in the General Conditions.

ARTICLE VI. TERMINATION. The Owner or Contractor may terminate the Contract as provided in the General Conditions.

ARTICLE VII. PREVAILING WAGES. The Project is a public work, the Work shall be performed as a public work and pursuant to the provisions of Section 1770 et seq. of the Labor Code of the State of California, which are hereby incorporated by reference and made a part hereof, the Director of Industrial Relations has determined the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which the work is to be performed, for each craft, classification or type of worker needed to execute this Contract. Per diem wages shall be deemed to include employer payments for health and welfare, pension, vacation, apprenticeship or other training programs, and similar purposes. Copies of the rates are

on file at the Owner's principal office. The rate of prevailing wage for any craft, classification or type of workmanship to be employed on this Project is the rate established by the applicable collective bargaining agreement which rate so provided is hereby adopted by reference and shall be effective for the life of this Agreement or until the Director of the Department of Industrial Relations determines that another rate be adopted. It shall be mandatory upon the Contractor and on any subcontractor to pay not less than the said specified rates to all workers employed in the execution of this Agreement.

The Contractor and any subcontractor under the Contractor as a penalty to the Owner shall forfeit not more than Two Hundred Dollars ($200.00) for each calendar day or portion thereof for each worker paid less than the stipulated prevailing rates for such work or craft in which such worker is employed. The difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor.

The Contractor and each Subcontractor shall keep or cause to be kept an accurate record for work on this Project showing the names, addresses, social security numbers, work classification, straight time and overtime hours worked and occupations of all laborers, workers and mechanics employed by them in connection with the performance of this Contract or any subcontract thereunder, and showing also the actual per diem wage paid to each of such workers, which records shall be open at all reasonable hours to inspection by the Owner, its officers and agents and to the representatives of the Division of Labor Law Enforcement of the State Department of Industrial Relations. The Contractor and each subcontractor shall furnish a certified copy of all payroll records directly to the Labor Commissioner.

For public works contracts awarded on and after January 1, 2015, those public works projects shall be subject to compliance monitoring and enforcement by the Department of Industrial Relations.

As of March 1, 2015, a contractor or subcontractor shall not be qualified to submit a bid or to be listed in a bid proposal subject to the requirements of Public Contract Code section 4104 unless currently registered and qualified under Labor Code section 1725.5 to perform public work as defined by Division 2, Part 7, Chapter 1 (§§1720 et seq.) of the Labor Code.

As of April 1, 2015, a contractor or subcontractor shall not be qualified to enter into, or engage in the performance of, any contract of public work (as defined by Division 2, Part 7, Chapter 1 (§§1720 et seq.) of the Labor Code) unless currently registered and qualified under Labor Code section 1725.5 to perform public work.

ARTICLE VIII. WORKING HOURS. In accordance with the provisions of Sections 1810 to 1815, inclusive, of the Labor Code of the State of California, which are hereby incorporated and made a part hereof, the time of service of any worker employed

by the Contractor or a Subcontractor doing or contracting to do any part of the Work contemplated by this Agreement is limited and restricted to eight hours during any one calendar day and forty hours during any one calendar week, provided, that work may be performed by such employee in excess of said eight hours per day or forty hours per week provided that compensation for all hours worked in excess of eight hours per day, and forty hours per week, is paid at a rate not less than one and one-half (1½) times the basic rate of pay. The Contractor and every Subcontractor shall keep an accurate record showing the name of and the actual hours worked each calendar day and each calendar week by each worker employed by them in connection with the Work. The records shall be kept open at all reasonable hours to inspection by representatives of the Owner and the Division of Labor Law Enforcement. The Contractor shall as a penalty to the Owner forfeit Twenty-five Dollars ($25.00) for each worker employed in the execution of this Agreement by the Contractor or by any subcontractor for each calendar day during which such worker is required or permitted to work more than eight hours in any one calendar day, and forty hours in any one calendar week, except as herein provided.

ARTICLE IX. APPRENTICES. The Contractor agrees to comply with Chapter 1, Part 7, Division 2, Sections 1777.5 and 1777.6 of the California Labor Code, which are hereby incorporated and made a part hereof. These sections require that contractors and subcontractors employ apprentices in apprenticeable occupations in a ratio of not less than one hour of apprentice's work for each five hours of work performed by a journeyman (unless an exemption is granted in accordance with Section 1777.5) and that contractors and subcontractors shall not discriminate among otherwise qualified employees as indentured apprentices on any public works solely on the ground of sex, race, religious creed, national origin, ancestry or color. Only apprentices as defined in Labor Code Section 3077, who are in training under apprenticeship standards and who have signed written apprentice agreements, will be employed on public works in apprenticeable occupations. The responsibility for compliance with these provisions is fixed with the Contractor for all apprenticeable occupations.

ARTICLE X. DSA OVERSIGHT PROCESS. The Contractor must comply with the applicable requirements of the Division of State Architect ("DSA") Construction Oversight Process ("DSA Oversight Process"), including but not limited to (a) notifying the Owner's Inspector of Record/Project Inspector ("IOR") upon commencement and completion of each aspect of the work as required under DSA Form 156; (b) coordinating the Work with the IOR's inspection duties and requirements; (c) submitting verified reports under DSA Form 6-C; and (d) coordinating with the Owner, Owner's Architect, any Construction Manager, any laboratories, and the IOR to meet the DSA Oversight Process requirements without delay or added costs to the Project.

Contractor shall be responsible for any additional DSA fees related to review of proposed changes to the DSA-approved construction documents, to the extent the proposed changes were caused by Contractor's wrongful act or omissions. If inspected work is found to be in non-compliance with the DSA-approved construction documents or the DSA-approved testing and inspection program, then it must be removed and

corrected. Any construction that covers unapproved or uninspected work is subject to removal and correction, at Contractor's expense, in order to permit inspection and approval of the covered work in accordance with the DSA Oversight Process.

ARTICLE XI. INDEMNIFICATION AND INSURANCE. The Contractor will defend, indemnify and hold harmless the Owner, its governing board, officers, agents, trustees, employees and others as provided in the General Conditions.

By this statement the Contractor represents that it has secured the payment of Workers' Compensation in compliance with the provisions of the Labor Code of the State of California and during the performance of the work contemplated herein will continue so to comply with said provisions of said Code. The Contractor shall supply the Owner with certificates of insurance evidencing that Workers' Compensation Insurance is in effect and providing that the Owner will receive thirty (30) days' notice of cancellation.

Contractor shall provide the insurance set forth in the General Conditions. The amount of general liability insurance shall be $1,000,000.00 per occurrence for bodily injury, personal injury and property damage and a minimum of $2,000,000.00 aggregate. The amount of automobile liability insurance shall be $1,000,000.00 per accident for bodily injury and property damage combined single limit.

ARTICLE XII. ENTIRE AGREEMENT. The Contract constitutes the entire agreement between the parties relating to the Project, and supersedes any prior or contemporaneous agreement between the parties, oral or written, including the Owner's award of the Project to Contractor, unless such agreement is expressly incorporated herein. The Owner makes no representations or warranties, express or implied, not specified in the Contract. The Contract is intended as the complete and exclusive statement of the parties' agreement pursuant to Code of Civil Procedure section 1856.

ARTICLE XIII. EXECUTION OF OTHER DOCUMENTS. The parties to this Agreement shall cooperate fully in the execution of any and all other documents and in the completion of any additional actions that may be necessary or appropriate to give full force and effect to the terms and intent of the Contract.

ARTICLE XIV. EXECUTION IN COUNTERPARTS. This Agreement may be executed in counterparts such that the signatures may appear on separate signature pages. A copy, or an original, with all signatures appended together, shall be deemed a fully executed Agreement.

ARTICLE XV. BINDING EFFECT. Contractor, by execution of this Agreement, acknowledges that Contractor has read this Agreement and the other Contract Documents, understands them, and agrees to be bound by their terms and conditions. The Contract shall inure to the benefit of and shall be binding upon the Contractor and the Owner and their respective successors and assigns.

ARTICLE XVI. SEVERABILITY; GOVERNING LAW; CHOICE OF FORUM. If any provision of the Contract shall be held invalid or unenforceable by a court of competent jurisdiction, such holding shall not invalidate or render unenforceable any other provision hereof. The Contract shall be governed by the laws of the State of California. Any action or proceeding seeking any relief under or with respect to this Agreement shall be brought solely in the Superior Court of the State of California for the County of Santa Clara, subject to transfer of venue under applicable State law, provided that nothing in this Agreement shall constitute a waiver of immunity to suit by Owner.

ARTICLE XVII. AMENDMENTS. The terms of the Contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever except by written agreement signed by the parties and approved or ratified by the Governing Board.

ARTICLE XVIII. ASSIGNMENT OF CONTRACT. The Contractor shall not assign or transfer by operation of law or otherwise any or all of its rights, burdens, duties or obligations without the prior written consent of the surety on the payment bond, the surety on the performance bond and the Owner.

ARTICLE XIX. WRITTEN NOTICE. Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified or overnight mail to the last business address known to the person who gives the notice.

(CONTRACTOR)	**(OWNER)**
	_____
_____	_____
SIGNED BY (Contractor)	_____
	_____(Title)
_____	
CALIFORNIA CONTRACTOR'S LICENSE NO.	
_____	
LICENSE EXPIRATION DATE	

NOTE: Contractor must give the full business address of the Contractor and sign with Contractor's usual signature. Partnerships must furnish the full name of all partners and the Agreement must be signed in the partnership name by a general partner with authority to bind the partnership in such matters, followed by the signature and designation of the person signing. The name of the person signing shall also be typed or printed below the

signature. Corporations must sign with the legal name of the corporation, followed by the name of the state of incorporation and by the signature and designation of the chairman of the board, president or any vice president, and then followed by a second signature by the secretary, assistant secretary, the chief financial officer or assistant treasurer. All persons signing must be authorized to bind the corporation in the matter. The name of each person signing shall also be typed or printed below the signature. Satisfactory evidence of the authority of the officer signing on behalf of a corporation shall be furnished.

END OF DOCUMENT

DOCUMENT 00 54 00

ESCROW BID DOCUMENTATION

1. **Requirement to Escrow Bid Documentation**

   a. Contractor shall submit, within seven (7) days after the date of the Notice of Award, one copy of all documentary information received or generated by Contractor in preparation of bid prices for this Contract, and additional documentary information about the preparation of bid prices as required herein. This material is referred to herein as "Escrow Bid Documentation." The Escrow Bid Documentation of the Contractor will be held in escrow for the duration of the Contract.

   b. Contractor agrees, as a condition of award of the Contract, that the Escrow Bid Documentation constitutes all written information used in the preparation of its bid, and that no other written bid preparation information shall be considered in resolving disputes or claims. Contractor also agrees that nothing in the Escrow Bid Documentation shall change or modify the terms or conditions of the Contract Documents.

   c. The Escrow Bid Documentation will not be opened by District except as indicated herein. The Escrow Bid Documentation will be used only for the resolution of change orders and claims disputes.

   d. Contractor's submission of the Escrow Bid Documentation, as with the bonds and insurance documents required, is considered an essential part of the Contract award. Should the Contractor fail to make the submission within the allowed time specified above, District may deem the Contractor to have failed to enter into the Contract, and the Contractor shall forfeit the amount of its bid security, accompanying the Contractor's bid, and District may award the Contract to the next lowest responsive responsible bidder.

   e. NO PAYMENTS WILL BE MADE, NOR WILL DISTRICT ACCEPT PROPOSED CHANGE ORDERS UNTIL THE ABOVE REQUIRED INFORMATION IS SUBMITTED AND APPROVED.

   f. The Escrow Bid Documentation shall be submitted in person by an authorized representative of the Contractor to the District.

2. **Ownership of Escrow Bid Documentation**

   a. The Escrow Bid Documentation is, and shall always remain, the property of Contractor, subject to review by District, as provided herein.

b. The Escrow Bid Documentation constitutes trade secrets (i) not known outside Contractor's business, (ii) known only to a limited extent and only by a limited number of employees of Contractor's business, (iii) safeguarded while in Contractor's possession, (iv) extremely valuable to Contractor, and (v) potentially extremely valuable to Contractor's competitors by virtue of it reflecting Contractor's contemplated techniques of construction. Subject to the provisions herein, District agrees to safeguard the Escrow Bid Documentation, and all information contained therein, against disclosure to the fullest extent permitted by law, except that District shall not be obligated to seek a protective order from a court, or otherwise incur any costs in relation to court proceedings, related to a request for disclosure. In the event that the District is required to participate in a court proceeding related to a request for disclosure of the Escrow Bid Documentation, or in the event that the District is requested by Contractor to participate in such a court proceeding, Contractor shall pay for any and all attorneys' fees and costs incurred by the District in connection with such proceeding.

3. **Format and Contents of Escrow Bid Documentation**

a. Contractor may submit Escrow Bid Documentation in its usual cost-estimating format; a standard format is not required. The Escrow Bid Documentation shall be submitted in the language (e.g., English) of the specification.

b. Escrow Bid Documentation must clearly itemize the estimated costs of performing the work of each bid item contained in the bid schedule, separating bid items into sub-items as required to present a detailed cost estimate and allow a detailed cost review. The Escrow Bid Documentation shall include all subcontractor bids or quotes, supplier bids or quotes, quantity takeoffs, crews, equipment, calculations of rates of production and progress, copies of quotes from subcontractors and suppliers, and memoranda, narratives, add/deduct sheets, and all other information used by the Contractor to arrive at the prices contained in the bid proposal. Estimated costs should be broken down into Contractor's usual estimate categories such as direct labor, repair labor, equipment ownership and operation, expendable materials, permanent materials, and subcontract costs as appropriate. Plant and equipment and indirect costs should be detailed in the Contractor's usual format. The Contractor's allocation of indirect costs, contingencies, markup, and other items to each bid item shall be identified.

c. All costs shall be identified. For bid items amounting to less than $10,000, estimated unit costs are acceptable without a detailed cost estimate, provided that labor, equipment, materials, and subcontracts, as applicable, are included and provided that indirect costs, contingencies, and markup, as applicable, are allocated.

d. Bid Documentation provided by District should not be included in the Escrow Bid Documentation unless needed to comply with the following requirements.

4. **Submittal of Escrow Bid Documentation**

a. The Escrow Bid Documentation shall be submitted by the Contractor in a sealed container within seven (7) days after the date of the Notice of Award. The container shall be clearly marked on the outside with the Contractor's name, date of submittal, project name and the words "Escrow Bid Documentation – Intended to be opened in the presence of Authorized Representatives of Both District and Contractor".

b. By submitting Escrow Bid Documentation, Contractor represents that the material in the Escrow Bid Documentation constitutes all the documentary information used in preparation of the bid and that the Contractor has personally examined the contents of the Escrow Bid Documentation container and has found that the documents in the container are complete.

c. If Contractor's proposal is based upon subcontracting any part of the work, each subcontractor whose total subcontract price exceeds 5 percent of the total contract price proposed by Contractor, shall provide separate Escrow Documents to be included with those of Contractor. Those documents shall be opened and examined in the same manner and at the same time as the examination described above for Contractor.

d. If Contractor wishes to subcontract any portion of the Work after award, District retains the right to require Contractor to submit Escrow Documents for the Subcontractor before the subcontract is approved.

5. **Storage, Examination and Final Disposition of Escrow Bid Documentation**

a. The Escrow Bid Documentation will be placed in escrow, for the life of the Contract, in a mutually agreeable institution. The cost of storage will be paid by Contractor for the duration of the project until final Contract payment. The storage facilities shall be the appropriate size for all the Escrow Bid Documentation and located conveniently to both District's and Contractor's offices.

b. The Escrow Bid Documentation shall be examined by both District and Contractor, at any time deemed necessary by either District or Contractor, to assist in the negotiation of price adjustments and change orders or the settlement of disputes and claims. In the case of legal proceedings between District and Contractor, Escrow Bid Documentation shall be used subject to the terms of an appropriate protective order if requested by Contractor and ordered by a court of competent jurisdiction. Examination of the Escrow Bid Documentation is subject to the following conditions:

(1) As trade secrets, the Escrow Bid Documentation is proprietary and confidential to the extent allowed by law.

(2) District and Contractor shall each designate, in writing to the other party seven (7) days prior to any examination, the names of representatives who are authorized to examine the Escrow Bid Documentation. No other person shall have access to the Escrow Bid Documentation.

(3) Access to the documents may take place only in the presence of duly designated representatives of the District and Contractor. If Contractor fails to designate a representative or appear for joint examination on seven (7) days notice, then the District representative may examine the Escrow Bid Documents alone upon an additional three (3) days notice if a representative of the Contractor does not appear at the time set.

(4) If a subcontractor has submitted sealed information to be included in the Escrow Bid Documents, access to those documents may take place only in the presence of a duly designated representative of the District, Contractor and that subcontractor. If that subcontractor fails to designate a representative or appear for joint examination on seven (7) days notice, then the District representative and/or the Contractor may examine the Escrow Bid Documentation without that subcontractor present upon an additional three (3) days notice if a representative of that subcontractor does not appear at the time set.

c. The Escrow Bid Documentation will be returned to Contractor at such time as the Contract has been completed and final settlement has been achieved.

END OF DOCUMENT

DOCUMENT 00 54 26

This is a fiduciary account created by statute, Public Contract Code section 22300. The funds deposited in this account shall not be released to Contractor or any other person or entity, other than Owner, including pursuant to any purported lien or writ of attachment or execution, without the prior written, express approval of Owner.

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between the Berryessa Union School District, whose address is 1376 Piedmont Road, San Jose, California 95132 (hereinafter called "Owner"); _____, whose address is_____ (hereinafter called "Contractor"); and _____, a state or federally chartered bank in California whose address is _____(hereinafter called "Escrow Agent").

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

1. Pursuant to section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by the Owner pursuant to the Contract entered into between the Owner and Contractor in the amount of _____ Dollars ($_____), and dated _____, ____, (the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the Escrow Agent. When Contractor deposits the securities as a substitute for retention earnings, the Escrow Agent shall notify the Owner within ten (10) calendar days of the deposit. The market value of the securities at the time of the substitution, as valued by the Owner, shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. If the Owner determines that the securities are not adequate it will notify Contractor and Escrow Agent, and Contractor shall deposit additional security as further determined by the Owner. Securities shall be held in the name of the Owner and shall designate the Contractor as the beneficial owner.

2. Thereafter, Owner shall make progress payments to the Contractor for such funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

3. Pursuant to Public Contract Code section 22300, as an alternative to the procedures set forth above, Contractor may request in writing that the Owner pay

retention amounts directly to Escrow Agent. When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for benefit of the Contractor until such time as the escrow created under this Escrow Agreement is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

4. The Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor and Escrow Agent.

5. The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

7. The Owner shall have the right to draw upon the securities or any amount paid directly to Escrow Agent in the event of default by the Contractor. Upon seven (7) days written notice to the Escrow Agent from the Owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash, including any amounts paid directly to Escrow Agent pursuant to Section 3 above, as instructed by Owner. Escrow Agent shall not be concerned with the validity of any notice of default given by Owner pursuant to this paragraph, and shall promptly comply with Owner's instructions to pay over said escrowed assets. Escrow Agent further agrees to not interplead the escrowed assets in response to a conflicting demand and hereby waives any present or future opportunity of interpleader.

8. Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payment of fees and charges.

9. Escrow Agent shall rely on the written notifications from the Owner and Contractor pursuant to Sections (4), (5), (6), (7) and (8) of this Agreement and the

Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

10. The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner, the Contractor and the Escrow Agent in connection with the foregoing, and exemplars of their respective signatures are as follows:

ON BEHALF OF OWNER:

_____
Signature

_____
Typewritten Name

_____
Title

ON BEHALF OF CONTRACTOR:

_____
Signature

_____
Typewritten Name

_____
Title

ON BEHALF OF ESCROW AGENT:

_____
Signature

_____
Typewritten Name

_____
Title

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

OWNER:

_____
Signature

_____
Typewritten Name

_____
Title

CONTRACTOR:

_____
Signature

_____
Typewritten Name

_____
Title

ESCROW AGENT:

_____
Signature

_____
Typewritten Name

_____
Title

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

END OF DOCUMENT

DOCUMENT 00 55 00

NOTICE TO PROCEED

Dated: _____, 20___

TO: _____
(Contractor)

ADDRESS: _____

PROJECT: _____

PROJECT/CONTRACT NO.: _____between the Berryessa Union School District and Contractor ("Contract").

You are notified that the Contract Time under the above Contract will commence to run on _____, 20___. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement executed by Contractor, the date of completion is _____, 20___.

You must submit the following documents by 5:00 p.m. of the **TENTH (10TH)** calendar day following the date of this Notice to Proceed:

a. Contractor's preliminary schedule of construction.
b. Contractor's preliminary schedule of values for all of the Work.
c. Contractor's preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals
d. Contractor's Safety Plan specifically adapted for the Project.
e. A complete subcontractors list, including the name, address, telephone number, facsimile number, California State Contractors License number, classification, and monetary value of all Subcontracts.

Thank you. We look forward to a very successful Project.

Berryessa Union School District

BY: _____

NAME: _____

TITLE: _____

END OF DOCUMENT

DOCUMENT 00 61 13.13

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that we, _____ _____ as Principal and _____ as Surety, are held and firmly bound unto Berryessa Union School District, in the County of Santa Clara, State of California (“"Owner”) in the sum of _____ Dollars ($_____) for the payment of which sum well and truly made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, to the Owner for the full performance of a certain contract with the Owner, the terms of which are incorporated herein by reference, dated _____, 201__, for construction of:

FIS PROJECT
TOYON ELEMENTARY SCHOOL
995 Bard St, San Jose, CA 95127

The condition of this obligation is such that**,** if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions thereof that may be granted by the Owner, with or without notice to the Surety, and for the period of time specified in the Contract after completion for correction of faulty or improper materials and workmanship and during the life of any guaranty or warranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreement of any and all duly authorized modifications of said Contract that may hereafter be made, then this obligation is to be void, otherwise to remain in full force and virtue.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder or the specifications accompanying the same, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the Work, or to the specifications.

No further agreement between Surety and Owner shall be required as a prerequisite to the Surety performing its obligations under this bond.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals this _____ day of _____, 201__ hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(To be signed by)
(Principal and Surety,)
(and acknowledged and)
(Notarial Seal attached)

(Affix Corporate Seal)

_____
(Individual Principal)

_____
(Business Address)

(Affix Corporate Seal)

_____
(Corporate Principal)

_____
(Business Address)

(Affix Corporate Seal)

_____
(Corporate Surety)

_____
(Business Address)

_____

By:_____

_____

The rate of premium on this bond is _____ per thousand.

The total amount of premium charged is _____.

The above must be filled in by Corporate Surety.

END OF DOCUMENT

DOCUMENT 00 61 13.16

PAYMENT BOND
(Labor and Material)

KNOW ALL MEN BY THESE PRESENTS:

That WHEREAS, Berryessa Union School District (the "Owner" of the public works project described below) and _____,
hereinafter designated as the "Principal," have entered into a Contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to construct:

TOYON ELEMENTARY SCHOOL
FIS PROJECT
995 Bard St, San Jose, CA 95127

Which said agreement dated _____, 201__, and all of the Contract Documents are hereby referred to and made a part hereof; and

WHEREAS, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by whom the Contract is awarded to secure the claims arising under said agreement.

NOW, THEREFORE, THESE PRESENTS WITNESSETH:

That the said Principal and the undersigned _____ ("Surety") are held and firmly bound unto all laborers, material men, and other persons, and bound for all amounts due, referred to in Civil Code section 9554, subdivision (b), in the sum of _____ Dollars ($_____) which sum well and truly be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the said Principal or any of its subcontractors, or the heirs, executors, administrators, successors, or assigns of any, all, or either of them, shall fail to pay any of the persons named in Civil Code section 9100, or any of the amounts due, as specified in Civil Code section 9554, subdivision (b), that said Surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this bond, will pay costs and reasonable attorney's fees to be awarded and fixed by the Court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect.

And the said Surety, for value received, thereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of said contract or the specifications accompanying the same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety this _____ day of _____, 201__.

(To be signed by)
(Principal and Surety,)
(and acknowledged and)
(Notarial Seal attached)

_____
Principal

_____

_____
Surety

_____

By:_____
Attorney-in-Fact

_____

The above bond is accepted and approved this ____ day of _____.

END OF DOCUMENT

DOCUMENT 00 72 00

GENERAL CONDITIONS

for

CONTRACT OF CONSTRUCTION

TOYON ELEMENTARY SCHOOL
FIS PROJECT

BERRYESSA UNION SCHOOL DISTRICT

October 15, 2018

SUMMARY OF CONTENTS

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ARTICLE 1

GENERAL CONDITIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The "Contract Documents" consist of the Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to bid, Instructions to Bidders, Notice to Bidders, the Bid Form, Payment Bond, Performance Bond, required insurance certificates, additional insured endorsement and declarations page, Designation of Subcontractors, Noncollusion Declaration, Roof Project Certification (where applicable), Sufficient Funds Declaration (Labor Code section 2810) and the Fingerprinting Notice and Acknowledgment and Independent Contractor Student Contact Form, other documents referred to in the Agreement, and Modifications issued after execution of the Agreement. A Modification is a written amendment to the Contract signed by both parties, a Change Order, a Construction Change Directive, or a written order for a minor change in the Work issued by the Owner. The Contract Documents are complementary, and each obligation of the Contractor, Subcontractors, material or equipment suppliers in any one shall be binding as if specified in all.

1.1.2 THE CONTRACT

The Contract Documents form the Contract. The "Contract" represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a written Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Architect and Contractor, between the Owner and any Subcontractor or Sub-subcontractor, or between any persons or entities other than the Owner and the Contractor. The terms of the Contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever except by written agreement signed by the parties and approved or ratified by the Governing Board.

1.1.3 THE WORK

The "Work" shall include all labor, materials, services and equipment necessary for the Contractor to fulfill all of its obligations pursuant to the Contract Documents, including but not limited to punch list items. It shall include the initial obligation of any Contractor or Subcontractor, who performs any portion of the Work, to visit the Site of the proposed Work with Owner's representatives, a continuing obligation after the commencement of the Work to fully acquaint and familiarize itself with the conditions as they exist and the character of the operations to be carried on under the Contract Documents, and make such investigation as it may see fit so that it shall fully understand the facilities, physical conditions, and restrictions attending the Work under the Contract Documents. Each such Contractor or Subcontractor shall also thoroughly examine and become familiar with the Drawings, Specifications, and associated

bid documents. The "Site" refers to the grounds of the Project as defined in the Contract Documents and such adjacent lands as may be directly affected by the performance of the Work. The Work shall constitute a "work of improvement" under Civil Code section 8050 and Public Contract Code section 7107.

1.1.4 THE PROJECT

The "Project" is the total construction of the Work performed in accordance with the Contract Documents in whole or in part and which may include construction by the Owner or by separate contractors.

1.1.5 THE DRAWINGS

The "Drawings" are graphic and pictorial portions of the Contract Documents prepared for the Project and approved changes thereto, wherever located and whenever issued, showing the design, location, and scope of the Work, generally including plans, elevations, sections, details, schedules, and diagrams as drawn or approved by the Architect.

1.1.6 THE SPECIFICATIONS

The "Specifications" are that portion of the Contract Documents consisting of the written requirements for material, equipment, construction systems, instructions, quality assurance standards, workmanship, and performance of related services.

1.1.7 THE PROJECT MANUAL

The "Project Manual" is the volume usually assembled for the Work which may include, without limitation, the bidding requirements, sample forms, Agreement, Conditions of the Contract, and Specifications.

1.1.8 OR

"Or" shall include "and/or."

1.1.9 COMPLETION OR COMPLETE

Statutory definitions of "completion" and "complete" shall apply for those statutory purposes. For accrual of liquidated damages, Claim and warranty purposes, "completion" and "complete" mean the point in the Project where (1) Contractor has fully and correctly performed all Work in all parts and requirements, including corrective and punch list work, and (2) Owner's representatives have conduced a final inspection that confirmed this performance. Substantial, or any other form of partial or non-compliant, performance of the Work shall not constitute "completion" or "complete" under the Contract Documents.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 **CORRELATION AND INTENT**

1.2.1.1 ***Documents Complementary and Inclusive.*** The Contract Documents are complementary and are intended to include all items required for the proper execution and completion of the Work. Any item of work mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be provided by Contractor as if shown or mentioned in both.

1.2.1.2 ***Coverage of the Drawings and Specifications.*** The Drawings and Specifications generally describe the work to be performed by Contractor. Generally, the Specifications describe work which cannot be readily indicated on the Drawings and indicate types, qualities, and methods of installation of the various materials and equipment required for the Work. It is not intended to mention every item of Work in the Specifications, which can be adequately shown on the Drawings, or to show on the Drawings all items of Work described or required by the Specifications even if they are of such nature that they could have been shown. All materials or labor for Work, which is shown on the Drawings or the Specifications (or is reasonably inferable therefrom as being necessary to complete the Work), shall be provided by the Contractor whether or not the Work is expressly covered in the Drawings or the Specifications. It is intended that the Work be of sound, quality construction, and the Contractor shall be responsible for the inclusion of adequate amounts to cover installation of all items indicated, described, or implied in the portion of the Work to be performed by Contractor.

1.2.1.3 ***Conflicts.*** Without limiting Contractor's obligation to identify conflicts for resolution by the Owner, it is intended that the more stringent, higher quality, and greater quantity of Work shall apply.

1.2.1.4 ***Conformance With Laws.*** Each and every provision of law required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party the Contract shall be amended in writing to make such insertion or correction.

Before commencing any portion of the Work, Contractor shall check and review the Drawings and Specifications for such portion for conformance and compliance with all laws, ordinances, codes, rules and regulations of all governmental authorities and public utilities affecting the construction and operation of the physical plant of the Project, all quasi-governmental and other regulations affecting the construction and operation of the physical plant of the Project, and other special requirements, if any, designated in the Contract Documents. In the event Contractor observes any violation of any law, ordinance, code, rule or regulation, or inconsistency with any such restrictions or special requirements of the Contract Documents, Contractor shall promptly notify Architect and Owner in writing of same and shall ensure that any such violation or inconsistency shall be corrected in the manner provided hereunder prior to the construction of that portion of the Project. Where requirements of the Contract Documents exceed those of the applicable building codes and ordinances, the Contract Documents shall govern. Contractor shall comply with all applicable Federal, State and local laws.

If, as and to the extent that Public Contract Code section 1104 is deemed to apply after the Award of the Contract, Contractor shall not be required to assume responsibility for the completeness and accuracy of architectural or engineering plans and specifications, notwithstanding any other provision in the Contract Documents, except to the extent that Contractor discovered or should have discovered and reported any errors and omissions to the Architect or Owner, including but not limited to as the result of any review of the plans and specifications by Contractor required by the Instructions to Bidders or other Contract Documents, whether or not actually performed by Contractor.

1.2.1.5 ***Ambiguity.*** Before commencing any portion of the Work, Contractor shall carefully examine all Drawings and Specifications and other information given to Contractor as to materials and methods of construction and other Project requirements. Contractor shall immediately notify Architect and Owner in writing of any perceived or alleged error, inconsistency, ambiguity, or lack of detail or explanation in the Drawings and Specifications in the manner provided herein. If the Contractor or its Subcontractors, material or equipment suppliers, or any of their officers, agents, and employees performs, permits, or causes the performance of any Work under the Contract Documents, which it knows or should have known to be in error, inconsistent, or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all costs arising therefrom including, without limitation, the cost of correction thereof without increase or adjustment to the Contract Sum or the time for performance. If Contractor performs, permits, or causes the performance of any Work under the Contract Documents prepared by or on behalf of Contractor which is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all resulting costs, including, without limitation, the cost of correction, without increase to or adjustment in the Contract Sum or the time for performance. In no case shall any Subcontractor proceed with the Work if uncertain without the Contractor's written direction and/or approval.

1.2.1.6 ***Execution.*** Execution of the Agreement Between Owner and Contractor by the Contractor is a representation that the Contractor has visited the site, become familiar with the local conditions under which the Work is to be performed and has correlated personal observations with the requirements of the Contract Documents.

1.2.2 ADDENDA AND DEFERRED APPROVALS

1.2.2.1 ***Addenda.*** Subsequent addenda issued shall govern over prior addenda only to the extent specified. In accordance with Title 24, California Code of Regulations, addenda shall be approved by the Division of the State Architect ("DSA").

1.2.2.2 ***Deferred Approvals.*** The requirements approved by the DSA on any item submitted as a deferred approval in accordance with Title 24, California Code of Regulations, shall take precedence over any previously issued addenda, drawing or specification.

1.2.3 SPECIFICATION INTERPRETATION

1.2.3.1 ***Titles.*** The Specifications are separated into titled sections for convenience only and not to dictate or determine the trade or craft involved. Organization of the Specifications

into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of work to be performed by any trade.

1.2.3.2 ***As Shown, Etc.*** Where "as shown," "as indicated," "as detailed," or words of similar import are used, reference is made to the Drawings accompanying the Specifications unless otherwise stated. Where "as directed," "as required," "as permitted," "as authorized," "as accepted," "as selected," or words of similar import are used, the direction, requirement, permission, authorization, approval, acceptance, or selection by Architect is intended unless otherwise stated.

1.2.3.3 ***Provide.*** "Provide" means "provided complete in place," that is, furnished, installed, tested, and ready for operation and use.

1.2.3.4 ***General Conditions.*** The General Conditions and any supplementary general conditions are a part of each and every section of the Specifications.

1.2.3.5 ***Abbreviations.*** In the interest of brevity, the Specifications are written in an abbreviated form and may not include complete sentences. Omission of words or phrases such as "Contractor shall," "shall be," etc., are intentional. Nevertheless, the requirements of the Specifications are mandatory. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the Drawings.

1.2.3.6 ***Plural.*** Words in the singular shall include the plural whenever applicable or the context so indicates.

1.2.3.7 ***Metric.*** The Specifications may indicate metric units of measurement as a supplement to U.S. customary units. When indicated thus: 1" (25 mm), the U. S. customary unit is specific, and the metric unit is nonspecific. When not shown with parentheses, the unit is specific. The metric units correspond to the "International System of Units" (SI) and generally follow ASTM E 380, "Standard for Metric Practice."

1.2.3.8 ***Standard Specifications.*** Any reference to standard specifications of any society, institute, association, or governmental authority is a reference to the organization's standard specifications, which are in effect as of the date the Notice to Bidders is first published. If applicable specifications are revised prior to completion of any part of the Work, the Contractor may, if acceptable to Owner and Architect, perform such Work in accordance with the revised specifications. The standard specifications, except as modified in the Specifications for the Project, shall have full force and effect as though printed in the Specifications. Architect will furnish, upon request, information as to how copies of the standard specifications referred to may be obtained.

1.2.3.9 ***Absence of Modifiers.*** In the interest of brevity, the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.3 OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

The Drawings, Specifications, and other documents prepared on behalf of the Owner are instruments of the services of the Architect and its consultants and are the property of the Owner. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect, and unless otherwise indicated the Architect shall be deemed the author of them. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Owner, upon request upon completion of the Work. The Drawings, Specifications, and other documents prepared by the Architect, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor, or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner and the Architect. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications, and other documents prepared by the Architect appropriate to and for use in the execution of their Work under the Contract Documents. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Owner's property interest or other reserved right. All copies made under this license shall bear appropriate attribution and the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect.

ARTICLE 2

OWNER

2.1 DEFINITION

The term "Owner" means the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner and/or the Owner's authorized representatives, including but not limited to architects and construction managers. To the extent the Contract Documents indicate that Owner has assigned duties to particular representatives of the Owner (such as the architect, or any construction manager), Owner reserves the right at all times to reassign such duties to different Owner representatives.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 INTENTIONALLY LEFT BLANK

2.2.2 SITE SURVEY

When required by the scope of the Project, the Owner will furnish, at its expense, a legal description or a land survey of the Site, giving, as applicable, grades and lines of streets, alleys, pavements, adjoining property, rights-of-way, restrictions, easements, encroachments, zoning, deed restrictions, boundaries, and contours of the Site. Surveys to determine locations of construction, grading, and site work shall be provided by the Contractor.

2.2.3 SOILS

2.2.3.1 ***Owner Furnished Services.*** When required by the scope of the Project, the Owner will furnish, at its expense, the services of geotechnical engineers or consultants when reasonably required or as required by local or state codes. Such services with reports and appropriate professional recommendations shall include test boring, test pits, soil bearing values, percolation tests, air and water pollution tests, and ground corrosion and resistivity tests, including necessary operations for determining subsoil, air, and water conditions.

2.2.3.2 ***Contractor Reliance.*** Test borings and soils reports for the Project have been made for the Owner to indicate the subsurface materials that might be encountered at particular locations on the Project. The Owner has made these documents available to the Contractor and the Contractor has studied the results of such test borings and information that it has as to the subsurface conditions and Site geology as set forth in the test borings and soils reports. The Owner does not assume any responsibility whatsoever with respect to the sufficiency or accuracy of the borings made, or of the logs of the test borings, or of other investigations, or of the soils reports furnished pursuant hereto, or of the interpretations to be made beyond the location or depth of the borings. There is no warranty or guarantee, either express or implied that the conditions indicated by such investigations, borings, logs, soil reports or other information are representative of those existing throughout the Site of the Project, or any part thereof, or that unforeseen developments may not occur. At the Owner's request, the Contractor shall make available to the Owner the results of any Site investigation, test borings, analyses, studies or other tests conducted by or in the possession of the Contractor of any of its agents. Nothing herein contained shall be deemed a waiver by the Contractor to pursue any available legal right or remedy it may have at any time against any third party who may have prepared any report and/or test relied upon by the Contractor.

2.2.4 UTILITY SURVEY

When required by the scope of the Project, the Owner will furnish, at its expense, all information regarding known existing utilities on or adjacent to the Site, including location, size, inverts, and depths.

2.2.5 INFORMATION

Upon the request of the Contractor, Owner will make available such existing information regarding utility services and Site features, including existing construction, related to the Project as is available from Owner's records. The Contractor may not rely upon the accuracy of any such information, other than that provided under Sections 2.2.2 and 2.2.4 (except that the Contractor may not rely upon and must question in writing to the Owner and the Architect any

information which appears incorrect based upon Contractor's Site inspection, knowledge of the Project, and prior experience with similar projects), unless specifically stated in writing that the Contractor may rely upon the designated information.

2.2.6 EXISTING UTILITY LINES; REMOVAL, RELOCATION

2.2.6.1 ***Removal, Relocation.*** Pursuant to Government Code section 4215, the Owner assumes the responsibility for removal, relocation, and protection of utilities located on the Site at the time of commencement of construction under this Contract with respect to any such utility facilities which are not identified in the drawings and specifications made part of the invitation to bid. The Contractor shall not be assessed for liquidated damages for delay in completion of the Project caused by failure of the Owner to provide for removal or relocation of such utility facilities. Owner shall compensate the Contractor for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, removing or relocating such utility facilities, and for equipment necessarily idle during such work.

2.2.6.2 ***Assessment.*** These subparagraphs shall not be construed to preclude assessment against the Contractor for any other delays in completion of the Work. Nothing in these subparagraphs shall be deemed to require the Owner to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Site can be inferred from the presence of other visible facilities, such as buildings, or meter junction boxes on or adjacent to the Site.

2.2.6.3 ***Notification.*** If the Contractor, while performing work under this Contract, discovers utility facilities not identified by the Owner in the Contract plans or specifications, Contractor shall immediately notify the Owner and the utility in writing.

2.2.6.4 ***Underground Utility Clearance.*** It shall be Contractor's sole responsibility to timely notify all public and private utilities serving the Site prior to commencing work. The Contractor shall notify and receive clearance from any cooperative agency, such as Underground Service Alert, in accordance with Government Code section 4216, et seq. Contractor shall promptly provide a copy of all such notifications to the Owner.

2.2.7 EASEMENTS

Owner shall secure and pay for easements for permanent structures or permanent changes in existing facilities, if any, unless otherwise specified in the Contract or Contract Documents.

2.2.8 REASONABLE PROMPTNESS

Information or services under Owner's control will be furnished by the Owner with reasonable promptness. The Owner shall not be liable for any delays caused by factors beyond the Owner's control including but not limited to DSA's or any other local, State or federal agency's review of bids, change order requests, RFI's or any other documents.

2.2.9 COPIES FURNISHED

The Contractor will be furnished such copies of Drawings and Project Manuals as are stated in the Contract Documents.

2.2.10 **DUTIES CUMULATIVE**

The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein, and especially those in Article 6 (Construction by Owner or by Separate Contractors), Article 9 (Payments and Completion), and Article 11 (Insurance and Bonds).

2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or persistently fails to carry out Work in accordance with the Contract Documents, the Owner, after providing Notice pursuant to paragraph 2.4, may order the Contractor to stop the Work or any portion thereof, until the Contractor corrects the deficiencies. The right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Article 6.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor fails or refuses to carry out the Work in accordance with the Contract Documents, Owner may correct such deficiencies by whatever reasonable method the Owner may deem expedient without prejudice to other remedies the Owner may have, including but not limited to having another contractor perform some or all of the Work without terminating the Contract with Contractor. Owner may exercise this right at any time during the Contractor's Work.

Owner shall first provide written notice to Contractor of Contractor's failure or refusal to perform. The notice will provide the time period within which Contractor must begin correction of the failure or refusal to perform. If the Contractor fails to begin correction within the stated time, or fails to continue correction, the Owner may proceed to correct the deficiencies. In the event the Owner bids the work, Contractor shall not be eligible for the award of the contract. The Contractor may be invoiced the cost to Owner of the work, including compensation for additional professional and internally generated services and expenses made necessary by Contractor's failure or refusal to perform. Owner may withhold that amount from the retention, or progress payments due the Contractor, pursuant to Section 9.5. If retention and payments withheld then or thereafter due the Contractor are not sufficient to cover that amount, the Contractor shall pay the difference to the Owner.

ARTICLE 3

THE CONTRACTOR

3.1 DEFINITION

The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative. To the extent that any portion of the Work is provided with the Contractor's own forces, any reference to Subcontractors shall be equally applicable to the Contractor.

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

3.2.1 CONTRACTOR

The Contractor shall supervise and direct the Work using the Contractor's best skill and attention, which shall meet or exceed the standards in the industry. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, procedures, and coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters. If any of the Work is performed by contractors retained directly by the Owner, Contractor shall be responsible for the coordination and sequencing of the Work of those other contractors so as to avoid any impact on the Project Schedule pursuant to the requirements of Article 6. Specific duties of the Contractor shall be in accordance with Title 24 of the California Code of Regulations. Contractor shall fully comply with any and all reporting requirements of Education Code sections 17309 and 81141 in the manner prescribed by Title 24.

3.2.2 CONTRACTOR RESPONSIBILITY

The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors, material and equipment suppliers, and their agents, employees, invitees, and other persons performing portions of the Work under direct or indirect contract with the Contractor or any of its Subcontractors.

3.2.3 OBLIGATIONS NOT CHANGED BY ARCHITECT'S ACTIONS

The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents by the activities or duties of the Owner's representatives, including but not limited to any construction manager and the Architect, or the Inspector of Record; or by tests, inspections, or approvals required or performed by persons other than the Contractor.

3.2.4 CONTRACTOR RESPONSIBILITY FOR READINESS FOR WORK

The Contractor shall be responsible for inspection of Work already performed under the Contract Documents to determine that such portions are in proper condition to receive subsequent work.

3.2.5 PROJECT MEETINGS

Contractor shall attend Owner's Project meetings as scheduled by the Contract Documents, or as otherwise instructed by Owner, to discuss the current status of the Project and the future progress

of the Work. Contractor shall have five (5) days after receipt of Owner's Project meeting minutes to provide written objections and suggested corrections.

3.3 SUPERINTENDENT

3.3.1 FULL TIME SUPERINTENDENT

The Contractor shall provide a competent superintendent and assistants as necessary, all of whom shall be reasonably proficient in speaking, reading and writing English and, who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

3.3.2 STAFF

The Contractor and each Subcontractor shall: furnish a competent and adequate staff as necessary for the proper administration, coordination, supervision, and superintendence of its portion of the Work; organize the procurement of all materials and equipment so that the materials and equipment will be available at the time they are needed for the Work; and keep an adequate force of skilled workers on the job to complete the Work in accordance with all requirements of the Contract Documents.

3.3.3 RIGHT TO REMOVE

Owner shall have the right, but not the obligation, to require the removal from the Project of any superintendent, staff member, agent, or employee of any Contractor, Subcontractor, material or equipment supplier, etc., for cause.

3.4 LABOR AND MATERIALS

3.4.1 CONTRACTOR TO PROVIDE

Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, material, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.4.2 QUALITY

Unless otherwise specified, all materials and equipment to be permanently installed in the Project shall be new and shall be of such quality as required to satisfy the standards of the Contract Documents. The Contractor shall, if requested, promptly furnish satisfactory evidence as to kind and quality of all materials and equipment. All labor shall be performed by workers skilled in their respective trades, and the quality of their work shall meet whichever is the higher standard for their work: the standard in the industry or the standard in the Contract Documents.

3.4.3 **REPLACEMENT**

Any work, materials, or equipment, which does not conform to these standards may be disapproved and rejected by the Owner, in which case, they shall be removed and replaced by the Contractor at no cost to the Owner.

3.4.4 **DISCIPLINE**

The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract in accordance with paragraph 5.5.1 including, but not limited to, Subcontractors, and material or equipment suppliers retained for the Project.

3.5 WARRANTY

For the period of one (1) year after completion of the Work (see Sections 9.7.1 and 12.2.5), the Contractor warrants to the Owner that material and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty does not cover damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.6 TAXES

Contractor will pay all applicable Federal, State, and local taxes on all materials, labor, or services furnished by it, and all taxes arising out of its operations under the Contract Documents. Owner is exempt from Federal Excise Tax, and a Certificate of Exemption shall be provided upon request.

3.7 PERMITS, FEES AND NOTICES

3.7.1 **PAYMENT**

The Contractor shall secure and pay for all permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and are legally required by any authority having jurisdiction over the Project, except those required by the Division of the State Architect (DSA). Owner shall be responsible for all testing and inspection as required by the DSA on-Site or within the distance limitations set forth in paragraph 13.5.2, unless a different mileage range is specified in the Contract Documents.

3.7.2 **COMPLIANCE**

The Contractor shall comply with and give notices required by any law, ordinance, rule, regulation, and lawful order of public authorities bearing on performance of the Work.

3.7.3 **CONTRACT DOCUMENTS**

It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with any applicable law, statute, ordinance, building codes, rule, or regulation. However, if the Contractor knew, or should have known, or observes that portions of the Contract Document are at variance therewith, the Contractor shall promptly notify the Architect, any construction manager, and Owner in writing, and necessary changes shall be accomplished by appropriate modification.

3.7.4 **RESPONSIBILITY**

If the Contractor performs Work that it knows, or should have known, is contrary to any law, statute, ordinance, building code, rule or regulation, the Contractor shall assume full responsibility for such Work, for all delays attributable thereto, and shall bear the attributable cost of correction or Project delay.

3.8 **ALLOWANCES**

3.8.1 **CONTRACT**

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against whom the Contractor makes reasonable and timely objection.

3.8.2 **SCOPE**

3.8.2.1 ***Prompt Selection.*** Materials and equipment under an allowance shall be selected promptly by the Owner to avoid delay to the Work.

3.8.2.2 ***Cost.*** Allowances shall cover the cost to the Contractor of materials and equipment delivered at the Site and all required taxes, less applicable trade discounts, etc., as delineated in paragraph 7.7.4.

3.8.2.3 ***Cost Included in Contract Sum.*** Contractor's costs for unloading and handling at the Site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances.

3.8.2.4 ***Contract Sum Adjustment.*** Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect the difference between actual cost and the allowances under paragraph 3.8.2.2 and the change in the Contractor's costs under paragraph 3.8.2.3.

3.9 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.9.1 REQUIREMENTS

Before the Contractor's commencement of Work on the Project Site or within two (2) weeks of award of the Contract, whichever is earlier, Contractor shall prepare and submit for the Owner's, and any construction manager's, information the construction schedule for the Work, which shall conform to the Contract Documents' requirements.

Contractor shall submit a monthly updated schedule that will include an accurate as-built schedule and the current as-planned schedule, both of which shall conform to the Contract Documents' requirements. Contractor shall submit its daily logs for the prior month with the updated schedule.

The schedule and updates shall conform, at a minimum, to industry standards for critical path scheduling and to facilitate Owner's Project management and evaluation of Contractor Claims for additional money or time.

The schedule and updates shall not exceed time limits (including milestone deadlines) under the Contract Documents and shall comply with the Contract Documents scheduling requirements and with any scheduling requirements the Owner provides to the Contractor at the beginning of the Work. The original schedule and all updates shall accurately reflect work performed to date, all construction tasks (including procurement), the critical path schedule for completion of the remainder of the Project, and the percentage of the Work completed. The original schedule and updates shall include all delay days for weather not unusually severe, even though that weather will not entitle Contractor to additional time or money.

The construction schedule shall be in the form of either a tabulation, chart, or graph, unless otherwise stated in Division 1 of the Specifications, and shall be in sufficient detail to show the chronological relationship of all activities of the Project including, but not limited to, estimated starting and completion dates of various activities, (including early and late dates and reasonable float for each activity), procurement of materials, the critical path, and scheduling of equipment. Float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations, or imposed dates shall be apportioned for the benefit of the Project. Whenever in the Contract Documents Contractor is required to provide a schedule and/or schedule updates, the Contractor shall provide the schedule and updates in electronic format as well as hard copy. Contractor shall be solely responsible for the accuracy, utility and reasonableness of all of its schedules. Owner's acceptance, approval or non-rejection of Contractor's schedules shall not affect Contractor's responsibility for its schedules.

The Contractor and Owner shall use any float on a "first come, first served" basis. The original schedule and updates shall reflect Contractor's and Owner's use of float. Float is not for the exclusive use or benefit of either Owner or Contractor, but it is a jointly owned expiring Project resource available to both parties as needed to meet schedule milestones. For the original schedule and updates, Contractor shall use a critical path network format with the critical paths clearly indicated. Contractor shall use an MS Project, Primavera, or an equivalent or better program. Contractor shall provide schedule conversion to MS Project or as directed by District. Contractor shall include reports that sort and list the activities in order of increasing float and by early and late start dates. Contractor shall endeavor to label ten to thirty percent (10-30%) of the tasks as critical, but shall not label less than five (5%) or more than fifty (50%) as critical. Contractor shall use calendar days.

If any change in Contractor's method of operations will cause a change in the construction schedule, Contractor shall submit to Owner, Architect and any construction manager, a revised construction schedule within seven (7) days of the change, unless a different time period is stated in Division 1 of the Specifications.

If, in the Owner's opinion, the Contractor is not prosecuting the Work at a rate sufficient to meet the Project schedule, a contractual milestone or the Project completion date (as adjusted by change orders) or if the Contractor's actual progress falls behind the Project schedule or it is apparent to Owner or Contractor that Contractor will not meet contractual milestones or the Project completion date (as adjusted by change orders), the Owner may require that the Contractor prepare and submit a recovery plan. Contractor must submit a recovery plan within seven (7) days of a demand for the plan, unless a different time period is stated in Division 1 of the Specifications. At a minimum, the recovery plan must include a revised schedule that gets the Work back on schedule and completes all Work by the contractual milestones and Project completion date (as adjusted by change orders) or by other dates Owner specifies in the demand for a recovery plan. The recovery plan shall state the corrective actions Contractor will undertake to implement it. The recovery plan shall also list any additional money that Contractor believes it should receive if Owner orders Contractor to fully or partially implement the recovery plan. If the Owner orders Contractor to implement the recovery plan, Contractor shall do so, but the order shall not act constitute an admission by Owner that Contractor is entitled to additional money. To recover additional money, Contractor must comply with General Conditions Articles 4.5, 7 and 8.

All schedules Contractor submits shall be certified as true and correct, as follows:

> I, [name of declarant], declare the following:
>
> [Contractor company name] has contracted with [public entity name] for the [name of project] Project. [Contractor company name] authorized me to prepare schedules for [public entity name] for this Project, and I prepared the attached schedule. I am the most knowledgeable person at [contractor company name] regarding the scheduling of this Project.

The attached schedule does not breach the Contract between [contractor company name] and [public entity name] for this Project, does not violate any applicable law, satisfies all provisions of the Contract applicable to submission of the Claim, only contains truthful and accurate as-built and as-planned dates of work on the Project (including supporting data), and is not a false claim.

The attached schedule is submitted in compliance with all laws applicable to submission of a Claim, including but not limited to California Penal Code section 72 (Fraudulent Claims), Government Code sections 12650 et seq. (False Claims Act; for example, Government Code section 12651(a)(7)), and Business and Professions Code sections 17200 et seq. (Unfair Business Practices Act). I am aware that submission or certification of false claims, or other Claims that violate law or the Contract, may lead to fines, imprisonment, and/or other serious legal consequences for myself and/or [contractor company name].

While preparing this declaration and schedule I consulted with others (including attorneys, consultants, or others who work for [contractor company name]) when necessary to ensure that the statements were true and correct.

I declare under the penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed _____, 20__, at _____, California.

_____
[name of declarant]

3.9.2 DSA OVERSIGHT PROCESS

In connection with the DSA Construction Oversight Process which includes inspection cards and review of changes to the DSA-approved construction documents, the Contractor must (a) include specific tasks in its baseline schedule to take into account these procedures since they are critical path issues; and (b) include a reasonable amount of float in the baseline schedule to accommodate the additional time required by these DSA procedures.

3.9.3 FAILURE TO MEET REQUIREMENTS

Failure of the Contractor to provide proper schedules may, at the sole discretion of Owner, constitute either grounds to withhold, in whole or in part, progress payments to the Contractor, or a breach of contract allowing Owner to terminate the Contract.

3.10 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the Site for the Owner one applicable copy of Titles 19 and 24 and record copy of the Drawings, Specifications, Addenda, Change Orders, and other Modifications, in good order and marked currently to record changes and selections made during construction. In addition, the Contractor shall maintain at the Site approved Shop Drawings, Product Data, Samples, and similar required submittals. These documents shall be available to the Owner and shall be delivered to the Architect for delivery to the Owner upon completion of the Work.

3.11 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

3.11.1 SUBMITTALS DEFINED

3.11.1.1 ***Shop Drawings.*** The term "shop drawings" as used herein means drawings, diagrams, schedules, and other data, which are prepared by Contractor, Subcontractors, manufacturers, suppliers, or distributors illustrating some portion of the Work, and includes: illustrations; fabrication, erection, layout and setting drawings; manufacturer's standard drawings; schedules; descriptive literature, instructions, catalogs, and brochures; performance and test data including charts; wiring and control diagrams; and all other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment, or systems and their position conform to the requirements of the Contract Documents. The Contractor shall obtain and submit with the shop drawings all seismic and other calculations and all product data from equipment manufacturers. "Product data" as used herein are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work. As used herein, the term "manufactured" applies to standard units usually mass-produced, and "fabricated" means items specifically assembled or made out of selected materials to meet individual design requirements. Shop drawings shall: establish the actual detail of all manufactured or fabricated items, indicate proper relation to adjoining work, amplify design details of mechanical and electrical systems and equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions.

3.11.1.2 ***Samples.*** The term "samples" as used herein are physical examples furnished by Contractor to illustrate materials, equipment, or quality and includes natural materials, fabricated items, equipment, devices, appliances, or parts thereof as called for in the Specifications, and any other samples as may be required by the Owner to determine whether the kind, quality, construction, finish, color, and other characteristics of the materials, etc., proposed by the Contractor conform to the required characteristics of the various parts of the Work. All Work shall be in accordance with the approved samples.

3.11.1.3 ***Contractor's Responsibility.*** Contractor shall obtain and shall submit to Architect all required shop drawings and samples in accordance with Contractor's "Schedule for Submission of Shop Drawings and Samples" provisions in Division 1 of the Specifications and

in accordance with the Contractor's original and updated schedules, and with such promptness as to cause no delay in its own Work or in that of any other contractor, Owner or subcontractor but in no event later than fifteen (15) days after the execution of the Agreement. Contractor may be assessed $100 a day for each day it is late in submitting a shop drawing or sample. No extensions of time will be granted to Contractor or any Subcontractor because of its failure to have shop drawings and samples submitted in accordance with the Schedule. Each Subcontractor shall submit all shop drawings, samples, and manufacturer's descriptive data for the review of the Owner, the Contractor, and the Architect through the Contractor. By submitting shop drawings, product data, and samples, the Contractor or submitting party (if other than Contractor) represents that it has determined and verified all materials, field measurements, field conditions, catalog numbers, related field construction criteria, and other relevant data in connection with each such submission, and that it has checked, verified, and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. At the time of submission, any deviation in the shop drawings, product data, or samples from the requirements of the Contract Documents shall be narratively described in a transmittal accompanying the submittal. However, submittals shall not be used as a means of requesting a substitution, the procedure for which is defined in paragraph 3.11.4, "Substitutions." Review by Owner and Architect shall not relieve the Contractor or any Subcontractor from its responsibility in preparing and submitting proper shop drawings in accordance with the Contract Documents. Contractor shall stamp, sign, and date each submittal indicating its representation that the submittal meets all of the requirements of the Contract Documents. Any submission, which in Owner's or Architect's opinion is incomplete, contains numerous errors, or has been checked only superficially by Contractor will be returned unreviewed for resubmission by the Contractor.

3.11.1.4 ***Extent of Review.*** In reviewing shop drawings, the Owner will not verify dimensions and field conditions. The Architect will review and approve shop drawings, product data, and samples for aesthetics and for conformance with the design concept of the Work and the information given in the Contract Documents. The Architect's review shall neither be construed as a complete check nor relieve the Contractor, Subcontractor, manufacturer, fabricator, or supplier from responsibility for any deficiency that may exist or from any departures or deviations from the requirements of the Contract Documents unless the Contractor has, in writing, called the Architect's attention to the deviations at the time of submission and the Architect has given specific written approval. The Architect's review shall not relieve the Contractor or Subcontractors from responsibility for errors of any sort in shop drawings or schedules, for proper fitting of the Work, or from the necessity of furnishing any Work required by the Contract Documents, which may not be indicated on shop drawings when reviewed. Contractor and Subcontractors shall be solely responsible for determining any quantities, whether or not shown on the shop drawings.

3.11.2 **DRAWING SUBMISSION PROCEDURE**

3.11.2.1 ***Transmittal Letter and Other Requirements.*** All shop drawings must be properly identified with the name of the Project and dated, and each lot submitted must be accompanied by a letter of transmittal referring to the name of the Project and to the Specification section number for identification of each item clearly stating in narrative form, as

well as "clouding" on the submissions, all qualifications, departures, or deviations from the Contract Documents, if any. Shop drawings, for each section of the Work, shall be numbered consecutively, and the numbering system shall be retained throughout all revisions. All Subcontractor submissions shall be made through the Contractor. Each drawing shall have a clear space for the stamps of Architect and Contractor. Only shop drawings required to be submitted by the Contract Documents shall be reviewed.

3.11.2.2 ***Copies Required.*** Each submittal shall include one (1) legible, reproducible and five (5) legible prints and one (1) electronic copy of each drawing, including fabrication, erection, layout and setting drawings, and such other drawings as required under the various sections of the Specifications until final acceptance thereof is obtained. Subcontractor shall submit copies, in an amount as requested by the Contractor, of: manufacturers' descriptive data for materials, equipment, and fixtures, including catalog sheets showing dimensions, performance, characteristics, and capacities; wiring diagrams and controls; schedules; all seismic calculations and other calculations; and other pertinent information as required.

3.11.2.3 ***Corrections.*** The Contractor shall make any corrections required by Architect and shall resubmit as required by Architect the required number of corrected copies of shop drawings or new samples until approved. Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections required by the Architect on previous submissions. Professional services required for more than one (1) re-review of required submittals of shop drawings, product data, or samples are subject to charge to the Contractor pursuant to paragraph 4.4.

3.11.2.4 ***Approval Prior to Commencement of Work.*** No portion of the Work requiring a shop drawing or sample submission shall be commenced until the submission has been reviewed by Owner and approved by Architect unless specifically directed in writing by the Owner. All such portions of the Work shall be in accordance with approved shop drawings and samples.

3.11.3 **SAMPLE SUBMISSIONS PROCEDURE**

3.11.3.1 ***Samples Required.*** In case a considerable range of color, graining, texture, or other characteristics may be anticipated in finished products, a sufficient number of samples of the specified materials shall be furnished by the Contractor to indicate the full range of characteristics, which will be present in the finished products; and products delivered or erected without submittal and approval of full range samples shall be subject to rejection. Except for range samples, and unless otherwise called for in the various sections of the Specifications, samples shall be submitted in duplicate. All samples shall be marked, tagged, or otherwise properly identified with the name of the submitting party, the name of the Project, the purpose for which the samples are submitted, and the date and shall be accompanied by a letter of transmittal containing similar information, together with the Specification section number for identification of each item. Each tag or sticker shall have clear space for the review stamps of Contractor and Architect.

3.11.3.2 ***Labels and Instructions.*** Samples of materials, which are generally furnished in containers bearing the manufacturers' descriptive labels and printed application instructions,

shall, if not submitted in standard containers, be supplied with such labels and application instructions.

3.11.3.3 ***Architect's Review.*** The Architect will review and, if appropriate, approve submissions and will return them to the Contractor with the Architect's stamp and signature applied thereto, indicating the appropriate action in compliance with the Architect's standard procedures.

3.11.3.4 ***Record Drawings and Annotated Specifications.*** The Contractor will prepare and maintain on a current basis an accurate and complete set of Record Drawings showing clearly all changes, revisions, and substitutions during construction, including, without limitation, field changes and the final location of all mechanical equipment, utility lines, ducts, outlets, structural members, walls, partitions, and other significant features, and Annotated Specifications showing clearly all changes, revisions, and substitutions during construction. A copy of such Record Drawings and Annotated Specifications will be delivered to Owner in accordance with the Schedule prepared by Contractor. In the event of a specification that allows Contractor to elect one of several brands, makes, or types of material or equipment, the annotations shall show which of the allowable items the Contractor has furnished. The Contractor will update the Record Drawings and Annotated Specifications as often as necessary to keep them current but no less often than weekly. The Record Drawings and Annotated Specifications shall be kept at the Site and available for inspection by the Owner, Inspector of Record and the Architect. On completion of the Contractor's portion of the Work and prior to Application for Final Progress Payment, the Contractor will provide one complete set of Record Drawings and Annotated Specifications to the Owner, certifying them to be a complete and accurate reflection of the actual construction conditions of the Work.

3.11.3.5 ***Equipment Manuals.*** Contractor shall obtain and furnish three (3) complete sets of manuals containing the manufacturers' instructions for maintenance and operation of each item of equipment and apparatus furnished under the Contract Documents and any additional data specifically requested under the various sections of the Specifications for each division of the Work. The manuals shall be arranged in proper order, indexed, and placed in three-ring binders. At the completion of its Work, the Contractor shall certify, by endorsement thereon, that each of the manuals is complete, accurate, and covers all of its Work. Prior to submittal of Contractor's Application for Final Progress Payment, and as a further condition to its approval by the Architect, each Subcontractor shall deliver the manuals, arranged in proper order, indexed, endorsed, and placed in three-ring binders, to the Contractor, who shall assemble these manuals for all divisions of the Work, review them for completeness, and submit them to the Owner through the Architect.

3.11.3.6 ***Owner's Property.*** All shop drawings and samples submitted shall become the Owner's property.

3.11.4 **SUBSTITUTIONS**

3.11.4.1 ***One Product Specified.*** Unless the Specifications state that no substitution is permitted, whenever in the Contract Documents any specific article, device, equipment, product, material, fixture, patented process, form, method, or type of construction is indicated or specified by name, make, trade name, or catalog number, with or without the words "or equal," such specification shall be deemed to be used for the purpose of facilitating description of material, process, or article desired and shall be deemed to be followed by the words "or equal." Contractor may, unless otherwise stated, offer any material, process, or article, which shall be substantially equal or better in every respect to that so indicated or specified and will completely accomplish the purpose of the Contract Documents.

3.11.4.2 ***Two or More Products Specified.*** When two or more acceptable products are specified for an item of the Work, the choice will be up to the Contractor. Contractor shall utilize the same product throughout the Project. If a timely substitution request as set forth in Section 3.11.4.3 is not provided and an "or equal" substitution is requested, the Owner may consider the substitution if the product specified is no longer commercially available. If the Owner allows the substitution to be proposed pursuant to such an untimely request, the Contractor will be responsible for the professional fees incurred by the Architect or Architect's consultants in reviewing the proposed substitution which fees may be withheld from progress payments and/or retention.

3.11.4.3 ***Substitution Request Form.*** Requests for substitutions of products, materials, or processes other than those specified must be made on the Substitution Request form available from the Owner prior to the date of the bid opening. Any Requests submitted less than fourteen (14) days prior to the date of the bid opening will not be considered, except as noted in paragraph 3.11.4.2. A Substitution Request must be accompanied by evidence as to whether or not the proposed substitution: is equal in quality and serviceability to the specified item; will entail no changes in detail and construction of related work; will be acceptable in consideration of the required design and artistic effect; will provide no cost disadvantage to Owner; and will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts. The burden of proof of these facts shall be upon the Contractor. The Contractor shall furnish with its request sufficient information to determine whether the proposed substitution is equivalent including but not limited to all drawings, specifications, samples, performance data, calculations, and other information as may be required to assist the Architect and the Owner in determining whether the proposed substitution is acceptable. The final decision shall be the Owner's. The written approval of the Owner, consistent with the procedure for Change Orders, shall be required for the use of a proposed substitute material. Owner may condition its approval of the substitution upon delivery to Owner of an extended warranty or other assurances of adequate performance of the substitution. All risks of delay due to the Division of the State Architect's, or any other governmental agency having jurisdiction, approval of a requested substitution shall be on the requesting party.

3.11.4.4 ***List of Manufacturers and Products Required.*** The Subcontractor shall prepare and submit to the Contractor within thirty (30) days of execution of the Subcontract comprehensive lists, in quadruplicate, of the manufacturers and products proposed for the Project, including information on materials, equipment, and fixtures required by the Contract Documents, as may be required for Contractor's or Architect's preliminary approval. Approval

of such lists of products shall not be construed as a substitute for the shop drawings, manufacturer's descriptive data, and samples, which are required by the Contract Documents, but rather as a base from which more detailed submittals shall be developed for the final review of the Contractor and the Architect.

3.11.5 DEFERRED APPROVALS

Deferred approvals shall be submitted and processed pursuant to the requirements of Division 1 of the Specifications. All risks of delay due to the Division of the State Architect's, or any other governmental agency having jurisdiction, approval of a deferred approval shall be on the requesting party.

3.12 CUTTING AND PATCHING

3.12.1 SCOPE

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

3.12.2 CONSENT

The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work. All cutting shall be done promptly, and all repairs shall be made as necessary.

3.12.3 STRUCTURAL MEMBERS

New or existing structural members and elements, including reinforcing bars and seismic bracing, shall not be cut, bored, or drilled except by written authority of the Architect and DSA. Work done contrary to such authority is at the Contractor's risk, subject to replacement at its own expense and without reimbursement under the Contract. Agency approvals shall be obtained by the Architect, not by the Contractor.

3.12.4 SUBSEQUENT REMOVAL

Permission to patch any areas or items of the Work shall not constitute a waiver of the Owner's or the Architect's right to require complete removal and replacement of the areas of items of the Work if, in the opinion of the Architect or the Owner, the patching does not satisfactorily restore quality and appearance of the Work or does not otherwise conform to the Contract Documents. Any costs caused by defective or ill-timed cutting or patching shall be borne by the person or entity responsible.

3.13 CLEANING UP

3.13.1 CONTRACTOR'S RESPONSIBILITY

The Contractor shall keep the Site and surrounding area free from accumulation of waste material or rubbish caused by operations under the Contract. The Site shall be maintained in a neat and orderly condition. All crates, cartons, paper, and other flammable waste materials shall be removed from Work areas and properly disposed of at the end of each day. The Contractor shall continuously remove from and about the Site the waste materials, rubbish, tools, construction equipment, machinery, and materials no longer required for the Work.

3.13.2 FAILURE TO CLEANUP

If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so, without prior notice to the Contractor and the cost thereof shall be invoiced to the Contractor and withheld from progress payments and/or retention. Each Subcontractor shall have the responsibility for the cleanup of its own Work. If the Subcontractor fails to clean up, the Contractor must do so.

3.13.3 CONSTRUCTION BUILDINGS

When directed by the Owner or the Architect, Contractor and Subcontractor shall dismantle temporary structures, if any, and remove from the Site all construction and installation equipment, fences, scaffolding, surplus materials, rubbish, and supplies belonging to Contractor or Subcontractor. If the Contractor does not remove the tools, equipment, machinery, and materials within fifteen (15) days after completion of its Work, then they shall be deemed abandoned, and the Owner can dispose of them for its own benefit in whatever way it deems appropriate. Contractor shall pay for any costs to dispose of the items.

3.14 ACCESS TO WORK

The Contractor shall provide the Owner, the Architect, and the Inspector of Record, access to the Work in preparation and progress wherever located.

3.15 ROYALTIES AND PATENTS

3.15.1 PAYMENT AND INDEMNITY

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims of infringement of patent rights and shall hold the Owner and the Architect harmless and indemnify them, to the extent not caused by the Owner's active negligence, sole negligence or willful misconduct, from loss on account thereof but shall not be responsible for such defense or loss when a particular design, process, or product of a particular manufacturer is required by the Contract Documents. However, if the Contractor has reason to believe the required design,

process, or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Owner and Architect.

3.15.2 **REVIEW**

The review by the Owner or Architect of any method of construction, invention, appliance, process, article, device, or material of any kind shall be for its adequacy for the Work and shall not be an approval for the use by the Contractor in violation of any patent or other rights of any person or entity.

3.16 **INDEMNIFICATION**

3.16.1 **SCOPE: CONTRACTOR**

To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Owner, the construction manager, Architect, Architect's consultants, the Inspector of Record, the State of California, and their respective agents, employees, officers, volunteers, Boards of Trustees, members of the Boards of Trustees, and directors ("Indemnitees"), from and against claims, actions, damages, liabilities, losses (including but not limited to injury or death of persons, property damage, and compensation owed to other parties), and expenses (including but not limited to attorneys' fees and costs including fees of consultants) alleged by third parties against Indemnitees arising out of or resulting from the following: Contractor's, its Subcontractors', or its suppliers' performance of the Work, including but not limited to the Contractor's or its Subcontractors' use of the Site; the Contractor's or its Subcontractors' construction of the Project, or failure to construct the Project, or any portion thereof; the use, misuse, erection, maintenance, operation, or failure of any machinery or equipment including, but not limited to, scaffolds, derricks, ladders, hoists, and rigging supports, whether or not such machinery or equipment was furnished, rented, or loaned by any of the Indemnitees; or any act, omission, negligence, or willful misconduct of the Contractor or its Subcontractors or their respective agents, employees, material or equipment suppliers, invitees, or licensees but only to the extent caused in whole or in part by the acts or omissions of the Contractor, its Subcontractors, its suppliers, anyone directly or indirectly employed by any of them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity, which would otherwise exist as to a party, person, or entity described in this paragraph. The obligation to defend, indemnify and hold harmless includes any claims or actions by third parties arising out of or resulting from Labor Code section 2810. Contractor shall have no obligation to defend or indemnify the Indemnitees against claims, actions, damages, liabilities, losses, and expenses caused by the active negligence, sole negligence or willful misconduct of Indemnitees. This indemnification shall apply to all liability, as provided for above, regardless of whether any insurance policies are applicable, and insurance policy limits do not act as a limitation upon the amount of the indemnification to be provided by the Contractor.

3.16.2 **SCOPE: SUBCONTRACTORS**

3.16.2.1 ***Indemnity.*** The Subcontractors shall defend, indemnify, and hold harmless the Indemnitees from and against claims, actions, damages, liabilities, and losses (including but not limited to injury or death of persons, property damage, and compensation owed to other parties), and expenses (including but not limited to attorneys' fees and costs including fees of consultants) alleged by third parties against Indemnitees arising out of or resulting from the following: Subcontractors' performance of the Work, including but not limited to the Subcontractors' use of the Site; the Subcontractors' construction of the Project or failure to construct the Project or any portion thereof; the use, misuse, erection, maintenance, operation, or failure of any machinery or equipment, including, but not limited to, scaffolds, derricks, ladders, hoists, and rigging supports, whether or not such machinery or equipment was furnished, rented, or loaned by any of the Indemnitees; or any act, omission, negligence, or willful misconduct of the Subcontractors or their respective agents, employees, material or equipment suppliers, invitees, or licensees but only to the extent caused in whole or in part by the acts or omissions of the Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity, which would otherwise exist as to a party, person, or entity described in this paragraph. This obligation to defend, indemnify and hold harmless includes any claims or actions by third parties arising out of or resulting from Labor Code section 2810. Subcontractors shall have no obligation to defend or indemnify the Indemnitees against claims, actions, damages, liabilities, losses, and expenses caused by the active negligence, sole negligence or willful misconduct of Indemnitees. This indemnification shall apply to all liability, as provided for above, regardless of whether any insurance policies are applicable, and insurance policy limits do not act as a limitation upon the amount of the indemnification to be provided by the Subcontractors.

3.16.2.2 ***Joint and Several Liability.*** In the event more than one Subcontractor is connected with an accident or occurrence covered by this indemnification, then all such Subcontractors shall be jointly and severally responsible to each of the Indemnitees for indemnification, and the ultimate responsibility among such indemnifying Subcontractors for the loss and expense of any such indemnification shall be resolved without jeopardy to any Indemnitee. The provisions of the indemnity provided for herein shall not be construed to indemnify any Indemnitee for its own negligence if not permitted by law or to eliminate or reduce any other indemnification or right which any Indemnitee has by law or equity.

3.16.3 **NO LIMITATION**

The Contractor's and the Subcontractor's obligation to indemnify and defend the Indemnitees hereunder shall include, without limitation, any and all claims, damages, and costs: for injury to persons and property (including loss of use), and sickness, disease or death of any person; for breach of any warranty, express or implied; for failure of the Contractor or the Subcontractor to comply with any applicable governmental law, rule, regulation, or other requirement; and for products installed in or used in connection with the Work.

3.17 OWNER AS INTENDED BENEFICIARY

The Owner is an intended beneficiary of any architectural or engineering work secured by, or performed by, the Contractor to fulfill its obligations under the Contract. Contractor shall state in its contracts with architectural or engineering consultants that their work is for the intended benefit of the Owner.

3.18 NOTICE OF EXCUSE FOR NONPERFORMANCE

If Contractor believes that acts or omissions of Owner (including but not limited to Owner caused delay) have prevented Contractor from performing the Work as required by the Contract Documents and Contractor intends to rely on Owner's acts or omissions and Civil Code section 1511(1) as reasons to excuse Contractor's nonperformance or to support, among other things, Contractor's requests for time extensions under General Conditions section 4.5, Contractor shall provide written notice of the excuse within five (5) days of the Owner's acts or omissions. If Contractor fails to timely submit the written notice Contractor shall have waived any right to later rely on the acts or omissions as a defense to Contractor's nonperformance, regardless of the merits of the defense. Contractor will not have satisfied a condition precedent or exhausted administrative remedies. Contractor acknowledges that these written notices are of critical importance to the Owner's Project management and the mitigation of Project costs and delays.

ARTICLE 4

ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 DEFINITION

The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Architect" means the Architect or the Architect's authorized representative, and shall also refer to all consultants under the Architect's direction and control.

4.1.2 MODIFICATION

To the extent the Contract Documents indicate that Owner has assigned duties or responsibilities to the Architect, Owner reserves the right at all times to reassign such duties or responsibilities to different Owner representatives.

4.1.3 TERMINATION

In the case of the termination of the Architect, the Owner may appoint an architect or another construction professional or may perform such functions with its own licensed professional personnel. The status of the replacement Architect under the Contract Documents shall be that of the former architect.

4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

4.2.1 STATUS

The Architect will provide administration of the Contract and may be one of several Owner's representatives during construction, through release of all retention, and during the one (1) year period following the commencement of any warranties. The Architect will advise and consult with the Owner. The Architect will have authority to act on behalf of the Owner only to the extent set forth in the Owner/Architect agreement. The Architect will have all responsibilities and power established by law, including California Code of Regulations, Title 24, to the extent set forth in the Owner/Architect agreement.

4.2.2 SITE VISITS

The Architect will visit the Site at intervals necessary in the judgment of the Architect or as otherwise agreed by the Owner and the Architect in writing to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents.

4.2.3 LIMITATIONS OF CONSTRUCTION RESPONSIBILITY

The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract Documents, or by tests, inspections, or approvals required or performed by persons other than the Contractor.

4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

The Owner and the Contractor shall communicate through the Architect, unless there is a construction manager for the Project or the Owner directs otherwise. Communications between Owner and Subcontractors or material or equipment suppliers shall be through the Contractor.

4.2.5 PAYMENT APPLICATIONS

The Contractor shall submit payment applications to the Architect, unless there is a construction manager for the Project or the Owner directs otherwise.

4.2.6 REJECTION OF WORK

The Architect, Inspector of Record, any construction manager and others may recommend to the Owner that the Owner reject Work which does not conform to the Contract Documents or that the Owner require additional inspection or testing of the Work in accordance with paragraph 13.5.5, whether or not the Work is fabricated, installed, or completed. However, no recommendation shall create a duty or responsibility to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.7 CHANGE ORDERS

The Architect will prepare change orders and construction change directives and may authorize minor changes in the Work.

4.2.8 WARRANTIES UPON COMPLETION

The Architect in conjunction with the Inspector of Record, or as otherwise directed by Owner, will conduct field reviews of the Work to determine the date of completion, shall receive and forward to the Owner for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor. The handling by the Architect of such warranties, maintenance manuals, or similar documents shall not diminish or transfer to the Architect any responsibilities or liabilities required by the Contract Documents of the Contractor or other entities, parties, or persons performing or supplying the Work.
Except as may be otherwise directed by Owner, the Architect will conduct a field review of the Contractor's comprehensive list of items to be completed or corrected for development of a punch list and one (1) follow-up field review if required. The cost incurred by the Owner for further field reviews or the preparation of further punch lists by the Architect shall be invoiced to the Contractor and withheld from payment and/or retention.

4.2.9 INTERPRETATION

The Architect, Inspector of Record, any construction manager, the Owner or any independent consultant of Owner, as Owner deems appropriate, will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of the Contractor. The Owner's response to such requests will be made with reasonable promptness, while allowing sufficient time to permit adequate review and evaluation of the request.

4.2.10 ADDITIONAL INSTRUCTIONS

4.2.10.1 ***Architect's Interpretations and Decisions.*** Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations of and decisions regarding the Contract Documents, the Architect will endeavor to secure faithful performance under the Contract Documents by both the Owner and the Contractor and will not show partiality to either. The Work shall be executed in conformity with, and the Contractor shall do no work without, approved drawings, Architect's clarifying instructions, and/or submittals.

4.2.10.2 ***Typical Parts and Sections.*** Whenever typical parts or sections of the Work are completely detailed on the Drawings, and other parts or sections which are essentially of the same construction are shown in outline only, the complete details shall apply to the Work which is shown in outline.

4.2.10.3 ***Dimensions.*** Dimensions of Work shall not be determined by scale or rule. Figured dimensions shall be followed at all times. If figured dimensions are lacking on Drawings, Architect shall supply them on request. The Owner's decisions on matters relating to aesthetic effect will be final if consistent with the Contract Documents.

4.3 INSPECTOR OF RECORD

4.3.1 GENERAL

One or more Project inspectors ("Inspector of Record") employed by the Owner and approved by the Division of the State Architect will be assigned to the Work in accordance with the requirements of Title 24 of the California Code of Regulations. The Inspector of Record's duties will be as specifically defined in Title 24.

4.3.2 INSPECTOR OF RECORD'S DUTIES

All Work shall be under the observation of or with the knowledge of the Inspector of Record. The Inspector of Record shall have free access to any or all parts of the Work at any time. The Contractor shall furnish the Inspector of Record such information as may be necessary to keep the Inspector of Record fully informed regarding progress and manner of work and character of materials. Such observations shall not, in any way, relieve the Contractor from responsibility for full compliance with all terms and conditions of the Contract, or be construed to lessen to any degree the Contractor's responsibility for providing efficient and capable superintendence. The Inspector of Record is not authorized to make changes in the drawings or specifications nor shall the Inspector of Record's approval of the Work and methods relieve the Contractor of responsibility for the correction of subsequently discovered defects, or from its obligation to comply with the Contract Documents.

4.3.3 INSPECTOR OF RECORD'S AUTHORITY TO REJECT OR STOP WORK

The Inspector of Record shall have the authority to reject work that does not comply with the provisions of the Contract Documents. In addition, the Inspector of Record may stop any work which poses a probable risk of harm to persons or property. The Contractor shall instruct its employees, Subcontractors, material and equipment suppliers, etc., accordingly. The absence of any Stop Work order or rejection of any portion of the Work shall not relieve the Contractor from any of its obligations pursuant to the Contract Documents.

4.3.4 INSPECTOR OF RECORD'S FACILITIES

Within seven (7) days after notice to proceed, the Contractor shall provide the Inspector of Record with the temporary facilities as required under Division 1 of the Specifications.

4.4 RESPONSIBILITY FOR ADDITIONAL CHARGES INCURRED BY THE OWNER FOR PROFESSIONAL SERVICES

If at any time prior to the completion of the requirements under the Contract Documents, through no fault of its own, the Owner is required to provide or secure additional professional services for any reason by any act or omission of the Contractor, the Contractor shall be invoiced by the Owner for any actual costs incurred for any such additional services, which costs may, among other remedies, be withheld from the progress payments and/or retention. Such invoicing shall be independent from any other Owner remedies, including but not limited to liquidated damages. If payments then or thereafter due to the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. Additional services shall include, but shall not be limited to, the following:

A. Services made necessary by the default of the Contractor.

B. Services made necessary due to the defects or deficiencies in the Work of the Contractor.

C. Services required by failure of the Contractor to perform according to any provision of the Contract Documents.

D. Services in connection with evaluating substitutions of products, materials, equipment, Subcontractors proposed by the Contractor, and making subsequent revisions to drawings, specifications, and providing other documentation required (except for the situation where the specified item is no longer manufactured or available).

E. Services for evaluating and processing Claims submitted by the Contractor in connection with the Work outside the established Change Order process.

F. Services required by the failure of the Contractor to prosecute the Work in a timely manner in compliance within the specified time of completion.

G. Services in conjunction with the testing, adjusting, balancing and start-up of equipment other than the normal amount customarily associated for the type of Work involved.

H. Services in conjunction with more than one (1) re-review of required submittals of shop drawings, product data, and samples.

4.5 NOTICES OF POTENTIAL CHANGE, CHANGE ORDER REQUESTS, AND CLAIMS

If the Contractor identifies the potential for extra work, delay in the critical path schedule, or the need for additional money or time, or if the Contractor requests additional money or time, or if

the Contractor believes that Owner has failed to pay amounts due or otherwise breached the Contract, or otherwise believes that it is entitled to a modification of the Contract terms and conditions, then Contractor shall follow the procedures in this Section 4.5 and Article 7, otherwise Contractor shall have waived its rights to pursue those issues and any later attempts to recover money or obtain a modification shall be barred. Contractor specifically acknowledges the Owner's and public's interest in, and need to know of, potential changes and disputes as early as possible so Owner can investigate, mitigate and resolve adverse cost and time impacts, if any. It is Contractor's obligation to know and comply with the requirements of Section 4.5 and Article 7, and Owner has no obligation to notify Contractor of any failure to comply with those requirements.

4.5.1 NOTICE OF POTENTIAL CHANGE

Contractor shall submit a written Notice of Potential Change for extra work, critical path delay, or additional money or time. Contractor shall submit written Notices of Potential Change to Owner within five (5) days of Contractor becoming aware of the issues creating the potential for change, unless the issues are, or may soon be, adversely affecting the costs or critical path of the Work, in which case the Contractor must submit the written notice without delay so the Owner may take immediate action to mitigate cost and schedule impacts of the change, if any. The written notice shall explain the nature of the potential change so the Owner may take action to mitigate costs and schedule impacts, if necessary.

When submitting a written Notice of Potential Change based on extra work, Contractor shall not perform the extra work until directed in writing to do so by Owner. When submitting a written Notice of Potential Change for an issue of critical path delay, Contractor shall proactively mitigate the effects of the alleged delay as much as reasonably possible so as to minimize any impact to the schedule, until otherwise directed by Owner.

Failure to timely submit a written Notice of Potential Change shall constitute a complete waiver by Contractor of any right to later submit a change order request or pursue a Claim on that issue, or to later pursue any additional money or time extensions in any manner related to that issue, regardless of the merits. Contractor will not have satisfied a condition precedent or exhausted administrative remedies. Contractor acknowledges that these written notices are of critical importance to the Owner's Project management and the mitigation of Project costs and delays.

4.5.2 CHANGE ORDERS REQUESTS

If, after submitting a written Notice of Potential Change pursuant to Section 4.5.1, Contractor continues to believes that it is entitled to additional money or time (including but not limited to grant of a time extension; payment of money or damages arising from work done by, or on behalf of, the Contractor, payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to; or an amount the payment of which is disputed by the Owner) based on an issue, then Contractor shall submit a Change Order Request ("COR") to Owner within twenty (20) days of (i) becoming aware of the issues creating a potential change, or (ii) the date by which it should have become aware of the issues creating a potential change.

A rejection at any time or a lack of a rejection by Owner of a Notice of Potential Change does not affect the timeline for submitting a COR.

Failure to timely submit a COR related to an issue, or failure to comply with any of the COR requirements in the Contract shall constitute a complete waiver by Contractor of any right to later submit a COR or Claim on that issue, or to later pursue any additional money (including time extensions) in any manner related to that issue, regardless of the merits. Contractor will not have satisfied a condition precedent or exhausted administrative remedies.

The COR shall state the grounds for the additional money or time requested and the amount of money or time requested, and Contractor shall include all information supporting the COR.

Contractor shall certify the COR using the form set forth in Section 4.5.5.1, except that every reference to "Claim" shall be changed to "COR." If a COR is submitted without certification, a certification can still be submitted within the timelines set forth in the first paragraph of section 4.5.2. If the COR is not timely certified, Contractor will have completely waived its rights to any money or time for that issue. Contractor will not have satisfied a condition precedent or exhausted administrative remedies.

The Owner may accept the entire COR, accept part of the COR and reject the remainder, reject the entire COR, or request additional information. If the Owner does not respond within thirty (30) days by accepting the entire COR, accepting part of the COR and rejecting the remainder, or requesting additional information, the entire COR shall be deemed rejected as of the thirtieth (30th) day. If the Owner requests additional information, then the Contractor shall submit the information within fifteen (15) days of the date of the request and the Owner shall have fifteen (15) days after the receipt of the additional information to accept or reject (in whole or in part) the COR. If the Owner fails to respond within fifteen (15) days after the submission of additional information, the entire COR shall be deemed rejected as of the fifteenth (15th) day.

4.5.3 **DEFINITION OF CLAIM**

A "Claim" is a separate demand by the Contractor for (a) a time extension, (b) payment of money or damages arising from work done by, or on behalf of, the Contractor, payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (c) an amount the payment of which is disputed by the Owner. A claim includes any claim within the scope of Public Contract Code section 20104 et seq. Resubmittal in any manner of a COR which was previously rejected under Section 4.5.2 constitutes a Claim, whether the COR was rejected in whole or in part, and whether the COR was rejected expressly or deemed rejected by Owner inaction. A Claim includes any dispute Contractor may have with the Owner, including one which does not require a Notice of Potential Change or COR under Sections 4.5.1 and 4.5.2, and includes an alleged breach of contract by the Owner. A Claim under this Article 4.5 shall also constitute a claim for purposes of the California False Claims Act. In the event of a conflict between a Claims provision in Division 1 of the Specifications and Section 4.5, Section 4.5 shall take precedence.

The Notice of Potential Change and COR procedures above are less formal procedures which precede the more formal Claim. A Notice of Potential Change does not constitute a Claim. A COR does not constitute a Claim; **except that** if insufficient time remains before the Claim deadline (see Article 4.5.4) for Contractor to submit a COR and for Owner to process and reject the COR under Article 4.5.2, then either (1) Contractor may submit a COR which Owner shall treat as a Claim, but only if the COR complies with all requirements in this Article 4.5 and Article 7 for COR's and Claims, or (2) a COR is not required so long as a Claim complying with this Article 4.5 is timely submitted.

A Claim does not include vouchers, invoices, progress payment applications, or other routine or authorized forms of requests for progress payments on the Contract; however, those documents remain "claims" for purposes of the California False Claims Act. A Claim does not include a Government Code Claim. ("Government Code Claim" means a claim under Government Code sections 900 et seq. and 910 et seq.)

4.5.4 TIME FOR SUBMITTING CLAIM; WAIVER

Contractor shall submit a Claim to the Owner's construction manager (or in the absence of a construction manager, to Architect and Owner) on or before the date of the Final Progress Payment. Owner's rejection, or lack of rejection, of a COR at any time does not affect the deadline for filing a Claim.

In addition, on or before submitting its request for a final progress payment based on 100% completion of the work, Contractor shall submit to Owner, in writing, a summary of all Claims for money or time extensions under or arising out of this Contract which were timely filed and which were fully compliant with the Contract's requirements for Claims. The submission of an Application for Payment for the Final Progress Payment shall constitute a complete waiver of all Claims against Owner under or arising out of this Contract, except those identified in the above summary. Contractor will not have satisfied a condition precedent or exhausted administrative remedies. This Claim summary requirement shall not extend the time for submitting a Claim.

Failure to timely submit a Claim, failure to include a Claim in the Claim summary, or failure to comply with any of the Claim requirements in the Contract, including but not limited to this Article 4, will act as a complete waiver of Contractor's rights to (a) recover money or time on the issues for which a Claim was required, (b) submit a Government Code Claim for the money or time (see Section 4.5.6.4), and (c) initiate any action, proceeding or litigation for the money or time, regardless of the merits. Contractor will not have satisfied a condition precedent or exhausted administrative remedies. Owner does not have an obligation to reject the Claim for a failure to comply with any of the Claim requirements in the Contract, including the lack of certification, and any failure by Owner to reject, or any delay in rejecting, a Claim on that basis does not waive the Owner's right to reject the Claim on that basis at a later time. In no event may the Contractor reserve its rights to assert a Claim for a time extension or additional money beyond the timelines set forth in this provision unless the Owner agrees in writing to allow the reservation.

4.5.5 CONTENT OF CLAIM

4.5.5.1 ***Claim Format; Waiver.*** Every Claim shall be in writing. All money or time extensions sought must be stated and itemized in the Claim at the time submitted. The responsibility to substantiate Claims shall rest with the Contractor. In addition, the Contractor shall include a certification with each and every Claim at the time of submission, as follows:

> I, [name of declarant], declare the following:
>
> [Contractor company name] has contracted with Berryessa Union School District for the Northwood Elementary School Flexible Instructional Space Alteration and Related Modernization Project. ([Contractor company name]) authorized me to prepare the attached Claim for money and/or time extension) for Berryessa Union School District regarding this Project (dated _____, 20__, entitled _____, and requesting $_____ and/or ___ additional days), and I prepared the attached Claim. I am the most knowledgeable person at [contractor company name] regarding this Claim.
>
> The attached Claim complies with all laws applicable to submission of a Claim, including but not limited to California Penal Code section 72, Government Code sections 12650 et seq. (False Claims Act), and Business and Professions Code sections 17200 et seq. (Unfair Business Practices Act). I am aware that submission or certification of false claims, or other claims that violate law or the Contract, may lead to fines, imprisonment, and/or other serious legal consequences for myself or [contractor company name].
>
> The attached Claim does not breach the Contract between [contractor company name] and Berryessa Union School District for this Project, is not a false claim, does not violate any applicable law, satisfies all provisions of the Contract applicable to submission of the Claim, only contains truthful and accurate supporting data, and only requests money and/or time extensions that accurately reflect the adjustments to money and time for which I believe that Berryessa Union School District is responsible under its Contract with [contractor company name].
>
> While preparing this declaration and Claim I consulted with others (including attorneys, consultants, or others who work for [Contractor company name]) when necessary to ensure that the statements were true and correct.
>
> Contractor understands and agrees that any Claim submitted without this certification does not meet the terms of the Contract Documents; that Owner, or Owner's representatives, may reject the Claim on that basis; and that unless Contractor properly and timely files the Claim with the certification, Contractor cannot further pursue the Claim in any forum and all rights to additional money or time for the issues covered by the Claim are waived due to a condition precedent not having been satisfied.

I declare under the penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed _____, 2___, at _____, California.

_____
[name of declarant]

Contractor's failure to timely submit a certification will constitute a complete waiver of Contractor's rights to (a) recover money or time on the issues for which a Claim was required, (b) submit a Government Code Claim (see Section 4.5.6.4) for the money or time, and (c) initiate any action, proceeding or litigation for the money or time. Contractor will not have satisfied a condition precedent or exhausted administrative remedies.

4.5.5.2 ***Claims for Additional Money.*** Each Claim for additional money (including but not limited to those described in (b) and (c) of the first paragraph of Section 4.5.3) must include all facts supporting the Claim, including but not limited to all supporting documentation plus a written analysis as to (a) why the claimed cost was incurred, (b) why Contractor could not mitigate its costs, (c) why the claimed cost is the responsibility of the Owner, and (d) why the claimed cost is a reasonable amount. In no event will the Contractor be allowed to reserve its rights to assert a Claim for money at a later time, unless the Owner expressly agrees in writing to allow the reservation. Any costs, direct or indirect, not asserted shall be waived. A Claim may not include any costs incurred in preparation of the Claim or in preparation of any underlying COR, including but not limited to costs of delay analysis.

4.5.5.3 ***Claims for Additional Time***

4.5.5.3.1 ***Notice of Extent of Claim.*** If the Contractor wishes to make a Claim for an increase in the Contract Time (including but not limited to Section 4.5.3(a)), the Claim shall include, but not be limited to, all facts supporting the Claim, all documentation of such facts, all information required by the Contract Documents, and a current schedule and delay analysis explaining (a) the nature of the delay, (b) the Owner's responsibility for the claimed delay, (c) the claimed delay's impact on the critical path, (d) the claimed delay's impact on completion date (including an analysis of any float still remaining and whether the alleged delay in work exceeds such remaining float), and (e) why Contractor could not mitigate the delay impacts.

In the case of a continuing delay, only one (1) initial Claim is necessary that is based on estimates of when the continuing delay will end, but within thirty (30) days of the end of the continuing delay an updated final Claim must be submitted, which shall also be certified. In no event will the Contractor be allowed to reserve its rights to assert a Claim for a time extension, unless the Owner expressly agrees in writing to allow the reservation. Any time extension not asserted shall be waived.

4.5.5.3.2 ***Unusually Severe Weather Claims.*** If unusually severe weather is the basis for a Claim for additional time, Contractor must provide Owner data and facts showing that the weather conditions were abnormal for the period of time, could not have been reasonably anticipated or mitigated, and had an adverse effect on the critical path of the scheduled construction.

4.5.5.4 ***"Pass Through" Claims.*** A Subcontractor or supplier to Contractor may not submit a request for additional time or money directly to the Owner. If a subcontractor or supplier submits a request for additional money or time to Contractor and Contractor wishes to pass it through to Owner, then Contractor must comply with all requirements of Section 4.5, including Notices of Potential Change, Change Order Requests, and Claims. Contractor must prepare and submit its own analysis of the Subcontractor's request, and the Claim must include a copy of the Subcontractor's request along with any other necessary supporting documentation.

The Contractor's analysis of the Subcontractor's request must include Contractor's detailed explanation as to why the Subcontractor or supplier's request is the Owner's responsibility, including Contractor's analysis of (a) why the amount of damages the Subcontractor or supplier requests is justified and appropriate, (b) how Contractor's breach of the subcontract caused the Subcontractor or supplier to incur these damages, and (c) how the Owner's breach of the Contract caused the Contractor's breach of the subcontract. Any Contractor Claim that fails to include the above information, or that states that Owner is responsible for the Subcontractor's request only in the event that Contractor is found to owe money to Subcontractor, shall act as a complete waiver of Contractor's rights to (a) recover money or time on the issues for which a Claim was required, (b) submit a Government Code Claim (see Section 4.5.6.4) for the money or time, and (c) initiate any action, proceeding or litigation for the money or time. Contractor will not have satisfied a condition precedent or exhausted administrative remedies.

4.5.6 PROCEDURES FOR CLAIMS LESS THAN OR EQUAL TO $375,000 (PUBLIC CONTRACT CODE SECTION 20104.2)

Claims less than or equal to $375,000 are subject to this section 4.5.6, as well as the separate procedures and substantive provisions of Sections 4.5.1 through 4.5.5.

4.5.6.1 ***Claims for Less Than $50,000.*** For Claims of less than fifty thousand dollars ($50,000), the Owner shall respond in writing to any written Claim within 45 days of receipt of the Claim, or may request, in writing, within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the claim the Owner may have against the Contractor.

If additional information is thereafter required, it shall be requested and provided pursuant to this subsection, upon mutual agreement of the Owner and Contractor. If Owner and Contractor cannot reach mutual agreement, Contractor's failure to provide any reasonably-requested information within fifteen (15) days after the request, shall act as a complete waiver of Contractor's rights to (a) recover money or time on the issues for which a Claim was required, (b) submit a Government Code Claim (see Section 4.5.6.4) for the money or time, and (c) initiate

any action, proceeding or litigation for such money or time. Contractor will not have satisfied a condition precedent or exhausted administrative remedies.

The Owner's written response to the Claim, as further documented, shall be submitted to the Contractor within 15 days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information, whichever is greater.

4.5.6.2 ***Claims Over $50,000 and Less Than or equal to $375,000.*** For claims over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the Owner shall respond in writing to all written Claims within 60 days of receipt of the Claim, or may request, in writing, within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the Claim the Owner may have against the Contractor.

If additional information is thereafter required, it shall be requested and provided pursuant to this subsection, upon mutual agreement of the Owner and Contractor. If Owner and Contract cannot reach mutual agreement, Contractor's failure to provide any reasonably-requested information within thirty (30) days after the request, shall act as a complete waiver of Contractor's rights to (a) recover money or time on the issues for which a Claim was required, (b) submit a Government Code Claim (see Section 4.5.6.4) for such money or time, and (c) initiate any action, proceeding or litigation for such money or time. Contractor will not have satisfied a condition precedent or exhausted administrative remedies.

The Owner's written response to the Claim, as further documented, shall be submitted to the Contractor within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information or requested documentation, whichever is greater.

4.5.6.3 ***Meet and Confer.*** If the Contractor disputes the Owner's written response, or the Owner fails to respond within the time prescribed, the Contractor may so notify the Owner, in writing, either within 15 days of receipt of the Owner's response or within 15 days of the Owner's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the Owner shall schedule a meet and confer conference for settlement of the dispute, which shall take place within 30 days of the demand. Upon written agreement of the Owner and Contractor, the conference may take place during regularly scheduled Project meetings.

If Contractor fails to timely notify the Owner that it wishes to meet and confer pursuant to the previous paragraph, then Contractor will have waived all rights to (a) recover money or time on the issues for which a Claim was required, (b) submit a Government Code Claim (see Section 4.5.6) for such money or time, and (c) initiate any action, proceeding or litigation for such money or time. Contractor will not have satisfied a condition precedent or exhausted administrative remedies.

If a Claim, or any portion of a Claim, over $100,000 remains in dispute after the meet and confer and Contractor wishes to pursue it, Contractor must demand non-binding mediation in writing within fifteen (15) days. If Contractor fails to timely notify the Owner in writing that it wishes to mediate pursuant to this paragraph, Contractor will have waived all right to further pursue the Claim pursuant to section 4.5.4. The parties shall reasonably cooperate to schedule and attend a mediation as soon as reasonably possible.

4.5.6.4 ***Government Code Claim.*** If the Claim or any portion remains in dispute after the meet and confer conference and Contractor wishes to pursue it, the Contractor **must** file a timely and proper Government Code Claim. The filing of a Government Code Claim is specifically required in addition to all contractual procedures described in Sections 4.5 through 4.5.6.3. The above contractual procedures do not act as a substitute for the Government Code Claim process, and the two sets of procedures shall be sequential with the contractual procedures coming first.

Failure to timely file a Government Code Claim shall act as complete waiver of Contractor's rights to (a) recover money or time on the issues for which a Government Code Claim was required, and (b) initiate any action, proceeding or litigation for such money or time. Contractor will not have satisfied a condition precedent or exhausted administrative remedies.

Owner and Contractor shall proceed with the Government Code Claim according to Government Code, Section 900 et seq., and as otherwise permitted by law. For purposes of the applicable Government Code provisions, and as provided in Public Contract Code section 20104.2(e), the running of the time period within which a Contractor must file a Government Code Claim shall be tolled from the time the Contractor submits a written Claim under Article 4.5 until the time that the Claim is denied, in whole or in part, as a result of the meet and confer process in Section 4.5.6.3, including any period of time utilized by the meet and confer process.

4.5.7 PROCEDURES FOR CLAIMS OVER $375,000

Contractor and Owner shall proceed with Claims over $375,000 pursuant to Section 4.5.6, except as follows: (a) Section 4.5.6.1, shall not be applicable; (b) for Section 4.5.6.2, Owner shall respond in writing to all written Claims within 90 days of receipt of the Claim, or may request, in writing, within 45 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the Claim the Owner may have against the Contractor; (c) for Section 4.5.6.2, Owner shall respond within 45 days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information or documentation, whichever is greater; and (d) for Section 4.5.6.3, following the meet and confer conference, if the Claim or any portion of it remains in dispute and Contractor wishes to pursue it, Contractor must demand in writing within fifteen (15) days that the parties mediate (non-binding). If Contractor fails to timely notify the Owner in writing that it wishes to mediate pursuant to this paragraph, then Contractor will have waived all rights to further pursue the Claim pursuant to Section 4.5.4. The parties shall reasonably cooperate to schedule and attend a mediation as soon as reasonably possible.

4.5.8 CONTINUING CONTRACT PERFORMANCE

Despite submission or rejection of a Notice of Potential Change, COR or Claim, the Contractor shall proceed diligently with performance of the Contract as directed by Owner, and the Owner shall continue to make any undisputed payments in accordance with the Contract.

4.5.9 CLAIMS FOR CONCEALED OR UNKNOWN CONDITIONS

4.5.9.1 ***Trenches or Excavations Less Than Four Feet Below the Surface.*** If Contractor encounters conditions at the Site which are subsurface or otherwise concealed physical conditions, which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall give notice to the Owner promptly before conditions are disturbed and in no event later than ten (10) days after first observance of the conditions. If Contractor believes that such conditions differ materially and will cause an increase in the Contractor's cost of, time required for, or performance of any part of the Work, Contractor must comply with the provisions above for Notice of Potential Change, Change Order Request, and Claims (beginning with Section 4.5.1).

4.5.9.2 ***Trenches or Excavations Greater Than Four Feet Below the Surface.*** Pursuant to Public Contract Code section 7104, when any excavation or trenching extends greater than four feet below the surface:

4.5.9.2.1 The Contractor shall promptly, and before the following conditions are disturbed, notify the public entity, in writing, of any:

(1) Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing law.

(2) Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids.

(3) Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

4.5.9.2.2 The public entity shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a change order under the procedures described in the Contract.

4.5.9.2.3 In the event that a dispute arises between the public entity and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or

increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

4.5.10 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, any of the other party's employees or agents, or others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding ten (10) days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. For a Notice of Potential Change, COR and Claim for additional cost or time related to this injury or damage, Contractor shall follow Section 4.5.

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 SUBCONTRACTOR

A Subcontractor is a person or entity, who has a contract with the Contractor to perform a portion of the Work at the Site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor. To the extent that the term Trade Contractor is utilized in the Contract Documents, it shall have the same meaning as the term "Subcontractor."

5.1.2 SUB-SUBCONTRACTOR

A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the Site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

5.1.3 SPECIALTY CONTRACTORS

If a Subcontractor is designated as a "Specialty Contractor" as defined in section 7058 of the Business and Professions Code, all of the Work outside of that Subcontractor's specialty shall be performed in compliance with the Subletting and Subcontracting Fair Practices Act, Public Contract Code sections 4100, et seq.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 ASSIGNMENT OR SUBSTITUTION - CONSENT OF OWNER

In accordance with Public Contract Code sections 4107 and 4107.5, no Contractor whose bid is accepted shall, without the written consent of the Owner: substitute any person or entity as a Subcontractor in place of the Subcontractor designated in the original bid; permit any such Subcontract to be assigned or transferred, or allow it to be performed by any person or entity other than the original Subcontractor listed in the original bid; sublet or subcontract any portion of the Work in excess of one-half of one percent (0.5%) of the Contractor's total bid as to which its original bid did not designate a Subcontractor. Any assignment or substitution made without the prior written consent of the awarding authority shall be void, and the assignees shall acquire no rights in the Contract. Any consent, if given, shall not relieve Contractor or its Subcontractors from their obligations under the terms of the Contract Documents.

5.2.2 GROUNDS FOR SUBSTITUTION

Pursuant to Public Contract Code section 4107 and the procedure set forth therein, no Contractor whose bid is accepted may request to substitute any person or entity as a Subcontractor in place of a Subcontractor listed in the original bid except in the following instances:

A. When the Subcontractor listed in the bid after having a reasonable opportunity to do so, fails or refuses to execute a written Contract for the scope of work specified in the subcontractor's bid and at the price specified in the subcontractor's bid, when that written Contract, based upon the general terms, conditions, plans and specifications for the Project involved or the terms of that Subcontractor's written bid, is presented to the Subcontractor by the prime contractor;

B. When the listed Subcontractor becomes insolvent or the subject of an order for relief in bankruptcy;

C. When the listed Subcontractor fails or refuses to perform his or her Subcontract;

D. When the listed Subcontractor fails or refuses to meet the bond requirements of the prime contractor set forth in Public Contract Code section 4108.

E. When the Contractor demonstrates to the awarding authority, or its duly authorized officer, subject to the further provisions of Public Contract Code section 4107.5, that the name of the Subcontractor was listed as the result of inadvertent clerical error;

F. When the listed Subcontractor is not licensed pursuant to the Contractors License Law; or

G. When the awarding authority, or its duly authorized officer, determines that the Work being performed by the listed Subcontractor is substantially unsatisfactory and not in substantial accordance with the plans and specifications, or the Subcontractor is substantially delaying or disrupting the progress of the Work.

H. When the listed Subcontractor is ineligible to work on a public works project pursuant to Section 1777.1 of the Labor Code.

I. When the awarding authority determines that a listed Subcontractor is not a responsible contractor.

5.2.2.1 ***No Change in Contract.*** Any substitutions of Subcontractors shall not result in any increase in the Contract Sum or result in the granting of any extension of time for the completion of the Project.

5.2.2.2 ***Substitution Due to Clerical Error.*** The Contractor, as a condition of asserting a claim of inadvertent clerical error in the listing of a Subcontractor, shall, pursuant to Public Contract Code section 4107.5, within two (2) working days after the time of the prime bid opening by the awarding authority, give written notice to the awarding authority and copies of such notice to both the Subcontractor it claims to have listed in error, and the intended Subcontractor who had bid to the Contractor prior to bid opening. Any listed Subcontractor who has been notified by the Contractor in accordance with the provisions of this section as to an inadvertent clerical error, shall be allowed six (6) working days from the time of the prime bid opening within which to submit to the awarding authority and to the Contractor written objection to the Contractor's claim of inadvertent clerical error.

In all other cases, the Contractor must make a request in writing to the awarding authority for the substitution of a subcontractor, giving reasons therefore. The awarding authority shall mail a written notice to the listed Subcontractor giving reasons for the proposed substitution. The listed Subcontractor shall have five (5) working days from the date of such notice within which to file with the awarding authority written objections to the substitution.

Failure to file written objections pursuant to the provisions of this section within the times specified herein shall constitute a complete waiver of objection to the substitution by the listed Subcontractor and, where the ground for substitution is an inadvertent clerical error, an agreement by the listed Subcontractor that an inadvertent clerical error was made.

If written objections are filed, the awarding authority shall give five (5) days notice to the Contractor and to the listed Subcontractor of a hearing by the awarding authority on the Contractor's request for substitution as provided in Public Contract Code section 4107. The determination by the awarding authority shall be final.

5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be

bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all obligations and responsibilities, which the Contractor, by the Contract Documents, assumes toward the Owner. Each subcontract agreement shall preserve and protect the rights of the Owner under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound. Upon written request of the Subcontractor, the Contractor shall identify to the Subcontractor the terms and conditions of the proposed subcontract agreement, which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

A. Assignment is effective only after termination of the Contract with the Contractor by the Owner for cause pursuant to Article 14 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and

B. Assignment is subject to the prior rights of the surety, if any, obligated under any bond relating to the Contract.

5.5 SUBCONTRACTOR'S RESPONSIBILITIES

Every Subcontractor is bound to the following provisions, unless specifically noted to the contrary in the Subcontractor's contract subject to the limitations of section 5.3.

5.5.1 SUPERVISION BY SUBCONTRACTORS

Subcontractors shall efficiently supervise their Work, using their best skill and attention. Each of them shall carefully study and compare all Drawings, Specifications, and other instructions, shall at once report to Contractor any error or omission which any of them may discover, and shall subsequently proceed with the Work in accordance with instructions from the Contractor concerning such error or omission. Each Subcontractor shall be fully responsible for and shall bear the full risk of loss of all of its property.

5.5.2 DISCIPLINE AND ORDER

Each Subcontractor shall at all times enforce strict discipline and good order among its Subcontractors, material or equipment suppliers, or their agents, employees, and invitees, and shall establish and maintain surveillance over the activities of each of the foregoing to minimize any disturbance, damage, pollution, or unsightly conditions relative to property areas adjacent to or in the vicinity of the Site. The Contractor shall have the right to remove from the Work any employee of a Subcontractor for any reason including, without limitation, incompetence or carelessness.

5.5.3 DEFECTS DISCOVERED

Should the proper and accurate performance of the Work depend upon the proper and accurate performance of other work not included in its Contract, each Subcontractor shall use all necessary means to discover any defect in such other work and shall allow the Contractor, the Owner and Architect, or other Subcontractors as Contractor elects, a reasonable amount of time to remedy such defects. If the Subcontractor should proceed with its Work, it shall be considered to have accepted such other work, unless the Subcontractor shall have proceeded pursuant to instructions in writing by the Contractor over its written objection.

5.5.4 SUBCONTRACTOR INFORMATION

Each Subcontractor shall submit to the Owner, the Contractor, or the Architect, as the case may be, promptly when requested by any of the foregoing, information with respect to the names, responsibilities, and titles of the principal members of its staff, the adequacy of the Subcontractor's equipment and the availability of necessary materials and supplies. Subcontractor shall fully cooperate with Contractor in its periodic review of the adequacy of Subcontractor's supervision, personnel, and equipment, and the availability of necessary materials and supplies and shall promptly comply with the requirements of the Contractor with respect thereto.

5.5.5 TEMPORARY STRUCTURES

Each Subcontractor shall furnish at its expense its own temporary facilities and storage except those specifically agreed to be furnished to it by the Contractor in the Subcontract Agreement. Subcontractor's material storage rooms and field offices, etc., will be placed in locations designated by the Contractor. When it becomes necessary due to the progress of the Project for the Subcontractor to relocate its field operations, it will do so in an expeditious manner and at no additional cost to Contractor or Owner. The construction of material storage rooms and field offices, etc., will be of fire resistive material only, such as concrete or gypsum block, rated drywall, or sheet metal.

5.5.6 CHARGES TO SUBCONTRACTOR

Each Subcontractor may be subject to the Contractor's reasonable charges for hoisting, repair to other work caused by the fault or negligence of Subcontractor, removal of Subcontractor's rubbish, and clean-up occasioned by Subcontractor.

5.5.7 FINES IMPOSED

Subcontractor shall comply with and pay any fines or penalties imposed for violation of any applicable law, ordinance, rule, regulation, Environmental Impact Report mitigation requirement, and lawful order of any public authority, including, without limitation, all OSHA and California OSHA requirements and those of other authorities having jurisdiction of the safety of persons or property.

5.5.8 PROJECT SIGNS

Each Subcontractor shall not display on or about the Project any sign, trademark, or other advertisement. The Owner will permit a single Project sign, which shall be subject to the Owner's prior and sole discretion and approval, as to all matters including, without limitation, size, location, material, colors, style and size of printing, logos and trademarks (if any), text, and selection of names to be displayed.

5.5.9 REMEDIES FOR FAILURE TO PERFORM

Without limitation of any other right or remedy available to Contractor under the Contract Documents or at law, should: the Subcontractor fail to perform its portion of the Work in a skilled and expeditious manner in accordance with the terms of the Contract Documents with sufficient labor, materials, equipment, and facilities; delays the progress of the job or otherwise fail in any of its obligations; or either a receiver is appointed for the Subcontractor or the Subcontractor is declared to be bankrupt or insolvent, and such appointment, bankruptcy, or insolvency proceedings or declaration is not set aside within thirty (30) days, then the Contractor, upon three (3) days notice to the Subcontractor (subject to the requirements of Pub. Contracts Code, § 4107), may provide such labor, materials, or perform such work and recover the cost plus profit and overhead from monies due or to become due thereafter to the Subcontractor. The Contractor may terminate the employment of the Subcontractor, taking possession of its tools, materials, and equipment related to the Work and cause the entire portion of the Subcontractor's Work to be finished either by another Subcontractor or through the Contractor's own forces.

5.5.10 DISPUTES NOT TO AFFECT WORK

In the event of any dispute as to whether or not any portion of the Work is within the scope of the Work to be performed by a Subcontractor, or any dispute as to whether or not the Subcontractor is entitled to a Change Order for any Work requested of it or entitled to payment, the Subcontractor shall continue to proceed diligently with the performance of the Work. Regardless of the size or nature of the dispute, the Subcontractor shall not under any circumstances cease or delay performance of its portion of the Work during the existence of the dispute. The Contractor shall continue to pay the undisputed amounts called for under the Subcontract Agreement during the existence of the dispute. Any party stopping or delaying the

progress of the Work because of a dispute shall be responsible in damages to the Owner, the Architect, and the Contractor for any losses suffered as a result of the delay.

5.5.11 APPLICATION FOR PAYMENT

Contractor agrees to advise the Subcontractor if any documentation in connection with the Subcontractor's application for payment has not been accepted or is in any way unsatisfactory.

5.5.12 COMPLIANCE WITH PROCEDURES

Each Subcontractor shall comply with all procedures established by the Contractor for coordination among the Owner, the Owner's consultants, Architect, Contractor, and the various Subcontractors for coordination of the Work with all local municipal authorities, government agencies, utility companies, and any other agencies with jurisdiction over all or any portion of the Work. The Subcontractor shall cooperate fully with all of the foregoing parties and authorities.

5.5.13 ON-SITE RECORD KEEPING

Subcontractor shall comply with all on-Site record keeping systems established by the Contractor and shall, upon the request of the Contractor, provide the Contractor with such information and reports as the Contractor may deem appropriate. Without limitation of the foregoing, the Subcontractor shall assemble all required permits and certificates so that they are readily accessible at the Site.

5.5.14 NON-EXCLUSIVE OBLIGATIONS

The specific requirements of Article 5 are not intended to exclude the obligation of the Subcontractor to comply with any of the other provisions of the General Conditions and the other Contract Documents which are relevant to the proper performance of its portion of the Work.

ARTICLE 6

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 OWNER'S RIGHTS

The Owner reserves the right to perform work related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the Site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance. Upon the election to perform work with its own forces or by separate contracts, the Owner shall notify the Contractor. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall proceed pursuant to Section 4.5 in the Contract Documents.

6.1.2 DESIGNATION AS CONTRACTOR

When separate contracts are awarded for different portions of the Project or other construction or operations on the Site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner/Contractor Agreement.

6.1.3 CONTRACTOR DUTIES

The Contractor shall have overall responsibility for coordination and scheduling of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule and Contract Sum deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors, and the Owner until subsequently revised.

6.1.4 OWNER OBLIGATIONS

Unless otherwise provided in the Contract Documents, when the Owner performs work related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations, and to have the same rights, which apply to the Contractor under the General Conditions, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10 and 12.

6.2 MUTUAL RESPONSIBILITY

6.2.1 DELIVERY AND STORAGE

The Contractor shall afford the Owner and separate contractor's reasonable opportunity for delivery and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the separate contractors' construction and operations with theirs as required by the Contract Documents.

6.2.2 NOTICE BY CONTRACTOR

If part of the Contractor's Work depends upon proper execution or results from work by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Owner patent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor to so report shall constitute an acknowledgment that the Owner's or separate contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.3 COSTS INCURRED

Costs, expenses, and damages caused by delays, improperly timed activities, defective construction, or damages to another's work/Work or property shall be borne by the party responsible. Should Contractor/any contractor cause damage to the work/Work or property of any separate contractor on the Project, or cause any delay to any such contractor, the Contractor shall defend, indemnify and hold Owner harmless for such damage or delay under section 3.16. Owner may withhold from progress payments and/or retention the cost of delay or damage to another contractor's work or damage to another contractor's property caused by Contractor.

6.2.4 CORRECTION OF DAMAGE

The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors.

6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Section 3.13, the Owner may clean up and allocate the cost among those responsible as the Owner determines to be just.

ARTICLE 7

CHANGES IN THE WORK

7.1 CHANGES

7.1.1 NO CHANGES WITHOUT AUTHORIZATION

The Owner reserves the right to change the Work by making such alterations, deviations, additions to, or deletions from the plans and specifications, as may be deemed by the Owner to be necessary or advisable for the proper completion or construction of the Work contemplated, and Owner reserves the right to require Contractor to perform such work. No adjustment will be

made in the Contract unit price of any Contract item regardless of the quantity ultimately required.

Owner shall compensate Contractor with money or grant extra time for any extra work ordered by the Owner to be performed. Contractor shall follow the provisions of 7.6 and 7.7 when requesting additional money or additional time. Contractor shall expeditiously perform all extra work upon direction, even if no agreement has been reached on extra time or money. For all such changes resulting in a credit to Owner, Contractor shall follow 7.5 and 7.7 in providing the credit to Owner. Contractor shall bring all potential credits to the Owner's attention.

There shall be no change whatsoever in the drawings, specifications, or in the Work or payments under the Contract Documents without an executed Change Order, Construction Change Directive, or order by the Owner pursuant to Section 7.1.2. Owner shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the same shall have been properly requested under Section 4.5 and authorized by, and the cost thereof approved in writing by, Change Order or Construction Change Directive. No extension of time for performance of the Work shall be allowed hereunder unless request for such extension is properly made under Section 4.5 and such time is thereof approved in writing by Change Order or Construction Change Directive. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications.

7.1.2 AUTHORITY TO ORDER MINOR CHANGES

The Owner has authority to order minor changes in the Work not involving any adjustment in the Contract Sum, an extension of the Contract Time, or a change which is inconsistent with the intent of the Contract Documents. Such changes shall be effected by written Construction Change Directive and shall be binding on the Contractor. The Contractor shall carry out such written orders promptly.

7.2 CHANGE ORDERS ("CO")

A CO is a written instrument signed by the Owner and the Contractor, stamped (or sealed) and signed by Architect, and approved by the Owner's Governing Board and DSA where required, stating the agreement of Owner and Contractor upon all of the following:

A. A change in the Work;

B. The amount of the adjustment in the Contract Sum, if any; and

C. The extent of the adjustment in the Contract Time, if any.

Unless expressly stated otherwise in the CO, any CO executed by Owner and Contractor constitutes and includes full and complete money and time (including but not limited to, adjustments to money and time) for all costs and effects caused by any of the changes described within it. Unless expressly stated otherwise in the CO, in consideration for the money received

for the changes described in the CO, Contractor waives all Claims for all costs and effects caused by any of the changes, including but not limited to labor, equipment, materials, delay, extra work, overhead (home and field), profit, direct costs, indirect costs, acceleration, disruption, impaired productivity, time extensions, and any the costs and effects on Subcontractors and suppliers of any tier.

7.3 CONSTRUCTION CHANGE DIRECTIVES ("CCD")

7.3.1 DEFINITION

A CCD is a written unilateral order signed by the Owner, and if necessary by the Architect, directing a change in the Work and stating an adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by CCD, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions pursuant to Section 7.1.1.

7.3.2 USE TO DIRECT CHANGE

A CCD shall be used in the absence of agreement on the terms of a CO. If Contractor disagrees with the terms of a CCD, it shall nevertheless perform the work directed by the CCD, but it may pursue the Notice of Potential Change, COR and Claim procedures of Section 4.5 if Contractor believes it is entitled to changes in the Contract Sum or Contract Time.

7.4 REQUEST FOR INFORMATION ("RFI")

7.4.1 DEFINITION

An RFI is a written request prepared by the Contractor asking the Owner to provide additional information necessary to clarify an item which the Contractor feels is not clearly shown or called for in the drawings or specifications, or to address problems which have arisen under field conditions.

7.4.2 SCOPE

The RFI shall reference all the applicable Contract Documents including specification section, detail, page numbers, drawing numbers, and sheet numbers, etc. The Contractor shall make suggestions and/or interpretations of the issue raised by the RFI. An RFI cannot modify the Contract Sum, Contract Time, or the Contract Documents.

7.4.3 RESPONSE TIME

Unless Owner expressly directs otherwise in writing, Contractor shall submit RFIs directly to the Architect, with copies forwarded to the Owner. Contractor shall submit a revised and updated priority schedule with each RFI. The Architect shall endeavor to follow the Contractor's

requested order of priorities. The Owner and Contractor agree that an adequate time period for the Architect (or other designated recipient of the RFI) to respond to an RFI is generally fourteen (14) calendar days after the Architect's receipt of an RFI, unless the Owner and Contractor agree otherwise in writing. However, in all cases, the Architect shall take such time, whether more or less than 14 days, as is necessary in the Architect's professional judgment to permit adequate review and evaluation of the RFI. If Contractor informs the Architect that it needs a response to an RFI expedited to avoid delay to the critical path, the Architect shall provide a response as quickly as reasonably possible. The total time required for the Architect to respond is subject to the complexity of the RFI, the number of RFI's submitted concurrently and the reprioritization of pending RFI's submitted by the Contractor, among other things. If Contractor believes that the Architect's response results in a change in the Work that warrants additional money or time, or that Architect's response was unreasonably delayed and caused delay to the Project's critical path, Contractor shall follow the procedures for additional money or time under Section 4.5. No presumption shall arise as to the timeliness of the response if the response is more than fourteen (14) days after the Architect's receipt of the RFI. Contractor shall review the Contract Documents before submitting an RFI to ensure that the information is not already in the Contract Documents. To compensate the Owner for time and costs incurred for each time the information was already in the Contract Documents, Owner may withhold $100 from progress payments or retention in addition to any other remedies which Owner may have the right to pursue.

7.4.4 COSTS INCURRED

The Contractor shall be invoiced by the Owner for any costs incurred for professional services, which shall be withheld from progress payments or retention, if an RFI requests an interpretation or decision of a matter where the information sought is equally available to the party making such request.

7.5 REQUEST FOR PROPOSAL ("RFP")

7.5.1 DEFINITION

An RFP is Owner's written request asking the Contractor to submit to the Owner an estimate of the effect, including credits, of a proposed change on the Contract Sum and the Contract Time.

7.5.2 SCOPE

An RFP shall contain adequate information, including any necessary drawings and specifications, to enable Contractor to provide the cost breakdowns required by section 7.7. The Contractor shall not be entitled to any additional money for preparing a response to an RFP, whether ultimately accepted or not.

7.6 CHANGE ORDER REQUEST ("COR")

7.6.1 DEFINITION

A COR is a written request prepared by the Contractor asking the Owner for additional money or time.

7.6.2 CHANGES IN PRICE

A COR shall include breakdowns per section 7.7 to validate any proposed change in Contract Sum.

7.6.3 CHANGES IN TIME

Where a change in Contract Time is requested, a COR shall also include delay analysis to validate any proposed change to the Contract Time, and shall meet all requirements in these General Conditions, including but not limited to Section 8.4. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Project Schedule as defined in section 3.9 and Division 1 of the Specifications.

7.7 PRICE OF CHANGE ORDERS

7.7.1 SCOPE

Any COR shall provide in writing to the Owner, the Architect and any construction manager, the effect of the proposed CO upon the Contract Sum and the actual cost of construction, which shall include a complete itemized cost breakdown of all labor and material showing actual quantities, hours, unit prices, wage rates, required for the change, and the effect upon the Contract Time of such CO.

7.7.2 DETERMINATION OF COST

The amount of the increase or decrease in the Contract Sum resulting from a CO, if any, shall be determined in one or more of the following ways as applicable to a specific situation:

A. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

B. Unit prices stated in the Contractor's original bid, the Contract Documents, or subsequently agreed upon between the Owner and the Contractor;

C. Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

D. By cost of material and labor and percentage of overhead and profit. If the value is determined by this method the following requirements shall apply:

1. **Daily Reports by Contractor**.

a) General: At the close of each working day, the Contractor shall submit a daily report to the Inspector of Record and any construction manager,

on forms approved by the Owner, together with applicable delivery tickets, listing all labor, materials, and equipment involved for that day, the location of the work, and for other services and expenditures when authorized concerning extra work items. An attempt shall be made to reconcile the report daily, and it shall be signed by the Inspector of Record and the Contractor. In the event of disagreement, pertinent notes shall be entered by each party to explain points which cannot be resolved immediately. Each party shall retain a signed copy of the report. Reports by Subcontractors or others shall be submitted through the Contractor.

b) Labor: Show names of workers, classifications, and hours worked.

c) Materials: Describe and list quantities of materials used.

d) Equipment: Show type of equipment, size, identification number, and hours of operation, including, if applicable, loading and transportation.

e) Other Services and Expenditures: Describe in such detail as the Owner may require.

2. **Basis for Establishing Costs**.

a) Labor will be the actual cost for wages prevailing locally for each craft or type of workers at the time the extra work is done, plus employer payments of payroll taxes and insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State, or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. The use of a labor classification, which would increase the extra work cost, will not be permitted unless the Contractor establishes the necessity for such additional costs. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental.

b) Materials shall be at invoice or lowest current price at which such materials are locally available and delivered to the Site in the quantities involved, plus sales tax, freight, and delivery.

The Owner reserves the right to approve materials and sources of supply or to supply materials to the Contractor if necessary for the progress of the Work. No markup shall be applied to any material provided by the Owner.

c) Tool and Equipment Rental. No payment will be made for the use of tools which have a replacement value of $100 or less.

Regardless of ownership, the rates to be used in determining equipment rental costs shall not exceed listed rates prevailing locally at equipment rental agencies or distributors at the time the work is performed.

The rental rates paid shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

Necessary loading and transportation costs for equipment used on the extra work shall be included. If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to the Owner than holding it at the work Site, it shall be returned unless the Contractor elects to keep it at the work Site at no expense to the Owner.

All equipment shall be acceptable to the Inspector of Record, in good working condition, and suitable for the purpose for which it is to be used. Manufacturer's ratings and modifications shall be used to classify equipment, and equipment shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

d) Other Items. The Owner may authorize other items which may be required on the extra work. Such items include labor, services, material, and equipment which are different in their nature from those required by the Work, and which are of a type not ordinarily available from the Contractor or any of the Subcontractors. Invoices covering all such items in detail shall be submitted with the Application for Payment.

e) Invoices. Vendors' invoices for material, equipment rental, and other expenditures shall be submitted with the COR. If the Application for Payment is not substantiated by invoices or other documentation, the Owner may establish the cost of the item involved at the lowest price which was current at the time of the Daily Report.

f) Overhead, premiums and profit. For overhead, including direct and indirect costs, submit with the COR and include: home office overhead, off-Site supervision, CO preparation/negotiation/research for Owner initiated changes, time delays, project interference and disruption, additional guaranty and warranty durations, on-Site supervision, additional temporary protection, additional temporary utilities, additional material handling costs, and additional safety equipment costs.

7.7.3 FORMAT FOR PROPOSED COST CHANGE

The following format shall be used as applicable by the Owner and the Contractor to communicate proposed additions and deductions to the Contract.

	EXTRA	CREDIT
A. Material (attach itemized quantity and unit cost plus sales tax, invoices, receipts, truck tags, etc., for force account work)	_____	_____
B. Labor (attach itemized hours and rates, daily logs, certified payroll, etc.)	_____	_____
C. Equipment (attach any invoices)	_____	_____
D. Subtotal	_____	_____
E. If Subcontractor performed Work, add Subcontractor's overhead and profit to portions performed by Subcontractor, not to exceed fifteen percent (15%) of item D.	_____	_____
F. Liability and Property Damage Insurance, Worker's Compensation Insurance, Social Security, and Unemployment Taxes, not to exceed twenty percent (20%) of Item B.		
G. Subtotal	_____	_____
H. General Contractor's Overhead and Profit, not to exceed fifteen percent (15%) of Item G; and for work performed by subcontractors, not to exceed five percent (5%).	_____	_____
I. Subtotal	_____	_____
J. Bond not to exceed one percent (1%) of Item I.	_____	_____
K. TOTAL	_____	_____

It is expressly understood that the value of such extra work or changes, as determined by any of the aforementioned methods, expressly includes (1) any and all of the Contractor's costs and expenses, both direct and indirect, resulting from additional time required on the project or resulting from delay to the project, and (2) any costs of preparing a COR, including but not limited to delay analysis. Any costs or expenses not included are deemed waived.

It is further understood that the **total** percentage markup on any change order shall not exceed twenty five percent (25%).

7.7.4 **DISCOUNTS, REBATES, AND REFUNDS**

For purposes of determining the cost, if any, of any change, addition, or omission to the Work hereunder, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials and equipment shall accrue and be credited to the Contractor, and the Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of the Contractor's cost in determining the actual cost of construction for purposes of any change, addition, or omissions in the Work as provided herein.

7.7.5 ACCOUNTING RECORDS

With respect to portions of the Work performed by COs and CCDs on a time-and-materials, unit-cost, or similar basis, the Contractor shall keep and maintain cost-accounting records satisfactory to the Owner, which shall be available to the Owner on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents.

7.7.6 NOTICE REQUIRED

Contractor shall submit a written Notice of Potential Change for additional money or time pursuant to section 4.5.1.

7.7.7 APPLICABILITY TO SUBCONTRACTORS

Any requirements under this Article 7 shall be equally applicable to COs or CCDs issued to Subcontractors by the Contractor to the same extent required of the Contractor.

7.8 WAIVER OF RIGHT TO CLAIM MONEY OR TIME

Failure to demand money based on costs, or time extensions, as part of a COR constitutes a complete waiver of Contractor's right to claim the omitted money or time. All money or time for an issue must be included in the COR at the time submitted.

ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 CONTRACT TIME

Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Completion of the Work.

8.1.2 NOTICE TO PROCEED

Contractor shall not commence the Work until it receives a Notice to Proceed from Owner. The date of commencement of the Work is the date established in the Notice to Proceed. The date of commencement shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible.

8.1.3 DAYS

The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

8.2 HOURS OF WORK

8.2.1 SUFFICIENT FORCES

Contractors and Subcontractors shall furnish sufficient forces to ensure the prosecution of the Work in accordance with the Construction Schedule.

8.2.2 PERFORMANCE DURING WORKING HOURS

Work shall be performed during regular working hours except that in the event of an emergency or when required to complete the Work in accordance with job progress, work may be performed outside of regular working hours with the advance written consent of the Owner.

8.2.3 LABOR CODE APPLICATION

As provided in Article 3 (commencing at § 1810), Chapter 1, Part 7, Division 2 of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by the Contractor or by any Subcontractor on any subcontract under this Contract, upon the work or upon any part of the work contemplated by this Contract, is limited and restricted to eight (8) hours during any one calendar day and forty (40) hours during any one calendar week, except as hereinafter provided. Notwithstanding the provision hereinabove set forth, work performed by employees of Contractors in excess of eight (8) hours per day and forty (40) hours during any one week shall be permitted upon this public work with compensation provided for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay.

Contractor or subcontractor shall pay to the Owner a penalty of Twenty-five Dollars ($25.00) for each worker employed in the execution of this Contract by the Contractor, or by any Subcontractor, for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any calendar day and forty (40) hours in any one (1) calendar week, in violation of the provisions of Article 3 (commencing at § 1810), Chapter 1, Part 7, Division 2 of the Labor Code, unless compensation for the workers so employed by Contractor is not less than one and one-half (1-1/2) times the basic rate of pay for all hours worked in excess of eight (8) hours per day.

8.2.4 COSTS FOR AFTER HOURS INSPECTIONS

If the work done after hours is required by the Contract Documents to be done outside the Contractor's or the Inspector of Record's regular working hours, the costs of any inspections, if required to be done outside normal working hours, shall be borne by the Owner.

If the Owner allows the Contractor to do work outside regular working hours for the Contractor's own convenience, the costs of any inspections required outside regular working hours, among other remedies, shall be invoiced to the Contractor by the Owner and withheld from progress payments and/or retention. Contractor shall give Owner at least 48 hours notice prior to working outside regular working hours.

If the Contractor elects to perform work outside the Inspector of Record's regular working hours, costs of any inspections required outside regular working hours, among other remedies, may be invoiced to the Contractor by the Owner and withheld from progress payments and/or retention.

8.2.5 TIME FOR COMMENCEMENT BY SUBCONTRACTORS

Unless otherwise provided in the Contract Documents, all Subcontractors shall commence their Work within two (2) consecutive business days after notice to them by the Contractor and shall prosecute their Work in accordance with the progress of the Work.

8.3 PROGRESS AND COMPLETION

8.3.1 TIME OF THE ESSENCE

Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

8.3.2 NO COMMENCEMENT WITHOUT INSURANCE

The Contractor shall not knowingly, except by agreement or instruction of the Owner, in writing, commence operations on the Site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance.

8.3.3 EXPEDITIOUS COMPLETION

The Contractor shall proceed expeditiously to perform the Work, with adequate forces, labor, materials, equipment, services and management, and shall achieve Completion within the Contract Time.

8.4 EXTENSIONS OF TIME - LIQUIDATED DAMAGES

8.4.1 CONDITIONS ALLOWING FOR EXTENSIONS OF TIME TO COMPLETE THE WORK, ONLY (EXCUSABLE DELAY)

If Contractor exercises due diligence, but the critical path schedule of the Work is unavoidably delayed due to acts of God, acts of public enemy, acts of the Government, acts of the Owner or anyone employed by it, acts of another contractor in performance of a contract (other than this Contract) with the Owner, fires, floods, epidemics, quarantine restrictions, labor disputes, unusually severe weather, or delays of subcontractors due to such causes, the Owner shall extend the time to complete the Work if Contractor complies with Section 4.5 and Article 7. Owner shall take into consideration other relevant factors such as concurrent delays. Contractor has the burden of proving that any delay was excusable.

8.4.2 COMPENSABLE DELAY (TIME AND MONEY)

Compensable delays are those excusable delays for which Contractor is also entitled to money. To be compensable, an excusable delay must be one for which the Owner is responsible, where the delay was unreasonable under the circumstances involved, and where the delay was not within the contemplation of the parties; ***however***, Contractor shall not be entitled to monetary compensation when (a) Contractor could have reasonably anticipated the delay and avoided or minimized the cost impacts of it, (b) there was a concurrent delay which does not qualify for monetary compensation under this paragraph, (c) the cause of the delay was reasonably unforeseen by the City or the delay was caused by factors beyond the control of the Owner, including but not limited to a delay under Section 2.2.8 above or a delay caused by a utility company's failure to perform despite Owner's reasonable arrangements for such performance; or (d) any other defense available to Owner under law or equity applies. Contractor has the burden of proving that any delay was excusable and compensable, including an analysis that establishes non-concurrency.

8.4.3 NOTICE BY CONTRACTOR REQUIRED; PROCEDURES FOR DEMANDING ADDITIONAL TIME OR MONEY

For notice and other required procedures related to requests by Contractor for additional time or money related to delay, Contractor shall comply with the Contract Documents, including but not limited to Sections 3.18 and 4.5, and Article 7, above.

8.4.4 EARLY COMPLETION

Regardless of the cause therefore, the Contractor may not maintain any Claim or cause of action against the Owner for damages incurred as a result of its failure or inability to complete its work on the Project in a shorter period than established in the Contract Documents, the parties

stipulating that the period set forth in the Contract Documents is a reasonable time within which to perform the Work on the Project.

8.4.5 LIQUIDATED DAMAGES

Failure to Complete the Project within the time and in the manner provided for by the Contract Documents (i.e., by the Completion deadline) shall subject the Contractor to liquidated damages. For purposes of liquidated damages, the concept of "substantial completion" shall not constitute Completion and is not part of this agreement. The actual occurrence of damages and the actual amount of the damages which the Owner would suffer if the Project were not completed by the Completion deadline are dependent upon many circumstances and conditions which could prevail in various combinations and, from the nature of the case, it is impracticable and extremely difficult to fix the actual damages. Damages which the Owner would suffer in the event of delay include, but are not limited to, loss of the use of the Project, disruption of activities, costs of administration, supervision and the incalculable inconvenience and loss suffered by the public.

Accordingly, the parties agree that the amount set forth in the Agreement shall be presumed to be the amount of damages which the Owner shall directly incur upon failure of the Contractor to Complete the Project by the Completion deadline, during or as a result of each calendar day by which Completion of the Project is delayed beyond the Completion deadline as adjusted by Change Orders.

If the Contractor fails to Complete the Project by the Completion deadline as adjusted by Change Orders, and liquidated damages therefore accrue, the Owner, in addition to all other remedies provided by law, shall have the right to assess liquidated damages at any time, and to withhold liquidated damages (and any interest thereon) at any time from any and all retention or progress payments, which would otherwise be or become due the Contractor. In addition, if it is reasonably apparent to the Owner before the Completion deadline (as adjusted by Change Orders) that the Contractor cannot or will not complete the Work before that Completion deadline, Owner may assess and withhold, from retention or progress payments, the estimated amount of liquidated damages that will accrue in the future. If the retained percentage or withheld progress payments are not sufficient to discharge all liabilities of the Contractor incurred under this Article, the Contractor and its sureties shall continue to remain liable to the Owner until all such liabilities are satisfied in full.

If the Owner accepts any work or makes any payment under this Agreement after a default by reason of delays, the payment or payments shall in no respect constitute a waiver or modification of any Agreement provisions regarding time of Completion and liquidated damages.

8.5 GOVERNMENT APPROVALS

Owner shall not be liable for any delays or damages related to the time required to obtain government approvals.

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement, later adjusted by Change Orders and Construction Change Directives, and is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

9.2 COST BREAKDOWN

9.2.1 REQUIRED INFORMATION

On forms approved by the Owner, the Contractor shall furnish the following:

A. Within ten (10) days of the mailing, faxing or delivering of the Notice of Award of the Contract, a detailed breakdown of the Contract Sum (Schedule of Values) for each Project or Site. Each item in the schedule of values shall include its proper share of the overhead and profit.

B. Within ten (10) days of the mailing, faxing or delivering of the Notice of Award of the Contract, a schedule of estimated monthly payment requests (cash flow) due the Contractor showing the values and construction time of the various portions of the Work to be performed by it and by its Subcontractors or material and equipment suppliers containing such supporting evidence as to its correctness as the Owner may require;

C. Five (5) days prior to the submission of a pay request, an itemized breakdown of work done for the purpose of requesting partial payments;

D. Within ten (10) days of the mailing, faxing or delivering of the Notice of Award of the Contract, the name, address, telephone number, fax number, license number, and classification of all of its Subcontractors and of all other parties furnishing labor, material, or equipment for its Contract, along with the amount of each such subcontract or the price of such labor, material, and equipment needed for its entire portion of the Work.

9.2.2 OWNER ACCEPTANCE REQUIRED

The Owner shall review all submissions received pursuant to paragraph 9.2.1 in a timely manner. All submissions must be accepted by the Owner before becoming the basis of any payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 **PROCEDURE**

On or before the fifth (5th) day of each calendar month during the progress of the portion of the Work for which payment is being requested, the Contractor shall submit to the Architect, unless there is a construction manager for the Project or the Owner directs otherwise, an itemized Application for Payment for operations completed in accordance with the Schedule of Values through the end of the previous calendar month. Such application shall be notarized, if required, and supported by the following or such portion thereof as the applicable entity requires:

A. The amount paid to the date of the Application to the Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract;

B. The amount being requested with the Application for Payment by the Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract;

C. The balance that will be due to each of such entities after said payment is made;

D. A certification that the Record Drawings and Annotated Specifications are current;

E. The Owner approved additions to and subtractions from the Contract Sum and Time;

F. A summary of the retentions (each Application shall provide for retention, as set out in Article 9.6);

G. Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the Owner may require from time to time;

H. The percentage of completion of the Contractor's Work by line item;

I. A statement showing all payments made by the Contractor for labor and materials on account of the Work covered in the preceding Application for Payment. Such applications shall not include requests for payment of amounts the Contractor does not intend to pay to subcontractors or others because of a dispute or other reason; and

J. Contractor's monthly reports, daily reports, and monthly schedule updates for all months of Work prior to the Application for Payment that Contractor has not previously submitted.

9.3.2 **PURCHASE OF MATERIALS AND EQUIPMENT**

As the Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work at no additional cost or advance payment from Owner, to assure that there

will be no delays, payment by the Owner for stored material shall be made only in unusual circumstances where the Architect specifically recommends, and Owner specifically approves the payment in writing. If payments are to be made on account of materials and equipment not incorporated in the Work, but delivered and suitably stored at the Site or at some other location agreed upon in writing by the Owner, the payments shall be conditioned upon submission by the Contractor, Subcontractor, or vendor of bills of sale and such other documents satisfactory to the Owner to establish the Owner's title to such materials or equipment free of all liens and encumbrances, and otherwise protect the Owner's interest, including, without limitation, provision of applicable insurance and transportation to the Site. All stored items shall be inventoried, specified by identification numbers (if applicable), released to the Owner by sureties of the Contractor and the Subcontractor and, if stored off-Site, stored only in a bonded warehouse.

9.3.3 WARRANTY OF TITLE

The Contractor warrants that title to all work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the work. Transfer of title to work does not constitute a waiver by Owner of any defects in the work.

9.4 REVIEW OF PROGRESS PAYMENT

9.4.1 OWNER ACCEPTANCE

The Owner will, within seven (7) days after receipt of the Contractor's Application for Payment, either accept such payment or notify the Contractor in writing of the Owner's reasons for withholding acceptance in whole or in part as provided in paragraph 9.5.1.

9.4.2 OWNER'S REVIEW

The review of the Contractor's Application for Payment by the Owner will be based, at least in part, on the Owner's observations at the Site and the data comprising the Application for Payment that the Work has progressed to the point indicated. The review is also subject to an evaluation of the Work for conformance with the Contract Documents, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion, and to specific qualifications expressed by the Owner. The Owner may reject the Application for Payment if it is not complete under section 9.3. The issuance of a Certificate for Payment will constitute a representation that the Contractor is entitled to payment in the amount certified, subject to any specific qualifications Owner expresses in the Certificate for Payment. However, Contractor's entitlement to payment may be affected by subsequent evaluations of the Work for conformance with the Contract Documents, test and inspections and discovery of

minor deviations from the Contract Documents correctable prior to completion. The issuance of a Certificate for Payment will not be a waiver by the Owner of any defects in the work covered by the Application for Payment, nor will it be a representation that the Owner has:

A. Made exhaustive or continuous on-Site inspections to check the quality or quantity of the Work;

B. Reviewed construction means, methods, techniques, sequences, or procedures;

C. Reviewed copies of requisitions received from Subcontractors, material and equipment suppliers, and other data requested by the Owner to substantiate the Contractor's right to payment; or

D. Made an examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

9.5 DECISIONS TO WITHHOLD PAYMENT

9.5.1 REASONS TO WITHHOLD PAYMENT

The Owner may withhold from a progress payment, in whole or in part, to such extent as may be necessary to protect the Owner due to any of the following:

A. Defective or incomplete Work not remedied;

B. Stop Payment Notices. For any stop payment notice, the Owner shall withhold the amount stated in the stop payment notice, the stop notice claimant's anticipated interest and court costs and an amount to provide for the public entity's reasonable cost of any litigation pursuant to the stop payment notice. For any stop payment notice action the parties resolve before judgment is entered, Owner has the right to permanently withhold for any reasonable cost of litigation for that stop payment notice, even if it exceeds the amount originally withheld by Owner for the estimated reasonable cost of litigation. However, if (1) the Contractor at its sole expense provides a bond or other security satisfactory to the Owner in the amount of at least one hundred twenty-five percent (125%) of the claim, in a form satisfactory to the Owner, which protects the Owner against such claim, and (2) the Owner chooses to accept the bond, then Owner would release the stop payment notice funds withheld to the Contractor, except that Owner may permanently withhold for any reasonable cost of litigation. Any stop payment notice release bond shall be executed by a California admitted, fiscally solvent surety, completely unaffiliated with and separate from the surety on the payment and performance bonds, that does not have any assets pooled with the payment and performance bond sureties.

C. Liquidated damages against the Contractor, whether already accrued or estimated to accrue in the future;

D. Reasonable doubt that the Work can be completed for the unpaid balance of any Contract Sum or by the completion date;

E. Damage to the property or work of the Owner, another contractor, or subcontractor;

F. Unsatisfactory prosecution of the Work by the Contractor;

G. Failure to store and properly secure materials;

H. Failure of the Contractor to submit on a timely basis, proper and sufficient documentation required by the Contract Documents, including, without limitation, monthly progress schedules, shop drawings, submittal schedules, schedule of values, product data and samples, proposed product lists, executed change orders, and verified reports;

I. Failure of the Contractor to maintain record drawings;

J. Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment;

K. Unauthorized deviations from the Contract Documents;

L. Failure of the Contractor to prosecute the Work in a timely manner in compliance with established progress schedules and completion dates;

M. Subsequently discovered evidence or observations nullifying the whole or part of a previously issued Certificate for Payment;

N. Failure by Contractor to pay Subcontractors or material suppliers as required by Contract or law, which includes but is not limited to Contractor's failure to pay prevailing wage and any assessment of statutory penalties;

O. Overpayment to Contractor on a previous payment;

P. Credits owed to Owner for reduced scope of work or work that Contractor will not perform;

Q. The estimated cost of performing work pursuant to Section 2.4;

R. Actual damages related to false claims by Contractor;

S. Breach of any provision of the Contract Documents;

T. Owner's potential or actual loss, liability or damages caused by the Contractor; and

U. As permitted by other provisions in the Contract or as otherwise allowed by law, including statutory penalties Owner or other entities assessed against Contractor. (See e.g., Labor Code section 1813 (working hours) or Public Contract Code section 4110 (subcontractor listings and substitutions))

Owner may, but is not required to, provide to Contractor with the progress payment written notice of the items for which Owner is withholding amounts from the payment. To claim wrongful withholding by the Owner, or if Contractor otherwise disputes any amount being withheld, Contractor must submit an inquiry in writing to Owner within thirty (30) days of receipt of the notice, and Owner shall respond within fifteen (15) days of receipt of the inquiry. If any disputed issues remain unresolved after Owner's response, Contractor shall timely submit a Claim pursuant to Section 4.5.

For any withhold amount based on an estimate where the actual amount later becomes known and certain, no later than the final accounting for the Project the Owner will release any amount withheld over that certain and known amount. If the certain and known amount exceeds the amount previously withheld, Owner may withhold additional amounts from Contractor to cover the excess amount. If available funds are not sufficient, Contractor shall pay Owner the difference.

9.5.2 PAYMENT AFTER CURE

When Contractor removes or cures the grounds for withholding amounts, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

9.5.3 OVERPAYMENT AND/OR FAILURE TO WITHHOLD

Neither Owner's overpayment to Contractor, nor Owner's failure to withhold an amount from payment that Owner had the right to withhold, shall constitute a waiver by Owner of its rights to withhold those amounts from future payments to Contractor or to otherwise pursue recovery of those amounts from Contractor.

9.6 PROGRESS PAYMENTS

9.6.1 PAYMENTS TO CONTRACTOR

Unless otherwise stated in the Contract Documents, within thirty (30) days after receipt of an undisputed and properly submitted Application for Payment, Contractor shall be paid a sum equal to ninety-five percent (95%) of the undisputed value of the Work performed up to the last day of the previous month, less the aggregate of previous payments; and Owner shall retain the other five percent (5%) of the undisputed value of the Work. The value of the Work completed shall be an estimate only, no inaccuracy or error in said estimate shall operate to release the Contractor, or any bondsman, from damages arising from such Work or from enforcing each and every provision of this Contract, and the Owner shall have the right subsequently to correct any

error made in any estimate for payment. Contractor shall base an Application for Payment only on the original Contract Sum plus any fully executed and Board-approved Change Orders. Contractor shall not include Notices of Potential Claims, CORs, Claims or disputed amounts.

The Contractor shall not be entitled to have any payment requests processed, or be entitled to have any payment made for work performed, so long as any lawful or proper direction given by the Owner concerning the Work, or any portion thereof, remains uncomplied with. Payment shall not be a waiver of any such direction.

9.6.2 PAYMENTS TO SUBCONTRACTORS

No later than ten (10) days after receipt of payment from Owner, pursuant to Business and Professions Code section 7108.5, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

9.6.3 PERCENTAGE OF COMPLETION OR PAYMENT INFORMATION

The Owner will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor, and action taken thereon by the Owner, on account of portions of the Work done by such Subcontractor.

9.6.4 NO OBLIGATION OF OWNER FOR SUBCONTRACTOR PAYMENT

The Owner shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

9.6.5 PAYMENT TO SUPPLIERS

Payment to material or equipment suppliers shall be treated in a manner similar to that provided in paragraphs 9.6.2, 9.6.3 and 9.6.4.

9.6.6 PAYMENT NOT CONSTITUTING APPROVAL OR ACCEPTANCE

An accepted Application for Payment, issuance of a Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance or approval of any portion of the Work, especially any Work not in accordance with the Contract Documents.

9.6.7 JOINT CHECKS

Owner shall have the right, if necessary for the protection of the Owner, to issue joint checks made payable to the Contractor and Subcontractors and/or material or equipment suppliers. The

joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. However, Owner has no duty to issue joint checks. In no event shall any joint check payment be construed to create any contract between the Owner and a Subcontractor of any tier, any obligation from the Owner to such Subcontractor, or rights in such Subcontractor against the Owner.

9.7 COMPLETION OF THE WORK

9.7.1 CLOSE-OUT PROCEDURES

When the Contractor considers that the Work is complete and submits a written notice to Owner requesting an inspection of the Work, the Owner shall review the Work and prepare and submit to the Contractor a comprehensive list of items to be completed or corrected (the "Punch List"). The Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on the Punch List does not alter the responsibility of the Contractor to complete all Work (including the omitted item) in accordance with the Contract Documents, and to complete or correct the work so long as the statute of limitations (or repose) has not run.

When the Contractor believes the Punch List work is complete and in accordance with the Contract Documents, it shall then submit a request for an additional inspection by the Owner to determine completion. Owner shall again inspect the Work and inform the Contractor of any items that are incomplete or incorrect. Contractor shall promptly complete or correct items until no items remain.
After the Work, including all Punch List work, is inspected and informally deemed by the Owner to be complete, the Owner's governing body may formally accept the Work as complete at a meeting of the governing body. Warranties required by the Contract Documents shall commence on the date of Contractor's completion of the Work.

9.7.2 COSTS OF MULTIPLE INSPECTIONS

More than two (2) requests by Contractor to make inspections to confirm completion as required under paragraph 9.7.1 shall be considered an additional service of Owner, and all subsequent costs will be invoiced to Contractor and withheld from remaining payments.

9.8 PARTIAL OCCUPANCY OR USE

The Owner may occupy or use any completed, or partially completed, portion of the Work at any stage prior to acceptance, or prior to completion if there is no formal acceptance. Occupancy or use of any portion of the Work, or the whole Work, shall not constitute approval or acceptance of it, nor shall such occupancy or use relieve Contractor of any of its obligations under the Contract Documents regarding that portion of, or the whole, Work.

The Owner and the Contractor shall agree in writing to the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract

Documents. When the Contractor considers a portion complete, the Contractor may request an inspection of that portion and preparation of a Punch List by the Owner for that portion, as set forth for the entire Work under paragraph 9.7.1; however, such inspection and Punch List shall not act as any form of approval or acceptance of that portion of the Work, or of any Work not complying with the requirements of the Contract, and that portion shall be subject to subsequent inspections and Punch Lists.

Immediately prior to such partial occupancy or use, the Owner, the Architect and the Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.9 FINAL PROGRESS PAYMENT AND RELEASE OF RETENTION

9.9.1 FINAL APPLICATION FOR PROGRESS PAYMENT

When, pursuant to Section 9.7.1, the Owner finds all of the Work is completed in accordance with the Contract Documents, it shall so notify Contractor, who shall then submit to the Owner its final Application for Payment.
Upon receipt and approval of such final Application for Payment, the Owner shall issue a final Certificate of Payment, based on its knowledge, information, and belief, and on the basis of its observations, inspections, and all other data accumulated or received by the Owner in connection with the Work, that such Work has been completed in accordance with the Contract Documents.

9.9.2 PROCEDURES FOR APPLICATION FOR FINAL PROGRESS PAYMENT

The Application for Final Progress Payment pursuant to Section 9.9.1 shall be accompanied by the same details as set forth in paragraph 9.3, and in addition, the following conditions must be fulfilled:

A. The Work shall be complete, and the Contractor shall have made, or caused to have been made, all corrections to the Work which are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of Owner required under the Contract.

B. Each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work, and Contractor delivered them to the Owner.

C. The Contractor shall deliver to the Owner (i) reproducible final Record Drawings and Annotated Specifications showing the Contractor's Work "as built," with the Contractor's certification of the accuracy of the Record Drawings and Annotated Specifications, (ii) all warranties and guarantees, (iii) operation and maintenance instructions, manuals and materials for equipment and apparatus, and (iv) all other documents required by the Contract Documents.

D. Contractor shall provide extensive assistance in the utilization of any equipment or system such as initial start-up or testing, adjusting and balancing, preparation of operation and maintenance manuals and training personnel for operation and maintenance.

Acceptance of Final Progress Payment shall constitute a complete waiver of Claims except for those previously identified in writing and identified by that payee as unsettled at the time of Final Progress Payment.

9.9.3 RELEASE OF RETAINAGE

Owner may withhold from release or payment of retainage (or "retention") up to 150% of disputed amounts listed in Section 9.5. If retainage is held in an escrow account pursuant to an escrow agreement under Public Contract Code section 22300 (see Section 9.10) and Owner withholds from release of retainage based on a breach of the Contract, or other default, by Contractor, Owner may withdraw the withheld retainage from the escrow account. Owner shall release the undisputed retainage within sixty (60) days after completion of the Work. For this purpose, "completion" is defined in Public Contract Code section 7107(c). No interest shall be paid on any retainage, or on any amounts withheld, except as provided to the contrary in any Escrow Agreement and General Conditions between the Owner and the Contractor under Public Contract Code section 22300.

9.10 SUBSTITUTION OF SECURITIES

In accordance with section 22300 of the Public Contract Code, the Owner will permit the substitution of securities for any retention monies withheld by the Owner to ensure performance under the Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the Owner, or with a state or federally chartered bank as the escrow agent, who shall then pay such retention monies to the Contractor. Upon completion of the Contract, the securities shall be returned to the Contractor if Owner has no basis to withhold under the Contract Documents.

Securities eligible for investment under this section shall include those listed in Government Code section 16430, bank or savings and loan certificates of deposit, interest-bearing, demand-deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the Owner.

The Contractor shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon.

Any escrow agreement entered by Owner and Contractor pursuant to Public Contract Code section 22300, shall be substantially similar to the form set forth in Public Contract Code section 22300.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 CONTRACTOR RESPONSIBILITY

The Contractor shall have responsibility for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. Each Contractor shall designate a responsible member of its organization whose duties shall include loss and accident prevention, and who shall have the responsibility and full authority to enforce the program. This person shall attend meetings with the representatives of the various Subcontractors employed to ensure that all employees understand and comply with the programs. Contractor will ensure that his employees and Subcontractors cooperate and coordinate safety matters with any other contractors to form a joint safety effort.

10.1.2 SUBCONTRACTOR RESPONSIBILITY

Subcontractors have the responsibility for participating in, and enforcing, the safety and loss prevention programs established by the Contractor for the Project, which will cover all Work performed by the Contractor and its Subcontractors. Each Subcontractor shall designate a responsible member of its organization whose duties shall include loss and accident prevention, and who shall have the responsibility and full authority to enforce the program. This person shall attend meetings with the representatives of the various Subcontractors employed to ensure that all employees understand and comply with the programs.

10.1.3 COOPERATION

All Subcontractors and material or equipment suppliers, shall cooperate fully with Contractor, the Owner, and all insurance carriers and loss prevention engineers.

10.1.4 ACCIDENT REPORTS

Subcontractors shall promptly report in writing to the Contractor all accidents whatsoever arising out of, or in connection with, the performance of the Work, whether on or off the Site, which caused death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger. Contractor shall thereafter promptly report the facts in writing to the Owner giving full details of the accident.

10.1.5 FIRST-AID SUPPLIES AT SITE

The Contractor will provide and maintain at the Site first-aid supplies for minor injuries.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 THE CONTRACTOR

The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury, or loss to:

A. Employees on the Work and other persons who may be affected thereby;

B. The Work, material, and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody, or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

C. Other property at the Site or adjacent thereto such as trees, shrubs, lawns, walks, pavement, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

10.2.2 CONTRACTOR NOTICES

The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on the safety of persons or property or their protection from damage, injury, or loss.

10.2.3 SAFETY BARRIERS AND SAFEGUARDS

The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

10.2.4 USE OR STORAGE OF HAZARDOUS MATERIAL

When use or storage of explosives, other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall notify the Owner any time that explosives or hazardous materials are expected to be stored on Site. Location of storage shall be coordinated with the Owner and local fire authorities.

10.2.5 FINGERPRINTING

At its own expense, Contractor shall comply with all fingerprinting requirements under law and Contract, including but not limited to the requirements of Education Code section 45125.2 and the Independent Contractor Student Contact Form which is a part of the Contract. Contractor shall hold harmless, defend and indemnify the Owner under section 3.16, for any costs, including attorneys' fees, Owner incurs from Contractor's failure to comply.

10.3 PROTECTION OF WORK AND PROPERTY

10.3.1 PROTECTION OF WORK

The Contractor and Subcontractors shall continuously protect the Work, the Owner's property, and the property of others, from damage, injury, or loss until formal acceptance of the Work or completion of the Work if there is no formal acceptance of the Work. The Contractor and Subcontractors shall make good any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the Owner.

10.3.2 PROTECTION FOR ELEMENTS

The Contractor will remove all mud, water, or other elements as may be required for the proper protection and prosecution of its Work. The Contractor shall at all times provide heat, coverings, and enclosures necessary to maintain adequate protection against weather so as to preserve the Work, materials, equipment, apparatus, and fixtures free from injury or damage.

10.3.3 SHORING AND STRUCTURAL LOADING

The Contractor shall not impose structural loading upon any part of the Work under construction or upon existing construction on or adjacent to the Site in excess of safe limits, or loading such as to result in damage to the structural, architectural, mechanical, electrical, or other components of the Work. The design of all temporary construction equipment and appliances used in construction of the Work and not a permanent part thereof, including, without limitation, hoisting equipment, cribbing, shoring, and temporary bracing of structural steel, is the sole responsibility of the Contractor. All such items shall conform to the requirements of governing codes and all laws, ordinances, rules, regulations, and orders of all authorities having jurisdiction. The Contractor shall take special precautions, such as shoring of masonry walls and temporary tie bracing of structural steel work, to prevent possible wind damage during construction of the Work. The installation of such bracing or shoring shall not damage or cause damage to the Work in place or the Work installed by others. Any damage which does occur shall be promptly repaired by the Contractor at no cost to the Owner.

10.3.4 CONFORMANCE WITHIN ESTABLISHED LIMITS

The Contractor and Subcontractors shall confine their construction equipment, the storage of materials, and the operations of workers to the limits indicated by laws, ordinances, permits, and the limits established by the Owner, and shall not unreasonably encumber the premises with construction equipment or materials.

10.3.5 SUBCONTRACTOR ENFORCEMENT OF RULES

Subcontractors shall enforce the Owner's and the Contractor's instructions, laws, and regulations regarding signs, advertisements, fires, smoking, the presence of liquor, and the presence of firearms by any person at the Site.

10.3.6 SITE ACCESS

The Contractor and the Subcontractors shall use only those ingress and egress routes designated by the Owner, observe the boundaries of the Site designated by the Owner, park only in those

areas designated by the Owner, which areas may be on or off the Site, and comply with any parking control program established by the Owner such as furnishing license plate information and placing identifying stickers on vehicles.

10.3.7 PROTECTION OF MATERIALS

The Contractor and the Subcontractors shall receive, count, inspect for damage, record, store, and protect construction materials for the Work and Subcontractors shall promptly send to the Contractor evidence of receipt of such materials, indicating thereon any shortage, change, or damage (failure to so note shall constitute acceptance by the Subcontractor of financial responsibility for any shortage).

10.4 EMERGENCIES

10.4.1 EMERGENCY ACTION

In an emergency affecting the safety of persons or property, the Contractor shall take any action necessary, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional money or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Section 4.5 and Article 7.

10.4.2 ACCIDENT REPORTS

The Contractor shall promptly report in writing to the Owner all accidents arising out of or in connection with the Work, which caused death, personal injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner.

10.5 HAZARDOUS MATERIALS

10.5.1 DISCOVERY OF HAZARDOUS MATERIALS

In the event the Contractor encounters or suspects the presence on the Site material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other material defined as being hazardous by section 25249.5 of the California Health and Safety Code, which (a) has not been rendered harmless, and (b) the handling or removal of which is not within the scope of the Work, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and the Architect in writing, whether or not such material was generated by the Contractor or the Owner. The Work in the affected area shall not thereafter be resumed, except by written agreement of the Owner and the Contractor, if in fact the material is asbestos, polychlorinated biphenyl (PCB), or other hazardous material, and has not been rendered harmless. The Work in the affected area shall be resumed only in the absence of asbestos, polychlorinated biphenyl (PCB), or other hazardous material, or when it has been rendered harmless by written agreement of the Owner and the Contractor.

10.5.2 HAZARDOUS MATERIAL WORK LIMITATIONS

In the event that the presence of hazardous materials is suspected or discovered on the Site, the Owner shall retain an independent testing laboratory to determine the nature of the material encountered and whether corrective measures or remedial action is required. The Contractor shall not be required pursuant to Article 7 to perform without consent any Work in the affected area of the Site relating to asbestos, polychlorinated biphenyl (PCB), or other hazardous material, until any known or suspected hazardous material has been removed, or rendered harmless, or determined to be harmless by Owner, as certified by an independent testing laboratory and/or approved by the appropriate government agency.

10.5.3 INDEMNIFICATION BY OWNER FOR HAZARDOUS MATERIAL NOT CAUSED BY CONTRACTOR

In the event the presence of hazardous materials on the Site is not caused by the Contractor, Owner shall pay for all costs of testing and remediation, if any, and shall compensate Contractor for any additional costs incurred or Project delay in accordance with the applicable provisions of Article 7 herein. Owner shall defend, indemnify and hold harmless the Contractor and its agents, officers, directors and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with or arising out of, or relating to, the performance of the Work in the area affected by the hazardous material, except to the extent the claims, damages, losses, costs, or expenses were caused by Contractor's active negligence, sole negligence or willful misconduct. By providing this indemnification, District does not waive any immunities.

10.5.4 INDEMNIFICATION BY CONTRACTOR FOR HAZARDOUS MATERIAL CAUSED BY CONTRACTOR

In the event the presence of hazardous materials on the Site is caused by Contractor, Subcontractors, materialmen or suppliers, the Contractor shall pay for all costs of testing and remediation, if any, and shall compensate the Owner for any additional costs incurred as a result of the generation of hazardous material on the Project Site. In addition, the Contractor shall defend, indemnify and hold harmless Owner and its agents, officers, and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with, arising out of, or relating to, the presence of hazardous material on the Site, except to the extent the claims, damages, losses, costs, or expenses were caused by Owner's active negligence, sole negligence or willful misconduct.

10.5.5 TERMS OF HAZARDOUS MATERIAL PROVISION

The terms of this Hazardous Material provision shall survive the completion of the Work and/or any termination of this Contract.

10.5.6 ARCHEOLOGICAL MATERIALS

In the event the Contractor encounters or reasonably suspects the presence on the Site of archeological materials, the Contractor shall immediately stop Work in the area affected and

report the condition to the Owner and the Architect in writing. The Work in the affected area shall not thereafter be resumed, except after Contractor's receipt of written notice form the Owner.

ARTICLE 11

INSURANCE AND BONDS

11.1. CONTRACTOR'S LIABILITY INSURANCE

11.1.1 LIABILITY INSURANCE REQUIREMENTS

11.1.1 By the earlier of the deadline set forth in the Instructions to Bidders or the commencement of the Work and within limits acceptable to the Owner, the Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in California as admitted carriers with a financial rating of at least A+, Class XII status as rated in the most recent edition of Best's Insurance Reports such commercial general liability insurance per occurrence for bodily injury, personal injury and property damage as set forth in the Agreement and automobile liability insurance per accident for bodily injury and property damage combined single limit as set forth in the Agreement as will protect the Contractor from claims set forth below, which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations are by the Contractor, by a Subcontractor, by Sub-subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

11.1.1.1 claims for damages because of bodily injury (including emotional distress), sickness, disease, or death of any person other than the Contractor's employees. This coverage shall be provided in a form at least as broad as Insurance Services Office (ISO) Form CG 0001 11188;

11.1.1.2 claims for damages arising from personal or advertising injury in a form at least as broad as ISO Form CG 0001 11188;

11.1.1.3 claims for damages because of injury or destruction of tangible property, including loss of use resulting therefrom, arising from operations under the Contract Documents; and

11.1.1.4 claims for damages because of bodily injury, death of a person, or property damage arising out of the ownership, maintenance, or use of a motor vehicle, all mobile equipment, and vehicles moving under their own power and engaged in the Work; and

11.1.1.5 claims involving blanket contractual liability applicable to the Contractor's obligations under the Contract Documents, including liability assumed by and

the indemnity and defense obligations of the Contractor and the Subcontractors; and

11.1.1.6 claims involving Completed Operations, Independent Contractors' coverage, and Broad Form property damage, without any exclusions for collapse, explosion, demolition, underground coverage, and excavating. (XCU)

If commercial general liability insurance or another insurance form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the project location (with the ISO CG 2501 or insurer's equivalent endorsement provided to the Owner) or the general aggregate limit shall be twice the required occurrence limit.

Any deductible or self-insured retention must be declared to and approved by the Owner. At the option of the Owner, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Owner, its Board of Trustees, members of its Board of Trustees, officers, employees, agents and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

11.1.2 SUBCONTRACTOR INSURANCE REQUIREMENTS

The Contractor shall require its Subcontractors and any Sub-subcontractors to take out and maintain similar public liability insurance and property damage insurance, in a company or companies lawfully authorized to do business in California as admitted carriers with a financial rating of at least A+, Class XII status as rated in the most recent edition of Best's Insurance Reports, in like amounts and scope of coverage.

11.1.3 OWNER'S INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance. Optionally, the Owner may purchase and maintain other insurance for self protection against claims which may arise from operations under the Contract. The Contractor shall not be responsible for purchasing and maintaining this optional Owner's liability insurance unless specifically required by the Contract Documents.

11.1.4 ADDITIONAL INSURED ENDORSEMENT REQUIREMENTS

The Contractor shall name, on any policy of insurance, the Owner and the Architect as additional insureds. Subcontractors shall name the Contractor, the Owner and the Architect as additional insureds. The Additional Insured Endorsement included on all such insurance policies shall state that coverage is afforded the additional insured with respect to claims arising out of operations performed by or on behalf of the insured. If the additional insureds have other insurance which is applicable to the loss, such other insurance shall be excess to any policy of insurance required herein. The amount of the insurer's liability shall not be reduced by the existence of such other insurance.

11.1.5 WORKERS' COMPENSATION INSURANCE

During the term of this Contract, the Contractor shall provide workers' compensation insurance for all of the Contractor's employees engaged in Work under this Contract on or at the site of the Project and, in case any of the Contractor's work is sublet, the Contractor shall require the Subcontractor to provide workers' compensation insurance for all the Subcontractor's employees engaged in Work under the subcontract. Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by the Contractor's insurance. In case any class of employees engaged in Work under this Contract on or at the site of the Project is not protected under the Workers' Compensation laws, the Contractor shall provide or cause a Subcontractor to provide adequate insurance coverage for the protection of those employees not otherwise protected. The Contractor shall file with the Owner certificates of insurance as required under this Article and in compliance with Labor Code section 3700.

If the contractor fails to maintain such insurance, the Owner may take out compensation insurance which the Owner might be liable to pay under the provisions of the Act by reason of an employee of the Contractor being injured or killed, and withhold from progress payments and/or retention the amount of the premium for such insurance.

11.1.6 **BUILDER'S RISK/"ALL RISK" INSURANCE**

11.1.6.1 ***COURSE-OF-CONSTRUCTION INSURANCE REQUIREMENTS.*** Unless provided by Owner at Owner's sole discretion, Contractor, during the progress of the Work and until final acceptance of the Work by Owner upon completion of the entire Contract, shall maintain Builder's Risk/Course-of-Construction insurance satisfactory to the Owner, issued on a completed value basis on all insurable Work included under the Contract Documents. This insurance shall insure against all risks, including but not limited to the following perils: vandalism, theft, malicious mischief, fire, sprinkler leakage, civil authority, sonic boom, explosion, collapse, flood, earthquake (for projects not solely funded through revenue bonds, limited to earthquakes equivalent to or under 3.5 on the Richter Scale in magnitude), wind, hail, lightning, smoke, riot or civil commotion, debris removal (including demolition) and reasonable compensation for the Architect's services and expenses required as a result of such insured loss. This insurance shall provide coverage in an amount not less than the full cost to repair, replace or reconstruct the Work. Such insurance shall include the Owner, the Architect, and any other person or entity with an insurable interest in the Work as an additional named insured.

The Contractor shall submit to the Owner for its approval all items deemed to be uninsurable under the Builder's Risk/Course-of Construction insurance. The risk of the damage to the Work due to the perils covered by the Builder's Risk/Course-of-Construction insurance, as well as any other hazard which might result in damage to the Work, is that of the Contractor and the surety, and no claims for such loss or damage shall be recognized by the Owner, nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

11.1.7 **CONSENT OF INSURER FOR PARTIAL OCCUPANCY OR USE**

Partial occupancy or use in accordance with the Contract Documents shall not commence until the insurance company providing property insurance has consented to such partial occupancy or

use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company and shall, without mutual consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of the insurance.

11.1.8 **FIRE INSURANCE**

Before the commencement of the Work, the Contractor shall procure, maintain, and cause to be maintained at the Contractor's expense, fire insurance on all Work included under the Contract Documents, insuring the full replacement value of such Work as well as the cost of any removal and demolition necessary to replace or repair all Work damaged by fire. The amount of fire insurance shall be subject to approval by the Owner and shall be sufficient to protect the Project against loss or damage in full until the Work is accepted by the Owner. Should the Work being constructed be damaged by fire or other causes during construction, it shall be replaced in accordance with the requirements of the drawings and specifications without additional expense to the Owner.

11.1.9 **OTHER INSURANCE**

The Contractor shall provide all other insurance required to be maintained under applicable laws, ordinances, rules, and regulations.

11.1.10 **PROOF OF CARRIAGE OF INSURANCE**

The Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract until all required insurance, certificates, and an Additional Insured Endorsement and Declarations Page have been obtained and delivered in duplicate to the Owner for approval subject to the following requirements:

(a) Certificates and insurance policies shall include the following clause:

This policy shall not be non-renewed, canceled, or reduced in required limits of liability or amounts of insurance until notice has been mailed to the Owner. Date of cancellation or reduction may not be less than thirty (30) days after the date of mailing notice.

(b) Certificates of insurance shall state in particular those insured, the extent of insurance, location and operation to which the insurance applies, the expiration date, and cancellation and reduction notices.

(c) Certificates of insurance shall clearly state that the Owner, the Architect and the Construction Manager are named as additional insureds under the policy described and that such insurance policy shall be primary to any insurance or self-insurance maintained by Owner and any other insurance carried by the Owner with respect to the matters covered by such policy shall be excess and non-contributing.

(d) The Contractor and its Subcontractors shall produce a certified copy of any insurance policy required under this Section upon written request of the Owner.

11.1.11 COMPLIANCE

In the event of the failure of any contractor to furnish and maintain any insurance required by this Article, the Contractor shall be in default under the Contract. Compliance by Contractor with the requirement to carry insurance and furnish certificates, policies, Additional Insured Endorsement and Declarations Page evidencing the same shall not relieve the Contractor from liability assumed under any provision of the Contract Documents, including, without limitation, the obligation to defend and indemnify the Owner and the Architect.

11.2 PERFORMANCE AND PAYMENT BONDS

11.2.1 BOND REQUIREMENTS

Unless otherwise specified in the Contract Documents, prior to commencing any portion of the Work, the Contractor shall apply for and furnish Owner separate payment and performance bonds for its portion of the Work which shall cover 100% faithful performance of and payment of all obligations arising under the Contract Documents and/or guaranteeing the payment in full of all claims for labor performed and materials supplied for the Work. All bonds shall be provided by a corporate surety authorized and admitted to transact business in California. All bonds shall be submitted on the Owner's approved form.

To the extent, if any, that the Contract Sum is increased in accordance with the Contract Documents, the Contractor shall cause the amount of the bonds to be increased accordingly and shall promptly deliver satisfactory evidence of such increase to the Owner. To the extent available, the bonds shall further provide that no change or alteration of the Contract Documents (including, without limitation, an increase in the Contract Sum, as referred to above), extensions of time, or modifications of the time, terms, or conditions of payment to the Contractor will release the surety. If the Contractor fails to furnish the required bond, the Owner may terminate the Contract for cause.

11.2.2 SURETY QUALIFICATION

Only bonds executed by admitted Surety insurers as defined in Code of Civil Procedure section 995.120 shall be accepted. The surety insurers must, unless otherwise agreed to by Owner in writing, at the time of issuance of the bonds, have a rating not lower than "A-" as rated by A.M. Best Company, Inc. or other independent rating companies. Owner reserves the right to approve or reject the surety insurers selected by Contractor and to require Contractor to obtain bonds from surety insurers satisfactory to the Owner.

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 UNCOVERING WORK FOR REQUIRED INSPECTIONS

If a portion of the Work is covered contrary to the Owner's request or to requirements specifically expressed in the Contract Documents, Contractor must, if required in writing by the Owner, uncover it for the Owner's observation and replace the removed work at the Contractor's expense without change in the Contract Sum or Time.

12.1.2 COSTS FOR INSPECTIONS NOT REQUIRED

If a portion of the Work has been covered which the Owner has not specifically requested to observe prior to its being covered, the Owner may request to see such work, and it shall be uncovered by the Contractor. If such work is in accordance with the Contract Documents, costs of uncover and replacement shall, by appropriate Change Order, be paid by the Owner. If such work is not in accordance with Contract Documents, the Contractor shall pay such costs, unless the condition was caused by the Owner or a separate contractor, in which event the Owner shall be responsible for payment of such costs to the Contractor.

12.2 CORRECTION OF WORK; WARRANTY

12.2.1 CORRECTION OF REJECTED WORK

The Contractor shall promptly correct the work rejected by the Owner for failing to conform to the requirements of the Contract Documents, until the statutes of limitation (or repose) and all warranties have run, as applicable, and whether or not fabricated, installed or completed. The Contractor shall bear costs of correcting the rejected work, including additional testing, inspections, and compensation for the Owner's expenses and costs incurred.

12.2.2 REMOVAL OF NONCONFORMING WORK

The Contractor shall remove from the Site portions of the Work which are not in accordance with the requirements of the Contract Documents and are not corrected by the Contractor or accepted or approved by the Owner.

12.2.3 OWNER'S RIGHTS IF CONTRACTOR FAILS TO CORRECT

If the Contractor fails to correct nonconforming work within a reasonable time, the Owner may correct it in accordance with Section 2.4. As part of Owner's correction of the work, the Owner may remove any portion of the nonconforming Work and store any salvageable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten (10) days after written notice, the Owner may upon ten (10) additional days written notice sell such material or equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Architect's and other professionals and representatives' services and expenses, made necessary thereby. If such proceeds of sale do not

cover costs which the Contractor should have borne, the Contractor shall be invoiced for the deficiency or Owner may withhold such costs from payment pursuant to Section 9.5. If progress payments or retention then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

12.2.4 COST OF CORRECTING THE WORK

The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or separate contractors, whether completed or partially completed, caused by the Contractor's correction or removal of the nonconforming work.

12.2.5 WARRANTY CORRECTIONS (INCLUDES REPLACEMENT)

Pursuant to the warranty in Section 3.5, if within one (1) year after the completion of the Work or within a longer time period for an applicable special warranty or guarantee required by the Contract Documents, any of the Work does not comply with the Contract Documents, the Contractor shall correct it after receipt of Owner's written notice to do so, unless the Owner has previously waived in writing such right to demand correction. Contractor shall correct the Work promptly, and passage of the applicable warranty period shall not release Contractor from its obligation to correct the Work if Owner provided the written notice within the applicable warranty period. Contractor's obligation to correct the warranty item continues until the correction is made. After the correction is made to Owner's satisfaction, a new warranty period of the same length as the original warranty period shall run on the corrected work. The obligations under this paragraph 12.2.5 shall survive acceptance of the Work under the Contract and termination of the Contract.

12.2.6 NO TIME LIMITATION

Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one (1) year as described in Section 12.2.5 relates only to the specific warranty obligation of the Contractor to correct the Work after the date of commencement of warranties under Sections 3.5 and 9.7.1, and has, for example, no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, or to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.3 NONCONFORMING WORK AND WITHHOLDING THE VALUE OF IT

If it is found at any time before completion of the Work that the Contractor has varied from the Contract Documents in materials, quality, form, finish, or in the amount or value of the materials or labor used, the Owner may, in addition to other remedies in the Contract Documents or under law and as allowed by law, accept the improper work. The Owner may withhold from any amount due or to become due Contractor that sum of money equivalent to the difference in value between the Work performed and that called for by the Drawings and Specifications. The Owner

shall determine such difference in value. No structural related work shall be accepted that is not in conformance with the Contract Documents.

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located.

13.2 SUCCESSORS AND ASSIGNS

The Owner and the Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole or in part without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.3 WRITTEN NOTICE

In the absence of specific notice requirements in the Contract Documents, written notice shall be deemed to have been duly served if delivered in person to the individual, member of the firm or entity, or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified or overnight mail to the last business address known to the party giving notice. Owner shall, at Contractor's cost, timely notify Contractor of Owner's receipt of any third party claims relating to the Contract pursuant to Public Contract Code section 9201.

13.4 RIGHTS AND REMEDIES

13.4.1 DUTIES AND OBLIGATIONS CUMULATIVE

Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

13.4.2 NO WAIVER

No action or failure to act by the Owner, Inspector of Record, Architect or any construction manager shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed to in a written amendment to the Contract.

13.5 TESTS AND INSPECTIONS

13.5.1 COMPLIANCE

Tests, inspections, and approvals of portions of the Work required by the Contract Documents will comply with Title 24, and with all other laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction.

13.5.2 INDEPENDENT TESTING LABORATORY

The Owner will select and pay an independent testing laboratory to conduct all tests and inspections, including shipping or transportation costs or expenses (mileage and hours). Selection of the materials required to be tested shall be made by the laboratory or the Owner's representative and not by the Contractor. However, if Contractor requests that the Owner use a different testing laboratory and Owner chooses to approve such request, Contractor shall obtain prior approval. Owner will pay all costs for testing, contractor may not apy any testing expenses. Owner may invoice such costs or expenses to the Contractor or withhold such costs or expenses from progress payments and/or retention.

13.5.3 ADVANCE NOTICE TO INSPECTOR OF RECORD

The Contractor shall notify the Inspector of Record a sufficient time in advance of its readiness for required observation or inspection so that the Inspector of Record may arrange for same. The Contractor shall notify the Inspector of Record a sufficient time in advance of the manufacture of material to be supplied under the Contract Documents which must, by terms of the Contract Documents, be tested in order that the Inspector of Record may arrange for the testing of the material at the source of supply.

13.5.4 TESTING OFF-SITE

Any material shipped by the Contractor from the source of supply, prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said Inspector of Record that such testing and inspection will not be required, shall not be incorporated in the Work.

13.5.5 ADDITIONAL TESTING OR INSPECTION

If the Inspector of Record, the Architect, the Owner, or public authority having jurisdiction determines that portions of the Work require additional testing, inspection, or approval not included under section 13.5.1, the Inspector of Record will, upon written authorization from the Owner, make arrangements for such additional testing, inspection, or approval. The Owner shall bear such costs except as provided in section 13.5.6.

13.5.6 COSTS FOR RETESTING

If such procedures for testing, inspection, or approval under sections 13.5.1, 13.5.2 and 13.5.5 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs arising from such failure, including those of re-testing, re-inspection, or re-approval, including, but not limited to, compensation for the Architect's services and expenses. Any such costs shall be paid by the Owner, invoiced to the Contractor, and, among other remedies, can be withheld from progress payments and/or retention.

13.5.7 COSTS FOR PREMATURE TEST

In the event the Contractor requests any test or inspection for the Project and is not completely ready for the inspection, the Contractor shall be invoiced by the Owner for all costs and expenses resulting from that testing or inspection, including, but not limited to, the Architect's fees and expenses, and the amount of the invoice can among other remedies, be withheld from progress payments and/or retention.

13.5.8 TESTS OR INSPECTIONS NOT TO DELAY WORK

Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

13.6 [INTENTIONALLY LEFT BLANK]

13.7 TRENCH EXCAVATION

13.7.1 TRENCHES GREATER THAN FIVE FEET

Pursuant to Labor Code section 6705, if the Contract Sum exceeds $25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall, in advance of excavation, submit to the Owner or a registered civil or structural engineer employed by the Owner a detailed plan showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches.

13.7.2 EXCAVATION SAFETY

If such plan varies from the Shoring System Standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but in no case shall such plan be less effective than that required by the Construction Safety Orders. No excavation of such trench or trenches shall be commenced until said plan has been accepted by the Owner or by the person to whom authority to accept has been delegated by the Owner.

13.7.3 NO TORT LIABILITY OF OWNER

Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the Owner or any of its employees.

13.7.4 NO EXCAVATION WITHOUT PERMITS

The Contractor shall not commence any excavation work until it has secured all necessary permits including the required CAL OSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.

13.8 WAGE RATES

13.8.1 WAGE RATES

Pursuant to the provisions of Article 2 (commencing at § 1770), Chapter 1, Part 7, Division 2, of the Labor Code, the governing board of the Owner has obtained the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public work is to be performed for each craft, classification, or type of worker needed for this Project from the Director of Industrial Relations ("Director"). These rates are on file with the Clerk of the Owner's Governing Board, and copies will be made available to any interested party on request. The Contractor shall post a copy of such wage rates at the Site.

13.8.2 HOLIDAY AND OVERTIME PAY

Holiday and overtime work, when permitted by law, shall be paid for at a rate of at least one and one-half (1½) times the above specified rate of per diem wages, unless otherwise specified. Holidays shall be defined in the Collective Bargaining Agreement applicable to each particular craft, classification, or type of worker employed.

13.8.3 WAGE RATES NOT AFFECTED BY SUBCONTRACTS

The Contractor shall pay and shall cause to be paid each worker engaged in work on the Project not less than the general prevailing rate of per diem wages determined by the Director, regardless of any contractual relationship which may be alleged to exist between the Contractor or any Subcontractor and such workers.

13.8.4 CHANGE IN PREVAILING WAGE DURING BID OR CONSTRUCTION

If during the period this bid is required to remain open, the Director of Industrial Relations determines that there has been a change in any prevailing rate of per diem wages in the locality in which this public work is to be performed, such change shall not alter the wage rates discussed in the Notice to Bidders or the Contract subsequently awarded.

13.8.5 FORFEITURE AND PAYMENTS

Pursuant to Labor Code section 1775, the Contractor and any subcontractor under the Contractor shall as a penalty to the Owner, forfeit not more than two hundred dollars ($200.00) for each calendar day, or portion thereof, for each worker paid less than the prevailing rate of per diem wages, determined by the Director, for such craft or classification in which such worker is employed for any public work done under the Agreement by the Contractor or by any Subcontractor under it. Minimum penalties shall apply, as also provided in Labor Code section 1775. The amount of the penalty shall be determined by the Labor Commissioner and shall be based on both of the following: (1) whether the failure of the contractor or subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected upon being brought to the attention of the contractor or subcontractor; and (2) whether the contractor or subcontractor has a prior record of failing to meet its prevailing wage obligations. The difference between such prevailing rate of per diem wage and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing rate of per diem wage shall be paid to each worker by the Contractor or subcontractor.

13.8.6 MINIMUM WAGE RATES

Any worker employed to perform work on the Project, which work is not covered by any craft or classification listed in the general prevailing rate of per diem wages determined by the Director, shall be paid not less than the minimum rate of wages specified therein for the craft or classification which most nearly corresponds to the Work to be performed by them, and such minimum wage rate shall be retroactive to time of initial employment of such person in such craft or classification.

13.8.7 PER DIEM WAGES

Pursuant to Labor Code section 1773.1, per diem wages include fringe benefits such as employer payments for health and welfare, pension, and vacation pay.

13.8.8 POSTING OF WAGE RATES AND OTHER REQUIRED JOB SITE NOTICES

The Contractor shall post at appropriate conspicuous points on the Site, a schedule showing all determined wage rates and all other required job site notices as prescribed by regulation.

13.9 RECORD OF WAGES PAID: INSPECTION

13.9.1 APPLICATION OF LABOR CODE

Pursuant to section 1776 of the Labor Code:

(a) Each Contractor and subcontractor shall keep accurate payroll records, showing the name, address, social security number, work classification, and straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Each payroll record shall contain or be verified by a

written declaration that is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct.

(2) The employer has complied with the requirements of sections 1771, 1811 and 1815 for any work performed by his or her employees on the public works project.

(b) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract and the Division of Labor Standards Enforcement of the Department of Industrial Relations ("DIR"). The Contractor and each subcontractor shall furnish a certified copy of all payroll records directly to the Labor Commissioner monthly or more frequently, if so specified in the Agreement and in a format the Labor Commissioner prescribes.

(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract or the Division of Labor Standards Enforcement of the DIR. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of the preparation by the contractor, subcontractors, and the entity through which the request was made. The public may not be given access to such records at the principal office of the Contractor.

(c) Unless required as of January 1, 2016, to be furnished directly to the Labor Commissioner under Labor Code section 1771.4(a)(3), the certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement of the DIR or shall contain the same information as the forms provided by the division. The payroll records may consist of printouts of payroll data that are maintained as computer records, if the printouts contain the same information as the forms provided by the division and the printouts are verified in the manner specified in (a) above.

(d) A Contractor or subcontractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested such records within 10 days after receipt of a written request.

(e) Except as provided in subdivision (f), any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body or the Division of Labor Standards Enforcement of the DIR shall be marked or obliterated to prevent disclosure of an individual's name, address and social security number. The name and address of the Contractor awarded the Contract or the subcontractor performing the Contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a multiemployer Taft-Hartley trust fund (29 U.S.C. Sec. 186(c)(5) that requests the records for the purposes of allocating contributions to participants shall be marked or obliterated only to prevent disclosure of an individual's full social security number, but shall provide the last four digits of the social security number. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (29 U.S.C. Sec. 175a) shall be marked or obliterated only to prevent disclosure of an individual's social security number.

(f) Notwithstanding any other provision of law, agencies that are included in the Joint Enforcement Strike Force on the Underground Economy established pursuant to Section 329 of the Unemployment Insurance Code and other law enforcement agencies investigating violations of law shall, upon request, be provided nonredacted copies of certified payroll records. Any copies of records or certified payroll made available for inspection and furnished upon request to the public by an agency included in the Joint Enforcement Strike Force on the Underground Economy or to a law enforcement agency investigating a violation of law shall be marked or redacted to prevent disclosure of an individual's name, address, and social security number. An employer shall not be liable for damages in a civil action for any reasonable act or omission taken in good faith in compliance with this subsection.

(g) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.

(h) The contractor or subcontractor has 10 days in which to comply subsequent to receipt of written notice requesting the records enumerated in subdivision (a). In the event that the Contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit one hundred dollars ($100.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Labor Standards Enforcement of the DIR, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of the subcontractor to comply with this section.

13.10 **APPRENTICES**

13.10.1 APPRENTICE WAGES AND DEFINITIONS

All apprentices employed by the Contractor to perform services under the Contract shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he or she is employed, and shall be employed only at the work of the craft or trade to which he or she is registered. Only apprentices, as defined in section 3077 of the Labor Code, who are in training under apprenticeship standards and written apprenticeship agreements under Chapter 4 (commencing with § 3070) of Division 3, are eligible to be employed under this Contract. The employment and training of each apprentice shall be in accordance with the apprenticeship standards and apprentice agreements under which he or she is training.

13.10.2 APPRENTICE LABOR POOL

When the Contractor to whom the Contract is awarded by the Owner, or any Subcontractor under him or her, in performing any of the Work under the Contract or subcontract, employs workers in any apprenticeable craft or trade, the Contractor and Subcontractor may apply to the joint apprenticeship committee administering the apprenticeship standards of the craft or trade in the area of the Site of the Project, for a certificate approving the Contractor or Subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, approval as established by the joint apprenticeship committee or committees shall be subject to review by the Administrator of Apprenticeship. The joint apprenticeship committee or committees, subsequent to approving the subject Contractor or Subcontractor, shall arrange for the dispatch of apprentices to the Contractor or Subcontractor in order to comply with this section. Every Contractor and Subcontractor shall submit the contract award information to the applicable joint apprenticeship committee which shall include an estimate of journeyman hours to be performed under the Contract, the number of apprentices to be employed, and the approximate dates the apprentices will be employed. There shall be an affirmative duty upon the joint apprenticeship committee or committees administering the apprenticeship standards of the crafts or trade in the area of the Site of the public work, to ensure equal employment and affirmative action and apprenticeship for women and minorities. Contractors or Subcontractors shall not be required to submit individual applications for approval to local joint apprenticeship committees provided they are already covered by the local apprenticeship standards. The ratio of work performed by apprentices to journeymen, who shall be employed in the craft or trade on the Project, may be the ratio stipulated in the apprenticeship standards under which the joint apprenticeship committee operates, but, except as otherwise provided in this section, in no case shall the ratio be less than one (1) hour of apprentice work for every five (5) hours of labor performed by a journeyman. However, the minimum ratio for the Operating Engineer and Labor classification shall not be less than one (1) apprentice for each four (4) journeymen.

13.10.3 JOURNEYMAN/APPRENTICE RATIO; COMPUTATION OF HOURS

Any ratio shall apply during any day or portion of a day when any journeyman or the higher standard stipulated by the joint apprenticeship committee, is employed at the job Site and shall be computed on the basis of the hours worked during the day by journeymen so. Any work performed by a journeyman in excess of eight (8) hours per day or forty (40) hours per week,

shall not be used to calculate the hourly ratio required by the section. The Contractor shall employ apprentices for the number of hours computed as above before the end of the Contract. However, the Contractor shall endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the job Site. Where an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Division of Apprenticeship Standards, upon application of a joint apprenticeship committee, may order a minimum ratio of not less than one (1) apprentice for each five (5) journeymen in a craft or trade classification.

13.10.4 JOURNEYMAN/APPRENTICE RATIO

The Contractor or Subcontractor, if he or she is covered by this section upon the issuance of the approval certificate, or if he or she has been previously approved in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the apprenticeship standards. Upon proper showing by the Contractor that he or she employs apprentices in the craft or trade in the state on all of his or her contracts on an annual average of not less than one (1) hour of apprentice work for every five (5) hours of labor performed by a journeyman, or in the land surveyor classification, one (1) apprentice for each five (5) journeymen, the Division of Apprenticeship Standards may grant a certificate exempting the Contractor from the 1-to-5 hourly ratio as set forth in this section. This section shall not apply to contracts of general contractors or to contracts of specialty contractors not bidding for work through a general or prime contractor, when the contracts of general contractors or those specialty contractors involve less than Thirty Thousand Dollars ($30,000).

13.10.4.1 ***Apprenticeable Craft or Trade.*** "Apprenticeable craft or trade" as used in this Article means a craft or trade determined as an apprenticeable occupation in accordance with the rules and regulations prescribed by the California Apprenticeship Council. The joint apprenticeship committee shall have the discretion to grant a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting a Contractor from the 1-to-5 ratio set forth in this Article when it finds that any one of the following conditions is met:

A. Unemployment for the previous three-month period in the area exceeds an average of fifteen percent (15%).

B. The number of apprentices in training in such area exceeds a ratio of 1-to-5.

C. There is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth (1/30) of its journeymen annually through the apprenticeship training, either on a statewide basis or on a local basis.

D. Assignment of an apprentice to any work performed under this contract would create a condition which would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyman.

13.10.5 **RATIO EXEMPTION**

When exemptions are granted to an organization which represents Contractors in a specific trade from the 1-to-5 ratio on a local or statewide basis, the member Contractors will not be required to submit individual applications for approval to local joint apprenticeship committees, if they are already covered by the local apprenticeship standards.

13.10.6 **APPRENTICE FUND**

A contractor to whom a contract is awarded, who, in performing any of the work under the contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to the California Apprenticeship Council the same amount that the director determines is the prevailing amount of apprenticeship training contributions in the area of the public works site. A contractor may take as a credit for payments to the council any amounts paid by the contractor to an approved apprenticeship program that can supply apprentices to the site of the public works project. The contractor may add the amount of the contricbutions in computing his or her bid for the contract. The Division of Labor Standards Enforcement is authorized to enforce the payment of the contributions to the fund or funds as set forth in the Labor Code section 227.

13.10.7 **PRIME CONTRACTOR COMPLIANCE**

The responsibility of compliance with section 13.10 and section 1777.5 of the Labor Code for all apprenticeable occupations is with the Prime Contractor. However, if a subcontractor is found to have violated Section 1777.5, the prime contractor of the project is not liable for any penalties under subdivision (2) unless the prime contractor had knowledge of the subcontractor's failure to comply with the provisions of Section 1777.5 or unless the contract executed between the contractor and the subcontractor for the performance of work on the public works project failed to include a copy of the provisions of Section 1771, 1775, 1776, 1777.5, 1831 and 1851. Additionaly, the contractor shall continually monitor a subcontractor's use of apprentices required to be employed on the public works project pursuant to subdivision (d) of Section 1777.5, including, but not limited to, periodic review of the certified payroll of the subcontractor, and upon becoming aware of a failure of the subcontractor to employ the required number of apprentices, the contractor shall take corrective action, including, but not limited to, retaining funds due to the subcontractor for work performed on the public works project until the failure is corrected.

13.10.8 **DECISIONS OF JOINT APPRENTICESHIP COMMITTEE**

All decisions of the joint apprenticeship committee under this section13.10 and Labor Code section 1777.5 are subject to Labor Code section 3081.

13.10.9 **NO BIAS**

It shall be unlawful for an employer or a labor union to refuse to accept otherwise qualified employees as registered apprentices on any public works on the grounds of race, religious creed, color, national origin, ancestry, sex, or age, except as provided in the Labor Code section 3077.

13.10.10 VIOLATION OF LABOR CODE

Pursuant to Labor Code section 1777.1, in the event a Contractor or Subcontractor willfully fails to comply with the provisions of this section 13.10 and Labor Code section 1777.5, among other things:

(a) The Labor Commissioner may deny to the contractor or subcontractor, and to its responsible officers, the right to bid on, or be awarded or perform work as a subcontractor on, any public works project for a period of up to one year for the first violation and for a period of up to three years for the second and subsequent violation. Each period of debarment shall run from the date the determination of noncompliance by the Labor Commissioner becomes a final order.

(b) A contractor or subcontractor who violates section 1777.5 shall forfeit as a civil penalty an amount not exceeding the sum of one hundred dollars ($100) for each full calendar day of noncompliance for a first violation and not more than three hundred dollars ($300) for a second or subsequent violation within a three-year period. Upon receipt of a determination that a civil penalty has been imposed, the awarding body shall enforce the penalty, which includes withholding the amount of the civil penalty from the contract progress payments or retention then due or to become due.

(c) In lieu of the penalty provided, the Labor Commissioner may for a first time violation and with the concurrence of an applicable apprenticeship program, order the contractor or subcontractor to provide apprentice employment equivalent to the work hours that would have been provided for apprentices during the period of noncompliance.

(d) Any funds withheld by the awarding body pursuant to this section shall be deposited in the General Fund.

(e) The interpretation and enforcement of section 1777.5 and this section shall be in accordance with the regulations of the California Apprenticeship Council.

Pursuant to Public Contract Code section 6109, no contractor or subcontractor may bid on, be awarded, or perform work as a subcontractor on a public works project if ineligible to bid or work on, or be awarded, a public works project pursuant to section 1777.1 of the Labor Code.

13.11 ASSIGNMENT OF ANTITRUST CLAIMS

13.11.1 APPLICATION

Pursuant to Public Contract Code section 7103.5 and Government Code section 4552, in entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or Subcontractor offers and agrees to assign to the Owner all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act, (15 U.S.C. § 15) or under the Cartwright Act (Chapter 2 [commencing with § 16700] of Part 2 of Division 7 of the Bus. & Prof. Code), arising from the purchase of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders Final Progress Payment to the Contractor, without further acknowledgment by the parties. If the Owner receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Chapter 11 (commencing with § 4550) of Division 5 of Title 1 of the Government Code, the assignor may, upon demand, recover from the Owner any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the Owner as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

13.11.2 ASSIGNMENT OF CLAIM

Upon demand in writing by the assignor, the Owner shall, within one (1) year from such demand, reassign the cause of action assigned pursuant to this Article if the assignor has been or may have been injured by the violation of law for which the cause of action arose and the Owner has not been injured thereby or the Owner declines to file a court action for the cause of action.

13.12 AUDIT

Pursuant to and in accordance with the provisions of Government Code section 8546.7, or any amendments thereto, all books, records, and files of the Owner, the Contractor, or any Subcontractor connected with the performance of this Contract involving the expenditure of state funds in excess of Ten Thousand Dollars ($10,000.00), including, but not limited to, the administration thereof, shall be subject to the examination and audit of the Office of the Auditor General of the State of California for a period of three (3) years after release of all retention under this Contract. Contractor shall preserve and cause to be preserved such books, records, and files for the audit period. During the progress of the Work and for three (3) years after release of all retention under the Contract, Owner shall also have the right to an audit, and Contractor must cooperate by producing all information requested within seven (7) days.

13.13 STORM WATER DISCHARGE PERMIT

If applicable, the Contractor shall file a Notice of Intent to comply with the terms of the general permit to discharge storm water associated with construction activity Order 2009-0009-DWQ (as amended by 2010-0014-DWQ and 2017-006-DWQ). The Notice of Intent must be sent to the following address along with the appropriate payment (warrant to be furnished by the Owner upon request by the Contractor, allow warrant processing time.): California State Water Resources Control Board, Division of Water Quality, Storm Water Permit Unit, P.O. Box 1977, Sacramento, CA 95812-1977. The Contractor may also call the State Water Board's

Construction Activity Storm Water Hotline at (916) 657-1146. The Notice of Intent shall be filed prior to the start of any construction activity.

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR FOR CAUSE

Contractor may not terminate for convenience. Contractor may only terminate for cause if the Work is stopped by others for a period of one hundred eighty (180) consecutive days through no act or fault of the Contractor, a Subcontractor of any tier, their agents or employees, or any other persons performing portions of the Work for whom the Contractor is contractually responsible, **and** the Work was stopped by others for one of the following reasons: (A) Issuance of an order of a court or other public authority having jurisdiction which requires Owner to stop all Work; or (B) an act of government, such as a declaration of national emergency, making material unavailable which requires Owner to stop all Work. If such grounds exist, the Contractor may serve written notice of such grounds on Owner and demand a meet-and-confer conference to negotiate a resolution in good faith within twenty (20) days of Owner's receipt of such notice. If such conference does not lead to resolution and the grounds for termination still exist, Contractor may terminate the Contract and recover from the Owner payment for Work executed and for reasonable verified costs with respect to materials, equipment, tools, construction equipment, and machinery, including reasonable overhead, profit, and damages for the Work executed, but excluding overhead (field and home office) and profit for (i) Work not performed and (ii) the period of time that the Work was stopped.

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1 GROUNDS FOR TERMINATION

The Owner may terminate the Contract if the Contractor:

A. Refuses or fails to supply enough properly skilled workers or proper materials, or refuses or fails to take steps to adequately prosecute the work toward completion within the Contract Time;

B. Fails to make payment to Subcontractors for materials or labor in accordance with Public Contract Code section 10262 or Business and Professions Code section 7108.5, as applicable;

C. Violates Labor Code section 1771.1(a), subject to the provisions of Labor Code section 1771.1(f);

D. Disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction; or

E. Otherwise is in breach of the Contract Documents.

14.2.2 NOTIFICATION OF TERMINATION

When any of the above reasons exist, the Owner may, without prejudice to any other rights or remedies of the Owner, give notice to Contractor of the grounds for termination and demand cure of the grounds within seven (7) days (a "Notice of Intent to Terminate"). If Contractor fails to **either** (a) completely cure the grounds for termination within seven (7) days **or** (b) reasonably commence cure of the grounds for termination within seven (7) days and reasonably continue to cure the grounds for termination until such cure is complete, then Owner may terminate the Contract effective immediately upon service of written Notice of Termination and may, subject to any prior rights of Contractor's surety on the performance bond ("Surety"):

A. Take possession of the Site and of all material, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

B. Accept assignment of subcontracts pursuant to section 5.4; and

C. Complete the Work by whatever reasonable method the Owner may deem expedient.

14.2.3 PAYMENTS WITHHELD

If the Owner terminates the Contract for one of the reasons stated in section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is complete.

14.2.4 PAYMENTS UPON COMPLETION

If the unpaid balance of the Contract Sum exceeds costs of completing the Work, including compensation for professional services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This payment obligation shall survive completion of the Contract.

14.2.5 INCLUSION OF TERMINATION FOR CONVENIENCE

Any purported termination by Owner for cause under this section 14.2, which is revoked or determined to not have been for cause, shall be deemed to have been a termination for convenience effective as of the same date as the purported termination for cause.

14.3 SUSPENSION OR TERMINATION BY THE OWNER FOR CONVENIENCE

14.3.1 SUSPENSION BY OWNER

The Owner may, without cause, order the Contractor in writing to suspend, delay, or interrupt the Work in whole or in part for such period of time as the Owner may determine.

14.3.1.1 ***Adjustments.*** An adjustment shall be made for increases in the cost of performance of the Contract, including profit on the increased cost of performance caused by suspension, delay, or interruption. No adjustment shall be made to the extent:

A. That performance is, was or would have been so suspended, delayed, or interrupted by another cause for which the Contractor is responsible; or

B. That an equitable adjustment is made or denied under another provision of this Contract.

14.3.1.2 ***Adjustments for Fixed Cost.*** Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

14.3.2 **TERMINATION BY THE OWNER FOR CONVENIENCE**

14.3.2.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

14.3.2.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

1. Cease operations as directed by the Owner in the notice;

2. Take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

3. Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

14.3.2.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination.

14.4 NOT A WAIVER

Any suspension or termination by Owner for convenience or cause under this Article 14 shall not act as a waiver of any claims by Owner against Contractor or others for damages based on breach of contract, negligence or other grounds.

14.5 MUTUAL TERMINATION FOR CONVENIENCE

The Contractor and the Owner may mutually agree in writing to terminate this Contract for convenience. The Contractor shall receive payment for all Work performed to the date of termination in accordance with the provisions of Article 9.

14.6 **EARLY TERMINATION**

Notwithstanding any provision herein to the contrary, if for any fiscal year of this Contract the governing body of the Owner fails to appropriate or allocate funds for future periodic payments under the Contract after exercising reasonable efforts to do so, the Owner may upon thirty (30) days' notice, order work on the Project to cease. The Owner will remain obligated to pay for the work already performed but shall not be obligated to pay the balance remaining unpaid beyond the fiscal period for which funds have been appropriated or allocated and for which the work has not been done.

END OF DOCUMENT

DOCUMENT 00 73 00

SPECIAL CONDITIONS

1. Mitigation Measures

Contractor shall comply will all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act. (Public Resources Code section 21000 et. seq.).

2. Modernization / Post Occupancy Projects

a. **Access**. Access to the school buildings and entry to buildings, classrooms, restrooms, mechanical rooms, electrical rooms, or other rooms, for construction purposes, must be coordinated with District and onsite District personnel before Work is to start. Unless agreed to otherwise in writing, only a school custodian will be allowed to unlock and lock doors in existing building(s). The custodian will be available only while school is in session. If a custodian is required to arrive before 7:00 a.m. or leave after 3:30 p.m. to accommodate Contractor's Work, the overtime wages for the custodian will be paid by the Contractor, unless, at the discretion of the District, other arrangements are made in advance.

b. **Master Key**. Upon request, the District may, at is own discretion, provide a master key to the school site for the convenience of the Contractor. The Contractor agrees to pay all expenses to re-key the entire school site and all other affected District buildings if the master key is lost or stolen or if any unauthorized party obtains a copy of the key or access to the school.

c. **Maintaining Services**. The Contractor is advised that Work is to be performed in spaces regularly scheduled for instruction. Interruption and/or periods of shutdown of public access, electrical service, water service, lighting, or other utilities shall be only as arranged in advance with the District. Contractor shall provide temporary services to all facilities interrupted by Contractor's Work.

d. **Maintaining Utilities**. The Contractor shall maintain in operation during duration of Contract, drainage lines, storm drains, sewers, water, gas, electrical, steam, and other utility service lines within working area. No new services or connections shall be anticipated for operation of existing facilities during construction.

e. **Confidentiality**. Contractor shall maintain the confidentiality of all information, documents, programs, procedures and all other items that Contractor encounters while performing the Work. This requirement shall be ongoing and shall survive the expiration or termination of this Contract and specifically includes, without limitation, all student, parent, and employee disciplinary information and health information.

f. **No Work During Student Testing**. Contractor shall, at no additional cost to the District and at the District's request, coordinate its Work to not disturb District students including, without limitation, not performing any Work when students at the Site are taking State-required tests.

3. **Substitution for Specified Items**

a. Requests for substitutions prior to award of the Contract shall be done within the time period indicated in the Instructions to Bidders.

b. Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Contractor may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified.

(1) If the material, process, or article offered by Contractor is not, in the opinion of the District, substantially equal or better in every respect to that specified, then Contractor shall furnish the material, process, or article specified in the Specifications without any additional compensation or change order.

(2) This provision shall not be applicable with respect to any material, product, thing or service for which District made findings and gave notice in accordance with Public Contract Code section 3400(b); therefore, Contractor shall not be entitled to request a substitution with respect to those materials, products or services.

c. A request for a substitution shall be in writing and shall include:

(1) All variations of the proposed substitute from the material specified including, but not limited to, principles of operation, materials, or construction finish, thickness or gauge of materials, dimensions, weight, and tolerances;

(2) Available maintenance, repair or replacement services;

(3) Increases or decreases in operating, maintenance, repair, replacement, and spare parts costs;

(4) Whether or not acceptance of the substitute will require other changes in the Work (or in work performed by the District or others under Contract with the District); and

(5) The time impact on any part of the Work resulting directly or indirectly from acceptance of the proposed substitute.

d. No substitutions shall be made until approved, in writing, by the District. The burden of proof as to equality of any material, process, or article shall rest with Contractor. The Contractor warrants that if substitutes are approved:

(1) The proposed substitute is equal or superior in all respects to that specified, and that such proposed substitute is suitable and fit for the intended purpose and will perform adequately the function and achieve the results called for by the general design and the Contract Documents;

(2) The Contractor provides the same warranties and guarantees for the substitute that would be provided for that specified;

(3) The Contractor shall be fully responsible for the installation of the substitute and any changes in the Work required, either directly or indirectly, because of the acceptance of such substitute, with no increase in Contract Price or Contract Time. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time;

(4) The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute; and

(5) The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit.

e. In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

f. In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

4. **Fingerprinting**

Contractor shall comply with the provisions of Education Code section 45125.2 regarding the submission of employee fingerprints to the California Department of Justice and the completion of criminal background investigations of its employees, its subcontractor(s), and its subcontractors' employees. Contractor shall not permit any employee to have any contact with District pupils until such time as Contractor has verified in writing to the governing board of the District, that such employee has not been convicted of a felony, as defined in Education Code section 45122.1. Contractor

shall fully complete and perform all tasks required pursuant to the Criminal Background Investigation/ Fingerprinting Certification.

5. **Weather Days**

Extensions of the Performance Period shall be determined by reference to the Terms and Conditions to Field Contract. Rain in excess of one-tenth of an inch (1/10") in one (1) day, or temperature which does not exceed 32° F shall be considered adverse weather. The following chart shows the normal number of adverse weather days:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10	8	8	5	2	1	0	0	1	3	7	8

6. **Insurance Policy Limits**. All of Contractor's insurance shall be with insurance companies with an A.M. Best rating of no less than A: XI. All limits of insurance shall not be less than what is specified in Agreement Between Owner and Contractor Document 00 52 26, Article XI, Indemnifications and Insurance in the.

7. **Permits, Certificates, Licenses, Fees, Approval**

a. **Payment for Permits, Certificates, Licenses, and Fees**. As required in the Terms and Conditions to Field Contract, the Contractor shall secure and pay for all permits, licenses and certificates necessary for the prosecution of the Work with the exception of the following:

(1) Water connection fees
(2) Sewer connection fees
(3) Electrical connection fees
(4) Gas connections fees
(5) Cable TV connection fees
(6) Phone connection fee

With respect to the above listed items, Contractor shall be responsible for securing such items, however, District will be responsible for payment of these charges or fees. Contractor shall notify the District of the amount due with respect to such items and to whom the amount is payable. Contractor shall provide the District with an invoice and receipt with respect to such charges or fees. The contractor shall receive written approval from the District prior to any payment.

b. **The Contractor shall obtain a Grading Permit** : Not Required

c. **Storm Water Pollution Prevention Plan**

- NPDES PERMITTING

1. General. The intent of these requirements is to enforce federal, state and local laws, ordinances, codes and regulations that pertain to storm water pollution attributable to construction projects. Storm drains discharge directly to creeks without treatment. Therefore, discharge of pollutants (i.e. any substance, material or waste other than uncontaminated storm water) into the storm drain system is strictly prohibited.

   For the purpose of eliminating storm water pollution, the Contractor shall implement effective
   control measures over the entire project. There are several publications which provide guidance on selecting and implementing effective control measures known as Best Management Practices (BMPs). BMPs include, but are not limited to, schedules of activities, prohibition of practices, general good housekeeping practices, operational practices, pollution prevention practices, maintenance procedures and other management procedures designed to prevent the discharge of pollutants directly or indirectly to the storm drain system. BMPs also include the construction of some facilities which may be required to prevent, control and abate storm water pollution. The reference publications are as follows:

   * California Storm Water Best Management Practices Handbook-Industrial/Commercial
   * California Storm Water Best Management Practices Handbook-Construction Activity

   These handbooks may be purchased from Blue Print Services (BPS), 1700 Jefferson Street, Oakland, California 94612, (510) 287-5485.

   The Contractor shall be responsible for preparing and submitting to the Owner a Storm Water Pollution Prevention Plan (SWPPP) in conformance with the California NPDES (National Pollution Discharge Elimination System) General Permit for Storm Water Discharges associated with construction activity. The SWPPP shall address intended methods to reduce the amount of pollutants contained in storm water runoff during construction of the work.

   The SWPPP is considered a report available to the public under Section 308 (b) of the Clean Water Act. The SWPPP shall be kept at the site during construction and made available upon request of a representative of the Regional Water Board or other local agency. The Contractor shall amend the SWPPP for any change in construction or operations which may affect the discharge of pollutants to surface water, ground waters, or storm drain system.

   The Contractor shall submit the SWPPP to the Owner and governing agencies within fifteen (15) days of the Notice to Proceed. Upon approval of the SWPPP, the Contractor shall be responsible for implementing, maintaining, and repairing all storm water pollution controls as described in his approved

SWPPP for the duration of the work. The Contractor shall make any repairs to the storm water pollution controls and amend the SWPPP if, in the opinion of the Owner, the Contractor is not in compliance with the SWPPP. Failure to make the necessary repairs or other maintenance when directed by the Owner shall result in the necessary repair work being done by District forces, and the Contractor will be billed at double the rate of all District expenses. In addition, the Contractor shall be responsible for any fines imposed by the Regional Water Quality Control Board or other agency as a result of noncompliance, negligence, or violation of permit conditions.

Records of all inspections and compliance certifications reporting must be retained as part of the Storm Water Pollution Prevention Plan for a period of three years. Upon completion of the project construction and termination of coverage under the General Permit, the records shall be retained by the contractor with a copy of the final SWPPP.

2. Material Storage. Storage and exposure of raw materials, by-products, finished products, and containers shall be controlled as described below:

   All construction materials shall be stored at least ten (10) feet away from inlets, catch basins, and curb returns. The Contractor shall not allow any material to enter the storm drain system. At the end of each working day, the Contractor shall collect and dispose of all scrap, debris, and waste material.

   During wet weather or when rain is forecast, the Contractor shall store materials that can contaminate rainwater or be transported by storm water or other runoff to the storm drain system inside a building or cover them with a tarp or other waterproof material secured with weighted tires or sandbags to prevent contact with rain.

   The Contractor is reminded that storage and disposal of all hazardous materials such as paints, thinners, solvents, and fuels; and all hazardous wastes such as waste oil must meet all federal, state and local standards and requirements.

3. De-watering Operations. All groundwater removed from the trench or excavations must be de-silted prior to discharging it into the storm drain system through filtering materials and methods meeting the Association of Bay Area Governments (ABAG) Standards for Erosion & Sediment Control Measures and/or through methods and procedures described in the California Storm Water Best Management Practice Handbook - Construction Activity (latest edition).

4. Pavement Saw-Cutting Operations. The Contractor shall prevent any saw-cutting debris from entering the storm drain system. The Contractor, preferably, shall use dry cutting techniques and sweep up residue. If wet methods are used, the Contractor shall vacuum slurry as cutting proceeds or collect all wastewater by constructing a sand bag sediment barrier. The bermed area shall be of adequate size to collect all wastewater and solids. The Contractor shall allow collected water to evaporate if the wastewater volume is minimal and if maintaining the ponding area does not interfere with public use of the street area or create a safety hazard.

If approved by the Owner, the Contractor may direct or pump saw-cutting wastewater to a dirt area and allow to infiltrate. The dirt area shall be adequate to contain all the wastewater. After wastewater has infiltrated, all remaining saw-cutting residue must be removed and disposed of properly. Remaining silt and debris from the ponding or bermed area shall be removed or vacuumed and disposed of properly.

If a suitable dirt area is not available or discharge to the sanitary sewer is not feasible, with the approval of the Owner and Contra Costa County Flood Control (CCCFC) & Water Conservation District (WCD), the Contractor shall filter the saw-cutting wastewater through filtering materials and methods meeting ABAG Standards for Erosion and Sedimentation Control Measures (latest edition) before discharging to the storm drain.

5. Pavement Operations. The Contractor shall prevent the discharge of pollutants from paving operations by using measures to prevent run-on and run-off pollution, disposing of wastes properly, and by implementing the procedures in the Best Management Practices Handbook. In addition, the Contractor shall observe the following guidelines:
    - Paving during wet weather:
        a) No paving while it is raining.
        b) No paving of the top lift of asphalt concrete (AC) on any day that experiences ¼" of rain in a twenty-four (24) hour period.
        c) No paving of bottom lift if previous seventy-two (72) hour period experienced more than ½" rain, unless directed by the Owner.
    - Store materials as required under section 2.
    - Cover inlets and manholes when applying asphalt, seal coat, tack coat, slurry seal, fog seal, etc.
    - Place drip pans or absorbent materials under paving equipment when not in use. During wet weather, store contaminated paving equipment indoors, or cover with tarp or other waterproof covering.
    - Sweep site daily using mechanical methods to prevent sand, gravel or excess asphalt from entering or being transported by rain into the storm drain system.
    - Keep ample supplies of drip pans or absorbent materials on-site.
    - If paving involves Portland cement concrete, refer to section G6 below.
    - All of the above at the discretion of the Owner.

6. Concrete Operations. **Do not wash out concrete trucks into storm drains, open ditches, streets, streams, etc.** The Contractor shall prevent the discharge of pollutants from concrete operations by using measures to prevent run-on and run-off pollution, properly disposing of wastes, and by implementing the following BMPs:
    - Store all materials in waterproof containers or under cover away from drain inlets or drainage areas.
    - Avoid mixing excess amounts of Portland cement materials. Dispose of any excess materials properly.

- Whenever possible, perform washout of concrete trucks off-site where discharge is controlled and not permitted to discharge to the storm drain system. For on-site washout:
- Locate washout area at least fifty (50) feet from storm drains, open ditches or other water bodies, preferably in a dirt area. Confine run-off from this area by constructing a temporary pit or bermed area large enough for the liquid and solid waste.
- Wash out concrete wastes into the temporary pit where the concrete can set, be broken up and then disposed of properly. If the volume of water is greater than what will allow concrete to set, allow the wash water to infiltrate and/or evaporate, if possible. Remove or vacuum the remaining silt and debris from the ponding or bermed area and dispose of it properly.
- Dispose of wastewater from washing of exposed aggregate to dirt area. The dirt area shall be adequate to contain all the wastewater and once the wastewater has infiltrated, any remaining residue must be removed.
- Collect and return sweepings from exposed aggregate concrete to a stockpile or dispose of the waste in trash container.

7. Grading and Excavation Operations. The Contractor shall prepare a 40 scale erosion control plan and submit it to the Owner and governing agencies for approval, within fifteen (15) days of the Notice to Proceed.

   The erosion and sedimentation control materials and methods shall be in accordance with ABAG Standards for Erosion and Sediment Control Measures and/or the procedures and methods described in the California Storm Water Best Management Practice Handbook - Construction Activity (latest edition).

   Sedimentation and erosion control/filter materials shall be placed in a manner that will retain any debris or sediment from flowing into the storm drain system. The Contractor shall have labor, tools, equipment and materials needed, at the job site, to provide the erosion control measures necessary as a result of earthwork or trenching before beginning or continuing these construction activities. Sand bags and straw wattle shall be stockpiled adjacent to the locations of activity and ready to be installed when the rainfall forecast for 48 hours is 40% or greater or when directed by the Owner.

The Contractor shall install siltation control devices around catch basins at the end of each working day. These devices shall be maintained at all times during the construction period, and shall be removed when construction is complete.

The Contractor shall not be allowed to block existing drainage flowing onto the work area. The Contractor shall install temporary drainage facilities, if necessary. There shall be no extra compensation to the Contractor for keeping existing drainage open. The Contractor is responsible for any damage to property or existing improvements resulting from blocking existing drainage.

The Contractor shall inspect the sites of work at the beginning and once every 24-hour period through the duration of each storm to assure that inlets and pipes are

not blocked with silt or debris and shall be prepared to make repairs to the erosion control devices and take any other remedial measures as directed by the Owner. At the end of a storm event all depressions with ponded water, the water in catch basins, and the check dam ponds shall be pumped dry and all silt and debris removed. This work shall be completed within twenty-four (24) hours after the end of each storm.

8. Spill Prevention and Control. The Contractor shall take any and all precautions to prevent accidental spills during the work under this contract. However, in the event of a spill:
   - The Contractor shall immediately contain and prevent leaks and spills from entering the storm drain system, and properly clean-up and dispose of the waste and clean-up materials. If waste is hazardous, the Contractor shall comply with all federal, state and local hazardous waste requirements.
   - The Contractor shall not wash any spilled material into the streets, gutters, storm drains, or creeks.
   - The Contractor shall report any hazardous material spills immediately to the Owner as per hazardous material response protocol.

9. Vehicle/Equipment Cleaning. The Contractor shall not perform vehicle or equipment cleaning or maintenance on-site or in the street using soaps, solvents, de-greasers, steam cleaning equipment or equivalent methods. The Contractor shall perform vehicle or equipment cleaning with water only in a designated, bermed area that will not allow rinse water to run off-site or into the storm drain system. The rinse-water shall be permitted to infiltrate in dirt area or shall be discharged to the sanitary sewer with the approval of the Owner.

   The Contractor shall dispose of wash water from the cleaning of water base paint equipment and tools to the sanitary sewer.

   If using oil based paint, to the maximum extent practicable, the Contractor shall filter the paint thinner and solvents for reuse and dispose of the waste thinner and solvent, and sludge from cleaning of equipment and tools as hazardous waste. No disposal of oil base materials is allowed into the City sewer system.

10. Contractor Training and Awareness. The Contractor shall train all employees on the water pollution prevention requirements contained in these specifications. The Contractor shall inform all subcontractors of the water pollution prevention contract requirements and include appropriate subcontract provisions to ensure that these requirements are met.

    The Contractor shall utilize thermoplastic to stencil new catch basins, constructed as part of the project, with "No Dumping, Drains to Bay".

11. Good Housekeeping Practices. In addition to the practices and procedures discussed above, the Contractor shall implement the following applicable good housekeeping practices.

- Store materials that have the potential to be transported to the storm drain system by storm run-off or by a spill under cover in a contained area or in sealed waterproof containers.
- Use tarps on the ground to collect fallen debris or splatters that could contribute to storm water pollution.
- Secure opened bags of cement, and of other light or powdered materials which can be transported by wind.
- Pick up litter, construction debris and other wastes daily from outside areas including the sidewalk area, gutter, street pavement and storm drains impacted by the project. All wastes shall be stored in covered containers or disposed of or recycled immediately.
- Dispose of wash water to the sanitary sewer with the approval of Owner or recycle wash water (refer to section 6).
- Inspect vehicles and equipment arriving on-site for leaking fluids and promptly repair leaking vehicles and equipment. Vehicles leaking fluids will not be allowed on the construction site and if not repaired, must be removed.
- Avoid spills by handling materials carefully. Keep a stockpile of spill control materials, such as rags or absorbents, readily accessible on-site. Clean up all spills immediately to prevent any material from being discharged to the storm drain (refer to section 8).
- Train employees regularly on good housekeeping practices and BMPs. Assign responsibility to specific employees on BMPs, good housekeeping practices, and what to do in the event of a spill (refer to section 10).
- Maintain and replace all sediment and water pollution control devices as necessary to ensure that said controls are working effectively (e.g. inspect all sediment ponds or sandbag sedimentation/filtering systems after each rain. Remove accumulated sediment and debris and replace or repair damaged sandbags immediately).

END OF DOCUMENT

DOCUMENT 00 73 73

COMPLIANCE MONITORING AND ENFORCEMENT NOTICE

The _____ is a public works project that is subject to compliance monitoring and enforcement by the Department of Industrial Relations. The prevailing wage laws require that all workers be paid at least the minimum hourly prevailing wage rate as determined by the Director of Industrial Relations for the specific classification (or type of work) performed by workers on the project. The awarding body shall post prevailing wage rates and all other job site postings prescribed by regulation or require the prime contractor to do so.

The Contractor, and each subcontractor, shall submit weekly certified payrolls directly to the Labor Commissioner at least monthly or more frequently if specified in the contract with the District. CPRs shall be in a format prescribed by the Labor Commissioner and the department shall undertake those activities it deems necessary to monitor and enforce compliance with prevailing wage requirements. Complaints concerning nonpayment of the required prevailing wage rates to workers on this project may be filed with the Division of Labor Standards Enforcement (DLSE).

END OF DOCUMENT

DOCUMENT 00 81 00

HAZARDOUS MATERIALS PROCEDURES AND REQUIREMENTS

1. Summary

This document includes information applicable to hazardous materials and hazard waste abatement.

2. Notice of Hazardous Waste or Materials Conditions

a. Contractor shall give notice in writing to the District, the Construction Manager, and the Architect promptly, before any of the following conditions are disturbed, and in no event later than twenty-four (24) hours after first observance, of any:

(1) Material that Contractor believes may be material that is hazardous waste or hazardous material, as defined in section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law;

(2) Other material that may present a substantial danger to persons or property exposed thereto in connection with Work at the site.

b. Contractor's written notice shall indicate whether the hazardous waste or material was shown or indicated in the Contract Documents to be within the scope of Work, and whether the materials were brought to the site by Contractor, its Subcontractors, suppliers, or anyone else for whom Contractor is responsible. As used in this document the term "hazardous materials" shall include, without limitation, asbestos, lead, Polycholrinated biphenyl (PCB), petroleum and related hydrocarbons, and radioactive material.

c. In response to Contractor's written notice, the District shall investigate the identified conditions.

d. If the District determines that conditions do not involve hazardous materials or that no change in terms of Contract is justified, the District shall so notify Contractor in writing, stating reasons. If the District and Contractor cannot agree on whether conditions justify an adjustment in Contract Price or Contract Times, or on the extent of any adjustment, Contractor shall proceed with the Work as directed by the District.

e. If after receipt of notice from the District, Contractor does not agree to resume Work based on a reasonable belief it is unsafe, or does not agree to resume Work under special conditions, then District may order such portion of Work that is in connection with such hazardous condition or such affected area to be deleted from the Work, or performed by others, or District may invoke its rights

to terminate the Contract in whole or in part. District will determine entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of Work, or performing the Work by others.

f. If Contractor stops Work in connection with any hazardous condition and in any area affected thereby, Contractor shall immediately redeploy its workers, equipment, and materials, as necessary, to other portions of the Work to minimize delay and disruption.

3. Additional Warranties and Representations

a. Contractor represents and warrants that it, its employees, and its subcontractors and their employees, shall at all times have the required levels of familiarity with the Site and the Work, training, and ability to comply fully with all applicable law and contract requirements for safe and expeditious performance of the Work, including whatever training is or may be required regarding the activities to be performed (including, but not limited to, all training required to address adequately the actual or potential dangers of Contract performance).

b. Contractor represents and warrants that it, its employees, and its subcontractors and their employees, shall at all times have and maintain in good standing any and all certifications and licenses required by applicable federal, state, and other governmental and quasi-governmental requirements applicable to the Work.

c. Contractor represents and warrants that it has studied carefully all requirements of the Specifications regarding procedures for demolition, hazardous waste abatement, or safety practices, specified in the Contract, and prior to submitting its bid, has either (a) verified to its satisfaction that the specified procedures are adequate and sufficient to achieve the results intended by the Contract Documents, or (b) by way of approved "or equal" request or request for clarification and written Addenda, secured changes to the specified procedures sufficient to achieve the results intended by the Contract Documents. Contractor accepts the risk that any specified procedure will result in a completed Project in full compliance with the Contract Documents.

4. Monitoring and Testing

a. District reserves the right, in its sole discretion, to conduct air monitoring, earth monitoring, Work monitoring, and any other tests (in addition to testing required under the agreement or applicable law), to monitor Contract requirements of safe and statutorily compliant work methods and (where applicable) safe re-entry level air standards under state and federal law upon completion of the job, and compliance of the work with periodic and final inspection by public and quasi-public entities having jurisdiction.

b. Contractor acknowledges that District has the right to perform, or cause to be performed, various activities and tests including, but not limited to, pre-abatement, during abatement, and post-abatement air monitoring, that District shall have no obligation to perform said activities and tests, and that a portion of said activities and tests may take place prior to the completion of the Work by Contractor. In the event District elects to perform these activities and tests, Contractor shall afford District ample access to the Site and all areas of the Work as may be necessary for the performance of these activities and tests. Contractor will include the potential impact of these activities or tests by District in the Contract Price and the Scheduled Completion Date.

c. Notwithstanding District's rights granted by this paragraph, Contractor may retain its own industrial hygiene consultant at Contractor's own expense and may collect samples and may perform tests including, but not limited to, pre-abatement, during abatement, and post-abatement personal air monitoring, and District reserves the right to request documentation of all such activities and tests performed by Contractor relating to the Work and Contractor shall immediately provide that documentation upon request.

5. Compliance with Laws

a. Contractor shall perform safe, expeditious, and orderly work in accordance with the best practices and the highest standards in the hazardous waste abatement, removal, and disposal industry, the applicable law, and the Contract Documents, including, but not limited to, all responsibilities relating to the preparation and return of waste shipment records, all requirements of the law, delivering of all requisite notices, and obtaining all necessary governmental and quasi-governmental approvals.

b. Contractor represents that it is familiar with and shall comply with all laws applicable to the Work or completed Work including, but not limited to, all federal, state, and local laws, statutes, standards, rules, regulations, and ordinances applicable to the Work relating to:

(1) The protection of the public health, welfare and environment;

(2) Storage, handling, or use of asbestos, PCB, lead, petroleum based products or other hazardous materials;

(3) The generation, processing, treatment, storage, transport, disposal, destruction, or other management of asbestos, PCB, lead, petroleum, or hazardous waste materials or other waste materials of any kind; and

(4) The protection of environmentally sensitive areas such as wetlands and coastal areas.

6. Disposal

a. Contractor has the sole responsibility for determining current waste storage, handling, transportation, and disposal regulations for the job Site and for each waste disposal facility. Contractor must comply fully at its sole cost and expense with these regulations and any applicable law. District may, but is not obligated to, require submittals with this information for it to review consistent with the Contract Documents.

b. Contractor shall develop and implement a system acceptable to District to track hazardous waste from the Site to disposal, including appropriate "Hazardous Waste Manifests" on the EPA form, so that District may track the volume of waste it put in each landfill and receive from each landfill a certificate of receipt.

c. Contractor shall provide District with the name and address of each waste disposal facility prior to any disposal, and District shall have the express right to reject any proposed disposal facility. Contractor shall not use any disposal facility to which District has objected. Contractor shall document actual disposal or destruction of waste at a designated facility by completing a disposal certificate or certificate of destruction forwarding the original to the District.

7. Permits

a. Before performing any of the Work, and at such other times as may be required by applicable law, Contractor shall deliver all requisite notices and obtain the approval of all governmental and quasi-governmental authorities having jurisdiction over the Work. Contractor shall submit evidence satisfactory to District that it and any disposal facility

(1) have obtained all required permits, approvals, and the like in a timely manner both prior to commencement of the Work and thereafter as and when required by applicable law, and

(2) are in compliance with all such permits, approvals and the regulations.

For example, before commencing any work in connection with the Work involving asbestos-containing materials, or PCBs, or other hazardous materials subject to regulation, Contractor agrees to provide the required notice of intent to renovate or demolish to the appropriate state or federal agency having jurisdiction, by certified mail, return receipt requested, or by some other method of transmittal for which a return receipt is obtained, and to send a copy of that notice to District. Contractor shall not conduct any Work involving asbestos-containing materials or PCBs unless Contractor has first confirmed that the appropriate agency having jurisdiction is in receipt of the required notification. All permits, licenses, and bonds that are required by governmental or quasi-governmental authorities, and all fees, deposits, tap fees, offsite easements, and asbestos and PCB disposal facilities expenses necessary for the prosecution of the Work, shall be procured and paid for by Contractor. Contractor shall give all notices and comply with the all applicable laws bearing on the conduct of

the Work as drawn and specified. If Contractor observes or reasonably should have observed that Plans and Specifications and other Contract Documents are at variance therewith, it shall be responsible for promptly notifying District in writing of such fact. If Contractor performs any Work contrary to applicable laws, it shall bear all costs arising therefrom.

b. In the case of any permits or notices held in District's name or of necessity to be made in District's name, District shall cooperate with Contractor in securing the permit or giving the notice, but the Contractor shall prepare for District review and execution upon approval, all necessary applications, notices, and other materials.

8. Indemnification

a. To the extent permitted by law, the indemnities and limitations of liability expressed throughout the Contract Documents apply with equal force and effect to any claims or liabilities imposed or existing by virtue of the removal, abatement, and disposal of hazardous waste. This includes, but is not limited to, liabilities connected to the selection and use of a waste disposal facility, personal injury, property damage, loss of use of property, damage to the environment or natural resources, or "disposal" and "release" of materials associated with the Work (as defined in 42 U.S.C. § 960l et seq.).

9. Termination

a. District shall have an absolute right to terminate for default immediately without notice and without an opportunity to cure should Contractor knowingly or recklessly commit a material breach of the terms of the Contract Documents, or any applicable law, on any matter involving the exposure of persons or property to hazardous waste. However, if the breach of contract exposing persons or property to hazardous waste is due solely to an ordinary, unintentional, and non-reckless failure to exercise reasonable care, then the procedures for termination for cause shall apply without modification.

END OF DOCUMENT

11/13/13

DOCUMENT 00 88 00

AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS

THIS AGREEMENT AND RELEASE OF CLAIMS ("Agreement and Release") IS MADE AND ENTERED INTO THIS _____ DAY OF _____, 20____ by and between the Berryessa Union School District ("District") and _____ ("Contractor"), whose place of business is _____.

RECITALS:

1. District and Contractor entered into _____ NO.:_____ ("Contract" or "Project") in the County of Santa Clara, California.

2. The Work under the Contract has been completed.

NOW, THEREFORE, it is mutually agreed between District and Contractor as follows:

AGREEMENT

3. Contractor will only be assessed liquidated damages as detailed below:

Original Contract Sum $_____

Modified Contract Sum $_____

Payment to Date $_____

Liquidated Damages $_____

Payment Due Contractor $_____

4. Subject to the provisions hereof, District shall forthwith pay to Contractor the undisputed sum of $_____ (_____ Dollars and __ _____ Cents) under the Contract, less any amounts represented by any notice to withhold funds on file with District as of the date of such payment.

5. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against District arising from the performance of work under the Contract, except for the claims described in Paragraph 6 and continuing obligations described in Paragraph 8. It is the intention of the parties in executing this Agreement and Release that this Agreement and Release shall be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against District, all its respective agents, employees, inspectors, assignees and transferees except for the Disputed Claim is set forth in Paragraph 6 and continuing obligations described in Paragraph 8 hereof.

6. The following claims are disputed (hereinafter, the "Disputed Claims") and are specifically excluded from the operation of this Agreement and Release:

Claim No.	Description of Claim	Amount of Claim	Date Claim Submitted

[Insert information, including attachment if necessary]

7. Consistent with California Public Contract Code section 7100, Contractor hereby agrees that, in consideration of the payment set forth in Paragraph 4 hereof, Contractor hereby releases and forever discharges District, all its agents, employees, inspectors, assignees, and transferees from any and all liability, claims, demands, actions, or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract.

8. Guarantees and warranties for the Work, and any other continuing obligation of Contractor, shall remain in full force and effect as specified in the Contract Documents.

9. To the furthest extent permitted by California law, Contractor shall defend, indemnify, and hold harmless the District, its agents, representatives, officers, consultants, employees, trustees, and volunteers (the "indemnified parties") from any and all losses, liabilities, claims, suits, and actions of any kind, nature, and description, including, but not limited to, attorneys' fees and costs, directly or indirectly arising out of, connected with, or resulting from the performance of the Contract unless caused wholly by the sole negligence or willful misconduct of the indemnified parties.

10. Contractor hereby waives the provisions of California Civil Code section 1542 which provides as follows:

> A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM MUST HAVE MATERIALLY AFFECTED HIS SETTLEMENT WITH THE DEBTOR.

11. The provisions of this Agreement and Release are contractual in nature and not mere recitals and shall be considered independent and severable. If any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal, or other law, ruling, or regulations, then such provision, or part thereof, shall remain in force and effect to the extent permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.

12. All rights of District shall survive completion of the Work or termination of Contract, and execution of this Release.

* * * CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING * * *

Berryessa Union School District

TITLE: _____

NAME: _____

SIGNATURE: _____

CONTRACTOR

TITLE: _____

NAME: _____

SIGNATURE: _____

END OF DOCUMENT 11/13/13

DOCUMENT 00 89 00

GUARANTEE FORM

_____("Contractor") hereby agrees that the _____ ("Work" of Contractor) which Contractor has installed for the Berryessa Union School District ("District") for the following project:

PROJECT:

TOYON ELEMENTARY SCHOOL: FIS PROJECT

has been performed in accordance with the requirements of the Contract Documents and that the Work as installed will fulfill the requirements of the Contract Documents.

The undersigned agrees to repair or replace any or all of such Work that may prove to be defective in workmanship or material together with any other adjacent Work that may be displaced in connection with such replacement within a period of _____ year(s) from the date of completion as defined in Public Contract Code section 7107, subdivision (c), ordinary wear and tear and unusual abuse or neglect excepted. The date of completion is _____, 20___.

In the event of the undersigned's failure to comply with the above-mentioned conditions within a reasonable period of time, as determined by the District, but not later than seven (7) days after being notified in writing by the District, the undersigned authorizes the District to proceed to have said defects repaired and made good at the expense of the undersigned. The undersigned shall pay the costs and charges therefore upon demand.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

Representatives to be contacted for service subject to terms of Contract:

NAME: _____

ADDRESS: _____

PHONE NO.: _____

END OF DOCUMENT

11/13/13

DOCUMENT 00 91 20

PRIME BIDDER CERTIFICATION OF DISABLED VETERAN BUSINESS ENTERPRISE PARTICIPATION

To be completed by the Prime Bidder

PART I – IDENTIFICATION INFORMATION		
BIDDER'S NAME	BUSINESS ADDRESS	TELEPHONE NUMBER
SCHOOL DISTRICT	COUNTY	APPLICATION NO.

PART II – METHOD OF COMPLIANCE WITH DVBE PARTICIPATION GOALS – Include this form and any other applicable documents listed in this table with your bid/proposal. Read the three columns in the table below as sentences from left to right. Check the appropriate box to indicate your method of committing the contract dollar amount.

NOTE: *Architectural, engineering, environmental, land surveying or construction management firms must indicate their method of compliance by marking the appropriate box A, B, C, or D after selection by the District and before the contract is signed.*

YOUR BUSINESS ENTERPRISE	**AND YOU**	**AND YOU**
A. ☐ *is Disabled Veteran owned and your forces, will perform at least 3 percent of this contract*	*will include a copy of your DVBE letter from the Office of Small Minority Business (OSBCR).*	
B. ☐ *is Disabled Veteran owned* ***but is unable*** *to perform the 3 percent of this contract with your forces*	*will use DVBE subcontractors/ suppliers to bring the contract participation to at least 3 percent*	*will include a copy of each DVBE's letter from OSBCR (including yours, if applicable).*
C. ☐ *is* ***not*** *Disabled Veteran owned*	*will use DVBE subcontractors/ suppliers for at least 3 percent of this contract*	
D. ☐ *is unable to meet the required participation goals*	*will complete a Good Faith Effort to obtain DVBE participation*	*will include the Prime Bidder's Good Faith Effort Worksheet.*

Note: An Office of Small Business, Certification and Resources (OSBCR) letter must be attached for each DVBE participating in the contract. The DVBE letter is obtained by application through the OSBCR and must be provided at the time of bid opening. If the letter is not provided, the bid may be deemed nonresponsive and may be ineligible for award of the contract.

Continued on reverse side

PART III – DVBE DOLLAR PARTICIPATION OF BID/PROPOSAL – *Architectural, engineering, environmental, land surveying or construction management firms complete this part* ***after*** *selection by the district and before the contract is signed.*

Show deductive alternate(s) in parenthesis. For more alternates/base bids, use a separate page to show items.

A. If your business enterprise is a DVBE, list in the appropriate column the total dollar amount of your bid to be performed by your own participation.

B. List all your DVBE subcontractors/suppliers. Enter in the appropriate column the dollar amount for each of your subcontractors/suppliers.

C. Enter the total of Lines A and B for each column.

D. Enter the dollar amount of the bid/proposal to be performed by **non**-DVBE firms. Note: This line is the sum of the prime and subcontractor(s) **non**-DVBE dollar participation.

E. Enter the sum of the column totals from Line C and Line D. Note: Please be aware that the final determination of DVBE compliance is made based on the contract amount resulting from the district's acceptance or rejection of alternates.

	BASE BID/PROPOSAL	**ALTERNATE #1**	**ALTERNATE #2**	**ALTERNATE #3 OR BASE BID B**	**ALTERNATE #4 OR BASE BID C**	**ALTERNATE #5** (Modernization or Reconstruction Only)
A. Prime Bidder, *if DVBE (own participation)*	$	$	$	$	$	$
B. DVBE Subcontractor or Supplier						
1.						
2.						
3.						
4.						
C. Subtotal (A & B)						
D. Non-DVBE						
E. Total Bid						

PRIME BIDDER GOOD FAITH EFFORT WORKSHEET

This worksheet is to be used to assist the Prime Bidder in meeting the 3% DVBE participation goal

BIDDER'S NAME	BUSINESS ADDRESS	CONTACT PERSON
TELEPHONE NUMBER	OWNER	COUNTY

GENERAL INSTRUCTIONS:

This worksheet is to be used to assist you in meeting the 3 percent DVBE participation goal. If specific information is not provided for Parts I through III, you do not meet the test of the "Good Faith Effort" and cannot so certify. If you are qualifying based on a "Good Faith Effort" you must include this form with your bid/proposal to the Owner.

PART I – CONTACTS

To identify DVBE subcontractors/suppliers for participation in your bid/proposal, contact must be made with each of the following categories. It is recommended that you contact several DVBE organizations.

CATEGORY	TELEPHONE NUMBER	DATE CONTACTED	PERSON CONTACTED
1. Owner			
2. Office of Small Business and DVBE Services (OSDS). OSDS publishes a searchable list of Disabled Veteran Business Enterprises Internet address – http://www.bidsync.com/DPXRisCASB	(916) 375-4940		
3. DVBE Organizations (*List*):			
4. Write "recorded message" in this column, if applicable.			

PART II – ADVERTISEMENTS *You must make at least two (2) advertisements, one (1) in a paper that focuses on DVBE and one (1) in a trade paper. Advertisements should be published at least 14 days prior to bid/proposal opening; if you cannot advertise 14 days prior, advertise as soon as possible and provide an explanation. (Advertisements must be published in time to allow for a reasonable response). Advertisements must include that your firm is seeking DVBE participation, the project name and location, your firm's name, your firm's contact person, and phone number.*

Attach copies of advertisements to this form.

FOCUS/TRADE PAPER NAME	CHECK ONE		DATE OF ADVERTISEMENT
	TRADE	FOCUS	

PART III – DVBE SOLICITATIONS *List DVBE subcontractors/suppliers that were invited to bid. Use the following instructions to complete the remainder of this section (read the three columns as a sentence from left to right). If you need additional space to list DVBE solicitations, please use a separate page and attach to this form.*

IF THE DVBE…..	THEN…..	AND…..
Was selected to participate	Check "yes" in the "SELECTED" column, include the applicable dollar amount in Part III of the Prime Bidder Certification	Include a copy of their DVBE letter from OSBCR.
Was **not** selected to participate	Check "no" in the "SELECTED" column	State why in the "REASON NOT SELECTED" column.
Did not respond to your solicitation	Check the "NO RESPONSE" column	

DISABLED VETERANS BUSINESS ENTERPRISES CONTACTED	SELECTED		REASON NOT SELECTED *This section must be completed*	NO RESPONSE
	YES	NO		

IMPORTANT NOTE:

Please be aware that certification of the "Good Faith Effort" may only be made if you fully complete Parts I, II, and III on both sides of this form. A copy of this form must be retained by you and may be subject to a future audit.

CERTIFICATION

I, _____ certify that I am the bidder's Chief Executive Officer and that I have made a diligent effort to ascertain the facts with regard to the representations made herein. In making this certification, I am aware of Section 12650 et seq. of the Government Code providing for the imposition of treble damages for making false claims.

SIGNATURE OF CHIEF EXECUTIVE OFFICER	DATE

DOCUMENT 00 92 00

SMOKE-FREE ENVIRONMENT CERTIFICATION

PROJECT/CONTRACT NO.: _____ between Berryessa Union School District (the "District" or the "Owner") and _____ (the "Contractor" or the "Bidder") (the "Contract" or the "Project").

This Smoke-Free Environment Certification form is required from the successful Bidder.

Per District Board Policy and consistent with Education Code section 48901 and Health and Safety Code section 39002 all District sites, including the Project site are Tobacco Free Environments. Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes; school buildings, school grounds, school owned vehicles and vehicles owned by others while on District property.

I acknowledge that I am aware of the District's policy regarding smoke-free environments at District sites, including the Project site and hereby certify that I will adhere to the requirements of that policy and not permit any of my firm's employees, agents, subcontractors, or my firm's subcontractors' employees or agents to smoke on the Project site.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 92 50

ASBESTOS AND OTHER HAZARDOUS MATERIALS CERTIFICATION

Contractor hereby certifies that no Asbestos, or Asbestos-Containing Materials, polychlorinated biphenyl (PCB), or any material listed by the federal or state Environmental Protection Agency or federal or state health agencies as a hazardous material, or any other material defined as being hazardous under federal or state laws, rules, or regulations "New Material Hazardous", shall be furnished, installed, or incorporated in any way into the Project or in any tools, devices, clothing, or equipment used to affect any portion of Contractor's work on the Project for District.

Contractor further certifies that it has instructed its employees with respect to the above-mentioned standards, hazards, risks, and liabilities.

Asbestos and/or asbestos-containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Any or all material containing greater than one-tenth of one percent (.1%) asbestos shall be defined as asbestos-containing material.

Any disputes involving the question of whether or not material is New Hazardous Material shall be settled by electron microscopy or other appropriate and recognized testing procedure, at the District's determination. The costs of any such tests shall be paid by Contractor if the material is found to be New Hazardous Material.

All Work or materials found to be New Hazardous Material or Work or material installed with "New Hazardous Material" containing equipment will be immediately rejected and this Work will be removed at Contractor's expense at no additional cost to the District.

Contractor has read and understood the document Hazardous Materials Procedures & Requirements, and shall comply with all the provisions outlined therein.

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 93 00

LEAD-BASED PAINT CERTIFICATION

California Occupational Safety and Health Administration (CalOSHA), Environmental Protection Agency (EPA), California Department of Health Services (DHS), California Department of Education (CDE), and the Consumer Product Safety Commission (CPSC) regulate lead-containing paint and lead products. Because the Contractor and its employees will be providing services for the District, and because the Contractor's work may disturb lead-containing building materials, **CONTRACTOR IS HEREBY NOTIFIED** of the potential presence of lead-containing materials located within certain buildings utilized by the District. All school buildings built prior to 1993 are presumed to contain some lead-based paint until sampling proves otherwise.

The CDE mandates that school districts utilize DHS lead-certified personnel when a lead-based hazard is identified. Examples of lead-certified personnel include: project designers, inspectors, and abatement workers. Furthermore, since it is assumed by the district that all painted surfaces (interior as well as exterior) within the District contain some level of lead, it is imperative that the Contractor, its workers and subcontractors fully and adequately comply with all applicable laws, rules and regulations governing lead-based materials **(Including Title 8, California Code of Regulations, Section 1532.1).** Any and all Work which may result in the disturbance of lead-containing building materials must be coordinated through the District.

The California Education Code also prohibits the use or import of lead-containing paint, lead plumbing and solders, or other potential sources of lead contamination in the construction of any new school facility or in the modernization or renovation of any existing school facility. The Contractor shall provide the District with any sample results prior to beginning Work, during the Work, and after the completion of the Work. The District may request to examine, prior to the commencement of the Work, the lead training records of each employee of the Contractor.

If failure to comply with these laws, rules, and regulations results in a site or worker contamination, the Contractor will be held solely responsible for all costs involved in any required corrective actions, and shall defend, indemnify and hold harmless the District, pursuant to the indemnification provisions of the Contract, for all damages and other claims arising therefrom. If lead disturbance is anticipated in the Work, only persons with appropriate accreditation, registrations, licenses and training shall conduct this Work.

It shall be the responsibility of the Contractor to properly dispose of any and all waste products, including but not limited to, paint chips, any collected residue, or any other visual material that may occur from the prepping of any painted surface. It will be the responsibility of the Contractor to provide the proper disposal of any hazardous waste by a certified hazardous waste hauler. This company shall be registered with the

Department of Transportation (DOT) and shall be able to issue a current manifest number upon transporting any hazardous material from any school site within the District.

THE UNDERSIGNED HEREBY ACKNOWLEDGES, UNDER PENALTY OF PERJURY, THAT HE OR SHE HAS RECEIVED NOTIFICATION OF POTENTIAL LEAD-BASED MATERIALS ON THE OWNER'S PROPERTY, AS WELL AS THE EXISTENCE OF APPLICABLE LAWS, RULES AND REGULATIONS GOVERNING WORK WITH, AND DISPOSAL OF, SUCH MATERIALS WITH WHICH IT MUST COMPLY. THE UNDERSIGNED ALSO WARRANTS THAT HE OR SHE HAS THE AUTHORITY TO SIGN ON BEHALF OF AND BIND THE CONTRACTOR.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

THE UNDERSIGNED HEREBY ACKNOWLEDGES, UNDER PENALTY OF PERJURY, THAT HE OR SHE HAS RECEIVED NOTIFICATION OF POTENTIAL LEAD-BASED MATERIALS ON THE OWNER'S PROPERTY, AS WELL AS THE EXISTENCE OF APPLICABLE LAWS, RULES AND REGULATIONS GOVERNING WORK WITH, AND DISPOSAL OF, SUCH MATERIALS WITH WHICH IT MUST COMPLY. THE UNDERSIGNED ALSO WARRANTS THAT HE OR SHE HAS THE AUTHORITY TO SIGN ON BEHALF OF AND BIND THE CONTRACTOR. THE OWNER MAY REQUIRE PROOF OF SUCH AUTHORITY.

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DOCUMENT 00 93 50

IMPORTED MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: _____ between Berryessa Union School District (the "District") and _____ (the "Contractor" or the "Bidder") (the "Contract" or the "Project").

This form shall be executed by the Contractor and by all entities that, in any way, provide or deliver and/or supply any soils, aggregate, or related materials ("Fill") to the Project Site. All Fill shall satisfy all requirements of any environmental review of the Project performed pursuant to the statutes and guidelines of the California Environmental Quality Act, section 21000 et seq. of the Public Resources Code ("CEQA"), and all requirements of section 17210 et seq. of the Education Code, including requirements for a Phase I environmental assessment acceptable to the State of California Department of Education and Department of Toxic Substances Control.

To the furthest extent permitted by California law, Contractor shall defend, indemnify, and hold harmless the District, its agents, representatives, officers, consultants, employees, trustees, and volunteers pursuant to the indemnification provisions in the Contract Documents for, without limitation, any claim(s) connected with providing, delivering, and/or supplying Fill.

Certification of:	□ Delivery Firm/Transporter	□ Supplier	□ Manufacturer
	□ Wholesaler	□ Broker	□ Retailer
	□ Distributor	□ Other _____	
Type of Entity	□ Corporation	□ General Partnership	
	□ Limited Partnership	□ Limited Liability Company	
	□ Sole Proprietorship	□ Other _____	

Name of firm ("Firm"): _____

Mailing address: _____

Addresses of branch office used for this Project: _____

If subsidiary, name and address of parent company: _____

_____

_____=

By my signature below, I hereby certify that I am aware of section 25260 of the Health and Safety Code and the sections referenced therein regarding the definition of hazardous material. I further certify on behalf of the Firm that all soils, aggregates, or related materials provided, delivered, and/or supplied or that will be provided, delivered, and/or supplied by this Firm to the Project Site are free of any and all hazardous material as defined in section 25260 of the Health and Safety Code. I further certify that I am authorized to make this certification on behalf of the Firm.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

11/13/13

SECTION 01 10 00
SUMMARY

PART 1 GENERAL

1.1 PROJECT

A. Project Name: **Toyon Elementary School: FIS Project**

B. Owner's Name: Berryessa Union School District.

C. Architect's Name: McKim Design Group

D. Construction Manager: Kitchell CEM

1.2 CONTRACT DESCRIPTION

A. The Work of this Contract may consist of the following:

1. **Bid Division 1 – General Contractor – #B-01-2018-19**

SEE SECTION 01 10 12 FOR BID DIVISION DESCRIPTIONS

1.3 DESCRIPTION OF ALTERATIONS WORK

A. Scope of alterations work is shown on drawings.

B. Owner will remove the following items before start of work.

1. All FF&E from all spaces with work shown on the drawings.

C. Contractor shall remove and deliver the following to Owner prior to start of work.
1) All items as shown on the drawings

D. Contractor shall remove and store the following prior to start of work, for later reinstallation by Contractor, as shown on the drawings.

E. The Project consists of

1. Work in the Contract comprises: of modernizing an existing library into a Flexible Learning Space and installation of new finishes. This project includes minor restroom work, striping for accessible parking and replacement of site concrete, asphalt paving. Also included is installation of new ornamental and chain fencing and gates..

F. Project Schedule:

1. Start and Completion of Construction:

- FIS: 96 Calendar Days from date on Notice to Proceed
- Site work: (including all demolition, underground work, concrete, asphalt replacement, striping and fencing/gate installation): shall start on 12/24/2018 and be complete by 2/6/2018.
- Site work Demo to be phased during the school's break period as this work is adjacent to the administration building.

G. Work by Others:

1. District staff & maintenance (i.e. preventative maintenance).

1.4 OWNER OCCUPANCY

A. Owner intends to occupy the entire Project upon Substantial Completion.

B. Owner will occupy all buildings with the exception of the F.I.S. s p a c e while school is in session.

C. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

D. Schedule the Work to accommodate Owner occupancy.

1.5 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Provide access to and from site as required by law and by Owner.

1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.

2. Do not obstruct roadways, sidewalks, or other public ways without prior approval or permit.

C. Utility Outages and Shutdown.

1. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
2. Limit shutdown of utility services to minimal hours, arranged at least 24 hours in advance with Owner.
3. Prevent accidental disruption of utility services to other facilities.

END OF SECTION

DOCUMENT 01 10 12

BID DIVISION DESCRIPTIONS

TOYON ES: FIS PROJECT

PART 1 - GENERAL

1.1 Section Includes

A. Descriptions of Bid Packages.

1.2 Related Sections

A. Section 01 10 00 - Summary of Work.

1.3 DESCRIPTIONS OF BID DIVISIONS

B. Bid Packages are the categories of Work into which the Project will be divided for bidding and construction. Bid Packages should not be confused with Specification Sections.

1. Bid Package Descriptions (Section 01 10 12) are written descriptions of the Scope of the Work included in each of the Bid Packages.

2. Bid Package Descriptions have been written to clearly define each Bid Package. Contractors are encouraged to request information or clarification by calling the Construction Manager. The Owner will not be responsible for a Contractor's incorrect interpretation of the Descriptions.

3. Although each Bid Package involves a standard segment of "conventional" trade contracting, multiple contract project delivery requires that adjustments be made to permit the completion of each Bid Package as a separate segment of construction. Each Contractor shall carefully review the total scope of responsibilities with respect to the Work of the Bid Package(s), and shall provide for the total scope in Contractor's Proposal.

4. Each Contractor shall become familiar with the work scopes of all other Bid Packages which interface with the Bid Package of which a proposal is being submitted. Each Contractor shall consider that the work of Contractor's Bid Package(s) may follow the work of another Bid Package, that other Contractors may perform work after the work of Contractor's Bid Package(s), and that other Contractors may work simultaneously with the work of Contractor's Bid Package(s). Each Contractor shall include provisions for such sequencing and scheduling, and for cooperation and coordination with such other Contractors in the Bid Proposal.

5. Nothing contained in the Bidding Documents, including the Bid Division descriptions, shall be construed by Bidders as an assignment of work to any construction industry trade. Each Bidder is responsible for Bidder's own work assignments within the Bid Package.

1.4 BID PACKAGE DESCRIPTIONS

A. BID PACKAGE 1: GENERAL CONTRACTOR

1. **Included:** The Project consists of modernizing an existing library into a Flexible Learning Space and installation of new finishes. This project includes minor restroom work, striping for accessible parking and replacement of site concrete, asphalt paving. Also included is installation of new ornamental and chain fencing and gates. See below for additional clarification(s).

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 02	Existing Conditions & Demolition
Division 03	Concrete
Division 06	Wood, Plastics, and Composites
Division 07	Thermal and Moisture Protection
Division 08	Openings
Division 09	Finishes
Division 10	Specialties
Division 12	Furnishings
Division 22	Plumbing
Division 23	Heating, Ventilating, Air Conditioning
Division 26	Electrical
Division 27	Communications
Division 28	Electrical Safety/Security (Fire Alarm System)
Division 32	Exterior Improvements

Hazmat Abatement

Also included but not limited to:

Due to compressed schedule of this project, contractor will be required to submit all submittals (for this bid division) to CM/Architect 7 days after receipt of Notice to Proceed.

Provide all labor and material (for this bid package) to remove, store and re-install any District owner low voltage and/or data equipment including but not limited to “air-ports”, switches, data racks and patch panels.

All construction included in these Bid Divisions shall be in

accordance with all DSA approved documents, the project geotechnical report, Hazmat Report, all organizations having jurisdiction, and all other, applicable design criteria.

Provide As-built drawings (for this bid package) showing original contract, change order work, RFI'S and any other additional work.

Provide and install all nailers, curbs and miscellaneous blocking. Provide and install all backing required for mechanical and electrical equipment, fixtures, duct hangers, piping/conduits (for this bid package).

Provide selective demolition and cutting of structural elements. This shall include saw cutting, demolition and/or coring of concrete walls, interior slabs or the concrete roof deck (for all bid package).

Provide all Hazardous Abatement as required that are encountered during the performance of work described in the HazMat Doc report for this project.

Provide patching associated with Electrical, Mechanical, Data selective demolition and modernization work.

Provide Debris bins, waste disposal and sanitary facilities for use by ALL Bid Packages contractors and subcontractors.

Provide continuous clean up. Provide two laborers all day each Friday for a weekly jobsite cleanup (broom clean).

Provide coordination with all other Bid Division Contractors, District Maintenance staff and District vendors.

Provide manpower as necessary to relocate temporary site fencing as directed by the Construction Manager or Owner.

Provide labor for the daily securing of the site at quitting time.

Provide continual finish flooring protection during construction including maintenance of the protection throughout the project.

Provide saw cutting and demolition of concrete in the interior and exterior of the buildings.

Provide all wall and floor demolition required to facilitate restroom remodels complete with patch back to match existing.

Provide patching associated with Electrical, Mechanical and Data selective demolition and modernization work.

Provide removal, storage and reinstallation of all fixed furniture as required to demolish existing work and/or install new work.

Provide and install all access doors as required for access to mechanical/electrical systems.

Provide all labor and material as required for floor soil excavation in the restrooms and any other areas identified on the plans complete with patch back to match existing.

Provide and install conduit and line voltage for all low voltage mechanical controls.

Provide and install all sealants and fire stopping associated with this Bid Package work at fire barrier separations.

Provide and install equipment flashing and sealing for all roof mounted equipment.

Provide all trenching, backfill and compaction to sub grade, and patching associated with this scope of work.

Provide engineering of underground utilities associated with this scope of work.

Patch back of plaster systems to be completed by selective demolition of existing plaster to provide broken edges (not saw cut).

Includes all SWIIP provisions required by contract documents and the City of San Jose.

New concrete landings at existing door openings – include survey of existing conditions to determine ability to maintain 2% maximum ADA access grades per plan dimensions.

Painting – include removal of all staples in existing wall finishes prior to finish paint application.

All plumbing, mechanical, electrical and signal work to points of connection at mechanical yard

Includes all signage, safety provisions, permits, etc. required to complete all utility service tie-ins.

Includes all excavation, excavation shoring, plating, etc. and all required safety provisions required by all entities having jurisdiction.

Includes mask-off of all existing kitchen equipment and wipe down preparation of kitchen walls prior to painting.

Provide unit pricing to re-lamp non-working lamps in existing FIS Area light fixtures.

Include eight (8) hours owner training in this Bid Package 1 scope of work.

White boards not to be removed from walls, include masking of white boards in painting preparation scope prior to application of paint.

All wooden bookshelves that are required to be detached from walls will be demolished/disposed by this Bid Package 1 scope of work.

All wooden bookshelves that remain mounted to walls will require masking off as part of painting preparation scope prior to paint application.

The site grading and access to the main office front door is of paramount importance. Please make sure there is access to the main office front door at all times during the day. Demolition and placement of new concrete will be on off hours (or when school is not in session).

Contractor shall include 600-lf of temporary 6-ft high chain link fence panels, pre wrapped with privacy screen, minimum two double wide gates including combo padlock and chain. Include metal or concrete bases for temp fencing

END OF DOCUMENT

DOCUMENT 01 10 28

POST BID INTERVIEW

1.1 SUMMARY

This Section requires each apparent low bidder to attend and participate in a POST BID INTERVIEW with the CONSTRUCTION MANAGER, prior to award of any contract by the DISTRICT. The POST BID INTERVIEW will be scheduled by the CONSTRUCTION MANAGER within three (3) calendar days after the date of bid. The Conditions of the Contract and all other Sections of the Contract apply to this Section as fully as if repeated herein.

1.2 REQUIRED ATTENDANCE

A. A duly authorized representative of the apparent low bidder is required to attend the POST BID INTERVIEW, in person.

B. The apparent low bidder's authorized representative must have signatory authority on behalf of the apparent low bidder.

C. Failure to attend the POST BID INTERVIEW will be considered just cause for the District to reject the Bid.

1.3 POST BID INTERVIEW PROCEDURE

A. The CONSTRUCTION MANAGER will review the Bidder's Proposal with the attendees.

B. The CONSTRUCTION MANAGER will review the Contract Documents with the attendees, including but not limited to:

1. Insurance
2. Bonding
3. Addenda
4. Pre-Bid Clarifications
5. Summary of Work (Section 01 10 00)
6. Bid Alternates and Voluntary Alternates
7. Value Engineering
8. The Contract Plans
9. The Contract Specifications
10. The Master Schedule
11. Critical Materials
12. General Contract Schedule Requirements
13. Prevailing Wage Requirements
14. Critical Dates Requirement for Other Bid Packages
15. Liquidated Damages

16. Required Documentation for Contract Administration
17. Contract Coordination Requirements
18. Behavior issues on and around school construction sites.
19. SWPP
20. Waste Management Requirements

1.4 POST BID INTERVIEW DOCUMENTATION

The CONSTRUCTION MANAGER will document the POST BID INTERVIEW on the form attached to this Section. Both the Apparent Low Bidder and the CONSTRUCTION MANAGER are required to sign the POST BID INTERVIEW Documentation.

BERRYESSA UNION SCHOOL DISTRICT
Toyon Elementary School FIS Project

POST BID INTERVIEW

CONSTRUCTION MANAGER
Kitchell CEM
1180 Coleman Ave. #202, San Jose, CA 95110

BIDDER: _____

DATE: _____ TIME: _____ PHONE # _____

I. INTRODUCTIONS: (SIGN IN BELOW)

A. Present

_____ CONTRACTOR	_____ CONTRACTOR
_____	_____
_____	_____
_____ Kitchell	_____ Kitchell

II. PROPOSED CONTRACT: _____

III. PURPOSE OF INTERVIEW IS TO ASSURE:

A. Contractor acknowledgment of a complete and accurate bid.
B. Contractor submission of a fair and equitable bid.
C. Fair comparisons of bid.

IV. CONTRACTUAL REQUIREMENTS:

A. Do you understand you are a prime contractor? Yes No

B. Can you meet all specified insurance requirements? Yes No

V. CONTRACTUAL REQUIREMENTS (continued)

C. You are required to obtain a Performance, and a Labor and Material Bond for 100% of the Contract price.

1. Is this acceptable? Yes No

2. Will you provide bonds as stipulated? Yes No

3. Cost for bond: _____%

4. Is the cost of the bond in your base bid? Yes No

5. Is your insurance company California licensed? Yes No

D. Acknowledged Receipt of Addenda #_____

E. Additive and deductive costs for addenda items included in your proposal? (if applicable) Yes No

VI. SCOPE OF WORK:

A. You have a complete understanding of your Scope of Work under the proposed Agreement Yes No

B. You have re-reviewed the documents and understand the Scope of the Work. Are there any items that need to be identified or require clarification? Yes No

If yes, please identify item.

1. _____

_____

2. _____

_____

3. _____

_____

Is (are) the cost(s) for items V.B.1-5 (as applicable) included in your proposal items? Yes No N/A

C. Review bid alternatives (if applicable) Alternate 1 Yes No

D. Are you offering any unsolicited alternates? Yes No

1. _____

2. _____

E. Are the plans and specifications clear and understandable to your satisfaction? Yes No

VIII. VALUE ENGINEERING: (describe) BASE BID W/ALTERNATE 1: $_____

1. _____ Add / Deduct

_____

2. _____ Add / Deduct

_____

3. _____ Add / Deduct

_____

REVISED TOTAL $_____

IX. SCHEDULE:

A. Do you acknowledge and agree to the stipulated completion dates and milestones in the Contract? Yes No

1. Will you provide a detailed construction schedule to Kitchell CEM within the required ten (10) days, per the contract? Yes No

2. Can you expedite the schedule without impact to others? Yes No

3. It is understood the Project schedule is critical. It is also understood to meet the milestones weekend and overtime work may be required? Yes No

4. It is understood that if rain does occur all dewatering and protection of work is required, per the contract. Yes No

If not, what must change and why? _____
_____

B. Identify critical materials, deliveries and dependencies, including Owner Furnished items that could affect the completion of your work.

1._____

2._____

3._____

C. You have reviewed **Section 01 32 16** CONSTRUCTION SCHEDULE and Agreement 00 52 26 Paragraph 1 Article III Agreement, and you understand your work must be completed in accordance with **Section 00 11 16 AND Section 00 52 26.** You further understand the District **MAY** assess liquidated damages if you fail to meet the Master

Schedule requirements. You further understand delays by you may cause other contractors to be delayed, and that you **WILL** accelerate your work upon written direction by the Construction Manager.

CRITICAL DATE PROJECT COMPLETION

FIS: 96 calendar days from the Notice to Proceed.
Site work: (including all demolition, underground work, concrete, asphalt replacement, striping and fencing/gate installation): shall start on 12/24/2018 and be complete by 2/6/2018

You agree that failure to meet the date is just cause for the DISTRICT to assess and retain Liquidated Damages in accordance with the Contract Documents.

X. CONTRACTOR COMMENTS / SUGGESTIONS:

1. _____

2. _____

XI. CONTRACTOR

NOTE: You agree the information contained herein is part of your contractual obligations. Your signature acknowledges your agreement to perform all work discussed herein, and that costs for all work are included in your proposal.

The foregoing information is true and accurate, and I am authorized to sign as an officer of the company I am representing.

Company Name _____

Signature: _____ Title: _____

Date: _____

XII. CONSTRUCTION MANAGER

Signature: _____ Title: _____

Date: _____

XIII. WITNESS:

Signature: _____ Title: _____

Date: _____

Title of Document: POST BID INTERVIEW
Number of Pages: _____
Date of Document: _____

END OF SECTION

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.2 RELATED REQUIREMENTS

A. Document 00 50 00 - Contracting Forms and Supplements: Forms to be used.

B. Document 00 52 00 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices.

C. Document 00 72 00 - General Conditions and Document 00 73 00 - Supplementary Conditions: Additional requirements for progress payments, final payment, changes in the Work.

D. Document 00 73 00 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.

E. Section 01 2100 - Allowances: Payment procedures relating to allowances.

F. Section 01 2200 - Unit Prices: Monetary values of unit prices, payment and modification procedures relating to unit prices.

1.3 SCHEDULE OF VALUES

A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect and Construction Manager for approval.

B. Forms filled out by hand will not be accepted.

C. Submit Schedule of Values in duplicate within 10 days after date of the Notice of Award of the Contract. This date is per the District's General Conditions

Section 9.2.1.A by the District.

D. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization.

E. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.

F. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.

G. Revise schedule to list approved Change Orders, with each Application For Payment.

1.4 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. For each item, provide a column for listing each of the following:

1. Item Number.

2. Description of work.

3. Scheduled Values.

4. Previous Applications.

5. Work in Place and Stored Materials under this Application.

6. Authorized Change Orders.

7. Total Completed and Stored to Date of Application.

8. Percentage of Completion.

9. Balance to Finish.

10. Retainage.

E. Execute certification by signature of authorized officer.

F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

H. Submit Four copies of each Application for Payment.

I. Include the following with the application:

1. Transmittal letter as specified for Submittals in Section 01 3000.

2. Construction progress schedule, revised and current as specified in Section 01 3000.

3. Partial release of liens from major Subcontractors and vendors.

4. Affidavits attesting to off-site stored products.

5. Conditional and Unconditional Waiver Releases.

J. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.5 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ a n d / o r subcontractors of changes to the Contract Documents.

B. For required changes, Owner, Architect or Construction Manager will issue a CCD approved by DSA and signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.

1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.

2. Promptly execute the change.

C. Contractor may propose a change by submitting a request for change to O w n e r , Architect or Construction Manager describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6000.

D. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

1. For change requested by Owner, Architect or Construction Manager for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.

2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Owner, Architect or Construction Manager.

3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.

4. For change ordered by Owner, Architect or Construction Manager without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.

E. Substantiation of Costs: Provide full information required for evaluation.

1. On request, provide the following data:

   a. Quantities of products, labor, and equipment.

   b. Taxes, insurance, and bonds.

   c. Overhead and profit.

   d. Justification for any change in Contract Time.

   e. Credit for deletions from Contract, similarly documented.

2. Support each claim for additional costs with additional information:

   a. Origin and date of claim.

   b. Dates and times work was performed, and by whom.

   c. Time records and wage rates paid.

   d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

F. Execution of Change Orders: Owner, Architect or Construction Manager will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

G. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

H. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

I. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

J. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

K. Application for Final Payment will not be considered until the following have been accomplished:

1. All closeout procedures specified in Section 01 7000 have been accomplished and the project is Certified by DSA.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

DOCUMENT 01 20 10

FORMS FOR CONTRACTORS' USE

Contractor shall use the forms attached hereto, NOT its own forms. The following list of forms may not include all forms attached hereto. All forms attached to this document, even if not referenced below, must be used by Contractor.

Forms for Contractors' Use:

- **Application for Payment Forms —** Available in Electronic Format

    1. **Application for Payment**
    2. **Conditional Waiver and Release Upon Progress Payment**
    3. **Unconditional Waiver and Release Upon Progress Payment**
    4. **Conditional Waiver and Release Upon Final Payment**
    5. **Unconditional Waiver and Release Upon Final Payment**

- **Schedule of Values —** Available in Electronic Format

- **Time & Material Worksheet —** Available in Electronic Format

- **Potential Change Orders —** Available in Electronic Format

    1. **PCO Requirements —** Reference Only
    2. **PCO Coversheet**
    3. **Prime Contractor PCO Proposal Matrix**
    4. **Subcontractor PCO Proposal Matrix**
    5. **PCO Credit Proposal Matrix**

- **Submittal Transmittal Form -** Available in Electronic Format

- **Inspection Request Form -** Available in Electronic Format

- **Pre-Bid RFI Form**

- **Preliminary Notice**

END OF DOCUMENT

CONTRACTOR'S APPLICATION FOR PAYMENT FORM

BUSD PROJECT #: _____ PERIOD ENDING: _____ 20

BUSD PROJECT: _____ BID DIVISION: _____

CONTRACTOR: _____ BUSD PO#: _____

ADDRESS: _____

AGREEMENT #: _____ PROGRESS PAYMENT REQUEST NO. _____

1	Original Agreement Amount	$ -
2	Contract Increased by Change Order # ___ Through C.O. # ____	$ -
3	Revised Agreement Amount to Date	$ -
4	Value of Work Completed to Date (Per Attached Breakdown)	$ -
5	Less 5% Retention of Completed Work	$ -
6	Less Previous Payments	$ -
7	**CURRENT AMOUNT DUE THIS REQUEST**	$ -

CERTIFICATE OF THE CONTRACTOR:

I hereby certify that the work performed and the materials supplied to date, as shown on the above, represents the actual value of accomplishment under the terms of the contract (and all authorized changes thereto) between the undersigned and the Berryessa Union High School District relating to the above referenced project.

I hereby certify that payments, less applicable retention, have been made through the period covered by previous payments received from the District, to (1) all my subcontractors (sub-subcontractors) and (2) for all materials and labor used in or in connection with the performance of this Contract. I further certify I have complied with Federal, State and Local tax laws, including Social Security laws and Unemployment Compensation laws and Workman's Compensation laws insofar as applicable to the performance of this contract.

(Status is a necessary condition of payment - Cross out incorrect indication) I hereby certify that we (have completed) or (have not completed) a sufficient portion of the work of this contract to maintain our current completion schedule (contract plus change orders) and are familiar with the liquidated damages clause contained in this contract.

_____ _____

Contractor Date

BY: _____ _____

Authorized Agent Title

RECOMMENDED FOR PROCESSING

_____ _____

Inspector of Record Date

_____ _____

Kitchell CEM Date

_____ _____

McKim Design Group Date

_____ _____

Berryessa Union School District Date

CONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

Upon receipt by the undersigned of a check from _____
MAKER OF CHECK

in the sum of $ _____ payable to_____
AMOUNT OF CHECK PAYEE OR PAYEES OF CHECK

and when the check has been properly endorsed and has been paid by the bank upon which it is drawn, this document shall become effective to release any mechanic's lien, stop notice, or bond right the undersigned has on the job of _____**project** located at the _____**Campus** to the following extent.

This release covers a progress payment for labor, services, equipment, or material furnished

to_____ through _____
YOUR CUSTOMER DATE

only and does not cover any retentions retained before or after the release date; extras furnished before the release date for which payment has not been received; extras or items furnished after the release date. Rights based upon work performed or items furnished under a written change order which has been fully executed by the parties prior to the release date are covered by this release unless specifically reserved by the claimant in this release. This release of any mechanic's lien, stop notice, or bond right shall not otherwise affect the contract rights, including rights between parties to the contract based upon a rescission, abandonment, or breach of the contract, or the right of the undersigned to recover compensation for furnished labor, services, equipment, or material covered by this release if that furnished labor, services, equipment, or material was not compensated by the progress payment.

Before any recipient of this document relies on it, said party should verify evidence of payment to the undersigned.

Dated: _____ _____
COMPANY NAME

By: _____
TITLE

If the claimant is required to execute a waiver and release in exchange for, or in order to induce payment of, a progress payment and the claimant asserts in the waiver it has, in fact, been paid the progress payment, the waiver and release shall follow substantially the following form:

UNCONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

The undersigned has been paid and has received a progress payment in the sum of

$_____ for labor, services, equipment, or material furnished to _____
YOUR CUSTOMER

on the job of _____ located at _____
OWNER JOB DESCRIPTION

and does hereby release any mechanic's lien, stop notice, or bond right that the undersigned has on the above referenced job to the following extent.

This release covers a progress payment for labor, services, equipment, or materials furnished

to _____ through _____
YOUR CUSTOMER DATE

only and does not cover any retentions retained before or after the release date; extras furnished before the release date for which payment has not been received; extras or items furnished after the release date. Rights based upon work performed or items furnished under a written change order which has been fully executed by the parties prior to the release date are covered by this release unless specifically reserved by the claimant in this release. This release of any mechanic's lien, stop notice, or bond right shall not otherwise affect the contract rights, including rights between parties to the contract based upon a rescission, abandonment, or breach of the contract, or the right of the undersigned to recover compensation for furnished labor, services, equipment, or material covered by this release if that furnished labor, services, equipment, or material was not compensated by the progress payment.

Dated: _____ _____
COMPANY NAME

By: _____
TITLE

NOTICE: THIS DOCUMENT WAIVES RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

If the claimant is required to execute a waiver and release in exchange for, or in order to induce the payment of, a final payment and the claimant is not, in fact, paid in exchange for the waiver and release or a single payee check or joint payee check is given in exchange for the waiver and release, the waiver and release shall follow substantially the following form:

CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

Upon receipt by the undersigned of a check from _____
MAKER OF CHECK

in the sum of $_____ payable to _____
AMOUNT OF CHECK PAYEE OR PAYEES OF CHECK

and when the check has been properly endorsed and has been paid by the bank upon which it is drawn, this document shall become effective to release any mechanic's lien, stop notice, or bond right the undersigned has on the job of _____
OWNER

located at _____.
JOB DESCRIPTION

This release covers the final payment to the undersigned for all labor, services, equipment, or material furnished on the job, except for disputed claims for additional work in the amount of $_____.

Before any recipient of this document relies on it, the party should verify evidence of payment to the undersigned.

Dated: _____ _____
COMPANY NAME

By: _____
TITLE

If the claimant is required to execute a waiver and release in exchange for, or in order to induce payment of, a final payment and the claimant asserts in the waiver it has, in fact, been paid the final payment, the waiver and release shall follow substantially the following form:

UNCONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

The undersigned has been paid in full for all labor, services, equipment, or material furnished

to _____ on the job of _____
YOUR CUSTOMER OWNER

located at _____ and does hereby waive and release any

right to a mechanic's lien, stop notice, or any right against a labor and material bond on the job,

except for disputed claims for extra work in the amount of $ _____.

Dated: _____ _____
COMPANY NAME

By: _____
TITLE

NOTICE: THIS DOCUMENT WAIVES RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

SCHEDULE OF VALUES

Project: **Toyon FIS Project**

Berryessa Unified School District

San Jose, California

Contract No: _____

Pay App No: _____

Date: _____

A	B	C	D	E	F	G	H	I	J
Item No.	Description of Work (Item Breakdown)	Schedule Value		Work Completed		Total Work Complete to Date (E + F)	% Complete G/(C + D) x 100	Balance to Finish	Retainage to Date (G x 10%)
		Labor	Material	Prior Application	This Period				
1		$ -	$ -	$ -	$ -	$ -		$ -	0
2		$ -	$ -	$ -	$ -	$ -		$ -	0
3		$ -	$ -	$ -	$ -	$ -		$ -	0
4		$ -	$ -	$ -	$ -	$ -		$ -	0
5		$ -	$ -	$ -	$ -	$ -		$ -	0
6		$ -	$ -	$ -	$ -	$ -		$ -	0
7		$ -	$ -	$ -	$ -	$ -		$ -	0
8		$ -	$ -	$ -	$ -	$ -		$ -	0
9		$ -	$ -	$ -	$ -	$ -		$ -	0
10		$ -	$ -	$ -	$ -	$ -		$ -	0
11		$ -	$ -	$ -	$ -	$ -		$ -	0
12		$ -	$ -	$ -	$ -	$ -		$ -	0
		$ -	$ -	$ -	$ -	$ -		$ -	$ -

Contractor: _____

KITCHELL

DAILY TIME & MATERIALS RECORD

1180 Coleman Ave, Suite 202, San Jose CA 95110 (408) 280-7889 / Fax(408) 280-7192

ATTN PM: _____ **PCO No.:** _____

Project Name: Toyon FIS Project Date of Work: _____

Contractor: _____ Work Status: ☐ More to Follow ☐ Complete

Scope of Work: _____

_____

_____

Reference Documents Attached: _____

_____

_____

The work described above shall be performed on a time & material basis. Units of labor, materials and equipment shall be tabulated below on a copy of this form and submitted to Kitchell CEM by 4:00pm on the day the work occurs.

MATERIALS	QUANTITY	EMPLOYEE NAME	ST Hours	OT Hours
		EQUIPMENT		HOURS

Submitted By Contractor: _____ _____

(Name) (Date)

Verified By Kitchell CEM: _____ _____

(Name) (Date)

POTENTIAL CHANGE ORDER REQUIREMENTS

All Proposed Change Orders (PCOs) are to be completed on the PCO form included in this workbook. All listed items below must be attached to the PCO form.

A. Format for Proposed Change Order (Document 00700 - Section 17.8.1)

The following format shall be used as applicable by the District and the Contractor (e.g. Change Orders, PCO's) to communicate proposed additions and deductions to the Contract, supported by attached documentation.

SUBCONTRACTOR PERFORMED WORK

(a)	**Material** (attach itemized quantity and unit cost plus sales tax)
(b)	**Labor** (attach itemized hours and rates, fully encumbered)
(c)	**Equipment** (attach suppliers' invoice)
(d)	**Subtotal**
(e)	**Subcontractor's overhead and profit** not to exceed ten percent (10%) of item (d)
(f)	**Subtotal**
(g)	**Contractor's overhead and profit**, not to exceed five percent (5%) of Item (f)
(h)	**Subtotal**
(i)	**Bond** not to exceed Two percent (2%) of Item (h)
(j)	**TOTAL**

CONTRACTOR PERFORMED WORK

(a)	**Material** (attach itemized quantity and unit cost plus sales tax)
(b)	**Labor** (attach itemized hours and rates, fully encumbered)
(c)	**Equipment** (attach suppliers' invoice)
(d)	**Subtotal**
(e)	**Contractor's overhead and profit** not to exceed fifteen percent (15%) of item (d).
(f)	**Subtotal**
(g)	**Bond and Insurance** not to exceed Two percent (2%) of Item (f)
(h)	**TOTAL**

A. Deductive Change Orders (Document 00700 - Section 17.11)

All deductive Change Order(s) must be prepared pursuant to the provisions herein. Contractor will be allowed a minimum of five percent (5%) total profit and overhead. If Subcontractor work is involved, Subcontractors shall be entitled to a minimum of five percent (5%) profit and overhead on the deducted work. Any deviation from this provision shall not be allowed.

Berryessa Union School District

Project No.

DATE:

School: **Toyon FIS Project**

CONTRACTOR:

CONTRACTOR COST PROPOSAL #:

POTENTIAL CHANGE ORDER (PCO) - COST PROPOSAL - PRIME CONTRACTOR

DESCRIPTION OF CHANGE:

ITEM DESCRIPTION	MATERIAL (sales tax included)				LABOR (fully encumbered)			EQUIPMENT (attach invoice)		
	QUANTITY	UNIT	UNIT COST	EXTENSION	QUANTITY HOURS	RATE	EXTENSION	QUANTITY	UNIT COST	EXTENSION
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
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				$ -			$ -			$ -
				$ -			$ -			$ -
SUBTOTALS:				$ -			$ -			$ -

MATERIAL	$0.00
LABOR	$0.00
EQUIPMENT	$0.00
SUBTOTAL DIRECT COSTS	$0.00
FEE ON DIRECT COSTS (15%)	$0.00
PRIME CONTRACTOR SUBTOTAL	**$0.00**

Sub Contractor Costs from Attached Cost Proposal(s)

SUBCONTRACTOR SUBTOTAL DIRECT COSTS	$ -
5% FEE ON SUBCONTRACTOR DIRECT COSTS	$0.00
SUBCONTRACTOR SUBTOTAL	**$0.00**
PCO SUBTOTAL	**$ -**
BOND (not to exceed 2% of sub total)	**$ -**
TOTAL	**$ -**

PREPARED & SUBMITTED BY:

COMPANY: TITLE:

KITCHELL REVIEW COMMENTS

Berryessa Union School District

Project No.

School: **Toyon FIS Project**

DATE:

CONTRACTOR:

CONTRACTOR COST PROPOSAL #:

POTENTIAL CHANGE ORDER (PCO) - COST PROPOSAL - SUBCONTRACTOR CONTRACTOR

DESCRIPTION OF CHANGE:

ITEM DESCRIPTION	MATERIAL (sales tax included)				LABOR (fully encumbered)			EQUIPMENT (attach invoice)		
	QUANTITY	UNIT	UNIT COST	EXTENSION	QUANTITY HOURS	RATE	EXTENSION	QUANTITY	UNIT COST	EXTENSION
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
SUBTOTALS:				$ -			$ -			$ -

MATERIAL	$0.00
LABOR	$0.00
EQUIPMENT	$0.00
SUBTOTAL DIRECT COSTS	$0.00
FEE ON DIRECT COSTS (10%)	$0.00
SUBCONTRACTOR SUBTOTAL	**$ -**
Third and Fourth Tier Sub Contractor Costs from Attached Cost Proposal	**$ -**
SUBCONTRACTOR SUBTOTAL **TOTAL**	**$ -**

PREPARED & SUBMITTED BY:

COMPANY: TITLE:

KITCHELL REVIEW COMMENTS

Berryessa Union School District

Project No:

School:Toyon FIS Project

DATE:

CONTRACTOR:

CONTRACTOR COST PROPOSAL #:

POTENTIAL CHANGE ORDER (PCO) - COST PROPOSAL - CREDIT

DESCRIPTION OF CHANGE:

ITEM DESCRIPTION	MATERIAL (sales tax included)				LABOR (fully encumbered)			EQUIPMENT (attach invoice)		
	QUANTITY	UNIT	UNIT COST	EXTENSION	QUANTITY HOURS	RATE	EXTENSION	QUANTITY	UNIT COST	EXTENSION
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
				$ -			$ -			$ -
SUBTOTALS:				$ -			$ -			$ -

MATERIAL	$0.00
LABOR	$0.00
EQUIPMENT	$0.00
SUBTOTAL DIRECT COSTS	$0.00
FEE ON DIRECT COSTS (10%)	$0.00
PRIME CONTRACTOR SUBTOTAL (Credit)	< $ - >
Sub Contractor Costs from Attached Cost Proposal (Credit)	< $ - >
5% PROFIT AND OVERHEAD ON DEDUCTED WORK	$0.00
SUBCONTRACTOR SUBTOTAL	TOTAL < $ - >

PREPARED & SUBMITTED BY:

COMPANY: TITLE:

KITCHELL REVIEW COMMENTS

Berryessa Union School District

KITCHELL

POTENTIAL CHANGE ORDER (for CO) PCO #:

TO:_____ DATE ISSUED:_____

FROM: Kitchell CEM BID DIVISION #:_____

Reference:_____

CHANGE IN CONTRACT SUM: ☐ NONE ☐ DEDUCT: $ ☐ ADD:

DESCRIPTION OF WORK:

CHANGE IN CONTRACT TIME ☐ NONE ☐ DEDUCT _____ DAYS ☐ ADD _____ DAYS

The signatures of the Owner, Kitchell and Contractor below indicate acceptance by both parties of the costs and time adjustments above as a part of this change to the work. In conformance with the requirements of the Contract Documents, the Contractor agrees that above cost and time adjustments are full satisfaction for the extra work described in this Potential Change Order and there are no additional impacts arising out of, or connected with the performance of this additional work. The Contractor may recover no impacts of any nature, except as authorized under The Contract Document General Conditions. This Proposed adjustment in Contract Sum and Contract Time constitutes a full compensation to the Contractor for the above changes to the original Contract Documents. ***There are no additional unconsidered impacts.***

The following parties without exception hereby agree to this Potential Change Order:

Contractor By: _____ Date _____

Construction Manager By: _____ Date _____

Owner, BUSD By: _____ Date _____

Submittal Transmittal Form

1180 Coleman Ave., Suite 2020 San Jose, CA 95110

Project: Toyon FIS Project **Project #:**

Address: 995 Bard Street, San Jose CA 95127 Tel: Fax:

Transmitted To	Submitted By	Transmitted For

Date	Qty

Contractor's Submittal Package No.	Revision	Description	Spec Section	Trade
SAMPLE > (XX)	0	Electrical Package	16050	Electrical

Contractor's Submittal Item No.	Revision	**Type -** (Shop Drawings/ Product data/ Physical Sample/ Other)	Description	Spec Section	Sub Section	**KCEM Submittal Item No.** (See Kitchell's submittal register) **
SAMPLE > (XX)	0	Product Data	Ballasts	16050	2.02.	00015

Please use sheet no. 2 for additional submittal items

***The submittal register provided by Kitchell is for reference only and shall not determine which submittals are required .The Contractor is responsible for review of the project drawings and specifications and submission of the items, in their entirety as required by the contract.*

***Please identify any items submitted by the Contractor that are not present in Ktchell's submittal register.*

Contractor's Submittal Item No.	**Revision**	**Type -** (Shop Drawings/ Product data/ Physical Sample/ Other)	**Description**	**Spec Section**	**Sub Section**	**KCEM Submittal Item No.** (See Kitchell's submittal register) **
SAMPLE > (XX)	0	Product Data	Ballasts	16050	2.02.	00015

Toyon FIS Project

995 Bard Street, San Jose, CA 95127

REQUEST FOR INSPECTION

Project : _____ Site #: _____

DSA # _____

Contractor's Name: _____ Inspection No.: _____

Requested By: _____ **Contractor Inspection #:** _____

Date Requested: _____ Received By: _____

Time Requested: _____ Date Received: _____

Specification Section: _____

Location of Inspection to be Performed (Bldg./Rm): _____

_____

_____

Description of Inspection to be Performed: _____

_____

_____

_____

_____

INSPECTION REVIEW COMMENTS

Date Inspection Began: _____ Actual Time: _____ Completion Time: _____

COMMENTS: _____

_____

_____

_____

_____

_____

_____

_____

Inspector: _____ **Signature:** _____ **Date:** _____

Corrections Required (Yes or No): _____ Re-Inspection Required (Yes or No): _____

Deviation Notice Filed (Yes or No): _____ Date: _____

Last Date and Time questions can be received is
Date: November 1, 2018 Time: 5:00 PM

To:	Kitchell CEM 1180 Coleman Ave, Suite 202 San Jose, CA 95110 408-280-7889
Attention: Mark Casini	**Email: mcasini@kitchell.com**

Berryessa Union School District – Toyon FIS Project

Bid Question

From : Company_____ **Attention:**_____	**Date:**_____	**Re:**
Reference Drawing No. _____ Reference Detail(s) :_____	Reference Spec. Section _____ Reference Paragraph(s) :_____	
Question:		

Answer:	
Answered By: _____ Firm:_____	Date: _____

Question Included in Addendum No. _____ to Bid Package No. _____	By: _____ Date:_____

BERRYESSA UNION SCHOOL DISTRICT
CALIFORNIA PRELIMINARY NOTICE – PRIVATE WORK

NOTICE TO PROPERTY OWNER

EVEN THOUGH YOU HAVE PAID YOUR CONTRACTOR IN FULL, if the person or firm that has given you this notice is not paid in full for labor, service, equipment or material provided or to be provided to your construction project, a lien may be placed on your property. Foreclosure of the lien may lead to loss of all or part of your property. You may wish to protect yourself against this by (1) requiring your contractor to provide a signed release by the person or firm that has given you this notice before making payment to your contractor, or (2) any other method that is appropriate under the circumstances. This notice is required by law to be served by the undersigned as a statement of your legal rights. This notice is not intended to reflect upon the financial condition of the contractor or the person employed by you on the construction project. If you record a notice of cessation or completion of your construction project, you must within 10 days after recording, send a copy of the notice of completion to your contractor and the person or firm that has given you this notice. The notice must be sent by registered or certified mail. Failure to send the notice will extend the deadline to record a claim of lien. You are not required to send the notice if you are a residential homeowner of a dwelling containing four or fewer units.

TO: _____(Owner or Reputed Owner)

ADDRESS:_____(Address)

YOU ARE HEREBY NOTIFIED THAT: _____

_____
(Name and Address of Claimant)

has furnished or will furnish work labor, services, equipment or material to the work of improvement located at: _____
_____

of the following general description:_____

THE PERSON OR FIRM TO WHOM SUCH LABOR, SERVICES, EQUIPMENT OR MATERIALS IS: _____
_____

AN ESTIMATE OF THE TOTAL PRICE OF LABOR, SERVICES, EQUIPMENT OR MATERIALS IS $_____
_____

NAME AND ADDRESS OF LENDER OR REPUTED LENDER _____
_____

PROOF OF SERVICE OF AFFIDAVIT

I, _____ (name), hereby declare that I served copies of this California Preliminary Notice – (Private Work) as follows: (circle one)
a. By personally delivering copies to (name and title of each person served: _____
_____

at _____ (address) on _____

(date) at _____(time).

b. By certified or registered mail, Express Mail, or overnight delivery by an express service carrier, addressed to each of the parties shown above on _____ (date).

c. By leaving this preliminary notice and mailing a copy as provided by CCP 415.20 for service of a civil summons and complaint.

I DECLARE UPON PENALTY OF PERJURY THAT THIS AFFIDAVIT OF SERVICE IS TRUE AND CORRECT.

Executed at _____(location in California)

on _____(date).

Signature of declarant: _____

00557-00005/521820.1

SECTION 01 21 00
ALLOWANCES

PART 1 GENERAL

1.1 SECTION INCLUDES

1.2 RELATED REQUIREMENTS

A. Section 01 2000 - Price and Payment Procedures: Additional payment and modification procedures.

1.3 CONTINGENCY ALLOWANCE

A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

B. Funds will be drawn from the Contingency Allowance only by Change Order.

C. Labor quantities MUST be verified by the I.O.R. or CM prior to payment.

D. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 22 00
UNIT PRICES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. List of unit prices, for use in preparing Bids.

B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

1.2 RELATED REQUIREMENTS

A. Document 00 21 13 - Instructions to Bidders: Instructions for preparation of pricing for Unit Prices.

B. Document 00 43 22 - Unit Prices Form: List of Unit Prices as supplement to Bid Form.

C. Section 01 2000 - Price and Payment Procedures: Additional payment and modification procedures.

1.3 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.4 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.5 MEASUREMENT OF QUANTITIES

A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.

B. Take all measurements and compute quantities. Measurements and quantities will be verified by Architect, Owner or Construction Manager.

C. Assist by providing necessary equipment, workers, and survey personnel as required.

D. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.

E. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

F. Measurement by Area: Measured by square dimension using mean length and width or radius.

G. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

H. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

I. Perform surveys required to determine quantities, including control surveys to establish measurement reference lines. Notify Architect prior to starting work.

J. Contractor's Engineer Responsibilities: Sign surveyor's field notes or keep duplicate field notes, calculate and certify quantities for payment purposes.

1.6 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.

B. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.

2. Products determined as unacceptable before or after placement.

3. Products not completely unloaded from the transporting vehicle.

4. Products placed beyond the lines and levels of the required Work.

5. Products remaining on hand after completion of the Work.

6. Loading, hauling, and disposing of rejected Products.

1.7 DEFECT ASSESSMENT

A. Replace Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of Architect, Owner or Construction Manager it is not practical to remove and replace the Work, Architect will direct one of the following remedies:

1. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of Architect, Owner or Construction Manager.

2. The defective Work will be partially repaired to the instructions of the Architect, and the unit price will be adjusted to a new unit price at the discretion of Architect.

C. The individual specification sections may modify these options or may identify a specific formula or percentage price reduction.

D. The authority of Architect to assess the defect and identify payment adjustment is final.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

DOCUMENT 01 23 00

ALTERNATES AND UNIT PRICING

PART I – ALTERNATES

1.01 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

1. General Conditions;
2. Special Conditions;
3. Bid Form and Proposal;
4. Instruction to Bidders.

1.02 DESCRIPTION

A. The following items of work include proposed modifications to, substitutions for, to and/or deletions from the various parts of the Work specified in other Documents of the Specifications. The acceptance or rejection of any of the alternates is strictly at the option of the District subject to District's acceptance of Contractor's stated prices contained in this Proposal.

1.03 GENERAL

A. Where an item is omitted, or scope of Work is decreased, all Work pertaining to the item whether specifically stated or not, shall be omitted and where an items is added or modified or where scope of Work is increased, all Work pertaining to that required to render same ready for use on the Project in accordance with intention of Drawings and Specifications shall be included in an agreed upon price amount.

1.04 BASE BID

A. The Base Bid includes all work required to construct the Project completely and in accordance with the Contract Documents.

1.05 ALTERNATES

A. The below Alternate descriptions are general in nature and for reference purposes only. The Contract Documents, including, without limitation, the Drawings and Specifications, must be referred to for the complete scope of Work.

PART 2 - UNIT PRICING

2.01 GENERAL

A. Contractor shall completely state all required figures based on Unit Prices listed below. Where scope of Work is decreased, all Work pertaining to the item, whether

specifically stated or not, shall be omitted and where scope of Work is increased, all work pertaining to that item required to render same ready for use on the Project in accordance with intention of Drawings and Specifications shall be included in an agreed upon price amount.

2.02 UNIT PRICES

A. Furnish unit prices for each of the named items included on the bid form on a square foot, lineal foot, or per each basis, as applies. Unit prices shall include all labor, materials, services, profit, overhead, insurance (excluding costs of insurance covered by OCIP), bonds, taxes, and all other incidental costs of Contractor, subcontractors, and supplier(s).

Furnish unit prices for each of the named items on a square foot, lineal foot, or per each basis, as applies. Unit prices shall include all labor, materials, services, profit, overhead, insurance, bonds, taxes, and all other incidental costs of Contractor, subcontractors, and supplier(s).

Unit Price 1: Concrete Paving - Pedestrian Concrete paving replacement – 10'X10' area. Contractor shall include a unit price to layout, saw cut, and remove existing pedestrian concrete paving, and replace with new concrete paving per drawings and details. Assume all existing concrete has rebar and a thickened edge. This total will be used as a unit cost to cover additional areas that may be identified during construction or as a credit if there are less areas requiring replacement. See Specification section 32 13 13 – Cement Concrete Paving for additional information See detail concrete walk details on sheet A-12.2 for additional information.
Unit Price 2: AC paving replacement – 10'X10' area. Contractor shall include a unit price to layout, saw cut, and remove existing pedestrian asphalt concrete paving, and replace with new pedestrian asphalt concrete paving per drawings and details. This total will be used as a unit cost to cover additional areas that may be identified during construction or as a credit if there are less areas requiring replacement. See Specification section 32 12 16 – Asphalt Paving for additional information See A.C. Paving patch on sheet A-12.2 for additional information
Unit Price 3: Tackable Wall Panels - Contractor to include a unit price to furnish & install 100-sf area of tackable wall panels. Cost shall include wall preparation to receive new tackable wall panels, furnish and install new tackable wall panel sytem, including any associated trim and molding. This total will be used as a unit cost to cover additional areas that may be identified during construction or as a credit if there are less areas requiring replacement.

Unit Price 4: Chain Link Gate w/Kickplate and cane bolt - Contractor to include a unit price to furnish & install a new chain link gate with kickplate and cane bolt per details on drawing sheets**.** Cost shall include removing the existing gate, if applicable. This total will be used as a unit cost to cover additional areas that may be identified during construction or as a credit if there are less areas requiring replacement. See specification section 32 31 13 Chain Link Fencing & Gates for additional information. See drawings for more information.
Unit Price 5: Chain Link Fencing - Contractor to include a unit price to furnish & install new chain link fencing per specification and details on drawing sheet. Cost shall include removing the existing gate, if applicable. This total will be used as a unit cost to cover additional areas that may be identified during construction or as a credit if there are less areas requiring replacement. See specification section 32 31 09 Ornamental Fencing & Gates for additional information. See drawings for additional information.
Unit Price 6: Ornamental Fencing - Contractor to include a unit price to furnish & install new ornamental fencing per specification and details on drawing. Cost shall include removing the existing fencing, if applicable. This total will be used as a unit cost to cover additional areas that may be identified during construction or as a credit if there are less areas requiring replacement. See specification section 32 31 09 Ornamental Fencing & Gates for additional information. See drawings for additional information.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Substitutions For Specified Items;

B. Special Conditions.

1.02 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions of the General Conditions.

B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative-named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the District and-or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.

C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions.

D. If the District and-or Architect, in reviewing proposed substitute materials and equipment, requires revisions or corrections to be made to previously accepted Shop Drawings and supplemental supporting data to be resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the District and-or Architect to be unacceptable, the specified material or equipment shall be provided.

E. Samples may be required. Tests required by the District and-or Architect for the determination of quality and utility shall be made at the expense of Contractor, with acceptance of the test procedure first given by the District.

F. In reviewing the supporting data submitted for substitutions, the District and-or Architect will use for purposes of comparison all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Contract Documents. If more than two (2) submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor, and the District will deduct the costs from the Contract Price.

1.03 SUBMITTALS

A. Substitution Request Submittal: Requests for substitution will be considered if received as noted in the contract documents. Requests not received within the timeline established may be considered or rejected at the discretion of the Architect.

1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.

2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Document and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

a. Product Date, including Drawings and descriptions, or products, fabrication and installation procedures.

b. Samples, where applicable or requested.

c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.

d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors that will become necessary to accommodate the proposed substitution.

e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

f. Cost information, including a proposal of the net change, if any in the Contract Sum.

g. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

B. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, whichever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name.

PART 2 – PRODUCTS

2.01 SUBSTITUTIONS

A. Conditions: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise, requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of Contract Documents.

3. The request is timely, fully documented and properly submitted.

4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or

method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities for the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.

8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval

C. By making requests for substitutions based on Sub-paragraph above, the Contractor:

1. Represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to the specified.

2. Represents that the Contractor will provide the same warranty for the substitution that the Contractor would for the specified.

3. Certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently becomes apparent.

4. Will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be completed in all respects.

D. If a proposed substitution requires investigation, testing or approval to determine its suitability for incorporation into the work, the testing of the proposed substitution shall be as determined by the Architect. The Contractor shall bear all cost of such investigations or test.

E. All Substitutions that affect Structural Safety, Fire and Life Safety, Access Compliance or Energy (as applicable) shall be submitted to the Division of the State Architect for review and approval.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

11/13/13

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Electronic document submittal service.

B. Preconstruction meeting.

C. Site mobilization meeting.

D. Progress meetings.

E. Construction progress schedule.

F. Submittals for review, information, and project closeout.

G. Submittal procedures.

1.2 RELATED REQUIREMENTS

A. Division 00 - Procurement and Contracting Requirements

B. Section 01 3216 - Construction Progress Schedule: Form, content, and administration of schedules.

C. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

D. Section 01 7800 - Closeout Submittals: Project record documents.

1.3 PROJECT COORDINATION

A. Project Coordinator: Construction Manager.

B. Cooperate with the Construction Manager in allocation of mobilization areas of site; staging, Contractor access, traffic, and parking facilities.

C. Coordinate field engineering and layout work under instructions of the District, CM and Architect.

D. Make the following types of submittals to Architect through the Construction Manager and I.O.R.:

1. Requests for information.
2. Requests for substitution.
3. Shop drawings, product data, and samples.
4. Test and inspection reports.

5. Applications for payment and change order requests.
6. Progress schedules.
7. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF) format and transmitted via email or an Internet-based submittal service as determined by the CM that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.

1. Besides submittals for review, information, and closeout, this procedure applies to requests for information (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
2. All parties are required to use this service.
3. It is Contractor's responsibility to submit documents in PDF format.
4. Subcontractors, suppliers, and Architect's consultants will be permitted to use the service at no extra charge.
5. Users of the service need an email address, Internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
6. Paper document transmittals will be reviewed if submitted with samples or other similar items only; emailed PDF documents will not be reviewed if an internet service is agreed to.
7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Submittal Service: The selected service is:
1. To be approved by the Owner.

C. Training: One, one-hour, web-based training session will be arranged for all participants, with representatives of Architect and Contractor participating; further training is the responsibility of the user of the service.

1. Representatives of Owner and Construction Manager will be included in this training as necessary.

D. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.2 CONTRACTOR MEETINGS

A. Conduct trade preconstruction meeting with each trade to review scope and schedule prior to start of work.

B. Conduct coordination meetings with multiple trades prior to start of work in cases where more than two trades are working simultaneously in the same work area, or where two or more trades' work intersects, or impacts the other.

3.3 PRECONSTRUCTION MEETING

A. Owner will schedule a meeting after Notice of Award.

B. Project Coordinator will schedule a meeting after Notice of Award.

C. Attendance Required:

1. Owner.
2. Architect.
3. Contractor.
4. Construction Manager.

D. Agenda:

1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties to the Contract, Owner, Construction Manager and Architect.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
8. Review site logistics plans, site safety plans and construction sequencing.

E. The Construction Manager will record minutes and distribute copies within 48 hours after meeting to participants.

3.4 SITE MOBILIZATION MEETING

A. Construction Manager will schedule meeting at the Project site prior to occupancy.

B. Attendance Required:

1. Contractor.
2. Owner.
3. I.O.R..

C. Agenda:

1. Use of premises by Owner and Contractor.
2. Owner's requirements and occupancy prior to completion.
3. Construction facilities and controls provided by Owner.
4. Temporary utilities provided by Owner.
5. Survey and building layout.
6. Security and housekeeping procedures.
7. Schedules.
8. Application for payment procedures.
9. Procedures for testing.
10. Procedures for maintaining record documents.
11. Requirements for start-up of equipment.
12. Inspection and acceptance of equipment put into service during construction period.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.5 PROGRESS MEETINGS

A. Construction Manager will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

B. Attendance Required: Job superintendent, Owner, CM, Architect, I.O.R., subcontractors as appropriate to agenda topics for each meeting.

C. Agenda:

1. Review minutes of previous meetings.
2. Review of Work progress and three week look-ahead against the original schedule submitted by the contractor prior to initiation of work.

3. Field observations, issues, and decisions.
4. Identification of issues that impede, or will impede, planned progress including open RFIs.
5. Review of submittals schedule and status of submittals.
6. Maintenance of progress schedule.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Maintenance of quality and work standards.
10. Effect of proposed changes on progress schedule and coordination.
11. Other business relating to Work.

D. Record minutes and distribute copies within 48 hours after meeting to participants.

3.6 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
1. Product data.
2. Shop drawings.
3. Samples for selection.

B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below.

3.7 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
1. Design data.
2. Certificates upon completion of installation.
3. Test reports.
4. Inspection reports.
5. Manufacturer's instructions.
6. Manufacturer's field reports.
7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator and to Owner.

3.8 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:

1. Project record documents with field marked as-built drawings.
2. Operation and maintenance data.
3. Warranties.
4. Bonds.
5. Training Manuals.
6. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

3.9 NUMBER OF COPIES OF SUBMITTALS

A. Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Upon review and acceptance of submittals, provide two hard copies, one to the Architect and one to the Owner.

C. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.

1. After review, produce duplicates.
2. Retained samples will not be returned to Contractor unless specifically so stated.

3.10 SUBMITTAL PROCEDURES

A. Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
2. Use of the Construction drawings for shop drawing production will only be allowed if the contractor and specific sub-contractor submit a signed release of liability statement provided by the Architect. [ ].
3. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.

B. Transmit each submittal with a copy of approved submittal form.

C. Submit complete list of anticipated submittals no later than 10 days after notice to proceed[ ].

D. Submittals must be submitted and review completed and accepted prior to the start of work.

E. Submittals are to be complete for all items in each specification section. Partial submittals may not be reviewed.

F. Transmit each submittal with a transmittal.

G. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

H. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

I. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the Work and Contract Documents and date of review.

J. Deliver submittals to Architect via email or Contractor's website. Provide email notification when submittals are loaded to website.

K. Schedule submittals to expedite the Project, and coordinate submission of related items.

L. For each submittal for review, allow 10 business days excluding delivery time to and from the Contractor.

M. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work. Describe proposed substitutions or equals on the submittal cover. Accepting a submittal that does not identify deviations from the contract does not constitute acceptance of the deviations.

N. Provide space for Contractor and Architect review stamps.

O. When revised for resubmission, identify all changes made since previous submission.

P. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

Q. Submittals not requested will not be recognized or processed.

END OF SECTION

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Preliminary schedule.

B. Construction progress schedule, bar chart type.

1.2 RELATED SECTIONS

A. Section 01 3000 - Administrative Requirements

1.3 REFERENCES

A. AGC (CPSM) - Construction Planning and Scheduling Manual; Associated General Contractors of America; 2004.

1.4 SUBMITTALS

A. Within 10 days after notice to proceed, submit complete, detailed construction schedule.

1. This project will be built in conjunction and concurrently with other projects. Integrate schedule for this project with other projects being performed.

2. Schedules to be maintained in Primavera, P6 Project Planner platform.

3. Submit three copies of the schedule in 11 by 17 format, landscape.

B. Submit updated schedule with each Application for Payment.

1.5 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

PART 2 PRODUCTS

2.1 Software: Primavera P6 Project Planner

2.2 MS Projects 2010 or later version

PART 3 EXECUTION

3.1 NETWORK ANALYSIS

A. Prepare network analysis diagrams and supporting mathematical analyses using the Critical Path Method.

B. Illustrate order and interdependence of activities and sequence of work; how start of a given activity depends on completion of preceding activities, and how completion of the activity may restrain start of subsequent activities.

C. Mathematical Analysis: Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:

1. Preceding and following event numbers.
2. Activity description.
3. Estimated duration of activity, in maximum 15 day intervals.
4. Earliest start date.
5. Earliest finish date.
6. Actual start date.
7. Actual finish date.
8. Latest start date.
9. Latest finish date.
10. Total and free; float time shall accrue to Owner and to Owner's benefit.

3.2 REVIEW AND EVALUATION OF SCHEDULE

A. Participate in joint review and evaluation of schedule with Architect at each submittal.

B. Evaluate project status to determine work behind schedule and work ahead of schedule.

C. After review, revise as necessary as result of review, and resubmit within two business days.

3.3 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Annotate diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Substantial Completion.

3.4 UPDATE INTERVALS

A. Provide monthly updates from notice to proceed to start of construction.

B. Provide updates every other week during construction.

3.5 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, Architect, and Owner.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. References and standards.

B. Quality assurance submittals.

C. Control of installation.

D. Tolerances.

E. Testing and inspection services.

1.2 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittal procedures.

1.3 REFERENCE STANDARDS

A. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2013a.

1.4 SUBMITTALS

A. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.

1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

B. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.5 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

PART 2 PRODUCTS - NOT

USED PART 3 EXECUTION

3.1 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.3 TESTING AND INSPECTION

Project Inspector to be approved by DSA and employed by the District.

Testing laboratory is to be employed by owner.

A. Limits on Testing/Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.

B. Contractor Responsibilities:

1. Make available to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
3. Provide incidental labor and facilities:
   a. To provide access to Work to be tested/inspected.
   b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
   c. To facilitate tests/inspections.
   d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

C. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect.

D. Re-testing, re-inspection, stand-by time, and other cost or time impacts required because of non-conformance to specified requirements shall be paid for by the Contractor.

3.4 DIVISION OF THE STATE ARCHITECT TESTING AND INSPECTION FORM

A. Architect shall provide to Contactor DSA Testing and Inspection Form approved for the project and Contractor to cooperate with the testing agency in performing the tests indicated.

B. POST INSTALLED ANCHORS

1. Test post installed Anchors in concrete per CBC 1913A.7

3.5 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Waste removal facilities and services.

H. Field offices.

1.2 TEMPORARY UTILITIES

A. Contractor may use Owner's existing utilities on the site at no charge.

B. Contractor to provide equipment and devices to properly tap into existing utilities or to increase capacity of utilities if Owner's capacity is not adequate.

1. Electrical power and metering, consisting of connection to existing facilities.

2. Water supply, consisting of connection to existing facilities.

C. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.3 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to the Project Manager and Project Superintendent.

B. Telecommunications services shall include:
1. Cell phone lines: One line, minimum; per person.

2. Internet Connections: Minimum of one; DSL modem or faster.

3. Email: Account/address reserved for project use for each person.

1.4 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.5 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.6 FENCING

A. Construction: Commercial grade chain link fence.

B. Areas of work including storage and lay down areas are to be separated from staff and students by fencing.

C. Provide 6 foot (1.8 m) high fence around construction site; equip with vehicular and pedestrian gates with locks.

1. Contractor shall include 600-lf of temporary 6-ft high chain link fence panels, pre wrapped with privacy screen, minimum two double wide gates including combo padlock and chain. Include metal or concrete bases for temp fencing

1.7 EXTERIOR ENCLOSURES

A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.8 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces.

1.9 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft. Do not disable Owner's security system without notification.

1.10 VEHICULAR ACCESS AND PARKING

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Limited parking is available on site. Make provisions for contractor parking with the school's staff and the Construction Manager.

D. Manage trade workers parking areas ensuring workers only parked in approved areas.

1.11 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site weekly.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.12 FIELD OFFICES

A. Field office is not required.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

DOCUMENT 01 60 00

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Purchase of Materials and Equipment;

B. Special Conditions;

C. Imported Materials Certification.

1.02 MATERIAL AND EQUIPMENT

A. Only items approved by the District and-or Architect shall be used.

B. Contractor shall submit lists of products and other product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.03 MATERIAL AND EQUIPMENT COLORS

A. The District and-or Architect will provide a schedule of colors.

B. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

C. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer.

B. Contractor shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.

C. Contractor shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.

D. Materials are not acceptable that have been warehoused for long periods of time, stored or transported in improper environment, improperly packaged, inadequately labeled, poorly protected, excessively shipped, deviated from normal distribution pattern, or reassembled.

E. Contractor shall store material so as to cause no obstructions of sidewalks, roadways, and underground services. Contractor shall protect material and equipment furnished under Contract.

F. Contractor may store materials on Site with prior written approval by the District, all material shall remain under Contractor's control and Contractor shall remain liable for any damage to the materials. Should the Project Site not have storage area available, the Contractor shall provide for off-site storage at no cost to District.

G. When any room in Project is used as a shop or storeroom, the Contractor shall be responsible for any repairs, patching, or cleaning necessary due to that use. Location of storage space shall be subject to prior written approval by District.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers listed in various sections of Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of items specified therein.

B. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable as meeting the requirements of the Contract Documents.

2.02 FACILITIES AND EQUIPMENT

A. Contractor shall provide, install, maintain, and operate a complete and adequate facility for handling, the execution, disposal, and distribution of material and equipment as required for proper and timely performance of Work connected with Contract.

2.03 MATERIAL REFERENCE STANDARDS

A. Where material is specified solely by reference to "standard specifications" and if requested by District, Contractor shall submit for review data on actual material proposed to be incorporated into Work of Contract listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

PART 3 - EXECUTION

3.01 WORKMANSHIP

A. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).

B. Work shall be executed by tradepersons skilled in their respective lines of Work. When completed, parts shall have been durably and substantially built and present a neat appearance.

3.02 COORDINATION

A. Contractor shall coordinate installation of Work so as to not interfere with installation of others. Adjustment or rework because of Contractor's failure to coordinate will be at no additional cost to District.

B. Contractor shall examine in-place work for readiness, completeness, fitness to be concealed or to receive other work, and in compliance with Contract Documents. Concealing or covering Work constitutes acceptance of additional cost which will result should in-place Work be found unsuitable for receiving other Work or otherwise deviating from the requirements of the Contract Documents.

3.03 COMPLETENESS

A. Contractor shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages, utility connections, etc., in manner to assure well-balanced performance, in accordance with manufacturer's recommendations and by Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain system; sinks fit within countertop, etc. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap,"

"adequately anchored," "patch and refinish," "to match similar," should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

3.04 APPROVED INSTALLER OR APPLICATOR

A. Installation by a manufacturer's approved installer or applicator is an understood part of Specifications and only approved installer or applicator is to provide on-site Work where specified manufacturer has on-going program of approving (i.e. certifying, bonding, re-warranting) installers or applicators. Newly established relationships between a manufacturer and an installer or applicator who does not have other approved applicator work in progress or completed is not approved for this Project.

3.05 MANUFACTURER'S RECOMMENDATIONS

A. All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative. Should Contract Documents differ from recommendations of manufacturer or directions of his representative, Contractor shall analyze differences, make recommendations to the District and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the District and-or the Architect.

END OF DOCUMENT

11/13/13

SECTION 01 60 05
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations and procedures.

E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.2 RELATED REQUIREMENTS

A. Section 01 4000 - Quality Requirements: Product quality monitoring.

1.3 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.4 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data and installation instructions. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

1. Detail structural assemblies and structural connections to the building components.

C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.1 NEW PRODUCTS

A. Provide new products only unless noted otherwise on the Drawings.

B. Where all other criteria are met, Contractor shall give preference to products that:

1. If used on interior, have lower emissions.

2. If wet-applied, have lower VOC content.

3. Have a published GreenScreen Chemical Hazard Analysis.

2.2 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers with a Provision for equal: Equal products are acceptable with Architect's or Owner's review.

C. If specified product does not come with required options, select alternate manufacturer or customize product to suit.

2.3 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to a site selected by the Owner within the District's boundaries; obtain receipt prior to final payment. Prior to delivery, coordinate delivery with Owner.

PART 3 EXECUTION

3.1 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions.

B. Architect will consider requests for substitutions only within 15 days after date established in Notice to Proceed.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Organize in side-by-side tabular format with specified product attributes in the left column and proposed substitution in the right column.

D. A request for substitution constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Will provide the same warranty for the substitution as for the specified product.

3. The installer is qualified or certified to install the proposed substitution.

4. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.

5. Waives claims for additional costs or time extension that may subsequently become apparent.

6. Credit cost savings for substitutions to Owner.

E. Substitution Submittal Procedure:

1. Submit one copy of request for substitution for consideration. Limit each request to one proposed substitution.

2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.

3. The Architect will notify Contractor in writing of decision to accept or reject request.

4. If the product is accepted as equal, but additional information indicates that the product is not equal in a significant quality or property, the product will be removed and replaced at no cost to the Owner or a credit will be passed on to the Owner for diminished quality.

3.2 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments prior to off-loading and stockpiling to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

G. Provide traffic control and flagmen for deliveries.

3.3 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive and absorbent products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground and wrap in plastic.

F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

G. Comply with manufacturer's warranty conditions, if any.

H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

DOCUMENT 01 61 00

DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Site Access, Conditions and Requirements;

B. Special Conditions.

1.02 PRODUCTS

A. Products are as defined in the General Conditions.

B. Contractor shall not use and-or reuse materials and-or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.

C. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

1.03 TRANSPORTATION AND HANDLING

A. Contractor shall transport and handle Products in accordance with manufacturer's instructions.

B. Contractor shall promptly inspect shipments to confirm that Products comply with requirements, quantities are correct, and products are undamaged.

C. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.04 STORAGE AND PROTECTION

A. Contractor shall store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive products in weather-tight, climate controlled enclosures.

B. For exterior storage of fabricated Products, Contractor shall place on sloped supports, above ground.

C. Contractor shall provide off-site storage and protection when Site does not permit on-site storage or protection.

D. Contractor shall cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.

E. Contractor shall store loose granular materials on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.

F. Contractor shall provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

G. Contractor shall arrange storage of Products to permit access for inspection and periodically inspect to assure Products are undamaged and are maintained under specified conditions.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

11/13/13

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Surveying for laying out the work.

D. Cleaning and protection.

E. Closeout procedures, except payment procedures.

1.2 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 3000 - Administrative Requirements: Submittals procedures.

C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.

D. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

E. Section 02 4050 - Cutting and Patching

1.3 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.4 QUALIFICATIONS

A. For survey work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.5 PROJECT CONDITIONS

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

1. Indoors: Limit conduct of especially noisy interior work to times when the building is not occupied by the owner.

2. Provide sound attenuation systems to prevent disruption of staff and students (if occupied by them), neighboring residents and to meet City noise ordinance requirements.

1.6 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements. Exposed piping or ducts will not be allowed unless specifically noted as such on the Drawings.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.1 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. See 02 4050 Cutting and Patching for additional information.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

G. Verify Drawings are coordinated and match existing conditions prior to start of work.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.3 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

E. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

G. Utilize recognized engineering survey practices.

H. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations; and control or expansion joints.

2. Grid or axis for structures.

3. Building foundation, column locations, ground floor elevations, and Eave heights.

I. Periodically verify layouts by same means.

J. Maintain a complete and accurate log of control and survey work as it progresses.

3.4 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.5 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.

1. Verify that construction and utility arrangements are as shown.

2. Report discrepancies to Architect before disturbing existing installation.

3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Remove existing work as indicated and as required to accomplish new work.

1. Remove items indicated on drawings.

2. Relocate items indicated on drawings.

3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.

4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, Telecommunications, and Fire Alarm): Remove, relocate, and extend existing systems to accommodate new construction.

1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.

2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.

3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.

    a. Disable existing systems only to make switchovers and connections; minimize duration of outages.

    b. Provide temporary connections as required to maintain existing systems in service.

4. Verify that services serve only abandoned facilities.

5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

D. Protect existing work to remain.

1. Prevent movement of structure; provide shoring and bracing if necessary.

2. Perform cutting to accomplish removals neatly and as specified for cutting new work.

3. Repair adjacent construction and finishes damaged during removal work.

E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

G. Refinish existing surfaces as indicated:

1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

H. Clean existing systems and equipment.

I. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

J. Do not begin new construction in alterations areas before demolition is complete.

K. Comply with all other applicable requirements of this section.

3.6 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:

1. Complete the work.
2. Replace curb cuts of insufficient size to provide
3. Fit products together to integrate with other work.
4. Provide openings for penetration of mechanical, electrical, and other services.
5. Match work that has been cut to adjacent work.
6. Repair areas adjacent to cuts to required condition.
7. Repair new work damaged by subsequent work.
8. Remove samples of installed work for testing when requested.
9. Remove and replace defective and non-conforming work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

G. Restore work with new products in accordance with requirements of Contract Documents.

H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. Patching:

1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.7 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition. Broom sweep work areas at the end of each day.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Clean parking areas daily, including street parking used by workers.

E. Sweep parking areas, driveways and streets used for the work. Removal of oil and other stains left by equipment or worker vehicles.

F. Collect and remove waste materials, debris, and trash/rubbish from work area daily and dispose off-site weekly; do not burn or bury.

3.8 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.9 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Test and balance HVAC systems affected by the work.

3.10 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.11 CLOSEOUT PROCEDURES

A. Make submittals that are required by Division of the State Architect or other authorities.

1. Complete DSA Form 155 at each phase of the work indicated on the DSA Inspection Card, Form 152.

B. Notify Architect when work is considered ready for Substantial Completion.

C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's review.

D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

E. Notify Architect when work is considered finally complete.

F. Complete items of work determined by Architect's final inspection.

END OF SECTION

DOCUMENT 01 72 00

FIELD ENGINEERING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Documents, apply to work of this document.

1.02 SUMMARY

A. General: This Document specifies administrative and procedural requirements for field engineering services, including, but not necessarily limited to, the following:

1. Layout of the Project
2. Land Survey Work
3. Shoring and Bracing Engineering
4. Construction Equipment
5. Support from Structure
6. Stormwater Runoff Protection Plan
7. Other Field Engineering

B. Except for engineering work to be provided by the owner relative to existing conditions, all grade lines, levels and bench marks shall be established and maintained by the Contractor.

1.03 SUBMITTALS

A. Certificates: Submit a certificate signed by the Land Surveyor or Professional Engineer certifying that the location and elevation of improvements comply with the Contract Documents.

B. Final Property Survey: Submit 10 copies of the final property survey.

C. Project Record Documents: Submit a record of Work performed and record survey data as required under provisions of Documents "Submittals" and "Project Closeout."

1.04 QUALITY ASSURANCE

A. Surveyor: Engage a Registered Land Surveyor registered with the State of California and approved by the Architect to perform land surveying and layout services required.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION

3.01 EXAMINATION

A. The Owner will identify existing control points and property line corner stakes.

B. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks before proceeding to layout the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.

C. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.

D. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.

E. Establish and maintain a minimum of two permanent benchmarks on the site, referenced to data established by survey control points.

F. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

G. Existing Utilities and Equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction. Contact utility companies, including USA, for on-site location services.

H. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, water service piping and gas. Verify locations of underground electrical line. It is the responsibility of the Contractor to use all means possible to locate underground utilities.

3.02 PERFORMANCE

A. Working from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.

B. Advise entities engaged in construction activities, of marked lines and levels provided for their use.

C. As construction proceeds, check every major element for line, level and plumb.

D. Surveyor's Log: Maintain a surveyor's log of control and other survey Work. Make this log available for reference.

1. Record deviations from required lines and levels, and advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.

2. On completion of major site improvements, and other Work requiring field engineering services, prepare a certified survey showing dimensions, locations, angles and elevations of construction and sitework.

E. Site Improvements: Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means.

F. Existing Utilities: Furnish information necessary to adjust, move or relocate existing structures, utility poles, lines, services or other appurtenances located in, or affected by construction. Coordinate with local authorities having jurisdiction.

G. Final Property Survey: Before Substantial Completion, prepare a final property survey showing significant features (real property) for the Project. Include on the survey a certification, signed by the Surveyor, to the effect that principal metes, bounds, lines and levels of the Project are accurately positioned as shown on the survey.

1. Provide survey both on reproducible Mylar and an electronic copy compatible with AutoCAD V-14.

H. Shoring and Bracing:

1. Design of Shoring and Bracing for support of formwork, scaffolding, or other temporary construction supports, shall be the responsibility of the

Contractor. If requested, supply engineering calculations and data regarding proposed shoring and bracing.

I. Construction Equipment: Engineering for cranes, temporary hoists, or other hoisting equipment requiring structural loading during construction shall be the responsibility of the Contractor. If requested, supply engineering calculations and data regarding proposed construction equipment. The structural system of the building is not intended to support hoisting systems unless specifically noted, and all such equipment shall be designed to be structurally independent of the building.

J. Storm water Runoff Protection Plan (SWRPP)

1. It shall be the responsibility of the Contractor to obtain all permits required by the EPA or their designated authority regarding control of Storm water at construction sites. It shall also be the responsibility of the Contractor to bring the construction activities for this project into compliance with the requirements of the State Water Resources Control Board General Construction Activity Storm Water Permit of April 17, 1997, to discharge storm water associated with construction activities, to be in full compliance with the LOCAL JURISDICTION Standards, and the National Pollutant Discharge Elimination (NPDES) Permit.

2. The Contractor shall engage a Civil Engineer as necessary to prepare an Erosion Control and SWRPP, and shall fully implement the recommendations of the Plan on the Project Site, including a Post-Construction Storm Water Management Plan.

3. The Contractor shall file a Notice of Intent to comply with the terms of the General Permit to discharge storm water associated with construction activity (WQ Order No. 92-08-DWQ). The Notice of Intent must be sent to the following address along with the appropriate payment (warrant to be furnished by the Owner upon request by the Contractor, allow normal warrant processing time) California State Water Resources Control Board, Division of Water Quality Storm Water Permit Unit, P.O. Box 1977, 901 "P" Street, Sacramento, California 95812-1977; (916) 657-0919. The Notice of Intent shall be filed prior to the start of any construction activity.

K. Other Field Engineering: Other field engineering affecting means and methods of construction, or engineering of specific building components as required by Specification, or demolition shall be the responsibility of the Contractor.

END OF DOCUMENT

11/13/13

01 77 00

CLOSE OUT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Document Includes:

1. Description of Contract closeout procedures including:

a. Removal of Temporary Construction Facilities
b. Substantial Completion
c. Final Completion
d. Project Record Documents
e. Project Guarantee
f. Warranties
g. Turn-In
h. Release of Claims
i. Fire Inspection Coordination
j. Building Inspection Coordination

1.2 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary facilities.

C. Restore permanent facilities used during construction to specified condition.

D. Comply with Document 01 50 00 (Temporary Facilities and Controls).

1.3 SUBSTANTIAL COMPLETION

A. When Contractor considers Work or designated portion of the Work as Substantially Complete, submit written notice to District, with list of items remaining to be completed or corrected.

B. Within reasonable time, District will inspect to determine status of completion.

C. Should District determine that Work is not Substantially Complete, District will promptly notify Contractor in writing, listing all defects and omissions.

D. Remedy deficiencies and send a second written notice of Substantial Completion. District will re-inspect the Work. If deficiencies previously noted are not corrected on re-inspection, then pay the cost of the re-inspection.

E. When District concurs that Work is Substantially Complete, District will issue a Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected as verified by District.

F. Manufactured units, equipment and systems that require startup must have been started up and run for periods prescribed by District before a Certificate of Substantial Completion will be issued.

G. A punch list examination will be performed upon Substantial Completion. One follow-up review of punch list items for each discipline will be provided. If further Site visits are required to review punch list items due to incompleteness of the Work by Contractor, Contractor will reimburse District for costs associated with these visits.

1.4 FINAL COMPLETION

A. Final Completion occurs when Work meets requirements for District's Final Acceptance. When Contractor considers Work is Finally Complete, submit written certification that:

1. Contractor has inspected Work for compliance with Contract Documents, and all requirements for Final Acceptance have been met.

2. Except for Contractor maintenance after Final Acceptance, Work has been completed in accordance with Contract Documents and deficiencies listed with Certificate of Substantial Completion have been corrected. Equipment and systems have been tested in the presence of District, and are operative.

3. Work is complete and ready for final inspection.

B. In addition to submittals required by Contract Documents, provide submittals required by governing authorities and submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

C. When District finds Work is acceptable and final closeout submittals are complete, District will issue final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order. Should District determine that Work is incomplete or Defective:

1. District promptly will so notify Contractor, in writing, listing the incomplete or Defective items.

2. Promptly remedy the deficiencies and notify the District when it is ready for re-inspection.

3. When District determines that the Work is acceptable under the Contract Documents, District will request Contractor to make closeout submittals.

D. Final adjustments of accounts:
   1. Submit a final statement of accounting to District, showing all adjustments to the Contract Sum and complete and execute Document 00 88 00 (Agreement and Release of Any and All Claims).

   2. If so required, District shall prepare a final Change Order for submittal to Contractor, showing adjustments to the Contract Sum that were not previously made into a Contract Modification.

1.5 PROJECT RECORD DOCUMENTS

A. Contract Documents will not be closed out and final payment will not be made until completion and submittal of Project Record Documents described in Document 01 78 39 (Project Record Documents).

1.6 PROJECT GUARANTEE

A. Requirements for Contractor's guarantee of completed Work are included in Document 00 72 00 (General Conditions). Guarantee Work done under Contract against failures, leaks, or breaks or other unsatisfactory conditions due to defective equipment, materials, or workmanship, and perform repair work or replacement required, at Contractor's sole expense, for period of one year from date of Final Acceptance.

B. Neither recordation of Final Acceptance nor final certificate for payment nor provision of the Contract nor partial or entire use or occupancy of premises by District shall constitute acceptance of Work not done in accordance with Contract Documents nor relieve Contractor of liability in respect to express warranties or responsibility for faulty materials or workmanship.

C. District may make repairs to Defective Work as set forth in Document 00 72 00 (General Conditions).

D. If, after installation, operation, or use of materials or equipment to be provided under Contract proves to be unsatisfactory to District, District shall have right to operate and use materials or equipment until said materials and equipment can, without damage to District, be taken out of service for correction or replacement. Period of use of Defective materials or equipment pending correction or replacement shall in no way decrease guarantee period required for acceptable corrected or replaced items of materials or equipment.

E. Nothing in this Document 01 77 00 shall be construed to limit, relieve, or release Contractor's, Subcontractors', and equipment suppliers' liability to District for damages sustained as result of latent defects in equipment caused by negligence of suppliers' agents, employees, or Subcontractors. Stated in another manner, warranty contained in the Contract Documents shall not amount to, nor shall it be deemed to be, waiver by District of any rights or remedies (or time limits in which to enforce such rights or remedies) it may have for Defective workmanship or Defective materials under laws of this State pertaining to acts of negligence.

1.7 WARRANTIES

A. Execute Contractor's Submittals and assemble warranty documents, and Installation, Operation, and Maintenance Manuals described in Document 01 33 00 (Submittal Procedures), executed or supplied by Subcontractors, suppliers, and manufacturers.

1. Provide table of contents and assemble in 8½ inches by 11 inches three-ring binder with durable plastic cover, appropriately separated and organized.

2. Assemble in Specification Document order.

B. Submit material prior to final Application for Payment.

1. For equipment put into use with District's permission during construction, submit within 14 Days after first operation.

2. For items of Work delayed materially beyond Date of Substantial Completion, provide updated Submittal within 14 Days after acceptance, listing date of acceptance as start of warranty period.

C. Warranties are intended to protect District against failure of Work and against deficient, Defective, and faulty materials and workmanship, regardless of sources.

D. Limitations: Warranties are not intended to cover failures that result from the following:

1. Unusual or abnormal phenomena of the elements

2. Vandalism after Substantial Completion

3. Insurrection or acts of aggression including war

E. Related Damages and Losses: Remove and replace Work which is damaged as result of Defective Work, or which must be removed and replaced to provide access for correction of warranted Work.

F. Warranty Reinstatement: After correction of warranted Work, reinstate warranty for corrected Work to date of original warranty expiration or to a date not less than one year after corrected Work was done, whichever is later.

G. Replacement Cost: Replace or restore failing warranted items without regard to anticipated useful service lives.

H. Warranty Forms: Submit drafts to District for approval prior to execution. Forms shall not detract from or confuse requirements or interpretations of Contract Documents.

1. Warranty shall be countersigned by manufacturers.

2. Where specified, warranty shall be countersigned by Subcontractors and installers.

I. Rejection of Warranties: District reserves right to reject unsolicited and coincidental product warranties that detract from or confuse requirements or interpretations of Contract Documents.

J. Term of Warranties: For materials, equipment, systems, and workmanship, warranty period shall be one year minimum from date of Final Completion of entire Work except where:

1. Detailed Specifications for certain materials, equipment or systems require longer warranty periods.

2. Materials, equipment or systems are put into beneficial use of District prior to Final Completion as agreed to in writing by District.

K. Warranty of Title: No material, supplies, or equipment for Work under Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver premises, together with improvements and appurtenances constructed or placed thereon by Contractor, to District free from any claim, liens, security interest, or charges, and further agrees that neither Contractor nor any person, firm, or corporation furnishing any materials or labor for any Work covered by Contract shall have right to lien upon premises or improvement or appurtenances thereon. Nothing contained in this paragraph, however, shall defeat or impair right of persons furnishing materials or labor under bond given by Contractor for their protection or any rights under law permitting persons to look to funds due Contractor in hands of District.

1.8 TURN-IN

A. Contract Documents will not be closed out and final payment will not be made until all keys issued to Contractor during prosecution of Work and letters from property owners are turned in to District.

1.9 RELEASE OF CLAIMS

A. Contract Documents will not be closed out and final payment will not be made until Document 00 88 00 (Agreement and Release of Any and All Claims) is completed and executed by Contractor and District.

1.10 FIRE INSPECTION COORDINATION

A. Coordinate fire inspection and secure sufficient notice to District to permit convenient scheduling (if applicable).

1.11 BUILDING INSPECTION COORDINATION

A. Coordinate with District a final inspection for the purpose of obtaining an occupancy certificate (if applicable).

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF DOCUMENT

SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

D. DSA forms

1.2 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

B. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

C. Individual Product Sections: Specific requirements for operation and maintenance data.

D. Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:

1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.

2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.

3. Submit one set of revised final documents in electronic form within 10 days after final inspection.

C. Warranties and Bonds:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.

2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.

3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

D. DSA Forms: Not Used

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings.
2. Addenda.
3. Change Orders and other modifications to the Contract.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Record Drawings : Legibly mark each item to record actual construction including:

1. Field changes of dimension and detail.
2. Details not on original Contract drawings.

3.2 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.3 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SPECIFICATIONS
MDG #1711

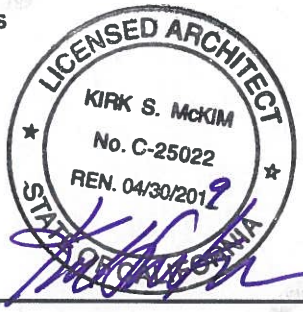
DSA File No. 43-7
DSA Application No. 01-117713

Toyon Elementary School
Flexible Instruction Space

Berryessa Union School District
San Jose, CA

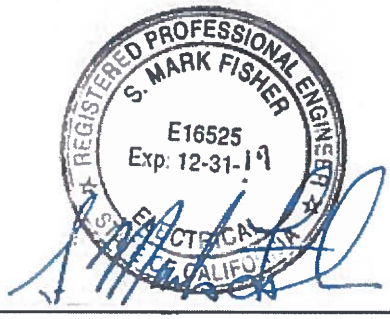
McKim Design Group
4595 CHERRY AVENUE, FIRST FLOOR
SAN JOSE, CA 95118
(408) 927.8110

Division of the State Architect
Office of Regulation Services



Architect

Mechanical



Electrical

SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES
A. Demolishing designated building equipment and fixtures.
B. Demolishing designated construction.
C. Cutting and alterations for completion of the Work.
D. Removing designated items for reuse and Owner's retention.
E. Protecting items designated to remain.
F. Removing demolished materials.

1.2 SUBMITTALS
A. See Section 01 33 00 for submittal requirements
B. Demolition Schedule: Indicate overall schedule and interruptions required for utility and building services.
C. Shop Drawings:
   1. Indicate demolition and removal sequence.
   2. Indicate location of items designated for reuse and Owner's retention.
   3. Indicate location and construction of temporary work.

1.3 CLOSEOUT SUBMITTALS
A. Project Record Documents: Record actual locations of capped utilities, concealed utilities discovered during demolition, and subsurface obstructions.

1.4 QUALITY ASSURANCE
A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.
B. Conform to applicable code for procedures when hazardous or contaminated materials are discovered.
C. Obtain required permits from authorities having jurisdiction.

1.5 PRE-DEMOLITION MEETING
~~A. See Administrative Section regarding pre-installation meetings.~~
B. Convene site meeting one week prior to beginning demolition to confirm scope understanding.

1.6 SCHEDULING
A. Schedule Work to coincide with new construction and modernization.
B. Cooperate with Owner in scheduling noisy operations and waste removal that may impact Owners operation and activities in adjacent buildings on school campus.
C. Coordinate utility and building service interruptions with Owner.
D. Do not disable or disrupt building fire or life safety systems without three days prior written notice to Owner.
E. Schedule tie-ins to existing systems to minimize disruption.
F. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas of adjacent buildings on school campus.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine conditions of the work in place before beginning work; report existence of hazardous materials or unsafe structural conditions.

3.2 PREPARATION

A. Notify affected utility companies before starting work and comply with their requirements.
B. Mark location and termination of utilities.
C. Existing Utilities:
   1. General: Coordinate disconnection and capping of existing gas, water, sewer and electrical utilities; verify work is complete before starting demolition work affecting those utilities. Do not interrupt existing utility service to operating facilities, except when authorized in writing by Owner. Provide not less than 72 hours' notice to Owner if shutdown of service is required. Make provision for temporary service during interruption of existing utility service, acceptable to Owner.
   2. Mechanical: Refer to Division 22 – PLUMBING; disconnecting, removing and capping existing gas, water and sewer utilities.
   3. Electrical: Refer to Division 26 – ELECTRICAL; disconnecting, removing, and capping existing electrical utilities. Owner will make arrangements with telephone company concerning their equipment and lines.
D. Erect, and maintain temporary barriers and security devices, including warning signs and lights, and similar measures, for protection of the public and Owner, and existing improvements indicated to remain.
E. Prevent movement of structures; provide temporary bracing and shoring required to ensure safety of existing structures.
F. Provide appropriate temporary signage including signage for exit or building egress.
G. Do not close or obstruct building egress path.
H. Do not disable or disrupt building fire or life safety systems without 3 days prior written notice to Owner.
I. Hazardous Materials:
   1. General: Identify, collect, and legally dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations.
   2. Asbestos: If asbestos or materials containing asbestos are encountered, stop work immediately and contact the Owner. Do not proceed with demolition until directed by Owner.
J. Protection:
   1. Site: Protect existing adjacent installations not scheduled for demolition from damage; take measurems to prevent damage to existing turf, paving, trees, streets, curbs, walks, sewers, etc., during demolition and construction.
   2. Trees:
      a) General: Protect trees adjacent to and overhanging the Project Site from impact of any kind.
      b) Repair and Replacement off site elements: Per the city Municipal Code where this project occurs.
      c) Tree Preservation:
         1. General: Owner's Representative shall designate the following:
         2. Tree Enclosure Area: Material, topsoil, vehicle or equipment not permitted within tree enclosure area.
         3. Tree Canopy Area: Do not alter ground under and around designated area.
         4. Retained Trees: Irrigated, aerated and maintained as required to ensure survival.

d) Trenching and Excavation: Report the encounter of any tree root system to the Owner. Owner will provide services of an Arborist to repair major damage to root systems.

3. Safety Precautions: Prevent damage to existing elements to remain or to be salvaged, and prevent injury to the public and workmen engaged on site. Demolish roofs, walls and other building elements in such manner that demolished materials fall within foundation lines of building being removed. Do not allow demolition debris to accumulate on site. Pull down hazardous work at end of each day; do not leave standing or hanging overnight, or over weekends.

3.3 SALVAGE REQUIREMENTS

A. Coordinate with Owner to identify building components and equipment required to be removed and delivered to Owner.
B. Tag components and equipment Owner designates for salvage.
C. Protect designated salvage items from demolition operations until items can be removed.
D. Carefully remove building components and equipment indicated to be salvaged.
E. Disassemble as required to permit removal from building.
F. Package small and loose parts to avoid loss.
G. Mark equipment and packaged parts to permit identification and consolidation of components of each salvaged item.
H. Prepare assembly instructions consistent with disassembled parts. Package assembly instructions in protective envelope and securely attach to each disassembled salvaged item.
I. Deliver salvaged items to Owner. Obtain signed receipt from Owner.

3.4 DEMOLITION

A. General: Perform demolition as shown and remove from the site. Use methods required to complete Work within limitations of governing regulations. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.
   1. Conduct demolition to minimize interference with adjacent and occupied building areas.
   2. Maintain protected egress from and access to adjacent existing buildings at all times.
   3. Do not close or obstruct roadways or sidewalks without permits.
B. Explosives: Use not permitted.
C. Cutting and Removal: Remove existing work as shown; cut in neat straight lines, parallel to adjacent elements or plumb to vertical surfaces; grind smoot saw cut edges of concrete slabs or walks. Neatly remove existing finish materials back to clean straight line on nearest support to facilitate installation of new matierials, patches or repairs. Use methods that prevent damage to other work, and provide proper surfaces for installation of repairs and new work.
D. Prepare and follow an organized plan for demolition and removal of items.
   1. Shut off, cap, and otherwise protect existing public utility lines in accordance with the requirements of the public agency or utility having jurisdiction.
   2. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition.
   3. Completely remove items scheduled to be so demolished and removed, leaving surfaces clean, solid, and ready to receive new materials specified elsewhere.
   4. In all activities, comply with pertinent regulations of governmental agencies having jurisdiction.
E. Carefully remove building and site components indicated to be reused.
   1. Disassemble components as required to permit removal.
   2. Package small and loose parts to avoid loss.
   3. Mark components and packaged parts to permit reinstallation.
   4. Store components, protected from construction operations, until reinstalled.
F. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.

G. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
H. Remove temporary Work.

3.5 DISPOSAL

A. General: Demolished materials become property of the Contractor and shall be removed from premises, except those items specifically listed to be retained by Owner.
B. Haul Routes:
   1. General: Establish haul routes in advance; post flagmen for the safety of the public and workmen.
   2. Maintenance: Keep streets free of mud, rubbish, etc., assume responsibility for damageresulting from hauling operations; hold Owner free of liability in connection therewith

3.6 SCHEDULES

A. Remove, store and protect the following materials and equipment for reinstallation in the project.
   1. Designated (e) fire extinguishers.

B. Remove the following equipment and materials for Owner's retention. Deliver to location designated by Owner.
   1. Designated (e) rolling bookshelves

C. Protect the following materials and equipment remaining.
   1. Designated (e) utilities.
   2. Designated (e) exterior cement plaster wall and soffit finish.
   3. Designated (e) windows and frames.
   4. Designated (e) ceilings and soffits.
   5. Designated (e) doors and frames.
   6. Designated (e) electrical panels.

D. Demolish the following materials and equipment remaining.
   1. Designated (e) non-structural walls.
   2. Designated (e) toilet partitions and toilet accessories.
   3. Designated (e) drinking fountains.
   4. Desingated (e) doors, door frames, and related hardware
   5. Designated (e) concrete slab portions.
   6. Designated (e) toilet paper dispensers and paper towel dispensers.
   7. Designated (e) concrete pavement sections for new concrete door landings.
   8. Designated (e) utilities.
   9. Designated (e) ceilings finishes
   10. Designated (e) cabinetry.
   11. Designated (e) window systems
   12. Designated (e) wall finishes.

3.7 REPLACEMENT

A. In the event items are mistakingly demolished, promptly notify the Architect. Contractor shall replace the demolished item to the approval of the Architect at no additional cost to the Owner.

END OF SECTION

SECTION 03 10 00
CONCRETE FORMWORK

PART 1 - GENERAL

1.01 SCOPE OF WORK

Furnish all labor materials, equipment and services necessary to provide all concrete formwork, complete in place, as shown on the drawings or specified herein.

A. Work Specified in this Section
1. Forms for all concrete.
2. Setting of embedded items.
3. Removal of forms.
4. Forming accessories and form coating.

B. Related Work Specified in other Sections:
1. Concrete Reinforcement----------Section 03 20 00
2. Cast-in-place concrete----------Section 03 30 00

1.02 REFERENCE STANDARDS

A. American Concrete Institute Standard ACI 347 - "Recommended Practice for Concrete Formwork" and ACI 318 "Building Code Requirements for Reinforced Concrete", latest edition.
B. West Coast Lumber Inspection Bureau "Standard Grading Rules for West Coast Lumber", current edition.
C. CBC - 2016 California Building Code
D. CCR - California Code of Regulations.
E. Product Standard PS-1.

1.03 SUBMITTALS

A. Make all submittals in accordance with the requirements of Division One.
B. Construction Joint Layout: Submit shop drawings for the Architect's review showing the location of all proposed construction joints, plywood layout, snap tie locations and any other material which will affect appearance of concrete.
C. The form layout, snap tie locations and construction joint layout shown on drawings is for design compliance only. The Contractor shall be responsible for dimensions at job site, fabrication process and techniques of construction and structural requirements of formwork.

1.04 COORDINATION

A. All pipe sleeves, anchors and bolts, including those for angle frames, insert supports, ties and other material in connection with concrete construction, shall be secured in position before the concrete is placed.
B. The Contractor shall obtain information and instructions from other trades and suppliers in ample time to schedule and coordinate the installation of items furnished by them to be embedded in concrete so that provisions for their work can be made without delaying the project.
C. Cutting and/or patching made necessary by failure of delay in complying with these requirements shall be made at no cost to the District.

1.05 PRODUCT HANDLING

A. Protection: Protect formwork materials before, during and after installation and protect the installed work and materials of all other trades.
B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Architect at no additional cost to the District.

1.06 SYSTEM DESCRIPTION

A. Design, engineer, and construct formwork, shoring, and bracing to meet design and code requirements, so that resultant concrete conforms to required shapes, lines, and dimensions.

B. Contractor shall be responsible for strength of forms. In general, deflection of finished surfaces shall not exceed that produced by 5/8 inch plywood against studs set on 12 inch center.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Earth Forms: Unless otherwise indicated or required by the Structural Drawings, concrete for grade beams, footings and similar below-grade structures may be placed directly against vertical excavated surfaces provided the material will stand without caving and provided that minimum reinforcing steel clearances indicated on the Drawings are maintained and suitable provisions are taken to prevent raveling of top edges or sloughing of loose material from walls of excavation and shall be made with a neat cut. Concrete which is exposed to view on exterior shall be formed to a minimum depth of 6" below finished grade. Increase dimensions shown on drawings 1 1/2 inches for each form surface omitted.

B. WOOD FORMS

1. Exposed Concrete Not Otherwise Noted or Specified: DFPA graded MDO (Medium Density Overlaid) Plyform, Class I or II (as per strength and tolerance requirements), Exterior, each piece grade marked.
2. All Other Surfaces: Metal, spreader type, removable to 1" from concrete face. Wire ties and wood spreaders will not be allowed except that such devices may be permitted for footings, shallow foundations and similar other totally concealed below grade surfaces upon specific approval of Architect. Wood spreaders shall not remain in concrete.

2.02 OTHER MATERIALS

All other materials, not specifically described but required for proper completion of concrete formwork, shall be as selected by the Contractor subject to the acceptance of the Architect.

PART 3 - EXECUTION

3.01 GENERAL

Construct forms as specified for the purpose, rigidly constructed and providing for special built-in features and details, as indicated.

3.02 FORMWORK DESIGN

1. Forms shall be designed by a State of California Licensed Civil or Structural Engineer in accordance with the reference standards.
2. Design all forms in strict compliance with ACI 347, latest edition.
3. Design of all forms to resist spreading, shifting, settling, and deflecting more than 1/8" between supports after the placement of concrete. Accurately produce the required lines, grades, and surfaces within the specified tolerances.
4. Design all shoring to carry vertical and lateral loads to the ground either independently or in combination with portions of the structure which have attained strength, transmitting loads from successive parts of the structure directly through falsework without creating stresses in the concrete, and withstanding all required wind and earthquake forces.
5. Design all forms and shoring to prevent leakage and washing out of cement mortar.

3.03 CONSTRUCTION OF FORMS

A. Rigidly support and substantially construct forms; erect plumb, straight and true to line, shape, and dimensions, and in precise position to form the lines and designs indicated, suitable for removal without prying against concrete. Make forms tight without cracks or holes so as to prevent loss of fine particles from the concrete.

1. Wales and studs shall be of adequate size, strength, bracing and spacing to prevent bulging or sagging. Space studs not more than 12" on centers.

2. Shoring shall be substantial, located and installed to minimize deflection. Camber forms for slabs as required to compensate for deflection or settlement due to closure of form joints, settlement of mudsills, shrinkage of lumber, elastic shortening and/or deflection of form members. Positive means of adjustment (wedges or jacks) of shores and struts shall be provided to permit realignment or readjustment. Comply with requirements of ACI 347, Section 2.6.
3. Construction Joints: Construction joints shall be in accordance with requirements of Cast-in-place concrete, Division 3. Provide a surfaced pouring strip where construction joints intersect exposed surfaces to provide straight line at joints. Prior to subsequent pour, remove strip and tighten forms. Construction joints shall show no "overlapping" or offsetting of concrete surfaces and shall, as closely as possible, present the same appearance as butted plywood joints. Joints in a continuous line shall be straight and true.

B. Carefully align inside and outside wall forms before tightening ties. On plywood forms, ensure that vertical joints are plumb and that horizontal joints are level, arranging all joints in a geometric pattern or as shown on the drawings and per reviewed shop drawing submittals.

C. Openings, Chases, Sleeves and Recesses:
Form as indicated or required to receive, pass and clear other work. Verify dimensions and details. Do not permanently cast wood into concrete, except where wood nailers are specifically indicated.

D. Embedded Items:
1. Conduit in slabs on grade: Do not embed piping or electrical conduit in structural concrete unless specifically approved in writing by the Structural Engineer. Locate conduit so as to keep the concrete as its maximum structural strength. In slabs on grade the outside diameter of conduit shall not exceed 30% of the concrete thickness and shall be located at the centerline of slab. Conduits can be grouped in pairs, but minimum clear distance between single conduits or pairs shall be 6".
2. Anchors and Rough Hardware: These consist of bolts, inserts, and other items required to be embedded in formed concrete. Accurately secure them so that they will not be displaced during concrete placement and finishing. Verify the size, length, and location of anchor bolts with respect to equipment supports.
3. Install wire anchor loops where required by related trades.

E. Form Sealer:
Apply form sealer to forms prior to placing reinforcement. Apply in strict conformance with the latest printed recommendations of the sealer manufacturer.

F. Tolerances:
The following maximum tolerances shall be allowed for form construction:
1. Slabs on grade thickness: +/-1/2"
2. All other: +/-1/4"

3.04 REUSE OF FORMS

Clean and repair the surfaces of forms that are to be reused, except that split, frayed, delaminated or otherwise damaged forms shall not be reused. Apply new form coating material to all contact areas. When forms are extended for successive concrete placement, thoroughly clean surfaces and remove fins and laitance.

3.05 REMOVAL OF FORMS

A. The removal of forms and falsework shall be carried out in such a manner as to ensure the complete safety of the structure. Supports shall not be removed until members have sufficient strength to safely support their own weight and any superimposed loading with proper factor of safety. No forms or shoring shall be removed without the approval of the Architect. Approval by the Architect of form removal shall not relieve the Contractor from responsibility for damage due to faulty construction or materials.

B. Forms for exposed concrete surfaces shall be removed in such a manner as to preclude damage to finish. Pinch bars and similar tools shall not be used for prying against exposed surfaces.

C. After concrete is placed, the following minimum times shall elapse before the removal of forms or shoring:
   1. Side forms (footings, slabs on grade): 4 days
D. Upon removal of forms, all bolts, wires, clamps, rods, etc., not necessary to the work, shall be removed to a minimum of 1 inch from the surface. Work shall so be form tie materials or other unprotected ferrous materials embedded in or adjacent to exposed concrete surfaces.

3.06 CLEAN UP

During the progress of the work, the premises shall be kept free from debris and waste materials resulting from the work of this Section. Upon completion, all surplus materials and debris shall be removed from the site.

END OF SECTION-

SECTION 03 20 00
REINFORCING STEEL

PART 1 - GENERAL

1.01 SCOPE OF WORK

Furnish all labor, materials, equipment and services necessary to provide all concrete reinforcing steel, complete in place, as shown on the drawings or specified herein.

A. Work Specified in this Section:
1. Fabricate, furnish, and install reinforcing steel for concrete work including dowels in concrete for masonry work.
2. Accessory items such as chairs, tie wire, etc.
3. Furnishing mill certificates.
4. Reinforcing steel for concrete work.

B. Related Work Specified in Other Sections:
1. Testing and Inspection ---------- Per Division 01 Requirements
2. Concrete Formwork ---------- Section 03 10 00
3. Cast-in-place Concrete ---------- Section 03 30 00

1.02 QUALITY

A. Qualifications of Workmen: Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this Section.

B. Codes and Standards:
1. In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations contained in the following:
a. "Manual of Standard Practice for Detailing Reinforced Concrete Structure", ACI 315.
b. "Building Code Requirements for Reinforced Concrete", ACI 318.
c. 2016 California Building Code with Amendments
d. CCR - California Code of Regulations.
e. "Placing Reinforcing Bars", Concrete Reinforcing Steel Institute.
2. Where provisions of pertinent codes and standards conflict with this Specification, the more stringent provisions shall govern.

1.03 SHOP DRAWINGS

A. **Submit shop drawings for review (we will only return 2 sets of stamped shop drawings - one set of blueprints we keep):**
1. **Submit 6 sets** of fully detailed shop drawings, including bending schedules and bending diagrams. Shop drawings shall show placing details and size and location of all reinforcing steel.
2. Shop drawings shall be of such detail and completeness that all fabrication and placement at the site can be accomplished without the use of project or contract drawings for reference.
3. Check Architectural, structural, mechanical, and electrical project or contact drawings for anchor bolt schedules and locations, anchors, inserts, conduits, sleeves, and any other items which are required to be cast in concrete, and make necessary provisions as required so that reinforcing steel will not interfere with the placement of such embedded items.
4. Reinforcing steel shall not be fabricated or placed before the shop drawings have been reviewed by the Architect and returned to the Contractor. Review of shop drawings by the Architect will not relieve the Contractor of responsibility for errors or for failure in accuracy and complete placing of the work.

B. Mill Test Reports:

Certified mill test reports (tensile and bending) for each heat or melt of steel shall be submitted to the Architect before delivery of any material to the job site. Where reinforcing is required to be welded, mill test reports shall verify the weldability of the steel.

1.04 PRODUCT HANDLING

A. Marking and Shipment of Reinforcement

Bundle reinforcement and tag with suitable identification to facilitate sorting, placing and transport. Store at the site in such a way as to prevent damage to the material. Keep a sufficient supply of tested and approved reinforcement on the site to avoid delaying the work.

B. Protection:

1. Take all means necessary to protect reinforcing steel before, during, and after installation and to protect the work and materials of all other trades.
2. Store reinforcing steel in a manner to prevent excessive rusting and fouling with dirt, grease or other bond-breaking coatings.
3. Take all necessary precautions to maintain identification after the bundles of reinforcing steel have been broken.

C. Replacements:

In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Architect and at no additional cost to the District.

1.05 SAMPLING, TESTING, AND INSPECTING OF REINFORCING STEEL

A. Testing will be performed by the District's testing laboratory under provisions of Division 01.

B. Certified mill test reports (tensile and bending) for each heat or melt of steel shall be submitted to the Architect before delivery of any material to the job site. Where reinforcing is required to be welded, mill test reports shall verify the weldability of the steel.

C. Identified Reinforcing Steel:

One tensile test and one bend test shall be made from a specimen from each 10 tons or fraction thereof of each size of reinforcing steel, if reinforcing is taken from bundles identified with heat number accompanied by mill analysis and mill test reports, and is properly tagged with an identification certificate.

D. Unidentified Reinforcing Steel:

One tensile and one bend test will be made for each 2-1/2 tons or fractions thereof of each size of reinforcing steel.

E. Where special inspection is required per CBC section 1701A.5, installation and placement of reinforcing steel shall be inspected by the District's testing laboratory prior to concrete pour.

F. Costs of tests to determine if unidentified steel complies with specified standards will be deducted by the District from the Contract Sum by Change Order.

PART 2 - PRODUCTS

2.01 REINFORCING STEEL

A. General: Reinforcing steel shall comply with ACI 318-05 Section 3.5 and CBC, Title 24, Part II, chapter 19A.

B. Reinforcing Bars:

1. New, free of loose rust.
2. Billet-Steel Bars: ASTM A615 (Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement) , Grade 40 for #4 and #3, Grade 60 for #5 bars and larger.
3. Bars to be welded shall be weldable steel ASTM A706 Grade 60 for all bars.

C. Welding Electrodes as recommended by AWS D1.1-00

D. Tie Wire: 16 gauge minimum, black and annealed.

E. Accessories: Metal or plastic spacers, supports, ties, etc., as required for spacing, assembling and supporting reinforcing in place.

2.02 FABRICATION

A. Shop fabricate all reinforcement in accordance with details on drawings and CBC, Title 24, Part II, chapter 19A.

B. Where specific details are not shown or noted, do all detailing and fabrication in conformance with requirements contained in the References, Codes and Standards Article.

C. Clean bars of loose rust, loose mill scale and any substance which may decrease bond. Bend bars cold and accurately to details on reviewed shop drawings.

D. Bend bars cold and accurately to details on final reviewed shop drawings.

2.03 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper installation of concrete reinforcement, shall be as selected by the Contractor subject to the acceptance of the District.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection

1. Carefully inspect the installed work of all other trades prior to installing reinforcing steel and verify that all such work is complete to the point where work may commence.
2. Verify that reinforcing steel is installed in strict accordance with all pertinent codes and regulations, the reviewed shop drawings and original design.

B. Discrepancies

In the event of discrepancy, immediately notify the Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

C. Cleaning

Clean reinforcement of loose mill scale, oil, or other coating that might destroy or reduce the bond before it is placed.

3.02 PLACING

A. General:

Reinforcing steel shall be placed in accordance with the Drawings and reviewed shop drawings and the applicable requirements of the References, Codes and Standards Article. Install reinforcement accurately and secure against movement, particularly under the weight of workmen and the placement of concrete.

B. Reinforcement Supports:

1. Reinforcement shall be accurately located in the forms and held in place by means of supports adequate to prevent displacement and to maintain reinforcement at proper distance from form face. Supports and their placement shall comply with CRSI "Placing Reinforcement Bars". The use of wood supports and spacers inside the forms is not permitted.
2. Support reinforcement for all slabs by wiring to precast concrete blocks or chairs spaced 4'-0" o.c. (maximum) both ways, staggered. Size blocks or chairs so the reinforcing is maintained at the center line of the slab.

C. Obstructions:

Wherever conduits, piping, inserts, sleeves, etc., interfere with placing of reinforcing steel, obtain Architect's approval of method of procedure before any concrete is placed. Bending of bars around openings or sleeves is not permitted.

D. Tying:

All reinforcing shall be rigidly and securely tied with steel tie wire at all splices and at all crossing points and intersection in the position shown. All tie wires, after cutting, shall be bend in such a manner that concrete placement will not force the wire ends to surface of concrete.

E. Splicing:

Make splices only at those locations shown on the Drawings or as approved by the Architect. Stagger splices in adjacent bars wherever possible.

F. Dowels:

Dowels shall be tied securely in place before concrete is deposited. In the event there are no bars in position to which dowels may be tied, No. 3 bars (minimum) shall be added to provide proper support and anchorage. Bending of dowels after placement of concrete will not be permitted. Where dowels are used into existing concrete provide Simpson “SET-XP” adhesive anchor (ESR-2508) or approved equal.

G. Welding:

No welding of reinforcing steel or of attachments to reinforcing steel will be permitted unless the chemistry of the steel conforms to AWS D1.1-00. All electrodes shall be low hydrogen. All welding material, and wire cuttings, shall be thoroughly cleaned from forms for exposed concrete before any concrete is placed. Tack welding of bars is not permitted for fabricating cages or assemblies.

3.03 CLEAN-UP

During the progress of the work, the premises shall be kept free from debris and waste material resulting from the work of this section. Upon completion, all surplus material and debris shall be removed from the site.

-END OF SECTION-

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SCOPE OF WORK

Furnish all materials and labor necessary to complete cast-in-place concrete as indicated or specified herein.

A. Work Specified in this Section:
1. Slab-on-grade.
2. Vapor barrier for slabs on grade.
3. Isolation and expansion joint fillers and sealers.
4. Sealing and/or hardening concrete floors.

B. Work This Section Excludes:
1. Those anchors, sleeves, inserts, frames, and plates, which are furnished by other Sections of the Specifications.
2. Drainage fills and/or base fills.

C. Related Work Specified in Other Sections:
1. Concrete formwork ---------- Section 03 10 00
2. Concrete Reinforcement ---------- Section 03 20 00

1.02 STANDARDS

A. ACI - American Concrete Institute Sections:
ACI 301 "Specification for Structural Concrete for Buildings."
ACI 304 "Recommended Practice for Measuring, Mixing and Placing Concrete."
ACI 305 "Recommended Practice for Hot Weather Concreting."
ACI 306 "Recommended Practice for Cold Weather Concreting."
ACI 309 "Recommended Practice for Consolidation of Concrete."
ACI 318 "Building Code Requirements for Reinforced Concrete."

B. ASTM - American Society for Testing and Materials Section:
C-33 "Standard Specification for Concrete Aggregates."
C-39 "Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens."
C-94 "Standard Specification for Ready-Mixed Concrete."
C-143 "Standard Method of Test for Slump of Portland Cement Concrete."
C-150 "Standard Specification for Portland Cement."
C-231 "Standard Test Method for Air Content of Freshly Mixed Concrete."

C. Comply with the 2016 California Building Code with Amendments.

D. CCR- California Code of Regulations.

1.03 SUBMITTALS

A. Quality Control

Testing laboratory as required for the tests in this section shall be performed by the District's testing laboratory and shall submit the results of all tests in writing and in the required copies to the District.

The District will be responsible for all testing of the mixed concrete except that the Contractor shall be responsible for all expenses incurred by the District for testing and inspection of

concrete, which replaces concrete previously rejected. The Contractor shall coordinate and cooperate with the District in the District's testing and inspection program. The balance of testing as required in this Section shall be done at the Contractor's expense.

1. Mix Design:
   a. Submit mix designs proportioned in accordance with CBC Title 24, Part II, to the Architect for review by the District's testing laboratory. Designed mixes (Method B) and pretested mixed (Method C) shall be prepared under the supervision of a registered Civil Engineer and shall bear the stamp and signature of that Engineer.
   b. Submit the name and source of each type of aggregate and Portland cement to be used. The District's testing laboratory will select representative samples of each type of Portland cement and aggregate in accordance with procedures herein specified and test in accordance with the procedures herein specified.
   c. No concrete shall be allowed to be poured until the mix designs and test reports have been submitted and review by the Architect.
   d. No substitution shall be allowed in the materials used on the job without additional test reports as specified herein, showing that the quality of the concrete is satisfactory.

2. Aggregate:

   Test aggregate before and after the concrete mix is established and whenever the character or pit source of material is changed, but not less than one test in each 100 cubic yards. Test shall include a sieve analysis to determine conformity with limits of gradation. Perform sampling and testing in accordance with the requirements of ASTM Standard Methods as follows:
   a. Sampling: Sample aggregate in accordance with ASTM D75. Take samples of aggregate at the source of supply, or in the event the source of supply has been approved, from storage bunkers at the ready mix concrete plant.
   b. Sieve Analysis: ASTM C136
   c. Organic Impurities: ASTM C40. Fine aggregate shall develop a color not darker than the reference standard colors.
   d. Soundness: ASTM C88. The loss resulting therefrom after 5 cycles, shall not exceed 8% for course aggregate of 10% for fine aggregate.
   e. Abrasion or Concrete Aggregate: ASTM C131. The loss shall not exceed 10-1/2% after 100 revolutions or 42% after 500 revolutions.
   f. Reactive Materials: ASTM C289.

3. Concrete:
   The District's testing laboratory shall sample and test as follows:
   a. Compression Tests: Make 3 standard test cylinders from each day's placing and each 50 cubic yards, or fraction thereof, of each class of concrete, nor less than 2000 square feet of surface area for slabs. Date cylinders, number and note, indicating the point from which the sample was taken. Indicate the slump test and percent air result of sample. Do not make more than 3 cylinders from any one point or batch of concrete.
   b. Test Cylinders: Make test cylinders at the job, in accordance with ASTM C31. At the end of 24 hours after making, store the cylinders under moist curing conditions, at approximately 70 degree fahrenheit until tested. Test specimens in accordance with ASTM C39 at the age of 7 and 28 days.
   c. Slump: Tests shall be in accordance with ASTM C143 and performed at the same time as the strength test cylinders are made. Slump tests shall also be made at any time the appearance of concrete indicates a change in consistency.
   d. Shrinkage: Tests shall be performed in accordance with ASTM C157.
   e. Entrained Air Tests: Freshly mixed concrete shall be tested for air content in accordance with ASTM C231 and reported with compression test reports.

f. Below Strength Concrete: Should the strength of the concrete, as indicated by the tests, fall below the required minimum, then additional tests on concrete, which the unsatisfactory samples represented, may be required.

g. Cost of core tests for repair, removal, and replacement of defective concrete shall be borne by the Contractor and deducted by the District from the Contract Sum by Change Order.

4. Transit Mixed Concrete

The manufacturer of the transit mixed concrete shall deliver a certificate with each mix stating the quantity of cement, water, fine aggregate and coarse aggregate and mixture contained in the load. Delivery tickets shall show departure time from plants.

5. Records

Keep a record and make available for the Inspection and Architect at the site, showing the date and time of placing of concrete in each portion of the structure.

PART 2 --PRODUCTS

2.01 MATERIALS

A. Portland Cement

Complying with CBC Title 24, Part II, ASTM C150, Type I or II, low alkali. The brand and type of cement shall not be changed during the progress of the job unless approved in writing by the Architect.

B. Standard Weight Aggregates

Complying with CBC Title 24, Part II, ASTM C33 from approved pits. The maximum size used in a particular location shall be consistent with the form and locations and spacing of the reinforcing steel and with the method of vibration. The aggregate sized shall be such as will produce dense, uniform concrete, free of rock pockets, honeycombs or other irregularities.

C. Water

Clean and free of deleterious amounts of acid, alkalis, salt, oils or organic substances.

D. Admixtures

Except as otherwise specified, admixtures, if used, shall comply with CBC Title 24, Part II, be supplied by one manufacturer and batched in strict accordance with manufacturer's recommendations throughout project. Admixture brands are subject to prior written acceptance of the Architect. All concrete shall contain an air entraining admixture conforming to ASTM C260.

2.02 CONCRETE CLASSES

A. All concrete shall be regular weight concrete weighing approximately 145 pounds per cubic foot. Contract shall be solely responsible for the design of concrete mixes to meet all the requirements of the Specifications. All concrete shall have at least 5 sacks of cement per cubic yard for all concrete.

B. Concrete classes:

The following classes and strength of concrete are denoted for the following uses:

Class	Part of Structure	Strength at 28 days	Maximum Aggregate
I	Slab on Grade	3000 psi	¾
II	Footings	3000 psi	¾"

C. Slump limits for all classes:
Minimum 2", maximum 4" as per ASTM C143.

D. Air entrainment limits for class II
Minimum 3.5%, maximum 4.5%.

E. Aggregate shrinkage limits for Class I concrete:
As per ASTM C157, 4" x 11" specimens, 7 days moist cure, minimum gauge length 10"; shrinkage limits: At 14 days 0.00025, at 28 days 0.00035.

F. Admixtures:
Admixtures shall be of the strength recommended by the manufacturer, but shall not cause retardation greater than 90 minutes.

2.03 MISCELLANEOUS

A. Expansion Joint Fillers:
ASTM D1751, asphaltic compound strips, 1/4" thick unless otherwise noted, pre-cut to proper size.

B. Curing Materials:
ASTM C171 Moisture Retaining Cover; ASTM C309 Liquid Membrane. Material shall not contain hydrocarbon substances.

C. Vapor Barriers:
Vapor barrier below concrete shall be 10 mil, minimum, polyethylene sheeting, in sheets as wide as possible to minimize joints.

D. Sand for Cushion:
Clean and free of organic matter or deleterious material.

E. Joint Sealant:
"Sonolastic Sealant Two-part" as manufactured by Sonneborn Contech, Building Products Division, or approved equal. Bond breaker tape to be as recommended by sealant manufacturer.

F. Backer Rod:
"Sonofoam Backer-Rod" as manufactured by Sonneborn- Contech, Building Products Division, Contech, Inc., or approved equal.

2.04 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper installation of the cast-in-place concrete shall be as selected by the Contractor subject to the acceptance of the Architect.

PART 3 - EXECUTION

3.01 GENERAL

A. Preparatory Provisions

Prior to placement of concrete the Contractor shall be responsible for the examination and acceptance of all conditions affecting the proper installation of his work and shall not proceed until all unsatisfactory conditions have been corrected including the following.
1. Approval of compaction tests of fill and backfill as required in Earthwork Section.
2. Completion of the placement of drainage fills as required in Earthwork Section.

3. Completion and approval by the Architect of formwork as required in Concrete Formwork Section.
4. Placement and approval by the Architect and inspection by the District's testing laboratory of reinforcement as required in Concrete reinforcement.
5. Notify the Architect at least 48 hours before placing concrete.

3.02 SURFACE CONDITIONS

A. Inspection:
1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Discrepancies:
1. In the event of discrepancy, immediately notify the Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.03 PREPARATION

A. General:
1. Remove all mud, water, wood scraps, and debris from the areas in which concrete will be placed.
2. Thoroughly clean the areas to ensure proper placement and bonding of concrete.
3. Prepare forms as specified prior to concrete placement.
4. Thoroughly clean all transporting and handling equipment.

3.04 MIXING

A. Concrete shall be ready mixed (Method B) as per ASTM C94 and CBC Title 24, Part II. All equipment shall be adequate for the purpose and kept in good mechanical condition at all times.

B. The rate of delivery, haul time, mixing time and hopper capacity shall be such that all mixed concrete delivered shall be placed in the forms within 90 minutes or 300 revolutions of the drum from the time of introduction of cement and water to the mixer. Any interruption in placing in excess of 90 minutes or 300 revolutions will be cause for shutdown of the work for the day and the wasting of any remaining mixed concrete in hoppers or mixers. In case such interruption occurs, provide construction joints where and as directed and cut concrete back to such lines, cleaning forms and reinforcing as herein specified.

C. No water shall be added to the mix after the initial introduction of mixing water for the batch except when, on arrival at the job site, the slump of the concrete is less than that specified.

D. Mixers shall be equipped with an automatic device for recording number of revolutions of drum or blades prior to completion of mixing operation.

E. All concrete shall be kept continuously agitated until discharge into the hopper at the job site.

3.05 TRANSIT-MIX DELIVERY SLIPS

A. Keep a record at the job site showing time and place of each pour of concrete, together with transit-mix delivery slip certifying contents of the pour. Delivery tickets shall show departure time from plants.

B. Make the records available to the Inspector and Architect for his inspection upon request.

C. Upon completion of this portion of the work, deliver the record and the delivery slips to the Architect.

3.06 PLACING

A. Place concrete in accordance with the requirements of CBC Title 24, Part II.

B. All absorbent forms shall be thoroughly wetted down before concrete is placed. Subgrade for slabs on grade shall be moist but not saturated when concrete is placed.

C. Placing of concrete shall be done immediately after mixing. No concrete shall be placed or used after it has begun to set and no re-tempering will be allowed. The method used in placing shall be such that concrete is conveyed to place and deposited without separation of the ingredients.

No concrete shall be placed with a free unconfined fall in excess of five (5) feet nor shall it be as to promote segregation. Do not support runways on reinforcing steel.

D. Splash or accumulations of hardened or partially hardened concrete shall be removed as directed. Concrete containing piping shall be placed in a manner that will prevent damage to pipes.

E. Deposit concrete in approximate horizontal layers not exceeding 18" thickness, unless otherwise authorized. Placing of concrete shall be carried on in a continuous operation without interruption until placing, of course, section, panel or monolith is completed.

F. Distribution of concrete shall be even and continuous and no pour joints shall show. Before a pour is started, make certain that adequate equipment, men and concrete will be available to pour in cycles which will permit proper and thorough integration of each layer of concrete.

G. No concrete shall be placed for any element until all reinforcing for it is fastened in place nor until forms are complete. No concrete shall be placed before all work that is to be embedded has been set. Notify other crafts so they may deliver anchors, inserts, etc., or other work to be embedded in ample time and also notify them when their assistance in setting is required. Reinforcing or other materials that have been set shall not be disturbed.

H. No pipes or conduits shall be embedded in structural concrete unless specifically approved by the Architect prior to embedment. Before placing concrete all pipes and large conduits that pass thru a wall or slab shall be sleeved providing 1/4" clearance (minimum) all around. Sleeves shall be positioned so as not to impair strength of surrounding elements. Sleeves and inserts will be provided and set under other sections of the work.

I. Verify depths of depressed slab conditions for suitability with type and method of surfacing to be applied over concrete.

J. Install various inserts, anchorage's, etc. required by public and private utility companies to accommodate miscellaneous metal items and equipment furnished by them.

K. Concrete and/or grout shall be removed from all surfaces that will receive painter's finish.

L. Place no concrete in water.

3.07 VIBRATION AND COMPACTION

A. All concrete shall be thoroughly compacted by means of internal mechanical vibrators. Such compaction shall be produced as will be obtained by placing the vibrator directly in concrete at 18" - 30" intervals for a period of approximately 5 to 15 seconds and withdrawing slowly or as directed, depending on the consistency of concrete. One vibrator will be required for each location where simultaneous pouring takes place, to ensure thorough vibrating of all sections at time of pour. Provide sufficient spare vibrators on the job so as to have them readily available in case of any vibrator in use should suddenly cease to function properly. Under no condition shall vibrator be placed against reinforcing steel or attached to forms. Use no vibrators to transport materials.

B. Vibrator shall be of flexible immersion type having a frequency of not less than 7,000 rpm.

3.08 CONSTRUCTION JOINTS

A. Placement of construction joints in accordance with CBC Title 24, Part II and the manner in which they are provided for shall be only as approved by the Architect or as shown on the drawings. Construction joints shall be as few as possible and will not be permitted simply to save forms. Obtain final review of shop drawings prior to forming or placing concrete.

B. All construction joints including keys shall be cleaned and roughened by removing entire surface and exposing clean aggregate solidly embedded by means of sandblasting or other approved methods in accordance with CBC Title 24, Part II. Forms and reinforcing shall be cleaned of drippings, debris, etc. Just before starting of new pour, horizontal concrete surfaces shall be cleaned, dampened without leaving standing water and covered with 1/2" - 1" thickness of grout composed of cement and fine aggregate. Before grout is set, place the first lift of concrete 6" to 12" thick and consolidate with grout so that no variation in texture will occur in unpainted concrete surfaces. Proportions will be determined by the testing agency.

3.09 CURING FORMED CONCRETE

A. Keep all formed concrete surfaces continuously wet and maintained above 50 degrees F, both in forms and after removal of forms for at least seven (7) days after placing. If forms are permitted to be removed prior to expiration of curing period, exposed concrete surfaces shall be kept continuously wet by means of fog sprays or non-staining cotton or burlap mats kept moist. Plastic sheathing is not permitted.

B. Contractor's Option: Alternately, a liquid membrane chemical curing compound may be used. Apply per manufacturer's instructions to meet moisture retention requirements of ASTM C309.

3.10 EXPANSION AND SCORE JOINTS

A. Expansion Joint and Edging:

1. Expansion joints shall be formed provided at the location and intervals as shown on the plans, and at all locations where concrete paving abuts buildings, curbs, or other structures.
2. Joint materials shall be placed with tip edge 1/2" below the paved surface, and shall be securely held in place to prevent movement. Joint and other edges shall be formed in the fresh concrete using an edging tool to provide a smooth uniform impression. All edges shall be struck before and after brooming.
3. After the curing period, expansion joints shall be carefully cleaned and filled with joint compound to 1/4" below adjacent surface in such a manner as to avoid spoiling on the surfaces or overflow from joint.

B. Score Joints:

Score joints shall be formed in the fresh concrete using a jointer to cut the groove so that a smooth uniform impression is obtained. All joints shall be struck before and after brooming.

3.11 MEMBRANE AND SAND CUSHION

A. Membrane:

1. Place completely over capillary break material subgrade. Lap joints 6 inches, minimum and continuously tape.
2. Fit tightly to penetrations and continuously tape or glue per manufacturer's recommendations.

B. Sand Cushion:

Place a 2" sand cushion on top of membrane immediately after placing membrane.

3.12 HOT AND COLD WEATHER REQUIREMENTS

A. Cold Weather Placing:

Mix and place concrete per ACI 604 "Recommended Practice for Winter Concreting Methods", except use of calcium chloride not permitted. Remove and replace or repair as directed, work showing damage or defects through frost action or inadequate precautions for cold weather placing. Do not place concrete on frozen ground, nor mix or place while atmospheric temperature is below 35 degree Fahrenheit unless adequate and approved means are employed to heat aggregates and water, and protect work.

B. Hot Weather Placing:

Place concrete at lowest practicable temperature. When hot weather conditions would seriously impair quality and strength of concrete, place concrete per ACI 605 "Recommended Practice for Hot Weather Concreting", except as otherwise indicated.

C. Temperature of Concrete:

50 degrees Fahrenheit minimum, 90 degrees Fahrenheit maximum when delivered to forms. Mixing water may be chilled, or chopped ice used to control temperature provided water equivalent of ice is calculated as part of mixing water. Concrete with temperature exceeding 90 degrees Fahrenheit at time of placement will be rejected and shall be removed from the job.

D. Cooling Reinforcing:

Just before placing concrete, the Inspector will test temperature of reinforcing exposed to sun. If bars are too hot, cover with water soaked burlap, or spray or exceed ambient air temperature immediately before embedment in concrete.

3.13 LEVELING AND FINISHING

A. General

1. Tamp slabs with a jitterbug to depress the rock and then pushfloat with a bullfloat as necessary.
2. Take care that the wet slab meets the screeds accurately and does not rise above or lower below them.
3. Carefully provide slab depressions as required for the finishes indicated on the drawings.

B. Finishes

1. Floors:

All floor slabs shall have a monolithic finish. Screed concrete to accurate level grades and tamp with approved metal grid tamper to bring fines to top. Delay troweling until water sheen has disappeared. No dusting will be permitted. Finished floors shall contact a 10" straight edge between changes in slope with a plus or minus tolerance of not to exceed 1/8". Cement floors shall be sloped to floor drains as indicated. Finished surfaces shall be as follows:

a. Exposed concrete floors, concrete floors to receive resilient flooring and carpet and concrete stair landings shall be screeded to an even,level plan, floated and steel troweled to a smooth hard finish. Surface shall be free from depressions, trowel marks, scale and foreign deposits.
b. Slabs to receive wet bed tile, shall be depressed as indicated and wood floated to an even level surface with all irregularities removed.
c. Slabs to receive adhesive set ceramic tile shall be steel troweled to a smooth, level and true surface. Top of cement floor finish shall have no areas in excess of 1/17" above or below the required plane in a span of 3'. Abrupt irregularities such as trowel marks, ridges and grains shall be less than 1/32" above the adjacent area.
d. All exterior slabs shall be screeded, floated and steel troweled smooth and given a medium broom finish at slopes up to 6% and heavy broom finish at slopes exceeding 6%.

2. Formed Surfaces

Patch holes and defects and rub down fins using wood blocks. Otherwise, surfaces shall be left with the texture imparted by the forms.

3.14 CONCRETE SURFACE REPAIRS

A. Patching Defective Surfaces:

1. Repair and patch defective areas with cement mortar immediately after removal of forms.
2. Cut out honeycomb, rock pockets, voids over 0.6 cm (1/4") in any dimension, down to solid concrete, but, in no case, to a depth of less than 2.5 cm (1"). Make edges of cuts perpendicular to the concrete surface. Before placing the cement mortar, thoroughly clean, dampen with water, and brush coat the area to be patched with neat cement grout.
3. Repair exposed-to-view formed concrete surfaces that contain defects that adversely affect the appearance of the finish. Remove and replace the concrete having defective surfaces if the defects cannot be repaired to the satisfaction of the Architect. Surfaces defects, as such, include texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with cement mortar.
4. Repair concealed formed concrete surfaces that contain defects that adversely affect the durability of the concrete. If defects cannot be repaired, remove and replace the concrete having defective surfaces. Surface defects, as such, include cracks in excess of 0.025 cm (0.01") wide, cracks of any width and other surface deficiencies that penetrate to the reinforcement or honeycomb, rock pockets, and spalls.

B. Repair of Unformed Surfaces:

1. Test unformed surfaces, such as monolithic slabs, for smoothness and to verify surface plane to the tolerances specified for each surface and finish. Correct low and high areas as herein specified.
2. Repair finished unformed surfaces that contain defects that adversely affect the durability of the concrete. Surface defects, as such, include crazing, cracks in excess of 0.025cm (0.01") wide or that penetrate to the reinforcement or completely thru the non reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
3. Correct high areas in uniformed surfaces by grinding, after the concrete has cured sufficiently so that repairs can be made without damage to adjacent areas.
4. Correct low areas in unformed surfaces during or immediately after, completion of surface finishing operations by cutting out the low area and replacing with fresh concrete.

-END OF SECTION-

SECTION 03 35 00
POLISHED CONCRETE FINISHING

PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Polished concrete.
- B. Dyed and polished concrete.

1.2 RELATED SECTIONS
- A. Division 03 - Cast-in-Place Concrete.
- B. Division 07 - Joint Fillers.

1.3 REFERENCES
- A. American Concrete Institute (ACI): ACI 301 – Specification for Structural Concrete for Buildings; ACI 302.1R - Guide for Concrete Floor and Slab Construction; ACI 303.1 – Standard Specification for Cast-in-place Architectural Concrete; ACI 304 – Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete; ACI 305R – Recommended Practice for Hot Weather Concreting; ACI 306R – Recommended Practice for Cold Weather Concreting.
- B. American National Standards Institute (ANSI): Standards B-101.1/2009.
- C. ASTM International (ASTM):
  1. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete.
  2. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
  3. ASTM C 494 – Standard Specification for Chemical Admixtures for Concrete.
  4. ASTM C 779 - Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
  5. ASTM C979 – Standard Specification for Pigments for Integrally Colored Concrete.
- D. Reunion Internationale des Laboratoires D'Essais et de Recherches sur les Materiaux et les Constructions (RILEM): Rilem Test Method 11.4 - Standard Measurement of Reduction of Moisture Penetration through Horizontal Concrete Surfaces.
- E. National Floor Safety Institute (NFSI): NFSI Test Method 101-A - Standard for Evaluating High-Traction Flooring Materials.

1.4 SYSTEM DESCRIPTION
- A. Performance Requirements: Provide polished flooring that has been designed, manufactured and installed to achieve the following:
  1. Abrasion Resistance: ASTM C779, Method A, high resistance, no more than 0.008 inch (0.20 mm) wear in 30 minutes.
  2. Reflectivity: Increase of 35% as determined by standard gloss meter.
  3. Waterproof Properties: Rilem Test Method 11.4, 70% or greater reduction in absorption.
  4. High Traction Rating: NFSI 101-A, ANSI B-101.1 2009 non-slip properties.
- B. Design Requirements:
  1. Hardened Concrete Properties:
     a. Minimum Concrete Compressive Strength: 3500 psi (24 MPa).
     b. Normal Weight Concrete: No lightweight aggregate.
     c. Non-air entrained.
  2. Placement Properties:
     a. Natural concrete slump of 4-1/2 inches to 5 inches (114 to 127 mm). Admixtures may be used.
     b. Flatness Requirements:
        1) Overall FF 50.

2) Local FF 40.

3. Hard-Steel Troweled (3 passes) Concrete: No burnishing marks. Finish to ACI 302.1R, Class 5 floor.
   a. Class 6 floors, special colored mineral aggregate hardener with repeated hard steel trowel finish.
4. Curing Options:
   a. Membrane forming curing compounds (ASTM C309, Type 1, Class B, all resin, dissipating cure). 1) Acrylic curing and sealing compounds not recommended.
   b. Sheet membrane (ASTM C171); polyethylene film not recommended.
   c. Damp Curing: Seven day cure.

1.5 SUBMITTALS

A. Submit under provisions of Division 01 - Submittals - Administrative Requirements.
B. Shop Drawings: Indicate information on shop drawings as follows:
   1. Typical layout including dimensions and floor grinding schedule.
   2. Plan view of floor and joint pattern layout.
   3. Areas to receive colored surface treatment.
   4. Hardener, sealer, densifier identified in notes.
C. Product Data: Submit product data, including manufacturer's SPEC-DATA product sheet, for specified products.
   1. Material Safety Data Sheets (MSDS).
   2. Preparation and concrete grinding procedures.
   3. Colored Concrete Surface, Dye Selection Guides.
   4. Product Data for each grinding machine, including all types of grinding heads, dust extraction system, joint filler, concrete densifying impregnator, penetrating sealer, and any other chemicals used in the process.
D. Quality Assurance Submittals:
   1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties as cited in Performance Requirements.
   2. Certificates:
      a. Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
      b. Letter of certification from the National Floor Safety Institute confirming the system has been tested and passed phase Two Level of certification when tested by Method 101-A. ANSI B-101.1 2009 non-slip properties.
      c. Current contractor's certificate signed by manufacturer declaring Contractor as an approved installer of polishing system.
   3. Manufacturer's Instructions: Manufacturer's installation instructions.
E. Warranty: Submit warranty documents specified.
F. Operation and Maintenance Data: Submit operation and maintenance data for installed products.
   1. Manufacturer's instructions on maintenance renewal of applied treatments.
   2. Protocols and product specifications for joint filing, crack repair and/or surface repair.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Installer with a minimum of 5 years' experience in performing work of this section who has specialized in installation of work similar to that required for this project.
   2. Installer trained and holding a current certificate as certified installer for the submitted products.
   3. Current Certification from the CPAA (Concrete Polishing Association of America) stating that the technicians are trained craftsmen.
B. Concrete finishing components and materials shall be from single manufacturer.
C. Manufacturer Qualifications:
   1. Manufacturer capable of providing field service representation during construction and approving application method.

2. Manufacturer shall have a minimum 5 years of experience in manufacturing components similar to or exceeding requirements of project.

D. Regulatory Requirements: Comply with NFSI Test Method 101-A Phase Two Level High Traction Material.

E. Mock-Ups:
1. Mock-Up Size: 5'x5' sample panel at jobsite at location as directed under conditions similar to those which will exist during actual placement.
2. Mock-up will be used to judge workmanship, concrete substrate preparation, operation of equipment, material application, color selection and shine.
3. Allow 24 hours for inspection of mock-up before proceeding with work.
4. When accepted, mock-up will demonstrate minimum standard of quality required for this work.
   a. Approved mock-up may remain as part of finished work.
5. Mock-Up will demonstrate required level of cut:
   ~~a. Level 1 - Cream Finish: Polishing only the Portland Cement paste at the surface without exposing small, medium or large aggregate. Note: If dye will be used, this is not an acceptable level of grinding. Go to Level 2.~~
   ~~b. Level 2 - Salt/Pepper Finish: Expose the fine aggregate such as sand and small aggregate with the concrete. The depth of grind will depend greatly on the placement and finishing procedures. Generally, this level of cut can be achieved within 1/16" of the surface.~~
   c. Level 3 - Medium Aggregate: Exposing more of the overall girth of the coarse aggregate within the concrete. Generally, this level of cut can be achieved within 1/8" of the surface.
   ~~d. Level 4 - Large Aggregate: Exposing the overall girth of the coarse aggregate within the concrete. This level of cut generally can be achieved within 1/4" of the surface.~~
   ~~e. Gloss Level 1: Flat/Matte as determined by gloss reading of 10 or below – typically created using below 100 grit resin bond, minimum 4 passes~~
   ~~f. Gloss Level 2: Satin as determined by a gloss reading of 40 - 50. – typically created using 100 to 400 grit resin bond, minimum 5 passes~~
   g. Gloss Level 3: Semi-Polished as determined by a gloss reading of 50-60 - typically created using 800 grit or higher diamond abrasive, minimum 6 passes.
   ~~h. Gloss Level 4: Highly-Polished as determined by a gloss reading of 60-80 – typically created using 1,500 to 3,000 resin-bond diamond or by burnishing with specialty buffing pads, minimum 7 passes.~~

F. Pre-installation Meetings: Conduct a pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Review the following:
1. Environmental requirements.
2. Scheduling and phasing of work.
3. Coordinating with other work and personnel. Remind all trades that they are working on a surface that is to become a finished surface.
4. Protection of adjacent surfaces.
5. Surface preparation.
6. Repair of defects and defective work prior to installation.
7. Cleaning.
8. Installation of polished floor finishes.
9. Application of liquid hardener, densifier.
10. Protection of finished surfaces after installation.
11. placing of materials on the concrete surface that may cause staining, etching or scratching
12. N/A

1.7 DELIVERY, STORAGE AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
B. Delivery: Deliver materials in manufacturer's original packaging with identification labels and seals intact.
C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1.8 PROJECT CONDITIONS
A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
B. Protect Concrete Slab:
1. Protect from petroleum stains during construction.
2. Diaper hydraulic power equipment.
3. Restrict vehicular parking.
4. Restrict use of pipe cutting machinery.
5. Restrict placement of reinforcing steel on slab.
6. Restrict use of acids or acidic detergents on slab.
C. Waste Management and Disposal:
1. Separate waste materials for Reuse and Recycling in accordance with Section 01 74 19 - Construction Waste Management and Disposal.
2. Remove from site and dispose of packaging materials at appropriate recycling facilities.

1.9 PROJECT AMBIENT CONDITIONS
A. Installation Location: Comply with manufacturer's written recommendations.

1.10 SEQUENCING
A. Sequence with Other Work: Comply with manufacturer's written recommendations for sequencing construction operations.

1.11 WARRANTY
A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under Contract Documents.

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Acceptable Manufacturer: L&M Construction Chemicals, which is located at: 1 LATICRETE Park N.; Bethany, CT 06524-3423; Toll Free Tel: 800-362-3331; Tel: 402-453-6600; Web:www.laticrete.com/lmcc
B. L.M. Scofield Company, Douglasville, Georgia and Los Angeles, CA.
C. Approved Equal.
D. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 POLISHED CONCRETE
A. Products/Systems (***Basis of Design – Scofield product or equal also acceptable)***:
1. Hardener, Sealer, Densifier: Proprietary, water based, odorless liquid, VOC compliant, environmentally safe chemical hardening solution leaving no surface film.
a. Acceptable Material: L & M Construction Chemicals, Inc., FGS Hardener Plus. Basis of design.
b. Acceptable Material: L&M Construction Chemicals, Inc., Lion Hard may be substituted when conditions exist where disposing of rinse water is in conflict with local building codes.

2. Joint Filler: Semi-rigid, 2-component, self-leveling, 100% solids, rapid curing, polyurea control joint and crack filler with Shore A 80 or higher hardness.
   a. Acceptable Material: L & M Construction Chemicals, Inc., Joint Tite 750.
   b. Color match joint filler to adjacent finish/color. Provide field sample for approval. Note that multiple colors may be required to as the finish color of the concrete may vary by location and area of each crack. Provide all matching of multiple colors at no additional cost to the District.
3. Oil Repellent Sealer: Ready to use, silane, siloxane and fluoropolymers blended water based solution sealer, quick drying, low-odor, oil and water repellent, VOC compliant and compatible with chemically hardened floors.
   a. Acceptable Material: L & M Construction Chemicals, Inc., Petrotex.
4. Concrete Dyes: Fast-drying dye, packaged in premeasured units ready for mixing with water or VOC exempt solvent; formulated for application to polished cementitious surfaces.
   a. Acceptable Material: L & M Construction Chemicals, Inc., Vivid Concrete Dyes or Vivid Dye WB Plus.
   b. Color: TO BE DETERMINED.
5. Cleaning Solution: Proprietary, mild, highly concentrated liquid concrete cleaner and conditioner containing wetting and emulsifying agents; biodegradable, environmentally safe and certified High Traction by National Floor Safety Institute (NFSI).
   a. Acceptable Material: L & M Construction Chemicals, Inc., FGS Concrete Conditioner.
6. Stain Guard Sealer: Ready to use, is a low odor, VOC compliant, topical sealer consisting of low molecular emulsified cross-linking, coupling polymers that effectively protect concrete and other natural stone floor surfaces from the damaging effects of staining, defacing and deterioration due to contaminant penetration.
   a. Acceptable Material: L& M Construction Chemicals, Inc. Permaguard SPS.
~~7. Finish: Flat/Matte, 100 grit~~
8. Finish: Medium gloss (MG-2), 800 grit.
~~9. Finish: Standard High gloss (HG-1), 1500 grit.~~
~~10. Finish: Very high gloss (VGH-3), 3000 grit.~~

PART 3 EXECUTION

3.1 EXAMINATION
- A. Site Verification of Conditions:
  1. Verify that concrete substrate conditions, which have been previously installed under other sections or contracts, are acceptable for product installation in accordance with manufacturer's instructions prior to installation of concrete finishing materials.
- B. Do not begin installation until substrates have been properly prepared.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- D. Verify Concrete Slab Performance Requirements:
  1. Verify concrete is cured to 28 day duration and 3500 psi (24 MPa) strength.
  2. Verify concrete surfaces have received a hard steel-trowel finish (3 passes) during placement.
  3. Verify overall floor flatness is a minimum of Ff 40.

3.2 PREPARATION
- A. Ensure surfaces are clean and free of dirt and other foreign matter harmful to performance of concrete finishing materials.
- B. Examine surface to determine soundness of concrete for polishing.
- C. N/A

3.3 INSTALLATION
- A. Compliance: Comply with manufacturer's written data, including product technical bulletins,

product catalog installation instructions, product carton installation instructions.

B. Floor Surface Polishing and Treatment:
   1. Provide polished concrete floor treatment in entirety of slab indicated by drawings. Provide consistent finish in all contiguous areas.
   2. Apply floor finish prior to installation of fixtures and accessories.
   3. Diamond polish concrete floor surfaces with power disc machine recommended by floor finish manufacturer. Sequence with coarse to fine grit. Installer to determine the optimum starting grit in order to achieve the specified aggregate exposure.
      a. Comply with manufacturer's recommended polishing grits for each sequence to achieve desired finish level. Following the initial passes of metal bond diamonds, the installer shall drop back a minimum of one grit level when transitioning to resin bond diamonds. The separation in grit designation shall be a minimum of 50 for the transitioning step. The installer shall refine each abrasive grit to its fullest potential before moving on to the next level. Floor shall be thoroughly scrubbed between each grit pass to remove all loose material. Level of sheen shall match that of approved mock-up.
      b. Expose aggregate in concrete surface only as determined by approved mock-up.
      c. All concrete surfaces shall be as uniform in appearance as possible.
      d. Polishing sequence to be per manufacturer’s recommendations. For general understanding of process, a typical installation is similar to this:
         1) Grind the concrete floor to within 2 – 3 inches of walls with 16, 25, 40, 60, 80 and/or 150 grit removing construction debris, floor slab imperfections and until there is a uniform scratch pattern and desired concrete aggregate exposure
         2) Apply material approved by architect for color effects in accordance with the architectural drawings and the manufacturer’s recommended guidelines.
         3) Fill construction joints and cracks with filler products as specified in accordance with manufacturer’s instructions colored to match (or contrast) with concrete color as specified by architect
         4) Apply densifying impregnator per manufacturer’s recommendations using a stiff, long bristled broom or as recommended. Cover the entire area liberally. Using a spreader tool (broom), work the densifier into the substrate for 30 minutes or as recommended. During this 30-minute period, continually keep the substrate wet with densifier. Squeegee excess material off the floor. Allow 12 to 24 hours for full cure per manufacturer’s recommendations.
         5) Grind the floor to within 2 – 3 inches of walls with metal bonded diamond grits of 150 and 300—grinding 90 degrees from each previous grind and removing all the scratches from the previous grit. Vacuum the floor thoroughly after each grind using a squeegee vacuum attachment.
         6) Grind the edges with 40, 60, 120 and 220 grit grinding pads removing all of the scratches from the previous grit. Vacuum the floor thoroughly after each grind using a squeegee vacuum attachment.
         7) Polish the floor, to desired sheen level, with phenolic resin bonded diamond grits of 100, 400, 800, 1500 and 3000—first polishing the edges with pads of the same grit and then the field of the floor removing all scratches from the previous grit. After each polish, clean the floor thoroughly using clean water and an auto scrubber or a mop and a wet vacuum.
         8) After the floor has dried, apply densifier at a rate of per manufacturer’s recommendations. Using a broom, work the material into the floor for the time recommended by the manufacturer (minimum of 10 minutes typically – verify). Tight squeegee the remaining material from the floor without leaving squeegee marks or puddles. Allow to cure per

manufacturer's recommendations (12 – 24 hours typically)

9) Using a manufacturer's specified machine and pad (typically a high speed (2000 – 3000 rpm) burnishing machine and hogs hair burnishing pad), buff the surface to a high shine as specified.

4. Dyed and Polished Concrete:
   a. Locate demarcation line between dyed surfaces and other finishes.
   b. Polish concrete to the 400 grit level, (200 grit for water based dyes).
   c. Apply pre-mixed dyes to polished concrete surface.
   d. Allow dye to dry.
   e. Remove residue with water and buffer pad; reapply as necessary for desired result.
5. Hardener and Densifier Application:
   a. First coat of FGS Hardener Plus at 250 ft2/gal (6.25 m2/L), following the 400 grit level. (Lion Hard at 400-600 sq ft / gallon).
   b. Second coat of FGS Hardener Plus at 350 ft2/gal (8.75 m2/L), prior to the final polishing pass (Lion Hard at 600-800 sq ft / gallon).
   c. Follow manufacturer's recommendations for drying time between successive coats.
6. Remove defects and re-polish defective areas.
7. Finish edges of floor finish adjoining other materials in a clean and sharp manner.

3.4 ADJUSTMENTS
- A. Re-polish those areas not meeting specified gloss levels per mock-up.
- B. Fill joints flush to surface prior to the start of polishing operations.

3.5 FINAL CLEANING
- A. Upon completion, remove surplus and excess materials, rubbish, tools and equipment.

3.6 PROTECTION
- A. Protect installed product from damage during construction in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 05 52 00
HANDRAILS AND RAILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Steel tubing handrails.
- B. Steel tubing balusters and posts.
- C. Brackets and fittings.

1.2 REFERENCES
- A. CAS/CAR – California Accessibility Statutes/California Accessibility Regulations, Books 1 and 2, Most Current Addition CBC. - 2016
- B. ASTM A53 – Pipe, Steel, Black and Hot-Dipped, Zinc Coated Welded and Seamless Steel Pipe.
- C. ASTM A153 – Zinc coating (Hot-Dip) on iron and steel hardware.
- D. ASTM C1107 – Packaged Dry, Hydraulic – Cement Grout (Non-Shrink).
- E. ASTM A123 – Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- F. AWS D1.1 – Structural Welding Code.
- G. Chapter 10 – California Building Code
- H. ASTM A780-most current – Repair of Damage and Uncoated Areas of Hot-Dip Galvanized Coatings
- I. CBC Chapter 11B-505

1.3 DESIGN REQUIREMENTS
- A. Railing assembly, wall rails and attachments to resist a load of 250 lbs applied in any direction at any point on the rail, without damage or permanent set, in accordance with CAS/CAR.

1.4 SUBMITTALS FOR REVIEW
- A. Submit under provisions of Section 01 33 00.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners and accessories.
- C. Sample: Submit three samples of handrail and each component.

1.5 FIELD MEASUREMENTS
- A. Verify that field measurements are as indicated on shop drawings.

PART 2 PRODUCTS

2.1 STEEL RAILING SYSTEM
- A. Fasteners, Plates, Brackets, Flanges and Bases: Manufactured by Craneveyor Corp., South El Monte, CA., or equal.
- B. Handrails, Balusters, Posts: 1-1/4" nominal schedule 40 pipe (1.66" OD, 0.145 wall thickness), Grade B, standard weight pipe, welded joints, hot dipped galvanized, ASTM A500.
- C. Fittings: Elbows, T-shapes, wall brackets, escutcheons: Cast steel. Brackets: Round top to accept tube rail, size to allow minimum 1-1/2 inch clearance from rail to wall.
- D. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
- E. Galvanizing: Thickness of coating on tubing in accordance with ASTM A123. Fittings shall be galvanized in accordance with ASTM A153.
- F. Finish: Gloss Enameled; Refer to Section 09 91 00 for special coatings.
- G. Non-Shrink Grout: ASTM C1107, Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 5,000 psi in 24 hours and 8,000 psi in 7 days; 1107 Advantage Grout by Dayton

Superior, Miamisburg, OH. Sonogrout 10K by Sonneborn, Shakopee, MN. Super Por-Rok Anchoring Cement by Novex Systems International, Clifton NJ, or equal.

H. Touch-Up Primer for Galvanized Surfaces: Ready mixed Zinc rich galvanizing compound, DEVCON Z, by Devcon Corp., Danvers, MA, GALVICON by Southern Coatings, Sumter, SC, or equal.
I. Solder Zinc Alloy for Repair: Welco Gal-Viz self-fluxing solder alloy.

2.2 FABRICATION
A. Fabricate handrails of specified pipe or tubing only in conformance with CAS/CAR requirements and Chapter 11 CBC.
B. Fit and shop assemble components in largest practical sizes for delivery to site.
C. Fabricate components with joints tightly fitted and secured.
D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
F. Continuously seal joined pieces by continuous welds in accordance with AWS D1.1.
G. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush and hairline. Ease exposed edges to small uniform radius.
H. Accurately form components to each other and to building structure.
I. Hot-dip galvanize all fabricated assemblies in accordance with ASTM A123. Field welding of galvanized main components not permitted.
J. Galvanize steel items to a zinc coating thickness in accordance with ASTM A123. Surfaces shall be free of icicles, spangles, and puddling. Provide venting holes at all enclosed sections, “V” notch and drilled holes are acceptable. Locate to prevent rainwater from entering section at exterior galvanized items.
K. Vertical supports for handrails and railings shall be provided every 4’-0” maximum even if called out farther apart on drawings unless steel sizes are increased and specifically approved by Architect in writing.

PART 3EXECUTION

3.1 EXAMINATION
A. Verify that field conditions are acceptable and are ready to receive work.
B. Beginning of installation means erector accepts existing conditions.

3.2 PREPARATION
A. Clean and strip steel items to bare metal where site welding is required.

3.3 INSTALLATION
A. Set vertical supports in sleeves with the specified non-shrink grout.
B. Install components plumb and level, accurately fitted, free from distortion or defects.
C. Provide anchors, plates or angles required for connecting railings to structure. Anchor railing to structure.
D. Field weld anchors as indicated on shop drawings. Grind welds smooth.
E. Conceal bolts and screws. Where not concealed, use flush countersunk fastenings.
F. Touch up welds and chipped surfaces with specified galvanizing compound prior to painting, minimum thickness of 5 mils.
G. Repair of galvanized surfaces: No flux is required. Repair surfaces in conformance with ASTM A780-A1. Apply Gal-Viz while metal is still hot. Tin surface with Gal-Viz with wire brush. Do not direct flame on alloy. Minimum thickness 5 mils.

3.4 ERECTION TOLERANCES
A. Maximum Variation From Plumb: ¼ inch in 10 feet.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART I – GENERAL

1.01 DESCRIPTION

A. Work Included: Rough Carpentry includes, but is not necessarily limited to:
   1. All wood framing indicated on the drawings and otherwise required for a complete and operable facility.
   2. All blocking, backing, bracing, framing, sheathing and other rough carpentry work required by other work in this project.

B. Related Work Described Elsewhere:
   1. Finish Carpentry
   2. Moisture Protection
   3. Doors and Windows

1.02 QUALITY ASSURANCE

A. Governing Specifications:

Materials and installation of Rough Carpentry shall comply with pertinent provisions of the following:

1. Douglas Fir, Hemlock and Cedar:
   "Standard Grading and Dressing Rules for west coast lumber Number 16, Current edition, published by the West Coast Lumber Inspection Bureau.
2. Redwood: "Standard Specifications for Grade of California Redwood Lumber", Current Edition, published by Redwood Inspection Service
3. Plywood: Product Standard PS1-09 of the U.S. Department of Commerce Bureau of Standards. (or the most current standard in publication at the time the project is bid).
4. Pressure Treatment:
   Standards C1 and C2 of the American Wood Preservers Association (AWPA) latest edition.
5. Rough Hardware:
   "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings", of the American Institute of Steel Construction latest edition
6. Building Paper:
   Federal Specification UU-B-790a, Current Edition.
7. Wood: Standard P-5 if the American Wood Preservers Institute, latest edition.

B. Standards:
   1. All work shall conform to the current edition (2016) of the California Building Code (CBC), latest
      Edition with Amendments, California Code of Regulations (CCR), and the American Institute of Timber Construction requirements.

C. Conflicting Requirements:
   1. In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards or these Specifications, the provisions of the more stringent shall govern.

1.02 PRODUCT HANDLING

A. Protection:
   1. Use all means necessary to protect lumber materials before, during and after delivery to the job site, and to protect the installed work and materials of other trades.

2. Deliver the materials to the job site and store, all in a safe area, out of the way of traffic and stored off the ground surface to insure proper ventilation and drainage.

3. Store all grades separately from other grades.

4. Protect all metal products with adequate weatherproof outer wrappings.

5. Use extreme care in the off-loading of lumber to prevent damage, splitting and breaking of materials.

1.03 COORDINATION

Coordinate Rough Carpentry work with other Sections to insure that all blocking, backing, bracing, framing, sheathing and other Rough Carpentry work required by design or implication is installed where shown on the Drawings and where required.

PART II - PRODUCTS

2.01 IDENTIFICATION

A. Framing Lumber:
   1. Identify each piece with the grade stamp of the West Coast Lumber Inspection Bureau.
B. Plywood:
   1. Identify each sheet with the grade stamp of the American Plywood Association.
C. Redwood:
   1. Identify each piece with the grade stamp of the Redwood Inspection Service.
D. Other:
   1. Identify all other materials of this section by the appropriate stamp of the Agency listed in the reference standards, or by such other means as are acceptable in the advance by the Project Inspector.

2.02 LUMBER

A. General:
   1. Framing lumber 5” and larger in the least dimension shall not contain boxed heart.
   2. Beams shall not have splits or checks longer than the wide face dimension.
   3. Air or kiln-dry to a maximum moisture content of 19%.
   4. Finish shall be S4S, except that lumber may be S2E at unexposed framing.
   5. Redwood shall be all heart wood.
B. Schedule:
   1. Sills on Concrete or Masonry: No. 1 Grade Pressure Treated Douglas Fir.
   2. Structural Light: Douglas Fir, No. 1, 1000f Framing & Wall Studs: 2x6
   3. Structural Beams & Joist: Douglas Fir, No. 1, 1000f, 2” to 4” thick 4” and wider
   4. Beams & Headers: Douglas Fir, No. 1 1350f, 5” and thicker
   5. Posts: Douglas Fir, No. 1, 1200f, 1000c

2.03 PLYWOOD

A. Plywood Wall & Roof Sheathing: CDX 5-ply exterior glue Douglas Fir plywood, 15/32” thick unless otherwise noted on the drawings.

2.04 PRESSURE TREATMENT

A. Ammoniacal copper arsenite, conforming to AWPA Standard P-5 (Water-Borne Preservative): Chemonite, J.H. Baxter, or equal by McCormic & Baxter. Retention shall be 0.23 lb. per cu. ft. in accordance with AWPA Standards C1 and C2.

2.05 WOOD PRESERVATIVE (NON-PRESSURE)]

A. Copper naphthenate 10% solution or Cupralignum on exposed surfaces.

2.06 FASTENERS

A. Nails: Domestic Common (unless otherwise noted on drawings) Federal

Specification FF-N-1-1. Hot-dipped galvanized at ext. locations.

B. Machine Bolts: ASTM A307
C. Lag Bolts: Federal Specification FF-B-561.
D. Plain Washers: Round, carbon steel, Federal Specification FF-W-92.

2.07 METAL FRAMING DEVICES

A. Steel Hardware: ASTM A36. Hot-dipped galvanized at exterior locations. Welds per A.W.S. requirements.
B. Framing hangers: Simpson or K C Metals. Hot-Straps and Other at exterior locations.
C. Welds Connectors: per A.W.S. requirements.

2.08 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation as shown on Drawings, shall be new, suitable for the intended use and subject to the acceptance by the Architect.

PART III - EXECUTION

3.01 WORKMANSHIP

A. General:
    1. All rough carpentry shall produce joints true, tight and well nailed with all members assembled in accordance with the Drawings and with all pertinent codes and regulations. Framing shall be straight, true and plumb.
B. Selection of Lumber Pieces:
    1. Carefully select all members; select individual pieces so that knots and obvious defects will not interfere with proper nailing or making proper connections.
    2. Cut out and discard all defects which will render a piece unable to serve its intended function; lumber may be rejected by the Project Inspector whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus or mold, as well as for improper cutting and fitting.
C. Shimming:
    1. Do not shim sills, joints, short studs, trimmers, headers, lintels or other framing components.

3.02 LUMBER TREATED WITH WOOD PRESERVATIVE

A. General:
    1. Wood preservative, non-pressure, shall be applied as follows to all lumber other than Foundation Grade Redwood:
        a. All wood embedded in or placed against concrete.
        b. The end 6” of all wood framing members that are 2’-0” or less above earth to include blocking for these members.
        c. That portion of exterior studs and plywood sheathing less than 2’-0” above exterior finish grade or 1”-0” above pavement.
        d. That portion of all wood pots within 2”-0” if earth.

B. Treatment:
    1. Perform all treatment in strict accordance with the published recommendations of the manufacturer of the treatment preservative, and a minimum of two hours before installation but after all cutting is completed on the members.

3.03 PRESSURE TREATED LUMBER

A. General:
    1. Provide pressure treatment for all lumber other than Foundation Grade Redwood located within 1-1/2” of concrete.
B. Treatment:
    1. Perform all pressure treatment in strict accordance with the published recommendations

of the manufacturer of the treatment preservatives. Kiln dry to 19% maximum moisture content after treatment. Handle treated lumber and penetration damage in accordance with AWPA M-4.

3.04 GENERAL FRAMING

A. General:
1. In addition to all framing operations normal to the fabrication and erection shown on the Drawings, install all backing required for the work of other trades. Install furring, stripping, grounds, curbs, cants, etc. indicated, specified or required.
2. Set all horizontal or sloped members with crown up.
3. Do not touch, bore or cut members for pipes, ducts conduits or other reasons except as shown on the Drawings or as specifically approved in advance by the Architect.
4. Joists and beams at same level shall be connected with metal framing devices, “U” type, unless noted otherwise.

B. Bearings:
1. Make all bearings full unless otherwise indicated on the Drawings. Set headers on edge, supported on each end by cripples.
2. Finish all bearing surfaces on which structural members are to rest so as to give sure and even support; where framing members slope, cut or notch the ends as required to give uniform bearing surface.

3.05 BLOCKING AND BRIDGING

A. Blocking:
1. Install all blocking as required by governing codes and as required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas.
2. Install 2x blocking at all intersections and edges of finished surfaces for bearing, and at all points where required to support fixtures, cabinets, hardware and equipment of any other trade. Blocking to receive fixtures shall be secured to framing with steel clips.
3. Install 2x blocking between stud at 2’-0” centers vertically to provide nailing for all vertically applied board on board exterior siding and interior paneling.
4. Fire-block in the following specific locations:
5. In all stud walls at ceiling and floor levels.
    a. In all stud walls, including stairs and furred spaces, so that the maximum dimension of each concealed space is not more than three (3) feet.
6. All other locations where openings could afford passage for rodents or flames.

B. Bridging:
a. Install wood solid blocking between joists where, roof joists or rafter of more than 8 inch depth and floor joists of more than 4 inch depth which are spaced 32 inches on center or less.
b. The distance between a line of bridging and a bearing shall not exceed 8 feet at the roof and 10 feet at the floor.
c. Bridging may be omitted for roof and ceiling joists less than eight inches (nominal) in depth where the omission is permitted by code, except where otherwise indicated on the Drawings.
d. Install solid blocking between joists at all points of support and wherever sheathing or flooring is discontinuous.
e. Blocking may be omitted where joists rest on ribbons and are nailed to studs, and where joists are supported on metal hangers.

3.06 BUILT-UP BEAMS

1. Use no less than two joists spiked together to support partitions running parallel to the joists, provided however, that where necessary to permit passage of pipes such joists may be separated

by solid blocking spaced at no more than four feet on center.

3.07 STUD WALLS AND PARTITIONS

A. Studs:
   A. Make all Studs single length, unspliced, and platform framed.
B. Corners and Intersections:
   1. Unless noted otherwise on the Drawings, frame all corners and intersections with three or more studs and all required bearing for wall finish.

3.08 ALIGNMENT

1. On all framing members to receive a finished wall or ceiling, align the finish subsurface to vary not

more than 1/8" from the plane of surfaces of adjacent framing and furring members.

3.09 INSTALLATION OF PLYWOOD SHEATHING

A. Placement:
   A. Place all plywood with face grain perpendicular to supports and continuously over at least two supports, except where otherwise noted on the Drawings.
   B. Center joints accurately over supports; unless noted otherwise on the Drawings, stagger the end joints of plywood panels to achieve a minimum of continuity of joints.
   C. Nail all panel edges to framing members or blocking at least 1-1/2" thick. Space nails at panel edges as indicated on the Drawings or if not shown, in accordance with C.B.C. requirements. Place nails not less than 3/8" from panel edges and driven solidly into the support. Stagger adjacent rows of nails where nail spacing is 3 inches on center or less.

B. Protection of Plywood:
   1. Protect all plywood from moisture by use of all required waterproof coverings until the plywood has in turn been covered with the next succeeding component or finish.

3.10 FASTENING

1. Nailing:
   A. Use only domestic common wire nails or spikes of the dimensions shown on the Nailing Schedule, except where noted otherwise on the Drawings.
   B. All nailing to conform to minimum requirements shown on the Drawings.
      3. For conditions not covered on the Drawings, provide penetration into the piece receiving the point of not less than ½ the length of the nail or spike provided, however, 16d nails may be used to connect two pieces of two inch (nominal) thickness.
   D. In diaphragms, the minimum penetration shall be 1-1/2" for 8d nails and 1-5/8" for 10d nails.
   E. Do all nailing without splitting wood, preboring as required; replace all split members.

2. Bolting:
   1. Drill holes 1/16" larger in diameter than the bolts being used; drill straight and true from one side only.
   2. Bolt threads must not bear on wood; use washers under head and nut where both bear on wood; use washers under all nuts.
   3. Upset threaded bolts are not permitted.
   4. Retighten all bolts before closing in.

3. Lag Screws:
   1. Anchorage embedment in piece lagged to shall not be less than 0.6 lag screw length nor less than eight times lag screw diameter.
   2. Prebore holes for lag screws 60% shank diameter; enlarge holes to shank diameter for length of shank.
   3. Screw, do not drive, all lag screws.

4. Washers:
   1. Washers or bolts in shear shall have a net area of not less in thickness than 1/10 the length of the washer's longest side, or of malleable iron having a thickness of not less than 1/2 the bolt or screw diameter. Use malleable iron washers in all exposed locations.
   2. Washers shall have a bearing surface for the nut or head which is not less than equal in diameter to the long diameter of the nut or head.

5. Anchor Bolts:
   1. Anchor sill on concrete with 3/4" diameter anchor bolts @ 48" o.c. maximum spacing, minimum 2 each piece and one within 9" of each end, unless noted otherwise on the Drawings.
   2. Provide one anchor 9" of each side of holes of notches 1-1/8" or larger.

3.11 SEALING

1. Seal ends of plywood that will be exposed to weather with three coats of sealer.

3.12 CLEANING UP

A. General:
   A. Keep the premises in a neat, safe and orderly condition at all times during the execution of this portion of the work, free from accumulation of sawdust, cut-ends and debris.

B. Sweeping:
   1. At the end of each working day, or more often if necessary, thoroughly sweep all surfaces where refuse from this position of the work has settled.
   2. Remove the refuse to the area of the job site set aside for its storage.
   3. Upon completion of this portion of the work, thoroughly broom clean all surfaces.

END OF SECTION

SECTION 06 20 00

FINISH CARPENTRY

PART I – GENERAL

1.01 SECTION INCLUDES
- A. Installation of wood and steel doors.
- B. Wood blocking backing and nailers.

1.02 REFERENCES
- A. CAS/CAR – California Accessibility Statutes/California Accessibility Regulations, 2016 CBC chapter 11b.
- B. BHMA A156.1 through 24 – Builders Hardware Manufacturers Association Standards.
- C. APA – American Plywood Association Design and Construction Guide.
- D. NFPA 80 – Fire Doors and Windows.
- E. PS1-09 – U.S. Product Standard, Construction and Industrial Plywood.
- F. SDI-107 – Hardware on Steel Doors.
- G. SDI-109 – Hardware for Standard Steel Doors and Frames.
- H. SDI-122 – Installation for Standard Steel Doors and Frames.
- I. HMMA 840 – Installation and Storage of Hollow Metal Doors and Frames.
- J. CSAS – California State Accessibility Regulations.

1.03 DELIVERY, STORAGE AND HANDLING
- A. Store materials in ventilated, interior locations.

PART II – PRODUCTS

2.01 DOOR MATERIALS
- A. Wood Doors: As specified in Section 08 14 00.
- B. Door Hardware: As specified in Section 08 71 00.

2.02 LUMBER MATERIALS
- A. Softwood Lumber: Maximum moisture content of 12 percent, Douglas Fir, Hemlock, Ponderosa Pine or Sugar Pine species with vertical or mixed grain of quality capable of transparent finish.

2.03 SHEET MATERIALS
- A. Softwood Plywood: PS 1-09, sanded or touch sanded, APA A-D Group 1, Exposure 1, thickness: 3/4 inch.

2.04 ACCESSORIES
- A. Nails: Size and type to suit application, plain finish.
- B. Bolts, Nuts, Washers, Blind Fasteners, Lags, and Screws: Size and type to suit application; plain finish, galvanized when exposed to weather.
- C. Lumber for Shimming, Blocking and Backing: Softwood lumber of species listed herein.
- D. Primer: Alkyd type.

PART III – EXECUTION

3.01 EXAMINATION

A. Verify that openings are ready to receive work and field measurements are as shown on shop drawings.

B. Verify mechanical, electrical and building items affecting work of this Section are placed and ready to receive this work.

C. Beginning of installation means acceptance of existing conditions.

3.02 INSTALLATION OF WOOD DOORS

A. Door shall have a clearance of 1//8 inch at the sides and top and shall have a bottom clearance of1/4 inch over thresholds and1/2 inch at other locations unless otherwise shown. The lock edge or both edges of door shall be beveled at the rate of 1/8 inch in 2 inches. Cuts made on the job shall be sealed immediately after cutting, using a clear varnish or sealer.

B. Installation of Fire Rated Doors: Installation, hardware and operational characteristics shall conform to NFPA 80 and shall be in conformance with the manufacturer's printed instructions. Properly sized pilot holes shall be drilled for screws in door edges. Factory applied permanent metal labels shall remain intact where installed. Labeled edge of door shall not be trimmed.

C. Machine cut relief for hinges.

D. Pilot drill screw and bolt holes.

E. Prepare doors to receive finish hardware in accordance with applicable BHMA Standards requirements.

F. Conform to applicable BHMA requirements for fit tolerances.

3.03 INSTALLATION OF STEEL DOORS

A. Install doors in accordance with HMMA 840 or SDI 122 recommendations.

B. Coordinate installation of glass or louvers where indicated.

3.04 INSTALLATION TOLERANCES

A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge corner to corner, or as required to meet door warranty.

3.05 ADJUSTING AND CLEANING

A. Adjust for smooth and balanced door movement.

END OF SECTION

SECTION 06 41 00
CUSTOM CASEWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fabricated base cabinet units.
B. Fabricated wall units
C. Grommets

1.2 REFERENCES

A. ANSI A208.1 - Mat Formed Wood Particleboard.
B. NEMA (National Electric Manufacturers Association) LD3 - High Pressure Decorative Laminates.
C. PS 1 - Construction and Industrial Plywood.
D. PS 20 - American Softwood Lumber Standard.
E. PS 51 – Hardwood and Decorative Plywood.
F. AWS (Architectural Woodwork Standards) – Edition 1
G. Chapter 11B and 23, California Building Code.
H. AQMD – Local Air Quality Management District Regulations.

1.3 SUBMITTALS FOR REVIEW

A. Submit shop drawings and product data under provisions of Section 01 33 00 and WI Technical Bulletin 434
B. Include materials, component profiles, assembly methods, joint details, fastening methods, accessory listings, and schedule of finishes.
C. Submit samples under provisions of Section 01 33 00.
D. Submit one hardware sample board identified with the project name, cabinet manufacturer's name and address and one item of each type of hardware specified for installation.
E. Submit a complete line of plastic laminate chips, in wood grains and solid colors, identified with the manufacturer's name and chip number.
F. Include interface with sliding marker boards on shop drawings where indicated in plans. See specification section on Marker Boards.

1.3 QUALITY ASSURANCE

A. Cabinets and countertops shall be manufactured in accordance with Sections 10 and 11 of the Architectural Woodwork Standards Manual, most current edition, for Grade specified herein or to higher standards as specified herein.
B. Before delivery to the jobsite, the casework supplier shall submit a WI Certified Compliance Certificate indicating the products he will furnish for this job, and certifying that they will fully meet all the requirements of the grade or grades specified.
C. The first page of the shop drawings shall bear the WI Certified Compliance Label. Shop drawings not conforming to this requirement will be rejected.
D. A statement shall appear prominently on the shop drawings, certifying that all casework construction complies to the structural requirements of California Building Code for required horizontal force factor for anchorage of non-structural components.
E. One (1) copy of the latest issue of the WI Manual of Millwork shall be made available for reference at the jobsite throughout the construction period.
F. Inspections by authorized WI inspectors shall be made in accordance with the following Schedule and shall be at the cost of the contractor.

1. Shop inspection at place of manufacturer, prior to initial shipment of cabinet components to site.
2. Site inspection immediately following installation of the first cabinet components.
3. Site inspection immediately following final installation of all cabinet work.
4. Additional site inspections may be required at the option of the Architect and at no cost to the Owner when certified WI inspection reports indicate unsatisfactory conformance with specified requirements.

G. Written confirmation of all WI inspections shall be submitted, including WI Certified Compliance Certificate for installation.

H. All WI Certification costs shall be included.

1.4 MOCKUP

A. Provide full size base cabinet with countertop and upper cabinet of each casework type indicated, in specified finish with hardware installed. Include pairs of doors for both base and upper cabinet and at least one drawer.

B. Units will establish a minimum standard of quality for this work.

C. Approved units may be used as part of the Work.

1.5 DELIVERY, STORAGE, AND PROTECTION

A. Conform to Section 26, WI Manual of Millwork and WI Technical Bulletin – 419R.

2 PART 2 PRODUCTS

2.1 GRADES

A. Provide Plastic covered casework in accordance with WI Manual of Millwork, Section 15 for custom grade.

B. Construction Style: Style A Frameless.

C. Construction Type: Type I.

D. Door and Drawer Front Style: Flush Overlay.

2.2 Acceptable Laminate Manufacturers

A. Formica Corporation, Cincinnati, OH.

B. Ralph Wilson Plastics Co., Temple, TX (Wilsonart)

C. Nevamar Corporation, Odenton, MD.

D. Pionite Decorative Laminates, Maumee, IL.

E. Lamin-Art, Schaumburg, IL

F. Or Equal.

2.3 LAMINATE MATERIALS

A. Plastic Laminate Cabinet Surfaces: NEMA LD-3, decorative high pressure laminate, general purpose type, .028 inch thick at vertical surfaces, .050 inch thick at horizontal surfaces and .042 inch thick for post-formed work; colors as selected in wood grains, patterns or solids. Conform to Section 16, WI Manual of Millwork.

B. Plastic Laminate Countertops: NEMA LD-3, decorative high pressure laminate, general purpose type, .042 inch thick when post formed, .050 inch when flat, colors as selected in wood grains, patterns or solids. Conform to Section 16, WI Manual of Millwork.

C. Plastic Laminate Cabinet Surfaces: NEMA LD-3, decorative high pressure laminate, chemical and stain resistant type, .042 or 0038 inch thick, colors as selected. Conform to Section 17, WI Manual of Millwork. To be used in all Science Classrooms and Nurse's Office.

D. Laminate Backing Sheet: LD-3 BKS/-91 backing grade, undecorated plastic laminate, with face material of .028 inches, or BKS/-92 with face material of .042 or .050 inches.

E. Semi-exposed Area of Cabinets: Low pressure decorative melamine overlay, except as specified herein.
1. Apply decorative high pressure plastic laminate to all surfaces visible from a seated or standing position, including interior surfaces of open casework and casework with glass doors, to sloped tops and to tops up to 72 inches above floor or visible from an upper level.

2.4 WOOD MATERIALS
A. Softwood Lumber: PS 20; Graded in accordance with WI Custom Grade, Douglas Fir, Hemlock, Ponderosa Pine, or Sugar Pine.

2.5 SHEET MATERIALS
A. Core; one of the Following:
1. Wood Particleboard: ANSI A208.1, Table 1, Grade 1-M-3, composed of wood chips, medium density made with water-resistant binder.
2. Plywood, PS 51; rotary cut Philippine Mahogany, or other close-grain hardwood Plywood with SOUND Grade face veneer and crossband layer of Grade C or better.

2.6 ACCESSORIES
A. Adhesive: Urea-formaldehyde cold setting or phenol resin with catalytic agent set under a pressure of not less than 30 lbs/sq/in or any contact adhesive that has been tested in accordance with the PS 51 for Type II Adhesive and Heat Resistance Test set forth in the WI Manual of Millwork and specifically approved by WI for the area in which the project is located.
1. Adhesives shall comply with Regulations AQMD.
B. Fasteners: Size and type to suit application.
C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application.

2.7 HARDWARE
A. Conform to Architectural Woodwork Standards Manual, most current edition. Any hardware listed therein may be installed, except where these standards are exceeded as described below.
1. Drawer Slides: Minimum 100 lb capacity all drawers. Full extension type only- Accuride #3832E or similar, Accuride #4034
2. Shelf Standards: Flush, holes to receive Clips
3. Seismic Shelf Clips: Hettich “Sekura #6 079707 w/ 5mm Pin
4. Hinges: Heavy-duty, wrap-around, tight pin butts only. RPC #376 with Hospital Tips
5. Pulls: Hafele, 3 inch c. to c. stainless steel wire-loop pulls.
6. Hardware: Minimum 5 pin keyway, OLYMPUS 700SC, 800SC, at each doored cabinet and at all drawers. Keyed by room, All Casework in a room to use the same key. Add spacers as required so lock face is flush with cabinet face, typ.
7. Grommets: Flexigrom #CPF2670 or equal
8. Counter Supports: Knape & Vogt 208 L-Bracket size per manuf. Or equal.
B. Finish: US-26D

2.8 FABRICATION
A. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

C. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Make corners and joints hairline. Locate counter butt joints minimum 2 feet from sink cutouts.
D. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal contact surfaces of cut edges.
E. Backsplash: Coved
F. Edge: 90d formed edge with post formed laminate with ¾" radius at edge. Rolled for typical units. No drip bullnose where sinks occur. Counter top edges to be 1-1/2" thick.
G. Shelf Loading: 50 lbs per square foot or 50 lbs per cubic foot of total volume of cabinet whichever is less. Conform to California Building Code, current edition. Must confirm for the WI standards as a minimum.
H. Edge banding to be 3mil minimum.
I. Plastic Laminate Colors to include up to 2 colors on each piece of casework with a third color for the counter top. A total of 6 colors may be selected for the casework (3 color schemes) plus 3 colors for the counter tops. Colors to be selected by Architect from manufacturer's full range of laminate options.

3 PART 3 EXECUTION

3.1 PREPARATION

A. Accurately locate and layout all casework for the project including horizontal and vertical control. This layout will take place such to allow proper installation of all blocking.
B. Provide all cut outs and openings in all casework and countertops where plumbing and electrical fixtures and devices penetrate. Specifically, provide for electrical outlet boxes stubbed to the toe-kick area in the center of each teaching wall. Verify adequacy of backing and support framing.

3.2 INSTALLATION

A. Set and secure casework in strict accordance with Section 26, WI Manual of Millwork
B. Casework shall be anchored to walls or floors or both. Conform to California Building Code current edition anchorage requirements minimum and as called out on plans.
C. Provide 10 (ten) 2" dia. grommet holes with plastic grommet inserts (black) to be located by the architect in the field.
D. Install sliding marker boards at all teaching stations.

3.3 PREPARATION AND RE-LAMINATION

A. Prepare, sand and scuff all surfaces to be re-laminated.
B. Fill all damaged areas with a catalyzed polyester filler (ie, Bondo) and sand smooth to adjacent surfaces.
C. Apply a CARB compliant spray or rollout contact cement to manufacturer's recommendations making sure environmental conditions are met.
D. Fit and comply with American Woodwork Standards, Edition 2, Section 10

3.4 ADJUSTING AND CLEANING

A. Adjust doors, drawers, hardware, fixtures and other moving or operating parts to function smoothly and correctly.
B. Clean casework, counters, shelves, hardware, fittings, and fixtures.
C. Adjust sliding marker boards at teaching wall.

END OF SECTION

SECTION 06 41 00
CUSTOM CASEWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fabricated base cabinet units.
B. Fabricated wall units
C. Grommets

1.2 REFERENCES

A. ANSI A208.1 - Mat Formed Wood Particleboard.
B. NEMA (National Electric Manufacturers Association) LD3 - High Pressure Decorative Laminates.
C. PS 1 - Construction and Industrial Plywood.
D. PS 20 - American Softwood Lumber Standard.
E. PS 51 – Hardwood and Decorative Plywood.
F. AWS (Architectural Woodwork Standards) – Edition 1
G. Chapter 11B and 23, California Building Code.
H. AQMD – Local Air Quality Management District Regulations.

1.3 SUBMITTALS FOR REVIEW

A. Submit shop drawings and product data under provisions of Section 01 33 00 and WI Technical Bulletin 434
B. Include materials, component profiles, assembly methods, joint details, fastening methods, accessory listings, and schedule of finishes.
C. Submit samples under provisions of Section 01 33 00.
D. Submit one hardware sample board identified with the project name, cabinet manufacturer’s name and address and one item of each type of hardware specified for installation.
E. Submit a complete line of plastic laminate chips, in wood grains and solid colors, identified with the manufacturer’s name and chip number.
F. N/A.

1.3 QUALITY ASSURANCE

A. Cabinets and countertops shall be manufactured in accordance with Sections 10 and 11 of the Architectural Woodwork Standards Manual, most current edition, for Grade specified herein or to higher standards as specified herein.
B. Before delivery to the jobsite, the casework supplier shall submit a WI Certified Compliance Certificate indicating the products he will furnish for this job, and certifying that they will fully meet all the requirements of the grade or grades specified.
C. The first page of the shop drawings shall bear the WI Certified Compliance Label. Shop drawings not conforming to this requirement will be rejected.
D. A statement shall appear prominently on the shop drawings, certifying that all casework construction complies to the structural requirements of California Building Code for required horizontal force factor for anchorage of non-structural components.
E. One (1) copy of the latest issue of the WI Manual of Millwork shall be made available for reference at the jobsite throughout the construction period.
F. Inspections by authorized WI inspectors shall be made in accordance with the following Schedule and shall be at the cost of the contractor.

1. Shop inspection at place of manufacturer, prior to initial shipment of cabinet components to site.
2. Site inspection immediately following installation of the first cabinet components.
3. Site inspection immediately following final installation of all cabinet work.
4. Additional site inspections may be required at the option of the Architect and at no cost to the Owner when certified WI inspection reports indicate unsatisfactory conformance with specified requirements.

G. Written confirmation of all WI inspections shall be submitted, including WI Certified Compliance Certificate for installation.

H. All WI Certification costs shall be included.

1.4 MOCKUP

A. Provide full size base cabinet with countertop and upper cabinet of each casework type indicated, in specified finish with hardware installed. Include pairs of doors for both base and upper cabinet and at least one drawer.

B. Units will establish a minimum standard of quality for this work.

C. Approved units may be used as part of the Work.

1.5 DELIVERY, STORAGE, AND PROTECTION

A. Conform to Section 26, WI Manual of Millwork and WI Technical Bulletin – 419R.

2 PART 2 PRODUCTS

2.1 GRADES

A. Provide Plastic covered casework in accordance with WI Manual of Millwork, Section 15 for custom grade.

B. Construction Style: Style A Frameless.

C. Construction Type: Type I.

D. Door and Drawer Front Style: Flush Overlay.

2.2 Acceptable Laminate Manufacturers

A. Formica Corporation, Cincinnati, OH.

B. Ralph Wilson Plastics Co., Temple, TX (Wilsonart)

C. Nevamar Corporation, Odenton, MD.

D. Pionite Decorative Laminates, Maumee, IL.

E. Lamin-Art, Schaumburg, IL

F. Or Equal.

2.3 LAMINATE MATERIALS

A. Plastic Laminate Cabinet Surfaces: NEMA LD-3, decorative high pressure laminate, general purpose type, .028 inch thick at vertical surfaces, .050 inch thick at horizontal surfaces and .042 inch thick for post-formed work; colors as selected in wood grains, patterns or solids. Conform to Section 16, WI Manual of Millwork.

B. Plastic Laminate Countertops: NEMA LD-3, decorative high pressure laminate, general purpose type, .042 inch thick when post formed, .050 inch when flat, colors as selected in wood grains, patterns or solids. Conform to Section 16, WI Manual of Millwork.

C. Plastic Laminate Cabinet Surfaces: NEMA LD-3, decorative high pressure laminate, chemical and stain resistant type, .042 or 0038 inch thick, colors as selected. Conform to Section 17, WI Manual of Millwork. To be used in all Science Classrooms and Nurse's Office.

D. Laminate Backing Sheet: LD-3 BKS/-91 backing grade, undecorated plastic laminate, with face material of .028 inches, or BKS/-92 with face material of .042 or .050 inches.

E. Semi-exposed Area of Cabinets: Low pressure decorative melamine overlay, except as specified herein.
1. Apply decorative high pressure plastic laminate to all surfaces visible from a seated or standing position, including interior surfaces of open casework and casework with glass doors, to sloped tops and to tops up to 72 inches above floor or visible from an upper level.

2.4 WOOD MATERIALS
A. Softwood Lumber: PS 20; Graded in accordance with WI Custom Grade, Douglas Fir, Hemlock, Ponderosa Pine, or Sugar Pine.

2.5 SHEET MATERIALS
A. Core; one of the Following:
1. Wood Particleboard: ANSI A208.1, Table 1, Grade 1-M-3, composed of wood chips, medium density made with water-resistant binder.
2. Plywood, PS 51; rotary cut Philippine Mahogany, or other close-grain hardwood Plywood with SOUND Grade face veneer and crossband layer of Grade C or better.

2.6 ACCESSORIES
A. Adhesive: Urea-formaldehyde cold setting or phenol resin with catalytic agent set under a pressure of not less than 30 lbs/sq/in or any contact adhesive that has been tested in accordance with the PS 51 for Type II Adhesive and Heat Resistance Test set forth in the WI Manual of Millwork and specifically approved by WI for the area in which the project is located.
1. Adhesives shall comply with Regulations AQMD.
B. Fasteners: Size and type to suit application.
C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application.

2.7 HARDWARE
A. Conform to Architectural Woodwork Standards Manual, most current edition. Any hardware listed therein may be installed, except where these standards are exceeded as described below.
1. Drawer Slides: Minimum 100 lb capacity all drawers. Full extension type only- Accuride #3832E or similar, Accuride #4034
2. Shelf Standards: Flush, holes to receive Clips
3. Seismic Shelf Clips: Hettich “Sekura #6 079707 w/ 5mm Pin
4. Hinges: Heavy-duty, wrap-around, tight pin butts only. RPC #376 with Hospital Tips
5. Pulls: Hafele, 3 inch c. to c. stainless steel wire-loop pulls.
6. Hardware: Minimum 5 pin keyway, OLYMPUS 700SC, 800SC, at each doored cabinet and at all drawers. Keyed by room, All Casework in a room to use the same key. Add spacers as required so lock face is flush with cabinet face, typ.
7. Grommets: Flexigrom #CPF2670 or equal
8. Counter Supports: Knape & Vogt 208 L-Bracket size per manuf. Or equal.
B. Finish: US-26D

2.8 FABRICATION
A. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

C. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Make corners and joints hairline. Locate counter butt joints minimum 2 feet from sink cutouts.
D. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal contact surfaces of cut edges.
E. Backsplash: Coved
F. Edge: 90d formed edge with post formed laminate with ¾" radius at edge. Rolled for typical units. No drip bullnose where sinks occur. Counter top edges to be 1-1/2" thick.
G. Shelf Loading: 50 lbs per square foot or 50 lbs per cubic foot of total volume of cabinet whichever is less. Conform to California Building Code, current edition. Must confirm for the WI standards as a minimum.
H. Edge banding to be 3mil minimum.
I. Plastic Laminate Colors to include up to 2 colors on each piece of casework with a third color for the counter top. A total of 6 colors may be selected for the casework (3 color schemes) plus 3 colors for the counter tops. Colors to be selected by Architect from manufacturer's full range of laminate options.

3 PART 3 EXECUTION

3.1 PREPARATION

A. Accurately locate and layout all casework for the project including horizontal and vertical control. This layout will take place such to allow proper installation of all blocking.
B. Provide all cut outs and openings in all casework and countertops where plumbing and electrical fixtures and devices penetrate. N/A. Verify adequacy of backing and support framing.

3.2 INSTALLATION

A. Set and secure casework in strict accordance with Section 26, WI Manual of Millwork
B. Casework shall be anchored to walls or floors or both. Conform to California Building Code current edition anchorage requirements minimum and as called out on plans.
C. Provide 10 (ten) 2" dia. grommet holes with plastic grommet inserts (black) to be located by the architect in the field.
D. N/A.

3.3 PREPARATION AND RE-LAMINATION

A. N/A

3.4 ADJUSTING AND CLEANING

A. Adjust doors, drawers, hardware, fixtures and other moving or operating parts to function smoothly and correctly.
B. Clean casework, counters, shelves, hardware, fittings, and fixtures.
C. N/A.

END OF SECTION

SECTION 07 20 22
INSULATION

PART I – GENERAL

1.01 SECTION INCLUDES
- A. Thermal insulation in exterior wall construction.
- B. Thermal insulation in ceiling assemblies.
- C. Sound attenuation insulation in interior partition construction.

1.02 REFERENCES
- A. ASTM C665 – Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- B. ASTM E84 – Surface Burning Characteristics of Building Materials.
- C. ASTM E84 – Rubber Cements.
- D. California Building Code, Chapter 7 where applicable.

1.03 SUBMITTALS
- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Provide data on product characteristics, performance criteria and methods of installation.
- C. Samples: Provide three (3) samples of each material specified minimum 12 inches square. Provide fasteners, clips and other accessories.

PART II – PRODUCTS
2.01 MANUFACTURERS – INSULATION MATERIALS
- A. Products of Certainteed Corporation, Valley Forge, PA are the standard of quality required and specified herein.
  Or products equal to from the following companies, under provisions of Section 1600.
- B. Schuller/Manville Building Insulation Division, Denver Colorado
- C. Owens-Corning Fiberglass Corp., Toledo, OH
- D. USG Corporation, Thermafiber Division, Chicago IL

2.02 MATERIALS – THERMAL
- A. Batt Insulation: ASTM C665, Type III, Class A. Preformed glass fiber batt, CERTAINTEED FSK-25; conforming to the following:

Thermal Resistance	R/11 for nominal 4 inch cavities R/19 for nominal 6 inch cavities R/30 for nominal 10 inch cavities
Batt Size	As required to fully fill cavities.
Thickness	3-1/2 inch for R/11 6-1/4 inch for R/19 10 inch for R/30
Facing	Facing on one side with flame resistant full facing.
Flame Spread	Less than 25, ASTM E84
Smoke Developed Rating	Maximum 50
Permeance	0.5 or less

2.03 MATERIALS – SOUND
- A. Sound Attenuation Insulation: ASTM C665, Type I; preformed glass fiber, CERTAINTEED SOUND CONTROL BATTS; semi-rigid or roll, conforming to the following:

Batt Size	As required to fully fill cavities.
Thickness	3-1/2 inches minimum
Facing	Unfaced
Flame Spread	Less than 25, ASTM E84
Smoke Developed Rating	Maximum 50

2.04 ACCESSORIES

A. Nails or staples, type and size to suit application.
B. Tape: Acrylic with polypropylene backing, Class A, flame spread less than 25, adhering type, 2-1/2 inches wide; No. 8086 CONTRACTOR SHEATHING TAPE, manufactured by 3M Company, St. Paul, MN, or equal.
C. Insulation Fasteners: Steel impale spindle and clinch shield on flat metal base with applied adhesive, length to suit insulation thickness, capable of securely and rigidly fastening insulation in place; SPINDLE-ANCHOR or PRONG INSUL-ANCHORS, manufactured by Erico Fastening Systems, Moorstown, NJ, or an approved equal. Self adhesive base plates are prohibited.
D. Adhesive: ASTM D816; HI-PERFORMANCE ADHESIVE, manufactured by Erico Fastening Systems, Moorstown, NJ, or equal.

PART III – EXECUTION

3.01 EXAMINATION

A. Verify site conditions.
B. Verify that substrate and adjacent materials are satisfactorily installed and in place and are dry and ready to receive insulation.

3.02 INSTALLATION

A. Install insulation in accordance with insulation manufacturer's instructions.
B. Install in cavities designated to receive sound and thermal insulation without gaps or voids. Extend material full height of cavity.
C. Trim insulation to fit spaces.
D. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation. Leave no gaps or voids.
E. Extend thermal materials full height if cavity to structure above and as otherwise required to produce a completely insulated building envelope.
F. Extend sound materials full height of cavity to structure above and as otherwise required to produce a completely sound insulated building envelope.
G. Tape and seal butt ends, lapped flanges, and tears or cuts in foil in thermal batts.
H. Friction fit semi-rigid sound insulation batts in cavities.
I. Wood Framing: Place foil side of thermal batts toward inside of building by stapling at 6 inches oc.
J. Metal Framing: Place foil side of thermal batts toward inside of building. Place insulation fasteners at 36 inches oc vertically in two rows at each stud cavity. Tape and seal tears or cuts in foil.
K. Install material to preclude slipping from place by use of nails, screws, wires or other approved fastening devices.
L. In cavities above ceilings with no finish or finish on one side retain insulation in place with 16 gage galvanized annealed wires spaced 12 inches oc vertically.
M. Where tight, congested, difficult or otherwise unforeseen conditions are encountered employ alternate application methods or materials to effect the intended insulation system. Alternate methods or materials should be approved by the architect.

3.03 INSPECTION

A. Notify Project Inspector before work is covered. Approval of Project Inspector shall be received before any work is concealed in a manner which will make inspection difficult. Work which has been covered prior to inspection shall be uncovered for inspection and recovered.

END OF SECTION

SECTION 07 27 00
FIRESTOPPING

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Firestopping systems, products, materials and accessories.
B. Through-penetration firestopping systems.
C. Firestopping at intersections of fire-rated partitions and horizontal assemblies.

1.2 REFERENCES

A. ASTM E84 – Surface Burning Characteristics of Building Materials.
B. ASTM E814 – Fire Tests of Through-Penetration Firestops.
C. ASTM E119 – Fire Tests of Building Construction and Materials.
D. UL Fire Resistance Directory, 2016 Edition (or most current).
E. Chapter 7, California Building Code.
F. WHI Certification Listings, 2016 Edition (or most current).

1.3 SUBMITTALS FOR REVIEW

A. Submit under provisions of Section 01 33 00.
B. Product Data: Provide data on product characteristics, performance and limitation criteria.
C. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
D. Submit UL or WHI approval numbers for all firestopping materials, devices and systems.

1.4 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacture of products specified in this section with minimum five years experience.
B. Applicator: Company specializing in performing the work of this Section with minimum three years experience.

1.5 REGULATORY REQUIREMENTS

A. Conform to Sections 709 and 710 California Building Code for fire resistance standards and requirements for penetration in walls, partitions, floor-ceilings and roof-ceilings.
B. Through-penetration firestopping systems shall conform to ASTM E814 for F & T ratings.
C. Maintain one copy of UL Fire Resistance Directory and WHI Certification Listings, on jobsite at all times.
D. Firestopping systems shall meet temperature limitations as described in ASTM E119 and hose stream exposure as described in ASTM E814.
E. Firestopping insulation, sealants, fill materials and devices shall have a flame spread of 0, smoke density of 0, ASTM E84.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when temperature of substrate material and ambient air is below manufacturer's minimum recommendations.
B. Maintain this minimum temperature before, during and for 3 days after installation of materials.
C. Provide ventilation in areas to receive solvent cured materials.

1.7 SEQUENCING

A. Sequence work to permit firestopping materials to be installed during or after adjacent and surrounding work is complete.

2 PART 2 PRODUCTS

2.1 APPROVED THROUGH-PENETRATION FIRESTOPPING SYSTEMS

A. Manufacturers, products and systems as listed in the UL Fire Resistance Directory, are approved for use under this Section:
   1. Through-Penetration Firestop Devices (XHCR), Factory-Built Systems: Any manufacturer listed therein.
   2. Through-Penetration Firestop Systems, (XHEZ) Field-Erected Type: Any approved systems listed therein.
   3. Fill, Void, Cavity Materials (XHHW), Installed at Jobsite: Any manufacturers listed therein.
   4. Firestop Devices (XHJI), Factory Built Systems: Any manufacturers listed therein.
   5. Forming Materials (XHKU) Jobsite Applied: Any manufacturers listed therein.
   6. Through-Penetrating Products (XHLY) Cable, Conduit, Pipe and Tubing: Any manufacturers listed therein.

B. Manufacturers, products and systems as listed in the WHI Certification Listings, are approved for use under this section:
   1. Through-Penetration Firestop Systems: Any manufacturer and system listed in "Firestop Systems" section.

C. Manufacturers of Systems or Devices not listed in the UL Directory or WHI Certification Listings, but which can supply certification of approval since the 1994 publication date are similarly approved for use under this section.

D. Materials and devices utilized in the above referenced systems shall be used only in those systems in which they were tested. Substitutions are not permitted.

2.2 APPROVED FLUTED THROUGH-PENETRATION FIRESTOPPING SYSTEMS

A. Rectorseal Corp., Houston, TX.
   1. Insulation Backer: Fiberglass.
   2. Sealant: METACAULK 1100, sprayed, 1/8 inch thick, from metal deck to gypsum board, both sides.
   3. Approval: WHI TRC/PV 60-04, T & F rating 60 minutes, WHI TRC/PV 120-14, T & F rating 120 minutes.

B. ALI Manufacturing Co., East Berlin, CN.
   1. Insulation Backer: Mineral wool.
   2. Retaining Clips: 16 or 18 gage, ¾ flute depth, 1;/2 flute width, both sides.
   3. Sealant:: ALBI CLAD 161, caulked, 5/8 inch thick, around full perimeter of insulation, both sides.
   4. Install one or two 4 inch wide sections, 5/8 inch thick fire-rated gypsum board adjacent to top edge of gypsum board wall covering, both sides.
   5. Fill ½ inch deflection space with sealant, full depth, both sides.

C. FIRETRAK CORP., KIMBALL, MN.
   1. Insulation Backer: Mineral wool.
   2. Sealant: FS-90 STA-SMOOTH, by Goldbond.
   3. Install one or two 5/8 inch thick sections of fire-rated gypsum board, 9 inches wide at deck flutes, both sides, custom fitted to within 1/8 to 3/8 inch of decking profile. Fill space with sealant, full depth, both sides.
   4. FIRETRAK SHADOW LINE RUNNER shall be attached to bottom flute of decking as recommended by manufacturer and as specified in Section 09110.
   5. Approval: WHI FT/PV 60-01, T & F rating 60 minutes, WHI FT/PV 120-01, T & F rating 120 minutes.

2.3 FIRESTOPPING AT ELECTRICAL BOXES AND UTILITY OUTLETS

A. Steel electrical outlet boxes on opposite sides of walls requiring protected openings shall be separated by a horizontal distance of 24 inches.

B. Steel electrical outlet boxes which occur in combination with outlet boxes of any size such that the aggregate area of unprotected outlet boxes exceeds 100 square inches in any 100 square feet of wall area shall be protected by an approved material or detail to

decrease the aggregate area of unprotected utility boxes to less than 100 square inches in any 100 square feet of wall.

C. Steel electrical outlet boxes which exceed 16 square inches in area shall be protected by an approved firestop material:
   1. MPP-1 MOLDABLE PUTTY PADS, by 3M Contractor Products, Minneapolis, MN.
   2. FSP FIRESTOP PUTTY PADS, by Hevi-Duty Nelson Products, Tulsa, OK.
   3. FLAMESAFE FSP 1077 FIRESTOP PADS, by International Protective Coatings Corp., Ocean, NJ.
   4. SPECSEAL PUTTY PADS, by Specified Technologies, Inc., Somerville N.J.
   5. Or equal.

D. Utility and electrical outlets or boxes shall be securely fastened to the stud or framing of the wall, or ceiling assembly. The opening in the gypsum board facing shall be cut so that the clearance between the box and the gypsum board does not exceed 1/8 inch.
   1. In smoke walls the 1/8 inch clearance shall be filled with an approved fire-rated sealant.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions.

B. Verify that openings are ready to receive the Work of this Section.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material or other matter which may effect bond of firestopping material.

B. Remove incompatible materials which affect bond.

C. Install backing materials to arrest liquid material leakage.

3.3 APPLICATION

A. Apply primer, firestop sealant or other firestop materials in accordance with manufacturer's recommendations and as approved by regulatory agencies.

B. Apply firestopping material in sufficient thickness or configuration to achieve designated fire rating.

C. Install firestopping material in locations where the designated fire rating must be maintained, including, but not limited to the following:
   1. Voids or annular openings around sleeves, piping, ductwork or electrical/communications conduits which penetrate fire rated walls, partitions, floors, ceilings or assemblies.
   2. Intersections of fire-rated vertical and horizontal assemblies.

D. Remove dam material after firestopping material has cured.

3.4 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.5 PROTECTION OF FINISHED WORK

A. Protect finished work.

B. Protect adjacent surfaces from damage by material installation.

3.6 INSPECTION

A. Notify Inspector before work is covered. Approval of Inspector shall be received before any work is concealed in a manner which will make inspection difficult. Work which has been covered prior to inspection and approval shall be uncovered, reinspected and re-covered.

END OF SECTION

SECTION 07 92 00
JOINT SEALERS

PART I – GENERAL

1.01 SECTION INCLUDES

A. Preparing sealant substrate surfaces.
B. Sealant and backing.

1.02 REFERENCES

A. ASTM C834 – Latex Sealing Compounds.
B. ASTM D1056 – Flexible Cellular Materials – Sponge or Expanded Rubber.
C. FS TT-S-227 – Sealing Compound: Elastomeric Type, Multi-Component.
D. FS TT-S-230 – Sealing Compound: Elastomeric Type, Single Component.
E. FS TT-S-1543a – Sealing Compound: Silicone Type.
F. FS TT-S-001657 – Sealing Compound: Single Component, Butyl Rubber Based.

1.03 SUBMITTALS FOR REVIEW

A. Submit product data under provisions of Section 01300 / 01 33 00.
B. Submit product data indicating sealant chemical characteristics, performance criteria, limitations, color availability and shore hardness.
C. Color of visible sealant to match adjacent painted surface unless specifically noted otherwise

1.04 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum five years experience.
B. Applicator: Company Specializing in applying the work of this Section with minimum three years experience.
C. Conform to Sealant and Waterproofers Institute requirements for materials.

1.05 FIELD SAMPLES

A. Provide samples under provisions of Section 01300 / 01 33 00.
B. Construct one field sample illustrating sealant type, color, and tooled surface, maximum 12 inches long, in each differing sealant application.
C. Do not proceed with remainder of sealant application until approved by the Architect.
D. Approved sample may remain as part of the Work. Disapproved sample shall be removed.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation. Deliver materials in unopened containers, store in dry, covered area.

PART II – PRODUCTS

2.01 SEALANTS

A. Use sealants selected from the following types, as indicated on drawings or as appropriate to the joint being sealed. Refer to schedule for additional approved applications.

1. Type 1: One-part moisture curing Polyurethane sealant. FS TT-S-230C, Type II, non-sag, Class A DYNATROL I, manufactured by Pecora Corp., Harleysville, PA, SIKAFLEX-1a, manufactured by Silka Corp., Lyndhurst, NJ, or equal.

   a. Elongation Capability: 25 percent.
   b. Shore A Hardness Range: 20 to 40.

2. Type 2: Multi-part Polyurethane Base. FS TT-S-227E, Class A, Type II, non-sag, DYNATROL II, manufactured by Pecora Corp., Harleysville, PA, SIKAFLEX-2c N/A, manufactured by Sika Corp., Lyndhurst, NJ, or equal.

a. Elongation Capability: 50 percent.
b. Shore A Hardness Range: 20 to 35.

3. Type 3: One-part moisture curing Polyurethane sealant. FS TT-S-230C, Type 1, self leveling, Class A, UREXPAN NR-201, manufactured by Pecora Corp., Harleysville, PA, VULKEM 45, manufactured by MAMECO International Inc., Cleveland, OH, or equal.

   a. Elongation Capability: 25 percent.
   b. Shore A Hardness Range: 35.

4. Type 4: Multi-part Polyurethane Base. FS TT-S-227, Type I, self-leveling, Class A, DYNATRED or UREXPAN NR-200, manufactured by Sika Corp., Harleysville, PA, SIKAFLEX-2c N/A, manufactured by Sika Corp., Lyndhurst, NJ or equal.

   a. Elongation Capability: 250 – 300 percent.
   b. Shore A Hardness Range: 40.

5. Type 5: One-part Silicone Sealant. FS TT-S-1543a Type S, non-sag, Class A, 863 ACETOXY Silicone Sealant, manufactured by Pecora Corp., Harleysville, PA, SCS 1200, manufactured by General Electric Co., Waterford, NY, or equal.

   a. Elongation Capability: 25 percent.
   b. Shore A Hardness Range: 27.

6. Type 6: One-part, non-sag, acrylic latex sealing compound, ASTM C834, AC-20 manufactured by Pecora Corp., Harleysville, PA, ACRYLIC LATEX No. 834 manufactured by Tremco, Beachwood, OH, or equal.

7. Type 7: One-part, non-sag, butyl rubber base acoustical sealant ASTM C834, BA-98, manufactured by Pecora Corp., Harleysville, PA, SHEETROCK ACOUSTICAL SEALANT manufactured by USG, Chicago, IL, or equal.

2.02 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
C. Joint Backing: ASTM D1056; round, closed cell polyethylene foam rod; oversized 25 percent larger than joint width; DENVERFOAM or GREENROD, manufactured by Pecora Corp., Harleysville, PA. SONOFOAM BACKER ROD, manufactured by Sonneborn building Products, Minneapolis, MN, or equal.
D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application. Apply to bottom of joints which are too shallow to receive foam backer rod.

2.03 FIRESTOP SEALANTS

A. Refer to Section 07270 / 07 27 00, Firestopping.

PART III – EXECUTION

3.01 EXAMINATION

A. Verify that joint openings are ready to receive work and field measurements are as shown on Drawings and recommended by the manufacturer.
B. Beginning of installation means installer accepts existing surfaces.

3.02 PREPARATION

A. Clean and prime joints in accordance with manufacturer's instructions.
B. Remove loose materials and foreign matter which might impair adhesion of sealant. Remove

dust with compressed air.

C. Verify that joint backing and release tapes are compatible with sealant.
D. Perform preparation in accordance with manufacturer's recommendations.
E. Protect elements surrounding the work of this Section from damage or disfiguration.

3.03 INSTALLATION

A. Install sealant in accordance with manufacturer's instructions, using hand pointing tools, hand-operated pressure guns or air operated guns with reciprocal pumps and hoses.
B. Measure joint dimensions and size materials to achieve required width/depth ratios.
C. Install joint backing to achieve a neck dimension no greater than 1/3 the joint width. Where sealant is applied to concrete, concrete is to be fully cured.
D. Install bond breaker where joint backing is not used. Install removable masking material to maintain clean lines and protect adjoining surfaces.
E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges. Do not install sealant on wet or damp surfaces.
F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
G. Tool joints concave, channel shaped or as detailed. Use slicking agent type recommended by manufacturer.

3.04 CLEANING AND REPAIRING

A. Clean adjacent soiled surfaces immediately before sealant cures.
B. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.05 PROTECTION OF FINISHED WORK

A. Protect finished installation from the work of other sections.
B. Protect sealants until cured.

3.06 SCHEDULE

A. Exterior Joints; Unless Specified Otherwise in Individual Sections:
   1. Joints between metal frames and concrete or masonry: Sealant Type (1).
   2. Joints Between Impervious Materials: Sealant Type (1).
   3. Vertical Expansion and Control Joints: Sealant Type (2).
   4. Joints in sheet metal flashings: Sealant Type (1).
   5. Perimeters of window frames, door frames, louvers and similar openings, and where metal, wood or other materials abut or join masonry, concrete or each other: Sealant Type (1).
   6. Horizontal expansion, control and abutment joins in sidewalks, concrete floors: Sealant Type (4). Joints where a self-leveling sealant cannot be used because of slope: Selant Type (2).
   7. Glass glazing, cap beads (on glass), to metal and surfaces made of a silica substance: Sealant Type (5).

B. Interior Joints; Unless Specified Otherwise in Individual Sections:
   1. Vertical expansion and control joints: Sealant Type (1).
   2. Joints between impervious materials: Sealant Type (1).
   3. Horizontal expansion, control, isolation and abutment joints: Sealant Type (3) or (4).
   4. Window and door perimeters: Sealant Type (1).
   5. Gypsum Board Joints: Sealant Type (1).
   6. For sink, tub or bath areas including countertop joints: Sealant Type (5).
   7. Other interior joints as indicated or shown: Sealant Type (1).
   8. Intersection of wall surface and cap strip at resilient flooring integral cove: Sealant Type (1).
   9. Intersection of metal or wood thresholds and floor substrate, where building components are mechanically attached and required sealing: Sealant Type (6).
   10. Perimeter of sound-rated walls, at intersection of gypsum board and abutting surfaces, both sides of wall: Sealant Type (7).

END OF SECTION

SECTION 08 11 13
STANDARD STEEL FRAMES

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Welded steel door frames.
B. Welded steel window frames.
C. Self-Adhered Door/Window Flashings

1.2 REFERENCES

A. SDI – Steel Door Institute
B. HMMA – Hollow Metal Manufacturer's Association
C. SDI 105 – Recommended Erection Instructions for Steel Frames.
D. SDI 111 – Recommended Standard Details Steel Doors and Frames
E. SDI 117 – Manufacturing Tolerances Standard Steel Doors and Frames.
F. SDI 118 – Basic Fire Door Requirements.
G. HMMA - 820 - Hollow Metal Frames
H. HMMA -840 - Installation and Storage.
I. HMMA - 850 - Fire-Rated Hollow Metal Doors and Frames.
J. ANSI A224.1 - Standard Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
K. ASTM A366 -Steel, Carbon, Cold-Rolled Sheet.
L. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
M. ASTM A569 - Steel, Carbon (0.15 maximum, percent) Hot-Rolled Sheet and Strip Commercial Quality.
N. ASTM A591 - Steel Sheet, Electrolytic Zinc-Coated, for light coating mass applications.
O. NFPA 80 - Fire Doors and Windows.
P. ASTM A527 – Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Lock-Form Quality.

1.3 SUBMITTALS FOR REVIEW

A. Submit shop drawings and product data under provisions of the contract.
B. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement and finish.
C. Submit Manufacturer's installation instructions under provisions of the contract.

1.4 QUALITY ASSURANCE

A. Manufacture frames to conform to SDI or HMMA standards except where exceeded by this specification.
B. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five (5)years experience.

1.5 DELIVERY, STORAGE, AND PROTECTION

A. Deliver and protect frames with manufacturer's shipping safeguards.
B. Attach spreader bars on welded frames to preclude warping or bending during delivery and storage.

2 PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Any of eleven manufacturers belonging to the Steel Door Institute, Cleveland, OH

B. Any of 55 manufacturers belonging to the Hollow Metal Manufacturers Association, Chicago, IL.

C. Any manufacturer providing certification of compliance with standards of fabrication, installation, finish and testing required in current issues of SDI or HMMA Specification Guides.

2.2 WELDED FRAMES

A. Type: Combination buck frame and integral stop and flat trim, double rabbet, profiles as indicated on the drawings, cold rolled steel ASTM A366, or Hot-Rolled Steel, ASTM A569 or paintable galvannealed steel without primer, ASTM A527, minimum 16 gage.
   1. Drywall: Provide backbend
   2. Plaster: Provide plaster key.

B. Anchors: Provide two anchors at head for openings up to 48 inches, three if wider, maximum 30 inches on centers. Provide three at jamb for doors up to 84 inches in height, additional anchors at maximum 30 inches on centers for higher doors.
   1. Provide appropriate type of anchors consistent with type of wall construction for each installation and in conformance with HMMA 820 and SDI-111.

C. Floor Attachment: Provide metal anchor with provision for expansion anchor attachment to concrete floor, adjustable for height, welded in place. Minimum thickness: 14 gage.

D. Hardware Attachment: Mortise, reinforce, drill and tap at factory to receive specified hardware. Install minimum 10 gage reinforcing welded to frame for surface mounted hardware, except install 7 gage reinforcing for hinges in accordance with HMMA 820. Tap to templates.

E. Silencers: Make provision for minimum three rubber silencers at strike jamb of all doors, except fire-rated doors, and one at head of each leaf of double doors, except fire-rated doors.

F. Fire Rated Frames:
   1. Construct as tested and rated in accordance with HMMA 850 and SDI 118.
   2. Conform to NFPA 80.
   3. Attach UL or WH label to frame.

2.3 PROTECTIVE COATINGS

A. Interior Frames: Modified Alkyd, air dried meeting requirements of ANSI A224.1, shop applied, or ASTM A527 galvannealed steel without primer.

B. Exterior Frames: ASTM A525 Hot-Dip Galvanized 0.60 ounces per square foot(G60), or ASTM A591 Electrolytic zinc-coated 0.60 ounces per square foot(A60).

C. Pre-treat and prime with modified alkyd, air dried meeting requirements of ANSI A224.1, shop applied.

D. Galvanizing to A25 thickness permitted on ASTM A527 paintable galvannealed steel.

E. On surfaces where zinc coating has been removed during fabrication, frames shall receive a factory-applied touch-up primer.

2.4 FABRICATION

A. Fabricate exterior welded steel door and window frames as machine-mitered face-welded unit type in accordance with HMMA 820. Weld and grind smooth. No intermittent welds or plate splices permitted at intersections.

B. Fabricate interior welded steel door and window frames as machine-mitered face-welded unit type in accordance with HMMA 820. Weld and grind smooth.

C. Where cross mullions or t intersections occur, frames shall be fabricated as butted and face-welded assembly joints, in accordance with HMMA 820. At mullion-to-base intersections extend mullion to floor and face weld. Where butted joints are exposed to weather, seal intersection with one-component polyurethane sealant as specified in section 07900.
   1. At window frame apply minimum ¾ inch high, 16 gage channel stops, attach with flat head machine screws, countersunk, tamper-proof type where exposed to weather.

D. Machine mitered faces and butt joined integral stops permitted with continuous welds.

E. Fabricate frames with hardware reinforcement plates welded in place.

F. Fabricate frames to accept anchors as described in HMMA 820 and SDI-111 for type of wall construction

G. Reinforce frames for door checks on both sides, where required.

H. Apply primer to all surfaces of frames, in accordance with requirements of ANSI A224.1 Galvanized surfaces shall be pretreated prior to application of primer.

I. Attach fire rated label to each fire rated door frame. On fire-rated windows or window assemblies, locate label with consistency and in the following locations in the order of preference: Top side of muntins or sills over 72 inches high, underside of muntins below 48 inches high or lower right hand jamb within 6 inches of sill.

3 PART 3 EXECUTION

3.1 INSTALLATION

A. Install Vycor V40 (By Grace Construction & Packaging) or approved equal per manuf. recommendations at all exterior openings where frames are being installed.
B. Install frames in accordance with HMMA 840 and SDI-105.
C. Coordinate anchor placement with type of wall construction.
D. Paint frames under section 09 90 00.

3.2 TOLERANCES

A. Conform to standard of tolerances as required in HMMA 840 and SDI-117

END OF SECTION

SECTION 08 11 14
STEEL DOORS

PART I – GENERAL

1.01 WORK INCLUDED

A. Non-rated and fire rated steel doors.

1.02 REFERENCES

A. SDI – Steel Door Institute
B. HMMA – Hollow Metal Manufacturer's Association
C. SDI 100 – Recommended Specifications for Standard Steel Doors and Frames.
D. SDI 117 – Manufacturing Tolerances Standard Steel Doors and Frames.
E. HMMA – 810 – Hollow Metal Doors.
F. HMMA – 830 – Hardware preparation and locations for Hollow Metal Doors and Frames.
G. HMMA – 850 – Fire-Rated Hollow Metal Doors and Frames.
H. ASTM A525 – Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
I. ASTM A569 – Steel, Carbon (0.15 maximum, percent) Hot-Rolled Sheet and Strip Commercial Quality.
J. ASTM A366 – Steel, Carbon, Cold-Rolled Sheet.
K. ANSI A151.1 – Test procedure and acceptance criteria for Physical Endurance for Steel Doors and Hardware reinforcings.
L. ANSI A224.1 – Standard Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
M. UL – Underwriters Laboratory.
N. WH – Warnock-Hersey Laboratory.
O. ASTM A591 – Steel Sheet, Electrolytic Zinc-Coated, for light coating mass applications.
P. NFPA 80 – Fire Doors and Windows.
Q. ASTM A527 – Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Lock-Form Quality.

1.03 SUBMITTALS

A. Submit shop drawings and product data under provisions of the contract.
B. Indicate core material, location of cutouts for hardware, reinforcement and finish.
C. Submit Manufacturer's installation instructions under provisions of the contract.

1.04 QUALITY ASSURANCE

A. Manufacture doors to Conform to SDI or HMMA standards except where exceeded by this specification.
B. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five (5) years experience.

1.05 DELIVERY, STORAGE, AND PROTECTION

A. Deliver and protect doors with manufacturer's shipping safeguards.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Any of eleven manufacturers belonging to the Steel Door Institute, Cleveland, OH.
B. Any of 55 manufacturers belonging to the Hollow Metal Manufacturers Association, Chicago, IL.
C. Any manufacturer providing certification of compliance with standards of fabrication, installation, finish and testing required issue of SDI or HMMA Specification Guides.

2.02 DOORS

A. Exterior Doors SDI-100 Grade III, Extra heavy-duty, 1-3/4 inches thick, Model 2, 16 gage face sheets, seamless-hollow steel construction, sizes as scheduled on drawings, ASTM A525 Hot-Dip Galvanized 0.60 ounces per square foot (G60), or ASTM A591 Electrolytic zinc-coated 0.60 ounces per sqare foot (A60) or paintable galvannealed steel without primer, ASTM A527. Close top and bottom with flush channel.

B. Interior Doors: SDI-100 Grade II, heavy-duty, 1-3/4 inches thick, Model 2, 18 gage face sheets, seamless-hollow steel construction, sizes as scheduled on drawings, prime coated only, or ASTM A527 galvannealed steel without primer.
C. End Closures: Minimum 18 gage.

2.03 DOOR CORE

A. Performance Test Procedures Requirements: Conform to ANSI A151.1.
B. Core for non-fire-rated doors:
   1. Vertical stiffeners 6 inches oc, 22 gage steel, spot welded to face sheets 6 inches oc with minimum 0.6 lb density insulation, full thickness of cavities, or manufacturer's standard method to make door metallic ring free.
   2. Cores of honeycomb (minimum 5000 lb. Compression per sf, shear strength, minimum 5000 psf).
   3. Rigid polystyrene foam board (minimum compressive strength 1750 psf and shear strength minimum 18 psi).
   4. Core construction shall conform to requirements of the grade of door specified in accordance with SDI-100, Section 2.2.3.
C. Core for Fire-Rated-Doors: Honeycomb or polystyrene. Conform to door schedule for fire rating required.
D. Frames for Fire-Rated-Doors: Conform to NFPA 80.

2.04 PROTECTIVE COATINGS

A. Interior Doors: Modified alkyd, air dried, meeting requirements of ANSI A224.1, shop applied, or ASTM A527 galvannealed steel without primer.
B. Exterior Doors: ASTM A525 Hot-Dip Galvanized 0.60 ounces per square foot (G60), or ASTM A591 Electrolytic zinc-coated 0.60 ounces per square foot (A60) or paintable galvannealed steel without primer, ASTM A527.
C. Pretreat and prime galvanized surfaces with modified alkyd, air dried, meeting requirements of ANSI A224.1, shop applied.
D. Galvanizing to A25 thickness permitted on ASTM A527 paintable galvannealed steel.
E. On surfaces where zinc coating has been removed during fabrication, doors shall receive a factory-applied touch-up primer.

2.05 ACCESSORIES

A. Glass Stop: Unit frame, Model FGS 75 manufactured by Anemostat Products Division, Carson, CA, or an approved equal for fire-rated and non-fire-rated doors.
   1. Frame: 18 gage.
   2. Finish: Special color lacquer, as selected by Architect.
   3. Unit shall have UL or WH label.
   4. Wire Glass: Refer to Section 08 80 00.
   5. Mounting: Countersink, one-way vandal resistant heads, through bolts.
   6. Exterior Doors: Unit shall be hot-dip galvanized after fabrication.

B. Louvers: Inverted split Y type, non-vision, Model FDLS manufactured by Anemostat Products Division, Carson, CA, or an approved equal.
   1. Frame: 18 gage.
   2. Louver Blades: 18 gage.
   3. Finish: Special color lacquer, as selected by Architect.
   4. Exterior Doors: Provide one-way vandalproof through-bolts and 18-14 mesh insect screen. Unit shall be hot-dip galvanized after fabrication.

2.06 FABRICATION

A. Fabricate doors from cold-rolled steel conforming to ASTM A366 or A527, or hot-rolled steel conforming to ASTM A569.
B. Fabricate doors with cutouts for hardware and openings as indicated.
C. Reinforce, drill and tap doors to receive mortised hinges, locks, latches, flush bolts and closers.

Use reinforcing gages as listed in Table IV of SDI-100.

D. Locate hardware according to HMMA 830 and Table V, SDI-100.
E. Apply primer to all surfaces of doors in accordance with requirements of ANSI A224.1. Galvanized surfaces shall be pre-treated prior to application of primer.
F. Attach fire rated label to each fire rated door unit.

PART III – EXECUTION

3.01 INSTALLATION

A. Install doors per manuf. recommendations and as outlined in the carpentry specs.
B. Paint doors under the painting specs.

END OF SECTION

SECTION 08 14 00
WOOD DOORS

PART I – GENERAL

1.01 WORK INCLUDED

A. Wood doors fire rated and non-rated.
B. Louvers.
C. Shielded Stops.
D. Glass Stops.

1.02 REFERENCES

A. ANSI A208.1 – Wood Particle Board.
B. ANSI/NWMA I.S.1 – Industry Standard for Wood Flush Doors.
C. ASTM C612 – Mineral Fiber Block and Board Thermal Insulation.
D. ASTM E152 – Fire Tests of Door Assemblies.
E. NFPA 80 – Fire Doors and Windows.
F. Chapter 10 California Building Code.
G. WIC – Manual of Millwork, Woodwork Institute of California, Current Edition.
H. NFPA 252 – Standard Method of Fire Tests for Door Assemblies.
I. UL – Underwriter's Laboratory.
J. WH – Warnock-Hersey.

1.03 QUALITY ASSURANCE

A. Fire Door Construction: Conform to ASTM E152.
B. Conform to NFPA 80 for fire rated class indicated.
C. Provide doors from one manufacturer only.
D. Doors shall be manufactured in accordance with Section 20 of the latest edition of the Manual of Millwork of the Woodwork Institute of California for Premium Architectural Grade or to higher standards as specified herein.
E. Before delivery to the jobsite, the door supplier shall submit a WIC Certified Compliance Certificate indicating the products he will furnish for this job and certifying that they will fully meet all the requirements of the grade or grades specified.
F. The first page of the shop drawings shall bear the WIC Certified Compliance Label. Shop drawings not conforming to this requirement will be rejected.
G. One (1) copy of the latest issue of the WIC Manual of Millwork shall be made available for reference at the jobsite throughout the installation period.
H. Upon completion, a WIC Certified Compliance Certificate shall be submitted.

1.04 REGULATORY REQUIREMENTS

A. Conform to Section 1004, California Building Code for fire rated doors.

1.05 SUBMITTALS FOR REVIEW

A. Submit shop drawings and product data under provisions of Section 01 33 00.
B. Indicate door elevations, types, hand, thickness, stile and rail reinforcement, internal blocking for hardware attachment and cutouts.
C. Submit samples under provisions of Section 01 33 00.
D. Submit three samples of each door type specified, illustrating each face veneer specified. Samples shall illustrate core material.
E. Submit Manufacturer's installation instructions under provisions of Section 01 33 00.
F. Submit Certificate of Compliance for fire-rated doors.

1.06 QUALITY ASSURANCE

A. Fire Door Construction: Conform to ASTM E152.
B. Conform to NFPA 80 for fire rated class indicated.
C. Provide doors from one manufacturer only.
D. Doors shall be manufactured in accordance with Section 20 of the latest edition of the Manual of

Millwork of the Woodwork Institute of California. For Premium Architectural Grade or to higher standards as specified herein.

E. Before delivery to the jobsite, the door supplier shall submit a WIC Certified Compliance Certificate indicating the products he will furnish for this job and certifying that they will meet all the requirements of the grade or grades specified.
F. The first page of the shop drawings shall bear the WIC Certified Compliance Label. Shop drawings not conforming to this requirement will be rejected.
G. One (1) copy of the latest issue of the WIC Manual of Millwork shall be made available for reference at the jobsite throughout the installation period.
H. Upon completion, a WIC Certified Compliance Certificate shall be submitted.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Protect doors with resilient packaging sealed with heat shrunk plastic or other manufacturer's shipping safeguards.
B. Package, deliver and store doors in accordance with WIC requirements.
   1. Store in a dry, broom-clean area.
   2. Protect materials from damage.
   3. Replace units damaged, warped or otherwise not usable.
C. Exposed wood at tops, bottoms and cutouts for hardware and accessories; seal prior to shipment.

1.08 WARRANTY

A.. Provide life of original installation warranty for interior doors.
   1. Warranty shall state that doors will not warp, twist, bend, shrink, the veneers buckle or delaminate, or the joints open for the warranty period. Any door of 25 square feet or larger may have a warp or twist of not more than 1/4 inch in eight feet. Any door which develops defects within the scope of this warranty shall be replaced with a new door without expense to the owner.
   2. During the first year of warranty, replacement doors shall be delivered to the contractor for installation.
   3. During the succeeding years of the warranty, replacement doors shall be delivered to the building in which defective door is located. Bill of lading shall indicate the name of the building and room or location where door is to be replaced. Warranty shall include cost of removal of defective unit, installation of replacement and finishing.

PART II – PRODUCTS

2.01 MANUFACTURERS

A. Wood Doors: Products of Weyerhaeuser Co., Tacoma, WA, are the standard of quality required and specified herein. Similar products of Eggers, Industries, Two Rivers, WI, VTI Industries, Holstein, IA, Algoma Architectural Doors, Algoma, WI, and Buell Door Co., Dallas, TX, may be submitted for approval under provisions of section 01 25 00.

2.02 DOOR TYPES

A. Particle Board Core, DPC-1 (Non-Fire Rated).
   1. Thickness: 1-3/4 inch.
   2. Face: Wood Veneer Premium Grade, Species: Red Oak, plain sliced.
   3. Crossband: Hardwood veneer, 1/16 inch thick.
   4. Side Edges: Two ply, 1-1/2 inch laminated outer strip, species at mill option.
   5. Top and Bottom Edges: 1-1/8 inch hardwood or softwood mill option.
   6. Face Assembly Adhesive: Type II, water-resistant.
   7. Core Assembly Adhesive: Type II, water-resistant.
   8. Core: 28 lb minimum density, ANSI A208.1.
   9. Moisture Stripping: Sealed edges.

B. Particle Board Core DFP-20/30, (20 minute fire rated).
   1. Thickness: 1-3/4 inch.
   2. Face: Wood Veneer Premium Grade, Species: Red Oak, plain sliced.

3. Crossband: Hardwood veneer, 1/16 inch thick.
4. Side Edges: 1-1/2 inch laminated hardwood, veneer to match face veneer.
5. Top and Bottom Edges: 1-1/8 inch hardwood or softwood mill option.
6. Face Assembly Adhesive: Type II, water-resistant.
7. Core Assembly Adhesive: Type II, water-resistant.
8. Core: 28 lb minimum density, ANSI A208.1.
9. Moisture Stripping: Not applicable.

C. Mineral Core DFM-45 (3/4 hour Fire-Rated).
1. Thickness: 1-3/4 inch.
2. Face: Wood Veneer Premium Grade, Species: Red Oak, plain sliced.
3. Crossband: Hardwood veneer, 1/16 inch thick.
4. Side Edges: 3/4 inch. Veneer to match face veneer.
5. Top and Bottom Edges: 1/2 inch top, 1-1/2 inch bottom.
6. Face Assembly Adhesive: Type I, waterproof.
7. Core Assembly Adhesive: Type II, water-resistant.
8. Core: Incombustible mineral, asbestos free, minimum 28 lbs. Per cu. Ft. density, ASTM C612, 10 percent maximum absorption weight.
9. Blocking for Hardware: Flame resistant, 5 inch top edge for closers, 5 inch for bottom hardware or automatic closers where applicable, 5 x 18 inch for locks, 5 inch center block for panic hardware, 5 x 12 inch for floor closers or pivot hinges where applicable.
10. Machining for Hardware: Factory machining only.

2.03 ACCESSORIES

A. Louvers: Inverted split Y type, non-vision, Model FDLS manufactured by Anemostat Products Division, Carson, CA, or an approved equal.
1. Frame: 18 gage.
2. Louver Blades: 18 gage.
3. Finish: Special color lacquer, as selected by Architect.
4. Exterior Doors: Provide one-way vandalproof through-bolts and 18-14 mesh insect screen. Unit shall be hot-dip galvanized after fabrication.

B. Glass Stop: Unit frame, Model FGS 75 manufactured by Anemostat Products Division, Carson, CA, or an approved equal for fire-rated and non-fire-rated doors.
1. Frame: 18 gage.
2. Finish: Special color lacquer, as selected by Architect.
3. Unit shall have UL or WH label.
4. Wire Glass: Refer to Section 08 80 00.
5. Mounting: Countersink, one-way vandal resistant heads, through bolts.
6. Exterior Doors: Unit shall be hot-dip galvanized after fabrication.

2.04 FABRICATION

A. Fabricate non-rated doors in accordance with WIC Quality Standards and ANSI/NWMA I.S.1.
B. Fabricate fire rated doors in accordance with WIC Quality Standards and ANSI/NWMA I.S.1 and to UL or WH requirements. Attach permanent metal fire rating label to door edge, either on hinge stile or top edge.
C. Machine doors at factory for finish hardware.
D. Seven-ply or nine-ply construction not permitted.
E. Veneer: Face veneer grain shall run vertically; crossband veneer run horizontally.
F. Transom Panels: Same construction as doors, grain matched.

PART III – EXECUTION

3.01 INSTALLATION

A. Install doors under Section 06 20 00.

3.02 FINISHING

A. Field Finishing: In accordance with Section 09 91 00, Painting.

END OF SECTION

SECTION 08 30 50
ACCESS DOORS

PART I – GENERAL

1.01 WORK INCLUDED

A. Non-rated access doors and frames.

1.02 SUBMITTALS FOR REVIEW

A. Submit product data under provisions of the contract.
B. Include sizes, types, finishes, scheduled locations and details of adjoining work.
C. Submit manufacturer's installation instructions under provisions of the contract.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Access Doors: Products of Milcor Incorporated, Lima, OH, are the standard of quality required and specified herein. Similar products of Karp Associates, Inc., Maspeth, NY, J.L. Industries, Bloomington, MN, Nystrom Inc., Minneapolis, MN and the Williams Brothers Corp., East Moline, IL, may be submitted for approval under provisions of section 01 25 00.

2.02 ACCESS UNITS

A. In Gypsum Board: Model DW prime painted with concealed hinges, cam lock, size as required inch, 16 gage frame, 14 gage door.

2.03 FABRICATION

A. Weld, fill, and grind joints to assure flush and square unit.
B. Hardware: 175 degree steel hinges with removable pin, screw driver slot, quarter turn cam lock.

2.04 FINISH

A. Chemically bonded prime coat of baked-on electrostatic powder – color to be verified with architect – bid to be based on off-white finish color.

PART III – EXECUTION

3.01 INSPECTION

A. Verify that rough openings for door and frame are correctly sized and located.
B. Beginning of installation means acceptance of existing conditions.

3.02 INSTALLATION

A. Install frame plumb and level in ceiling openings.
B. Position unit to provide convenient access to concealed work requiring access.
C. Secure rigidly in place in accordance with manufacturer's instructions.

END OF SECTION

SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 specification Sections, apply to the work of this Section.

REFERENCES:

A. CCR – California Building Code – Current Edition
B. BHMA A156.18 – Materials and Finishes
C. DHI-02 – Installation Guide for Doors and Hardware
D. DHI-03 – Keying Systems and Nomenclature
E. U.L. – Underwriter's Laboratories
F. NFPA 80 – Fire Doors and Windows
G. NFPA 105 – Smoke Control Door Assemblies
H. MIL-R-6130 – Rubber, Cellular, Chemically Blown
I. MIL-R-6855/3 – Rubber, Synthetic, Rods (or Rounds)
J. Chapter 10 & 11B – California Building Code
K. 2010 Standards for Accessible Design

DESCRIPTION OF WORK:

Definition: "Finish Hardware" includes items known commercially as finish hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame. Types of items in this section include (but are not necessarily limited to):

Hinges
Lock cylinders and keys
Lock and latch sets
Exit devices
Key lock box vault
Push/pull units
Sliding door equipment
Closers
Overhead Holders
Miscellaneous door control devices
Door trim units
Protection plates

QUALITY ASSURANCE:

Manufacturer: Obtain each kind of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.

Supplier: A recognized builders hardware supplier who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or employs an experienced hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.

Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with the 2016 CBC, UL 10B, UL10C, and NFPA 252. Provide only hardware which has been tested and listed by UL for

types and sizes of doors required and complies with requirements of door and door frame labels. Include smoke seals.

Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

SUBMITTALS:

Product Data: Submit manufacturers' technical information for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.

Hardware Schedule: Submit final hardware schedule in manner indicated below. Hardware schedules are intended for coordination of work.

Final Hardware Schedule: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:

Type, style, function, size and finish of each hardware item.

Name and manufacturer of each item.

Fastenings and other pertinent information.

Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.

Explanation of all abbreviations, symbols, codes, etc. contained in schedule.

Mounting locations for hardware.

Door and frame sizes and materials.

Submittal Sequence:

Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by builders hardware, and other information essential to the coordinated review of hardware schedule.

Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

PRODUCT DELIVERY, STORAGE AND HANDLING:

Packaging of hardware, on a set by set basis, is the responsibility of the supplier. As material is received by the hardware supplier from the various manufacturers, sort and repackage in containers marked with the hardware set number. Two or more identical sets may be packed in the same container.

Inventory hardware jointly with representative of the hardware supplier and the hardware installer until each is satisfied that the count is correct.

Provide secure lock-up for hardware delivered to the project, but not yet installed. Control and handling and installation of hardware items which are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses, both before and after installation.

JOB CONDITIONS:

Coordination: Coordinate hardware with other work. Tag each item or package separately, with identification related to the final hardware schedule, and include basic installation instructions in the package. Furnish hardware items of proper design for use on doors and frames of the thicknesses, profile, swing, security and similar requirements indicated, as necessary for proper installation and function. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check the shop drawings of such other work, to confirm that adequate provisions are made for the proper installation of hardware.

PART 2 - PRODUCTS

SCHEDULED HARDWARE:

Requirements for design, grade, function, finish, size and other distinctive qualities of each type of builders hardware is indicated in the Finish Hardware Data Sheet and Hardware Schedule at the end of this section. Products are identified by using hardware designation numbers of the following.

Manufacturer's product designations: One or more manufacturers are listed for each hardware type required. An asterisk (*) after a manufacturer's name indicates whose product designation is used in the Hardware Schedule for purposes of establishing minimum requirements. Provide either the product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in this section.

MATERIALS AND FABRICATION:

General:

Hand of door: The drawings show the direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of the door movement as shown.

Fasteners: Manufacture hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws.

Furnish screws for installation, with each hardware item. Provide phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match the hardware finish or, if exposed in surfaces of other work, to match the finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

Provide concealed fasteners for hardware units which are exposed when the door is closed, except to the extent no standard units of the type specified are available with concealed fasteners. Do not use through bolts for installation where the bolt head or the nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work.

Tools for Maintenance: Furnish a complete set of specialized tools as needed for Owner's continued adjustment, maintenance, and removal and replacement of builders hardware. Obtain written verification of delivery from Owner.

(Project Close-out Item)

HINGES, BUTTS AND PIVOTS:

Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template- produced units.

Screws: Furnish Phillips flat-head all-purpose or machine screws for installation of units, except furnish Phillips flat-head all-purpose or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.

Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:

Steel Hinges: Steel.

Non-ferrous Hinges: Stainless steel.

Exterior Doors: Non-ferrous-stainless.

Interior Doors: Steel non-rising.

Tips: Flat button and matching plug, finished to match leaves.

All butts installed at all exterior condition subjected to vandalism shall be provided with non-removable pins.

Number of Hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90" or less in height and one additional hinge for each 30" of additional height.

LOCK CYLINDERS AND KEYING:

General: Supplier will meet with Owner to finalize keying requirements and obtain final instructions in writing.

Existing System: Grandmasterkey the locks to the Owner’s existing system, (Schlage), with masterkey to the existing school system.

Equip locks with cylinders for interchangeable-core pin tumbler inserts. Furnish only temporary inserts for the construction period, and remove these when directed.

Contractor to provide final inserts.

Key Quantity: Furnish 3 change keys for each lock; 5 master keys for each master system; and 5 grandmaster keys for each grandmaster system. Obtain written verification of delivery from Owner.
(Project Close-out Item)

Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.

Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.

Key Material: Provide keys of nickel silver only.

Furnish one extra blank for each lock.

Deliver keys to key control system manufacturer.
Deliver keys to Owner's representative.
Obtain written verification of delivery from Owner.

(Project Close-out Item)

Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of the number of locks required for the project.

Key control manufacturer to set up complete cross index system and place keys on markers and hooks in the cabinet as determined by the final key schedule.

LOCKS, LATCHES, BOLTS AND THRESHOLDS:

Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.

Provide standard (open) strike plates for interior doors of residential units where wood door frames are used.

Provide dust-proof strikes for foot bolts, except where special threshold construction provides non-recessed strike for bolt.

Provide roller type strikes where recommended by manufacturer of the latch and lock units.

Lock Throw: Provide 5/8" minimum throw of latch and deadbolt used on pairs of doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.

All permanent keys shall be delivered to the Owner's Representative via registered mail.

Locks: Except where otherwise specified, all locks and latches and component parts shall be by one manufacturer.

All locks shall be of such construction that when locked, the door may be opened from within by using lever and without the use of a key or special knowledge.

All locks shall have box strikes and curved lips long enough to protect the trim and facilitate correct installation and application. All locks to have 3/4" throw where required.

All locks shall have a "free-wheeling" lever when the outside lever is in the locked position. Lever rose shall have built in mechanical stop to reduce vandalism.

Flush Bolt Heads: Minimum of 1/2" diameter rods of brass, bronze or stainless steel, with minimum 12" long rod. Use of this device shall be permitted in accordance with Section 1133B.2.1 and 1008.1.8, Title 24. Where flush bolts occurs in the path of travel, provide automatic accessible flush bolt.

Exit Device Pressure: Exit Devices (Panic Hardware) shall have a 5 pound maximum effort to release per CBC 11B-309.4

Exit Device Dogging: Except on fire-rated doors, wherever closers are provided on doors equipped with exit devices, equip the units with keyed dogging device to hold the push bar down and the latch bolt in the open position. Provide glass bead kits as required at doors with glass lites. The maximum unlatching force for exit devices to be 5 pounds.

Exit Doors: Shall be operable from the inside without the use of a key or any special knowledge or effort.

Thresholds: Provide thresholds for barrier-free access in accordance with the current ADA and CAC Title 24 requirements, Section 11B-404.2.5. All exterior thresholds shall be installed on a full-bed of sealant and secured in place with "dynabolts" expansion anchors.

PUSH/PULL UNITS:

Exposed Fasteners: Provide manufacturer's standard exposed fasteners for installation; through-bolted for matched pairs, but not for single units.

CLOSERS AND DOOR CONTROL DEVICES:

Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.

Provide parallel arms for all overhead closers, except as otherwise indicated.

Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically disabled, provide adjustable units complying with 11B-404.2.8. Applies to all doors in path of travel equipped with closers. Door closer shall comply with 11B-404.2.8 closer delay time. The Authority having Jurisdiction may increase the maximum effort to operate fire doors to achieve positive latching, but not to exceed 15 lbs max.

Adjust closers for 5 lbs. (exterior), or 5 lbs. (interior) maximum opening effort (11B-404.2.9). Required for all doors using closers. Closers to comply with 11B-404.2.8, closer delay and time.

Smoke Seals: All fire rated doors shall have smoke seals, head, jambs, and sill, which meet requirements of ASTM E-283 and UL 1479. Tested for smoke and draft control at 1.57 psf. Use Pemko S88D or approved equal.

Weather Stripping: All exterior doors shall be weather stripped. Use PEMKO S88D or approved equal.

DOOR TRIM UNITS:

Levers: To be accessible type.

Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, and similar units); either machine screws or self-tapping screw.

Fabricate edge trim of stainless steel, not more than 1/2" nor less than 1/16" smaller in length than door dimension.

Fabricate protection plates (armor, kick or mop) not more than 1- 1/2 on stop side smaller than the door width, x the height indicated.

Plastic Plates: Plastic laminate (polyester), 1/8" thick.

Latch Protectors: All exterior doors shall be equipped with latch protectors with exposed corners rounded set flush to door face, installed at all strikes to prevent "picking" of lock by inserting a tool between door and frame.

Manufacturer: B.B.W. No. 9616

Key Lock Box Vault: Furnish and install a recessed key lock box set flush into wall finish as directed by Architect or as shown on the drawings.

Manufacturer: Model 3200-R Heavy Duty, Dark Bronze
The Knox Company, Newport Beach, CA

HARDWARE FOR INTERIOR SLIDING DOORS:

General: Provide manufacturer's standard hardware for interior sliding doors which are not furnished as a "package" complete with hardware.

HARDWARE FINISHES:

Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.

The designations used in schedules and elsewhere to indicate hardware finishes are the industry-recognized standard commercial finishes, except as otherwise noted.

PART 3 - EXECUTION

INSTALLATION:

Mount hardware units at heights between 34” to 44” A.F.F. or as indicated in "Recommended Locations for Finish Hardware" for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.

Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way. Coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

Set all exterior threshold on a full-bed of sealant and secure in place with "dyna-bolts" expansion anchors.

Install all door closers and exit devices per manufacturer instructions and secure in place to doors with sex-nuts and bolts (SNB). Exercise care not to dimple the doors.

Install any floor mounted devices (floor stops, etc.) to be located within 4” of the wall.

ADJUST AND CLEAN:

Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace which cannot be adjusted to operate freely and smoothly as intended for the application made.

Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware. Obtain written verification of completion from Owner.

(Project Close-out Item)

Continued Maintenance Service: Approximately six months after the acceptance of hardware in each area, the Installer, accompanied by the representative of the latch and lock manufacturer, shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

(Project Close-out Item)

FINISH HARDWARE DATA SHEET:

Acceptable Hardware Designs:

Mortise Locks: Schlage D Series and D Series “Vandalgard”, “Rhodes” Design Lever.

Acceptable Manufacturer:

ADA Signage: Per Plans and Signage Specifications

Butts and Hinges: Hager, Stanley*.

Locks and Cylinders: Schlage*.

Exit Devices: Von Duprin*.

Overhead Closers: LCN; Norton*.

Door Control Devices: Baldwin*, Glynn-Johnson.

Door Trim Units: BBW*, Glynn-Johnson, Falcon.

Door Stripping, Thresholds and Seals: Pemko*, Zero.

Gate Hardware: Jansen Ornamental Supply Co. (818) 442-0271.

* - Indicates manufacturer's numbers shown elsewhere to indicate project requirements.

Except on weather stripped frames, provide silencers at all Hollow Metal Frames, 3 per single opening, 2 per double.

HARDWARE SCHEDULE

Note:

All hardware items shall have matching finishes with:

Satin Chromium US26D, BHMA 626, unless noted otherwise.

Thresholds shall be mill finish aluminum. Door closers shall be sprayed aluminum Al, BHMA 689. Push and pull plates shall be stainless steel.

Add below oil rubbed bronze, US10B, BHMA 613.

Thresholds shall be dark bronze anodized.

Door closers shall be sprayed dark statuary bronze, BHMA, 690.

Push and pull plates shall be oil rubbed bronze, US10B, BHMA 613.

Oil Rubbed Bronze (dull, slightly oxidized, oil rubbed) US 10B, BHMA 613, unless noted otherwise.

DISTRICT STANDARDS:

1. All hardware to be US26D-626 Chromium, dull.
2. Keyway to be 1248 - PRIMUS
3. Cores are to be interchangeable.- PRIMUS
4. Provide construction cores.
5. Provide floor mounted door stops as shown on plans if not included in this hardware schedule.

EXTERIOR DOORS:

Group 01 Standard Classroom, Single Door, with Panic Hardware

1-1/2 Pr.	Butts FBB 199 5 x 4-1/2 NRP
1	Panic Device - Von Duprin - CDAX 98 – RIM - L-06 996L –US26D-626 (Chromium, dull) (CD-Cylinder Dogging; AX-Access; 98-Smooth; - RIM; L-06-Lever Classroom; 996L- Lever- key locks/unlocks; Finish)
1	Cylinder- Rim – Schlage 20-057 (Conventional Core – exit dev)
1	Cylinder – Mort – Schlage 20-061 (Conventional Core- 3/8” blocking ring- exit dev)
1	Door Closer 7500H- with cover
2	Kickplates: Ives 8400 US32D B-CS 10” x 34”
1	Door Shoe 216, Size to match door
1	Threshold 2727D x 36” –Contractor to field verify installation prior to order.
1	Door Stop/Holder 1267 with floor strike (Holder not allowed on rated doors. If rated use Trimco 1214H)
Set	Provide full set of door silencers

Group 02 Standard Classroom, Single Door, with Panic Hardware, NO CLOSER

1-1/2 Pr.	Butts FBB 199 5 x 4-1/2 NRP
1	Panic Device - Von Duprin - CDAX 98 – RIM - L-06 996L –US26D-626 (Chromium, dull) (CD-Cylinder Dogging; AX-Access; 98-Smooth; - RIM; L-06-Lever Classroom; 996L- Lever- key locks/unlocks; Finish)
1	Cylinder- Rim – Schlage 20-057 (Conventional Core – exit dev)
1	Cylinder – Mort – Schlage 20-061 (Conventional Core- 3/8” blocking ring- exit dev)
2	Kickplates: Ives 8400 US32D B-CS 10” x 34”
1	Door Shoe 216, Size to match door
1	Threshold 2727D x 36” –Contractor to field verify installation prior to order.
1	Door Stop/Holder 1267 with floor strike (Holder not allowed on rated doors. If rated use Trimco 1214H)
Set	Provide full set of door silencers

Group 03 Standard Classroom, Single Door, Panic Hardware – Partial Existing Hardware

1-1/2 Pr.	*(Existing to Remain) Butts FBB 199 5 x 4-1/2 NRP*
1	Panic Device - Von Duprin - CDAX 98 – RIM - L-06 996L –US26D-626 (Chromium, dull) (CD-Cylinder Dogging; AX-Access; 98-Smooth; - RIM; L-06-Lever Classroom; 996L- Lever- key locks/unlocks; Finish)
1	Cylinder- Rim – Schlage 20-057 (Conventional Core – exit dev)
1	Cylinder – Mort – Schlage 20-061 (Conventional Core- 3/8” blocking ring- exit dev)
1	*(Existing to Remain) Door Closer 7500H- with cover*
2	*(Existing to Remain) Kickplates: Ives 8400 US32D B-CS 10” x 34”*
1	*(Existing to Remain) Door Shoe 216, Size to match door*
1	Threshold 2727D x 36” –Contractor to field verify installation prior to order.
1	Door Stop/Holder 1267 with floor strike (Holder not allowed on rated doors. If rated use Trimco 1214H)
Set	Provide full set of door silencers

INTERIOR DOORS

Group 04 Standard Classroom, Double Doors, Panic Hardware, No Mullion

3 Pr.	Butts FBB 199 5 x 4-1/2
2	Panic Device - Von Duprin - CDAX 9847WDC - L-06 996L –US26D-626 (Chromium, dull) (CD-Cylinder Dogging; AX-Access; 98-Smooth; 47- Concealed Vertical Rod-Wood Door; L-06-Lever Classroom; 996L- Lever- key locks/unlocks; Finish)
2	Cylinder- Rim – Schlage 20-057 (Conventional Core – exit dev)
2	Cylinder – Mort – Schlage 20-061 (Conventional Core- 3/8” blocking ring- exit dev)
2	Door Closer 7500H- with cover
4	Kickplates: Ives 8400 US32D B-CS 10” x 34”
2	Door Stop/Holder 1267 with floor strike (Holder not allowed on rated doors. If rated use Trimco 1214H)
2 Sets	Provide full set of door silencers

END OF SECTION

SECTION 08 80 00
GLAZING

PART I – GENERAL

1.01 SECTION INCLUDES
A. Glass and glazing for sections referencing this section for Products and installation.

1.02 REFERENCES
A. ASTM C1036 – Flat Glass.
B. ASTM C1048 – Heat-Treated Flat Glass – King HS, Kind FT Coated and Uncoated Glass.
C. GANA – Glazing Manual, 2009 Edition.
D. GANA – Sealant Manual, 2009 Edition.
E. Chapter 26 and 24, California Building Code.
F. Section KCMZ, UL Building Materials Directory, 1995 Edition.

1.03 PERFORMANCE REQUIREMENTS
A. Provide minimum frame lap in accordance with Table 2403.2.1, California Building Code.

1.04 SUBMITTALS FOR REVIEW
A. Submit under provisions of Section 01 33 00.
B. Product Data on Glass Types Specified: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
C. Samples: Submit three samples of each material specified illustrating coloration and design.

1.05 QUALITY ASSURANCE
A. Perform Work in accordance with:
   1. FGMA Glazing Manual.
   2. FGMA Sealant Manual.

1.06 ENVIRONMENTAL REQUIREMENTS
A. Do not install glazing when ambient temperature is less than 50 degrees F.

1.07 FIELD MEASUREMENTS
A. Verify that field measurements are as indicated on shop drawings.

1.08 IDENTIFICATION
A. Each light shall bear the manufacturer's label designating the type and thickness of glass. Conform to Section 2402, California Building Code.
B. Each light of safety glazing material installed in hazardous locations as defined in Section 2406, California Building Code shall be identified by a label which will specify the labeler, whether the manufacturer or installer, and state that safety glazing material has been utilized in such installation.

PART II – PRODUCTS

2.01 MANUFACTURERS – FLAT GLASS MATERIALS
A. Pilkington, Nippon Sheet Glass Co. Ltd, Tokyo, Japan
B. Libby-Owens-Ford Co., Toledo, OH.
C. PPG Industries, Pittsburgh, PA.
D. Or equal.

2.02 FLAT GLASS MATERIALS
Tinting for all glass: Exterior to be color tinted selected by architect, percentage to be selected, Interior to be clear, unless called out otherwise.
A. Float Glass: ASTM C1036, Type 1 transparent flat, Class 1 Optifloat Clear, Quality q3 glazing select 1/4 inch thick minimum.

B. Safety Glass: ASTM C1048, Kind FT fully tempered, Condition A uncoated, Type 1 transparent flat, Class 1 Optifloat Clear, Quality q3 glazing select; 1/4 inch thick minimum.
C. Fire Rated Glass: ANSI Z97.1, Warnock Hersey and UL rated 20 minutes, Clear, 1/4 inch thick, Technical Glass Products, Fire Lite Plus or as approved.
D. Heat Absorbing, Tinted Glass: ASTM C1048, Type 1, Class 3, Quality q3; Float type, tempered, light reducing in gray color; light transmittance of 56 percent, shading coefficient of .66; 1/4 inch thick minimum.
E. Insulating Glass Units: ASTM E774 and E773; double pane with silicone sealant edge seal; outer pane of 1/4 tinted glass, inner pane of 1/4 tempered glass, inter pane space purged dry air; total unit thickness of 1 inch.
F. ***Toyon E.S. Translucent Glass:*** to have white film or black film (architect's option) to interior side of double-paned glazing to provide 100% translucent appearance (unable to see through).

2.03 GLAZING ACCESSORIES

A. Setting Blocks: 80 to 90 Shore A durometer hardness, length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
B. Spacer Shims: 50 to 60 Shore A durometer hardness, minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one side.
C. Glazing Tape: Performed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; black color.
D. Glazing Splines: Resilient polyvinyl chloride extruded shape to suit glazing channel retaining slot.

PART III – EXECUTION

3.01 EXAMINATION

A. Verify prepared openings.
B. Verify that openings for glazing are correctly sized and within tolerance.
C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions and ready to receive glazing.

3.02 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.
B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
C. Prime surfaces scheduled to receive sealant.

3.03 INSTALLATION – EXTERIOR DRY METHOD (PREFORMED GLAZING)

A. Cut glazing spline to length; install on glazing pane. Seal corners by butting spline and sealing junctions with butyl sealant.
B. Place setting blocks at 1/4 points with edge block no more than 6 from corners.
C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
D. Install removable stops without displacing glazing. Exert pressure for full continuous contact.

3.04 INSTALLATION – EXTERIOR WET/DRY METHOD (PREFORMED TAPE AND SEALANT)

A. Cut glazing tape to length and set against permanent stops, 3/16 inch below sight line. Seal corners by butting tape and dabbing with butyl sealant.
B. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.
C. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
D. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane of glass unit.
E. Install removable stops, with spacer strips inserted between glazing and applied stops, 1/4 inch below sight line.
F. Fill gap between glazing and stop with silicone type sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch below sight line.

G. Apply cap bead of silicone type sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.05 INSTALLATION – EXTERIOR WET METHOD (SEALANT AND SEALANT)

A. Place setting blocks at 1/4 points and install glazing pane or unit.
B. Install removable stops with glazing centered in space by inserting spacer shims both sides at 24 inch intervals, 1/4 inch below sight line.
C. Fill gaps between glazing and stops with silicone type sealant to depth of bite on glazing, but not more than 3/8 inch below sight line to ensure full contact with glazing and continue the air and vapor seal.
D. Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.06 INSTALLATION – INTERIOR DRY METHOD (TAPE AND TAPE)

A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
C. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
D. Place glazing tape on free perimeter of glazing in same manner described above.
E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
F. Knife trim protruding tape.

3.07 INSTALLATION – INTERIOR WET/DRY METHOD (TAPE AND SEALANT)

A. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch above sight line.
B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
C. Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.
D. Install removable stops, spacer shims inserted between glazing and applied stops at 24 inch intervals, 1/4 inch below sight line.
E. Fill gaps between pane and applied stop with silicone type sealant to depth equal to bite on glazing, to uniform and level line.
F. Trim protruding tape edge.

3.08 CLEANING

A. Remove glazing materials from finish surfaces.
B. Remove labels after Work is complete.
C. Clean and polish surfaces and frames.

3.09 PROTECTION OF FINISHED WORK

A. Protect finished work.
B. After installation, mark pane with an ‘X’ by using removable plastic tape or paste.

END OF SECTION

SECTION 08 87 13
SUN CONTROL WINDOW FILM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sun control window films of the following types:
1. Traditional series sun control film.

B. Window film to be installed over new or existing glass.

1.2 RELATED SECTIONS

A. Division 8 – Windows and Glazing

1.3 REFERENCES

A. ASHRAE - American Society for Heating, Refrigeration, and Air Conditioning Engineers; Handbook of Fundamentals.

B. ASTM International (ASTM):
1. ASTM D 882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
2. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers -- Tension.
3. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
4. ASTM D 1004 - Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting.
5. ASTM D 1044 - Standard Method of Test for Resistance of Transparent Plastics to Surface Abrasion (Taber Abrader Test).
6. ASTM D 2240 - Standard Method for Rubber Property - Durometer Hardness.
7. ASTM D 2582 - Standard Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheeting.
8. ASTM D 5895 - Standard Test Methods for Evaluating Drying or Curing During Film Formation of Organic Coatings Using Mechanical Recorders.
9. ASTM D 4830 - Standard Test Methods for Characterizing Thermoplastic Fabrics Used in Roofing and Waterproofing.
10. ASTM E 84 - Standard Method of Test for Surface Burning Characteristics of Building Materials.
11. ASTM E 308 - Standard Recommended Practice for Spectrophotometry and Description of Color in CIE 1931 System.
12. ASTM E 903 - Standard Methods of Test for Solar Absorbance, Reflectance and Transmittance of Materials Using Integrating Spheres.
13. ASTM E 1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
14. ASTM E 1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne

Debris in Hurricanes.

15. ASTM F1642 - Standard Method of Test for Glazing and Glazing Systems Subject to Airblast Loadings
16. ASTM F2912 - Standard Specification for Glazing and Glazing Systems Subject to Airblast Loadings.
17. NFRC 100/200 (Formerly ASTM E903) - Standard Methods of Test for Solar Absorbance, Reflectance and Transmittance of Materials Using Integrating Spheres.

C. Window 6.3 - A Computer Tool for Analyzing Window Thermal Performance; Lawrence Berkeley Laboratory.

D. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.

E. IES LM-83-12: IES Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure.

F. Consumer Products Safety Commission 16 CFR, Part 1201 - Safety Standard for Architectural Glazing Materials.

G. GSA-TS01 - Standard Test for Glazing and Glazing Systems Subject to Airblast Loadings.

H. ISO 16933, International Standard for Glass in Building: Explosion-resistant security glazing - Test and classification for arena air-blast testing.

I. Underwriters Laboratories Inc. (UL): UL 972 - Burglary Resisting Glazing Material.

1.4 DEFINITIONS

A. Light to Solar Gain Ratio: The ratio of visible light transmission to Solar Heat Gain Coefficient.

1.5 PERFORMANCE REQUIREMENTS

A. Fire Performance: Surface burning characteristics when tested in accordance ASTM E 84:
   1. Flame Spread: 25, maximum.
   2. Smoke Developed: 450, maximum.

B. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, less than 5 percent increase of transmitted light haze will result in accordance with ASTM D 1044 using 50 cycles, 500 grams weight, and the CS10F Calbrase Wheel.

1.6 SUBMITTALS

A. Submit under provisions of Section 01 30 00 / 01 33 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.

D. Performance Submittals: Provide laboratory data of emissivity and calculated window U-Factors for various outdoor temperatures based upon established calculation procedure defined by the ASHRAE Handbook of Fundamentals, Chapter 29, or Lawrence Berkeley Laboratory Window 5.2 Computer Program.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years experience.
   1. Provide documentation that the adhesive used on the specified films is a Pressure Sensitive Adhesive (PSA).

B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
   1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
   2. Provide a commercial building reference list of 5 properties where the installer has applied window film. This list will include the following information:
      a. Name of building.
      b. The name and telephone number of a management contact.
      c. Type of glass.
      d. Type of film and/or film attachment system.
      e. Amount of film and/or film attachment system installed.
      f. Date of completion.
   3. Provide a Glass Stress Analysis of the existing glass and proposed glass/film combination as recommended by the film Manufacturer.
   4. Provide an EFilm application analysis to determine available energy cost reduction and savings.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Follow manufacturer's instructions for storing and handling.

B. Store products in manufacturer's unopened packaging until ready for installation.

1.9 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.10 WARRANTY

A. At project closeout, provide to Owner or Owners Representative an executed current copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

B. In order to validate warranty, installation must be performed by an Authorized 3M dealer and according to Manufacturer's installation instructions. Verification of

Authorized 3M dealer can be confirmed by submission of active 3M dealer code number.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: **3M Commercial Solutions**, which is located at: 3M Center Bldg. 220-12-E-04; St. Paul, MN 55144-1000; Toll Free Tel: 888-650-3497; Tel: 651-737-1081; Fax: 651 737 8241; Email: request info (tdjohnson3@mmm.com); Web: www.3m.com/3M/en_US/architectural-design-us/?utm_medium=redirect&utm_source=vanity-url&utm_campaign=www.3M.com/AMD | www.3m.com/3M/en_US/building-window-solutions-us/

B. Substitutions: Not permitted.

2.6 3M TRADITIONAL SERIES SUN CONTROL FILM (provide samples of each film listed below for architect to select)

A. Physical Properties:
1. Composition: Optically clear metallized polyester film which may be laminated to a clear polyester film. Pressure sensitive adhesive on one side and an acrylic abrasion resistant coating on the other.
2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
3. Variation in Total Transmission across the Width: Less than 2 percent over the average at any portion along the length.
4. Thickness: Nominal 1.5 mils to 2.5 mils (0.075mm to 0.125mm) with no evidence of coating voids.
5. Identification: Labeled as to Manufacturer as listed in this Section.

B. Performance, Silver P-18 - Film applied to 1/4 Inch (6.4 mm) Thick Clear Glass:
1. Visible Light Transmission (NFRC 100/200/304): 17 percent.
2. Visible Reflection:
   a. Exterior (NFRC 100/200/304): 56 percent.
   b. Interior (NFRC 100/200/304): 58 percent.
3. Ultraviolet Transmission (NFRC 100/200/304): Less than 1 percent.
4. Solar Heat Gain Coefficient at 90 Degrees (Normal Incidence) (NFRC 100/200/304): 0.23.

C. Performance, Neutral 20 - Film applied to 1/4 Inch (6.4 mm) Thick Clear Glass:
1. Visible Light Transmission (NFRC 100/200/304): 15 percent.
2. Visible Reflection:
   a. Exterior (NFRC 100/200/304): 21 percent.
   b. Interior (NFRC 100/200/304): 19 percent.
3. Ultraviolet Transmission (NFRC 100/200/304): Less than 1 percent.
4. Solar Heat Gain Coefficient at 90 Degrees (Normal Incidence) (NFRC 100/200/304): 0.38.

D. Performance, Affinity 15 - Film applied to 1/4 Inch (6.4 mm) Thick Clear Glass:
1. Visible Light Transmission (NFRC 100/200/304): 9 percent.
2. Visible Reflection:
   a. Exterior (NFRC 100/200/304): 58 percent.
   b. Interior (NFRC 100/200/304): 25 percent.

3. Ultraviolet Transmission (NFRC 100/200/304): Less than 1 percent.
4. Solar Heat Gain Coefficient at 90 Degrees (Normal Incidence) (NFRC 100/200/304): 0.21.

PART 3 EXECUTION

3.1 EXAMINATION

A. Film Examination:
1. If preparation of glass surfaces is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
a. Glass surfaces receiving new film should first be examined to verify that they are free from defects and imperfections, which will affect the final appearance.
2. Do not proceed with installation until glass surfaces have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
3. Commencement of installation constitutes acceptance of conditions.

3.2 PREPARATION

B. Clean surfaces thoroughly prior to installation.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

D. Refer to Manufacturer's installation instructions for methods of preparation for Impact Protection Adhesive or Impact Protection Profile film attachment systems

3.3 INSTALLATION, GENERAL

E. General: Install in accordance with manufacturer's instructions and the following.
1. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant.
2. Spray the slip solution, composed of one capful of baby shampoo or dishwashing liquid to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film.
3. Apply film to glass and lightly spray film with slip solution.
4. Squeegee from top to bottom of window.
5. Bump film edge with lint-free towel wrapped around edge of a 5-way tool.
6. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.
7. If completing an exterior application, check with the manufacturer as to whether edge sealing is required.
1) Daylight Redirection Film Installation:
8. Install in accordance with manufacturer's instructions.
a. Film is intended for installation in clerestory windows, minimum 7 feet (2.13m) above finished floor space.
b. This film is directional - it has a top and a bottom. Identify and mark the top of the film.
9. 1Pre-cut the film neatly and squarely to the proper height and width, approximately 1/4" (6 mm) shorter than the window opening prior to installation. Use a new blade tip after 3 to 4 cuts.
10. 2Seal the left and right film edges with 3M 3950 Edge Sealer. Allow approximately 5-10 minutes for the edge sealer to dry.

11. Spray the slip solution, composed of one capful of baby shampoo or dishwashing liquid to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film.
12. 4Apply film to glass and spray film surface with slip solution. Squeegee from top to bottom of window with either horizontal or vertical strokes to ensure water is fully removed.
13. Cut film edges neatly and squarely at a uniform distance of 1/8 inch (3 mm) from window sealant.
14. Bump film edge with lint-free towel wrapped around edge of a 5-way tool, using a horizontal wiping motion.
15. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions

3.4 CLEANING AND PROTECTION

F. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.

G. Touch-up, repair or replace damaged products before Substantial Completion.

H. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

END OF SECTION

SECTION 09 21 16
GYPSUM BOARD SYSTEMS

1 PART 1 GENERAL

1.1 WORK INCLUDED

A. Vertical wall gypsum board application.
B. Metal channel ceiling frame and horizontal ceiling gypsum board application.
C. Exterior gypsum sheathing board.
D. Cementitious backer board for tile application.
E. Cementitious backer board for toilet room and shower room ceilings.
F. Taped and sanded joint treatment.
G. Gypsum board finishes and textures

1.2 REFERENCES

A. ASTM C1396 – Standard Specification for Gypsum Board
B. ASTM C36 - Gypsum Wallboard.
C. ASTM C79 - Gypsum Sheathing.
D. ASTM C475 - Joint Reinforcing Tape and Compound for Finishing Gypsum Board.
E. ASTM C630 - Water-Resistant Gypsum Backing Board.
F. ASTM C635 – Metal suspension systems for acoustical and lay-in ceilings
G. ASTM C840 – Standard Specification for Installation of Gypsum Construction
H. ASTM C1002 - Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases.
I. UL – 1994 – Underwriters Laboratories, Inc., Fire Resistance Directory, Volume 1.
J. GA-201 – Gypsum Board for Walls and Ceilings.
K. GA-216 – Application and Finishing of Gypsum Board.
L. GA-600 – Fire Resistance Design Manual.
M. Chapter 7, California Building Code.
N. Chapter 25, California Building Code.
O. ESR-1222
P. CBC 2506.2.1
Q. ASCE 13.5.6
R. ASTM C635-04
S. DSA IR-25-3

1.3 QUALITY ASSURANCE

A. Applicator: Company specializing in gypsum board systems work with three years experience.

1.4 SUBMITTALS FOR REVIEW

A. Submit product data as outlined in other sections of this manual.
B. Provide product data on gypsum board, joint tape and fastening, etc.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS - GYPSUM BOARD SYSTEM

A. Gypsum Wallboard Materials: Products of United States Gypsum Corporation, Chicago, IL, are the standard of quality required and specified herein. Similar products of Domtar Gypsum, Long Beach, CA, Georgia-Pacific, Atlanta, GA, and Gold Bond Building Products, Charlotte, NC, may be submitted for approval.
B. ESR - 1222

2.2 FRAMING MATERIALS

A. Furring Channels: 25 gage galvanized steel, 7/8 inch deep by 2-9/16 inch wide, 275 lbs per 1,000 ft weight, USG FURRING CHANNEL DWC-25 and USG METAL FURRING CHANNEL CLIPS. Z Type, where required: USG Z-FURRING CHANNEL, 1, 1-1/2, 2 and 3 inch depths.

1. Furring Channels at Cementitious Backing Board Ceilings: 20 gage, PWC-20.

B. Angles: 1-3/8 inch by 7/8 inch, 24 gage, USG GALVANIZED METAL ANGLES.

C. Runner Channels: Minimum weights, sizes and maximum spans as defined in Table 25-A, California Building Code, cold rolled or hot rolled as defined therein.

D. Taping, Bedding and Finishing Compound: ASTM C475; compatible with tape and substrate.

1. SHEETROCK ALL PURPOSE JOINT COMPOUND, non-asbestos, vinyl base.

2. SHEETROCK POWDER JOINT COMPOUND, non-asbestos vinyl base, conventionally drying.

3. SHEETROCK SETTING-TYPE JOINT COMPOUND, chemical hardening.

4. SHEETROCK JOINT TAPE, cross fibered paper, PERMA – TITLE TAPE, by Perma Glass Mesh Inc., Dover, OH, or equal.

E. Hanger Wire: 8 gage for 16 sq ft maximum, galvanized annealed, size of wire in accordance with California Building Code.

F. Tie Wire: 18 gage galvanized annealed.

G. Accessories: Corrosive Protective-Coated steel.

1. Corner Bead: USG No. 800 or 900.

2. Trim: USG No. 701-A or 701-B.

3. Control Joint: USG Control Joint No. 093.

H. Fasteners: ASTM C1002 Phillips head, power-driven, nails not permitted.

1. Type S-12, 16 gage steel studs, minimum penetration 3/8 inch.

2. Type S, 20 gage steel studs, minimum penetration 3/8 inch.

3. Type W, wood construction, minimum penetration 5/8 inch.

4. Type G, gypsum board to gypsum board, minimum penetration ½ inch.

I. Adhesive: DUROCK ceramic tile mastic, DURABOND D-2001.

2.3 GYPSUM BOARD MATERIALS

A. Regular and Foil-Backed Gypsum Board: ASTM C36; 5/8 inch thick, maximum permissible length; ends square cut, tapered round edges, SHEETROCK BRAND SW GYPSUM PANELS.

B. Fire Rated Gypsum Board: ASTM C36; fire resistive type, UL or WH rated; 5/8 inch thick, maximum permissible length; ends square cut, round edges, SHEETROCK BRAND TYPE X FIRE CODE "C" GYPSUM PANELS, SW TAPERED.

C. Moisture Resistant Gypsum Board: ASTM C630; 5/8 inch thick, maximum permissible length; ends square cut, tapered edges, SHEETROCK BRAND W/R GYPSUM PANELS, W/R REGULAR GYPSUM PANELS OR W/R FIRE CODE TYPE X GYPSUM PANELS.

D. Cementitious Backing Board: Standard type; 5/8 inch thick; V-grooved edges, ends square cut, maximum permissible length, DUROCK INTERIOR TILE CEMENT BOARD.

E. Gypsum Sheathing Board: ASTM C79; moisture resistant and fire resistant type; ½ inch thick, maximum permissible length; ends square cut, tongue and grooved edges; water repellent paper faces, 24 inch widths, GYP-LAP GYPSUM SHEATHING.

PART 3 EXECUTION

3.1 PREPARATION

A. Verify that site conditions are ready to receive work and opening dimensions are as indicated on drawings.

B. Beginning of installation means acceptance of substrate.

C. Delivery and Storage: Arrange for an adequate supply of materials on the jobsite so that progress of work will be uninterrupted. Materials and accessories shall be delivered in original containers and bundles, and identified with the manufacturer's name and brand. Store gypsum board on flat, solid supports in dry areas, well protected from the elements.

D. Provide fixtures, anchors, sleeves, inserts and miscellaneous items, and provide openings and chases as necessary. Prior to closing in and finishing of dry wall work, ascertain that piping, conduit, ductwork and fixtures which are to be concealed and which penetrate gypsum boards are in place, tested and approved.

E. Scaffolding: Construct, erect and maintain in conformance with applicable laws and ordinances.

F. Protection, Patching and Cleaning: Adjacent surfaces of other materials shall be protected from damage. Dry wall surfaces which have been cut out shall be neatly patched. Damaged or defective gypsum board finish shall be replaced. During progress of the work, rubbish droppings and water materials shall be removed.

G. Fire Protection: Where required, the work shall comply with the requirements for the protection rating indicated in the governing building code.

H. Fire Sprinkler System: In areas where sprinkler heads occur, exercise care when installing drywall work. Do not damage or obstruct the heads in any way.

3.2 CEILING FRAMING INSTALLATION

A. Framing for suspended ceilings and vertical curtain walls between dropped ceilings: Install to provide plumb surfaces with no variation of more than ¼ inch in 10 ft.

B. Ceilings shall not support material or building components other than grilles light fixtures, small electrical conduits and small ducts.

1. Small Electrical Conduits: ¾ inch in diameter or less, feeding electrical fixtures or electrical devices in the ceiling assembly.
2. Large duct work, plumbing and like work shall have its own support system and shall not be attached to the ceiling system.
3. Only gypsum board dead loads shall be supported by cross-furring.

C. Ceiling Support System: Conform to California Building Code for sizes, types and spacing of ceiling support components.

D. 48 x 48 inch spacing of both hangers and runners is permissible if the following conditions are met:
1. Vertical hanger wires are 8 gage and galvanized. If ceiling is non-accessible, 12 gage wire may be used.
2. Main runners are 1-1/2 inch channels, 1.12 lbs per ft minimum, hot rolled.
3. Cross-furring may be 7/8 inch, 25 gage galvanized hat sections at 24 inches maximum oc.

E. Hangers: Hanger wires shall be provided for primary runners within 6 inches of ceiling perimeters.
1. Hanger wires with ends twisted at least 3 times around itself, shall be saddle tied to primary runner channels.
2. Primary runner channel shall be crossed with furring channels, saddle tied to the runners with one strand of 16 gage or two strands of 18 gage tie wire. Runner channels shall be located not more then 6 inches from parallel boundary walls, or beams; furring channels 2 inches from parallel walls.
3. Primary runner channels shall be spliced by lapping 12 inches and furring channels shall be spliced by lapping 8 inches. Splices shall be tied at 2 inches from each end with two loops of 16 ga wire.
4. Hanger wires that are more than 1 in 6 out of plumb shall have counterbraced wires. Wires shall not attach or bend around interfering material such as duct work. Trapeze or equivalent devices shall be used where obstructions interfere with direct suspension. Trapeze suspension shall have a minimum construction of back-to-back 1-1/2 inch cold formed channels for spans up to 6 ft.
5. Ceiling wires and unbraced ducts, pips and similar components must be separated.
6. Refer to General Requirements section on Testing Laboratory Services for size and testing requirements for concrete expansion anchor bolts and powder actuated fasteners.

F. Horizontal Support System:
1. A set of 4 splay wires shall be provided for each 8 ft by 8 ft. First set of splay wires shall be 4’-0” from any wall. Wires shall be taut without causing ceiling to lift. Provide vertical compression strut at each set of bracing wires.
2. Splay wires shall be No. 12 gage, with 4 tight turns at each end. Powder actuated fasteners shall not be used for attachment of splay wires to supporting structure.

G. Light Fixture Support:
1. Light fixtures shall be attached to the ceiling to resist a horizontal force equal to the weight of the fixtures.
2. Install firestopping envelopes around recessed light fixtures and other electrical devices or boxes that exceed 100 sq inches in 100 sq ft where required to maintain the designated fire rating of the ceiling assembly.

H. Furring Channel Spacing: Furring channels at drywall ceilings shall be spaced at 16 inches oc maximum.

3.3 GYPSUM BOARD INSTALLATION

A. Install gypsum board in accordance with ASTM C840, GA-201, GA-216 and California Building Code. Install all Gypsum board plumb and level – provide shims/furring as required to plumb installation up to ¼" in 8'-0".

B. Erect single layer gypsum board vertically on vertical framing in most economical direction, attached to studs and framing members with the specified fasteners spaced at 12 inches on centers at top and bottom and 12 inches on centers in the field. Solid backing not required at joints running perpendicular to studs and framing members.
   1. In wood framing construction erect gypsum board horizontally only.

C. Erect single or double layer fire rated gypsum board in accordance with California Building Code, Note (a) and GA-600, for one-hour or two hour, fire-rated, non-bearing partitions, steel or wood stud construction.
   1. Gypsum board panels installed vertically or horizontally to vertical studs or framing shall be attached at 8 inches oc at vertical edges and 12 inches oc in the field and at top and bottom. Stagger all vertical and horizontal joints 24 inches oc each side and opposite sides. Where joints are not staggered the required minimum 24 inches, solid backing shall be provided. All joints shall be treated except as provided herein.

D. Treat cut edges and holes in moisture resistant gypsum board with sealant.

E. Place control joints consistent with lines of building spaces as indicated or at maximum 30 ft on centers.

F. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

G. Foil-backed gypsum board shall be applied on the inside of exterior walls.

3.4 JOINT TREATMENT

A. Exposed gypsum board in wall areas and ceiling areas shall be cemented, taped and sanded, ready for paint.

B. On installations where two layers of gypsum board are required, only the face layer will require finishing of joints and screw-heads.

C. Gypsum wallboard joints in walls may either be exposed or covered with joint tape and joint compound for the portion of the wall above as suspended ceiling, which is part of a fire resistive floor-ceiling or roof-ceiling assembly, as listed in U.L. Fire Resistive Ratings (BXUV), when the following conditions are met:
   1. Vertical joints occur over framing member.
   2. Horizontal joints are staggered 24 inches on opposite sides or covered with 6 inch wide strips of gypsum board attached with 1-1/2 inch laminating screws at 8 inches oc.
   3. Partition is two ply system with joints staggered 16 inches or 24 inches.
   4. Partition is not part of a smoke or sound control system.

D. Fire-Rated Partitions: Perimeters of fire-rated partitions shall be caulked with fire-rated sealant as specified in Section 07900, both sides of partition.

E. Sound-rated Partitions: Perimeters of sound-rated partitions shall be caulked with acoustical sealant as specified in Section 07900, both sides of partition.

F. Moisture resistant gypsum board shall have all joints cemented, taped and sanded. Edges of moisture resistant faceboard which expose the gypsum core shall be job taped before the board is installed.

G. All joints, except where excluded above including internal corners shall be filled and taped. A thin uniform layer of cement, approximately 3 inches wide, shall be applied over the joint. Tape shall be cemented over the joint and seated into the cement, leaving sufficient adhesive under the tape to provide proper bond.

Internal angles, both horizontal and vertical, shall be reinforced and with the tape folded to form a straight and true angle. Metal external corners shall be cemented in place. Joints shall be allowed to dry at least 24 hours between each application of cement.

3.5 FINISHING GYPSUM BOARD ASSEMBLIES

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below based on final finishes identified in finish schedule, according to ASTM C 840, and GA-214-96 for locations indicated: (Architect to identify special locations for various levels when different than identified below)

1. Level 1 (Ceiling Plenum Areas, Concealed Areas – Non-fire rated): Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated**,** unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
2. Level 2 (Only where specified- not typically used): Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where indicated.
3. Level 3 (Minimum preparation for heavy texture and for heavy duty wall coverings): Embed tape and apply separate first and fill coats of joint compound to tape, fasteners, and trim flanges where indicated. Apply drywall primer prior to finish.
4. Level 4 (Minimum for light texture application or no texture application, flat or satin paints (provide Level 5 finish for semi-gloss or gloss painted surfaces)): Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, unless otherwise indicated. Apply drywall primer prior to finish.
5. Level 5 (Behind wall images, at areas being painted with a semi-gloss, gloss, or enamel finish, or where specifically called out), : Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges, and apply skim coat of joint compound over entire surface. Apply drywall primer prior to finish.

E. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.

F. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.

G. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.6 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.

B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture matching Architect approved mockup and free of starved spots or other evidence of thin application or of application patterns. ***(Architect to select finishes type below)***

1. Skip-Trowel Texture shall be applied to all gypsum board surfaces to be painted. Provide mock up for review and approval by Architect on a 2'x2' gypsum board. Level 4 finish required, minimum. [If application varies by location, specify where to apply this finish here]

AND/OR

2. Spray Knock-Down Texture shall be applied to all gypsum board surfaces to be painted. Provide (3) different textured samples for review and approval by Architect on a 2'x2' gypsum board. Level 4 finish required, minimum. [If application varies by location, specify where to apply this finish here]

AND/OR

3. No Texture: Walls to be painted shall have Level 4 finish minimum unless noted otherwise in this specification or on the plans. [If application varies by location, specify where to apply this finish here]

C. Smooth Finish shall be applied to all restrooms, food service, and all surfaces to receive appropriate vinyl wall coverings and wall images. Level 5 finish required, minimum.

D. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture finish manufacturer's written recommendations.

3.7 CEMENTITIOUS BACKER BOARD INSTALLATION

A. Pre-cut board to required sizes and make necessary cutouts. Stagger end joints in successive courses. Fasten boards to studs or furring channels with screws spaced 6 inch oc. Prefill joints with tile-setting mortar and immediately embed tape and level all joints. Apply a 1/8 inch minimum thick skim coat of latex-fortified mortar uniformly over entire surface. Install plumb and level – provide shims/furring as required to plumb installation up to ¼" in 8'-0". Install cementitious backer board behind all interior ceramic tile unless otherwise noted. Coordinate with all plans and General Contractor during bidding.

3.8 CEILINGS IN WATER CLOSETS AND SHOWERS

A. For areas where cementitious panels are not scheduled for tile finish, apply a 1/16 inch minimum thick, uniform layer of manufacturer's base coat over entire surface, including taped joints, leaving surface smooth and flat. Allow to cure 24 hours. Trowel apply 1-1/16 inch minimum thick uniform layer of manufacturer's exterior finish coat, fine texture, over all base-coated surfaces, in accordance with manufacturer's recommendations. Paint under Section 09900 / 09 91 00.

3.9 EXTERIOR GYPSUM SHEATING INSTALLATION

A. Erect exterior gypsum sheathing horizontally with edges butted tight and ends occurring over firm bearing. Tack into place sufficiently to hold material until permanent attachment is provided by self-furring lath fasteners.

3.10 TOLERANCES

A. Maximum Variation from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09 24 00
PORTLAND CEMENT PLASTER

1 PART 1 GENERAL

1.1 WORK INCLUDED
- A. Metal furring and lathing.
- B. Portland cement plaster system.
- C. Cement Plaster Expansion Joints & Reveals

1.2 REFERENCES
- A. Chapter 25, California Building Code.
- B. ASTM C150 - Portland Cement.
- C. ASTM C206 - Finishing Hydrated Lime.
- D. ASTM C932 – Bonding Compounds for Exterior Plastering.
- E. ASTM C897 – Aggregates for Job-Mixed Portland Cement-based plasters.

1.3 QUALITY ASSURANCE
- A. Applicator: Company specializing in cement plaster work with five years experience.
- B. Apply cement plaster in accordance with Table 2507.2, California Building Code.

1.4 SUBMITTALS FOR REVIEW
- A. Submit product data under provisions of the contract.
- B. Provide product data on plaster materials, characteristics and limitations of products specified, including all reveals.
- C. Provide 12”x24” sample of cement plaster system including each finish at beginning of job for approval by Architect before commencing work.

1.5 ENVIRONMENTAL REQUIREMENTS
- A. Do not apply plaster when substrate or ambient air temperature is less than 50 degrees F nor more than 80 degrees F.
- B. Maintain minimum ambient temperature of 50 degrees F during and after installation of plaster.
- C. Do not apply plaster during wet weather, or when wet weather conditions can be forecast reasonably or during periods of high winds.
- D. Proper and acceptable curing of plaster shall be the Contractor’s responsibility. Continued water spray curing shall be maintained as specified herein, during weekends or holidays at no extra cost to the Owner.

1.6 DELIVERY AND STORAGE
- A. Deliver products to site in unbroken containers or in bundles marked by manufacturer’s name.
- B. Store products in dry location.

2 PART 2 PRODUCTS

2.1 PLASTER BASE COAT MATERIALS (scratch and brown coat)
- A. Cement: ASTM C150, Normal Type I or Type II.
- B. Lime: ASTM C206, Type S.
- C. Aggregate: Natural or Manufactured sand conforming to ASTM C897, graded within the following limits:

Sieve Size	Percent Retained
No. 4	0
No. 8	0 to 10
No. 16	10 to 40

No. 30	30 to 65
No. 50	70 to 90
No. 100	95 to 100

D. Water: Clean, fresh, potable and free of mineral or organic matter which can affect plaster.
E. Bonding Agent, Exterior: ASTM C932; WELD-CRETE, manufactured by Larsen Products Corp., Rockville, MD, or approved equal.
F. Plasticizers: Only approved plasticity agents and approved amounts thereof may be added to Portland Cement. Hydrated lime or the equivalent amount of lime putty used as a plasticizer may be added to Portland Cement Plaster in an amount not to exceed that set forth in ASTM C926.
G. Plastic Cement: No additional lime or plasticizers shall be added.

2.2 PLASTER FINISH COAT MATERIALS
A. Premixed Finishing Coat: Exterior, water-resistant type.
B. Water: Clean, fresh, potable, and free of mineral or organic matter which can affect plaster.
C. Option: Ready-mix integral color finish-coat plaster: Mill-mixed portland cement, aggregrates, color agents and proprietary ingredients. Integral color shall be color matched with final paint color. Provide multiple colors for projects with multiple colors of plasters.

2.3 FURRING AND LATHING
A. Paper-Backed Lath: Expanded diamond mesh metal lath, Type SF self-furring, backed with waterproof paper, Grade D, with maximum flame spread of 25, galvanized, weighing 3.4 lbs per sq yd, DIAMOND MESH D, manufactured by Western Metal Lath Co., La Mirada, CA, or equal. Must maintain ¼" space from lath to backing. If paper-backed lath is not used, install two (2) layers of Grade "D" building paper with lath per CBC.
B. Waterproof Backing at Openings: Composite polyethylene film and rubberized asphalt, 40 mils thick, PERM-A-BARRIER, by GCP Applied Technologies (formerly W.R. Grace Co.), Cambridge, MA.
C. At Soffits; Metal Lath: 3.4 lb/sq yd expanded metal, 3/8 inch high, from copper bearing sheets, self-furring type; galvanized finish; ribbed type. Must maintain ¼" space from lath to backing.
D. Corner Mesh: Expanded steel mesh, shaped to permit complete embedding in plaster; minimum 3 inches wide; galvanized finish.
E. Strip Lath: Expanded steel mesh, 4 inches wide, galvanized finish.
F. Corner Beads: Formed steel, minimum 26 gauge thick, beaded edge, expanded steel mesh flanges, of longest possible length; sized and profiled to suit application; zinc alloy galvanized finish at exterior conditions.
G. Base Screeds: Formed steel, minimum 26 gauge thick; square edge, of longest possible length; sized and profiled to suit application; galvanized finish.
H. Foundation Sill Screed: Formed steel, minimum 26 gauge thick, holes to relieve trapped moisture, lower return flange; galvanized finish.
I. Casing Bead and Reveals: Formed steel; minimum 26 gauge thick; thickness governed by plaster thickness; maximum possible lengths; expanded flange with square edges; galvanized finish. Provide fry 2 inch reveal with vent slots for eave vents, channel screed PCS-75-50, and other moldings as shown on drawings. Where reveals are shown, please include reveals as manufactured by Fry Reglet Corp. in sizes called out or 2" if no call out on drawings.
J. Control and Expansion Joint Accessories: Formed steel; minimum 25 gauge thick; adjustable expansion joint, 2 inch metal flanges each side; galvanized finish; ¼ to 5/8 inch adjustment. USG double V or as approved.

K. Anchorages: Nails, staples, or other approved metal supports, of type to suit application, galvanized to rigidly secure lath and associated metal accessories in place; minimum penetration into wood supports 5/8 inch.

1. At Vertical Surfaces:
   a. Nails: 1-1/2 inch, No. 11 gauge, 7/16 inch head, barbed.
   b. Staples: 16 gauge, 7/16 inch crown, 7/8 inch leg.
   c. Tie Wire: 18 gauge annealed, galvanized.

2. At Horizontal Surfaces:
   a. Nails: 1-1/2 inch, No. 11 gauge, 7/16 inch nails, barbed.
   b. Staples: 9 gauge, ring shank, hook type, 5/8" inch crown, 1-1/2 inch leg. (Washburn & Moen wire gauge standard).
   c. Tie Wire: 18 gauge annealed wire, galvanized, double strand.

2.4 CEMENT PLASTER MIXES
- A. Mix and proportion cement plaster in accordance with Chapter 25, California Building Code.
- B. Base Coat: One part cement and maximum 4 parts aggregate to 20 lbs maximum weight (or volume) lime per volume cement.
- C. Brown Coat: One art cement and maximum 5 parts aggregate to 20 lbs weight (or volume) lime per volume cement.
- D. Finish Coat: Premixed to manufacturer's recommendations.
- E. Ensure uniformity of mix and coloration.
- F. Mix materials dry to uniform color and consistency before adding water.
- G. Protect mixtures from frost, contamination, and evaporation.
- H. Do not retemper mixes after initial set has occurred.

2.5 MESH SYSTEM (for crack control)
- A. Not Used

3 PART 3 EXECUTION

3.1 INSPECTION
- A. Verify that surfaces and site conditions are ready to receive work.
- B. Grounds and Blocking: Verify items within walls for other Sections of work have been installed.
- C. Mechanical and Electrical: Verify services within walls have been tested and approved, otherwise uncover at no extra cost to owner.
- D. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION
- A. Protect floors, walls, trim and other surfaces near the work of this Section from damage or disfiguration.
- B. Scaffolding: Construction and maintain in conformance with applicable laws and ordinances.

3.3 INSTALLATION - LATHING MATERIALS
- A. Apply ribbed lath with self-furring ribs perpendicular to supports at soffits. Lap sides of ribbed lath minimum 1-1/2 inches. Nest outside ribs of rib lath together. Attach metal lath to wood supports using nails or staples at maximum 6 inches on center. Must maintain ¼" space from lath to backing.

B. Apply self furring paper-backed lath shingle style with self-furring rib perpendicular to supports. Attach to supports at furring device at 6 inch centers, stagger vertical laps.

C. Where self-furring Grade D paper-backed lath is applied over wood base sheathing, apply one additional layer of Grade D asphalt saturated paper in accordance with Section 2506, California Building Code. Must maintain ¼" space from lath to backing.

D. Continuously reinforce internal angles with corner mesh, except where the metal lath returns 3 inches from corner to form the angle reinforcement. Fasten at perimeter edges only.

E. Place beaded external angle with mesh at corners. Fasten at outer edges only. Place 12 inch wide strip of specified polyethylene film around all exterior openings.

F. Place strip lath diagonally at corners of lathed openings. Secure rigidly in place.

G. Place strip lath centered over junctions of dissimilar backing materials. Secure rigidly in place.

H. Place casing beads at terminations of plaster finish. Butt and align ends, cope or miter at corners. Secure rigidly in place, maximum 12 inches oc.

I. Install accessories to lines and levels.

J. At horizontal metal lath application, secure lath to each support with the specified staples placed around a 10d common nail laid flat under the surface of the lath not more than 3 inches from edge of each sheet and 27" OC. along each joist. Lath to be 3/8 inch rib lath. Install 1-1/2" barbed roofing nails with 7/16" heads at 6" O.C. along joists. Must maintain ¼" space from lath to backing.

3.4 CONTROL AND EXPANSION JOINTS

A. Locate exterior control and expansion joints every 20 feet in each direction or closer if indicated on the drawings. Install 12 inch wide strip of paper behind each joint. Locate interior control and expansion joints every 12 feet in each direction or closer if indicated on the drawings. Install 12 inch wide strip of specified paper behind each joint.

B. Establish control and expansion joints with specified joint device.

C. Joint placement shall be approved by Architect before plastering.

D. Apply sealant at splices, intersections and terminals in accordance with Section 07900.

3.5 PLASTERING

A. Apply plaster in accordance with Sections 2511 and 2512, California Building Code.

1. Measuring Ingredients: Proportion and measure ingredients by means of calibrated boxes or containers of such nature that quantities measured can be readily and accurately checked at any time. Proportioning by shovel measure is not acceptable.

2. Mixing Plaster: Mix plaster by machine for a minimum of 2 minutes. Mix no more plaster that can be properly placed within ½ hour after mixing. Allow no material to remain overnight in mixers or mixing boxes. Thoroughly clean tools and implements used in mixing and transporting plaster.

B. Apply scratch coat to a nominal thickness of 3/8 inch, brown coat to a nominal thickness of 3/8 inch, and a finish coat to a nominal thickness of 1/8 inch over metal lathed surfaces.

1. On masonry surfaces, apply bonder per CBC 2510.7.1, brown coat and finish coat to total thickness of ½ inch.

C. Moist cure scratch and brown coats minimum 48 hours each coat. Refer to Section 2507.2, California Building Code for alternate methods of application.

D. After curing, dampen base coat prior to applying finish coat.

E. Apply finish coat and steel trowel to a smooth and consistent finish. Apply after brown coat has cured minimum 7 days.

F. Finish Coat Texture: Finish texture to be 16/20 sand, 20/30 sand or 30/30 fine sand texture – verify finish with architect in field with field sample prior to proceeding with complete finish coat. Bidder shall include a minimum of (2) different finishes to occur on the project and architect will select locations.

G. Avoid excessive working of surface. Delay troweling as long as possible to avoid drawing excess fines to surface.

H. Moisture cure finish coat for minimum period of 48 hours. Use fine fog spray, in sufficient quantity to be absorbed by plaster only. Do not damage surfaces or permit evaporation during dry weather.

3.6 TOLERANCES

A. Maximum Variation from True Flatness: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 30 13
CERAMIC TILE

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Ceramic tile for floor, walls and base finish using the thin-set application method.
B. Ceramic tile for exterior veneer using a Portland cement mortar adhesive.

1.2 REFERENCES

A. ANSI/TCA 108.5 - Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.
B. ANSI/TCA A108.10 - Installation of Grout in Tile Work.
C. ANSI/TCA A118.1 - Dry-Set Portland Cement Mortar.
D. ANSI/TCA A118.4 - Latex-Portland Cement Mortar.
E. ANSI/TCA A118.6 - Ceramic Tile Grouts.
F. ANSI/TCA A137.1 - American National Standard Specifications for Ceramic Tile.
G. ASTM C373 – Water Absorption, Bulk Density, Apparent Porosity and Apparent Specific Gravity of Fired Whiteware Products.
H. ASTM C1028 – Static Coefficient of Friction.
I. ASTM C171 – Sheet Materials for Curing Concrete.
J. TCA - (Tile Council of America) Handbook for Ceramic Tile Installation, 2016 Edition
K. CBC 11B – 302.1

1.3 SUBMITTALS FOR REVIEW

A. Submit product data under provisions of Section 01 33 00.
B. Submit product data indicating manufacturer’s specifications and instructions for using dry-set portland cement or latex-cement mortars and grouts.
C. Submit samples under provisions of Section 01 33 00.
    1. Provide sufficient samples of each size, color and texture to demonstrate the maximum ranges of sizes, colors, textures and flatness.
    2. Provide samples of all trim shapes.
    3. Mount tile and apply grout on two 12 inch by 12 inch plywood panels, representative of pattern, color variations and grout joint size variations.
D. Deliver master grade certificates complying with ANSI A137.1 or CTI 69.5. Required: Standard grade.
E. On manufactured dry-set Portland cement or latex-cement mortars and grouts provide labels certifying compliance with referenced standards.
F. Submit maintenance data.
G. Include recommended cleaning and stain removal methods, cleaning material and polishes and waxes.

1.4 QUALITY ASSURANCE

A. Conform to ANSI/TCA A137.1 for tile, except where exceeded by this specification.
B. Conform to TCA Handbook for Ceramic Tile Installation and ANSI A108.5 for installation of mortar and tile, except where exceeded by this specification.
C. Conform to ANSI/TCA A108.10 for installation of grout.

1.5 QUALIFICATIONS
- A. Manufacturer: Company specializing in the manufacture of products specified in this Section with minimum five years experience.
- B. Installer: Company specializing in applying the work of this Section with minimum three years experience.

1.6 PRE-INSTALLATION CONFERENCE
- A. Convene one week before starting work of this section. Required Attendance:
  1. Owner's Representative
  2. Project Inspector
  3. Contractor
  4. Tile Subcontractor
  5. Architect

1.7 DELIVERY, STORAGE, AND HANDLING
- A. Deliver products to site only in cartons which have been grade sealed by the manufacturer in accordance with ANSI/TCA A137.1 and with grade seals unbroken. Seconds grade seal quality not permitted.
- B. Tiles delivered to the job or installed in the work which do not fall within the specified standards of quality or accepted color range shall be removed from the jobsite and promptly be replaced with acceptable material.
- C. Store and protect products in dry, secure areas.

1.8 ENVIRONMENTAL REQUIREMENTS
- A. Do not install volatile materials in a closed, unventilated environment.
- B. Maintain 50 degrees F or above during installation of mortar and grout materials.
- C. Shade the work area from direct sunlight during the installation as needed to prevent rapid evaporation caused by excessive heat.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS - TILE
- A. Manufacturers:
  1. DAL-Tile, Corona, CA
  2. American Olean Tile, City of Industry, CA
  3. Or equal.

2.2 TILE MATERIAL **(PM – Edit)**
- A. Floor Tile: Porcelain Ceramic Mosaic Floor Tile: ANSI A137.1, conforming to the following (or similar):
  1. Moisture Absorption: 0 to 0.5 percent (impervious), ASTM C373.
  2. Size: To be Selected – may be mosaic, 1x1, 2x2, 3x3, 4x4, 6x6, 12x12, 12x24, etc. Trim pieces will vary by use.
  3. Edge Treatment: To be Selected.
  4. Surface Finish: To be Selected.
  5. Color: As selected
  6. Patterns: As shown on plans. If no pattern is shown on plans, contractor is to bid assuming multiple colors within fields of another color. Pattern will be diagonal with a border squared to the perimeter. Assume coved corner pieces.
  7. Coefficient of Friction: ASTM C1028; Minimum .6.
  8. Bid amount for Material Selection: Contractor to include in bid $8.00/sf for material cost of tile and trim pieces – with appropriate credit or cost to be transferred to the Owner at the time of selection. Grout and labor to be included in base bid. Architect may also select glass tiles and accent color tiles within field of mosaics. Contractor to include most expensive installation cost in bid.

B. Wall Tile: ANSI/TCA A137.1, conforming to the following:
1. Moisture Absorption: As permitted by ANSI A137.1.
2. Size: To be Selected – may be mosaic, 1x1, 2x2, 3x3, 4x4, 6x6, 12x12, 12x24, etc. Trim pieces will vary by use.
3. Edge Treatment: Exterior edges to be rounded schluter-strip- color/finish to be selected.
4. Surface Finish: To be Selected.
5. Color: As selected
6. Patterns: As shown on plans. If no pattern is shown on plans, contractor is to bid assuming multiple colors within fields of another color. Pattern will be diagonal with a border squared to the perimeter.
7. Bid amount for Material Selection: Contractor to include in bid $8.00/sf for material cost of tile and trim pieces – with appropriate credit or cost to be transferred to the Owner at the time of selection. Grout and labor to be included in base bid. Architect may also select glass tiles and accent color tiles within field of mosaics. Contractor to include most expensive installation cost in bid.

C. Exterior Wall Tile Veneer:
1. Moisture Absorption: As permitted by ANSI A137.1.
2. Size: To be Selected –4x4, 6x6, 12x12, 12x18, 12x24, etc. Trim pieces will vary by use.
3. Edge Treatment: Exterior edges to be rounded Schluter-strip- color/finish to be selected.
4. Surface Finish: To be Selected.
5. Color: As selected
6. Patterns: As shown on plans. If no pattern is shown on plans, contractor is to bid assuming multiple colors within fields of another color.
7. Bid amount for Material Selection: Contractor to include in bid $10.00/sf for material cost of tile and trim pieces – with appropriate credit or cost to be transferred to the Owner at the time of selection. Grout and labor to be included in base bid. Architect may also select glass tiles and accent color tiles. Contractor to include most expensive installation cost in bid.

D. Base: Match wall tile for moisture absorption, surface finish, and color: coved bottom.

E. Wainscot Cap: Match wall tile for moisture absorption, surface finish, color, tile length, bull nosed top edge.

2.3 MORTAR
A. ANSI/TCA A118.1 – Dry-set Portland Cement Mortar.
B. ANSI/TCA A118.4 – Latex Portland Cement Mortar.
C. Per CBC Table 14A-A – Ceramic tile setting mortars for exterior

2.4 GROUT
A. ANSI/TCA A118.6, Cementitious type with latex additive, color as selected by Architect.
B. Point exterior tile with a Portland cement mortar.
C. Seal all grout with grout sealer.

2.5 EXPANSION JOINT MATERIALS
A. Joint Sealer: One part silicone sealant, self-leveling at horizontal joints, non-sag at vertical joints, elongation capability 25 percent, Short A, hardness range 27, 863 HIGH STRUCTURAL STRENGTH GLAZING AND CONSTRUCTION SILICONE, manufactured by Pecora Corp., Harleysville, PA, or approved equal.
B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

C. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
D. Joint Backing: ASTM D1056; round, closed cell polyethylene foam rod; oversized 25 percent larger than joint width; DENVERFOAM or GREENROD.
E. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application. Apply to bottom of joints which are too shallow to receive foam backer rod.

2.6 ACCESSORIES
A. Curing Paper: Kraft paper conforming to ASTM C171.
B.

3 PART 3 EXECUTION

3.1 EXAMINATION
A. Verify that surfaces are ready to receive work. Verify types of materials which may have been in contact with surfaces.
B. Beginning of installation means installer accepts condition of substrate.

3.2 PREPARATION
A. Protect surrounding work from damage or disfiguration.
B. Vacuum clean substrate and damp clean.
C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances. Contractor to include leveling/plumbing existing surfaces up to 1/2" in 8'-0" out of plumb or level, including filling low spots and grinding/sanding high-spots. Coordinate with general contractor for installation of cement board backer and other tile substrates for proper preparation at time of bid to understand extent of leveling which may be required.

3.3 MIXING
A. Mixing: Mix dry-set Portland cement mortar or latex-Portland cement mortar in accordance with manufacturer's instructions or as modified herein.
B. Use brand of prepackaged dry mortar mix specified by the manufacturer.
C. Add dry mortar mix to amount of latex specified by manufacturer and mix thoroughly to obtain complete and visually uniform wetting of the dry mortar mix. Slake for 15 minutes and remix before using.
D. The proper mortar consistency is such that when applied with the recommended notch trowel to the backing, the ridges formed in the mortar will not flow or slump.
E. During use, remix mortar occasionally. Additional water or fresh materials shall not be added after initial mixing. Mortar shall not be used after initial set.

3.4 MORTAR APPLICATION
A. Clean surface thoroughly. Dampen if very dry, but do not saturate.
B. Apply mortar with flat side of trowel over an area no greater than can covered with tile while mortar remains plastic.
C. Within ten minutes before applying tile and using a notched trowel of type recommended by mortar manufacturer, comb mortar to obtain even setting bed without scraping back material.
D. Cover surface uniformly with no bare spots, with sufficient mortar to ensure a minimum mortar thickness of 3/32 inch between tile and backing after tile has been beaten into place. Tile shall not be applied to skinned-over mortar.
E. EXTERIOR INSTALLATION: Mortar as described in Table 14A-A shall be applied to the backing as a setting bed. The setting bed shall be a minimum of 3/8" thick and a maximum ¾" thick. A paste of neat Portland cement or one half Portland cement and one half graded sand shall be applied to the back of the exterior units and to the setting bed and the unit pressed and tapped into place to provide complete coverage between the mortar bed and unit.

3.5 INSTALLATION OF TILE

A. Refer to mortar and latex manufacturers directions.
B. Do not soak tile.
C. Set tile firmly on the mortar or over concrete or cementitious backer board surface with a minimum of 95 percent coverage at floors and wet area walls. Back-butter ribbed tiles and other tiles in accordance with ANSI/TCA 108.5. Spacers on tile determine the joint width between tile. Strings or pegs may be used to space tile that have no spacers. Bring all surfaces to a true plane at the proper position or elevation. Thoroughly beat-in all tile with a beating block while the mortar coat is still plastic. The beating shall fill a minimum of 95 percent of the entire space between units and setting bed. Eighty percent coverage is permitted for walls in non-wet areas.
D. Lay tile to pattern indicated on Drawings or request tile pattern from Architect. Do not interrupt tile pattern through openings.
E. Place Schluter rounded edge strips at exposed tile edges.
F. Cut and fit tile tight to penetrations through tile. Form corners and bases neatly. Align floor, base and wall joints where floor tiles and wall tiles are same width.
G. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. No excess setting bed mix allowed in joints. All inside corners shall be covered. No butted 90 degree intersections permitted. All outside corners shall be bull nose, eased edges, or schluter strips. Contractor to bid most expensive method of install and verify requirements with Architect during submittal process.
H. Sound tile after setting. Replace hollow sounding units.
I. Keep expansion or control joints free of setting bed mix or grout. Apply sealant to joints.
J. Allow tile to set for a minimum of 16 hours prior to grouting.
K. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.
L. If tile is face mounted, remove paper within one hour after tile is set and adjust all tiles that are out of line or level. Use no more water than necessary in removing paper.
M. On exterior veneer units, provide expansion joints every 20 feet horizontally and every 10 feet vertically. Verify location of joints with Architect in field prior to installation. See specification section 07900 for expansion joint filler.

3.6 INSTALLATION OF GROUT

A. Remove all mortar from face and edge of tile.
B. Mixing: Refer to grout mix and latex manufacturer's directions.
C. Dry blend contents of an entire container of grout prior to mixing with water or latex.
D. Use caution to prevent scratching or damaging tile surfaces.
E. Dampen dry joints prior to grouting. Do not leave puddles of water in joints before grouting.
F. Force a maximum amount of grout into the joints. Cushion edge tile shall be finished evenly to the depth of the cushion. Square-edge tile shall be finished flush with the surface. Finished joint shall be uniform in color, smooth and without pinholes, voids, cracks or low spots.

3.7 CLEANING

A. Clean tile work and adjacent surfaces.

3.8 CURING

A. Damp-cure grout for a minimum of 72 hours. Remove and replace improperly cured grout.
    1. Cover with 40 lb kraft paper.
    2. Polyethylene curing membrane not permitted.

3.9 PROTECTION OF FINISHED WORK

A. Protect finished installation.
B. Do not permit traffic over finished floor surface.

3.10 REPLACEMENT OF MATERIALS

A. Provide three percent additional tile and trim shapes of each type, color, pattern size used in the work for Owner's use in replacement and maintenance. Package securely to prevent damage and label clearly.

END OF SECTION

SECTION 09 51 13
ACOUSTICAL SUSPENSION SYSTEMS

1 PART 1 GENERAL

1.1 WORK INCLUDED
A. Suspended metal grid ceiling system, heavy duty.
B. Perimeter trim.

1.2 RELATED SECTIONS
A. Section 09 51 14 – Acoustical Ceilings.

1.3 REFERENCES
A. ASTM C635 – Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
B. ASTM C636 – Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
C. ASTM E580 – Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint.
D. Chapter 25, California Building Code.
E. DSA IR 25-2.13.

1.4 QUALITY ASSURANCE
A. Manufacturer: Company specializing in manufacture of ceiling suspension system with five years minimum experience.
B. Installer: Company with five years minimum experience.

1.5 SUBMITTALS FOR REVIEW
A. Submit shop drawings and product data for metal grid system under provisions of Section 01 33 00.
B. Indicate on shop drawings, grid layout and related dimensioning, junctions with other work or ceiling finishes and interrelation of mechanical and electrical items. Photographic reproductions of the contact drawings shall not be used.
C. Submit samples under provisions of Section 01 33 00.
D. Submit three samples each of suspension system main runner, cross runner and edge trim.
E. Submit manufacturer's installation instructions under provisions of Section 01 33 00.

2PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Armstrong, Inc., Lancaster, PA. Product: Prelude XL Fire Guard, 15/16 inch wide face, exposed T.
1. Main Runners: 7301
2. Cross Tees: XL7341, XL7328 at 24 x 24 inch grid.
3. Edge Trim: 780812 2" x 2" inch angle, Shadow Trim: 7878, 15/16" x 15/16" x 3/8"

B. Chicago Metallic Corp., Los Angeles, CA, Product: SERIES 1250 Fire Front, HEAVY DUTY, 15/16 inch wide face, exposed T.
1. Main Runners: 250.
2. Cross Tees – Stepped End: 1254, 1252 at 24 x 24 inch grid.
3. Edge Trim: 1420, 15/16 x 15/16 inch angle. Shadow Trim

C. USG Interiors, Inc, Chicago, IL. Product: DXL SYSTEM, 15/16 inch wide face, exposed T.
1. Main Runners: DX 26.
2. Cross Tees – DX426, DX216 at 24 x 24 inch grid.

3. Edge Trim: M20SM2, 2" x 2" inch angle.

D. Or approved equal

2.2 SUSPENSION SYSTEM MATERIALS

A. Grid: ASTM C635, heavy duty, exposed T, components die cut and interlocking. UL listed assembly for 1 hour.
B. Accessories: Stabilizer bars, splices, edge trim and all necessary components required for the specified suspended grid system.
C. Grid Materials: Commercial quality cold rolled steel with galvanized coating.
D. Grid Finish: Factory applied standard white.
E. Hanger Wire: No. 12 gage galvanized, annealed steel wire.

3 PART 3 EXECUTION

3.1 INSPECTION

A. Verify that existing conditions are ready to receive work.
B. Verify that layout of hangers will not interfere with other work.
C. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

A. Install system in accordance with ASTM C636, ASTM E580, Section 2501, California Building Code and DSA IR 25-2.13, and as supplemented in this Section.
B. Lay-in ceiling assemblies in exitways shall be installed with a main runner or crossrunner surrounding all sides of each panel and each light fixture or grill. Through-connectors are not required.
C. Ceilings shall not support material, building components or light fixtures. Ductwork, plumbing and like work shall have its own support system and shall not utilize the ceiling system or suspension wires.
D. 12 gage hanger wires shall be used to support a maximum ceiling area of 16 square feet, spaced at 4 x 4 foot along main runners. Splices will not be permitted in any hanger wires.
E. Provide 12 gage minimum hanger wires at the ends of main and cross runners within 8 inch from the support or within ¼ of the length of the end tee, whichever is least, for the perimeter of the ceiling area.
F. Provide trapeze or other supplementary support members at obstructions to main hanger spacing. Provide additional hangers, struts or braces as required at ceiling breaks, soffits or discontinuous areas. Hanger wires that are more than 1 in 6 out of plumb shall have counter-sloping wires.
G. Ceiling grid members shall be attached to not more than 2 adjacent walls. Ceiling grid members shall be at least ¾" inch free of other walls. If walls run diagonally to ceiling grid system runners, one end of main and cross runners shall be free and a minimum of ¾" inch clear of wall.
H. At the perimeter of the ceiling area where main or cross runners are not connected to the adjacent wall, provide interconnection between the runners at the free end to prevent lateral spreading. A metal strut or a 16 gage wire with a positive mechanical connection to the runner may be used. Where the perpendicular distance from the wall to the first parallel runner is 12 inches or less, this interlock is not required.
I. Provide sets of four 12 gage splayed bracing wires oriented 90 degrees from each other at a spacing of 8 ft by 8 ft. Install vertical compression strut at each set of bracing wires.
J. Provide bracing wires at locations not more than ½ the spacings specified herein from each perimeter wall and at the edge of vertical ceiling offsets.
K. The slope of bracing wires shall not exceed 45 degrees from the plane of the ceiling and shall be taut without causing the ceiling to lift. Splices in bracing wires are not permitted. Powder actuated fasteners are not permitted for the attachment of splay wires.

L. Fasten hanger wires with not less than 3 tight turns. Fasten bracing wires with 4 tight turns. Make all tight turns within a distance of 1-1/2 inches. Hanger or bracing wire anchors to the structure shall be installed in such a manner that the direction of the wire aligns as closely as possible with the direction of the forces acting on the wire. Wire turns made by machine where both strands have been deformed or bent in wrapping can waive the 1-1/2 inch requirement, but the number of turns shall be maintained and shall be as tight as possible.

M. Separate all ceiling hanging and bracing wires at least 6 inches from unbraced ducts, pipes or conduit. Attach lightweight items, such as single electrical conduit not exceeding ¾ inch nominal diameter to hanger wires using approved connectors.

N. Attach light fixtures to the ceiling grid runners to resist a horizontal force equal to the weight of the fixtures.

O. All flush or recessed light fixtures and air terminals or services shall be independently supported by not less than 4 taut 12 gage wires each attached to the fixture and to the structure above.

1. The 4 taut 12 gage wires including their attachment to the structure above shall be capable of supporting 4 times the weight of the unit.

P. Support pendant mounted light fixtures directly from the structure above with hanger wires or cables passing through each pendant hanger and capable of supporting 4 times the weight of the fixture.

Q. Partitions: If non-bearing partitions that extend to and terminate at a suspended ceiling are supported laterally by opposing bracing wires spaced a maximum of 8 ft oc along the top edge of the partition or by other equivalent means, they shall be considered as not adding to the lateral load required to be resisted by the ceiling system.

R. Do not eccentrically load system or produce rotation of runners.

S. Install edge angle at intersection of ceiling and vertical surfaces using longest practical lengths. Miter corners. Provide edge angles at junctions with other interruptions. Where curved obstructions occur, provide preformed closers to match edge molding.

T. Form expansion joints as indicated on drawings.

3.3 TOLERANCES

A. Variation from Flat and Level Surface: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 51 14
ACOUSTICAL CEILING PANELS – LAY-IN

1 PART 1 GENERAL

1.1 WORK INCLUDED
A. Acoustical panels, lay-in.

1.2 RELATED SECTIONS
A. Section 09 51 13 – Acoustical Suspension Systems.

1.3 REFERENCES
A. ASTM E84 – Surface Burning Characteristics of Building Materials.
B. ASTM E1264 – Acoustic Ceiling Products
C. ICC ESR-1222
D. DSA IR A-25-2.13

1.4 QUALITY ASSURANCE
A. Manufacturer: Company specializing in manufacture of ceiling panels with five years minimum experience.
B. Installer: Company with five years minimum experience.

1.5 SUBMITTALS FOR REVIEW
A. Submit product data for acoustical panels under provisions of Section 01 33 00.
B. Submit samples under provisions of Section 01 33 00.
C. Submit three samples illustrating material and finish of acoustic units.
D. Submit manufacturer's installation instructions under provisions of Section 01 33 00.

1.6 ENVIRONMENTAL REQUIREMENTS
A. Interior wet work shall be completed prior to installation of panels. Windows and doors shall be in place. HVAC systems shall be installed and operable where necessary to maintain a temperature range of 60 to 85 degrees F and maximum 70 percent relative humidity.

1.7 EXTRA STOCK
A. Provide extra quantity of acoustic units in the amount of one box of each type specified.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Armstrong World Industries, Fullerton, CA. Product: Cortega Second Look II Medium Texture #2758 ASTM E1264. Or approved equal
   1. Size: 24 x 48 inches.
   2. Thickness: ¾ inches.
   3. Light Reflectance: 82 percent.
   4. NRC: 0.55.
   5. Edge: Angled Tegular to match grid (15/16" if not specified)
   6. Surface Color: Non Directional Cortega

B. Smooth Tiles: USG Interiors, Inc., Chicago, IL. Product: Sheetrock Lay-In Ceiling Panel *ClimaPlus*, Vinyl. Or approved equal.
   1. Size: 24 x 48 inches.
   2. Thickness: ¾ inches.

3. Light Reflectance: 77 percent.

4. NRC: n/a

5. STC: n/a

2.2 FIRE CLASSIFICATION REQUIREMENTS

A. ASTM E84, all materials shall have a flame spread of less than 25 and a smoke density rating of less than 450.

B. UL Rating: 1 Hour.

3PART 3 EXECUTION

3.1 INSPECTION

A. Verify that existing conditions are ready to receive work.

B. Verify that layout of hangers will not interfere with installation of acoustic units.

C. Beginning of installation means installer accepts condition of substrate.

3.2 INSTALLATION

A. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.

B. Where square units are indicated, lay directional patterned units in basket weave pattern. Fit border neatly against abutting surfaces.

C. Install acoustic units level, in uniform plane, and free from twist, warp and dents. Replace damaged or soiled units.

D. Provide for complete accessibility for all units.

END OF SECTION

SECTION 09 51 23
ACOUSTICAL CEILINGS – GLUE-UP/STAPLE

PART 1 GENERAL

1.1 WORK INCLUDED
- A. Acoustical tile.
- B. Perimeter trim.

1.2 REFERENCES
- A. ASTM – D1779 – Adhesive for Acoustical Materials.
- B. ASTM E84 – Surface Burning Characteristics of Building Materials.
- C. ASTM E1264 – Acoustic Ceiling Products.

1.3 QUALITY ASSURANCE
- A. Manufacturer: Company specializing in manufacture of ceiling tile with five years minimum experience.
- B. Installer: Company with five years minimum experience.

1.4 SUBMITTALS FOR REVIEW
- A. Submit shop drawings and product data under provisions.
- B. Indicate on shop drawings, tile layout and related junctions with other work or ceiling finishes, and interrelation of mechanical and electrical items. Photographic reproductions of Architect's drawings shall not be used.
- C. Provide product data on acoustic units.
- D. Submit three samples illustrating material and finish of acoustic units.
- E. Submit manufacturer's installation instructions.

1.5 EXTRA STOCK
- A. Provide one carton of extra units of each type specified to Owner.

2 PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS
- A. Armstrong World Industries, Fullerton, CA. Product: Fine Fissured Tile #741 for new ceilings, #746 for patch back (verify thickness with existing), Medium Texture, ASTM E1264.
  1. Size: 12 x 12 inches.
  2. Thickness: 5/8" or ½" inches.
  3. Light Reflectance: 85 percent.
  4. NRC: .55.
  5. CAS Range: Minimum 35.
  6. Edge: Beveled.
  7. Surface Pattern: Fine Fissured Medium Texture
  8. Surface Finish: Factory White.
- B. Or equal by USG Interiors, Chicago, IL.
- C. Where tile to match existing is required, provide samples for approval prior to ordering.

2.2 FIRE CLASSIFICATION REQUIREMENTS
- A. ASTM E84, all materials shall have a flame spread of less than 25 and a smoke density rating of less than 450.

2.3 ACCESSORIES
- A. Adhesive: ASTM D1779; waterproof, gun or knife grade; type recommended by tile manufacturer.
- B. Edge Trim: Rolled steel or aluminum profile, color to match color of tiles.

3PART 3 EXECUTION

3.1 INSPECTION

A. Verify that existing conditions are ready to receive work.

B. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

A. Install system in accordance with manufacturer's instructions and as supplemented below.

B. Remove dust and soil from ceiling surface. **Spot cement each tile** in place with four parts of acoustical adhesive per square foot of tile. Make all such spots minimum 2-1/2 inch in diameter and 1/8 inch thick. **Provide stapling at nailers per manufacturer's recommendations.**

C. Locate system on room axis leaving equal border units of no less than one-half size.

D. Install edge molding at intersection of ceiling and vertical surfaces, using maximum lengths. Miter corners. Provide edge moldings at junctions with other interruptions. At round obstructions provide preformed closers to match edge molding.

E. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.

F. Lay directional patterned units one way with pattern parallel to shortest room axis. Fit border units neatly against abutting surfaces.

G. Install acoustic units level, in uniform plane, and free from twist, warp and dents.

H. Remove and replace defective units demonstrating loosening, shrinking, warping, chipping, spotting or discoloration.

3.3 TOLERANCES

A. Variation from Flat and Level Surface: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 65 13
TOP-SET RESILIENT BASE

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resilient base.

1.2 REFERENCES

A. ASTM E84 and NFPA 255 – Surface Burning Characteristics of Building Materials.
B. FS-SS-W40a – Wall Base, Rubber and Vinyl Plastic.
C. CBC 806.6 – Wall base <=6" shall be tested per CBC 804.2 and shall be not less than Class II. Where Class I floor finish is required, the floor wall base shall be Class I. Tests shall be in accordance with NFPA 253, Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

1.3 FIRE CLASSIFICATION REQUIREMENTS

A. ASTM E84, NFPA 255: Flame spread less than 25, smoke density less than 450.

1.4 SUBMITTALS FOR REVIEW

A. Submit product data under provisions of the contracts.
B. Provide product data on specified products and colors available.
C. Submit samples under provisions of the contract.
D. Submit three 6 inch long samples of base material for each color selected.
E. Submit manufacturer's installation instructions under provisions of the contract.

1.5 OPERATION AND MAINTENANCE DATA

A. Submit maintenance procedures and recommended maintenance materials.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Store materials for three days prior to installation in area of installation to achieve temperature stability.
B. Maintain minimum 70 degrees F temperature three days prior to, during and 24 hours after installation of materials.
C. Provide adequate ventilation to carry off volatile fumes.

1.7 REPLACEMENT MATERIALS

A. Provide minimum three percent of all materials furnished for each color and size of materials installed.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS, RUBBER

A. Burke Flooring Products, City of Commerce, CA.
B. Nora Flooring Systems, Lawrence, MA.
C. Flexco Co., Tuscumbia, GA.
D. Azrock Industries, Inc., San Antonio, TX.
E. Endura Co., Waltham, MA.
F. Jason Industrial, Inc., Vernon, CA.
G. Musson Rubber Co., Akron, OH.
H. Pirelli Industrial Products, Inc., Teaneck, NJ.
I. Roppe Corp., Fostoria, OH.

J. Or equal.

2.2 MANUFACTURERS, VINYL

A. Flexco Co., Tuscumbia, GA.
B. Armstrong World Industries, Fullerton, CA.
C. Kentile Floors, Inc., Scottsdale, AZ.
D. Mercer Products Co., Orlando, FL.
E. National Floor Products Co., Florence, AL.
F. Roppe Corp., Fostoria, OH.
G. VPI Floor Products, Sheboygan, WI.
H. Or equal.

2.3 BASE MATERIALS

A. Base: Rubber or vinyl, 1/8 inch gage, standard toe, heights as indicated on drawings, color as selected by the Architect from manufacturer's standard list of colors. Edit: Base shall be a continuous roll OR 4' sections.
B. Base material shall meet FS-SS-W-40a Type I for rubber, Type II for vinyl.
C. Base Accessories: Premolded end stops, internal and external corners of same material, size and color as base.
D. Adhesive: As recommended by the manufacturer.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are smooth and flat with maximum variation of 1/8 inch in 10 ft, and are ready to receive work.
B. Verify that surfaces are finished, ready to receive base installation.
C. Beginning of installation means acceptance of existing substrate and site conditions.

3.2 INSTALLATION – BASE MATERIAL

A. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints.
B. All 90 degree external corners use premolded units only. At corners more or less than 90 degrees, shave a vertical strip down the back side of the material, ¼ inch wide and not more than ½ the thickness at the point of bend. Bend coved toe to required angle. Bond material firmly to wall on both sides of joint to ensure a tight fit with no open void at top.
C. At 90 degree internal corners use premolded units or as an alternate, miter material to exact angle.
D. Install base on solid backing. Bond tight to wall and floor surfaces.
E. Scribe and fit to door frames and other interruptions.
F. Install base along toe kicks of ALL casework and into all open cabinets (including under sink cabinets, and under all counters.

3.3 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.
B. Protection: Protect work until completion. Repair or make good any damage to this work and other materials damaged during installation of base material.

END OF SECTION

SECTION 09 68 16
SHEET & WALK-OFF CARPET
(INCLUDES DEMOLITION)

1 PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Removal of existing flooring (carpet, VCT, accessories)
- B. Broadloom carpeting, glue-down and stretch-in method.
- C. Accessories

1.2 REFERENCES
- A. ASTM E648 and NFPA 253 – Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
- B. CBC 11B – 303, 11B-302.2

1.3 FIRE CLASSIFICATION REQUIREMENTS
- A. ASTM E648, NFPA 253: Class I, Heat Flux Minimum 0.45 watts per sq cm.

1.4 SUBMITTALS FOR REVIEW
- A. Submit shop drawings and product data under provisions of Section 01 33 00.
- B. Indicate seaming plan, method of joining seams and direction of carpet based on field measurements.
- C. Provide product data on specified products, describing physical and performance characteristics; sizes, patterns, colors available and method of installation.
- D. Submit samples under provisions of Section 01 33 00.
- E. Submit three samples 12 x 12 inch in size illustrating color and pattern for each carpet material specified.
- F. Submit manufacturer's installation instructions under provisions of Section 01 33 00.
- G. Any substitution may be required to provide a special color and or texture to match, if standard colors and textures are not satisfactory to the Architect's sole opinion.

1.5 OPERATION AND MAINTENANCE DATA
- A. Submit operation and maintenance.
- B. Include maintenance procedures, recommended maintenance materials and suggested schedule for cleaning and shampooing.

1.6 QUALITY ASSURANCE
- A. Manufacturer: Company specializing in carpet with twenty years minimum experience..
- B. Installer: Company with five years minimum experience and having completed 3 projects of similar size in the last three years.

1.7 ENVIRONMENTAL REQUIREMENTS
- A. Store materials in sufficient time prior to installation in area of installation to achieve temperature stability.
- B. Maintain minimum 70 degrees F ambient temperature three days prior to, during and 24 hours after installation of materials.

1.8 EXTRA MATERIALS
- A. Provide an average of 5 percent in usable size of carpeting of each color specified, not less than 48 inches wide.

1.9 GUARANTEE

A. Provide warranty signed by Contractor and or Installer, agreeing to repair labor related issues in regards to installation of carpeting during the 1-year warranty period following completion. Additionally, Provide manufacturers 10 year, warranty. Warranty as follows:

2 PART 2 PRODUCTS

2.1 MATERIALS

A.	Sheet Carpet:	LEES Faculty Remix GL154
	Primary Backing:	Unibond Plus Bloc
	Additional required backing:	Unibond Plus Bloc (UB) with up to 5% overage
	Surface Texture:	Textured Multi-Colored Loop. No Level Loop Products
	Construction:	Tufted
	Fiber & Type:	Duracolor, Premium Nylon Two by Two Four ply products
	Dye Method:	Solution Dyed / Yarn Dyed
	Yarn Weight:	26 oz.
	Gauge:	1/8”
	Stitches per inch:	8.3
	Finished Pile Thickness:	0.166”
	Density:	5639
	Weight Density:	154,414
	Foot Traffic, TARR Rating:	Severe
	NSF 140:	Platinum
	Soil Release Technology:	Sentry Soil Protection
	Stain Resistance:	Must pass GSA Requirements for permanent stain resistant carpet
	Protective Treatment:	Sentry Soil Protection
	Stock Width:	12’ Wide, No 6’ wide products. Product must be produced in Tile and Broadloom in same colors
	Adhesive:	Mohawk Nu Broadlok Adhesive

B.	Walk-off Carpet:	Lees First Step II / GT315 Tile
	Surface Texture:	Performance loop pile
	Construction:	Tufted
	Fiber & Type:	Duracolor, Premium Nylon
	Fiber Technology:	Duracolor by Lees Stain Resistance System.
	Stain Resistance:	Must Pass GSA requirements for permanent stain resistant carpet
	Dye Method:	Solution Dyed
	Backing Material:	EcoFlex ICT
	Yarn Weight:	38 oz.
	Gauge:	5/32”
	Stitches per inch:	8.5
	Finished Pile Thickness:	0.203”
	Density:	6739
	Weight Density:	256,082

Approved Equal will be considered with full substitution submittal package.

2.2 MANUFACTURERS – REDUCER STRIPS AND ACCESSORIES

A. Materials: Products of the Johnson Rubber Co., Middlefield, OH, are the standard of quality required and specified herein. Similar products of The Roppe Co., Fostoria, OH, Mercer Products Co., Inc, Orlando FL, The Flexco Co., Tuscumbia, AL, and AFCO Rubber Corp., North Canton, OH, may be submitted for approval.

2.3 REDUCER STRIPS AND ACCESSORIES

Carpet edge guards and accessories, non-metallic: Extruded or molded heavy-duty vinyl or rubber carpet edge guard shall be Roppe Vinyl Cushion Edge No 157 at edge conditions, Roppe Vinyl Tile Carpet Joiner No. 177 for carpet installation without backing; Mercer Snap-Down Divider No. 330 1-1/2" wide "T" and No. 970 Track for carpet installation with backing. Colors as selected by Architect.

A. ¼ inch carpet to 1/8 inch resilient flooring adapter: CTA-A.
B. ¼ inch carpet to 3/16 inch resilient flooring adapter: CTA-B.
C. 3/16 inch carpet butting gauge: EG-F.
D. 1/4 inch carpet butting gauge: EG-E.

2.4 FILLER AND ADHESIVE

A. Sub-floor filler: Latex based underlayment acceptable to the manufacturer.
B. Primers and Adhesives: Type recommended by Carpet Manufacturer.

3 PART 3 EXECUTION

3.1 FLOORING REMOVAL

A. Completely remove all flooring and base in all rooms identified to receive flooring except for flooring identified to remain.
B. Protect all existing finishes and furniture within the scope of work, including the doors, door frames, casework, and any flooring to remain.
C. Remove all remaining mastic, glue, and miscellaneous remains as required for proper floor preparation and installation (for both carpet installation and VCT installation)

3.2 EXAMINATION

A. Verify that substrate surfaces are smooth and flat with maximum variation of 1/8 inch in 10 ft, and are ready to receive work.
B. Verify concrete floors are dry to a maximum moisture content of 3 lbs per 1000 sf in 24 hours; and exhibit negative alkalinity, carbonization, or dusting.
C. Verify that painting has been completed.
D. Beginning of installation means acceptance of existing substrate and site conditions.

3.3 PREPARATION

A. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
B. Apply, trowel and float filler to leave smooth, flat, hard surface.
C. Prohibit traffic until filler is cured.
D. Vacuum floor surface
E. Floor Temperature shall be 68 deg. F for 24 hours to 48 hours before and 48 hours to 72 hours after installation.
F. Provide manufacturer's recommended moisture remediation material to existing concrete slab prior to installation of finish material. Cost of moisture remediation to be included in bid.

3.4 INSTALLATION – GLUE DOWN

A. Apply carpet and adhesive in accordance with manufacturers' instructions.
B. Lay out rolls of carpet for approval.
C. Verify carpet match before cutting to ensure minimal variation between dye lots.
D. Double cut carpet to allow intended seam and pattern match. Make cuts straight, true and unfrayed. Edge seam carpet where required to prevent fraying.
E. Locate seams in area of least traffic. Install seams in corridors perpendicular to line of traffic.
F. Fit seams straight, not crowded or peaked, free of gaps.
G. Lay carpet on floors with run of pile in same direction as anticipated traffic.
H. Do not change run of pile in any room where carpet is continuous through a wall opening into another room. Locate change of color or pattern between rooms under door centerline.
I. Cut and fit carpet around interruptions. Extend carpets into cabinets which do not contain bottoms.
J. Fit carpet tight to intersection with vertical surfaces without gaps.
K. Install edge guards in lengths as long as possible. Firmly adhere to surfaces with adhesive recommended by the manufacturer.
L. No butt joints will be allowed.

3.5 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.
B. Clean and vacuum carpet surfaces using commercial machine with face-beater element.
C. Remove spots and replace carpet where spots cannot be removed. Remove any protruding face yarn using sharp scissors.

3.6 PROTECTION

A. Prohibit traffic from carpet areas for 24 hours after installation.

END OF SECTION

SECTION 09 91 00
PAINTING

1 PART 1 GENERAL

1.1 WORK INCLUDED

A. Surface preparation.
B. Prime coat application.
C. Finish coat application.

1.2 WORK NOT INCLUDED

A. Surfaces Not To Be Painted:
1. Prefinished wall, ceiling and floor coverings.
2. Items with factory-applied final finish except roof-mounted equipment or electrical panels, or equipment on painted walls (Roof mounted equipment and electrical equipment on painted walls (interior and exterior) shall be painted if visible.
3. Concealed ducts, pipes and conduit.
4. Glass, plastic laminate, ceramic tile, anodized aluminum.
5. Steel items embedded in concrete. Exposed areas are to be painted.
6. Surfaces specifically scheduled or noted on the drawings not be painted.
7. Fire-Rated Labels on Doors or Frames.
8. Exterior Tags on Modular Buildings

1.3 REFERENCES

A. AQMD – Local Air Quality Management District, Regulations.
B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
C. ASTM D4444 – Use and Calibration of Hand-Held Moisture Meters.

1.4 QUALITY ASSURANCE

A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with ten years experience.
B. Applicator: Company specializing in commercial painting and finishing with five years experience.

1.5 REGULATORY REQUIREMENTS

A. Conform to AQMD Regulations concerning VOC Emissions.
B. Comply with applicable codes and regulations of governmental agencies having jurisdiction including those having jurisdiction over airborne emissions and industrial waste disposal. Where those requirements conflict with this Specification, comply with the more stringent provisions.

1.6 SUBMITTALS FOR REVIEW

A. Submit product data under provisions of the contract.
B. Provide product data on all finishing products.
C. Submit samples under provisions of the contract.
D. Submit three samples 8-1/2 inch x 11 inch in size illustrating range of colors and textures available for each surface finishing product scheduled for selection
E. Prepare wood samples on type and quality of wood specified.
F. Submit manufacturer's application instructions under provisions of the contract.

1.7 FIELD SAMPLES

A. Provide samples under provisions of the contract.

B. Provide field sample panel, illustrating coating color, texture and finish for each color scheduled.
C. Locate as approved by Architect.
D. Approved sample may remain as part of the Work.
E. Do not proceed with coating application until sample panel has been approved.

1.8 DELIVERY, STORAGE AND HANDLING
A. Deliver products to site in sealed and labelled containers.
B. Container labeling to include manufacture's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation and instructions for mixing and reducing.
C. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in well ventilated area unless permitted otherwise by manufacturer's instructions.
D. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.9 ENVIRONMENTAL REQUIREMENTS
A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 degrees F for 24 hours before, during and 48 hours after application of finishes, unless permitted otherwise by manufacturer's instructions.
B. Do not apply exterior coatings during rain, or when relative humidity is above 50 percent, unless permitted otherwise by manufacturer's instructions.
C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
D. Minimum Application Temperature for Varnish and transparent Finishes: 65 degrees F for interior or exterior, unless permitted otherwise by manufacturer's instructions.
E. Provide lighting level sufficient to conduct painting operations.

1.10 EXTRA STOCK
A. Provide an extra stock equaling ten percent (10%) of each color, type and gloss of paint used on the Work, but not more than five gallons for each.
1. Label each container with color, texture and room locations in addition to the manufacturer's label.

1.11 GUARANTEE
A. Guarantee the painting work against peeling, fading, cracking, blistering or crazing for a period of two years from the Date of Substantial Completion.

2 PART 2 PRODUCTS
2.1 MANUFACTURERS
A. Kelly Moore, San Carlos, CA
B. Dunn-Edwards Corporation, Los Angeles, CA.
C. Sherwin-Williams, Cleveland, OH.
D. Or equal.

2.2 MATERIALS
A. Coatings: Ready mixed, except field catalyzed coatings. Prepare pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
B. Colors and Glosses: The Architect will select colors to be used in the various types of paint specified and will be the sole judge of acceptability of the various glosses obtained from the materials proposed to be used in the Work. Architect will select a minimum of 4 colors for the interior and 4 colors for the exterior per building. If the building is over 6,000 square feet, the architect may select up to 6 colors for the interior, with no more then 4 colors being used in any single room.

1. Preliminary Interior Sheen Schedule (final sheens to be verified with Architect):
   a. Gypsum Board – All areas other then restrooms: Satin
   b. Gypsum Board at restrooms: Semi-gloss
   c. Handrails, Metal Doors & Frames, other metals: Gloss
   d. Interior Wood: Semi-gloss or clear coat
   e. Ceiling Tiles: Satin
   f. Exposed Ductwork: Satin or Semi-gloss
2. Preliminary Exterior Sheen Schedule (final sheens to be verified with architect):
   a. Cement Plaster: Satin
   b. Metal fascia, leader-heads, rainwater leaders, downspouts, perforated metals, miscellaneous metals: Semi-gloss
   c. Handrails, Metal Doors & Frames: Gloss
   d. Exterior Wood: Semi-gloss or Satin
   e. Mechanical louvers, metal trim, expansion joints, other metals within the cement plaster system: Satin or Semi-gloss

C. Undercoats and Thinners: Provide undercoat paint produced by the same manufacturer as the finish coat. Use only the thinners recommended by the paint manufacturer and use only to be recommended limits. Insofar as practicable, use undercoat, finish coat and thinner material as parts of a unified system of paint finish.

D. Coatings: Good flow and brushing properties; capable of drying or curing free of streaks or sags.

E. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified of commercial quality.

2.3 APPLICATION EQUIPMENT

A. For application of the approved paint, use only such equipment as is recommended by the manufacturer.

B. Compatibility: Prior to actual use of application equipment, use all means necessary to verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed application equipment.

2.4 FINISHES

A. Refer to schedule at end of section for surface finish. Notwithstanding product numbers listed in schedule, Contractor shall conform to most recent product numbers as published by the manufacturer.

3 PART 3 EXECUTION

3.1 INSPECTION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application not identified to be prepared by you under section 3.3.

C. Measure moisture content of new surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Plaster and Gypsum Wallboard: 12 percent.
   2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
   3. Interior Located Wood: 15 percent, measured in accordance with ASTM D4442 and ASTM D4444.
   4. Exterior Located Wood: 19 percent, measured in accordance with ASTM D4442 and ASTM D4444.

D. Beginning of installation means acceptance of existing surfaces.

3.2 MATERIALS PREPARATION

A. Mix and prepare painting material in accordance with manufacturer's recommendations.
B. Store materials not in actual use in tightly covered containers.
C. Maintain containers used in storage, mixing and application of paint in a clean condition, free from foreign materials and residue.
D. Stir all materials before application to produce a mixture of uniform density and as required during the application of materials. Do not stir into the material any film which may form on the surface. Remove the film and strain the material before using.

3.3 SURFACE PREPARATION

A. Remove electrical plates, hardware, light fixture trim and fittings prior to preparing surfaces or finishing.
B. Correct minor defects and clean surfaces which affect work of this Section.
C. Shellac and seal marks which may bleed through surface finishes.
D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
E. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
F. Gypsum Board Surfaces: Fill minor defects, joints and nail head depressions with spackling compound. Prime in accordance with primer manufacturer's recommendations.
G. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer as specified in schedule. When time permits, allow to weather a minimum of 6 months prior to coating. Clean per SSPC-SP1 using detergent and water or a degreasing cleaner, then prime as required. When weathering is not possible or surface has been treated with chromates or silicates, clean all galvanized metal with appropriate metal prep and passivator remover. To ensure passivator has been removed, perform the following test:
    a. With a 2% to 5% copper sulfate solution, place a swab or droplets to the prepared area. If copper sulfate causes the galvanized to blacken, the passivator has been removed and is ready for paint application.
    b. If the copper sulfate has no effect on the galvanized, continue with metal prep solution or use a Scotch pad to abrade it, being careful not to remove the galvanization itself. Apply the required primer, allow drying as described in the product data sheets and test adhesion prior to applying required finish coats.
H. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering or corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
I. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
J. Uncoated Steel and Iron Surfaces: Remove grease, scale, dirt, and rust. Where heavy coatings of scale are evident, remove by wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
K. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
L. Wood Scheduled to Receive Paint Finish: Remove dust, grit and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied.
M. Wood Doors and Cabinet Work scheduled for field-applied transparent or solid stain finish:
    1. Sand surfaces thoroughly with a 5/0, 180 grit sandpaper.
    2. Apply coatings as specified in the schedule to all surfaces, sides and edges. Avoid streaking or uneven application.

N. Wood Doors Scheduled for Painting: Seal top and bottom edges with primer. Leave labels intact and readable.
O. Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.
P. Painted Steel Posts, Downspouts, Etc: Wire brush any loose or flaking paint. Scrape any bubbles and wire brush back to a point where paint has solid adhesion. Spot prime areas prior to final application of finish.
Q. Aluminum scheduled to be painted shall be cleaned and etched as recommended by the manufacturer for proper application of finish.

3.4 PROTECTION

A. Protect elements surrounding the work of this Section from damage or disfiguration.
B. Repair damage to other surfaces caused by work of this Section.
C. Furnish drop cloths, shields and protective methods to prevent spray or droppings from disfiguring other surfaces.
D. Remove empty paint containers from site.

3.5 APPLICATION

A. Apply products in accordance with manufacturer's instructions.
B. Do not apply finishes to surfaces that are not dry.
C. Apply each coat to uniform finish. Number of coats specified is a minimum. Additional coats shall be applied at no extra cost, if coatings show evidence of uneven application, uneven pigmentation, brush strokes or otherwise unsatisfactory distribution of material.
D. Under coats shall be lighter and brighter in tint than finish coat.
E. Sand lightly between coats to achieve required finish.
F. Allow applied coat to dry before next coat is applied.
G. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
H. Prime concealed surfaces of interior and exterior woodwork with primer paint.
I. Prime back surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.
J. Seal Tops, bottoms and cutouts for hardware and accessories of wood or plastic laminate covered doors.
K. Split paint door frames to match color of walls on each side of opening.

3.6 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Refer to Section Divisions 15 and 16 for color coding and identification banding requirements of equipment, duct work, piping, and conduit.
1. Unless otherwise indicated, conform to the following color coding system:

TYPE of PIPING	PRODUCT NUMBER	COLOR
Chilled Water	Ameritone 1986	Vista Gray
Condenser Water	Sinclair 7532	Canvas Tan
Domestic Hot Water	Sinclair 7518	Admiral Blue
Domestic Cold Water	Sinclair 7530	Edison Blue
Plant Air	Copper	Clear Lacquer
Vacuum	Sinclair 7500	Shasta White
Oxygen	Sinclair 7535	John Deere Green
Cold Soft Water	Sinclair 7575	OSHA Violet
Steam	Sinclair 7534	Caterpillar Yellow
Hot Water	Sinclair 7533	Ferguson Gray
Soil Waste	Sinclair 7531	Loam Brown
Fire	Sinclair 7570	OSHA Red
Fuel Gas	Sinclair 7572	OSHA Orange

Deionized Water		Light Blue

2. Verify appropriate specific color designations with paint manufacturer.
3. Conform to Owner's special requirements for color coding. Match existing coding system where required.

B. Paint shop primed equipment.
C. Remove all (finished and unfinished) louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
D. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are shop finished and confirmed with architect not to paint.
E. Replace identification markings on mechanical or electrical equipment when painted accidentally.
F. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint, limit of sight line. Paint dampers exposed behind louvers and grilles, to match face panels.
G. Paint exposed conduit and electrical equipment occurring in finished areas.
H. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
I. Color code equipment, piping, conduit, and exposed ductwork in accordance with requirements indicated. Color band and identify with flow arrows names and numbering, using stencils or other approved systems.
J. Replace electrical plates, hardware, light fixture trim and fittings removed prior to finishing.

3.7 CLEANING

A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.
B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials and debris.
C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.8 SCHEDULE – *EXTERIOR SURFACES*

		Dunn-Edwards	Kelly Moore	Sherwin-Williams
A.	Wood – Flat - Acrylic			
	1. One Coat	EZPR00	255	B51W00450
	2. Two Coats	EVSH10	1200	A-100
B.	Wood – Semi-Gloss - Acrylic			
	1. One Coat	EZPR00	255	B51W00450
	2. Two Coats	EVSH50	1215	B66W01151
C.	Wood – Gloss - Acrylic			
	1. One Coat	EZPR00	S-30 Griptec	B51W00450
	2. One Coat	EVSH60	S-39 Beyond	A77W0051
	3. One Coat	EVSH60	S-39 Beyond	A77W0051
D.	Wood – Stain- Transparent – Acrylic			
	1. Two Coats	OKON WPT3	1285	H&C Concrete & Masonry Waterproofing Sealer

E.	Wood – Stain – Solid – Acrylic			
	1. Two Coats	SSHL10	1240	H&C Concrete Stain Solid Color Water Based
F.	Wood – Clear – Spar Varnish			
	1. Three Coats	V-QYB	Old Master Spar Marine Varnish	McCloskey Spar Varnish
G.	Concrete – Flat – Acrylic			
	1. One Coat	ESPR00	247	A24W08300
	2. Two Coats	EVSH10	1200	A-100
H.	Concrete – Low Sheen – Acrylic			
	1. One Coat	ESPR00	247	A24W08300
	2. Two Coats	EVSH40	1210	A75W00051
I.	Concrete – Elastomeric			
	1. One Coat	ESPR00	247	A24W08300
	2. Two Coats	FTXS10	1128	A5-400 ConFlex XL
J.	Concrete Block – Flat – Acrylic			
	1. One Coat	SBPR00	521	A24W08300
	2. Two Coats	EVSH10	1200	A-100
K.	Concrete Block – Low Sheen – Acrylic			
	1. One Coat	SBPR00	521	A24W08300
	2. Two Coats	EVSH40	1210	A75W00051
L.	Concrete Block – Elastomeric			
	1. One Coat	ESPR00	521	A24W08300
	2. Two Coats	FTXS10	1128	A5-400 ConFlex XL
M.	Cement Plaster – Flat – Acrylic			
	1. One Coat	ESPR00	247	A24W08300
	2. Two Coats	EVSH10	1200	A-100
N.	Cement Plaster – Low Sheen – Acrylic			
	1. One Coat	ESPR00	247	A24W08300
	2. Two Coats	EVSH40	1210	A75W00051
O.	Cement Plaster – Elastomeric			
	1. One Coat	ESPR00	247	A24W08300
	2. Two Coats	FTXS10	1128	A5-400 ConFlex XL
P.	Ferrous – Flat – Acrylic			
	1. One Coat	BRPR00	5725	B66W00310
	2. One Coat	EVSH10	1200	A-100
	3. One Coat	EVSH10	1200	A-100

Q.	Ferrous – Semi-Gloss – Acrylic			
	1. One Coat	BRPR00	5725	B66W00310
	2. One Coat	EVSH50	5885	B66W01151
	3. One Coat	EVSH50	5885	B66W01151
R.	Ferrous – Gloss – Alkyd			
	1. One Coat	BRPR00	265	B66W00310
	2. One Coat	W10	1980	A11 Series
	3. One Coat	W10	1980	A11 Series
S.	Ferrous – Factory Primed: Touch-up primer coat in lieu of full primer coat. Finish coats as specified above.			
T.	Galvanized and Aluminum – Flat - Acrylic			
	1. One Coat	Krud Kutter Metal Clean & Etch	Surface Prep: SSPC-SP1 Jasco Prep & Prime	Jasco Prep & Prime
	2. One Coat	UGPR00	5725	B66W00310
	3. One Coat	EVSH10	1200	A11 Series
	4. One Coat	EVSH10	1200	A11 Series
U.	Galvanized and Aluminum – Semi Gloss - Acrylic			
	1. One Coat	Krud Kutter Metal Clean & Etch	Surface Prep: SSPC-SP1 Jasco Prep & Prime	Jasco Prep & Prime
	2. One Coat	UGPR00	5725	B66W00310
	3. One Coat	EVSH50	1215	B66W01151
	4. One Coat	EVSH50	1215	B66W01151
V.	Galvanized and Aluminum – Gloss - Alkyd			
	1. One Coat	Krud Kutter Metal Clean & Etch	Surface Prep: SSPC-SP1 Jasco Prep & Prime	Jasco Prep & Prime
	2. One Coat	UGPR00	5725	B66W00310
	3. One Coat	W10	1980	A11 Series
	4. One Coat	W10	1980	A11 Series

3.9 SCHEDULE – *INTERIOR SURFACES*

		Dunn-Edwards	Kelly Moore	Sherwin-Williams
A.	Wood – Flat - Acrylic			
	1. One Coat	/IKPR00	295/973	B51WQ4050
	2. Two Coats	SPMA10/SZRO 10	1005/ 1500	ProMar 200 Zero VOC
B.	Wood – Semi-Gloss - Acrylic			
	1. One Coat	/IKPR00	295/973	B51WQ4050
	2. Two Coats	SPMA50/SZRO 50	1050/1520	ProMar 200 Zero S/G

C.	Wood – Eggshell - Acrylic			
	1. One Coat	/IKPR00	295/973	B51WQ4050
	2. Two Coats	SPMA30/SZRO 30	1010/1510	ProMar 200 Zero E/S
D.	Wood – Gloss – Acrylic			
	1. One Coat	/IKPR00	295/973	B51WQ4050
	2. Two Coats	EVSH60/	1680	ProMar 200 Zero Gloss
E.	Wood – Stain – Transparent, Non-Yellowing - Flat – Lacquer			
	1. One Coat	V-QYB/R	GemGlo 6700 Series	Sher-Wood 275 LQ Assorted sheens
	2. One Coat	V-NAF1421	Gemini Precat Sealer 210-0222	Sher-Wood 275 LQ Assorted sheens
	3. Two Coats	V-NAF1421	Gemini Precat 510-0277	Sher-Wood 275 LQ Assorted sheens
F.	Wood – Stain – Transparent, Non-Yellowing – Semi-Gloss - Lacquer			
	1. One Coat	V-QYB/R	GemGlo 6700 Series	Sher-Wood 275 LQ Assorted sheens
	2. One Coat	V-NAS1420	Gemini Precat Sealer 210-0222	Sher-Wood 275 LQ Assorted sheens
	3. Two Coats	V-NAF1460	Gemini Precat	Sher-Wood 275 LQ Assorted sheens
	1. One Coat	V-QYB/R	GemGlo 6700 Series	Sher-Wood 275 LQ Assorted sheens
	2. One Coat	V-NAS1420	Gemini Precat Sealer 210-0222	Sher-Wood 275 LQ Assorted sheens
	3. Two Coats	V-NAF1460	Gemini Precat 510-0275	Sher-Wood 275 LQ Assorted sheens
G.	Wood – Stain – Transparent, Non-Yellowing – Gloss - Lacquer			
	1. One Coat	V-QYB/R	GemGlo 6700 Series	Sher-Wood 275 LQ Assorted sheens
	2. One Coat	V-NAS1420	Gemini Precat Sealer 210-0222	Sher-Wood 275 LQ Assorted sheens
	3. Two Coats	V-NAF1429	Gemini Precat 510-0274	Sher-Wood 275 LQ Assorted sheens
H.	Wood – Stain – High Solids – Satin – Acrylic Urethane			
	1. One Coat	V-QYB/R	Old Masters Stain	Wood Classics 250 Interior Oil Stain
	2. One Coat	V-NAS1420	2097	Wood Classics Waterborne Polyurethane Varnish
	3. Two Coats	V-NAF1460	2097	Wood Classics

				Waterborne Polyurethane Varnish
I.	Wood – Stain – High Solids – Semi-Gloss - Acrylic Urethane			
	1. One Coat	V-108	Old Masters Stain	Wood Classics 250 Interior Oil Stain
	2. One Coat	V-NAS1420	2094	Wood Classics Waterborne Polyurethane Varnish
	3. Two Coats	V-NAF1460	2094	Wood Classics Waterborne Polyurethane Varnish
J.	Wood – Stain Solid – Gloss - Acrylic Urethane			
	1. One Coat	V-108	Old Masters Stain	Wood Classics 250 Interior Oil Stain
	2. One Coat	V-NAS1420	2096	Wood Classics Waterborne Polyurethane Varnish
	3. Two Coats	V-NAF1429	2096	Wood Classics Waterborne Polyurethane Varnish
K.	Concrete, Plaster, Masonry – Flat - Acrylic			
	1. One Coat	ESPR00/	971/	B51WQ4050
	2. One Coat	SPMA10/SZRO 10	1005/ 1500	ProMar 200 Zero VOC
L.	Concrete, Plaster, Masonry – Eggshell - Acrylic			
	1. One Coat	ESPR00/	971	B51WQ4050
	2. Two Coats	SPMA30/SZRO 30	1010/1510	ProMar 200 Zero E/S
M.	Gypsum Board – Flat - Acrylic			
	1. One Coat	VNPR00/VNSL 00	971	B51WQ4050
	2. One Coat	SPMA10/SZRO 10	1005/1500	ProMar 200 Zero Flat
N.	Gypsum Board – Semi-Gloss - Acrylic			
	1. One Coat	VNPR00/VNSL 00	971/	B51WQ4050
	2. Two Coats	SPMA50/SZRO 50	1050/1520	ProMar 200 Zero S/G
O.	Gypsum Board – Eggshell - Acrylic			
	1. One Coat	VNPR00/VNSL 00	971	B51WQ4050
	2. Two Coats	SPMA30/SZRO 30	1010/1510	ProMar 200 Zero E/S

P.	Gypsum Board – Gloss - Acrylic			
	1. One Coat	VNPR00/VNSL 00	971	B51WQ4050
	2. Two Coats	EVSH60/	1680	ProMar 200 Zero Gloss
Q.	Ferrous – Flat – Acrylic			
	1. One Coat	UGPR00/	5725	B51WQ4050
	2. One Coat	SPMA10/SZRO 10	1005/1500	ProMar 200 Zero Flat
	3. One Coat	SPMA10/SZRO 10	1005/1500	ProMar 200 Zero Flat
R.	Ferrous – Semi-Gloss – Acrylic			
	1. One Coat	UGPR00/	5725	B51WQ4050
	2. One Coat	SPMA50/SZRO 50	1050/1520	ProMar 200 Zero S/G
	3. One Coat	SPMA50/SZRO 50	1050-1520	ProMar 200 Zero S/G
S.	Ferrous – Gloss – Acrylic			
	1. One Coat	UGPR00/	5725	B51WQ4050
	2. One Coat	EVSH60/	1680	ProMar 200 Zero Gloss
	3. One Coat	EVSH60/	1680	ProMar 200 Zero Gloss
T.	Ferrous – Factory Primed: Touch-up primer coat in lieu of full primer coat. Finish coats as specified above.			
U.	Galvanized and Aluminum – Flat - Acrylic			
	1. One Coat	Krud Kutter Metal Clean & Etch	Surface Prep: SSPC-SP1 Jasco Prep & Prime	Jasco Prep & Prime
	2. One Coat	UGPR00/	5725	B51WQ4050
	3. One Coat	SPMA10/SZRO 10	1005/1500	ProMar 200 Flat
	4. One Coat	SPMA10/SZRO 10	1005/1500	ProMar 200 Flat
V.	Galvanized and Aluminum – Semi-Gloss - Acrylic			
	1. One Coat	Krud Kutter Metal Clean & Etch	Surface Prep: SSPC-SP1 Jasco Prep & Prime	Jasco Prep & Prime
	2. One Coat	UGPR00/	5725	B51WQ4050
	3. One Coat	SPMA50/SZRO 50	1050/1520	ProMar 200 S/G
	4. One Coat	SPMA50/SZRO 50	1050/1520	ProMar 200 S/G

W.	Galvanized and Aluminum – Gloss - Acrylic			
	1. One Coat	Krud Kutter Metal Clean & Etch	SurfacePrep: SSPC-SP1 Jasco Prep & Prime	Jasco Prep & Prime
	2. One Coat	UGPR00/	5725	B51WQ4050
	3. One Coat	EVSH60/	1680	ProMar 200 Gloss
	4. One Coat	EVSH60/	1680	ProMar 200 Gloss
X.	Acoustical Ceiling Tiles – sheen per Manufacturer Recommendation			
	1. One Coat	Per Manuf.	295	Per Manuf.
	2. Two Coats	Per Manuf.	485	Per Manuf.

3.10 SPECIAL COATINGS

A. Exterior metal handrails, guardrails, ornamental metal fences and gates and exterior stairs, total 5.5 to 8.5 mil thickness, as recommended by the manufacturer:

		Tnemec	Dunn - Edwards	Kelly Moore	Sherwin Williams
1.	Unprimed or shop primed – Ferrous – Gloss - Polyurethane				
	a. One Coat	50-330	ULDM00	Devo Bar - Rust 235V	B66-310 Series
	b. One Coat	74	ULSH60	Devthane379H	B65-720
2.	Unprimed or shop primed – Ferrous – Semi-Gloss - Polyurethane				
	a. One Coat	50-330	ULDM00	Devo Bar - Rust 235V	Macropoxy 646
	b. One Coat	75	ULDM50	Devthane378H	Macropoxy 646
3.	Galvanized or Aluminum – Gloss - Polyurethane				
	a. One Coat	P-66	ULDM00	Devran 203	B66-310 Series
	b. One Coat	74	ULSH60	Devthane379H	B65-720
4.	Galvanized or Aluminum –Semi-Gloss - Polyurethane				
	a. One Coat	P-66	ULMS00	Devran 203	B66-310 Series
	b. One Coat	75	ULDM50	Devthane378H	Macropoxy 646

END OF SECTION

SECTION 10 11 16
MARKER BOARDS

PART I – GENERAL

1.01 SECTION INCLUDES
A. Marker boards – Fixed
B. Marker boards – Sliding
C. Trim, chalk rail and accessories.

1.02 REFERENCES
A. ANSI A208.1 – Mat Formed Wood Particleboard.
B. ASTM A56 – Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality.
C. ASTM B209 – Standard Specifications for Aluminum-Alloy Sheet and Plate.
D. ASTM B221 – Standard Specifications for Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
E. PEI – Porcelain Enamel Institute – Performance Specifications for Porcelain Enamel Chalkboards.
F. ASTM A424 – Sheet Steel for Porcelain Enameling.
G. ANSI A135.4 – Basic hardboard.

1.03 SUBMITTALS FOR REVIEW
A. Submit shop drawings and product data under provisions of Section 01300.
B. Indicate on shop drawings, wall elevations, dimensions and joint locations.
C. Provide product data on trim and accessories.
D. Submit samples under provisions of Section 01300.
E. Submit three samples illustrating materials and finish, color and texture of marker board.

1.04 MAINTENANCE DATA
A. Include maintenance information on regular cleaning, stain removal and removal of damaged components.

1.05 WARRANTY
A. Provide five year warranty.
B. Warranty: Include coverage of marker board surface from discoloration due to cleaning, crazing, cracking or staining.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS
A. Markerboards: Products of Claridge Products and Equipment, Inc., Harrison, AR, are the standard of quality required and specified herein. Similar products of Lemco Manufacturing Co,Salt Lake City, UT, , and Nelson-Adams,Corona, CA, may be submitted for approval.

2.02 MATERIALS
A. Sheet Steel: ASTM A424, minimum 22 gage, one piece without joints.
B. Sheet Steel: ASTM A526, galvanized to G60 designation.
C. Aluminum Sheet: ASTM B209, 6063 alloy, T52 temper.
D. Aluminum Extrusions: ASTM B221, 6061 alloy, temper.
E. Particle Board: ANSI A208.1; wood chips or shavings set with waterproof resin binder, sanded faces.
F. Adhesives: Type recommended by manufacturer. Waterproof type.
G. Hardboard: ANSI A135.4, tempered, smooth.

2.03 ACCESSORIES
A. Map Supports: Formed aluminum roller brackets, sliding type to fit map rail. One hook furnished for every two feet of map rail on factory-framed units.

B. Provide instructions for markerboard cleaning on metal plate attached to perimeter frame near Chalk rail.

2.04 FABRICATION – MARKERBOARDS

A. Face Sheet: ASTM A424, LCS-III porcelain enamel steel, 22 gage thick.
B. Core: ANSI A208.1, sliding panels: ½" honeycomb, back panels: 7/16" medium density fiberboard.
C. Backing Surface: ASTM B209, aluminum sheet, 0.015 inch thick, or ASTM A526, 26 gage galvanized steel.

2.05 FRAME AND TRIM

A. Frame: factory-built, 6063 alloy grade aluminum with T5 tempering in accordance with ASTM B221, 201-R1 satin anodized finish, and concealed fasteners:
B. Chalk rail: Standard continuous, solid, blade-type aluminum tray with ribbed section and injection molded end closures, full length of marker board, concealed fasteners.
C. Map rail: Standard continuous 1" map rail with cork insert and end stops at the top of each
D. Provide one flag holder for each 10 lineal feet of marker board.
E. Provide one flag for the United States of America and one flag for the State of California.
E. Sliding Marker Units: Two-track, 4 panel, LCS-III porcelain enamel steel markerboard, bottom supported, with 2 guide rail top unit, map rail and fascia and 10T chalk rail at bottom.

2.06 FINISHES

A. Porcelain Enamel: Glass fired enamel in accordance with PEI Type A. Color as selected from manufacturer's standard range.
B. Aluminum Frame and Accessories: Anodized to clear natural finish.

PART III – EXECUTION

3.01 INSPECTION

A. Verify that surfaces and internal wall blocking are ready to receive work and dimensions are as indicated on shop drawings.
B. Beginning of installation means acceptance of substrate construction.

3.02 INSTALLATION

A. Install marker boards in accordance with manufacturer's instructions.
B. Establish top of chalk rail at 30 inches above finished floor, or as approved by Architect.
C. Secure units level and plumb.
D. Where marker board adjoins tack board, join panels with batten joint.
E. NO holes in marker board permitted.
F. Adjust sliding mechanism as required to allow for traction with lower rail

3.03 CLEANING

A. Clean marker board surfaces and aluminum in accordance with manufacturer's instructions.
B. Cover marker board surfaces with protective cover, taped to frame.
C. Remove protective cover at Date of Substantial Completion.

END OF SECTION

SECTION 10 14 00
SIGNS - PARKING AREA

PART I – GENERAL

1.01 SECTION INCLUDES

A. Traffic entry warning signs.

B. Parking space signs.

1.02 REFERENCES

A. ASTM A53 – Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

B. ASTM A500 – Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

C. FED-STD-595 – Colors used in Government Procurement.

1.03 SUBMITTALS FOR REVIEW

A. Submit product data under provisions of Section 01 33 00.

B. Submit product data listing sign styles, lettering and locations and overall dimensions of each sign.

C. Submit samples under provisions of Section 01 33 00.

D. Submit three samples illustrating full size sample sign, of type, style and color specified.

1.04 REGULATORY REQUIREMENTS

A. Conform to CBC for provisions of the physically disabled.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store and protect products.

PART II – PRODUCTS

2.01 CONSTRUCTION

A. Post mounted and wall mounted signs shall be fabricated from 16 gage enameling iron with porcelain enamel finish.

B. Mount signs to post with minimum two 3/16 inch diameter round head bolts with tamperproof nuts, galvanized.

C. Posts: 2 inch diameter galvanized steel pipe weighing a minimum of 3.65 lbs per foot and conforming to ASTM A53, Schedule 40 or 2 x 2 inch galvanized steel tubing, weighing a minimum of 4.31 lbs per foot and conforming to ASTM A500, Grade B, 3/16 inch thick wall thickness.

2.02 TRAFFIC ENTRY WARNING SIGNS

A. Single post mount, not less than 17 x 22 inches with white reflectorized copy on blue background conforming to No. 15090, FED-STD 595, one inch high letters shall read: "Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or license plates issued for persons with disabilities may be towed away at owner's expense. Towed vehicles may be reclaimed at _____ or by telephoning _____." Obtain actual location and telephone number prior to manufacturing sign and install sign with complete information.

B. Contractor shall obtain the above missing information from Owner for permanent inclusion in sign copy, prior to fabrication of the signs.

C. Position sign in a conspicuous location immediately adjacent to each entrance to off-street parking facility or immediately adjacent to and visible from each stall or space.

D. Sign shall be mounted 60 inches from bottom of sign to the adjacent finish grade or ground or 80 inches to pedestrian way or sidewalk or as shown on the drawings.

2.03 PARKING STALL SIGNS

NOTE: Default mounting method is single post unless noted otherwise. Fence mounting is acceptable when mounting location including height can be properly met – verify with Architect prior to installation.

A. Single post mount: not less than 70 square inches with white reflectorized copy on blue background conforming to No. 15090, FED-STD 595. Sign shall display a profile view of a wheelchair with occupant in white on blue background and state "$250 MIN. FINE".

B. Fence Mount: not less than 70 square inches with white reflectorized copy on blue background conforming to No. 15090, FED-STD 595. Sign shall display a profile view of a wheelchair with occupant in white on blue background and state "$250 MIN. FINE".

C. Position one sign at the end of each parking space designated for disabled usage.

D. One in every six spaces, but not less than one having 8' loading aisle at passenger side, also shall display a "Van Accessible" sign below the symbol of accessibility.

E. Sign shall be mounted 80 inches from bottom of sign to finish grade of parking space or centered on wall at interior end of parking space at a minimum height of 60 inches to the bottom of the sign above the parking space, finished grade, ground or sidewalk.

PART III – EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work.
B. Beginning of installation means installer accepts existing surfaces.

3.02 INSTALLATION

A. Set posts in concrete base minimum 12 inch diameter and 18 inches deep. Signs set in asphaltic paving surfaces or concrete sidewalks shall be mounted in core drilled holes minimum 8 inch diameter, 18 inches deep with top of base flush to finish. Signs mounted to walls/fences shall be attached firmly with appropriate fasteners. Seal all holes water tight.

B. Clean and polish.

END OF SECTION

SECTION 10 14 10
SIGNS – ROOM IDENTIFICATION

1 PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Plastic signs.

1.2 REFERENCES
- A. Chapters 10, 11, 2016 California Building Code, 11B Division 7.
- B. Chapter 3, Title 19, CCR.
- C. ASTM D4802 – Poly (Methyl Methacrylate) Acrylic Plastic Sheet).
- F. All signage to conform to CBC 1011.4 and 11B-703. These sections shall override other references within this specification.

1.3 SUBMITTALS FOR REVIEW
- A. Submit shop drawings under provisions of Section 01 30 00 /01 33 00.
- B. Submit shop drawings listing sign styles, lettering and locations and overall dimensions of each sign.
- C. Submit samples under provisions of Section 01 30 00 /01 33 00.
- D. Submit three samples illustrating full size sample sign, of type, style and color specified including method of attachment. If accepted, samples may be installed in project.
- E. Submit manufacturer's installation instructions under provisions of Section 01 30 00 /01 33 00.

1.4 DELIVERY, STORAGE, AND HANDLING
- A. Deliver products to site and protect from damage. Store until immediately prior to substantial completion.

1.5 PRE-INSTALLATION CONFERENCE
- A. Notify Architect when signs are ready for installation. Arrange for conference at the site. Do not proceed with installation until Architect's approval of specific locations and methods of attachment has been obtained.
- B. Provide signs from one manufacturer, unless approved.

1.6 REGULATORY REQUIREMENTS
- A. Conform to CBC for provisions for the physically disabled.
- B. SIGNAGE REQUIREMENTS: (Room identification and Exit signs)
  1. Tactile characters shall be selected from fonts where widths of the upper case "O" is 60% min. & 110% max. of the height of the uppercase letter "T". Character height measured vertically from the baseline of the character shall be 5/8" min. & 2" max. based on the height of the uppercase letter "T". Stroke thickness shall be 15% max. of the height of the character.
  2. Characters and symbols shall be contrast in color or image with either light letters on dark background or dark letters on light background. Colors to be selected by Architect.
  3. Letters and numbers on permanent room identification signs shall be raised minimum 1/32 inch, without serif.
  4. Raised letters shall be accompanied by California contracted grade 2 BRAILLE tactile identification.
  5. For Tactile Signage: minimum height for raised characters or symbols is 5/8 inch. Maximum Height: 2 inches. See signage detail in drawings for specifics.
  6. Pictographs shall be accompanied by equivalent verbal description directly below.

7. Signs shall be located on wall adjacent to latch side of door or nearest adjacent wall, within 18 inches from edge of door, mounted 60 inches maximum above floor to baseline of highest row of tactile characters, 48" minimum to baseline of braille.
8. Conform to all other CBC requirements including finishes and contrasts.
9. Include pictogram showing fire extinguisher inside on all signs where there is a fire extinguisher inside. This sign does not require tactile/braille requirements.

2 PART 2 PRODUCTS

2.1 MATERIALS

A. Acrylic Plastic Sheet: ASTM D4802, clear, ¼ inch thick.
B. Fasteners: Clear silicone sealant, as specified in Section 07 92 00.

2.2 ROOM & EXIT IDENTIFICATION SIGNAGE

A. Provide room identification signs. Install on wall adjacent to door, on latch side.
B. Material: Laminated acrylic plastic ¼ inch total thickness, colors as selected by Architect.
   1. Upper Layer: Non-glare clear acrylic, 1/8 inch thick.
   2. Lower Layer: Opaque Acrylic, 1/8 inch thick.
C. Type Required: Two inches high; minimum 8 inches long, surface application, 7/8 inch high letters, 3/32 inch stroke width, fully tactile, with grade 2 BRAILLE indicator, or as indicated on drawings, whichever is more expensive.
   1. Provide signage where shown on plans
   2. Provide up to 15 letters per room sign
   3. Provide up to 4 numerals per room sign
   4. Provide for one sign for every door unless noted otherwise

   ---Signs may be combined into a single sign if approved by the Architect.
D. Lettering Type Style: Helvetica Medium.

2.3 OCCUPANT LOAD SIGNS

A. Provide maximum occupancy load signs where indicated or as required below. Install near main exit of following rooms:
   1. Assembly rooms.
   2. Classrooms greater then 1,000 sf.
B. Material: Laminated plastic, ¼ inch thick, colors as selected by Architect.
   1. Upper Layer: Non-glare clear acrylic 1/8 inch thick.
   2. Lower Layer: Opaque acrylic, 1/8 inch thick.
C. Type Required: 4 inches high, minimum 8 inches long, sub-surface application, 7/8 inch high letters at top row, 2 inch high numerals.
D. Lettering Type Style: Helvetica complying with 11B.703.5
E. Obtain occupant load number from Architect.
F. Conform to Section 1002, California Building Code.

2.4 ACCESSIBILITY SIGN

A. Provide at each accessible building entrance. Include International Symbol of Accessibility, manufacturer's standard, approved by Architect. Sign shall be visible to persons along approaching pedestrian ways. Provide additional directional signs as indicated on drawings.
B. Conform to CBC 11B 703.2.1 for raised characters & CBC 11B 703.7.2.1 for ISA & directional visual signage.

2.5 FIRE PROTECTION PLAQUE

A. Minimum 144 sq in size, manufacturer's standard approved by Architect, graphic layout indicating major building elements, corridors, exits, fire protection devices, routes of travel and required emergency information, in minimum 3 colors.
B. Conform to Section 3.09, Title 19, CCR.
C. Provide one plaque per building to be located by Architect during construction.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Beginning of installation means installer accepts existing surfaces.

3.2 INSTALLATION

A. Install with clear silicone adhesive with zero clearance between plastic and face of substrate. Double face adhesive tape not permitted. All exterior signs to be installed with adhesive and with two (2) galvanized round head wood screws, 2" long minimum. Where signs are to be installed directly on glass, provide vinyl backer in color specified by Architect, to mask adhesive on substrate. Install signs only after surfaces are finished, in locations indicated.

B. Clean and polish.

C. Code-required signs shall be field-inspected per CBC 11B-703.1.1.2

END OF SECTION

SECTION 10 14 11

SIGNS - RESTROOMS

1 PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Plastic signs at restroom.

1.2 REFERENCES
- A. CBC Chapter 11B – Division 7.
- B. ASTM D4802 – Poly (Metal Methacrylate) Acrylic Plastic Sheet.

1.3 SUBMITTALS FOR REVIEW
- A. Submit shop drawings under provisions of Section 01 33 00.
- B. Submit shop drawings listing sign styles, lettering, locations and overall dimensions of each plastic sign.
- C. Submit samples under provisions of Section 01 33 00.
- D. Submit two samples illustrating full size sample sign, of type, style and color specified including method of attachment. If accepted, samples may be installed in project.

1.4 DELIVERY, STORAGE, AND HANDLING
- A. Deliver products to site and protect from damage. Store until immediately prior to substantial completion.

1.5 PRE-INSTALLATION CONFERENCE
- A. Notify Architect when signs are ready for installation. Arrange for conference at the site. Do not proceed with installation until Architect's approval of specific locations and methods of attachment has been obtained.

1.6 REGULATORY REQUIREMENTS
- A. Conform to CBC for provisions for the physically disabled.
- B. SIGNAGE REQUIREMENTS FOR TACTILE SIGNS:
  1. Tactile characters shall be selected from fonts where widths of the upper case "O" is 60% min. & 110% max. of the height of the uppercase letter "T". Character height measured vertically from the baseline of the character shall be 5/8" min. & 2" max. based on the height of the uppercase letter "T". Stroke thickness shall be 15% max. of the height of the character.
  2. Characters and symbols shall be contrast in color or image with either light letters on dark background or dark letters on light background.
  3. Letters and numbers on permanent room identification signs shall be raised minimum 1/32 inch, without serif.
  4. Upper case letters shall be accompanied by grade 2 BRAILLE tactile identification.
  5. Minimum height for raised characters or symbols: 5/8 inch. Maximum Height: 2 inches.
  6. Pictographs shall be accompanied by equivalent verbal description directly below.
  7. Room identification signs shall be located on wall adjacent to latch side of door or nearest adjacent wall, within 18 inches from edge of door, mounted 60 inches maximum, above floor to baseline of highest row of tactile characters, 48" minimum to base of braille.
  8. Conform to all other CSAS requirements including finishes and contrasts.

2 PART 2 PRODUCTS

2.1 RESTROOM SIGNAGE

A. Material: ASTM D4802; laminated acrylic plastic.

B. Male Restroom Signage:

1. Doorways leading to male restrooms shall be identified by an equilateral triangle ¼ inch thick, with edges 12 inches long, with vertex pointing upward. Sign shall be mounted in center of door, 58 - 60 inches from finish floor to centerline of sign.

2. The room shall be further identified by a rectangular room identification sign ¼ inch thick, 4 inches high upon which appears the word “MEN” in contrasting color, 2 inches high, minimum 1/32 inch thick, fully tactile, accompanied by a braille indicator immediately below, on the same sign. Sign shall be located on the wall on the latch side of door, 60 inches from finish floor to baseline of highest line of tactile character, 9 inches from edge of door (or on nearest adjacent wall if side wall is not large enough) to centerline of sign.

3. International symbol of accessibility shall appear below the room identification sign or on the geometric door sign. Sign shall be ¼ inch thick, 6 x 8 inches in size upon which appears the international symbol of accessibility, 4-1/2 inches high, minimum 1/32 inch thick, in contrasting color.

C. Female Restroom Signage:

1. Doorways leading to female restrooms shall be identified by a circle ¼ inch thick, 12 inches in diameter upon which appears a female pictograph in contrasting color. Sign shall be mounted in center of door, 58 - 60 inches from finish floor to centerline of sign.

2. The room shall be further identified by a rectangular room identification sign ¼ inch thick, 4 inches high upon which appears the word “WOMEN” in contrasting color, 2 inches high, minimum 1/32 inch thick, fully tactile, accompanied by a braille indicator immediately below, on the same sign. Sign shall be located on the latch side of door, 60 inches from finish floor to baseline of highest line of tactile character, 9 inches from edge of door (or on nearest adjacent wall if side wall is not large enough) to centerline of sign.

3. International symbol of accessibility shall appear below the room identification sign or on the geometric door sign. Sign shall be ¼ inch thick, 6 x 8 inches in size upon which appears the international symbol of accessibility, 4-1/2 inches high, minimum 1/32 inch thick, in contrasting color.

D. Unisex Restroom Signage:

1. Doorways leading to unisex restrooms shall be identified by a circle ¼ inch thick, 12 inches in diameter with a ¼ inch thick triangle superimposed on the circle and within the 12 inch diameter total ½ inch thick at triangle. Single user toilet facility shall be identified as All-Gender facility per DSA BU 17-01. Triangle color shall contrast 70% min. with color of circle.

2. The room shall be further identified by a rectangular room identification sign ¼ inch thick, 4 inches high upon which appears the word “RESTROOM” or “UNISEX RESTROOM” in contrasting color, 2 inches high, minimum 1/32 inch thick, fully tactile, accompanied by a braille indicator immediately below, on the same sign. Sign shall be located on the wall on the latch side of door, 60 inches

from finish floor to baseline of highest line of tactile character, and 48” minimum to base of braille, and 9 inches from edge of door (or on nearest adjacent wall if side wall is not large enough) to centerline of sign. Signage shall comply with CBC 11B-216.2 and DSA BU 17-01.

3. International symbol of accessibility shall appear on the room identification sign.

E. Sign colors shall contrast with color of door (and wall when mounted on wall).
F. Lettering Type Style: Helvetica Medium, caps only.
G. Substitute “BOYS” or “GIRLS”; “MEN” or “WOMEN” where appropriate.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work.
B. Beginning of installation means installer accepts existing surfaces.

3.2 INSTALLATION

A. Install with clear silicone adhesive with zero clearance between plastic and attachment surface. Double face adhesive tape not permitted.
B. Install signs only after surfaces are finished, in center of door, or on wall adjacent to latch side as specified herein.
C. Clean and polish.
D. Signs shall be field inspected per CBC 11B.703.1.1.2

END OF SECTION

SECTION 10 21 13
SOLID PLASTIC TOILET COMPARTMENTS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Solid plastic toilet partitions, floor-mounted, overhead-braced.
B. Wall hung urinal screens.
C. Attachment hardware.

1.2 REFERENCES

A. ASTM E84 – Surface Burning Characteristics of Building Materials.
B. Chapters 8 and 11B, California Building Code.
C. ASTM A167 – Standard Specification for Stainless and Heat-Resisting Chromium and Chromium-Nickel Steel Plate, Sheet and Strip.
D. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
E. NFPA 286 – Standard method of Fire Tests for Evaluating Contribution of Wall & Ceiling Interior Finish to Room Fire Growth.

1.3 SUBMITTALS FOR REVIEW

A. Submit shop drawings, product data, manufacturer's installation instructions, and samples under provisions of Section 01 33 00.
B. Submit shop drawings with dimensioned layout of all panels, door sizes, door swings, elevations, anchorage and mounting details, and finishes.
C. Submit product data for components, hardware and accessories.
D. Submit three samples illustrating panel colors and patterns.
E. Provide a sample of each type of hardware.

1.4 REGULATORY REQUIREMENTS

A. Conform to CBC Chapter 11B for provisions for the physically disabled.
B. Maximum Flame Spread/Smoke Density: ASTM E84; 75/450, for Class II (B) CBC 803.1.1.

1.5 FIELD MEASUREMENTS

A. Verify field measurements are as shown on shop drawings.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Hiny Hiders by Scranton Products, Scranton, PA. (www.scrantonproducts.com)
B. Global Partitions by ASI Group, Yonkers, NY. (www.asigroup.us/)
C. Or equal.

2.2 MATERIALS

A. Doors, panels, and pilasters
   1. High density polyethylene (HDPE), forming single thickness panel, 1" thick with edges rounded to ¼" radius.
   2. Color: to be selected by Architect.
   3. Waterproof, non-absorbent, self-lubricating surface, resistant to marks by pens, pencils, markers, etc.
B. Stainless Steel: ASTM A167, Type 304.
C. Aluminum: ASTM B221, 6463-T5 alloy and temper.

2.3 COMPONENTS

A. Door Hinges: Institutional stainless steel, surface-mounted, self-closing and through-bolted to doors and pilasters with stainless steel round head sex bolts or attached with tamper-resistant threaded inserts of stainless steel.

B. Pilaster Shoes: Stainless steel, minimum 4 inches high or solid brass chromium plated pedestals, 8 inches high.
C. Wall Brackets: Stainless steel continuous angle.
D. Headrail: Extruded aluminum, or stainless steel, anti-grip configuration.
E. Latch and Keeper: Stainless steel, surface-mounted or recess-mounted.
F. Provide Accessible Latch at Accessible Compartment.
G. Provide accessible door pull on both sides of accessible compartment doors.

2.4 FABRICATION
A. Fabricate partitions from a single sheet of HDPE, with eased or rounded edges.
B. Thickness of Partition Panels: ½ inch, minimum.
C. Thickness of Doors and Pilasters: ¾ inch, minimum.
D. Width of doors at compartments for the disabled: 36 inches.

2.5 FINISHES
A. Colors or patterns as selected by the Architect from manufacturer's standard list.
B. Stainless Steel Surfaces: No. 4 satin or polished.
C. Aluminum: Clear natural or satin anodized.

3 PART 3 EXECUTION
3.1 EXAMINATION
A. Verify that openings are ready to receive work.
B. Verify field measurements are as shown on shop drawings.
C. Verify correct location of built-in framing, anchorage, bracing and plumbing fixtures.
D. Beginning of installation means installer accepts existing conditions.

3.2 ERECTION
A. Erect in accordance with manufacturer's instructions.
B. Install partition components secure, plumb and level.
C. Attach panel brackets securely to walls, floors or ceilings using appropriate anchor devices. Break continuous bracket at each transition in wall surface to allow for secure and level connection of partition components. Expansion anchors at floor shall be stainless steel or other corrosion resistant type approved by the Architect.
D. Attach panels and pilasters to brackets with tamper-resistant through-bolts and nuts.
E. Anchor urinal screen panels to walls with continuous angle brackets or minimum three "U" type brackets.
F. Provide ½ inch space between wall surface and panels or pilasters.
G. Conceal floor fastenings with minimum 4 inch high stainless steel pilaster shoes or adjustable pedestal brackets.
H. Equip each door with continuous or top, center and bottom pivot hinges. Doors shall be accessible from outside of compartment.
I. Install door strike keeper on each pilaster in alignment with sliding door latch. Latches requiring twist or grasp not permitted.
J. Equip each door with one coat hook and bumper, maximum 44 inches above finish floor.
K. At compartments for the disabled, hinges shall operate at maximum 5 lbs force and shall be self-closing. Provide loop-pull at both sides of door(s).

3.3 ERECTION TOLERANCES
A. Maximum Variation From Plumb or Level: 1/8 inch.
B. Maximum Misplacement From Intended Position: 1/8 inch.

3.4 ADJUSTING
A. Adjust and align door hardware to uniform clearance at vertical edges of doors. Clearance space not to exceed 3/16 inch.
B. Adjust door hinges so that free movement is attained and will locate in-swinging doors in partial open position when unlatched. Return out-swinging doors to closed position.

3.5 CLEANING

A. Remove protective coverings.
B. Clean surfaces and hardware.

3.6 PROTECTION OF FINISHED WORK

A. Field touch-up of finished surfaces will not be permitted. Replace damaged components.

END OF SECTION

SECTION 10 28 00
TOILET AND BATH ACCESSORIES

1 PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Toilet and bath accessories.
- B. Attachment hardware.

1.2 REFERENCES
- A. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- B. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- C. ASTM A366 – Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.

1.3 SUBMITTALS FOR REVIEW
- A. Submit product data under provisions of Section 01 33 00.
- B. Provide product data on accessories describing size, finish, details of function, attachment methods.
- C. Submit manufacturer’s installation instructions under provisions of Section 01 33 00.

1.4 REGULATORY REQUIREMENTS
- A. Conform to CBC Chapter 11B.

1.5 KEYING
- A. Supply two keys for each accessory to Owner.
- B. Master key all accessories.
- C. Accessories shall be from a single manufacturer to facilitate keying.

1.6 SEQUENCING AND SCHEDULING
- A. Coordinate the work of this Section with the placement of internal wall reinforcement to receive anchor attachments.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS
- A. Bobrick Washroom Equipment, Inc., North Hollywood, CA.
- B. ASI, Yonkers, NY.
- C. Bradley Corp., Menomonee Falls, WI.
- D. Or equal.

2.2 MATERIALS
- A. Sheet Steel: ASTM A366.
- B. Stainless Steel Sheet: ASTM A167, Type 304.
- C. Tubing: ASTM A269, stainless steel.
- D. Fasteners, Screws, and Bolts: Stainless steel or chrome, tamperproof.

2.3 FABRICATION

A. Weld and grind smooth joints and miters of fabricated components.
B. Form exposed surfaces from single sheet of stock, free of joints.
C. Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
D. Back paint components where contact is made with building finishes to prevent electrolysis.
E. Shop assemble components and package complete with anchors and fittings.
F. Provide steel adapters and anchor components for installation.

2.4 FACTORY FINISHING

A. Stainless Steel: No. 4 satin luster finish.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that site conditions are ready to receive work and dimensions are as indicated on shop drawings.
B. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

A. Deliver inserts and rough-in frames to site at appropriate time for building-in.
B. Provide templates and rough-in measurements as required.
C. Verify exact location of accessories for installation.

3.3 INSTALLATION

A. Install fixtures, accessories and items in accordance with manufacturers' instructions.
B. Install plumb and level, securely and rigidly anchored to substrate.
C. Where ceramic wainscot occurs, provide stainless steel closure angles flush to perimeter of all wall-mounted accessories. Seal visible cracks with silicone sealant as specified in Section 07900.
D. When called for, Coat Hooks to be installed at +48” AFF.

3.4 SCHEDULE

a. Toilet tissue dispensers to be continuous flow type.
b. Grab bar lengths to be as indicated on plans. Diameter to be 1-1/4 to 1-1/2”.

Room E17 & E18

1.	Grab Bars	B-6806.99 with covers, sized as required
2.	Toilet Tissue Dispenser	B-2888 (one per water closet)

Room A03

1.	Sanitary Napkin Disposal	B-254 (one per water closet)
2.	Toilet Tissue Dispenser	B-2888 (one per water closet)
3.	Seat Cover Dispenser	B221 (one per water closet)

Room A14

1.	Sanitary Napkin Disposal	B-254 (at accessible water closet)
2.	Toilet Tissue Dispenser	B-2888 (at accessible water closet)
3.	Seat Cover Dispenser	B221 (at accessible water closet)

3.5 EQUIPMENT SPECIFICATION SHEETS

A. Items listed in the following equipment specification sheets shall conform throughout to the requirements of the foregoing specification.

END OF SECTION

SECTION 10 44 16

FIRE EXTINGUISHERS AND CABINETS

1 PART 1 GENERAL

1.1 WORK INCLUDED

A. Fire extinguishers.
B. Cabinets.

1.2 REFERENCES

A. NFPA 10 – Portable Fire Extinguishers.
B. CFC – California Fire Code, Section 906.
C. CBC 11B.

1.3 QUALITY ASSURANCE

A. Conform to NFPA 10 and CFC requirements for extinguishers.

1.4 SUBMITTALS FOR REVIEW

A. Submit product data under provisions of Section 01 33 00.
B. Include physical dimensions, operational features, color and finish, anchorage details, rough-in measurements, location and details.
C. Submit manufacturer's installation instructions under provisions of Section 01 33 00.

1.5 OPERATION AND MAINTENANCE DATA

A. Submit manufacturer's operation and maintenance data.
B. Include test, refill or recharge schedules, procedures and recertification requirements including requirements applicable to the Work.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not install extinguishers when ambient temperatures may cause freezing.

2 PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Fire Extinguishers and Cabinets: Products of Potter-Roemer, Inc., Cerritos, CA, are the standard of quality required and specified herein. Similar products of J.L. Industries, Bloomington, MN, Larsen's Manufacturing Company, Minneapolis, MN, W.F. Lee Corporation, Minnetonka, MN, Modern Metal Products, Owatonna MN, Watrous, Incorporated, Northbrook IL, Amarax Corporation, Los Angeles, CA (Extinguishers) or Sampson Metal Products Co., Los Angeles, CA (Cabinets), may be submitted for approval.

2.2 EXTINGUISHERS

A. ABC Multi-Purpose Dry Chemical:
    1. Red glossy polyester coated steel cylinder with pressure gage and nozzle.
    2. Associated wall-mounting bracket.
    3. Size: 5 lbs.
    4. Class: 2A:10B:C

2.3 CABINETS

A. Recessed where shown on plans, "Alta" model
    1. Size: To accommodate extinguisher specified herein.
    2. Mounting Style: Recessed
    3. Door and Frame Material:

a. Steel: 22 gage, cold rolled steel with electrostatically applied thermally-fused polyester coating, and continuous hinge. Color as selected by the Architect from manufacturer's standard list.
b. Door Style: Duo Vertical Panel with Tempered Safety Glass, with accessible latch & lock, key to master (door latch to operate with 5 lbs. force max and not require tight pinching, grasping, or twisting of the wrist).

4. Lettering: To be selected by Architect.

B. Semi-recessed where shown on plans, "Alta" model

1. Size: To accommodate extinguisher specified herein.
2. Mounting Style: Semi-recessed.
3. Door and Frame Material:
   a. Steel: 22 gage, cold rolled steel with electrostatically applied thermally-fused polyester coating, and continuous hinge. Color as selected by the Architect from manufacturer's standard list
   b. Door Style: Duo Vertical Panel with Tempered Safety Glass with accessible latch, no lock (door latch to operate with 5 lbs. force max and not require tight pinching, grasping, or twisting of the wrist).
4. Lettering: To be selected by Architect.

2.4 FABRICATION

A. Form body of cabinet with tight inside corners and seams.
B. Pre-drill holes for anchorage.
C. Form perimeter trim and door stiles by welding, filling and grinding smooth.
D. Hinge doors for 180 degree opening with continuous piano hinge.
E. Glaze doors with resilient channel gasket glazing.

3 PART 3 EXECUTION

3.1 INSPECTION

A. Verify rough openings for cabinet are correctly sized and located.
B. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

A. Install cabinets plumb and level in wall openings to allow maximum 44 inches from finish floor to handle of fire extinguisher unit.
B. Secure rigidly in place.

END OF SECTION

SECTION 22 05 00

COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings apply to this Section.

1.2 SUMMARY
A. This Section includes general administrative and procedural requirements and applies to all sections in this Division.
B. The following requirements are included in this Section to expand the requirements specified in Division 01:
1. Drawings and Specifications
2. Submittals.
3. Shop drawings.
4. Product data.
5. Coordination.
6. Coordination drawings.
7. Record documents.
8. Operation and Maintenance manuals.
9. Delivery, storage and handling.
10. General Installation.
11. Cutting and patching.
12. Guarantee and Warranties
13. Quality Assurance
14. Codes and Standards
15. UL Label
C. This Section also includes the following which applies to all Sections in this Division:
1. Piping materials and installation instructions common to most piping systems.
2. Transition fittings.
3. Dielectric fittings.
4. Mechanical sleeve seals.
5. Sleeves.
6. Escutcheons.
7. Grout.
8. Plumbing Fixtures.

1.3 DEFINITIONS
A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms. In general, any item that is directly accessible without removing panels, walls, ceilings, or other parts of structure.

C. Exposed, Exterior Installations: Exposed to view outdoors, outside of building structure, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations, equipment yard, under eaves, etc.
D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.
E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.
F. Furnish: Supply and deliver complete.
G. Install: Place, secure, and connect as required to make fully operational.
H. Provide: Furnish and install as defined above.
I. Connect: Complete hookup of item with required services.
J. Rough-in: Provide all indicated services in the necessary arrangement suitable for making final connections to fixture or equipment.

1.4 DRAWINGS AND SPECIFICATIONS
A. Consider all drawings and all divisions of this specification as a whole and provide work of this division shown anywhere therein.
B. Absolute accuracy of the contract drawings can not be guaranteed. It is the responsibility of the Contractor to coordinate exact requirements and locations as governed by actual job conditions. (See Coordination and Coordination Drawings below). Check all information and report any discrepancies to the Architect/Engineer before fabrication and in time to avoid any unnecessary work. Any changes or additions subject to additional charges made without written authorization, based upon an agreed price, shall be at the Contractor's own risk and cost.
C. The Contractor may and shift pipe and equipment as required to meet field conditions. The Contractor shall indicate, and clearly note, all changes on his shop and coordination drawings and submit them to the Architect/Engineer for review prior to ordering or fabrication. The Contractor must obtain submittal review indication “No Exception Taken” for any proposed modifications.
D. The Contractor shall provide all necessary offsets, transitions, fittings, and modifications required to complete the work.
E. Follow equipment and material manufacturer's instructions where items are not specifically covered on the drawings or within the specifications. If instructions are in conflict, obtain clarification before starting work.
F. Scaled and figured dimensions are approximate and are for estimating purposes only. Before proceeding with the work, check and verify dimensions and assume responsibility for fitting materials, equipment, and other parts of equipment within the structure.
G. Confirm all slopes and inverts. Route and coordinate all piping locations as required to obtain necessary slopes and proper drainage. This is particularly important for drainage piping.
H. Where apparatus and equipment have been shown on drawings, dimensions have been taken from the manufacturer’s literature for the scheduled manufacturer. Check manufacturer’s certified drawings to see that equipment proposed for installation will fit into the building and into spaces provided.

1.5 SUBMITTALS
A. General:
1. In addition to the procedures indicated below follow the procedures specified in Division 01 where they exceed the requirements of this section.

2. Provide submittals of material or equipment in accordance with each specification section.
3. Each item submitted shall be labeled or identified the same as on the drawings. (WH-1, SP-1, etc.)

B. Equipment, materials, and products specifically identified, described, and scheduled on the drawings are the basis of design. The other manufacturers or suppliers which may be named in the specification only indicate the general acceptability of the manufacturer or supplier and are considered alternates. It is the Contractor's responsibility to research, select, and prove, through the submittal process, that the specific model, size, or type of the alternate proposed manufacturer is equal and will perform equal to that which is the basis of the design. Operational characteristics for such items as outlet velocities, power input, sound levels, efficiencies, etc., shall be considered in addition to the overall performance, output, and physical constraints.

C. The Contractor assumes full responsibility that alternative items substituted for the scheduled manufacturer will meet the job requirements and is responsible for the cost of redesign and modifications necessary due to this substitution. Revisions or additional work required due to the use of substitute materials and equipment shall be fully indicated on detailed drawings submitted with the shop drawings.

D. Mark submittal "Exactly as Specified" or accompanied by a letter from the supplier explaining in detail what differences, if any, exist between the submitted item and the scheduled item. Failure to point out the differences will be considered cause for disapproval. If differences are not indicated and/or not discovered during the submittal review process, the Contractor will still remain responsible for providing equipment and materials that meet the specifications.

E. Acceptable Manufacturers: Subject to compliance with the requirements of the individual specification sections, provide materials and equipment from the indicated manufacturers only. Submittals of material or equipment manufactured by other than those indicated may be returned, not reviewed. If no manufacturers are indicated, then any product or material which complies with the specification and for the intended application may be submitted.

F. The plumbing and electrical components, structural systems, service clearances, and controls for all equipment are selected and sized, based on the manufacturer and equipment scheduled. If substitutions and/or equivalent alternate equipment are furnished, it shall be the responsibility of all parties concerned, involved in, and furnishing the substitute and/or equivalent equipment to verify and compare the characteristics (capacity, size, clearance, acoustics, etc.) and requirements of that submitted to that scheduled. If greater capacity or more materials or labor is required for the rough-in, circuitry or connections than for the item specified and provided for, then it shall be the responsibility of the parties involved in providing the substitute and/or equivalent alternate items of equipment to provide all compensation for additional charges made for the proper rough-in, circuitry**,** support, and connections for the equipment furnished for all trades affected. No additional charges shall be allowed for such revisions.

G. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals.

H. The Engineer and/or Architect will review submitted shop drawings and documents for general conformance with the design concept of the project and the information contained in the contract documents. The Engineer's and/or Architect's review is for the convenience of the Owner in following the work and does not relieve the Contractor of the responsibility of deviations from the requirements stated in this specification and contract documents.

I. The Engineer's and/or Architect's review shall not be construed as a complete or detailed check of the work submitted, nor shall it relieve the Manufacturer or Contractor of responsibility for errors or omissions of any sort in the shop drawings and samples, or from the necessity of furnishing any work required by the contract documents. The review of a separate item shall

not indicate review of the complete assembly in which it functions. Nothing in the Engineer's and/or Architect's review of the shop drawings and samples shall be considered as authorizing 1) a departure from contract documents and specifications, or 2) additional cost to the owner, or 3) increased time for completion of the work.

J. Submittals are not reviewed for quantities, service clearance, dimensions, weights, fabrication processes, construction methods, coordination with work of other trades, construction safety practices, motor location, location of control and electrical panels, and other layout constraints. These items shall remain the sole responsibility of the contractor.

K. The Engineer and/or Architect will review submittals with reasonable promptness and will return them to the Vendor/Supplier/Manufacturer stamped to indicate the appropriate action taken as follows:
   1. No Exceptions Taken.
   2. Exceptions Taken As Noted. No resubmittal required.
   3. Exceptions As Noted. Resubmit.
   4. Rejected. Resubmit.
   5. Not Reviewed. Must Meet Plans, Specifications, and Codes.

L. Markings or comments or the lack thereof shall not be construed as relieving the Vendor/Supplier/Manufacturer from complete compliance with the project drawings and specifications.

M. No part of the work shall be started in the shop or in the field until the Engineer and/or Architect have reviewed the shop drawings and samples for that respective portion of the work. Shop drawings and samples shall be submitted for review sufficiently in advance of the scheduled start of the work in the shop or in the field to allow ample time, in consideration of the number and complexity of the drawings in the submittal, for the Engineer and/or Architect to make an orderly review. No extension of time to complete the work will be granted to the Vendor/Supplier/Manufacturer by reason of failure to perform in this respect.

N. Each shop drawing and sample submitted for review shall be accompanied by a letter of transmittal, and shall be identified by the project title, Vendor's/Supplier's/ Manufacturer's name, and a reference to the related part of the contract documents.

O. Product Data: For the following:
   1. Transition fittings.
   2. Dielectric fittings.
   3. Mechanical sleeve seals.
   4. Escutcheons.

1.6 SHOP DRAWINGS

A. Refer to “Submittals” above for additional requirements.

B. Submit information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

C. Shop Drawings include fabrication and installation drawings and directions, setting diagrams, schedules, patterns, templates and similar drawings, and installation for metal and wood supports and anchorages. Include as a minimum the following information on drawings or diagrams:
   1. Dimensions
   2. Identification of products and materials included
   3. Compliance with specified standards
   4. Notation of coordination requirements
   5. Allowance for expansion, contraction, and deflection/movement of support structures.

D. Notation of dimensions established by field measurement
E. Clearances for access and service
F. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
G. Upon contractor's request, engineer can make electronic data files available at contractor's expense in order to enable contractor to expedite the production of working/coordination/shop drawings for the project. Transfer of the electronic data files to Contractor is for informational purposes only and will only be completed after a waiver is signed by contractor and owner relieving engineer of all liability resulting from use of electronic files and all engineer costs to produce electronic files in a format suitable for distribution are paid by contractor.

1.7 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system.
B. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as Shop Drawings.
C. Product Data Information: Includes catalog cuts, sketches, or bulletins indicating performance characteristics and certified performance curves with operating point indicated, features of equipment, controls, instrumentation, valving, equipment dimensions, materials of construction, estimated weight of unit (shipping, installed, and operating), heat rejection load when operating, auxiliaries, specialties, or accessories furnished, roughing-in or anchor diagrams and templates, manufacturer's installation instructions, service clearance requirements, standard color charts, and wiring diagrams.
D. Schematic Drawings shall include elevation and plan views, and indicate all connections, attachments, and details to indicate field required general details of assembly, etc. (Piping, wiring, etc.)
E. Wiring diagrams shall detail wiring for power, signal, and control systems, differentiating between manufacturer-installed wiring and field-installed wiring.
F. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information with above product data:
    1. Manufacturer's printed recommendations
    2. Compliance with recognized trade association standards
    3. Compliance with recognized testing agency standards
    4. Application of testing agency labels and seals
    5. Notation of dimensions verified by field measurement
    6. Notation of coordination requirements

1.8 COORDINATION

A. Coordinate with work performed by other sections in order to accommodate the requirements of this section and to ensure adequate space and proper location for all necessary work on this project whether or not work is under this section. Provide coordination drawings, as indicated. Coordination shall be done prior to order or manufacture of any systems or components.
B. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for plumbing installations.
C. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
D. Coordinate requirements for access panels and doors for plumbing items requiring access that are concealed behind finished surfaces.

E. Coordinate work with the Electrical Division. Furnish the Electrical Division with shop drawing information for indicating ratings and control circuits required for the actual equipment furnished. Coordinate voltage, phase, and load requirements, prior to ordering equipment, to insure mechanical and electrical matches. All equipment shall be provided and ordered to suit the power available.
F. Layout support pads, curbs, sleepers, anchor bolts, etc., for all mechanical equipment and materials so as to be in the proper location for the equipment actually ordered. These pads shall be of adequate dimension to provide for proper mounting of equipment isolators and equipment mounting so that anchor bolts meet all seismic criteria. Contractor shall allow for proper service clearances.
G. Provide templates, information, and instructions to other divisions as necessary to properly locate holes and openings to be cut or provided for plumbing work.
H. Layout piping, and other plumbing systems and confirm all sizes of systems and components to be sure they fit the space available prior to ordering and manufacturing of components. Be certain to allow for proper pipe slopes.
I. Provide proper clearances for access to and service of all equipment and items requiring adjustment including shutoff valves.
J. Coordinate all disciplines to insure maximum point loads that can be attached to structural members are not exceeded. See other sections and structural contract documents for requirements. Provide intermediate supports between existing structural members (Unistrut, angle, etc.) as necessary to not exceed maximum point loads.
K. Lay out trench locations, do all excavation, shoring, laying, backfilling, and compacting for work performed under this division and not provided under other divisions. See other divisions for specification requirements.

1.9 COORDINATION DRAWINGS

A. Prepare and submit, for review, large scale (minimum 1/4" = 1'-0") coordination drawings showing location and elevations of all equipment, ducts, piping, cable trays, conduits, structural, and other items in the area. These shall be fully coordinated with all other trades and Owner supplied items. Check routing and elevations of all piping, ductwork, conduit and equipment before fabricating. Report any conflicts that cannot be solved in the field to the Architect. Extra charges shall not be allowed due to lack of coordination prior to, or during, construction. These drawings shall be distributed to, and coordinated with, all other trades that are affected.
    1. In addition to plan view, indicate heights to clarify clearances from structure and from other trades. Use partial sections where necessary.
    2. Provide proper clearances for access to and service of all equipment and items requiring adjustment including shutoff valves.
    3. Coordinate the location of access panels in the hard ceiling areas to insure all equipment and devices have proper access for servicing and adjusting.
    4. The coordination drawings shall be reviewed and checked for completeness by the general contractor. Review by the architect and engineer is to assist the contractor and to attempt to point out obvious errors. Responsibility for proper coordination shall remain with the contractor.
B. Differences or disputes concerning coordination, interference, or extent of work between sections shall be decided by general contractor.
C. Extra charges shall not be allowed due to lack of coordination (or lack of coordination drawings) prior to or during construction.
D. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to the efficient flow of the Work. Indicate the

proposed locations of ductwork, piping, conduit, equipment, and materials. Include the following:

1. Clearances for installing and maintaining insulation, including clearances for servicing and maintaining equipment, and space for equipment disassembly required for periodic maintenance.
2. Clearances for electrical and control components and panels.
3. Equipment connections and support details.
4. Exterior wall and foundation penetrations.
5. Interior floor penetrations
6. Fire-rated wall and floor penetrations.
7. Sizes and location of required concrete pads and bases.
8. Support, bracing and anchor locations for equipment and conduit.

E. Indicate scheduling, sequencing, movement, and positioning of large equipment into the building during construction and for replacement in the future.

F. Prepare floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

G. Prepare reflected ceiling plans to coordinate and integrate installations, access panel and door locations, air outlets and inlets, light fixtures, communication systems components, sprinklers, and other ceiling-mounted items where ceilings are to be installed.

1.10 RECORD DOCUMENTS

A. Prepare record documents in accordance with the requirements in Division 01. In addition to the requirements specified in Division 01, indicate the following installed conditions:

1. Indicate actual inverts and horizontal locations of underground piping and conduits.
2. Equipment locations (exposed and concealed), dimensioned from prominent building lines.
3. Accepted substitutions, contract modifications, and actual equipment and materials installed. This includes updating all equipment schedules with actual equipment provided.
4. Indicate duct and pipe routing and locations.

B. Contractor shall maintain a complete set of documents on site that are marked-up during the construction process indicating all changes that have been made. These mark-ups shall be maintained on a regular basis so they are current as the construction is in process and available for inspection by the Architect/Engineer. Markups shall include changes to pipe routing and sizing.

C. Upon completion of the construction, the contractor shall transfer all mark-ups into AutoCAD and update the contract documents into record documents and the shop/coordination drawings in to as-built documents.

1. Upon contractor’s request, engineer can make electronic data files available at contractor’s expense in order to enable contractor to expedite the production of record drawings for the project. Transfer of the electronic data files to Contractor is for informational purposes only and will only be completed after a waiver is signed by contractor and owner relieving engineer of all liability resulting from use of electronic files and all engineer costs to produce electronic files in a format suitable for distribution are paid by contractor.
2. Architect/engineer makes no representations as to the accuracy or completeness of electronic data files. They are provided to the contractor as a start point to upgrade to Record Drawings.
3. The contractor record documents shall be in the same CAD program, version, and operating system as the original Contract Drawings.

D. Record document updates shall include schedules where contractor has supplied alternate manufacturers to those scheduled or where submitted performance varies.
E. Provide a minimum of one copy of the markup documents, a hard copy set of prints of the record and as built documents, and one electronic copy (disk) of the CAD files.

1.11 OPERATION AND MAINTENANCE MANUALS
A. Prepare operation and maintenance manuals include the following information for equipment items:
   1. Installation Instructions.
   2. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
   3. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions.
   4. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
   5. Servicing instructions and lubrication charts and schedules.
   6. Recommended spare parts list:
      a. Spare parts list shall be furnished listing all parts for equipment. Indicate part number and generic description of equipment part manufacturer.
      b. Indicate part number and generic description of both equipment supplier and original part manufacturer if other than supplier.
      c. Indicate delivery time required if not a stock item.
      d. Vendor shall furnish an itemized, firm price quote list of all recommended spare parts for installed equipment.
B. A minimum of 2 complete sets of manuals shall be provided. Manuals shall be bound in a hard board binder and indexed.

1.12 DELIVERY, STORAGE, AND HANDLING
A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.
C. Deliver products, materials and equipment marked with product names, model numbers, types, grades, compliance labels, and other information needed for identification. Inspect items for shipping damage and refuse, return, or refurbish items to the satisfaction of the Owner. Maintain delivery records for inventory control and for use in processing payment request vouchers. Crosscheck delivery records with project schedule so as to eliminate work stoppages due to material shortages.
D. Store products, materials, and equipment in a manner to prevent damage and degradation. Store items on skids or pallets, elevated above the floor or grade. Store items subject to moisture damage in a dry location. Retain protective shipping covers, crates, and cartons during storage. Protect items from contamination by job site dirt and debris and other foreign matter. Segregate items into groups of like type for job site storage. Provide a secure, fenced and lighted area for outside job site storage.
E. Handle products, materials, and equipment in accordance with manufacturer's recommendations and recognized industry standards. Utilize lifting lugs, and designated lift points when hoisting equipment. In all cases, carefully handle, transport, and position items to

prevent damage during construction. After placement or installation, cover items with tarps or sheeting where required to protect from damage during construction.

F. Immediately, upon delivery, inspect shipment including Owner furnished items to ensure that products are undamaged and in accordance with requirements. Should the product be damaged or not in compliance with requirements, immediately repair as directed or approved or order replacement at no additional cost to the Owner.

G. Any products, materials, or equipment damaged during storage on site, installation, or during construction shall be replaced by the contractor at no additional cost to the project to the satisfaction of the Owner or Owner's Representative.

H. Protect new and existing building structures and adjacent finished surfaces during construction. Patch, repair, and refinish existing work damaged by work under this division to match adjacent undisturbed area. Patching, repair, and refinishing shall be performed by workmen skilled in the section involved.

1.13 GENERAL INSTALLATION

A. General: Sequence, coordinate, and integrate the various elements of the systems, materials, and equipment.

B. Coordinate systems, equipment, and materials installation with other building components and other trades.

C. Verify all dimensions by field measurements and relative to the certified prints for the actual equipment to be installed.

D. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for installations.

E. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.

F. Sequence, coordinate, and integrate installations of materials and equipment for efficient flow of the Work.

G. Give particular attention to large equipment requiring positioning prior to closing in the building. Contractor shall be responsible for ensuring adequate space and pathways and shall break down and reassemble equipment as necessary for rigging, access, and setting of equipment.

H. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.

I. Coordinate connection of systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, service companies, and controlling agencies. Provide required connection for each service.

J. Install systems, materials, and equipment to conform with submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form.

K. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components.

L. Install equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

M. Install access panel or doors where units are concealed behind finished surfaces.

N. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

1.14 CUTTING AND PATCHING

A. General: Perform cutting and patching in accordance with Division 01. In addition to the requirements specified in Division 01, the following requirements apply:
   1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

B. Perform cutting, fitting, and patching of mechanical equipment and materials required to:
   1. Uncover Work to provide for installation of ill-timed Work.
   2. Remove and replace defective Work.
   3. Remove and replace Work not conforming to requirements of the Contract Documents.
   4. Install equipment and materials in existing structures.

C. Upon written instructions from the Architect/Engineer, uncover and restore Work to provide for Architect/Engineer observation of concealed Work.

D. Cut, remove and legally dispose of selected equipment, components, and materials as indicated, including but not limited to removal of piping, plumbing fixtures and trim, and other plumbing items made obsolete by the new Work.

E. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.

F. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

G. Patch all finished surfaces and building components using new materials matching existing materials and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.

1.15 GUARANTEE AND WARRANTIES

A. All materials, parts, equipment, and workmanship shall be guaranteed for a period of one year from date of owner acceptance.

B. If the manufacturer provided for a longer guarantee period, it shall also be submitted.

1.16 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
   1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
   2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Characteristics for Plumbing Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed revision is accepted in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified, all at no additional cost to owner. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.17 CODES AND STANDARDS

A. The work installed under this section shall conform to all applicable local codes, regulations, and standards.

B. Do not construe anything contained in these specifications or drawings to permit work to be installed that does not conform to code. The codes shall govern where they require higher standards or are violated by the drawings and specifications.

C. Consider interpretations and rulings of the enforcing agencies as part of these specifications.
D. Comply with drawings and specifications showing work exceeding minimum code requirements.
E. The Contractor shall furnish without any extra charge additional materials and labor required for the compliance with any rules and regulations.

1.18 UL LABEL
A. Furnish UL labeled and listed materials and equipment except when equipment is of a type for which labeling or listing services are not available from UL. Labeling must meet the requirements of the local authorities.
B. ETL label is acceptable if approved by the local authorities.

PART 2 - PRODUCTS

2.1 PIPE, TUBE, AND FITTINGS
A. Refer to individual Division 22 piping Sections for pipe, tube, and fitting materials and joining methods.
B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS
A. Refer to individual Division 22 piping Sections for special joining materials not listed below.
B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.
a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.
C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.
D. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
E. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
F. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.
G. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.
H. Solvent Cements for Joining Plastic Piping (if applicable):
1. ABS Piping: ASTM D 2235.
2. CPVC Piping: ASTM F 493.
3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
4. PVC to ABS Piping Transition: ASTM D 3138.

2.3 TRANSITION FITTINGS

A. AWWA Transition Couplings: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.
   1. Available Manufacturers:
      a. Cascade Waterworks Mfg. Co.
      b. Dresser Industries, Inc.; DMD Div.
      c. Ford Meter Box Company, Incorporated (The); Pipe Products Div.
      d. JCM Industries.
      e. Smith-Blair, Inc.
      f. Viking Johnson.
      g. Underground Piping NPS 1-1/2 and Smaller: Manufactured fitting or coupling.
   2. Underground Piping NPS 2(DN 50) and Larger: AWWA C219, metal sleeve-type coupling.
   3. Aboveground Pressure Piping: Pipe fitting.

B. Plastic-to-Metal Transition Fittings: CPVC and PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.

C. Plastic-to-Metal Transition Adaptors: One-piece fitting with manufacturer's SDR 11 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.

D. Plastic-to-Metal Transition Unions: MSS SP-107, CPVC and PVC four-part union. Include brass end, solvent-cement-joint end, rubber O-ring, and union nut.
   1. Available Manufacturers:
      a. NIBCO INC.
      b. NIBCO, Inc.; Chemtrol Div.

E. Flexible Transition Couplings for Underground Nonpressure Drainage Piping: ASTM C 1173 with elastomeric sleeve, ends same size as piping to be joined, and corrosion-resistant metal band on each end.
   1. Available Manufacturers:
      a. Cascade Waterworks Mfg. Co.
      b. Fernco, Inc.
      c. Mission Rubber Company.
      d. Plastic Oddities, Inc.

2.4 DIELECTRIC FITTINGS

A. General: Isolate ferrous from non-ferrous material in piping systems and equipment connections with dielectric fittings.

B. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

C. Insulating Material: Suitable for system fluid, pressure, and temperature.

D. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.
   1. Available Manufacturers:
      a. Epco Sales, Inc.
      b. Capitol Manufacturing Co.
      c. Central Plastics Company.
      d. Eclipse, Inc.
      e. Hart Industries, International, Inc.
      f. Watts Industries, Inc.; Water Products Div.
      g. Zurn Industries, Inc.; Wilkins Div.

E. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.
   1. Available Manufacturers:
      a. Watts Industries, Inc.; Water Products Div.
      b. Capitol Manufacturing Co.
      c. Central Plastics Company.
      d. Epco Sales, Inc.
F. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
   1. Available Manufacturers:
      a. Advance Products & Systems, Inc.
      b. Calpico, Inc.
      c. Central Plastics Company.
      d. Pipeline Seal and Insulator, Inc.
   2. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.
G. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.
   1. Available Manufacturers:
      a. Calpico, Inc.
      b. Lochinvar Corp.

2.5 SLEEVES
A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint. Available Manufacturers: Pipe Shields, Inc.
B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

2.6 ESCUTCHEONS
A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
B. One-Piece, Cast-Brass Type: With set screw.
   1. Finish: Polished chrome-plated .

2.7 GROUT
A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
   1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
   2. Design Mix: 5000-psi, 28-day compressive strength.
   3. Packaging: Premixed and factory packaged.

2.9 PLUMBING FIXTURES
A Manufacturers
   1. Per District Standards and as scheduled on drawings.

B. Sink Faucets
   1. Sink Faucet: Include cold-water indicators; coordinate faucet inlets with supplies and fixture holes and outlet with spout and fixture receptor. As scheduled on drawings or approved equal.
   2. Maximum Flow Rate: 1.8 gpm, unless otherwise indicated.
   3. Body Material: Cast brass.
   4. Finish: Polished chrome plate.

C. Classroom Sinks
   1. Sinks, Per Schedules on Contract Documents.

D. Drinking Fountain
   1. Drinking Fountain Hi and Lo, Per Schedules on Contract Documents.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are reviewed without exception on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to permit valve servicing.

F. Install piping at indicated slopes.

G. Install piping free of sags and bends.

H. Install fittings for changes in direction and branch connections.

I. Install piping to allow application of insulation.

J. Select system components with pressure rating equal to or greater than system operating pressure.

K. Cut piping accurately to job measurements and install without springing or forcing, true to line and grade, generally square with building and adequately supported to prevent sagging or undue stress on pipe, fittings, and accessories.

L. Thoroughly clean all pipe and maintain in such condition throughout construction. Temporarily cap off plug ends of unprotected pipe.

M. Arrange piping and hangers to allow for expansion, contraction, and structural settlement. Do not install piping in contact with the building structure.

N. Make changes in size or direction with manufactured reducing fittings. The use of bushings, reducing flanges, or bending of a pipe is not allowed.

O. Install piping full size through shutoff valves, balancing valves, etc. Change pipe size within three pipe size diameters of the final connection to fixtures and equipment.

P. Protect all piping (except soil pipe or nonferrous pipe) installed below grade and to a minimum of 6" above grade with a factory applied covering; plastic coating. Protect field joints as follows: Clean fittings, nipples, and other field joints thoroughly and apply prime coat and one layer of heat applied 62 mil tape in accordance with manufacturer's recommendations.

Q. "Bull head" tees shall not be allowed.

R. Flush all pipes free from foreign substances before installing valves, stops, or making final connections.

S. Any section of pipe for which size is not shown or any intermediate section erroneously shown obviously undersized shall be the same size as the largest line connecting to it.

T. Do not cover or enclose the piping work before it has been tested, inspected, and approved.
U. Make reduction in pipe sizes with concentric reducers unless eccentric reducers are indicated. Make branches from mains with straight or reducing tee fittings. Bushings are not allowed.
V. Support piping to ensure no strain or piping weight is transmitted to equipment.
    a. Install escutcheons for penetrations of walls, ceilings, and floors. Provide a one-piece, cast-brass type with polished chrome-plated finish at all penetrations.
W. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
X. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to other Divisions Sections or drawings for materials. At a minimum, seal all penetrations with UL listed assembly matching rating of surrounding walls, partitions, ceilings, and floors. Install per manufacturer's requirements.
Y. Verify final equipment locations for roughing-in.

3.2 PIPING JOINT CONSTRUCTION
A. Join pipe and fittings according to the following requirements and Division 22 Sections specifying piping systems.
B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.
F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
    1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
    2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
G. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
    1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
    2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
    3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
    4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
    5. PVC Nonpressure Piping: Join according to ASTM D 2855.
    6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138 Appendix.
H. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.
I. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

3.3 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:
   1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
   2. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.4 GROUTING

A. Mix and install grout for plumbing equipment base bearing surfaces, pump and other equipment base plates, and anchors.
B. Clean surfaces that will come into contact with grout.
C. Provide forms as required for placement of grout.
D. Avoid air entrapment during placement of grout.
E. Place grout, completely filling equipment bases.
F. Place grout on concrete bases and provide smooth bearing surface for equipment.
G. Place grout around anchors.
H. Cure placed grout.

3.5 TRENCHING, EXCAVATION, AND BACKFILL

A. Provide all necessary excavation and backfill for the installation of the work of this Division unless specifically included under another Division. Walls of all trenches shall be a minimum of six (6) inches from the side of the nearest pipe.
B. Backfill shall not be placed until all lines have been tested and approved.
C. Utility Trench Excavation:
   1. Keep excavated portions of the work free of water at all times and until backfilling is completed. Install adequate facilities for removing excess water.
   2. Shore and brace excavations where necessary to prevent cave-ins and/or in accordance with all safety laws.
D. Meet the requirements of Division 31 and elsewhere in specifications for trenching, evacuation, backfill, and compaction.

3.6 ACCESS DOORS AND PANELS

A. Where Required: Wherever a piece of equipment or valve and dampers operator is inaccessible and requires access for maintenance, repair, or adjustment.
B. Size: Size is dependent upon the relationship of the door to the product being serviced; therefore, the size of the door shall be selected to provide convenient access to its contents.
C. Available Manufacturers: Karp, Inryco/Milcor, Bilco, Cesco.

END OF SECTION

SECTION 23 05 00
BASIC MECHANICAL MATERIALS AND METHODS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes the following:
1. Ductwork
2. Volume Dampers
3. Duct Liner
4. Insulation
5. Diffusers, Registers and Grilles

1.03 DEFINITIONS
A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.
E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.04 SUBMITTAL PROCEDURES
A. General:
1. In addition to the procedures indicated below follow the procedures specified where they exceed the requirements of this section.
2. Provide submittals of material or equipment in accordance with each specification section.
B. Equipment, materials, and products specifically identified, described, and scheduled on the drawings are the basis of design. The other manufacturers or suppliers which may be named in the specification only indicate the general acceptability of the manufacturer or supplier and are considered alternates. It is the Contractor's responsibility to research, select, and prove, through the submittal process, that the specific model, size, or type of the alternate proposed manufacturer is equal and will perform equal to that which is the basis of the design. Operational characteristics for such items as outlet velocities, power input, sound levels, efficiencies, etc., shall be considered in addition to the overall performance, output, and physical constraints.
C. The Contractor assumes full responsibility that alternative items substituted for the scheduled manufacturer will meet the job requirements and is responsible for the cost of redesign and modifications necessary due to this substitution, for all trades. Revisions or additional work required by any trade due to the use of substitute materials and equipment shall be fully indicated on detailed drawings submitted with the shop drawings and all additional costs shall be accounted for in the final proposed substitution.
D. Mark submittal "Exactly as Specified" or accompanied by a letter from the supplier explaining in detail what differences, if any, exist between the submitted item and the scheduled item. Failure to point out the differences will be considered cause for disapproval. If differences are

not indicated and/or not discovered during the submittal review process, the Contractor will still remain responsible for providing equipment and materials that meet the specifications.

E. Acceptable Manufacturers: Subject to compliance with the requirements of the individual specification sections, provide materials and equipment from the indicated manufacturers only. Submittals of material or equipment manufactured by other than those indicated may be returned, not reviewed. If no manufacturers are indicated, then any product or material which complies with the specification and for the intended application may be submitted.

F. The mechanical and electrical components, structural systems, service clearances, and controls for all equipment are selected and sized, based on the basis of design manufacturer and equipment scheduled. If substitutions and/or equivalent alternate equipment are furnished, it shall be the responsibility of all parties concerned, involved in, and furnishing the substitute and/or equivalent alternate equipment to verify and compare the characteristics (capacity, size, clearance, acoustics, etc.) and requirements of that submitted to that scheduled. If greater capacity or more materials or labor is required for the rough-in, circuitry or connections than for the item specified and provided for, then it shall be the responsibility of the parties involved in providing the substitute and/or equivalent items of equipment to provide all compensation for additional charges made for the proper rough-in, circuitry, support, and connections for the equipment furnished for all trades affected. No additional charges shall be allowed for such revisions.

G. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals.

H The Engineer and/or Architect will review submitted shop drawings and documents for general conformance with the design concept of the project and the information contained in the contract documents. The Engineer's and/or Architect's review is for the convenience of the Owner in following the work and does not relieve the Contractor of the responsibility of deviations from the requirements stated in this specification and contract documents.

I. The Engineer's and/or Architect's review shall not be construed as a complete or detailed check of the work submitted, nor shall it relieve the Manufacturer or Contractor of responsibility for errors or omissions of any sort in the shop drawings and samples, or from the necessity of furnishing any work required by the contract documents. The review of a separate item shall not indicate review of the complete assembly in which it functions. Nothing in the Engineer's and/or Architect's review of the shop drawings and samples shall be considered as authorizing 1) a departure from contract documents and specifications, or 2) additional cost to the owner, or 3) increased time for completion of the work.

J. Submittals are not reviewed for quantities, dimensions, weights, fabrication processes, construction methods, coordination with work of other trades, construction safety practices, service clearance, coil and motor location, location of control and electrical panels, and other layout constraints. These items shall remain the sole responsibility of the contractor.

K. The Engineer and/or Architect will review submittals with reasonable promptness and will return them to the Vendor/Supplier/Manufacturer stamped to indicate the appropriate action taken as follows:

1. No Exceptions Taken.
2. Exceptions Taken As Noted. No resubmittal required.
3. Exceptions As Noted. Resubmit.
4. Rejected. Resubmit.
5. Not Reviewed. Must Meet Plans, Specifications, and Codes.

L. Markings or comments or the lack thereof shall not be construed as relieving the Vendor/Supplier/Manufacturer/Contractor from complete compliance with the project drawings and specifications.

L. No part of the work shall be started in the shop or in the field until the Engineer and/or Architect have reviewed the shop drawings and samples for that respective portion of the work. Shop drawings and samples shall be submitted for review sufficiently in advance of the scheduled start of the work in the shop or in the field to allow ample time, in consideration of the number and complexity of the drawings in the submittal, for the Engineer and/or Architect to make an

orderly review. No extension of time to complete the work will be granted to the Vendor/Supplier/Manufacturer by reason of failure to perform in this respect.

M. Each shop drawing and sample submitted for review shall be accompanied by a letter of transmittal, and shall be identified by the project title, Vendor's/Supplier's/Manufacturer's name, and a reference to the related part of the contract documents.

1.05 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified at no additional cost to the Owner. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

1.07 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for mechanical installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

C. Coordinate and provide the access panels and doors for mechanical items requiring access that are concealed behind finished surfaces. Coordinate with construction manager for Access panels, doors and requirements from other trades.

1.08 DRAWINGS AND SPECIFICATIONS

A. Consider all drawings and all divisions of these specifications as a whole and provide work of this section as shown anywhere therein. Absolute accuracy of the drawings and specifications cannot be guaranteed. While every effort has been made to coordinate the locations of equipment covered under other sections or divisions of these specifications, it is the responsibility of the Contractor to coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before submitting bid or fabricating work.

B. Report discrepancies in time to avoid unnecessary work, and make changes as directed by the Architect. Do not make any changes or additions that are subject to additional compensation without written authorization, based upon an agreed price. Any changes made without the above mentioned authorization shall be at Contractor's own risk and expense. Follow manufacturers' directions where they cover points not specifically indicated; however, if they are in conflict with these drawings and specifications, obtain clarifications from the Architect before starting work.

1.09 TESTING, ADJUSTING, AND BALANCING

A. Mechanical Contractor will appoint and employ services of an independent firm to perform testing, adjusting and balancing.

B. Perform and record preliminary readings for all diffusers and grilles prior to performing any demolition. Submit the initial readings to Architect for review and record.

B. The independent firm hired by the Mechanical Contractor. All work shall be performed in accordance with AABC and shall be submitted on AABC approved forms with typewritten entries.

C. Reports will be submitted by the independent firm to the Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with the requirements of the Contract Documents.

1.10 PROJECT RECORD DOCUMENTS

A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
   1. Contract Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other Modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.

B. Store Record Documents separate from documents used for construction.

C. Record information concurrent with construction progress.

D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and Modifications.

E. Delete Architect/Engineer title block and seal from all documents.

F. Submit documents to Architect/Engineer.

1.11 OPERATION AND MAINTENANCE DATA

A. Provide duplicate notarized copies.

B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.

C. Provide Table of Contents and assemble in three (3) D side ring binders with durable plastic cover.

D. Submit prior to final Application for Payment.

E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.12 SITE VISIT

A. Visit the site before submitting a bid. No extra payment will be made for additional work that would have been made apparent by the site visit.

1.13 OBSERVATION BY ARCHITECT

A. Work may be observed at any time by the Architect or his representative. Work covered or concealed before being observed and accepted shall be opened and uncovered upon request, and replaced at no additional cost or time to the project.

1.14 INTERRUPTION OF EXISTING SERVICES AND UTILITIES

A. Coordinate with other Sections and schedule sequence of accomplishing the work covered by this division in such a manner as not to interrupt existing services and utilities at a time that will inconvenience the Owner.

1.15 FEES

A. Secure and pay fees for permits, licenses, inspections and royalties required for work of this Section with the exception of DSA approvals and fees.

1.16 MATERIAL AND EQUIPMENT

A. Place materials and equipment on order in time to avoid job delay or hindrance. Schedule deliveries to coincide, as nearly as possible, with the construction schedule.

B. Use only new, unused materials and equipment unless specifically noted otherwise.

C. All materials and equipment not conforming to the requirements of these specifications will be considered as defective. Items which have been accepted or approved at one time and place, but which subsequently fail to conform to the requirements of these specifications will also be

considered as defective. All such defective materials, whether in place or not, will be rejected. Remove such materials and equipment immediately from the site of the work.

D. Prior to ordering materials or starting work, verify all measurements at the site. No extra compensation will be allowed for differences between actual dimensions and the measurements shown on the drawings.

E. Except as specifically noted otherwise, follow the installation and/or maintenance directions provided by the manufacturer for all materials and equipment.

F. For each part of the work furnish all materials and equipment of the same type by the same manufacturer.

1.17 PROTECTION OF BUILDING

A. Protect new and existing building structures and adjacent finished surfaces during construction. Patch, repair, and refinish existing work damaged by work under this Division to match adjacent undisturbed areas. Patching, repair, and refinishing is to be performed by workmen skilled in the Sections involved.

1.18 U.L. LABEL

A. Furnish UL labeled and listed materials and equipment except when equipment is of a type for which labeling or listing services are not available from UL.

1.19 CURRENT MODELS

A. Materials and equipment shall be new, current models by each manufacturer and shall bear complete identification by the manufacturer. Materials and equipment shall be guaranteed by the manufacturer to equal or exceed specified, submitted and published specifications, such as pressure ratings, capacities, etc.

1.20 SERVICE CAPABILITY

A. Provide materials and equipment of major and reputable manufacturers with ability to render competent and thorough technical services through local organizations, and to expeditiously furnish spare parts.

1.21 FINISHES AND PAINTING

A. Provide all equipment with a factory painted finish. All other painting will be done per the Architect's direction.

B. Touchup scratches in factory finished surfaces to match original. Obtain touch-up paint from the manufacturer of the piece of equipment.

1.22 SEISMIC RESTRAINTS

A. General: All equipment, piping, ductwork, and materials shall be fastened to the structure with properly sized and structurally engineered anchors, bolts, and restraints to prevent permanent displacement in any direction caused by lateral motion, overturning, or uplift.

1. Ductwork systems shall be braced to resist the forces prescribed in ASCE 7-05 section 13.3 as defined in ASCE 7-05 section 13 .6 .8, 13.6.7, 13.6.5.5 item 6, and CBC 1616A.1.25.

PART 2 – PRODUCTS

2.01 DUCTWORK

A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G90 (Z275) coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.

C. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts.

2.02 VOLUME DAMPERS

A. Manufacturers:
1. Air Balance, Inc.
2. American Warming and Ventilating.
3. Flexmaster U.S.A., Inc.
4. McGill AirFlow Corporation.
5. Nailor Industries Inc.
6. Penn Ventilation Company, Inc.
7. Ruskin Company.

B. General Description: Factory fabricated, with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.
1. Pressure Classes of 3-Inch wg or Higher: End bearings or other seals for ducts with axles full length of damper blades and bearings at both ends of operating shaft.

C. Standard Volume Dampers: Single-blade, standard leakage rating, and suitable for horizontal or vertical applications.
1. Steel Frames: Hat-shaped, galvanized sheet steel channels, minimum of 0.064 inch thick, with mitered and welded corners; frames with flanges where indicated for attaching to walls and flangeless frames where indicated for installing in ducts.
2. Roll-Formed Steel Blades: 0.064-inch thick, galvanized sheet steel.
3. Blade Axles: Continuous galvanized steel or nonferrous.
4. Bearings: Oil-impregnated bronze or Molded synthetic.

2.03 DUCT LINER

A. Fibrous-Glass Liner: Comply with NFPA 90A or NFPA 90B and with NAIMA AH124.
1. Manufacturers:
a. CertainTeed Corp.; Insulation Group.
b. Johns Manville International, Inc.
c. Knauf Fiber Glass GmbH.
d. Owens Corning.
2. Materials: ASTM C 1071; surfaces exposed to airstream shall be coated to prevent erosion of glass fibers.
a. Thickness: Minimum 1 inch, or thicker where specifically noted in Contract Documents.
b. Thermal Conductivity (k-Value): 0.26 at 75 deg F mean temperature for indoor use and 0.158 at 75 deg F mean temperature for outdoor use.
c. Fire-Hazard Classification: Maximum flame-spread index of 25 and smoke-developed index of 50 when tested according to ASTM E 84.
d. Liner Adhesive: Comply with NFPA 90A or NFPA 90B and with ASTM C 916.
e. Mechanical Fasteners: Galvanized steel suitable for adhesive attachment, mechanical attachment, or welding attachment to duct without damaging liner when applied as recommended by manufacturer and without causing leakage in duct.
(1) Tensile Strength: Indefinitely sustain a 50-lb tensile, dead-load test perpendicular to duct wall.
(2) Fastener Pin Length: As required for thickness of insulation and without projecting more than 1/8 inch into airstream.
(3) Adhesive for Attaching Mechanical Fasteners: Comply with fire-hazard classification of duct liner system.

2.04 INSULATION

A. General: Install insulation with the highest quality workmanship. All bare ends shall be neatly trimmed and sealed with insulting cement. Insulation and wrap shall be installed in accordance with the manufacturer's requirements.
   1. External duct wrap with vapor barrier shall be Owens Corning SoftR, Certain-Teed, Knauf or Manville, "Faced Duct Wrap Insulation, Commercial Grade", or equal, 2" thick, 1½ lb. density, minimum R value of 8. All supply and return ductwork not indicated with internal acoustical lining shall be wrapped with external duct wrap.
   2. Insulate refrigerant tubing with Armstrong 1” thick closed cell neoprene installed, secured and finished per manufacturer’s recommendations.

2.05 DIFFUSERS, REGISTERS AND GRILLES

A. Diffusers, registers, and grilles are identified on the Drawings. New diffusers shall match, as closely as possible, in both physical appearance and performance, as the existing diffusers, registers and grilles.
B. Testing: Test performance according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."
   1. All diffusers and grilles shall be selected for maximum NC 30. NC value shall be based on Octave Band 2-7 sound power levels minus room absorption of 5 dB.

PART 3 – EXECUTION

3.01 MECHANICAL DEMOLITION

A. Prior to demolition, perform, and record, air volume measurement indicating total CFM of the existing systems. Submit a report of the findings to the Architect prior to the commencement of the demolition for review.
B. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.
   1. HVAC to Be Removed: Remove portion of HVAC indicated to be removed.

3.02 INSTALLATION

A. Installation and Arrangement: Install all mechanical work to permit removal (without damage to other parts) fan shafts and wheels, belt guards, sheaves and drives, and all other parts requiring periodic replacement or maintenance
B. Ductwork: Change the cross-sectional dimensions of ductwork when required to meet job conditions but maintain at least the same equivalent cross-sectional area. Obtain the Architect's/Engineer’s approval prior to fabrication of ductwork requiring such changes.
C. Access: Provide access panels in equipment, ducts, as required for inspection and for proper maintenance.
D. Location of ducts, equipment, fixtures, etc., shall be adjusted to accommodate the work and to avoid interferences anticipated or encountered. Determine the exact route and location of each pipe and duct prior to fabrication.
E. Location of damper operators, etc., shall be such as to be easily accessible.
F. Manufacturers' Installation Details: Conform to manufacturer’s instructions. Provide any fittings recommended by manufacturer.
G. Openings in ducts: Keep sealed shut during construction.

END OF SECTION

SECTION 26 00 00
ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 CONDITIONS AND REQUIREMENTS
A. The Contractor, shall read the conditions and be responsible for, and governed by, all requirements thereunder. This Condition applies to all Sections of Specification Division 26.

1.02 REGULATIONS
A. The Contractor shall give required notices to the building inspectors, the Engineer and the Owner and comply with laws, ordinances, rules and regulations applicable to the work and safety. Authorities include, but are not limited to:
   1. The latest revision of the State of California Electrical Code.
   2. The applicable Rules and Regulations of the National Fire Protection Association.
   3. State Fire Marshal.
   4. Underwriters Laboratories.
   5. Any other applicable Federal, State, County or City Codes or Regulations, including O.S.H.A.

B. Nothing in these Drawings or Specifications shall be construed to permit work not conforming to the above Regulations and Codes.

1.03 DRAWINGS AND SPECIFICATIONS
A. Drawings are diagrammatic and indicate the general arrangement of equipment and wiring. Exact requirements shall be governed by architectural, structural and mechanical conditions of the job. Consult other drawings in preparation of the bid.
B. Extra lengths of wiring or pull boxes or junction boxes, etc., necessitated by conditions shall be included in the bid. Report any apparent discrepancies before submitting bid.
C. Right is reserved by the Owner to make changes of up to ten feet in location of any outlet or equipment prior to roughing-in without increasing contract cost.

1.04 EXAMINATION OF SITE
A. The Contractor shall examine the site and the existing conditions and make allowances for them in preparing his proposal. In the event of discrepancies between existing conditions and the Drawings, the Contractor shall report such discrepancies prior to bid and bid the conditions necessary to complete the job and to provide a fully operable and acceptable systems.
B. Extra charges will not be allowed for work that must be provided when it was apparent from a pre-bid inspection of the premises, even though the work is not shown on the drawings or called for in the Specification.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING
A. Receive, store and handle materials in a manner to prevent damage. Costs of damage shall be borne by the Contractor.
B. Protect equipment from weather (rain, sunshine, winds), water vapors, theft, and vehicular traffic.

PART 2 - PRODUCTS

2.01 MATERIAL APPROVAL

A. The design, manufacture and testing of electrical equipment and materials shall conform to or exceed latest applicable NEMA, IEEE, ANSI, and U.L. Standards.
B. Materials shall be new and bear Underwriters Laboratories (UL) label or other accepted testing laboratory certification. Materials that are not labeled by U.L. shall be tested and approved by an independent testing laboratory or a governmental agency acceptable to the Engineer, Owner and code enforcing authority.

PART 3 - EXECUTION

3.01 WORKMANSHIP AND CONTRACTOR'S QUALIFICATIONS
A. Installation of parts and connection of parts into systems shall be completed by skilled electrical journeymen. Material assemblies and installation work shall be securely fastened to structure, attractive in appearance and safe to operate. Provide code required clearance about electrical equipment. Assembly work or installations that are improper, unsafe or unattractive shall be removed and replaced with satisfactory work at no additional cost to the Owner.
B. Provide a foreman or superintendent in charge of this work at all times.

3.02 COORDINATION
A. Coordinate work with other trades to avoid conflict and to provide correct rough-in and connection for equipment furnished by other trades. Inform other trades Sub-contractors of the required access to, and clearances around, electrical equipment to maintain serviceability and code compliance.
B. Verify equipment dimensions and requirements. Check actual job conditions before installing work. Report necessary changes in design to Construction Manager in time to prevent needless work. Changes, or additions subject to additional compensation, which are made without written authorization and an agreed price, shall be at Contractor's risk and expense.

3.03 MANUFACTURER'S INSTRUCTIONS
A. Where the specifications call for an installation to be made in accordance with Manufacturer's recommendations, a copy of such recommendations shall at all times be kept in the job superintendent's office and shall be available to the Owner's representative.
B. Follow manufacturer's instructions where they cover points not specifically indicated on drawings and specifications. If instructions are in conflict with the drawings and specifications, obtain clarification from the Engineer before starting work.

3.04 QUALITY ASSURANCE
A. Provide a Quality Assurance program. These specifications set forth the minimum acceptable requirements. The specifications do not prohibit the Contractor from executing other Quality Assurance measures which can improve the operating facility, improve the construction schedule, and conserve energy within the scope of this project.
B. The Contractor shall insure that workmen's practices, materials employed, equipment and methods of installation conform to accepted construction and engineering practices, and that each piece of equipment can satisfactorily perform its functional operation.

3.05 CLOSING IN UNINSPECTED WORK
A. The Contractor shall not allow or cause any of the work to be covered up or enclosed until it has been inspected, tested and/or approved. Field observations made by the architect or engineer do not waive the inspections required by the contract documents.
B. Should a portion of the work be enclosed or covered up prior to inspection and testing, the contractor shall uncover the work at his own expense, and after it has been tested, inspected and approved, make repairs with such materials as may be necessary to restore the uncovered work to its intended condition.

3.06 PRELIMINARY OPERATION

A. Should the Owner request that a portion of the plant, apparatus or equipment be operated prior to final completion and acceptance of the work, the Contractor shall consent, and such operation shall be under the supervision and direction of the Contractor, but expense thereof shall be paid by the Owner, separate and distinct from money paid on account of the Contract. Such preliminary operation and payment thereof shall not be construed as an acceptance of that portion of the work in this Contract.

3.07 ACCEPTANCE DEMONSTRATION

A. The system demonstrations shall be made by this Contractor in the presence of the District's facilities manager or his designated representative and the manufacturer's representative.
B. Demonstrate the function (in the structure) of each system and indicate its relationship to the single line diagrams and drawings.
C. Demonstrate by "start-stop operation", the controls, how to reset protective devices, how to replace fuses and what to do in case of emergency.
D. Demonstrate how maintenance and spare parts manuals are related to the equipment and systems installed.

3.08 TESTS

A. Where the Contract Documents, laws, ordinances or any public authority requires any work to be tested specifically or reviewed by another authority, the Contractor shall give the Engineer/Owner timely notice of readiness therefor. The Contractor shall give the Engineer/Owner the test results for review. If any work to be tested is covered up without written approval or consent of the Architect, it must, if directed by the Architect, be uncovered for examination at the Contractor's expense.
B. Any work which fails to meet the requirements of any test or any work which does not meet the requirements of the Contract Documents shall be considered defective and may be rejected. Rejected work shall be corrected promptly by the Contractor or removed from the site.
C. Provide written test reports for each test to the Engineer for review.

END OF SECTION

SECTION 26 05 00
BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes the following:

1. Supporting devices for electrical components.
2. Cutting and patching for electrical construction.
3. Touchup painting.

1.03 COORDINATION
A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.

1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.

C. Coordinate electrical service connections to components furnished by utility companies.

1. Coordinate installation and connection of exterior underground services, including provision for electricity-metering components.
2. Comply with requirements of authorities having jurisdiction and of utility company providing electrical power and other services.

D. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces. Access doors and panels are specified in Division 8 Section "Access Doors and Frames."

PART 2 - PRODUCTS

2.01 SUPPORTING DEVICES
A. Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.

B. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.

C. Slotted-Steel Channel Supports: Flange edges turned toward web, and 9/16-inch diameter slotted holes at a maximum of 2 inches o.c., in webs.

1. Channel Thickness: Selected to suit structural loading.
2. Fittings and Accessories: Products of the same manufacturer as channel supports.

D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

E. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

F. Expansion Anchors: Carbon-steel wedge or sleeve type.

G. Toggle Bolts: All-steel springhead type.

2.02 TOUCHUP PAINT
- A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.
- B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

PART 3 - EXECUTION

3.01 ELECTRICAL EQUIPMENT INSTALLATION
- A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.
- B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.
- C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.
- D. Right of Way: Give to raceways and piping systems installed at a required slope.
- E. Coordination: Coordinate with work of other trades, especially other utilities routes and clearances required to properly provide work.

3.02 ELECTRICAL SUPPORTING DEVICE APPLICATION
- A. Damp Locations and Outdoors: Hot-dip galvanized materials, U-channel system components.
- B. Dry Locations: Steel materials.
- C. Support Clamps for PVC Raceways: Click-type clamp system.
- D. Selection of Supports: Comply with manufacturer's written instructions.
- E. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four (4); minimum of 200-lb design load.

3.03 SUPPORT INSTALLATION
- A. Install support devices to securely and permanently fasten and support electrical components.
- B. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.
- C. Support parallel runs of horizontal raceways together on trapeze or bracket-type hangers.
- D. Size supports for multiple raceway installations, so capacity can be increased by a 25 percent minimum in the future.
- E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.
- F. Install 1/4-inch diameter or larger threaded steel hanger rods, unless otherwise indicated.
- G. Spring-steel fasteners specifically designed for supporting single conduits or tubing may be used instead of malleable-iron hangers for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to slotted channel and angle supports.
- H. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.
- I. Simultaneously install vertical conductor supports with conductors.
- J. Separately support cast boxes that are threaded to raceways and used for fixture support. Support sheet metal boxes directly from the building structure or by bar hangers. If bar hangers are used, attach bar to raceways on opposite sides of the box and support the raceways with an approved fastener not more than 24-inches from the box.
- K. Install metal channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength.
- L. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

M. Securely fasten electrical items and their supports to the building structure, unless otherwise indicated. Perform fastening according to the following unless other fastening methods are indicated:

1. Wood: Fasten with wood screws or screw-type nails.
2. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
3. New Concrete: Concrete inserts with machine screws and bolts.
4. Existing Concrete: Expansion bolts.
5. Steel: Welded threaded studs or spring-tension clamps on steel.
    a. Field Welding: Comply with AWS D1.1.
6. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or other items.
7. Light Steel: Sheet-metal screws.
8. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

3.04 FIRESTOPPING

A. Apply firestopping to cable and raceway penetrations of fire-rated floor and wall assemblies to achieve fire-resistance rating of the assembly. Firestopping materials and installation requirements are specified in Division 7 Section "Firestopping."

3.05 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.
B. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new firepstopping where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.06 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work, including the following:

1. Supporting devices for electrical components.
2. Electrical demolition.
3. Cutting and patching for electrical construction.
4. Touchup painting.

3.07 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touchup paint. Paint materials and application requirements are specified in Division 9 Section "Painting."

1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.
3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

B. Remove and replace with new items damaged beyond repair or refinishing.

3.08 CLEANING AND PROTECTION

A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.
B. Protect equipment and installations, and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 26 05 23
CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.03 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Field Quality-Control Test Reports: From a qualified testing and inspecting agency engaged by Contractor.

1.04 QUALITY ASSURANCE
A. Testing Agency Qualifications: Testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the International Electrical Testing Association and that is acceptable to authorities having jurisdiction.
B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.01 CONDUCTORS AND CABLES
A. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.
   1. American Insulated Wire Corp.; a Leviton Company.
   2. General Cable Corporation.
   3. Okonite Wire & Cable Company.
   4. Southwire Company.
B. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.
C. Conductor Material: Copper complying with NEMA WC 5; stranded conductor.
D. Conductor Insulation Types: Type THHN-THWN complying with NEMA WC 5.

2.03 CONNECTORS AND SPLICES
A. Manufacturers:
   1. AFC Cable Systems, Inc.
   2. AMP Incorporated/Tyco International.
   3. Hubbell/Anderson.
   4. O-Z/Gedney; EGS Electrical Group LLC.
   5. 3M Company; Electrical Products Division.
B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.01 CONDUCTOR AND INSULATION APPLICATIONS
A. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
C. Feeders Concealed in Concrete and Below Slabs-on-Grade: Type THHN-THWN, single conductors in raceway.
D. Exposed Branch Circuits: Type THHN-THWN, single conductors in raceway.
E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
F. Branch Circuits Concealed in Concrete and below Slabs-on-Grade: Type THHN-THWN, single conductors in raceway.
G. Fire Alarm Circuits: Refer to Section 28 31 00 – Fire Alarm Sysrtem.

3.02 INSTALLATION
A. All conductors and cables shall be installed in raceways.
B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips,that will not damage cables or raceway.
D. Seal around conduits penetrating fire-rated elements according to Division 7 Section "Through-Penetration Firestop Systems."
E. Open cable installed above accessible ceiling space shall be supported by metallic J-hooks. No stapling is allowed. Staples used shall be removed and cable conductivity shall be tested by contractor at contractor's cost.

3.03 CONNECTIONS
A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.
B. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.04 FIELD QUALITY CONTROL
A. Testing: Engage a qualified testing agency to perform the following field quality-control testing:
1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.
2. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.
B. Test Reports: Prepare a written report to record the following:
1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.03 SUBMITTALS
A. Product Data: For the following:
1. Ground rods and ground rod well.
2. Fittings.
B. Field Test Reports: Submit written test reports to include the following:
1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.04 QUALITY ASSURANCE
A. Testing Agency Qualifications: Testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the InterNational Electrical Testing Association and that is acceptable to authorities having jurisdiction.
1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association to supervise on-site testing specified in Part 3.
B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
1. Comply with UL 467.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Grounding Conductors, Cables, Connectors, and Rods:
a. Apache Grounding/Erico Inc.
b. Chance/Hubbell.
c. Copperweld Corp.
d. Erico Inc.; Electrical Products Group.
e. Framatome Connectors/Burndy Electrical.
f. Galvan Industries, Inc.
g. Ideal Industries, Inc.
h. ILSCO.
i. Kearney/Cooper Power Systems.
j. Korns: C. C. Korns Co.; Division of Robroy Industries.
k. O-Z/Gedney Co.; a business of the EGS Electrical Group.
l. Raco, Inc.; Division of Hubbell.

m. Superior Grounding Systems, Inc.
n. Thomas & Betts, Electrical.

2.02 GROUNDING CONDUCTORS

A. For insulated conductors, comply with Division 26 Section "Conductors and Cables."
B. Equipment Grounding Conductors: Insulated with green-colored insulation.
C. Isolated Ground Conductors: Insulated with green-colored insulation with yellow stripe. On feeders with isolated ground, use colored tape, alternating bands of green and yellow tape to provide a minimum of three bands of green and two bands of yellow.
D. Grounding Electrode Conductors: Stranded cable.
E. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.
F. Bare Copper Conductors: Comply with the following:
   1. Solid Conductors: ASTM B 3.
   2. Assembly of Stranded Conductors: ASTM B 8.
   3. Tinned Conductors: ASTM B 33.
G. Copper Bonding Conductors: As follows:
   1. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG copper conductor, 1/4 inch in diameter.
   2. Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.
   3. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
H. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

2.3 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.
B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.
C. Welded Connectors: Exothermic-welded type, in kit form, and selected per manufacturer's written instructions.

2.4 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel.

   1. Size: 5/8 inch in diameter and 96 inches in length.
B. Test Wells: Provide handholes "Christy" G5 or equal, with cast iron traffic lid and hold down screws.

PART 3 - EXECUTION

3.01 APPLICATION

A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.
B. In raceways, use insulated equipment grounding conductors.
C. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections, except those at test wells.
D. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.
E. Ground Rod Clamps at Test Wells: Use bolted pressure clamps with at least two bolts.
F. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

   1. Use insulated spacer; space 1 inch from wall and support from wall 6 inches above finished floor, unless otherwise indicated.

3.02 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.
B. Install equipment grounding conductors in all feeders and branch circuits.
C. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate grounding conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
D. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.
E. Air-Duct Equipment Circuits: Install an equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners and heaters. Bond conductor to each unit and to air duct.
F. Water Heater and Heat-Tracing Cable: Install a separate equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
G. Signal and Communication Systems: For telephone, alarm, voice and data, and other communication systems, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
    1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch grounding bus.
    2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

3.03 INSTALLATION

A. Ground Rods: Install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes.
    1. Drive ground rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.
    2. Interconnect ground rods with grounding electrode conductors. Use exothermic welds, except at test wells and as otherwise indicated. Make connections without exposing steel or damaging copper coating.
B. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
C. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.
D. Metal Water Service Pipe: Provide insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes by grounding clamp connectors. Where a dielectric main water fitting is installed, connect grounding conductor to street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
E. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with grounding clamp connectors.
F. Install one test well for each service at the ground rod electrically closest to the service entrance. Set top of well flush with finished grade or floor.
G. Ufer Ground (Concrete-Encased Grounding Electrode): Fabricate according to NFPA 70, Paragraph 250-81(c), using a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor to the main ground bus in the electrical room.

3.04 CONNECTIONS

A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
   1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
   2. Make connections with clean, bare metal at points of contact.
   3. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.

D. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.

E. Connections at Test Wells: Use compression-type connectors on conductors and make bolted- and clamped-type connections between conductors and ground rods.

F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

G. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

H. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

3.05 UNDERGROUND DISTRIBUTION SYSTEM GROUNDING

A. Manholes and Handholes: Install a driven ground rod close to wall and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide a No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, nonshrink grout.

B. Connections to Manhole Components: Connect exposed-metal parts, such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields as recommended by manufacturer of splicing and termination kits.

3.06 FIELD QUALITY CONTROL

A. Testing: Engage a qualified testing agency to perform the following field quality-control testing:
   1. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.
   2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than two full days after the last trace of precipitation, and without the soil being moistened by any means other than

natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests, by the fall-of-potential method according to IEEE 81.

3. Provide drawings locating each ground rod and ground rod assembly and other grounding electrodes, identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

    a. Equipment Rated 500 kVA and Less: 10 ohms.
    b. Equipment Rated 500 to 1000 kVA: 5 ohms.
    c. Manhole Grounds: 10 ohms.

4. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect and Engineer promptly and include recommendations to reduce ground resistance.

END OF SECTION

SECTION 26 05 33
RACEWAYS AND BOXES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
B. Related Sections include the following:

1. Divisions 26, 27 and 28 Section "Basic Electrical Materials and Methods", “Security System”, “Fire Alarm System”, “Paging and Clock System”, and “Data / Telephone System” for supports, anchors, and identification products.
2. Division 26 Section "Wiring Devices" for devices installed in boxes and for floor-box service fittings.

1.03 DEFINITIONS
A. EMT: Electrical metallic tubing.
B. FMC: Flexible metal conduit.
C. IMC: Intermediate metal conduit.
D. LFMC: Liquidtight flexible metal conduit.
E. RNC: Rigid nonmetallic conduit.

1.04 SUBMITTALS
A. Product Data: For conduit, fittings, surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

1.05 QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
B. Comply with NFPA 70.

1.06 COORDINATION
A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with existing conditions and work of other trades.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

2.02 METAL CONDUIT AND TUBING
A. Available Manufacturers:

1. AFC Cable Systems, Inc.

2. Alflex Inc.
3. Anamet Electrical, Inc.; Anaconda Metal Hose.
4. Electri-Flex Co.
5. Grinnell Co./Tyco International; Allied Tube and Conduit Div.
6. LTV Steel Tubular Products Company.
7. Manhattan/CDT/Cole-Flex.
8. O-Z Gedney; Unit of General Signal.
9. Wheatland Tube Co.

B. Rigid Steel Conduit: ANSI C80.1.
C. IMC: ANSI C80.6.
D. EMT and Fittings: ANSI C80.3.

1. Fittings: Compression type.

E. FMC: Aluminum.
F. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

2.03 NONMETALLIC CONDUIT AND TUBING

A. Available Manufacturers:

1. American International.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arnco Corp.
4. Cantex Inc.
5. Carlon.
6. Certainteed Corp.; Pipe & Plastics Group.
7. Condux International.
8. ElecSYS, Inc.
9. Electri-Flex Co.
10. Lamson & Sessions; Carlon Electrical Products.
11. Manhattan/CDT/Cole-Flex.
12. RACO; Division of Hubbell, Inc.
13. Thomas & Betts Corporation.

B. RNC: NEMA TC 2, Schedule 40 and Schedule 80 PVC.
C. RNC Fittings: NEMA TC 3; match to conduit or tubing type and material.

2.04 METAL WIREWAYS

A. Available Manufacturers:
1. Hoffman.
2. Square D.

B. Material and Construction: Sheet metal sized and shaped as indicated, NEMA 1.
C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
D. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70.
E. Wireway Covers: Screw-cover type.
F. Finish: Manufacturer's standard enamel finish.

2.05 SURFACE RACEWAYS

A. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC compound with matte texture and manufacturer's standard bright white color.

1. Manufacturers:
a. Walker Systems, Inc.; Wiremold Company (The).
b. Wiremold Company (The); Electrical Sales Division.

B. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceways.

2.06 BOXES, ENCLOSURES, AND CABINETS

A. Available Manufacturers:
   1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
   2. Emerson/General Signal; Appleton Electric Company.
   3. Erickson Electrical Equipment Co.
   4. Hoffman.
   5. Hubbell, Inc.; Killark Electric Manufacturing Co.
   6. O-Z/Gedney; Unit of General Signal.
   7. RACO; Division of Hubbell, Inc.
   8. Robroy Industries, Inc.; Enclosure Division.
   9. Scott Fetzer Co.; Adalet-PLM Division.
   10. Spring City Electrical Manufacturing Co.
   11. Thomas & Betts Corporation.
   12. Walker Systems, Inc.; Wiremold Company (The).
   13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.

D. Floor Boxes: Cast metal, fully adjustable, rectangular. Walker Omni box, RFB 4 or equal as indicated.

E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

F. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.

   1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

G. Cabinets: NEMA 250, Type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

2.07 FACTORY FINISHES

A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard prime-coat finish ready for field painting.

PART 3 - EXECUTION

3.01 RACEWAY APPLICATION

A. Outdoors:

   1. Exposed: Rigid steel or IMC.
   2. Concealed: Rigid steel or IMC.
   3. Underground, Single Run: RNC.
   4. Underground, Grouped: RNC.
   5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
   6. Boxes and Enclosures: NEMA 250, Type 3R.

B. Indoors:

   1. Exposed: EMT.
   2. Concealed: EMT.
   3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC in damp or wet locations.

4. Damp or Wet Locations: Rigid steel conduit.
5. Boxes and Enclosures: NEMA 250, Type 1, except as follows:

a. Damp or Wet Locations: NEMA 250, Type 4.

C. Minimum Raceway Size: 3/4-inch trade size.
D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.02 INSTALLATION

A. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
B. Complete raceway installation before starting conductor installation.
C. Support raceways as specified in Division 26 Section "Basic Electrical Materials and Methods."
D. Install temporary closures to prevent foreign matter from entering raceways.
E. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.
F. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.
G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

1. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.

H. Raceways Embedded in Slabs: Install in middle 1/3 of slab thickness where practical and leave at least 2 inches of concrete cover.

1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
2. Space raceways laterally to prevent voids in concrete.
3. Run conduit larger than 1-inch trade size parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
4. Change from rigid nonmetallic conduit to rigid steel conduit or IMC before rising above the floor.

I. Raceways below Slabs: Install in base rock below slab where practical and leave at least 2 inches of base rock cover.
J. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.

1. Run parallel or banked raceways together on common supports.
2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

K. Join raceways with fittings designed and approved for that purpose and make joints tight.

1. Use insulating bushings to protect conductors.

L. Terminations:

1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

M. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 18 inches of slack at each end of pull wire.
N. Telephone and Signal System Raceways, 2 Inch Trade Size and Smaller: In addition to above requirements, install raceways in maximum lengths of 150 feet and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.
O. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.
P. Flexible Connections: Use maximum of 72 inches of flexible conduit for recessed and semi recessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.
Q. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.
R. Set floor boxes level and flush with finished floor surface.
S. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

3.03 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

B. Remove and replace with new any item damaged beyond repair or refinishing.

3.04 CLEANING

A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

END OF SECTION

SECTION 26 05 53
ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes electrical identification materials and devices required to comply with ANSI C2, NFPA 70, OSHA standards, and authorities having jurisdiction.

1.03 SUBMITTALS
A. Product Data: For each electrical identification product indicated.
B. Schedule of Nomenclature: An index of electrical equipment and system components used in identification signs and labels.

PART 2 - PRODUCTS

2.01 RACEWAY AND CABLE LABELS
A. Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
   1. Color: Black letters on orange field.
   2. Legend: Indicates voltage and service.
B. Adhesive Labels: Preprinted, flexible, self-adhesive vinyl with legend overlaminated with a clear, weather- and chemical-resistant coating.
C. Pretensioned, Wraparound Plastic Sleeves: Flexible, preprinted, color-coded, acrylic band sized to suit the diameter of the line it identifies and arranged to stay in place by pretensioned gripping action when placed in position.
D. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
E. Underground-Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape.
   1. Not less than 6 inches wide by 4 mils thick.
   2. Compounded for permanent direct-burial service.
   3. Embedded continuous metallic strip or core.
   4. Printed legend indicating type of underground line.
F. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
G. Brass or Aluminum Tags: 2 by 2 by 0.05 inch metal tags with stamped legend, punched for fastener.

2.02 NAMEPLATES AND SIGNS
A. Safety Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145.
B. Engraved Plastic Nameplates and Signs: Engraving stock, melamine plastic laminate, minimum 1/16 inch thick for signs up to 20 sq. in. and 1/8 inch thick for larger sizes.
   1. Engraved legend with black letters on white face.
   2. Punched or drilled for mechanical fasteners.
C. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for the application. 1/4-inch grommets in corners for mounting.
D. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for the application. 1/4-inch grommets in corners for mounting.

E. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32, stainless-steel machine screws with nuts and flat and lock washers.

2.03 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Cable Ties: Fungus-inert, self-extinguishing, one-piece, self-locking, Type 6/6 nylon cable ties.
   1 Minimum Width: 3/16 inch.
   2. Tensile Strength: 50 lb minimum.
   3. Temperature Range: Minus 40 to plus 185 deg F.
   4. Color: According to color-coding.

B. Paint: Formulated for the type of surface and intended use.
   1. Primer for Galvanized Metal: Single-component acrylic vehicle formulated for galvanized surfaces.
   2. Primer for Concrete Masonry Units: Heavy-duty-resin block filler.
   3. Primer for Concrete: Clear, alkali-resistant, binder-type sealer.
   4. Enamel: Silicone-alkyd or alkyd urethane as recommended by primer manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Identification Materials and Devices: Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations with corresponding designations in the Contract Documents or with those required by codes and standards. Use consistent designations throughout Project.

C. Sequence of Work: If identification is applied to surfaces that require finish, install identification after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before applying.

E. Install painted identification according to manufacturer's written instructions and as follows:
   1. Clean surfaces of dust, loose material, and oily films before painting.
   2. Prime surfaces using type of primer specified for surface.
   3. Apply one intermediate and one finish coat of enamel.

F. Caution Labels for Indoor Boxes and Enclosures for Power and Lighting: Install pressure-sensitive, self-adhesive labels identifying system voltage with black letters on orange background. Install on exterior of door or cover.

G. Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous underground plastic line marker located directly above line at 12 inches below finished grade. Where width of multiple lines installed in a common trench does not exceed 16 inches overall, use a single line marker.

H. Color-Coding of Secondary Phase Conductors: Use the following colors for phase conductors:

   1. 208/120-V Conductors:

      a. Phase A: Black.
      b. Phase B: Red.
      c. Phase C: Blue.
      d. Neutral: White
      e. Ground: Green.

2. 480/277-V Conductors:
   a. Phase A: Brown.
   b. Phase B: Orange.
   c. Phase C: Yellow.
   d. Neutral: Grey
   e. Ground: Green.

3. Factory apply color the entire length of conductors, except the following field-applied, color-coding methods may be used instead of factory-coded wire for sizes larger than No. 10 AWG.
   a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Use 1-inch wide tape in colors specified. Adjust tape bands to avoid obscuring cable identification markings.
   b. Colored cable ties applied in groups of three ties of specified color to each wire at each terminal or splice point starting 3 inches from the terminal and spaced 3 inches apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.

I. Power-Circuit Identification: Metal tags or aluminum, wraparound marker bands for cables, feeders, and power circuits in vaults, pull and junction boxes, manholes, and switchboard rooms.
   1. Legend: 1/4 inch steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
   2. Tag Fasteners: Nylon cable ties.
   3. Band Fasteners: Integral ears.

J. Apply identification to conductors as follows:
   1. Conductors to Be Extended in the Future: Indicate source and circuit numbers.
   2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color-coding to identify circuits' voltage and phase.
   3. Multiple Control and Communication Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color-coding, or cable marking tape.

K. Apply warning, caution, and instruction signs as follows:
   1. Warnings, Cautions, and Instructions: Install to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.

   L. Device Identification Labels: Adhesive Labels: Preprinted, flexible, self-adhesive vinyl with legend overlaminated with a clear, weather- and chemical-resistant coating. Install on each device cover of power receptacles, switches and tele/data outlets with feeder source (i.e. panelboard, MDF, IDF) and circuit number information.

M. Equipment Identification Labels: Engraved plastic laminate. Install on each unit of equipment, including central or master unit of each system. This includes power, lighting, communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Unless otherwise indicated, provide a single line of text with 1/2-inch high lettering on 1-1/2-inch high label; where two lines of text are required, use labels 2 inches high. Use white lettering on black field. Apply labels for each unit of the following categories of equipment using mechanical fasteners:

   1. Switchboard, distribution panel, branch circuit panelboards, electrical cabinets, and enclosures.

2. Branch feeder breakers at switchboard and distribution panel.
3. Access doors and panels for concealed electrical items.
4. Disconnect switches.
5. Enclosed circuit breakers.
6. Motor starters.
7. Push-button stations.
8. Contactors.
9. Remote-controlled switches.
10. Dimmers.
11. Control devices.
12. Telephone switching equipment.
13. Paging and clock master equipment.
14. TV master station.
15. Fire alarm master station or control panel.
16. Security-monitoring master station or control panel.

END OF SECTION

SECTION 26 09 23
LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.
B. Related Sections include the following:
1. Division 26 Section "Wiring Devices" for wall-box dimmers and manual light switches.

1.03 SUBMITTALS
A. Product Data: Include dimensions and data on features, components, and ratings for lighting control devices.
B. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.
C. Maintenance Data: For lighting control devices to include in maintenance manuals.

1.04 QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, for their indicated use and installation conditions by a testing agency acceptable to authorities having jurisdiction.
B. Comply with 47 CFR 15, Subparts A and B, for Class A digital devices.
C. Comply with NFPA 70.

1.05 COORDINATION
A. Coordinate features of devices specified in this Section with systems and components specified in other Sections to form an integrated system of compatible components. Match components and interconnections for optimum performance of specified functions.

PART 2 - PRODUCTS
2.01 MANUFACTURERS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Occupancy Sensors:
a. Watt Stopper, Inc.
2. Dimmer Switches
a. Watt Stopper, Inc. or Lutron equal
3. Digital Lighting Management
a. Watt Stopper, Inc

2.02 GENERAL LIGHTING CONTROL DEVICE REQUIREMENTS
A. Line-Voltage Surge Protection: Include in all 120V/277V solid-state equipment. Comply with UL 1449 and with ANSI C62.41 for Category A locations.

2.03 OCCUPANCY SENSORS

A. Ceiling-Mounting Units: Unit receives control power from a separately mounted auxiliary power and control unit, and operates power switching contacts in that unit.
B. Switch-Box-Mounting Units: Unit receives power directly from switch leg of the 120- or 277-V ac circuit it controls and operates integral power switching contacts rated 800 W at 120-V ac, and 1000 W at 277-V ac, minimum.
C. Operation: Turns lights on when room or covered area is occupied and off when unoccupied, unless otherwise indicated.
   1. Time Delay for Turning Lights Off: Adjustable over a range from 1 to 15 minutes, minimum.
   2. Manual Override Switch: Turns lights off manually regardless of elapsed time delay.
D. Auxiliary Power and Control Units: As follows:

   1. Relays rated for a minimum of 20-A normal ballast load or 13-A tungsten filament or high-inrush ballast load.
   2. Sensor Power Supply: Rated to supply the number of connected sensors.
E. Passive-Infrared Type: Detects occupancy by a combination of heat and movement in zone of coverage. Each sensor detects occupancy anywhere in an area of 1000 sq. ft. by detecting occurrence of 6-inch minimum movement of any portion of a human body that presents a minimum target of 36 sq. in. to the sensor.
F. Dual-Technology Type: Uses a combination of passive-infrared and ultrasonic detection methods to distinguish between occupied and unoccupied conditions for area covered. Particular technology or combination of technologies that controls each function (on or off) is selectable in the field by operating controls on unit.
G. All wall mounted device cover plate shall be of 0.04” thick, Type 302, satin-finished stainless steel.

2.04 DIMMER SWITCHES

A. Wall mounted 0-10V LED dimmer switch with slide-to-off controls, present on/off for 120/277v operation. Provide three way operation, proper wattage and size of gang box according to control layout shown on the plans.

2.5 DIGITAL LIGHTING MANAGEMENT

A. Digital control system for area lighting control with LED dimmers, occupancy sensor and photocell sensor for daylight harvesting
B. The system shall include the following components as a minimum for a compete operating system,
   1. Room Controller – LMRC-210/211/212/213.
      Wall mounted digital dimmer switch – LMDM-101.
   2. Occupancy Sensor – Dual technology LMDC-100-WH
      Cables – LMRJ

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install equipment level and plumb and according to manufacturer's written instructions.
B. Mount lighting control devices according to manufacturer's written instructions and requirements in Division 26 Section "Basic Electrical Materials and Methods."
C. Mounting heights indicated are to bottom of unit for suspended devices and to center of unit for wall-mounting devices.

3.02 CONTROL WIRING INSTALLATION

A. A factory authorized manufacturer's representative shall provide the electrical contractor a functional overview of the lighting control system prior to installation. The contractor shall schedule the pre-installation site visit after receipt of approved submittals to review the following:
   1. Confirm the location and mounting of all digital devices, with special attention to placement of occupancy and daylighting sensors.
   2. Review the specifications for low voltage control wiring and termination.
   3. Discuss the functionality and configuration of all products, including sequences of operation, per design requirements.
   4. Discuss requirements for integration with other trades.

B. Install wiring between sensing and control devices according to manufacturer's written instructions and as specified in Division 26 Section "Conductors and Cables" for low-voltage connections and Division 27 Section "Data/Telephone Systems" for digital circuits.

C. Wiring Method: Install all wiring in raceway as specified in Division 26 Section "Raceways and Boxes."

D. Bundle, train, and support wiring in enclosures.

E. Ground equipment.

F. Connections: Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

3.03 IDENTIFICATION

A. Identify components and power and control wiring according to Division 26 Section "Basic Electrical Materials and Methods."

3.04 FIELD QUALITY CONTROL

A. Schedule visual and mechanical inspections and electrical tests with at least seven days' advance notice.

B. Inspect control components for defects and physical damage, testing laboratory labeling, and nameplate compliance with the Contract Documents.

C. Electrical Tests: Use particular caution when testing devices containing solid-state components. Perform the following according to manufacturer's written instructions:

   1. Continuity tests of circuits.
   2. Operational Tests: Set and operate devices to demonstrate their functions and capabilities in a methodical sequence that cues and reproduces actual operating functions.
      a. Include programming and testing of devices under conditions that simulate actual operational conditions. Record control settings, operations, cues, and functional observations.

D. Correct deficiencies, make necessary adjustments, and retest. Verify that specified requirements are met.

E. Test Labeling: After satisfactory completion of tests and inspections, apply a label to tested components indicating test results, date, and responsible agency and representative.

F. Reports: Written reports of tests and observations. Record defective materials and workmanship and unsatisfactory test results. Record repairs and adjustments.

3.05 CLEANING

A. Cleaning: Clean equipment and devices internally and externally using methods and materials recommended by manufacturers, and repair damaged finishes.

3.06 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel as specified below:
   1. Schedule training with Owner, through Architect, with at least seven days' advance notice.

3.07 ON-SITE ASSISTANCE

A. Occupancy Adjustments: Within one year of date of Substantial Completion, provide up to three Project site visits, when requested, to adjust light levels, make program changes, and adjust sensors and controls to suit actual conditions.

END OF SECTION

SECTION 26 27 26
WIRING DEVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes receptacles, connectors, switches, and finish plates.

1.03 DEFINITIONS
A. GFCI: Ground-fault circuit interrupter.

1.04 SUBMITTALS
A. Product Data: For each product specified.
B. Maintenance Data: For materials and products to include in maintenance manuals.

1.05 QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
B. Comply with NEMA WD 1.
C. Comply with NFPA 70.

1.06 COORDINATION
A. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1. Cord and Plug Sets: Match equipment requirements.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Wiring Devices:

a. Bryant Electric, Inc.
b. GE Company; GE Wiring Devices.
c. Hubbell, Inc.; Wiring Devices Div.
d. Leviton Manufacturing Co., Inc.
e. Pass & Seymour/Legrand; Wiring Devices Div.
f. Pyle-National, Inc.; an Amphenol Co.

2. Multioutlet Assemblies:

a. Wiremold.

3. Poke-through, Floor Service Outlets and Telephone/Power Poles:

a. Hubbell, Inc.; Wiring Devices Div.
b. Pass & Seymour/Legrand; Wiring Devices Div.
c. Square D Co.
d. Wiremold.

2.02 RECEPTACLES
A. Straight-Blade and Locking Receptacles: General-Duty grade.
B. GFCI Receptacles: Feed-through type, with integral NEMA WD 6, Configuration 5-20R duplex receptacle arranged to protect connected downstream receptacles on same circuit. Design units for installation in a 2-3/4 inch deep outlet box without an adapter.
C. Isolated-Ground Receptacles: Equipment grounding contacts connected only to the green grounding screw terminal of the device with inherent electrical isolation from mounting strap.

1. Devices: Listed and labeled as isolated-ground receptacles.
2. Isolation Method: Integral to receptacle construction and not dependent on removable parts.

2.03 CORD AND PLUG SETS
A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.

1. Cord: Rubber-insulated, stranded-copper conductors, with type SOW-A jacket. Green-insulated grounding conductor, and equipment-rating ampacity plus a minimum of 30 percent.
2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.04 SWITCHES
A. Snap Switches: Heavy-duty, quiet type.
B. Combination Switch and Receptacle: Both devices in a single gang unit with plaster ears and removable tab connector that permit separate or common feed connection.

1. Switch: 20 A, 120/277-V ac.
2. Receptacle: NEMA WD 6, Configuration 5-20R.

C. Key Switches: double prong type for restrooms.

2.05 WALL PLATES
A. Single and combination types match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Unfinished Spaces: 0.04 inch thick, Type 302, satin-finished stainless steel.
3. Material for Finished Spaces: Smooth plastic.

2.06 FLOOR SERVICE FITTINGS
A. Type: Modular, flush-type, dual-service units suitable for wiring method used. Walker RFB 4 or equal.
B. Compartmentation: Barrier separates power and signal compartments.
C. Housing Material: Die-cast aluminum, satin finished.
D. Power Receptacle: NEMA WD 6, Configuration 5-20R, white finish, unless otherwise indicated.
E. Signal Outlet: Blank cover with bushed cable opening, unless otherwise indicated.

2.7 MULTIOUTLET ASSEMBLIES
A. Components of Assemblies: Products from a single manufacturer designed for use as a complete, matching assembly of raceways and receptacles.
B. Raceway Material: Nonmetal.
C. Wire: No. 12 AWG.

2.08 FINISHES
A. Color: Bright white, unless otherwise indicated or required by Code.

PART 3 - EXECUTION

3.01 INSTALLATION
A. Install devices and assemblies plumb and secure.
B. Install wall plates when painting is complete.
C. Install wall dimmers to achieve indicated rating after derating for ganging as instructed by manufacturer.
D. Do not share neutral conductor on load side of dimmers.
E. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and grounding terminal of receptacles on bottom. Group adjacent switches under single, multigang wall plates.
F. Protect devices and assemblies during painting.
G. Adjust locations at which floor service outlets are installed to suit arrangement of partitions and furnishings.

3.02 IDENTIFICATION
A. Comply with Division 26 Section "Electrical Identification."
B. Comply with Division 26 Section "Basic Electrical Materials and Methods."

1. Switches: Where three or more switches are ganged, and elsewhere as indicated, identify each switch with approved legend engraved on wall plate.
2. Receptacles: Identify panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on face of plate and durable wire markers or tags within outlet boxes.

3.03 CONNECTIONS
A. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.
B. Isolated-Ground Receptacles: Connect to isolated-ground conductor routed to designated isolated equipment ground terminal of electrical system.
C. Tighten electrical connectors and terminals according to manufacturers published torque-tightening values. If manufacturers torque values are not indicated, use those specified in UL 486A.

3.04 FIELD QUALITY CONTROL
A. Test wiring devices for proper polarity and ground continuity. Operate each device at least six times.
B. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.
C. Replace damaged or defective components.

3.05 CLEANING
A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION

SECTION 26 28 16
ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes individually mounted enclosed switches and circuit breakers used for the following:
   1. Motor and equipment disconnecting means.

1.03 DEFINITIONS
A. GFCI: Ground-fault circuit interrupter.
B. RMS: Root mean square.
C. SPDT: Single pole, double throw.

1.04 SUBMITTALS
A. Product Data: For each type of switch, circuit breaker, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
B. Maintenance Data: For enclosed switches and circuit breakers and for components to include in maintenance manuals specified in Division 1. In addition to requirements specified in Division 1 Section "Closeout Procedures," include the following:
   1. Routine maintenance requirements for components.
   2. Manufacturer's written instructions for testing and adjusting switches and circuit breakers.
   3. Time-current curves, including selectable ranges for each type of circuit breaker.

1.05 QUALITY ASSURANCE
A. Testing Agency Qualifications: Testing agency that is a member company of the InterNational Electrical Testing Association and that is acceptable to authorities having jurisdiction.

   1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.
B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
C. Comply with NEMA AB 1 and NEMA KS 1.
D. Comply with NFPA 70.

1.06 COORDINATION
A. Coordinate layout and installation of switches, circuit breakers, and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Fusible Switches:

a. Square D Co. or Approved equal
2. Molded-Case Circuit Breakers
a. Square D Co. or Approved equal
3. Combination Circuit Breaker and Ground-Fault Trip:
a. Square D Co. or Approved equal
4. Molded-Case, Current-Limiting Circuit Breakers:
a. Square D Co. or Approved equal
5. Integrally Fused, Molded-Case Circuit Breakers:
a. Square D Co. or Approved equal

2.02 ENCLOSED SWITCHES

A. Enclosed, Nonfusible Switch: NEMA KS 1, Type HD, with lockable handle.

B. Enclosed, Fusible Switch, 800 A and Smaller: NEMA KS 1, Type HD, with clips to accommodate specified fuses, lockable handle with two padlocks, and interlocked with cover in closed position.

2.03 ENCLOSED CIRCUIT BREAKERS

A. Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.
1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
3. Electronic Trip Unit Circuit Breakers: RMS sensing; field-replaceable rating plug; with the following field-adjustable settings:
a. Instantaneous trip.
b. Long- and short-time pickup levels.
c. Long- and short-time time adjustments.
d. Ground-fault pickup level, time delay, and I^2t response.
4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
5. Integrally Fused Circuit Breakers: Thermal-magnetic trip element with integral limiter-style fuse listed for use with circuit breaker; trip activation on fuse opening or on opening of fuse compartment door.
6. GFCI Circuit Breakers: Single- and two-pole configurations with 5mA trip sensitivity.
7. Molded-Case Switch: Molded-case circuit breaker without trip units.

B. Molded-Case Circuit-Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.
1. Lugs: Mechanical style suitable for number, size, trip ratings, and material of conductors.
2. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
3. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
4. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.
5. Auxiliary Switch: Two SPDT switches with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts, "b"contacts operate in reverse of circuit-breaker contacts.
6. Key Interlock Kit: Externally mounted to prohibit circuit-breaker operation; key shall be removable only when circuit breaker is in off position.
7. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function.

2.04 ENCLOSURES
A. NEMA AB 1 and NEMA KS 1 to meet environmental conditions of installed location.
1. Outdoor Locations: NEMA 250, Type 3R.
2. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
3. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

2.05 FACTORY FINISHES
A. Manufacturer's standard prime-coat finish ready for field painting.

PART 3 - EXECUTION

3.01 EXAMINATION
A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION
A. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.

3.03 IDENTIFICATION
A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 26 Section "Electrical Identification".
B. Enclosure Nameplates: Label each enclosure with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

3.04 CONNECTIONS
A. Install equipment grounding connections for switches and circuit breakers with ground continuity to main electrical ground bus.
B. Install power wiring. Install wiring between switches and circuit breakers, and control and indication devices.
C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

3.05 FIELD QUALITY CONTROL
A. Prepare for acceptance tests as follows:
1. Test insulation resistance for each enclosed switch, circuit breaker, component, and control circuit.
2. Test continuity of each line- and load-side circuit.
B. Testing Agency: Engage a qualified independent testing agency to perform specified testing.
C. Testing: After installing enclosed switches and circuit breakers and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
1. Procedures: Perform each visual and mechanical inspection and electrical test indicated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

3.06 ADJUSTING
A. Set field-adjustable switches and circuit-breaker trip ranges.

3.07 CLEANING

A. On completion of installation, inspect interior and exterior of enclosures. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION

SECTION 26 51 00
LIGHTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY
A. This Section includes interior lighting fixtures, lighting fixtures mounted on exterior building surfaces, lamps, ballasts, emergency lighting units, and accessories.
B. Related Sections include the following:
1. Division 26 Section 26 09 23 "Lighting Control Devices".

1.03 SUBMITTALS
A. Product Data: For each type of lighting fixture indicated, arranged in order of fixture designation. Include data on features, accessories, and the following:
1. Dimensions of fixtures.
2. Certified results of laboratory tests for fixtures and lamps for photometric performance.
3. Emergency lighting unit battery and charger.
4. Fluorescent and high-intensity-discharge ballasts.
5. Types of lamps.
B. Maintenance Data: For lighting fixtures to include in maintenance manuals.

1.04 QUALITY ASSURANCE
A. Fixtures, Emergency Lighting Units, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
B. Comply with NFPA 70.

1.05 COORDINATION
A. Fixtures, Mounting Hardware, and Trim: Coordinate layout and installation of lighting fixtures with ceiling system and other construction. Refer to Architectural drawings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Lighting Fixture Schedule on the drawings.

2.02 FIXTURES AND FIXTURE COMPONENTS, GENERAL
A. Metal Parts: Free from burrs, sharp corners, and edges.
B. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.
C. Doors, Frames, and Other Internal Access: Smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in operating position.
D. Reflecting Surfaces: Minimum reflectance as follows, unless otherwise indicated:
1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.
4. Laminated Silver Metallized Film: 90 percent.
E. Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic unless otherwise indicated.

1. Plastic: High resistance to yellowing and other changes due to aging, exposure to heat, and ultraviolet radiation.
2. Lens Thickness: 0.125 inch minimum, unless greater thickness is indicated.

2.03 LED FIXTURES

A. LED fixtures shall provide a continuous and controllable light source. Lamp output and dimensions shall be in accordance with contract drawings and specifications. LED fixture lumen output will be in accordance with the specifications and shall not depreciate more than 20% after 10,000 hours of use. Rated lumen output for LED fixtures to operate in ambient temperature of 20 deg. C to +50 deg. C. White LED's to have a minimum life of 50,000 hours and color LEDs to have a minimum of 100,000 hours.
B. All LEDs used in the LED fixtures will be of high brightness and proven quality. All LEDs shall be driven digitally with pulse width modulation control to prolong life and maintain consistency of lumen output.
C. All connections to fixtures will be reverse polarity protected and provide high voltage protection in the event connections are reversed or shorted during the installation process.
D. Fuse Protections: All power supply outputs will be either fuse protected or PTC-protected as per Class 2UL listing. All fixtures will have built-in fuse protection. All power supplies will provide for knockouts for conduit connections or clamp-style connection for low voltage wiring.
E. All LED drivers to be compatible with LEDs. All LED fixtures and drivers (power supplies) shall be furnished by single manufacture to insure compatibility.
F. Electric characteristics of LED drivers at 77 deg, F ambient temperature.
   1. Input Voltage Range – 120-277V.
   2. Efficiency Minimum – 80%
   3. Output Current Regulation Range (+/-) 5%A.
   4. Total Harmonic Distortion (THD) – 20% maximum.
   5. Power Factor – 0.9 minimum.
   6. Crest Factor (LED Current) – 1.5 maximum.
   7. FCC Class B for Conducted EMI.
   8. FCC Class A for Radiated EMI.
   9. Driver life – 50,000 hours minimum.

2.04 EXIT SIGNS

A. General Requirements: Comply with UL 924 and the following:
   1. Sign Colors and Lettering Size: Comply with authorities having jurisdiction.
B. Internally Lighted Signs: As follows:
   1. Lamps for AC Operation: Light-emitting diodes, 70,000 hours minimum rated lamp life.
   2. Additional Lamps for DC Operation: Two minimum, bayonet-base type, for connection to external dc source.
C. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
   1. Battery: Sealed, maintenance-free, nickel-cadmium type.
   2. Charger: Fully automatic, solid-state type with sealed transfer relay.
   3. Operation: Relay automatically energizes lamp from unit when circuit voltage drops to 80 percent of nominal or below. When normal voltage is restored, relay disconnects lamps, and battery is automatically recharged and floated on charger.
D. Self-Illuminated Exit Signs:
   1. Tritium filled gas tubes with 20 year luminous life.

2.05 EMERGENCY LIGHTING UNITS

A. General Requirements: Self-contained units. Comply with UL 924. Units include the following features:
   1. Battery: Sealed, maintenance-free, lead-acid type with minimum 10-year nominal life.
   2. Charger: Fully automatic, solid-state type with sealed transfer relay.

3. Operation: Relay automatically turns lamp on when supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps, and battery is automatically recharged and floated on charger.
4. Wire Guard: Where indicated, heavy-chrome-plated wire guard arranged to protect lamp heads or fixtures.
5. Integral Time-Delay Relay: Arranged to hold unit on for fixed interval after restoring power after an outage. Provides adequate time delay to permit high-intensity-discharge lamps to restrike and develop adequate output.

2.06 EMERGENCY POWER SUPPLY UNIT

A. Internal Type: Self-contained, modular, battery-inverter unit factory mounted within fixture body. Comply with UL 924.
   1. Test Switch and Light-Emitting Diode Indicator Light: Visible and accessible without opening fixture or entering ceiling space.
   2. Battery: Sealed, maintenance-free, nickel-cadmium type with minimum 10-year nominal life.
   3. Charger: Fully automatic, solid-state, constant-current type.
   4. Operation: Relay automatically energizes lamp from unit when normal supply circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay disconnects lamp, and battery is automatically recharged and floated on charger.

2.07 LAMPS

A. LED: Color Temperature and Minimum Color-Rendering Index: 3500 K and 85 CRI, unless otherwise indicated.

2.08 FIXTURE SUPPORT COMPONENTS

A. Comply with Division 26 Section "Basic Electrical Materials and Methods," for channel- and angle-iron supports and nonmetallic channel and angle supports.
B. Single-Stem Hangers: 1/2 inch steel tubing with swivel ball fitting and ceiling canopy. Finish same as fixture.
C. Twin-Stem Hangers: Two, 1/2 inch steel tubes with single canopy arranged to mount a single fixture. Finish same as fixture.
D. Rod Hangers: 1/4 inch minimum diameter, cadmium-plated, threaded steel rod.
E. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.
F. Aircraft Cable Support: Use cable, anchorages, and intermediate supports recommended by fixture manufacturer.

2.9 FINISHES

A. Fixtures: Manufacturer's standard, unless otherwise indicated.
   1. Paint Finish: Applied over corrosion-resistant treatment or primer, free of defects.
   2. Metallic Finish: Corrosion resistant.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Fixtures: Set level, plumb, and square with ceiling and walls, and secure according to manufacturer's written instructions and approved submittal materials. Install lamps in each fixture.
B. Support for Fixtures in or on Grid-Type Suspended Ceilings: Use grid for support.
   1. Install a minimum of four ceiling support system rods or wires for each fixture. Locate not more than 6 inches from fixture corners.

2. Support Clips: Fasten to fixtures and to ceiling grid members at or near each fixture corner.
3. Fixtures of Sizes Less Than Ceiling Grid: Arrange as indicated on reflected ceiling plans or center in acoustical panel, and support fixtures independently with at least two 3/4 inch metal channels spanning and secured to ceiling tees.

C. Suspended Fixture Support: As follows:
1. Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
3. Continuous Rows: Suspend from cable installed according to fixture manufacturer's written instructions and details on Drawings.

3.02 CONNECTIONS
A. Ground equipment.
1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

3.03 FIELD QUALITY CONTROL
A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
B. Advance Notice: Give dates and times for field tests.
C. Provide instruments to make and record test results.
D. Tests: As follows:
1. Verify normal operation of each fixture after installation.
2. Emergency Lighting: Interrupt electrical supply to demonstrate proper operation.
3. Verify normal transfer to battery source and retransfer to normal.
4. Report results in writing.
E. Malfunctioning Fixtures and Components: Replace or repair, then retest. Repeat procedure until units operate properly.
F. Corrosive Fixtures: Replace during warranty period.

3.4 CLEANING AND ADJUSTING
A. Clean fixtures internally and externally after installation. Use methods and materials recommended by manufacturer.
B. Adjust aimable fixtures to provide required light intensities.

END OF SECTION

SECTION 27 00 00

DATA/TELEPHONE SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide all labor, materials, tools and equipment required for the complete installation of a complete Category 6A UTP structured cabling system, and work called for in the Construction Documents. This shall include but is not limited to all UTP copper cabling, racks, cabinets, patch panels, modular connectors, optical fiber cable, cable management and accessories for a complete system.

B. The purpose of this document is to describe the minimum requirements and establish the design guidelines for the Communications Horizontal Cabling that shall support data, video and voice signals throughout the network from designated Telecommunications Rooms (TR) to Work Area Outlets (WAO) located at various desks, workstation, under floor, conference room table and other locations as indicated on the contract drawings and described herein.

C. All copper cable terminations shall comply with, and be tested to ANSI/TIA/EIA 568-B.2 Commercial Building Telecommunications Cabling Standard Part: 2 Balanced Twisted Pair Cabling Components. ANSI/TIA/EIA 568-B.2-1 Commercial Building Telecommunications Cabling Standard Part: 2 Balanced Twisted Pair Cabling Components – Addendum 1 – Transmission Performance for 4 Pair 100ohm Category 6 Cabling. ANSI/TIA/EIA 568-B.2-6 Commercial Building Telecommunications Cabling Standard Part: 2 Balanced Twisted Pair Cabling Components – Addendum 6 – Category 6 Related Component Test Procedures.

D. The electrical contractor is responsible for the provision and installation of all data/telephone raceways, including all boxes and wiremold in classrooms. The low voltage cabling contractor shall provide and install all cabling and provide terminations per the specifications the Owner will supply and install the telephone system and all electronic data equipment.

E. Perform all work in compliance with local, state, and federal codes and regulations that may affect this described work.

F. Inspection of work provided by other trades is required by contractor. Commencement of work described herein will serve as evidence that the contractor has accepted all prior and or ongoing work performed by other trades for the structured cabling system. All necessary changes done without prior written authorization shall be done at the contractors own risk and expense.

G. It is the contractors' responsibility to verify the capacity of the structured cabling pathways, and that they are sufficient for the designed structured cabling system. Any discrepancy between site conditions and the construction drawings must be brought to the attention of the Project Manager, Architect and Owner in writing. Commencement of work implies acceptance of the site conditions by the contractor.

H. It is the contractors' responsibility to field verify all pathways, routes and dimensions necessary for the structured cabling system, and that all pathways and spaces are installed prior to cable installation. Commencement of work implies acceptance of the pathways by contractor.

I. The construction documents do not necessarily describe all the required work to satisfy their intention. On the basis of work described herein, and or indicated in the Drawings, the

contractor shall furnish all items and provide all labor required providing a complete, standards based structured cabling system.

J. The contractor shall be responsible for damage to any surfaces or work disrupted as a result of there work. Repair of surfaces, including painting, shall be included as necessary.

1.2 SUBMITTALS

A. Provide a contractor-generated detailed bill of materials required for installation based on the construction documents. Clearly indicate manufacturer, part number, and quantity to be provided to complete the scope of work.

B. The communications contractor shall be certain that all correct parts are ordered per Products Section of this document and installed in accordance with manufacturers design and installation guidelines. Vendor shall submit complete parts and part numbers prior to installation of equipment, failure to do so is done at the risk of the contractor.

C. It is the contractors' responsibility to verify all part numbers in this specification and to make aware the customer of any changes that the manufacturer may have made to part numbers or product.

D. The communications contractor shall guarantee at the time of the bid that all Category 6, and fiber optic cabling and components meet or exceed specifications (including installation) of ANSI/TIA/EIA-568-B.1, 568-B.2, 568-B.3 and 569.

E. Warranty shall be a twenty-five (25) year manufacturer supported extended warranty issued to the customer upon completion of the project. The warranty shall be an applications assurance warranty guaranteeing that the installed system shall support any application present and future that is designed to run on the installed infrastructure. The warranty shall cover 100% material and labor for the installed system.

F. Documentation from the manufacturer that the contractor has authority to provide the warranty on behalf of the manufacturer.

G. Complete documentation regarding the manufacturer's warranty shall be submitted as part of the proposal. This shall include, but is not limited to: a sample of the warranty that would be provided to the customer when the installation is complete and documentation of the support procedure for warranty issues.

1.3 REFERENCES AD STANDARDS INCORPORATED

A. Published specifications, standards, tests, or recommended methods of trade, industry, or government organizations apply to work of this section where cited by abbreviation noted below.

1. ANSI American National Standards Institute
2. EIA Electrical Industries Association of America
3. ISO International Standards Organization
4. ITU International Telecommunications Union
5. IEEE Institute of Electrical and Electronic Engineers
6. NEC National Electric Code
7. NEMA National Electrical Manufacturer's Association
8. UL Underwriters' Laboratories, Inc.
9. TIA Telecommunications Industry Association

B. Nothing in drawings, details, or specifications shall be construed to permit work not conforming to applicable laws, ordinances, rules, regulations, or industry standards. It is contractor's responsibility to field verify all conditions, including footages between and within buildings.

C. It is not the intent of the drawings, details, or specifications to repeat requirements of codes or standards except where necessary for completeness or clarity.

D. Contractor is expected to adhere to and follow the most recent standards, codes and publications.

E. ANSI/TIA/EIA 568-B.1 - Commercial Building Telecommunications Cabling Standard – Part 1: General requirements, April 1, 2001.

F. ANSI/TIA/EIA 568-B.2 - Commercial Building Telecommunications Cabling Standard - Part 2: Balanced Twisted Pair Cabling Components, April 1, 2001.

G. ANSI/TIA/EIA 568-B.2-1 - Commercial Building Telecommunications Cabling Standard - Part 2: Balanced Twisted Pair Components - Addendum 1 - Transmission Performance Specifications for 4-Pair 100 Ohm Category 6 Cabling, June 1, 2002.

H. ANSI/TIA/EIA 568-B.2-2 - Commercial Building Telecommunications Cabling Standard - Part 2: Balanced Twisted-Pair Cabling Components - Addendum 2, December 1, 2001.

I. ANSI/TIA/EIA 568-B.2-3 - Commercial Building Telecommunications Cabling Standard - Part 2: Balanced Twisted-Pair Cabling - Addendum 3 - Additional Considerations for Insertion Loss and Return Loss Pass/Fail Determination, March 1, 2001.

J. ANSI/TIA/EIA 568-B.2-3 - Commercial Building Telecommunications Cabling Standard - Part 2: Balanced Twisted-Pair Cabling – Addendum 4 – Solderless Connection Reliability Requirements for Copper Connecting Hardware, June 2002.

K. ANSI/TIA/EIA 568-B.2-3 - Commercial Building Telecommunications Cabling Standard - Part 2: Balanced Twisted-Pair Cabling – Addendum 5 – Corrections to TIA/EIA 568-B.2, January 2003.

L. ANSI/TIA/EIA 568-B.2-3 - Commercial Building Telecommunications Cabling Standard - Part 2: Balanced Twisted-Pair Cabling – Addendum 6 – Category 6 Related Component Test Procedures, December 2003.

M. ANSI/TIA/EIA 568-3 - Optical Fiber Cabling Components Standard, April, 2002.

N. ANSI/TIA/EIA-568-3-1 - Optical Fiber Cabling Components Standard - Addendum 1 - Additional Transmission Performance Specifications for 50/125 um Optical Fiber Cables, April 1, 2002.

O. Compliance to industry standards and codes is mandatory. Do not proceed with work that is in conflict with codes and or standards without written direction from the Project Manager, Designer and Owner. Proceeding with work that is not compliant with codes and standards is done so at the contractors own risk and expense.

1.4 QUALITY ASSURANCE

A. Equipment and accessories to be the product of a vendor regularly engaged in its manufacture.

B. Supply cable, equipment, and accessories which are new, free from defects.

C. Equipment and accessories in compliance with the applicable standards listed in “References and Standards” of this Section and with applicable national, state, and local codes.

D. Items of a given type shall be of the same manufacturer.

1.5 DESIGN METHODOLOGY

A. Provide Category 6A cable to each WAO location. Each of the WAO’s shall be configured per the construction documents. Cables shall be installed from the corresponding IDF to each WAO location. Contractor shall terminate WAO cables onto Uniprise Category 6A RJ45 modular connectors. At the IDF locations, WAO cables shall be terminated on rack-mounted 48-port Category 6A RJ45 modular patch panels.

D. Refer to construction documents for location, quantity and configuration of each WAO needed and cable requirement at non-classroom area.

E. Cables must not be attached to ceiling grid or lighting fixture wires.

F. Pair untwist at termination shall not exceed 3.18mm (0.125”).

G. Bend radius of cable in termination area shall be no less than 4 times the outside diameter of the cable.

H. All cable and connectors shall be installed and terminated to the manufacturers’ guidelines, recommendations and best industry practices.

I. Cable shall be installed in continuous lengths from point of origin to termination point, no splices allowed.

J. Communications contractor shall be responsible for providing and installing the appropriate sized j-hooks where cable tray is not used.

K. Cable bundles of up to 50 cables may be supported by 2” j-hooks. Cable bundles of up to fifty 150 cables must be supported using 4” j-hooks.

L. J-hooks are to be placed at 48 to 60 inch intervals. At no point shall the cables rest on the acoustical ceiling.

M. Contractor shall use appropriate sized j-hooks for the cable bundle size the j-hooks are to support. No more than 50 UTP cables per 2” and no more than 150 UTP cables shall be placed per 4” j-hook.

1.6 PRE-INSTALLATION CONFERENCE

A. Contractor shall attend a Pre-Installation Meeting to be conducted by the construction manager. Attendance shall be at the direction of the construction manager and may include the contractor's project manager, superintendent, subcontractors for the work of this specification section and subcontractors for work affected by this section; vendors, district technology and construction representatives and other parties affected by the work.

PART 2 - PRODUCTS

2.1 GENERAL

A. Quality of Products: Material and equipment specified herein have been selected as the basis of acceptable and desired quality of performance and have been coordinated to function as components of the specified system. Where a particular material, device, piece of equipment, or system is specified directly, the current manufacturer's specification for the same shall be considered to be part of these specifications, as if completely contained herein in every detail. Each material, device, or piece of equipment provided there under shall comply with all of the manufacturer's published specifications for that item.

B. Provide Complete: Provide all auxiliary and incidental materials and equipment necessary for the operation and protection of the work of this section as if specified in full herein.

C. Provide New: All materials provided under the work of this section shall be of the manufacturer's latest design/model and shall be permanently labeled with the manufacturer's name, model number, and serial number.

D. Similar: Similar devices shall be of the same manufacturer unless specifically noted otherwise in these specifications.

E. Continuous Use: all active circuitry shall be solid state and shall be rated for continuous use. All circuit components shall be operated in full compliance with the manufacturer's recommendations and shall contain sufficient permanent identification to facilitate replacement.

2.2 DROP CABLE WIRING CLOSET HARDWARE

A. All wiring closet data connecting hardware shall be EIA/TIA TSB-40 Category 6 compliant.

B. All station cabling in the wiring closet for data connecting hardware shall be 48-port modular panels with RJ45 modular jacks.

C. The cabling in the wiring closet for voice connecting hardware that ties from the Category 3 cabling terminated on the 110 protection block in the IDF/MDF, to the equipment rack, shall have RJ45 jacks on the front and 110 style insulation displacement connectors (IDC) for termination of drop cable on the back.

D. All modular jacks shall be eight position jacks with pin/pair assignments utilizing EIA/TIA T568B.

2.3 DROP CABLE OUTLET HARDWARE

A. All data drop outlet/station outlet connecting hardware shall be EIA/TIA TSB-40 Category 6A compliant.

B. All drop outlet/station outlet hardware shall be modular jack outlets with Category 6A RJ45 modular jacks. Data inserts will be orange for cable number one and ivory for cable number two. Faceplate color will be ivory unless otherwise specified.

C. All modular jacks shall be eight (8) position jacks with pin/pair assignments utilizing EIA/TIA T568B.

D. All modular jacks will be placed into quadplex Uniprise faceplates with any unused openings supplied with blank inserts.

2.4 SYSTEM ELECTRONIC EQUIPMENT

A. No LAN switches, concentrators, or other electronic equipment are contained within this project.

2.5 MISCELLANEOUS EQUIPMENT

A. Contractor will provide all racks, patch panels, wire management and equipment necessary to support data interconnect and hub/concentrator equipment at all MDF and IDF locations. Provide wall-mounted, double hinged, swing out cabinets, height determined by quantity of patch panels at each IDF location. Provide all locks of the same key code.

B. All associated connectors, wire management components, patch cords, cable, wire management and all miscellaneous materials required for a complete installation of the system shall be included in the package. All equipment shall be compatible with other equipment.

2.6 PARTS LIST SPECIFICATION

A. The LAN UTP cabling run inside buildings shall be 4-pair, Category 6A Uniprise CAT 6e 75N4 for non-plenum installation in gray color for voice and blue color for data., 7504 for plenum installation in gray color for voice and blue color for data, 6NF4+ for outside plant installation in black color.

B. The LAN and voice UTP cabling run between buildings shall be 4-pair, Category 3, jell filled cable, Uniprise.

C. Drop cable wiring closet hardware shall be Uniprise.

D. Drop cable outlet hardware shall be Uniprise (faceplate) and Uniprise Category 6A.

E. Outside plant voice cabling between buildings shall be wet rated, voice grade, Category 3 PE89, Uniprise. All OSP cabling shall be terminated on 110 protection blocks.

F. Wall-mounted brackets, patch panels, and wire management equipment shall be Panduit, Chatsworth, or approved equivalent.

G. Data patch panels will be Uniprise #UNP610-48P 48-port with modular Category 6A RJ45 connectors. Provide panduit wire manager above and below patch panels.

H. Vertical cable managers shall be Panduit #WMPV545 (for side), #WMPV545 (for single rack, #WMPVC45 (for center) and #WMPHF2 (for front only), black finish.

I. Provide and install junction splice kit as necessary, Chastworth Products, Inc. #11302-001.

J. Provide and install protective end-caps, as necessary, Chastworth Products, Inc. #10642-001.

K. Provide and install 3" channel rack to runway, as necessary, Chastworth Products, Inc. #10595-112.

L. Provide and install universal ladder rack, as necessary, Chastworth Products, Inc. #10250-712.

M. Voice / data patch cable shall be Uniprise UNC6 of 5’ or 7’ in length, gray color for voice and blue color for data.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All wire and cable shall be continuous and splice free for the entire length of run between designated IDF and station termination locations.

B. Terminate cable in designated terminal cabinets and/or on designated equipment backboards.

C. Provide service loop of cables at all junction and termination cabinets or boxes.

D. Maintain consistent absolute signal polarity at all connectors, patch points, and connection points accessible in the system.

E. Land all fiber optic cables on LC style patch panels.

F. All fiber strands will be terminated using permanent bonding techniques, as opposed to crimp-type connectors, using LC style connectors.

G. Dress or harness all wire and cable to prevent mechanical stress of electrical connectors. No wire or cable shall be supported by a connection point. Provide service loops where harnesses of different classes cross or where hinged panels are to be interconnected.

H. All equipment and wiring shall be guaranteed against defects in materials and workmanship for a one (1) year period from the startup and beneficial use of the system.

I. Provide complete record drawings showing all equipment, location, and cable routing.

3.2 LABELING/TESTING

A. The contractor will label all outlets using permanent/legibly typed or machine engraved labels approved by the District. The labeling information for patch panels located in the IDFs will include the IDF number, patch panel number, sequential port number, and station number. Outlets shall be labeled to match the corresponding label in the IDF. All copper/fiber terminations for riser/backbone cables in the IDF(s) shall be labeled with the IDF number, patch panel number, and sequential port number.

1. A floor plan clearly labeled with all outlet jack numbers shall be included in the as-built plans.
2. All labels shall correspond to as-built drawings and to final test reports.
3. Each fiber will be identified at the MDF and/or IDF with:

    a. Fiber number.
    b. IDF number.
    c. MDF port number.
    d. IDF port number.

B. All field testing will be done with a Microtest PentaScanner or verified comparable TDR for UTP cable, and Laser Precision (or equivalent) OTDR for fiber optic cable. Each cable segment shall be verified to pass all specifications for installation and performance as specified by the cable and connector manufacturers.

Final system acceptance will not occur prior to delivery of test results in a printed format provided by the TDR and OTDR. Contractor will provide documentation to ensure that all fiber and UTP test results are within acceptable tolerances provided by cable and connector

manufacturers published standards and performance specifications. For all fiber runs, test documentation submitted will include continuity, attenuation, and length of each installed fiber strand. All UTP and fiber cables will be tested from end to end.

C. As-Builts: Contractor shall be responsible for marking-up, manually red-lined, district provided infrastructure and building plans. These as-builts shall clearly indicate detailed inter-building fiber and copper cabling routes, fiber strand and copper pairs counts, termination locations, and voice/data station locations including numerical station/drop designations. Receipt and acceptance of as-built drawings by the district is a prerequisite prior to authorization of final payment.

END OF SECTION

SECTION 27 51 16
PAGING AND CLOCK SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 EXISTING SYSTEM

A. Existing Paging and Clock System is Bogen MULTICOM located in the Admin buildgin.

1.3 MANUFACTURER

A. The manufacturer shall be a United States manufacturer, who has been regularly engaged in the manufacture of communication systems for at least thirty (30) years.

B. The equipment described herein, and furnished per these specifications shall be the product of one manufacturer. All reference to model numbers and other detailed descriptive data is intended to establish standards of design, performance and quality, as required. Equipment manufactured by Bogen Communications, Inc. shall be acceptable to, and shall be installed by Sound and Signal, Inc., (925) 455-1778, the authorized Bogen distributor of engineered sound products for this region.

C. The communications system shall bear the label of a nationally recognized testing laboratory (NRTL) such as E.T.L., D.S. & G., or UL and be listed by their re-examination service. All work must be completed in strict accordance with all applicable electrical codes, including NEC Section 800-51 (i), under direction of a qualified and factory approved distributor, to the approval of the Owner.

D. The system shall be designed and configured for maximum ease of service and repair. All major components of the system shall be designed as a standard component of one type of card cage. All internal connections of the system shall be with factory keyed plugs designed for fault-free connection. The printed circuit card of the card cage shall be silk screened to indicate the location of each connection.

1.4 SUBMITTALS AND SUBSTITUTIONS

A. Refer to Division 1 for requirement.

1.5 QUALIFICATIONS

A. All work described herein to be done by the manufacturer's authorized representative shall be provided by a documented factory authorized representative of the basic line of equipment to be utilized.

B. As further qualification for bidding and participating in the work under this specification, the manufacturer's representative shall hold a valid C-10 Contractor's License issued by the Contractor's State License Board of California. The manufacturer's representative shall have completed at least thirty (30) projects of equal scope, giving satisfactory performance and have been in the business of furnishing and installing sound systems of this type for at least ten (10) years. The manufacturer's representative shall be capable of being bonded to assure the Owner of performance and satisfactory service during the guarantee period.

1.6 EQUIPMENT WARRANTY

A. The contractor shall furnish a letter from the manufacturer of the equipment, which certifies that the equipment has been installed according to factory intended practices, that all the components used in the system are compatible and that all new portions of the systems are operating satisfactorily. Further, the contractor shall furnish a written unconditional guarantee, guaranteeing all parts and all labor for a period of two (2) years after final acceptance of the project by the Owner.

1.7 SERVICE FACILITIES

A. The contractor shall make available and maintain a satisfactory service department capable of furnishing equipment inspection and service. The contractor shall be prepared to offer a service contract for the maintenance of the system beyond the warranty period.

1.8 TRAINING

A. Refer to Division 1 Section “Demonstration and Training”.

B. The contractor shall instruct personnel designated by the Owner in the proper use, basic care, and maintenance of the equipment. Such training shall be provided as an integral component of the system.

PART 2 - SYSTEM OPERATION

2.1 ACCEPTABLE MANUFACTURERS

A. The existing paging system is of Bogen MULTICOM 2000.

B. The system shall provide no less than the following features and functions:

1. Telephonic communication, complete with DTMF signaling, dial tone, ringing and busy signals, and data display on administrative stations, shall use two wires. Systems, which use more than two wires for communication, tones and data display shall not be acceptable.
2. Amplified voice communication with loudspeakers shall use a shielded audio pair. (Shield can be used as one of the two required conductors for phone or call-in switch.)

C. The system shall be available in the following configurations:

1. Wall-mounted in a custom enclosure. Station capacity shall be from 24 to 120 stations in increments of 24.
2. Rack-mounted. Station capacity shall be from 24 to 240 stations in increments of 24. All telephone stations shall have the ability to support displays.
3. Rack-mounted and integrated with Bogen Multi-Graphic Series 2223 or Series 2233 equipment. In this configuration, MULTICOM 2000 system station capacity shall be expandable up to 240 stations and 240 telephonic stations in increments of 24. The multi-graphic system equipment provides the following: redundant intercom and paging functions, one or two additional program channels, additional multi-graphic functions, and unlimited multi-graphic only station capacity. It shall be possible, by use of a separate call-in switch, to annunciate only to the multi-graphic portion of the system without using additional station ports within the MULTICOM 2000 system.

D. The system shall consist of any combination of staff, enhanced staff, and administrative stations.

1. Staff stations shall consist of wall or ceiling-mounted loudspeakers with call-in switches or handsets.
2. Enhanced staff stations shall consist of DTMF dialing telephone sets.
3. Administrative stations shall consist of DTMF dialing telephone sets with a four line by 16 character LCD display panel. They shall be equipped with a standard 12 key push button dialing keypad. Phones utilizing membrane type keypads or requiring special function keys to perform common functions shall not be accepted as an equal. Optionally, a loudspeaker may be connected at each administrative station location.
4. Enhanced staff and administrative stations shall have the option of including a loudspeaker.
5. All types of stations shall utilize the same type of field wiring. Future station alterations to require only station type change, not field wiring or system head-end alterations. All field wiring and system head-end equipment shall support any type of station, at the time of installation. All contractor proposals shall reflect this capacity. Failure to submit and bid this project in this manner will be deemed as being in direct conflict of these specifications and will be rejected.
6. There shall be no limit to the number of administrative display stations within the total capacity of the system (e.g. a 240 station will support 240 administrative display stations). It shall be possible at any time to change the type of station at any location without extensive rewiring. Systems, which limit the quantity of each station type, or require future additional equipment and/or system expansion to provide additional administrative telephones shall not be accepted as an equal.

E. The system shall be a global switching system, providing eight (8) unrestricted simultaneous private telephone paths. The system shall also be capable of providing up to eight (8) simultaneous amplified voice intercom paths. One amplified intercom path shall automatically be provided with each increment of 24 stations of system capacity. All hardware, etc. required to achieve the maximum number of amplified voice intercom channels for this system shall be included in this submittal. Amplified voice intercom channels shall provide voice activated switching. Systems requiring the use of a push-to-talk switch on administrative or enhanced staff telephones shall not be acceptable. There shall be an automatic level control for return speech during amplified voice communications. The intercom amplifier shall also provide control over the switch sensitivity and delay times of the VOX circuitry.

F. It is of utmost importance that emergency calls from staff stations receive prompt attention. It is therefore important that there be an alternate destination in case the call does not get answered at the primary location.

G. Staff generated emergency calls shall be treated as the highest system priority. Therefore, all emergency calls shall annunciate at the top of the call queue of their respective administrative telephone(s). Should that emergency call go unanswered for 15 seconds, the call should re-route to an alternate speaker station then prompt the caller to make a verbal call for help. During the transfer, the original administrative telephone shall continue to ring the distinctive emergency ring. Should the emergency transfer to station have an associated administrative telephone, it too shall ring the distinctive emergency ring.

1. The emergency transfer to station shall be field programmable.
2. Should the original administrative telephone be engaged in a non-emergency conversation, its conversation shall be automatically terminated, indicated with an alert tone, and then reconnected to the station which generated the emergency call.
3. Should the administrative telephone be engaged in an emergency conversation, successive emergency calls shall log into the call queue as well as transfer to the emergency transfer station for their verbal call for help. Upon termination of the initial

emergency conversation, the next one shall immediately ring the administrative telephone.

4. Systems failing to transfer unanswered emergency calls or failing to immediately connect to the administrative telephone shall not be deemed as equal.

H. There shall be a system wide emergency all-call feature. The emergency all-call shall be accessed by dialing "911" from designated administrative phones or by the activation of an external contact closure, which shall give the third audio program, input emergency status. The emergency "911" all-call function shall have the highest system priority and shall override all other loudspeaker related functions including time tone distribution.

1. Considering that emergencies are to be treated with the highest level of concern, systems in which the emergency all-call page from an administrative telephone is not the highest priority shall not be deemed as equal.
2. Upon picking up the receiver and dialing "9", a menu shall appear on the display prompting the user to enter each subsequent digit. In this way, the user shall not be required to memorize complicated key sequences in order to access emergency functions.
3. The emergency all-call shall capture complete system priority, shall be transmitted over all speakers. It shall also activate an external relay, which can be used to automatically override other systems.
4. System without emergency all-call, or systems with all-call that cannot be activated by external means, or which do not capture complete system priority or activate an external relay, shall not be acceptable.

I. There shall be at least four built-in dedicated emergency alarm tones. Each may be accessed by dialing a three-digit number (912 through 915) from designated administrative telephones. These emergency tones should be separate from the time tones. Systems using external alarm generators, or having less than four emergency alarm tones shall not be acceptable.

1. Upon picking up the receiver and dialing "9", a menu shall appear on the display prompting the user to enter each subsequent digit. In this way, the user shall not be required to memorize complicated key sequences in order to access emergency alarm tones.

J. There shall be four (4) external function relay driver outputs, accessible from designated administrative telephones by dialing a four-digit number. These outputs shall be field programmable with duration from one (1) second to twenty-four (24) hours. The user shall have the ability to review the status of each relay driver. A plain English menu, prompting the user through the fields without requiring the user to remember any dialing sequences shall support this feature. Systems, which require the user to remember complicated dialing schemes or prompt the user via cryptic commands shall not be deemed equal. Systems without relay driver outputs for control of external functions shall not be acceptable.

1. Upon picking up the receiver and dialing "9", a menu shall appear on the display prompting the user to enter each subsequent digit. In this way the user shall not be required to memorize complicated key sequences in order to access external relay functions.

K. There shall be a program material interface included which shall accept up to three (3) Bogen D series program modules. Systems requiring an external program source interface shall not be acceptable.

L. There shall be an optional outside line feature. The optional circuitry shall interface with the station ports of an external telephone system and shall provide facilities for up to sixteen (16)

incoming lines which shall be designated by the user to ring "day" and "night" enhanced staff or administrative stations. Where an administrative station is designated to receive outside line calls, the phone shall ring with a unique tone and the outside line number shall appear on the display panel. The option shall also provide the ability to make outside line calls from enhanced staff or administrative stations. This ability shall be programmable for each phone and there shall be five (5) access levels; no access, restricted access (local calls only), or unrestricted access (local and long distance calls), restricted night access and unrestricted night access. The system shall contain a night ring feature which will allow any or all incoming lines to sound a separate and distinctive tone throughout any or all speaker zones which could be answered by any phone with the proper pass code. The system shall be capable of supporting DIL; DISA and a password protected DISA function.

1. Security is of the utmost concern. The password DISA feature shall be accessible only from an off-premise security office which monitors the facilities security system. It shall function as follows: Upon confirmation of the password DISA number, the system shall allow security personnel to dial access any station and monitor the activity without the pre-announce and the privacy tones. This will then allow the security office to determine exactly what actions need to be taken.

M. The system shall provide for field programmable three-digit architectural station numbers.

N. An architectural number/station number cross reference shall be field accessible to facilitate service.

O. There shall be an automatic level control for return speech during amplified voice communications.

P. Each station loudspeaker shall be assignable to any one, any combination, or all of eight (8) paging zones. Systems with less than eight (8) paging zones shall not be acceptable.

Q. Each station loudspeaker shall be assignable to any one, any combination, or all of eight (8) time signaling zones. Systems with less than eight (8) time signaling zones shall not be acceptable.

1. Note: Systems which use the same light zones as both page zones and time zones shall not be acceptable.

R. There shall be eight (8) time signaling schedules with a total of 1024 user programmed events. Each event shall sound one of eight (8) user selected tones. It shall be possible to assign each schedule to a day of the week or manually change schedules from an authorized administrative telephone. Systems which do not provide eight (8) time signaling schedules or a choice of eight (8) time tones, shall not be acceptable.

S. An internal program clock (with battery backup) shall be included allowing a total of 1024 user programmed events. It shall be possible to synchronize the program clock with an external master clock. Systems that do not provide an internal program clock not meeting these specifications shall provide an external program clock that does.

1. This external program clock shall then synchronize daily with the system clock to ensure that all time displays are the same.
2. There shall be eight (8) time signaling schedules. It shall be possible to assign each schedule to a day of the week or manually change schedules from an authorized administrative telephone.
3. Each event shall be able to be directed to any one or more of the eight (8) time signaling zones.

4. Each of the eight (8) time zones shall have a programmable "tone duration" unique unto itself. For example: The gymnasium shall receive a time tone for ten (1) seconds while the rest of the facility receives a tone for five (5) seconds.
5. Each event shall sound one (1) of eight (8) user selected tones. Each event may utilize a different time tone. It shall be utilized to send the gymnasium, shop classes, and pool (if necessary), a separate time tone to indicate "cleanup". Minutes later, the entire facility can then receive the same time tone to indicate class change.
6. Each of the eight (8) distinct time tone signals may be manually activated by selected administrative telephones. These tone signals shall remain active as long as the telephone remains off-hook or until canceled from the keypad.

    a. Upon picking up the receiver and dialing "9", a menu shall appear on the display prompting the user to enter the next digit. In this way, the user shall not be required to memorize complicated key sequences in order to access manual time tone functions.
    b. Systems that do not provide eight (8) time signaling schedules or do not provide automatic activation of schedules shall not be acceptable.

T. There shall be a zone-page/all-page feature that is accessible by selected enhanced staff and administrative stations.

1. There shall be automatic muting of the loudspeaker in the area where a page is
2. There shall be a pre-announce tone signal at any loudspeaker selected for voice paging.

    a. Upon picking up the receiver and dialing "#", a menu shall appear on the display prompting the user to enter the next digit. In this way, the user shall not be required to memorize complicated key sequences in order to access paging functions.

U. There shall be a voice intercom feature that is accessible by selected enhanced staff stations and all administrative stations.

1. There shall be a periodic privacy tone signal at any loudspeaker selected for amplified voice communication.
2. There shall be a pre-announce tone signal at any loudspeaker selected for voice intercom communication.

    a. Privacy and pre-announce tone signals shall be capable of being disabled during system initialization.

3. There shall be an automatic switchover to private telephone communication should the person at the loudspeaker pick up his handset.

    a. Upon picking up the receiver and dialing the first digit of the number of the station to be called, that number shall appear on the display along with a loudspeaker symbol, prompting the user to enter the next digits. There shall be no confusion as to the type of conversation that is to be established.

V. There shall be a telephonic communication feature that is accessible by all enhanced staff and administrative stations.

1. There shall be an audible ring signal announcing that a call has been placed to that station.

a. Upon picking up the receiver and dialing "*", a telephone symbol shall appear on the display, prompting the user to enter the number of the station to be called. There shall be no confusion as to the type of conversation that is to be established.

W. There shall be an automatic disconnect of staff handsets left off-hook to prevent them from tying up communications channels. The station shall receive a busy signal and shall automatically disconnect after 45 seconds. Systems not preventing idle off-hook telephonic stations from typing up communication channels shall note and special submit an alternate method and equipment list to achieve the same function.

1. There shall be an automatic disconnect of administrative and enhanced staff stations to prevent them from tying up communications channels. When a station goes off-hook and does not initiate a call within ten (10) seconds, the station shall receive a busy signal and shall automatically disconnect after 45 more seconds. Systems not preventing idle off-hook telephonic stations from tying up communication channels shall note and specifically submit an alternate method and equipment list to achieve the same function.

X. There shall be an automatic disconnect of administrative and enhanced staff stations to prevent them from tying up communications channels. When a station goes off-hook and does not initiate a call within ten (10) seconds, that station shall receive a busy signal and shall automatically disconnect after 45 more seconds.

Y. Staff and enhanced staff stations may be programmed to ring an administrative telephone during day hours and another administrative telephone during night hours. Day and night hours shall be user programmable. Assignment of staff stations shall not be restricted to any particular administrative station. Systems that limit the number and assignment of staff call-in to particular administrative station or groups of administrative stations shall not be acceptable.

Z. Each staff station shall be programmable for three (3) levels of call-in, as follows:
Level 1 - Normal/Emergency
Level 2 - Urgent/Emergency
Level 3 - Emergency

1. Staff stations programmed for access Level 1 or 2 shall be able to initiate an emergency call by repeated flashing of the hook switch or repeated pressing of the call-in switch. Systems that require additional switches and/or conductors to initiate an emergency call shall not be acceptable.
2. Emergency calls from staff stations shall interrupt a non-emergency call in progress at the designated administrative phone. The administrator shall receive a warning tone and be connected to the emergency caller. The disconnected party shall receive a busy signal. Systems which do not provide emergency call interrupt shall not be acceptable.
3. It shall be possible to connect a single push emergency call-in switch to any staff or enhanced staff station, without effecting normal station operation.

AA. Calls from staff stations shall be logged into queue for the designated administrative telephones.

1. Administrative phones shall ring for a period of 45 seconds when they receive a call and then stop ringing.
2. Each queue shall first be sorted according to call priority (emergency calls, then urgent calls, and then normal calls). Calls are sorted within each priority level on a first-in first-out basis. When a call is answered, it shall automatically be removed from the

queue. Systems which do not sort calls according to priority and order received, shall not be acceptable. The display shall simultaneously show up to four (4) calls pending. Additional calls, beyond four (4), shall be indicated by an arrow pointing down thus prompting the user that additional calls are waiting.

3. It shall be possible to answer any incoming call simply by picking up the handset while it is ringing. It shall not be necessary to hit any buttons to answer a call.
4. "Single-Button" Response: It shall be possible to answer any incoming staff call after the ringing has stopped by pressing a single button (key) on the administrative telephone. The system shall automatically call the first station shown on the display.
5. If there are any remaining calls on the queue when the administrative phone is hung up, a re-ring signal shall sound at the phone alerting the user to their presence.
6. It shall be possible to scroll through the call-waiting queue and answer calls in any order. It shall be possible to delete all unanswered normal and urgent calls. Simply pressing the "*" button twice shall auto-dial the station appearing in the top of that current display window.
7. Unanswered normal and urgent calls shall remain in their respective queues for a user-programmable length of time, then be automatically deleted. Emergency calls shall be deleted from their queue only by answering the call.
8. Other than emergency calls, the user shall have the ability to answer calls in random order. Emergency calls shall be responded to in the order in which they are received.

BB. Enhanced staff stations shall receive dial tone upon going off-hook. Outgoing calls are made by dialing the desired station. Incoming calls can be directed to the telephone or to the associated loudspeaker for a hands-free reply. There shall be an automatic switchover from loudspeaker for a hands-free reply. There shall be an automatic switchover from loudspeaker to private telephone communication should the person pick up his handset.

1. Enhanced staff stations shall be programmable for one (1) of three (3) levels of system access, as follows:

    a. Level 4 shall permit dialing any administrative station, toggle program material on/off at their location by use of the telephone dial pad, have access to outside lines (if so authorized), but designated to receive outside line calls, and three (3) levels of call forwarding to other enhanced staff phones or administrative phones. They shall also have the ability to be programmed to dial access any other stations telephonic device only.
    b. Level 5 capabilities of the Level 4 station plus dial any administrative or staff stations phone or loudspeaker and make conference calls or transfer calls.
    c. Capabilities of the Level 5 station plus single zone page and all zone page. All enhanced staff stations shall be able to initiate an emergency call by flashing the hook switch or utilizing a dedicated emergency-call switch. The emergency-call switch shall generate the pulses necessary to create an emergency call in. Emergency calls shall ring the designated day/night administrative station. If the emergency call is not answered within a pre-determined time period, the loudspeaker at the calling station will be connected to the emergency station. Telephones with dial pads in the classrooms shall have the ability to generate emergency calls in addition to their normal functions. Systems that do not allow for emergency call generation directly from a dial type telephone shall supply separate call switches to meet this function.

CC. Enhanced staff stations shall be able to make a normal call to any administrative telephone by dialing the number. Enhanced staff stations shall also be able to initiate an emergency call by flashing the hook switch. Emergency calls shall ring the designated day/night administrative station and then their speaker will be connected to the emergency station if not answered within a pre-determined time period.

DD. Administrative stations shall receive dial tone upon going off-hook. Outgoing calls are made by dialing the desired stations. Incoming calls can be directed to the telephone or to the associated loudspeaker for a hands-free reply. There shall be an automatic switchover from loudspeaker to private telephone communication should the person pick up his handset.

1. System functions are accessed by going off-hook and dialing "9". Further operations are menu assisted in all cases. All administrative telephones shall permit the following operations:

    a. Direct dial private two-way telephone communications with other administrative stations, enhanced staff stations, and handset stations. This shall not be limited by any station grouping and shall not occupy more than a single communication path.
    b. Direct dial two-way amplified voice communications with any station loudspeaker. This shall not be limited by any station grouping and shall not occupy more than a single communication path.
    c. Toggle reception of program material on/off at their speaker station by use of the telephone dial pad.

2. Administrative stations shall be equipped with a 4-line by 16 character alphanumeric display panel.

    a. The display shall normally show the time-of-day and day of week, the current time signaling schedule, and the numbers of up to four (4) stations calling in along with the call-in status of each station (normal, urgent, emergency). When dialing from the administrative phone, the display shall indicate the station number and type of station (loudspeaker or handset) being dialed.
    b. The display shall also provide user friendly menu selections to assist the operator when paging and distributing program material. Displays shall be in English with internationally recognized symbols for maximum ease of use. Systems that require the operator to memorize long lists of operating symbols or control codes shall not be acceptable.

3. Administrative stations shall be programmable for three (3) levels of system access, as follows:

    a. Level 7 shall permit dialing any station in the system, turn program material on/off at their location, scroll, erase and auto dial call waiting queue, make conference calls and transfer calls, call forward to other administrative stations, make all zone pages and emergency all zone pages, have access to outside lines and be designated to receive outside line calls.
    b. Level 8 capabilities same as Level 7 station plus select and distribute/cancel program material to and combination of stations, paging zones or all zones; set/reset alarm/external functions and zone page.
    c. Level 9 capabilities same as Level 8 station plus bump or join a conversation in progress, manually initiate time tones and have access to system and station programming functions (when accompanied by a valid password).

EE. Program selection and its distribution or cancellation shall be accomplished from a designated administrative telephone with the assistance of the menu display system. Distribution and cancellation shall be to any one, or combination of speakers or any zone(s) or all zones. Systems which rely on switchbanks to perform the above functions shall not be accepted as an equal.

FF. It shall be possible, via an administrative telephone, to manually initiate any of eight (8) tones. The tones shall be separate and distinctly different from the emergency tones. The tone selected shall continue to sound until it is canceled or until the administrative phone is placed back on-hook.

GG. Each administrative telephone shall maintain a unique queue of all stations calling that particular phone.

1. Program selection, distribution, or cancellation shall be accomplished from a designated administrative telephone, with the assistance of the menu display system.
2. Select shall be from any one of three (3) possible audio program inputs, or none.
3. Distribution and cancellation shall be to any one or combination of speakers or any zone(s) or all zones.
4. Upon selecting a program source, the selecting administrator's loudspeaker shall automatically activate and function as a monitor speaker. The loudspeaker shall remain active as long as the administrator is in the program selection/distribution/cancellation menu of the display.
5. It shall be possible to, at any time, select, redirect, or cancel the program distribution to any station, zone, or all locations.
6. Systems which require the office personnel to leave their workstation and go into the equipment cabinet simply to accomplish these functions shall not be acceptable.

    a. Systems which rely solely on switchbanks to perform the above functions shall not be accepted as an equal.

7. Upon picking up the receiver and dialing "9", a menu shall appear on the display prompting the user to enter each subsequent digit. In this way the user shall not be required to memorize complicated key sequences in order to access program distribution functions.

HH. System programming shall be from an administrative telephone with Level 9 access. All system programming data shall be stored in non-volatile memory. A valid password shall be required to gain access to the following programmable functions:

1. Set day and time.
2. Program time signaling events, time signaling schedules, and assign schedules to days of the week.
3. Program time signaling zones.
4. Program paging zones.
5. Manually change time signaling schedules.
6. Upon picking up the receiver and dialing "9", a menu shall appear on the display prompting the user to enter each subsequent digit. In this way, the user shall not be required to memorize complicated key sequences in order to access system programming functions.

II. System initialization shall be accomplished from an administrative telephone with Level 9 access. All system initialization data shall be stored in non-volatile memory. A password (separate from the password necessary for system programming) shall be required to gain access to the following system initialization parameters:

1. Bell duration for each time zone.
2. Queue time out.
3. Day start/night start time.
4. Designate emergency station.
5. System programming password.

6. Architectural dialing.
7. Privacy beep.
8. Pre-announce tone.

JJ. Station initialization shall be accomplished from an administrative phone with Level 9 access. All station initialization data shall be stored in non-volatile memory. A password (separate from the password necessary for system programming) shall be required to gain access to the following station initialization parameters:

1. Set station access level.
2. Set station architectural number.
3. Set day administrator.
4. Set night administrator.
5. Assign access to outside lines.
6. The system shall be capable of being interfaced with either an on-site or off-site computer for system configuration programming and system diagnostics. It shall be possible to change the baud rate of the system.

    a. Diagnostics shall also be built into the administrative telephones and accessible only by authorized personnel. Diagnostics shall indicate passes and failures of system memory, system clock, all audio busses, tone generators, DTMF generators and decoders, and the integrity of the field wiring.
    b. The diagnostics feature shall be completely menu driven. It shall be possible to individually select the test and card or all to run diagnostics on. This shall be a standard feature of the system and supplied at the time of installation. It shall be accessible only by authorized stations and personnel.

7. Systems not capable of supporting the computer interface for programming and diagnostics nor supportive of built-in diagnostics for the end user shall not be deemed as equal.

KK. The system shall provide the capacity to control remotely located telemedia video sources via any DTMF type telephone in the system. Telemedia video sources that may be controlled shall include any infrared controllable video cassette recorder, video laser disk, and cable television converter box. The telemedia control panel shall also have the ability to control infrared controllable; compact disk players, cassette players, AM/FM tuners, or any other infrared controllable source/device.

NOTE: Video sources, television, and a MATV system shall be provided, however, they are specified elsewhere.

1. There shall be LEDs mounted on the face panel of the telemedia control panel to indicate that a source has been reserved, power is applied to the telemedia control panel, the telemedia control panel is in the learn mode, or that there has been an error in the programming of the telemedia control panel.
2. The telemedia control panel shall have the ability to learn and reproduce the infrared commands of any source the user wishes to control. This ability shall not be limited to only VCRs and video laser disk players. As this feature will allow the user to alter or replace any source in the future without the worry of source control compatibility, it is essential that all telemedia control panels submitted include this capability. Those submissions, which include telemedia control devices that do not have the ability to learn source control commands will not be accepted as, equal to that which is specified.
3. The telemedia control panel shall be a microprocessor based self-contained unit capable of learning, storing, and then reproducing the infrared control commands of up

to four (4) different sources. The telemedia control panel shall be capable of learning, storing, and then reproducing up to twenty different commands for each of the four (4) different sources. The learned commands shall be stored in non-volatile memory.

4. It shall be possible to standardize the telephone button/feature assignment of all the different sources to be controlled, example: 1-play, 2-stop, 3-pause, 4-rewind, 5-fast forward, etc., for all of the sources. This way, in conjunction with the reconnect command, the user is not necessarily required to be aware of which source they are actually controlling.

    a. This standardized telephone button/feature assignment is crucial to the ease of operation of this system. All submittals shall indicate whether or not the button to feature assignment is a standard function of the system. If it is not a standard function of the system, the submittal shall indicate precisely how this function is to be accomplished. Failure to submit alternate button standardization shall be deemed as being in direct conflict with these specifications and, therefore, not equal to that which is specified.

5. The system shall be capable of supporting multiple telemedia control panels. It shall not be necessary for the telemedia control panel to be located in the central communications rack.
6. There shall be an administrative telephone with a plain English menu driven display located in the media center for use by the media center personnel. This station may have an associated loudspeaker. In addition to the media control features, this telephone shall support all other system feature and functions.
7. It shall be possible for the media personnel, from their administrative display telephone, to pre-assign any telemedia source to any station. A plain English menu prompting the media personnel through the various programming options shall aid this pre-assignment. Programming capabilities are review source/station assignment (if any), enter source/station assignment, delete source/station assignment, and exit.

    a. Once a source has been reserved for a station, all other staff stations are completely locked out the control of that source.
    b. After a telemedia source has been reserved for a specific station, that station shall need only to depress their "9" button twice to be (re)connected to their pre-assigned source, thus eliminating the need to remember the telemedia source station number.

8. Access to a specific telemedia source is achieved, using the classroom telephone, by dialing the extension number of the desired source or, if pre-assigned by the media personnel, simply by depressing the "9" button twice.
9. To (re)connect to the telemedia source, the user simply shall remove the telephone handset from its cradle and dial the reconnect code, "99". Systems that require the user to remember exactly which source they are to be using are too complicated and, therefore, in direct conflict with these specifications. Submittal of systems which do not offer the above specified reconnect command shall precisely indicate an alternate method of how the above specified reconnect command is to be accomplished.
10. Upon access of the telemedia source, the user shall receive a continual confirmation beep to indicate continued access and control of the source. Upon activation of a function, the user shall be sent a double pulse of the confirmation tone to indicate the command was recognized and processed. The user shall be capable of continuing to enter functions as long as they remain off-hook.
11. Once the telemedia source has been reserved or accessed, the user may connect and disconnect at their discretion. The user may hand up the telephone without releasing the telemedia source to other users. While the telephone is in the on-hook condition, no link within the system shall be occupied.

12. The telephone and/or speaker shall remain available for all normal station activities and communications while telemedia source reception is in process. Systems which require that a link be maintained throughout the duration of the sources use, or that restrict the use of any of the stations functions, shall not be deemed as equal.
13. Release of the telemedia source shall be accomplished by either the media personnel or the source/station user. It shall be possible to release the source from either location via telephone or manually from the media center.
14. A telemedia source control panel shall be located in the media center to accept direct commands from the classroom telephones and convert them into source control commands. The interface between the telemedia control panel to any of the sources shall not require any modification to the source or the telemedia control panel as this would void any warranty.
15. The telemedia control panel shall be a "smart" device, in that it shall be capable of learning the control commands of any infrared controllable source. Those systems which rely on "universal" or pre-programmed type remote controls are limited to their library of controllable sources and quickly become obsolete.

    a. It is absolutely imperative that the end user maintain the ability to change, replace, or upgrade their sources without having to upgrade or change any other equipment.
    b. All submittals shall indicate if their submitted telemedia control panel is capable of learning infrared control commands. If it is not capable, the submission shall precisely indicate an alternate method of achieving the same result without subjecting the end user to future expenses beyond simple source changes.

16. There shall be a computer and associated software supplied to support a video clock and scrolling message center. These images are to be distributed facility wide via an unused channel on the MATV system.
17. The clock image shall be user selected analog or digital, displaying the time; hour, minute, seconds, and the date. The image shall inconspicuously move about the television screen. The user shall have the ability, via pull up menus on the computer, to alter the colors of the foreground and the background displays of the clock and scrolling message.

    a. The computer/clock image shall be corrected and synchronized continually by the program clock of the head-end communications system to assure that the time display and the distribution of time tone are synchronized. Systems failing to synchronize the video clock with the facility time signaling schedule shall not be accepted as equal.

18. A message center shall be provided to display, in scrolling fashion, one line messages beneath the video clock. It shall be possible to scroll the video messages from left to right, right to left, top to bottom, bottom to top, and from the center to the left and right. The user shall have the ability, via pull-up menus on the computer, to alter the scroll mode.
19. The user shall have the ability to create, delete, edit, and schedule multiple message files with as many messages as they chose in each file. It shall then be possible to schedule the precise time at which each file is to be displayed. There shall be no limit to the number of message files created, nor the number of messages in each file. The user shall have the ability, via pull-up menus on the computer, to create, delete, edit, and schedule the messages and the message files.
20. Creating, deleting, editing, and scheduling a message file shall not require the user to interrupt the active message file distribution. The system shall allow the active message file to be deleted, edited, and scheduled while remaining on-line, thus without interruption or indication of alteration to the viewers.

21. The user shall have the ability to change the scroll rate of the messages being displayed by the message center. This shall be adjustable from one second to ninety nine seconds. The user shall have the ability, via pull-up menus on the computer, to alter the scroll rate of the message center message.
22. A video bulletin board shall be provided to display, facility wide, and bulletin board type messages. These bulletins shall utilize the entire television screen. The software for this video bulletin board system shall support unlimited bulletins and bulletin files.
23. The user shall have the ability to create, delete, edit, and schedule multiple bulletin board files with as many bulletins as they chose in each file. It shall then be possible to schedule the precise time at which each file is to be displayed. There shall be no limit to the number of bulletin board files created, or the number of bulletins in each file. The user shall have the ability, via pull-up menus on the computer, to create, delete, edit, and schedule the bulletins and the bulletin board files.
24. Creating, deleting, editing, and scheduling a bulletin board file shall not require the user to interrupt the active bulletin board distribution. The system shall allow the active bulleting board file to be deleted, edited, and scheduled while remaining on line, thus without interruption or indication of alteration to the viewers.
25. The user shall have the ability to change the scroll rate of the bulletin board being displayed by the electronic bulletin board. This shall be adjustable from five seconds to ninety nine seconds. The user shall have the ability, via pull-up menus on the computer, to alter the scroll rate of the bulletin board.
26. When both the video clock/message center and the video bulletin board are supplied, they shall both be run simultaneously from a single IBM or compatible computer. Both the video clock/message center and the video bulletin board shall be displayed simultaneously on a single computer video monitor.

LL. The contractor shall make available and maintain a satisfactory service department capable of furnishing equipment inspection and service.

MM. The contractor shall be prepared to offer a service contract beyond the warranty period.

NN. The contractor shall instruct personnel designated by the Owner in the proper use, basic care, and maintenance of equipment. Such training shall be provided as an integral component of the system.

OO. The contractor shall warrant the system to be new and free of defects in material and workmanship and will, within one (1) year from the date of installation, repair or replace any equipment found to be defective. This warranty shall not apply to any equipment that has been subject to misuse, abuse, negligence, and accident or unauthorized modification.

2.2 PRODUCTS

A. To fulfill the requirements, the following control equipment shall be provided:

1. Accessory Equipment: As required.

    a. Classroom speakers shall be Bogen Model S86T725.
    b. Surface units shall be Lowell PC-712 and MC-712. Quantity as required.
    c. Outside speakers shall be Soundolier APF15T with Lowell P875-x-5. Backboxes and SQLK-APF grille.
    d. Classroom wall clocks shall be Bogen Model BCAM-1BS-12R-4, 12" round, 24 volt or equal.
    e. Grill at speaker/clock combination unit: Lowell SCB-700.
    f. Clock Power Supply: Bogen BC35-M030 Buck-Boost. 75 KVA.

2.3 TERMINAL BLOCKS

A. All conductors in all terminal cabinets, equipment racks, etc. shall be terminated on Siemens 66M1-50 punch blocks or approved equal.

2.4 WIRING CABLES

A. Classroom and staff room phones Category 5 home run.

B. Speaker to P.A. console West Penn #291.

C. Outdoor speakers West Penn #291.

D. Speaker Multi-Conductor Cables: West Penn #425, 15 pair individual shield per pair. Quantity per wing as required.

E. ICM telephone cable, Category 5 gel filled U.G. rated cable home run from telephone location back to MDF.

F. Provide one (1) West Penn #236 from IDF to clock strings.

G. Provide three (3) #12 THWN stranded wires from MDF to IDF locations, colored black, white, and red.

PART 3 - EXECUTION

3.1 SCOPE

A. While all work included under this specification is the complete responsibility of the contractor, the division of actual work, listed following, shall occur.

B. The conduit, outlets, terminal cabinets, etc., which form part of the rough-in work, shall be furnished and installed completely by the electrical contractor. The manufacturer's authorized representative shall perform the balance of the system, including installation of speakers and equipment, making all connections, etc. The entire responsibility of the system, its operation, function, testing, and complete maintenance for one (1) year after final acceptance of the project by the Owner, shall also be the responsibility of the manufacturer's authorized representative.

3.2 INSTALLATION

A. Plug Disconnect: All major equipment components shall be fully pluggable by means of multi-pin receptacles and matching plugs to provide for ease of maintenance and service.

B. Protection of Cables: Cables within terminal cabinets, equipment racks, etc., shall be grouped and bundled (harnessed) as to type and laced with No. 12 cord waxed linen lacing twine or T&B "Ty-Rap" cable. Edge protection material ("cat-track") shall be installed on edges of holes, lips of ducts, or any other point where cables or harnesses cross metallic edge.

C. Cable Identification: Cable conductors shall be color-coded and individual cables shall be individually identified. Each cable identification shall be a unique number located approximately 1-1/2" from cable connection at both ends of cable. Numbers shall be approximately 1/4" in height. These unique numbers shall appear on the as-built drawings.

D. Shielding: Cable shielding shall be connected to common ground at point of lowest audio level and shall be free from ground at any other point. Cable shields shall be terminated in same manner as conductors.

E. Provide complete "in service" instructions of system operation to school personnel. Assist in programming of telephone system.

3.3 PERFORMANCE OF WORK

A. Do all work and provide all materials in full conformance with reviewed and approved shop drawings.

B. Use workers normally engaged in this line of work.

C. Secure non-portable equipment, including loudspeakers, shelves, cables, and other apparatus.

1. Take such precautions as necessary to guard against electromagnetic and electrostatic interference, to supply adequate ventilation, and to install equipment to provide maximum safety to operating personnel.
2. Exercise care in wiring to avoid damage to cables and equipment. Make joints and connections using rosin-core solder or approved mechanical connectors. Installed wiring in accordance with standard broadcast practices.
3. Submit certificate of completion by equipment manufacturer's representative to assure that system has passed required tests and is in proper operating condition and manufacturer's warranties and guarantees are in effect without limitations.

D. Route wiring continuous between devices without splices.

E. Support cable using bridle rings or J-hooks. Attach bridle rings to rod using spring clips above suspended ceilings.

F. Do not attach cable to ceiling wires, ceiling supports, conduits, ducts, or piping.

G. Provide cable support at minimum 6 foot intervals.

H. Support cable using J-hooks above accessible ceiling area.

I. Use cable suitable for purpose above suspended ceiling spaces.

J. Use plenum rated cable spaces used for environmental air.

K. Install cable in conduit or in surface-mounted metallic raceway above inaccessible ceiling spaces, in walls, and exposed wiring locations.

L. Install insulated throat fittings on conduit stub-outs for cable protection.

M. Provide conduit sleeves in J-hook path through all rated walls or construction components of the same size and quantity as the J-hooks being extended. Fire proof around conduit sleeves and around cables within sleeves per Division 7.

N. Provide nameplates and cable tags.

3.4 SYSTEM VERIFICATION

A. Inspection of Sound System: Perform following inspections on clock and sound system and submit written results. Five (5) days before testing, notify Owner and Owner's representative.

1. Measure and record impedance of loudspeaker lines before connecting to amplifier. The load impedance shall be equal to or greater than rated output impedance of the amplifier.
2. Measure and record acoustic distribution of loudspeakers in paging system throughout the areas.
3. After amplifiers have been installed in rack, measure and record, with oscilloscope, output of each power amplifier on a dummy load. Input source to each amplifier being measured shall be sinewave oscillator with less than 0.5 percent THD. Inspect output sinewave appearing on oscilloscope for complete freedom from hum, noise, parasitic oscillation, and RF interference.
4. Provide written test results to architect for acceptance.

3.5 SYSTEM GUARANTEE

A. Refer to Division 1 Section “Operation and Maintenance Data”.

3.6 OWNER OPERATION AND MAINTENANCE MANUALS

A. Provide two (2) sets of bound operation and maintenance manuals, including submittal materials, and record of field changes.

3.7 COMMISSIONING

A. Commission system in full conformance to the manufacturer's written instructions. Owner's designated representative shall witness commissioning.

END OF SECTION

SECTION 27 51 17

ASSISTIVE LISTENING SYSTEM
(Portable)

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Materials, equipment, fabrication, installation and tests a portable Assistive Listening System. Refer to plans for room locations indicated by ALS signage.

1.2 RELATED WORK

A. Division 26 Section “Electrical General Requirement”.

1.3 SUBMITTALS

A. Provide submittals for materials and equipment in accordance with 01 33 00 Submittal requirements.
   1. Assistive listening system equipment and components.

PART 2 - PRODUCTS

2.1 ASSISTIVE LISTENING SYSTEM

A. Provide a portable assistive listening system for use at area listed below including wireless transmitters, microphoness, receivers, headphones, associated hardwires and connection to the local sound system. **Gentner, Listen or equal**.

B. One (1) wireless FM transmitter with digital tuning and lapel microphone, one for each identified area. Provide 2-AA Duracell or equal batteries for transmitter.

C. Provide min two (2) FM receivers as required by Code, equal to 4% of the area occupancy, single channel, wrist strap and adjustable headphones. Provide 2-AA Duracell or equal batteries per each receiver.

D. One (1) ALS sign at each identified area noted on the plans.

E. Provide a “pelican” type portable case large enough to contain and organize all materilas and equipment with closed cell foam material to securely hold and protect all contents in place. Provide and attach engraved pheolic label “Assistive Listening System” label with lettering not smaller than ¾” in height and mechanically fastened to the exterior of the case. Provide a laminted system operation instruction and a list of system contents contained in the case. Case color to be yellow or orange.

PART 3 - EXECUTION

3.1 INSTALLATION, TESTING, AND TRAINING

A. Test the transmitter and each receiver for proper operation. Store the transmitter and receiver in the original packages and store at a site location determined by the District.

B. Provide a training seminar of minimum one hour duration to instruct school personnel in the operation of the system. Provide three copies of the Owner's Manual with individual catalog and specification sheets, and maintenance instructions at this time.

3.2 WARRANTY

A. Provide documentation of the manufacturer's standard warranty of the equipment.

END OF SECTION

SECTION 28 31 00

FIRE ALARM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

A. This section shall include guidelines for the furnishing of all labor, equipment, materials, and performance of all operations associated with the installation of the fire alarm and smoke detection system as indicated in Drawings and specified herein.

B. The intent of drawings and specifications is to result in a complete functional fire alarm and smoke detection system as described herein.

C. The complete installation shall conform to the applicable sections of NFPA 72, NFPA 71, local code requirements, and the California Electrical Code with particular attention to Article 760.

D. The work covered by this section of the specifications shall be coordinated with the related work as specified elsewhere under project specifications.

E. Existing system is Gamewell IF 602 located at Admin office.

1.3 RELATED SECTIONS

A. Division 26 Section “Electrical General Requirements”.

B. Division 26 Section “Conductors and Cables”.

1.4 QUALITY ASSURANCE

A. Each and all components of the fire alarm system shall be listed as a product of a single fire alarm system manufacturer under the appropriate category by Underwriters' Laboratories, Inc. (UL), and shall bear the "UL" label. All control equipment shall be listed under UL category UOJZ as a single control unit. Partial listing shall not be acceptable.

B. All control equipment shall have transient protection to comply with UL 864.

C. Where fire alarm circuits leave the building, additional transient protection shall be provided for each circuit.

D. Devices shall be UL listed under Standard #497B.

E. System control shall be UL listed for Power Limited Applications and all circuits shall be marked in accordance with NEC Article 760-23.

1.5 FIRE ALARM SYSTEM

A. System as indicated on drawings and specified herein has been pre-approved by the Division of the State Architect.

1.6 GENERAL SYSTEM DESCRIPTION

A. System Requirements

B. The contractor shall furnish and install a complete fire alarm and smoke detection system as described herein and drawn.

C. The contractor shall wire, connect, and make operational each and all components of the system.

D. The system shall include:

1. Sufficient fire alarm control panels (FACPs).
2. Annunciators.
3. Manual stations.
4. Automatic fire detectors.
5. Smoke detectors.
6. Duct detectors.
7. Alarm indicating appliances.
8. Miscellaneous components.
9. Wiring.
10. Terminations.
11. Raceway system.
12. All other necessary material for a complete operating system.

E. The system shall meet all national and local codes.

1.7 FIRE ALARM SYSTEM SUPPLIER

A. The fire alarm system shall be furnished and installed by:
Sound and Signal, Inc.
290 Rickenbacker Circle
Livermore, CA 94550

B. The fire alarm shall be supplied by a distributor authorized by the fire alarm system manufacturer. The supplier's personnel shall be factory trained.

C. The fire alarm system supplier shall provide point to point wiring diagrams and equipment data sheets for submittal to the local authority. Where required, the fire alarm system supplier shall obtain all permits required for the installation of the system from the local authority.

1.8 SYSTEM MANUFACTURER

A. The system and components shall be supplied by one (1) manufacturer who shall have produced similar systems for a period of at least three (3) years.

B. The manufacturer shall be able to refer to similar installations rendering satisfactory service.

1.9 SYSTEM SOFTWARE

A. The system shall be capable of self-programming upon initialization.

B. The system shall be capable of on-site programming to accommodate system expansion and facilitate changes in operation.

C. All software operations shall be stored in a non-volatile programmable memory within the FACP.

D. Loss of primary and secondary power shall not erase the instructions stored in memory.

E. System programming shall be password protected and shall include full upload and download capability.

F. The system shall feature flexibility for selective input/output control functions based on ANDing, ORing; NOTing, timing, and special coded operations shall also be incorporated in the resident software programming of the system.

G. Resident software shall allow for full configuration of initiating circuits. The system shall require no additional hardware to change from sensing normally open contact devices to sensing normally closed contacted devices or vice versa. Nor shall the system require additional hardware to change from sensing normally open contact devices to sensing and distinguishing between a combination of current limited and non-current limited devices on the same circuit. Nor shall the system require additional hardware for changing from a non-verification circuit to a verification circuit or vice-versa.

H. There shall be no limit, other than maximum system capacity, to the number of intelligent/analog devices which may be in alarm simultaneously.

I. The system shall have the capability of recalling alarm and trouble conditions in chronological order for the purpose of recreating an event history.

1.10 SUBMITTALS

A. Shop Drawings: Include sufficient information, clearly presented, to determine compliance with drawings and specifications.

1. Include manufacturer's name, model numbers, California State Fire Marshal's listing numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
2. Show remote annunciator layout, configurations, and terminations.

B. Certifications: Submit certification from major equipment manufacturer that proposed installer of installation and proposed performer of maintenance are authorized representatives of the manufacturer. Include names and address in certification.

1.11 OPERATION AND MAINTENANCE DATA

A. Submit complete operating and maintenance manual listing manufacturer's name and including technical data sheets along with as-built shop drawings.

B. Wiring diagrams shall indicate internal wiring for each item of equipment and the interconnections between items of equipment.

C. Provide clear and concise description of operation that gives detailed information required to properly operate equipment and system.

1.12 QUALITY ASSURANCE

A. System shall have listing and/or approval for the following :

1. Underwriters' Laboratories, Inc.
2. California State Fire Marshal.

1.13 QUALIFICATIONS

A. Manufacture: Company specializing in the manufacture of fire alarm systems with minimum five (5) years documented experience, whose installations have rendered satisfactory service for minimum two (2) years, and who shall provide factory trained technical support.

B. Installer: Company specializing in the installation of fire alarm systems with minimum two (2) years documented experience and meeting the following criteria:

1. NICET Level 2 or greater.
2. Located within 60 mile radius of project site.
3. Authorized dealer of specified manufacturer employing factory trained personnel.
4. All parts of system stocked within offices.
5. Capable of providing service response within 24 hours or less.

C. Criminal Background Investigation Certification:

1. Contractor must comply with the fingerprinting and criminal background investigation requirements of California Education Code Section 45125.1 with respect to all contractor's employees who may have contact with District pupils in the course of providing services pursuant to the contract, and that the California Department of Justice has determined that none of those employees has been convicted of a felony, as that term is defined in Education Codes Section 45122.1.
2. A complete and accurate list of contractor's employees who may come in contact with District pupils during the course and scope of the contract must be provided to the District prior to contractor working on project.

1.14 REGULATORY REQUIREMENTS

A. The specifications and standards listed below form a part of this specification. The system shall fully comply with these standards.

B. Applicable codes:

2016 Building Standards' Administrative Code, Part 1, Title 24, C.C.R.

2016 California Building Code (CBC), Part 2, Title 24, C.C.R.
(2015 International Building Code and 2013 California Amendments)

2016 California Electrical Code (CEC), Part 3, Title 24, C.C.R.
(2014 National Electrical Code and 2013 California Amendments)

2016 California Mechanical Code (CMC), Part 4, Title 24, C.C.R.
(2015 Uniform Mechanical Code and 2013 California Amendments)

2016 California Plumbing Code (CPC), Part 5, Title 24, C.C.R.
(2015 Uniform Plumbing Code and 2013 California Amendments)

2016 California Energy Code, Part 6, Title 24, C.C.R.

2016 California Fire Code, Part 9, Title 24, C.C.R.
(2015 International Fire Code and 2016 California Amendments)

Title 19 C.C.R. Public Safety, State Fire Marshal Regulations.

Partial list of applicable standards:

NFPA 13	Automatic Sprinkler Systems	2016 Edition
NFPA 14	Standpipe Systems (CA Amended)	2013 Edition
NFPA 17a	Wet Chemical Systems	2013 Edition
NFPA 24	Private Fire Mains (CA Amended)	2016 Edition
NFPA 72	National Fire Alarm Code (CA Amended)	2016 Edition

Reference code section for NFPA Standards, 2016 CBC (SFM) Chapter 35.

C. Underwriters' Laboratories, Inc. (UL) - USA.

D. Local and State Building Codes.

E. All requirements of the Authority Having Jurisdiction (AHJ).

1.15 PROJECT/SITE CONDITIONS

A. Detectors must be protected from dust due to construction.

1. Detectors installed and not protected from dust shall be removed and replaced at contractors expense.
2. Detectors subjected to construction debris will not be accepted.

B. Mounting devices on walls prior to final painting is not acceptable.

1.16 WARRANTY

A. Fire alarm panel shall have a five (5) year manufacturer's warranty from date of system acceptance.

B. Signaling devices shall have a two (2) year manufacturer's warranty from date of system acceptance.

C. Installation labor shall have a two (2) year warranty on all fire alarm equipment.

D. Warranties shall not begin until the fire alarm system has been completely tested and inspected by the authority having jurisdiction and the fire alarm system accepted by the school district.

E. The full cost of maintenance, labor, and materials that is required to correct any defect during the warranty period shall be included.

F. System inspections per NFPA-72 2013 shall be included for the two (2) year warranty period.

1.17 OWNER'S INSTRUCTIONS AND TRAINING

A. Installing contractor shall provide training on fire alarm system by factory-trained personnel.

1. Provide as a minimum two (2) on-site training sessions for school staff.

2. Provide as a minimum one (1) on-site training session for school district maintenance personnel.

B. Training sessions shall provide:

1. Instruction for operating the fire alarm system.
2. "Hands-on" demonstrations of the operation of all system components.
3. Instruct District maintenance personnel the process of changing program and functions.

C. Provide typewritten Sequence of Operation to school district and school staff.

D. Permanently attach laminated Sequence of Operation for fire alarm panel on wall next to fire alarm panel.

1.18 MAINTENANCE

A. Maintenance and testing shall be per NFPA-72 or as required by the authority having jurisdiction.

B. A preventive maintenance schedule shall be provided by the fire alarm contractor. The schedule shall include:

1. Systematic examination, adjustment and cleaning of all detectors, manual fire alarm stations, control panels, power supplies, relays, water flow switches, and all accessories of the fire alarm system.
2. Each circuit in the fire alarm system shall be tested minimum of semi-annually.
3. Each smoke detector shall be tested in accordance with the requirements of NFPA-72.

PART 2 - MATERIALS

2.1 CONDUIT, WIRE AND BOXES

A. Conduit:

1. Conduit shall be in accordance with The National Electrical Code (NEC), local and state requirements.
2. All wiring shall be installed in conduit or raceway in non-accessible area. Conduit fill shall not exceed 40 percent or interior cross sectional area where three or more cables are contained within a single conduit. Conduit shall be ¾" minimum.
3. Cable must be separated from any open conductors of power, or Class 1 circuits, and shall not be placed in any conduit, junction box, or raceway containing these conductors, as per NEC Article 760-29.
4. Wiring for 24 volt control, alarm notification, emergency communication and similar power limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.
5. Conduit shall not enter the fire alarm control panel, or any other remotely mounted control panel equipment or back boxes, except where conduit entry is specified by the FACP manufacturer.
6. Fire rated open cables shall be installed above accessible ceiling space, J-hooks shall be provided for cable support. No staples shall be allowed.

B. Wire:

1. All fire alarm system wiring shall be new.
2. Wiring shall be in accordance with local, state, and national codes (e.g., NEC Article 760) and as recommended by the manufacturer of the fire alarm system. Number and size of conductors shall be as recommended by the fire alarm system manufacturer, but not less than 14 AWG (stranded) for initiating device circuits and signaling line circuits, and 12 AWG (stranded) for notification appliance circuits.
3. All wire and cable shall be listed and/or approved by a recognized testing agency for use with a protective signaling system.
4. Wire and cable not installed in conduit shall have a fire resistance rating suitable for the installation as indicated in NFPA 70 (e.g., FPLR). Wires shall be supported by J-hooks. No staples shall be allowed.
5. Wiring used for the multiplex communication loop shall be twisted pair and a data grade cable meeting FPL ratings. Cable is to be that which is recommended by the fire alarm equipment manufacturer. The system shall permit use of IDC and NAC wiring in the same conduit with the communication loop.

C. Terminal Boxes, Junction Boxes, and Cabinets:

1. All boxes and cabinets shall be UL listed for their use and purpose. All boxes shall be painted red.
2. Notification circuits shall be arranged to serve like categories (manual, smoke, and water flow). Mixed category circuitry shall not be permitted except on signaling line circuits connected to addressable reporting devices.
3. The fire alarm control panel shall be connected to a separate dedicated branch circuit, maximum 20 amperes. This circuit shall be labeled at the main power distribution panel as FIRE ALARM. Fire alarm control panel primary power wiring shall be 12 AWG. The control panel cabinet shall be grounded securely to either a cold water pipe or grounding rod.
4. Provide back boxes as listed below:
   a. Flush strobe, Horn/Strobes: 4" square box flush to finished wall.
   b. Exterior horns: Wheelock WBBR supplied by Sound and Signal and installed by electrical contractor.
   c. Smoke detectors/heat detectors: 4"sqaure box with 3 "O" ring.
   d. Pull stations: 4" square box with single gang ring flush to finished wall.
   e. Surface strobe, horn/strobe: Wheelock ESB-R supplied by Sound and Signal and installed by electrical contractor.

2.2 OPERATION

A. Alarm Operation:

1. The actuation of any approved alarm initiating device shall automatically initiate the following operations where furnished as part of the system.
2. All audible alarm indicating appliances within corresponding building shall sound a fire alarm signal until the system acknowledge key or the signal silence key is depressed. The alarm must sound five (5) minutes before it can be silenced.
3. All visible alarm indicating appliances shall flash continuously until the system acknowledge key or the signal silence key is depressed.
4. The off-site central monitoring station shall be notified automatically until the system acknowledge key or the signal silence key is depressed.
5. Shutdown of the corresponding HVAC system equipment shall occur until the system acknowledge key or the signal silence key is depressed.
6. Activation of all programmed outputs assigned to the initiating device shall occur until the system acknowledge key or the signal silence key is depressed.
7. Any subsequent zone alarm shall reactivate the alarm indicating appliances.

2.3 ALARM VERIFICATION

A. The activation of any system smoke detector or sensor shall initiate an alarm verification operation whereby the panel will reset the activated detector and wait for a second alarm activation.

B. The alarm verification shall operate only on smoke detector alarms. Other activated initiating devices shall be processed immediately.

D. The alarm verification operation shall be selectable by zone.

2.4 ALARM INDICATION

A. The alarm shall be displayed on a 160 character (4x40) LCD display on the local fire alarm control panel, and where applicable, the remote annunciator. The top line of 40 characters shall be the point label and the second line shall be the device type identifier.

B. The system alarm LED shall flash on the control panel and the remote annunciator until the alarm has been acknowledged. Once acknowledged, this same LED shall latch on.

C. A subsequent alarm received from another zone shall flash the system alarm LED on the control panel and remote annunciator. The LCD display shall indicate the new alarm information.

D. A pulsing alarm tone shall occur within the local building control panel and, where applicable, the remote annunciator until the event has been acknowledged.

E. A manual evacuation (drill) switch shall be provided to operate the alarm indicating appliances without causing other control circuits to be activated. However, should a true alarm occur, all alarm functions would occur as described previously.

F. The system shall have a single key that will allow the operator to display all alarms, troubles, and supervisory service conditions including the time of each occurrence.

G. Any momentary opening of an initiating or indicating appliance circuit wiring shall cause an audible signal to sound at the building fire alarm panel and, where applicable, the remote annunciator for four (4) seconds indicating a trouble condition.

2.5 ALARM WALK TEST

A. The actuation of the "enable walk test" program at the control panel shall activate the "Walk Test" mode of the system, which shall initiate the following events:

1. The off-site central monitoring station connection shall be bypassed.
2. Control relay functions shall be bypassed.
3. Walk test shall be selectable by circuit.
4. Alarms received on normal circuits shall cause the control panel to go into alarm and override the walk test mode.
5. The control panel shall show a trouble condition.
6. The alarm activation of any initiation device shall cause the audible signals to activate for two (2) seconds.
7. The panel shall automatically reset itself after signaling is complete.
8. The control panel shall automatically return to normal condition if there is no activity on a walk test circuit for a period of 30 minutes.

2.6 SUPERVISION

A. The system shall contain Class "A" or "B" independently supervised initiating device circuits. The alarm activation of any initiation circuit shall not prevent the subsequent alarm operation of any other initiation circuit.

B. Each independently supervised circuit shall include a discrete LED readout to indicate disarrangement conditions per circuit.

C. The incoming power to the system shall be supervised so that any power failure must be audible and visually indicated at the control panel and the remote annunciator. A green "power on" LED shall be displayed continuously while incoming power is present.

D. The system batteries shall be supervised so that a low battery condition or disconnection of the battery shall be audibly and visually indicated at the control panel and the remote annunciator.

E. The system shall have provisions for disabling and enabling all circuits individually for maintenance or testing purposes.

2.7 POWER REQUIREMENTS

A. Each control panel or console shall receive 120V AC power (as noted on the plans) via a dedicated circuit.

2.8 PRODUCTS

A. Fire Alarm Control Panel: Gamewell IF602.

1. Panel Function:

a. The fire alarm control panel shall provide power, annunciation, supervision, and control for the detection and alarm system, as well as alarm signaling to alert occupants of a fire or other emergency situations.
b. Control panel construction shall be modular with solid state microprocessor based electronics.
c. Operation shall be guided via LEDs to simplify operation under any condition.

2. Local Audible Device:

a. A local audible device shall sound during alarm, trouble, or supervisory conditions.
b. This audible device shall sound differently during each condition to distinguish one condition from another without having to view the panel.
c. This audible device also shall sound during each "key-press" to provide an audible feedback to ensure that the key has been pressed properly.

3. Primary Controls:

a. The following primary controls shall be visible through a front access panel:

(1) 160 character liquid crystal display.
(2) Individual red system alarm LED.
(3) Individual red pre-alarm LED.
(4) Individual yellow supervisory service LED.
(5) Individual yellow trouble LED.

(6) Individual yellow security LED.
(7) Green "power on" LED.
(8) Alarm acknowledge touch switch.
(9) Supervisory acknowledge touch switch.
(10) Trouble acknowledge touch switch.
(11) Alarm silence touch switch.
(12) Reset touch switch.
(13) Manual evacuation (drill).

4. Interface Function:

a. The control panel interface shall provide the following:

(1) Setting of time and date.
(2) LED testing.
(3) Alarm, trouble, and abnormal condition listing.
(4) Enabling and disabling of each monitor point separately.
(5) Activation and deactivation of each control point separately.
(6) Changing operator access levels.
(7) Walk test enable.
(8) Running diagnostic functions.
(9) Displaying software revision level.
(10) Displaying historical logs.
(11) Displaying card status.
(12) Point listing.

5. Point Lists Menu:

a. For maintenance purposes, the following lists shall be available from the point lists menu:

(1) All points list by address.
(2) Monitor point list.
(3) Signal/speaker list.
(4) Auxiliary control list.
(5) Feedback point list.
(6) Utility point list.
(7) LED/switch status list.

6. Menu Lists:

a. Scrolling through the menu options or lists shall be accomplished in a self-directing manner in which prompting messages shall direct the user.
b. Menu lists shall be password protected.
c. 'Acknowledgment for each abnormal condition shall be provided in accordance with NFPA 72 requirements.

7. Condition Display Order:

a. The system shall display the first unacknowledged condition.

8. Acknowledge Password Protection:

a. Acknowledge functions shall feature password protection if the user has insufficient privilege to acknowledge such conditions.

b. A message shall indicate insufficient privilege but shall allow the user to view the points without acknowledging them.
c. Should the user have sufficient privilege to acknowledge, a message will be displayed informing the user that the condition has been acknowledged.

9. Acknowledgment:

a. After all points have been acknowledged, the LEDs shall glow without blinking and the audible signal shall be silenced.
b. The total number of alarms supervisory and trouble conditions shall be displayed along with a prompt to review each list chronologically. The end of the list shall be clearly defined.

10. Alarm Silencing:

a. When the "Alarm Silence" button is pressed, all alarm signals shall cease operation, except during alarm silence inhibit mode.
b. It shall be possible to selectively program signal circuits as non-silenceable.

11. System Reset:

a. The system reset button shall be used to return the system to its normal state after an alarm condition has been remedied.
b. The LCD display shall step the user through the reset process with simple English language messages including a final message indicating the system has been returned to the normal condition.

12. Function Keys:

a. Additional function touch switches shall be provided to access status data for the following points:

(1) Initiating device circuits.
(2) Indicating appliance circuits.
(3) Auxiliary relays.
(4) Feedback points.
(5) All other input/output points.

13. Available Status Data:

a. The following status data shall be available:

(1) Primary state of point.
(2) Zone, point address and card type information.
(3) Circuit status.
(4) Current priority of outputs.
(5) Disable/enable status.
(6) Automatic/manual control status of output points (Hand-Off/Auto switches).
(7) Relay status.

14. Utility Points:

a. Each control panel shall have dedicated utility point supervisory and acknowledge buttons. Activation of a utility point shall activate the system supervisory service audible signal and illuminate the appropriate utility point LED

on the control panel, at the master control console, and at the guard shack network control panel.

b. Pressing the appropriate acknowledge button shall silence the audible alarm, while maintaining the LED "ON" indicating the OFF-normal condition.

c. Restoring the condition to its normal position, or locally resetting the acknowledge switch shall extinguish the LED, indicating normal conditions.

15. Alarm History Log:

a. The system shall be capable of logging and storing up to 1,000 events in the History Log. These events shall be stored in a battery protected random access memory. Each recorded event shall include the time and date of that event's occurrence.

b. The following alarm history events shall be stored:

(1) Alarms.
(2) Alarm acknowledgment.
(3) Alarm silence.
(4) System reset.
(5) Alarm historical log cleared.

16. Trouble History Log:

a. The following Trouble History events shall be stored:

(1) Trouble conditions.
(2) Supervisory alarms.
(3) Trouble acknowledgment.
(4) Supervisory acknowledgment.
(5) Walk test results.
(6) Trouble Historical Log cleared.

17. Access Levels:

a. There shall be four (4) access levels with level 4 being the most secure level.

b. Level 1 actions shall not require a passcode.

c. Passcodes shall be numerical and shall consist of up to six (6) digits. Changes to passcodes shall be made only by authorized personnel.

18. Printer/CRT Interface Card:

a. The control panel shall include an output port (RS-232) capable of operating remote CRTs and/or printers from a central processing unit.

19. Remote Station Interface:

a. A digital alarm communicator transmitter, remote station transmitter, or municipal tie shall provide interface with a remote control station for monitoring alarm and trouble conditions. Communication to central station shall be by way of two (2) supervised telephone lines.

20. Addressable Interface Module:

a. The system must provide communication with initiating and control devices individually. All of these devices will be individually annunciated at the control panel. Annunciation shall include the following conditions for each point:

(1) Alarm.
(2) Trouble.
(3) Open.
(4) Short.
(5) Device missing/failed.

21. All Addressable Devices:

a. All addressable devices shall have the capability of being disabled or enabled individually.
b. Up to 126 addressable devices may be multi-dropped from a single pair of wires. Systems that require factory re-programming to add or delete devices are unacceptable.
c. The communication format must allow T-tapping of the circuit wiring.

22. Alarm Signaling:

a. The fire alarm control panel shall provide sufficient power and signal circuit capability to meet the requirements of the plans and specifications and to comply with ADA (Americans with Disabilities Act) requirements.
b. The fire alarm control panel and power supplies shall be designed to accommodate all signaling circuits and 20% spare capacity.
c. The fire alarm control panel shall allow for field programming operation of the signal circuits (i.e. march time, zone coded, zone-signal linking, etc.). This capability shall be included in the system firmware with no additional cost to the Owner.

23. Annunciator Panel:

a. The fire alarm control panel shall provide an LCD annunciator where drawings indicate remote area annunciation of the corresponding fire alarm signals.
b. The annunciator shall indicate alarm, supervisory and trouble conditions by dedicated LEDs and an audible signal.
c. The annunciator shall feature an acknowledge button which, when depressed, shall silence the audible signal.
d. A 160 character LCD display shall provide the same message as displayed on the corresponding fire alarm control panel. The annunciator panel shall be capable of alarm silence and system reset functions.
e. The annunciator shall be panel mounted with controls visible through a front access panel and operable only by activating an enable key switch.
f. The annunciator panel shall be Gamewell SAN or approved equal.

24. Cabinets and Consoles:

a. The fire alarm control panel and annunciator cabinets shall be sized to accommodate all components and modules specified and required for a complete system.
b. Additional space for future expansion shall be provided in the cabinet including, as a minimum, space for:

(1) Two (2) addressable interface modules.
(2) Conventional interface modules (CIM-4 or CIM-8)
(3) Building control modules (BC-4 or BC-8).
(4) Relay modules (RM-4 or RM-8).
(5) Universal signaling modules (USM-4 or USM-8).

(6) System will have space for auxiliary power supply (APS-8) as required to provide 8 amps @ 24V DC for additional signal circuits and other functions.
(7) Cabinets shall be capable of surface or flush mounting as indicated.
(8) Sheet steel cabinets shall be completely primed and finish painted.
(9) The control consoles shall accommodate, in one section, power supply, modules and components required for fire alarm control, and system network control and annunciator.

c. Fire alarm control panel shall be Gamewell IdentiFlex 602.

B. Alarm Initiating Devices:

1. Addressable/Analog Detectors:

a. All addressable/analog detectors.
b. All addressable/analog smoke and heat detectors as specified below shall be pluggable into their bases.
c. The detector unit shall contain electronics that communicate the detector chamber analog value to determine (normal, alarm, trouble) to the control panel over two (2) wires. The same two (2) wires shall also provide power.
d. Upon removal of the head, the base shall transmit a trouble signal to the control panel.
e. It shall be possible to change out detector heads without having to reprogram or address the unit.
f. The detector's address shall be stored in the base. Detectors that store address information in the head shall not be allowed.
g. Addressable/analog detectors shall be UL listed.

2. Thermal Type Detectors:

a. Addressable Thermal Detectors shall connect with two wires to one of the control panel addressable input circuit.

b. The detectors shall use an electronic sensor to measure temperature levels in its chamber and shall, on command from the control panel, send data to the panel representing the analog temperature level.

c. Units shall be restorable with individual indicating lamp.
d. Sensitivity of detectors shall be individually adjustable at the control panel.
e. Stable operation under varying conditions such as vibration, mechanical shock, and changes in supply voltage, ambient temperature and barometric pressure.
f. A combustion gas signal verification circuit shall check to avoid false alarm.
g. A visual indication of alarm shall be provided by a LED on the detector.
h. Addressable/analog ionization detectors shall be Gamewell Model XP95-T or approved equal.

3. Photoelectric Type Detectors:

a. Addressable/analog photoelectric smoke detectors shall sense the presence of smoke particles between a light source and a receiver within the detector.
b. Sensitivity shall be set by the manufacturer and provisions shall be included to check the sensitivity at the control panel without generating smoke.
c. The unit shall be equipped with a visible LED for alarm indication.
d. The detector screen and cover shall be easily removable for field cleaning.

e. Addressable/analog photoelectric detectors shall be Gamewell Model XP95-P or approved equal.

4. Duct Type Detectors:

a. Addressable/analog duct type smoke detectors shall operate on ionization or photoelectric principal, as indicated and previously specified.
b. For mounting on ductwork, the detector shall include a sampling tube which shall be field cut to size to cover complete duct width.
c. The unit shall be restorable.
d. The detector shall be capable of stable operation under varying conditions, including vibration, mechanical shock, and changes in supply voltage, ambient temperature and barometric pressure.
e. Unit shall be complete with relay as required for fan shutdown, and auxiliary contacts for building automation system interface.
f. The unit shall be equipped with a visible LED for alarm indication.
g. The detector screen and cover shall be easily removable for field cleaning.
h. Addressable duct detectors shall be Gamewell Model No. XP95-PD or XP95-ID for use with ionization or photoelectric detectors specified above, or approved equal.

5. Addressable Manual Stations:

a. The addressable manual station shall be capable of field programming of its "address" location on an addressable initiating circuit.
b. The manual station shall be fitted with screw terminals for field wire attachment.
c. The manual station shall be non-coded, semi-recessed, and restorable.
d. The addressable manual station shall be UL listed.
e. The addressable manual station shall be Gamewell Model No. MS-95 or approved equal.
f. Supervised fire suppression system flow switches, pressure switches and other components provided by others shall be wired to meet the requirements of Division 26.
g. Conduit and wire shall comply with the requirements in other Division 26 sections.

6. Point Identification Device (PID):

a. A point identification device (PID) shall be suitable for monitoring a single conventional initiating device type such as waterflow, manual station or non-addressable detectors, and for control of evacuation indicating appliances and AHU systems. Modules shall include cover for surface mounting. The PID shall provide for feedback to the FACP for positive confirmation of the controlled devices activity.
b. A point identification device shall be provided for interfacing normally open direct contact devices to any of the addressable initiating circuits, and providing HVAC equipment shutdown. Control module relay contacts are rated 2A @ 120V AC or 28V DC, resistive.
c. A point identification device shall be Gamewell Model No. PID-95 for single point applications and devices.

7. Collective Zone Interface Module (CZI):

a. A collective zone interface module (CZI) shall be suitable to connect supervised conventional initiating device or zone of initiating such as waterflow switches,

tamper switches, detectors, and other such devices to any of the intelligent analog loops.

b. The collective zone interface module shall be provided for configuring remotely located conventional zones on the analog circuit. The collective zone interface shall provide power for up to 25 conventional type detectors. The collective zone interface are designed for surface or flush mounting and are provided with an LED for annunciation. The CZI shall utilize a 4-11/16" x 3" deep backbox and shall include a cover for surface mounting.

c. The collective zone interface module shall be Gamewell Model No. CZI-95.

8. Control Elements:

a. A remote control element (CE) shall be provided for any devices that require control, activation or feedback during fire alarm condition such as stairwell pressurization fans, smoke exhaust, and damper control. Provide Gamewell Model No. CE-95 control element with one Form C relay rated @ 10 amps @ 30V DC suitable for flush or surface mounting.

b. The control element shall be Gamewell Model No. CE-95.

C. Alarm Indicating Devices:

1. Visual Alarm Signals:

a. Visual units with flush trims and backboxes shall be provided for all locations as shown on the plans (office areas, etc.). Visual units shall provide 100 candela/second Xenon flash visible at all angles, and shall meet the requirements of the Americans with Disabilities Act (ADA).

b. Visual alarm signals shall be UL listed for fire protection service and shall produce a minimum intensity of 100 candela at all angles with a flash rate of 1 Hz minimum to 3 Hz maximum with continuously applied voltage. The xenon flash tube shall be enclosed in clear or nominal white (i.e., unfiltered or clear filtered white light) lens. The maximum pulse duration shall be two-tenths of one second (0.2 sec) with a maximum duty cycle of 40 percent. The pulse duration is defined as the time interval between initial and final points of 10 percent of maximum signal.

c. Visual signals shall be Wheelock ST or approved equal.

2. Audible Alarm Signals:

a. Alarm horns shall be 4" vibrating type and shall include backboxes, flush mounted baffle and ceiling tile bridge.

b. Where indicted on the plan, provide a Wheelock HS horn/strobe combination with backbox.

c. Audible alarms shall not exceed sound levels of 120 dbA.

d. The visual alarm shall be mounted with the alarm horn where shown.

e. Horns shall be Wheelock AH or approved equal.

D. Printers:

1. Printers shall be provided and installed as shown.
2. All printed information shall include time and date.
3. A desktop 80 column printer shall provide a hard copy record of system events. The printer shall support the following features:

a. 120V AC input power.

b. 180 characters per second.
c. Kilobytes buffer capacity.
d. UL listed.

E. Graphic Chart:

1. CAD generated graphics charts shall be installed in each building indicating building floor plan(s) and initiating devices with circuit numbers.
2. Charts shall be 11 x 17 floor plans reduced from manufacturer's approved floor plan shop drawings, framed beneath non-glare glass for wall hanging.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The contractor shall provide and install the system in accordance with the plans and specifications, all applicable codes and the manufacturer's recommendations.

B. Detector Installation:

1. Detector locations shall be no closer than 4 feet from air supply outlets, nor in beam pockets deeper than 12". No detector shall be purposely recessed in a ceiling.
2. Duct type smoke detectors shall be provided under this section of the specification for mounting by other trades.

C. Programming:

1. The contractor shall perform all programming of system including local panel programming and network programming.
2. The contractor shall perform the necessary assigning of system points.

D. Wiring:

1. The contractor shall furnish and install, in accordance with manufacturer's instruction, all wiring, conduit, and outlet boxes for installation of a complete system as described herein and drawn.
2. All wiring shall meet NEC 760 for fire alarm system wiring. All wiring shall be tagged at junction points and shall test free of grounds and shorted between conductors. All additional labor costs, incurred by the fire alarm system technician to clear wiring faults, shall be charged to the installing contractor.
3. All final terminations of the field wiring shall be made by or under the direct supervision of the fire alarm system manufacturer's representative. Any damage to the panel as a result of the contractor terminating wires or powering up the panel without the supervision of an authorized representative of the fire alarm panel manufacturer shall be charged to the installing contractor.

E. Miscellaneous:

1. All junction boxes shall be painted red and labeled "Fire Alarm". Color coded wiring shall be maintained throughout the installation.
2. Installation of equipment and devices relevant to other work in the contract shall be closely coordinated with the appropriate subcontractors.
3. The contractor shall clean all dirt and debris from the interior and exterior of the fire alarm equipment after completion of the installation.

4. The manufacturer's authorized representative shall provide on-site supervision of installation.

3.2 ON-SITE START-UP

A. System Check: Prior to energizing any part of this system, the factory authorized representative shall check thoroughly the installation and perform pre-start checks. This representative shall check all points, fire alarm panels and complete network to ensure proper operation and make any needed repairs and/or replacements required. Sufficient time shall be included in the project bid to cover all required start-up assistance and testing.

B. Testing:

1. The contractor shall test fully the completed fire alarm system in accordance with NFPA-72 in the presence of the Owner's representative and under the direction of the factory authorized representative.
2. Testing shall be provided as required by the local fire marshal.
3. Upon successful completion of tests, the contractor shall so certify in writing to the Owner's representative.
4. Alarm horn sound levels shall be tested during Owner's normal operating conditions to ensure emergency signaling is of an approved sound level over normal ambient noise. The test shall be performed during a 90 day period following the above "Fire Marshal" test on a date to be selected by the Owner.

3.3 TRAINING

A. Demonstration:

1. A factory authorized representative shall demonstrate the fire alarm system.
2. The demonstration shall simulate possible operating conditions and alarms.

B. Scope of Training: Training shall include documentation and hands-on exercise necessary to enable the Owner's representative to assume full programming and operating responsibility.

C. Project Bid: The project bid shall include sufficient time for required initial training and follow-up assistance.

D. Technical Support: Technical support and service by factory-trained personnel shall be available from the manufacturer's representative.

3.4 CENTRAL STATION

A. Provide general alarm supervisory and trouble relays for connection to external communicator (provided by Owner) low voltage contractor to provide one (1) four-conductor FPL rated cable between the security control panel and the FACP for remote monitoring.

3.5 GUARANTEE

A. The installing contractor shall guarantee all wiring to be free from inherent mechanical and electrical defects for a period of one (1) year from installation.

B. The manufacturer's representative shall provide the Owner's representative and Certification of Installation for the entire system certifying that the system was installed and is operating properly and in accordance with these specifications.

C. The manufacturer's representative shall provide the Owner with a three (3) year maintenance proposal upon completion of the project.

3.6 COMMISSIONING

A. Commission system in full conformance to the manufacturer's written instructions. Owner's designated representative shall witness commissioning.

END OF SECTION

SECTION 31 00 00
EARTHWORK

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Project Soils Report when available.

1.2 SUMMARY

. This Section includes the following:

1. Preparing and grading sub-grades for slabs-on-grade, walks and pavements.
2. Excavating and backfilling for buildings and structures.
3. Drainage and moisture-control fill course for slabs-on-grade.
4. Base course for walks and pavements.
5. Subsurface drainage backfill for trenches.
6. Excavating and backfilling for underground mechanical and electrical utilities and appurtenances.

A. Related Sections: The following Sections when included contain requirements that relate to this Section.

1. Division 2 Section "Site Clearing" for site stripping, grubbing, topsoil removal, and tree protection.
2. Division 2 Section "Landscape Work" for finish grading, including placing and preparing topsoil for lawns and planting.

1.3 DEFINITIONS

A. Excavation consists of the removal of material encountered to sub-grade elevations and the reuse or disposal of materials removed.

B. Sub-grade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below base, drainage fill, or topsoil materials.

C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavations.

D. Sub-base Course: The layer placed between the sub-grade and base course in a paving system or the layer placed between the sub-grade and surface of a pavement or walk.

E. Base Course: The layer placed between the sub-base and surface pavement in a paving system.

F. Drainage Fill: Course of washed granular material supporting slab-on-grade placed to cut off upward capillary flow of pore water.

G. Unauthorized excavation consists of removing materials beyond indicated sub-grade elevations or dimensions without direction by the Architect. Unauthorized excavation, as well as remedial work directed by the Architect, shall be at the Contractor's expense.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.

I. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within building lines.

1.4 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

B. Test Reports: In addition to test reports required under field quality control, submit the following:

1. Laboratory analysis of each soil material proposed for fill and backfill from on-site and borrow sources.
2. One optimum moisture-maximum density curve for each soil material.
3. Report of actual unconfined compressive strength and/or results of bearing tests

of each stratum tested.

C. Photographs of existing adjacent structures and site improvements.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork complying with requirements of authorities having jurisdiction.

B. Testing and Inspection Service: Owner will employ a qualified independent geotechnical engineering testing agency to classify proposed on-site and borrow soils to verify that soils comply with specified requirements and to perform required field and laboratory testing.

C. Pre-installation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

1. Before commencing earthwork, meet with representatives of the governing authorities, Owner, Architect, consultants, and other concerned entities. Review earthwork procedures and responsibilities including testing and inspection procedures and requirements. Notify participants at least 3 working days prior to convening conference. Record discussions and agreements and furnish a copy to each participant.

1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted in writing by the Architect and then only after acceptable temporary utility services have been provided.

1. Provide a minimum 48-hours notice to the Architect and receive written notice to proceed before interrupting any utility.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shutoff services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide approved borrow soil materials from off-site when sufficient approved soil materials are not available from excavations. Soils used from on-site excavations shall adhere to the requirements of the project Soils Report. If no soils report is provided, the borrowed soil shall have the same general characteristics equal to or better than the native soil. A sample of each material proposed for import fill should be delivered to the Geotechnical Engineer or his representative for testing and approval at least three working days prior to being transported to the site.

C. Backfill and Fill Materials: Satisfactory soil materials as outlined above.

D. Base Material: Shall conform to Caltrans Class II aggregate base material, 3/4" maximum gradation, min R-value of 78. Recycled material is acceptable only under site concrete or AC paving and approved by Soils Engineer or Architect. Base rock under buildings shall be clean virgin material.

E. Engineered Fill: Shall adhere to the requirements of the project soils report as outlined above.

F. Bedding Material: Base materials with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve or as indicated in the soils report.

G. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, ASTM D 448, coarse aggregate grading size 57, with 100 percent passing a 1-1/2-inch sieve and not more than 5 percent passing a No. 8 sieve or as indicated in the soils report.

H. Filtering Material: Evenly graded mixture of natural or crushed gravel or crushed stone and natural sand, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 50 sieve or as indicated in the soils report.

I. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, or drainage facilities.

C. Tree protection as specified in other areas of these specifications.

3.2 DEWATERING

A. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared sub-grades, and from flooding Project site and surrounding area.

B. Protect sub-grades and foundation soils from softening and damage by rain or water accumulation.

3.3 EXCAVATION

A. Explosives: Do not use explosives.

B. Unclassified Excavation: Excavation is Unclassified and includes excavation to required sub-grade elevations regardless of the character of materials and obstructions encountered.

3.4 STABILITY OF EXCAVATIONS

A. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 0.10 foot. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, installing services and other construction, and for inspections but no less then 5'-0".

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated slopes, lines, depths, and invert elevations.

B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 6 inches each side of pipe or conduit unless otherwise noted.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape sub-grade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove stones and sharp objects to avoid point loading.

1. For pipes or conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed sub-grade.
2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.

3. Where encountering rock or another unyielding bearing surface, carry trench excavation 6 inches below invert elevation to receive bedding course.

3.8 APPROVAL OF SUBGRADE

A. Notify Architect when excavations have reached required sub-grade.
B. When Architect determines that unforeseen unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
   1. Unforeseen additional excavation and replacement material will be paid according to the Contract provisions for changes in Work.
C. Reconstruct sub-grades damaged by rain, accumulated water, or construction activities, as directed by the Architect. Grades damaged by rains, water, etc. after start of work are the responsibility of the contractor and shall be repaired at no cost to the owner.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending indicated bottom elevation of concrete foundation or footing to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position when acceptable to the Architect.
   1. Fill unauthorized excavations under other construction as directed by the Architect.
B. Where indicated widths of utility trenches are exceeded, provide stronger pipe, or special installation procedures, as required by the Architect.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile excavated materials acceptable for backfill and fill soil materials, including acceptable borrow materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent wind-blown dust.
   1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

A. Backfill excavations promptly, but not before completing the following:
   1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
   2. Surveying locations of underground utilities for record documents.
   3. Testing, inspecting, and approval of underground utilities.
   4. Concrete formwork removal.
   5. Removal of trash and debris from excavation.
   6. Removal of temporary shoring and bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.12 UTILITY TRENCH BACKFILL

A. Place and compact bedding course on rock and other unyielding bearing surfaces and to fill unauthorized excavations. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
B. Concrete backfill trenches that carry below or pass under footings and that are excavated within 18 inches of footings unless noted otherwise. Place concrete to level of bottom of footings.
C. Place and compact initial backfill of satisfactory soil material free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit unless noted otherwise.
   1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.
D. Coordinate backfilling with utilities testing.

E. Fill voids with approved backfill materials as shoring and bracing, and sheeting is removed.
F. Place and compact final backfill of satisfactory soil material to final sub-grade.

3.13 FILL

A. Preparation: Remove vegetation, topsoil, debris, wet, and unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placing fills.
   1. Plow strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing surface.
B. When sub-grade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface to depth required, pulverize, moisture-condition or aerate soil and re-compact to required density.
C. Place fill material in layers to required elevations for each location listed below.
   1. Under grass, use satisfactory excavated or borrow soil material.
   2. Under walks and pavements, use base material, or satisfactory excavated or borrow soil material.
   3. Under steps and ramps, use base material.
   4. Under building slabs, use drainage fill material.
   5. Under footings and foundations, use engineered fill.

3.14 MOISTURE CONTROL

A. Uniformly moisten or aerate sub-grade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
   1. Do not place backfill or fill material on surfaces that are muddy.
   2. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density.
      a. Stockpile or spread and dry removed wet satisfactory soil material

3.15 COMPACTION

A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
B. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.
C. Percentage of Maximum Dry Density Requirements: Compact soil to the requirements outlined in the project soils report or as shown on drawings.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between existing adjacent grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.
B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish sub-grades to required elevations within the following tolerances:
   1. Lawn or Unpaved Areas: Plus or minus 0.10 foot.
   2. Walks: Plus or minus 1/2 inch.
   3. Pavements: Plus or minus 1/2 inch.
C. Grading Inside Building Lines: Finish sub-grade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.17 BASE COURSES

A. Under pavements and walks, place base course material on prepared sub-grades.
   1. Compact base courses at optimum moisture content to required grades, lines, cross sections and thickness as required by the plans and the project soils report.

2. Shape base to required crown elevations and cross-slope grades.
3. When thickness of compacted base course is 6 inches or less, place materials in a single layer.

3.18 DRAINAGE FILL

A. Under slabs-on-grade, place drainage fill course on prepared sub-grade.
   1. Compact drainage fill to required cross sections and thickness.
   2. When compacted thickness of drainage fill is 6 inches or less, place materials in a single layer.

3.19 FIELD QUALITY CONTROL

A. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
   1. Perform field in-place density tests according to ASTM D.
   2. Footing Sub-grade: At footing sub-grades, perform at least one test of each soil stratum to verify design bearing capacities. Subsequent verification and approval of other footing sub-grades may be based on a visual comparison of each sub-grade with related tested strata when acceptable to the Architect.
   3. Paved and Building Slab Areas: At sub-grade and at each compacted fill and backfill layer, perform at least one field in-place density test for every 2,000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
   4. Foundation Wall Backfill: In each compacted backfill layer, perform at least one field in-place density test for each 100 feet or less of wall length, but no fewer than two tests along a wall face.
   5. Trench Backfill: In each compacted initial and final backfill layer, perform at least one field in-place density test for each 150 feet or less of trench, but no fewer than two tests.
B. When testing agency reports that sub-grades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, re-compact and retest until required density is obtained.

3.20 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
B. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction due to subsequent construction operations or weather conditions.
   1. Scarify or remove and replace material to depth directed by the Architect; reshape and re-compact at optimum moisture content to the required density.
C. Settling: Where settling occurs during the Project correction period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing.
   1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible at no cost to the owner.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off the Owner's property.

END OF SECTION

SECTION 32 10 00
SITE CLEARING

PART 1 GENERAL

1.1 SECTION INCLUDES
A. Remove surface debris.
B. Remove paving, curbs, sidewalks and exterior concrete pads.
C. Clear site of plant life and grass.
D. Remove trees and shrubs.
E. Remove root system of trees and shrubs.
F. Removing fences and site structures.
G. Backfilling ruts and depressions resulting from clearing and grubbing operations.
[H. Removing Playground Equipment & Site Furnishings]
[I. Removing Existing Irrigation Equipment or Repair of Damaged Equipment]

1.2 RELATED SECTIONS
A. Earthwork.
B. Site Storm Sewer System – Adjust Rims to new grades – When provided
C. Site Soils Report – When Provided

1.3 QUALITY ASSURANCE
A. Backfilling operations shall be done in accordance with the Contract Documents and the Site Project Soils Report (if available) under supervision of the project inspector and the project soils engineer (if soils report is provided).
   1. Keep a copy of the Soils Report in field office for duration of project if provided
   2. Should recommendations of the Soils Report (if available) conflict with the Contract Documents, include the most restrictive or more expensive requirement in the bid and request clarification from the Architect as to which to provide.
   3. Request clarification form the Architect prior to proceeding.
B. Notify Architect and Project Inspector before backfilling or compacting is to be done so that the Owner's testing Engineer may be present during these operations. Arrange the Work so that the number and length of visits by the testing Engineer are kept to a minimum.
C. Do not implement requirements of Owner’s Soils Engineer which modify the contract requirements without written authorization from Architect.

1.4 REGULATORY REQUIREMENTS
A. Conform to applicable codes for disposal of debris and use of herbicides.
B. Coordinate clearing Work with Owner and utility companies.

1.5 PREGRADING CONFERENCE
A. Convene a pregrading conference one week prior to commencing site clearing operations under provisions in Section 1 of the specifications.
B. Attendance: Contractor, appropriate separate Prime Contractors, appropriate subcontractors, Project Inspector, key Owner personnel and Architect.

C. Review coordination required with other work of Section 2 of the specifications and the Soils Report.

PART 2 PRODUCTS

2.01 MATERIALS

A. Backfill Material: As specified in other sections of this manual and identified in the Soils Report if available.

PART 3 EXECUTION

3.1 PREPARATION

A. Survey existing conditions and correlate with drawings, specifications, and the soils report to determine the existing demolition required. Bring discrepancies to the attention of the Owner's representative and the Architect prior to commencement of work.
B. Verify that existing plant life designated to remain is tagged or identified.
C. Notify Owner two weeks prior to removing existing trees, shrubs, ground cover and turf.
D. Do not close or obstruct roadways, sidewalks, access to occupied facilities, or hydrants, without permission from Owner.

3.2 PROTECTION

A. Locate, identify, and protect above grade AND underground utilities that remain from damage. Provide adequate support and protection during Work for those utilities to remain in place.
   1. Should uncharted or incorrectly charted piping or utilities be encountered during the work, consult with Owner's representative immediately for direction. Cooperate with Owner in keeping existing services and facilities in operation. Repair any damage to utilities immediately at no cost to the owner. Maintain horizontal and vertical dimensions from fixed points for future referencing and transfer these utilities onto the "As-Built" documents.
B. Protect trees, plant growth, and features designated to remain, as final landscaping as outlined in other specification sections but at a minimum provide the following:
   1. Prior to demolition, clearing and grubbing work, erect barriers around "dripline" of trees designated to remain.
   2. Minimum Barrier Allowable: Steel T-posts at 6 feet on center with two strands of 2 inch fiberglass tape at top and midpoint.
   3. Do not permit vehicles, equipment, or material storage within "dripline" of trees.
   4. Do not regrade under "dripline" of trees except as authorized by an arborist acceptable to the Architect.
C. Provide, erect, and maintain temporary barriers and security devices as required to protect the work AND at locations indicated.
D. Do not interrupt existing utilities serving occupied facilities during occupied hours except when permitted in writing by the Owner's representative and then only after acceptable temporary utility services have been provided.
E. Protect existing improvements.

1. Contractor is responsible to provide protection necessary to prevent damage to existing improvements indicated to remain in place.
2. Contractor is responsible to provide protection necessary to prevent damage to all work that has been completed and to protect monuments, paving, curbs, and walkways which are to remain.
3. When contractor will impact existing areas (curbs, turf, walkways, etc.) that are not in pristine condition, contractor shall photograph and record existing condition of such areas prior to beginning work to document the less then pristine condition. Contractor is required to restore existing areas to the documented existing condition unless noted otherwise in the contract. Where no documentation exists and contractor failed to document the condition, contractor shall return impacted areas to pristine condition, including replacement of curbs, turf, walkways, etc.) at no cost to the owner.

F. Protect bench marks from damage or displacement

3.3 CLEARING

A. Clear areas required for access to site and execution of Work.
B. Clear surface and subsurface of deleterious materials, including but not limited to the following:
   1. Remove surface debris in areas designated to receive construction under this contract and additional areas under the Contractor's control during the course of the project.
   2. Remove designated existing concrete curbs, gutters, sidewalks, driveways and exterior equipment pads to extent indicated.
   3. Remove designated existing concrete parking and paving areas to extent indicated.
   4. Remove designated chain link fencing and gates with concrete post footings.
   5. Remove underground utilities designated to be abandoned and any other obstructions encountered during clearing.
C. Remove trees and shrubs indicated. Remove stumps and root system.
D. Clear undergrowth and deadwood, without disturbing subsoil.

3.4 REMOVAL

A. Remove debris, rock, and extracted plant life from site.

3.5 TOPSOIL EXCAVATION

A. Excavate topsoil from areas to be re-graded.
B. Stockpile in area designated on site. Protect from erosion. Remove excess topsoil not being reused, from site.

3.6 BACKFILLING EXCAVATIONS

A. Clean and backfill excavations resulting from site clearing operations that extend below planned finish site grades.
B. Scarify, moisture condition, place, spread and compact backfill material in accordance with specifications and the Project Soils Report (if provided).

3.7 FIELD QUALITY CONTROL

A. Compaction testing of excavation backfill will be performed by the Owner's Testing Laboratory in accordance with ASTM D1557 under provisions of Section 01410.

3.8 CLEANING

A. Remove debris, rock, and extracted plant life from site and dispose of legally.
B. Do not bury removed material on site.

END OF SECTION

SECTION 31 23 33
TRENCHING

PART 1 GENERAL

1.1 SUMMARY

1. Section includes excavating trenches for utilities from outside building to final connection point or public right-of-way or utility; compacted fill from top of utility bedding to subgrade elevations; and backfilling and compaction.
2. Related Sections: Sections of Division 2 and Division 3

1.2 REFERENCES

A. The project Soils Report if available

1.3 DEFINITIONS

A. Utility: Any buried pipe, duct, conduit, or cable.

1.4 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.5 COORDINATION

A. Section 01 33 00 - Administrative Requirements: Coordination and project conditions.
B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.
C. Verify elevations of existing facilities prior to placing new Work.

PART 2 PRODUCTS 2.1 FILL MATERIALS

A. Fill and Structural Fill shall be: As specified in the project Soils Report if available.

2.2 ACCESSORIES

A. Filter Fabric: Non-biodegradable, woven as manufactured by TC Mirafi, Tenax Corp., Tensar Earth Technologies, Inc. or equal.

PART 3 EXECUTION

3.1 LINES AND GRADES

A. Grades

1. Pipes shall be laid true to the lines and grades indicated.
2. The grade alignment of the pipe shall be maintained by the use of a string line parallel with the grade line and vertically above the centerline of the pipe. This line shall be established on level batter-boards at intervals of not more than 25 feet. Batter boards shall span the trench and be rigidly anchored to substantial posts driven into the ground on each side of the trench. Three adjacent batter boards must be set before laying pipe to provide a check on the grades and line. Elevation and position of the string line shall be determined from the elevation and position of offset points or stakes located along the pipe route. Pipe shall not be laid using side lines for line or grade.
3. As an alternative means of establishing alignment and grade, a "Laser-Beam" instrument may be utilized with a competent operator.

B. Location of Pipe Lines:

1. The location and approximate depths of the proposed pipe lines are shown on the Drawings.
2. An underground locate service shall be enlisted to discover the location of existing utilities regardless if they are shown on the drawings.
3. The Architect/Engineer reserves the right to make changes in lines, grades, and depths of pipe lines and manholes when such changes are necessary.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum locations.
B. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
C. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
D. Maintain and protect above and below grade utilities which are to remain.
E. Cut out soft areas of subgrade not capable of compaction in place. Backfill and compact to density equal to or greater than requirements for subsequent backfill material.

3.3 EXCAVATING

A. Excavate subsoil required for utilities.
B. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
C. Do not interfere with 45 degree bearing splay of foundations.
D. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
E. Remove lumped subsoil, boulders, and rock as directed by the Soils Engineer or other inspector.
F. Correct over-excavated areas with backfill and compact replacement as specified for authorized excavation.
G. Remove excess material not being used from site

3.4 TRENCHING

A. Excavations:
1. Excavation shall be dug so that the pipe can be laid and jointed properly. The trench shall be made so that the pipe can be laid to the alignment and depth as shown on the Drawings. and it shall be excavated only so far in advance of pipe laying as permitted by the Architect/Engineer. The excavation shall not be more than two feet wider at the bottom than the outside diameter of the pipe or structure. If there is no interference with construction or adjacent property, and if soil permits, the Contractor at his own expense shall be permitted to slope the side walls of the excavation starting at a point two (2) feet above the top of pipe.
2. The trench shall be excavated to the depth required so as to provide a uniform and continuous bearing and support for the pipe on bedding material at every point between - joints, except where pipe slings or other lifting tackle are withdrawn.
3. Excavation Below Grade:
a) Where excavation indicates that the subsurface materials at the bottom of the trench are in a loose or soft state, the Contractor shall be advised to excavate to a depth where suitable material is encountered. as directed by the Architect/Engineer.
b) Where the bottom of the trench has been excavated by mistake to a greater depth than required. the Contractor shall refill this area using approved material. No additional compensation shall be given to the Contractor. Refilling with earth to bring the bottom of the trench to the proper grade will not be permitted.
4. Excavation within 24 inches of existing utilities shall be governed by specifications of the Owner of the respective utility. The Contractor shall obtain these specifications and follow the same at no extra cost.
B. Trenching in Advance of Pipe Laying: The trench for the pipe lines shall not be opened for a distance of more than 200 feet at anyone time, unless authorized by the Architect/Engineer. At no time will the Contractor be permitted to leave more than 50 feet of trench open at the end of a working day. Adequate protection of open trench shall be provided by the Contractor and the Contractor shall be responsible therefor.

3.5 SHEETING AND BRACING

A. General
1. Sheeting and bracing of all excavations shall conform to the latest statutes of the State of California governing safety of workers in the construction industry. When necessary, in the opinion of the Contractor, adequate sheeting and bracing shall be installed to prevent ground movement that may cause damage or settlement to adjacent structures, pipelines

and utilities. Any damage due to settlement because of failure to use sheeting or because of inadequate bracing, or through negligence or fault of the Contractor in any other manner, shall be repaired at the Contractor's expense.

2. Sides of trenches in unsuitable, loose or soft material, five feet or more in depth, shall be shored, sheeted, braced, sloped, or otherwise supported by means of sufficient strength to protect employees working within them.

B. Sheeting Requirements:

1. Where excavations are made with vertical sides, which require supporting, the sheeting and bracing shall be of sufficient strength to sustain the sides of the excavations and to prevent movement which could in any way injure the Work. or adjacent structures, or diminish the working space sufficiently to delay the Work. Special precautions shall be taken where there is additional pressure due to the presence of other structures.
2. It shall be the Contractor's responsibility to select sheeting and bracing of sufficient dimensions and strength and type to adequately support the sides of trenches and excavations.
3. Sheeting and bracing shall be removed before the completion of the Work.

3.6 BACKFILLING

A. Backfill trenches to contours and elevations shown on the drawings.
B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.
C. Fill materials shall be as specified in the Soils Report.
D. Employ a placement method that does not disturb or damage utilities in trench. Jetting of backfill materials to achieve compaction shall not be permitted.
E. Maintain optimum moisture content of fill materials to attain required compaction density.
F. Remove surplus fill materials from site.

3.7 TOLERANCES

A. Section 01400 - Quality Requirements: Tolerances.
B. Top Surface of Backfilling Under Paved Areas: Plus or minus 0.05 feet from required elevations.
C. Top Surface of General Backfilling: Plus or minus 1/10 feet from required elevations.

3.8 FIELD QUALITY CONTROL

A. Compaction testing will be performed by the project Soils Engineer.
B. If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.9 PROTECTION OF FINISHED WORK

A. Protect all finished work.
B. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

. This Section includes provisions for hot-mixed asphalt paving over prepared base.

A. Prepared base is specified in SECTION 31 00 00 - EARTHWORK.

B. Proof rolling of prepared base is included in this Section.

C. Saw-cutting of edges of existing pavement is specified in site-clearing section.

E. Header Board installation at edges of new asphalt pavement.

1.2 SUBMITTALS

A. Material Certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements.

1.3 SITE CONDITIONS

A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 deg F (10 deg C) and when temperature has not been below 35 deg F (1 deg C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Construct hot-mixed asphalt surface course when atmospheric temperature is above 40 deg F (4 deg C) and when base is dry. Base course may be placed when air temperature is above 30 deg F (minus 1 deg C) and rising.

C. Grade Control: Establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Use locally available materials and gradations that exhibit a satisfactory record of previous installations.

B. Asphalt Concrete: Type B, 1/2" maximum aggregate size as specified in Section 39 of the Caltrans Standard Specifications

C. Prime Coat: SC-70 Liquid Asphalt as specified in Section 39 and 93 of the Caltrans Standard Specifications.

D. Tack Coat: SS1 Asphaltic Emulsion as specified in Section 39 and 94 of the Caltrans Standard Specifications.

E. Herbicide Treatment: Commercial chemical for weed control, registered by Environmental Protection Agency. Provide granular, liquid, or wettable powder form.

F. Header Board: 2x6 Pressure treated Douglas Fir or Redwood for all lumber shown on the Drawings. (Multiple layers of thinner material maybe used to create curves, and trex type material may also be used). Stakes shall be 1”x2”x18” wood or 2’ long metal forming stakes. If metal stakes are used be sure at least two holes within stakes are provided against the header board. Fasteners shall be galvanized screws.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. General: Remove loose material from compacted base surface immediately before applying herbicide treatment or prime coat.

B. Proof-roll prepared subgrade surface to check for unstable areas and areas requiring additional compaction.

C. Notify Owner/Architect of unsatisfactory conditions. Do not begin paving work until deficient subgrade and base areas have been corrected and are ready to receive paving.

D. Herbicide Treatment: Apply chemical weed control agent in strict compliance with manufacturer's recommended dosages and application instructions. Apply to compacted, dry base prior to application of prime coat.

E. Prime Coat: Apply at rate of 0.20 to 0.50 gal. per sq. yd., over compacted subgrade. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile.

F. Tack Coat: Apply to contact surfaces of previously constructed asphalt or Portland cement concrete and surfaces abutting or projecting into hot-mixed asphalt pavement. Distribute at rate of 0.05 to 0.15 gal. per sq. yd. of surface.

G. Allow to dry until at proper condition to receive paving.

H. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

I. Install Header Board in the locations and as shown on the Drawings.

3.2 PLACING MIX

A. General: Place hot-mixed asphalt mixture on prepared surface, spread, and strike off. Spread mixture at minimum temperature of 225 deg F (107 deg C). Place areas inaccessible to equipment by hand. Place each course (2" maximum lift) to required grade, cross-section, and compacted thickness.

B. Pavement Placing: Place in strips not less than 8 feet wide, unless otherwise acceptable to Architect. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

C. Immediately correct surface irregularities in finish course behind paver. Remove excess material forming high spots with shovel or lute.

D. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of hot-mixed asphalt course. Clean contact surfaces and apply tack coat.

E. Seal Coat: New AC paving including patching and large crack repair areas must be in place and cured as per A.S.M.A standard specifications, typically a minimum of fourteen (14) days prior to application of the seal coat. Power wash entire area to receive seal coat. Excessive oil spots are to be removed with a scraper, stiff brush and detergent. OverKote Oil Spot Sealer should be applied to prepared oil spots. Install OverKote per manufacturers recommendations, but install a minimum of two (2) coats at a minimum rate of 30 gallons per 1,000sf of surface area. Dilute per manufacturers recommendations.

3.3 ROLLING

A. General: Begin rolling when mixture will bear roller weight without excessive displacement.

B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
C. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas by loosening and filling, if required, with hot material.
D. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been evenly compacted.
E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained 95 percent laboratory density.
F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot hot-mixed asphalt. Compact by rolling to specified surface density and smoothness.
G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.4 FIELD QUALITY CONTROL

A. General: Testing in-place hot-mixed asphalt courses for compliance with requirements for thickness and surface smoothness will be done by Owner's testing laboratory. Repair or remove and replace unacceptable paving as directed by Architect.
B. Thickness: In-place compacted thickness tested in accordance with ASTM D 3549 will not be acceptable if exceeding following allowable variations:
    1. Base Course: Plus or minus 1/4 inch.
    2. Surface Course: Plus or minus 1/4 inch.
C. Surface Smoothness: Test finished surface of each hot-mixed asphalt course for smoothness, using 10-foot straightedge applied parallel with and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness:
    1. Base Course Surface: 1/4 inch.
    2. Wearing Course Surface: 3/16 inch.
D. Check surface areas at intervals as directed by Architect.

END OF SECTION

SECTION 32 13 13
PORTLAND CEMENT CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

. This Section includes exterior portland cement concrete paving for the following:
1. Curbs and gutters and aprons.
2. Slab on Grade walkways
3. Cutting and Replacing of Existing Site Concrete

A. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 31 Section "Earthwork" for sub-grade preparation, grading and base course.
2. Division 7 Section "Joint Sealants" for joint fillers and sealants within concrete paving and at joints with adjacent construction.

1.2 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Section 01 30 00 / 01 33 00.

B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, joint systems, curing compounds, and others if requested by Architect.

C. Design mixes for each class of concrete. Include revised mix proportions when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

D. Material certificates in lieu of material laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor certifying that each material item complies with or exceeds requirements. Provide certification from admixture manufacturers that chloride content complies with requirements.

E. Field Sample at least 2'x2' of finish (medium broom) to remain on-site until closeout is complete. Field Sample can become part of finished work, but no work shall proceed until finish sample is approved by Architect. Failure to provide finish sample will result in possible removal of all concrete.

1.3 QUALITY ASSURANCE

A. Concrete Standards: Comply with provisions of the following standards, except where more stringent requirements are indicated.
1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
2. ACI 318, "Building Code Requirements for Reinforced Concrete."
3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."

B. Concrete Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

C. Concrete Testing Service: The owner will ngage a qualified independent testing agency to perform materials evaluation tests.

D. Pre-installation Conference: Conduct conference at Project site to comply with the following:
1. Before installing portland cement concrete paving, meet with representatives of authorities having jurisdiction, Owner, Architect, consultants, independent testing agency, and other concerned entities to review requirements. Notify participants at least 3 working days before conference.

1.4 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

A. Form Materials: Wood, plywood, metal, metal-framed plywood, or other acceptable panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.

B. Form Release Agent: Provide commercial formulation form-release agent with a maximum of 350 g/L volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars and Tie Bars: ASTM A 615, Grade 60, deformed.

B. Joint Dowel Bars: Plain steel bars, ASTM A 615, Grade 60. Cut bars true to length with ends square and free of burrs.

C. Supports for Reinforcement: Chairs, spacers, dowel bar supports and other devices for spacing, supporting, and fastening reinforcing bars in place. Use wire bar-type supports complying with CRSI specifications.

2.3 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I.
   1. Use one brand of cement throughout Project unless otherwise acceptable to Architect.

B. Fly Ash: ASTM C 618, Type F.

C. Normal-Weight Aggregates: ASTM C 33, Class 4, and as follows. Provide aggregates from a single source.
   1. Maximum Aggregate Size: 3/4 inch.
   2. Do not use fine or coarse aggregates that contain substances that cause spalling.
   3. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect.

D. Water: Potable.

2.4 ADMIXTURES

A. Provide concrete admixtures that contain not more than 0.1 percent chloride ions.

B. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

C. Water-Reducing Admixture: ASTM C 494, Type A.

2.5 CURING MATERIALS

A. Clear Solvent-Borne Liquid Membrane-Forming Curing Compound: ASTM C 309, Type Class A or B, wax free.

B. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.

2.6 RELATED MATERIALS

A. Bonding Agent: Acrylic or styrene butadiene.

2.7 CONCRETE MIX

A. Prepare design mixes for each type and strength of normal-weight concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use a qualified independent testing agency for preparing and reporting proposed mix designs.
   1. Do not use the Owner's field quality-control testing agency as the

independent testing agency.
2. Limit use of fly ash to 25 percent of cement content by weight.

B. Proportion mixes according to ACI 211.1 and ACI 301 to provide normal-weight concrete with the following properties:
1. Compressive Strength (28-Day): 3,000 psi.
2. Maximum Water-Cement Ratio at Point of Placement: 0.50.
3. Slump Limit at Point of Placement: 3 inches.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows with a tolerance of plus or minus 1-1/2 percent:
1. Air Content: 6.0 percent for 3/4-inch maximum aggregate.

D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, project conditions, weather, test results, or other circumstances warrant.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94.
1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Remove loose material from compacted base surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, and bulkheads, for paving to required lines, grades, and elevations. Install forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

B. Check completed formwork and screeds for grade and alignment to following tolerances:
1. Top of Forms: Not more than 1/8 inch in 10 feet.
2. Vertical Face on Longitudinal Axis: Not more than 1/4 inch in 10 feet.

C. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.

3.3 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing reinforcing Bars" for placing and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

3.4 JOINTS

A. General: Construct contraction, construction, and expansion joints true to line with faces perpendicular to surface plane of concrete as shown on the Drawings. Construct transverse joints at right angles to the centerline, unless indicated otherwise.
1. When joining existing paving, place transverse joints to align with previously placed joints, unless indicated otherwise.

B. Contraction Joints: Provide weakened-plane contraction joints, sectioning concrete at 20 ft intervals minimum unless shown closer together on plans. Construct contraction joints for a depth equal to at least 1/4 of the concrete thickness, as follows:
1. Tooled Joints: Form contraction joints in fresh concrete by grooving and

finishing each edge of joint with a radiused jointer tool.

2. Inserts: Form contraction joints by inserting pre-molded plastic, hardboard, or fiberboard strips into fresh concrete until top surface of strip is flush with paving surface. Radius each joint edge with a jointer tool. Carefully remove strips or caps of two-piece assemblies after concrete has hardened. Clean groove of loose debris.

C. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than 1/2 hour, unless paving terminates at isolation joints.
   1. Continue reinforcement across construction joints unless indicated otherwise. Do not continue reinforcement through sides of strip paving unless indicated.
   2. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

D. Expansion Joints: Form expansion joints of preformed joint filler strips abutting concrete curbs, inlets, structures, walks, other fixed objects, and where indicated.
   1. Locate expansion joints at intervals of 50 feet, unless indicated otherwise.
   2. Extend joint fillers full width and depth of joint, not less than 1/2 inch or more than 1 inch below finished surface where joint sealant is indicated. Place top of joint filler flush with finished concrete surface when no joint sealant is required.
   3. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required, lace or clip joint filler sections together.
   4. Protect top edge of joint filler during concrete placement with a metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

E. Installation of joint fillers and sealants is specified in Division 7 Section "Paving Joint Sealants."

F. Install dowel bars and support assemblies at expansion joints. Lubricate or asphalt-coat one half of dowel length to prevent concrete bonding to one side of joint.

3.5 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Moisten base to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.

C. Comply with requirements and with ACI 304R for measuring, mixing, transporting, and placing concrete.

D. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

E. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

F. Consolidate concrete by hand-spading, rodding, or tamping. Use procedures to consolidate concrete complying with ACI 309R.
   1. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcing, dowels, and joint devices.

G. Screed paved surfaces with a straightedge and strike off. Use bull floats or darbies to form a smooth surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces prior to beginning finishing operations.

H. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength.

I. Hot-Weather Placement: Place concrete complying with ACI 305R and as specified when hot weather conditions exist.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
3. Fog spray forms, reinforcing steel, and sub-grade just before placing concrete. Keep sub-grade moisture uniform without standing water, soft spots, or dry areas.

3.6 CONCRETE FINISHING

A. Float Finish: Begin floating when bleed water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface by hand-floating. Finish surfaces to true planes within a tolerance of 1/4 inch in 10 feet as determined by a 10-foot-long straightedge placed anywhere on the surface in any direction. Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular texture.
   1. Medium Textured Broom Finish (for slopes ≤6%): Draw a soft bristle broom across concrete surface in direction of flow to provide a uniform fine line texture finish.
   2. Heavy Textured Broom Finish (for slopes ≥6%)

B. Final Tooling:
   1. Tool edges of gutters, curbs, and joints formed in fresh concrete with a jointing tool to a 1/4" radius. Repeat tooling of edges and joints after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with the recommendations of ACI 306R for cold weather protection and ACI 305R for hot weather protection during curing.
B. Evaporation Control: In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before floating.
C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
D. Curing Methods: Cure concrete by curing compound:
   1. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.8 FIELD QUALITY CONTROL TESTING

A. The owner will employ a qualified independent testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement as follows:
B. The Owner will employ a qualified testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include the following:
   a. Compression Test Specimens: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless directed otherwise. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
   b. Compressive-Strength Tests: ASTM C 39; one set for each day's pour of each concrete class exceeding 5 cu. yd. but less than 25 cu. yd., plus one set for each additional 50 cu. yd. Test one specimen at 7 days, test two specimens at 28 days, and retain one specimen in reserve for later testing if required. When total

quantity of a given class of concrete is less than 50 cu. yd., Architect may waive strength testing if adequate evidence of satisfactory strength is provided. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi.

C. Test results will be reported in writing to Architect, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing agency, concrete type and class, location of concrete batch in paving, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day and 28-day tests.

D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

E. Additional Tests: The testing agency will make additional tests of the concrete when test results indicate slump, air entrainment, concrete strengths, or other requirements have not been met, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective, or does not meet the requirements of this Section.

B. Drill test cores where directed by Architect when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep concrete paving not more than 2 days prior to date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 32 17 23
PAVEMENT MARKINGS – PARKING LOTS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Parking Stall Painting.
B. Parking Stall Numbers

1.02 RELATED SECTIONS
A. Asphaltic Concrete Paving.

1.03 QUALITY ASSURANCE
A. Materials and work of this section shall conform to Owner standards and specifications.

1.04 REGULATIONS
A. Conform to regulations of Bay Area Air Quality Management District and California Air Resources Board regarding use of architectural coatings (paint).

1.05 ENVIRONMENTAL REQUIREMENTS
A. Do no painting when temperatures on the surface and of air in vicinity of the painting work are below 40 degrees F or below those temperatures recommended by the paint manufacturer.

PART 2 PRODUCTS .
2.01 STANDARD CATALOG PRODUCTS
A. Symbol Marking Paint and Traffic Marking Paint: Water borne product conforming to State Specification 8010-426-30; Dunn-Edwards Traffic Paint W801, Sinclair 160 Vinyl Traffic Paint, or equal product substituted under provisions of Section 01630.
1. Parking Stalls: White color.
2. Accessible Parking: Blue & White to meet current code requirements

PART 3 EXECUTION 3.01 EXAMINATION
A. Examine receiving surfaces and verify that surfaces are proper for installation.
B. Do not start work until unsatisfactory conditions have been corrected.

3.02 PREPARATION
A. Remove dirt. oil, grease, and other foreign matter from the areas of the pavement and curbs to be painted.
B. Do not apply traffic paint to surfaces which are excessively dirty, damp and cold.

3.03 INSTALLATION
A. Apply traffic paint with atomizing spray type striping machine equipped with separate thermostatically controlled heating devices for each paint pot and capable 'of applying paint whereby the lines and markings have clear-cut edges, true and smooth alignments and uniform thickness.
B. Apply paint with completed lines and markings shall be clean, **sharp** and to dimensions.
1. Ragged ends of segments, fogginess along the sides or objectionable dribbling of paint along the unpainted portions of the stripes will not be permitted.
2. The finished paint shall have an opaque, well painted appearance with no black or other discolorations showing through.
C. Apply striping to the following widths:
1. Parking Stall Lines: As shown on drawings or to meet current code.
2. Numbers: As shown on drawings or 1” wide and 8” tall, white, if not indicated on drawings.

3.04 PROTECTION
A. Exercise reasonable precautions to protect the paint, as applied, during drying time. Remove objectionable tracking.

END OF SECTION

SECTION 32 31 13
CHAINLINK FENCES AND GATES

PART 1 - GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, facilities, transportation and services to complete metal fences and gates and related work as shown on the Drawings and specified herein.

B. Scope of Work:
The general extent of metal fences and gates is shown on the Drawings and includes, but is not limited to, the following:
1. Furnishing and installing chain link fence, hardware, gates, gate center stops, gate center drop rod assembly, hinges, concrete footings, posts, and related appurtenances.
2. Excavation for post bases
3. Concrete foundations for posts & Center drop gates
4. Manual Gates and Hardware
5. Finish painting

C. Related sections:
1. Submittals

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses.
B. ASTM Al23 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
C. ASTM A392 - Zinc-Coated Steel Chain-Link Fence Fabric.
D. ASTM A569 – Steel, Carbon, Hot-Rolled Sheet and Strip, commercial quality.
E. ASTM F567 - Practice for Installation of Chain-Link Fence.
F. ASTM F668 – Specification for Poly (Vinyl Chloride) (PVC) – Coated Steel Chain Link Fence Fabric.
G. ASTM F1083- Pipe, steel, hot-dipped zinc coated (galvanized), welded, for fence structures.
H. SSPWC - Standard Specifications for Public Works Construction, 1997 Edition.
I. CLFM - Chain Link Fence Manufacturer's Institute
J. Chapter 19A, CBC.

1.04 SUBMITTALS
A. Submit shop drawings including plan layout, grid, spacing of components, accessories, fittings, hardware, anchorages and schedule of components.
B. Submit manufacturer's technical product data.
C. Submit manufacturer's installation instructions.
D. Submit three samples illustrating each fence fabric finish.
E. Submit per section 01 30 00 / 01 33 00.

1.05 SEQUENCE AND SCHEDULING
A. Coordinate construction timing with installation of concrete footings.

PART 2 - PRODUCTS

2.01 CHAIN LINK FENCE

A. Chain Link Fabric

1. Selvage: Fabric 72 inches high and over shall be knuckled at one selvage and twisted at the other; all mesh 60 inches high and under shall be knuckled at both selvages.
2. Steel Fabric: Comply with Chain Link Fence Manufacturers Institute (CLFMI) Product Manual. Furnish one-piece fabric widths for fencing up to 12 feet high. Wire sizes includes zinc or aluminum coating.
2. Size: Two (2) inch mesh, 9-gauge (0.148 inch diameter) wide.
3. Galvanized Steel Finish: ASTM A 392, Class 2, with not less than 2.0 oz. Zinc per sq. ft. of uncoated wire surface on wire coated before weaving as determined from the average of two or more samples and not less than 1.8 oz. per sq. ft. of coated wire surface for any individual sample.

B. Fence Framing:

1. Strength requirements for posts and rails conforming to ASTM F 669.
2. Pipe shall be straight, true to section, material, and sizes specified, and shall conform to the following weights per foot:

NPS in Inches	Outside Diameter (OD) in inches	Type 1 Steel	Type II Steel
1	1.315	1.68	1.35
1 1/4	1.660	2.27	1.84
1 1/2	1.900	2.72	2.28
2	2.375	3.65	3.12
2 1/2	2.875	5.79	4.64
3	3.500	7.58	5.71
3 1/2	4.000	9.11	6.56
4	4.500	10.79	---
6	6.625	18.97	---
8	8.625	28.55	---

C. Steel Framework:

1. Posts, Rails, Braces, and Gate Frames:
   a. Type I pipe: Hot-dipped galvanized steel pipe conforming to ASTM F 1083, plain ends, standard weight (Schedule 40) with not less than 1.8 oz. zinc per sq. ft. of surface area coated.
   b. Type II pipe: Manufactured from steel conforming to ASTM A 569 or A 446, grade D, cold formed, electric welded with minimum yield strength of 50,000 psi and triple coated with minimum 0.9 oz. zinc per sq. ft. after welding, a chromate conversion coating and a clear polymer overcoat. Corrosion protection on inside surfaces shall protect metal from corrosion when subjected to the salt spray test of ASTM B 117 for 300 hours with the end point of 5% Red Rust.
2. End, corner, and pull posts for the following fabric heights:
   a. Up to 6 feet: 2.375 inch OD Type I or II steel pipe, 2 inch galvanized steel tube weighing 2.60 lbs. per lin. ft.
   b. Over 6 feet: 2.875 inch OD Type I or II steel pipe, 2 ½ inch steel tube weighing 5.10 lbs. per lin. ft.
3. Line or intermediate posts for following fabric heights:
   a. Up to 6 feet: 1.90 inch OD type I or II steel pipe, 1.875 inch.

b. Over 6 feet: 2.375 inch OD Type I or II steel pipe, 1.70 inch C section weighing 2.70 lbs. per lin. ft.

4. Gate Posts: Furnish posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate width as follows:
   a. Up to 6 feet: 2.875 inch OD type I or II steel pipe, 2 ½ inch galvanized steel tube weighing 5.0 lbs. per lin. ft.
   b. Over 6 feet to 13 feet: 4.00 inch OD Type I or II steel pipe.
5. Special Fabricated Gate: Furnish posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as detailed:
   a. Top Rail: Manufacturer's longest length, with expansion-type couplings, approximately 6 inches long, for each joint. Provide means for attaching top rail securely to each gate corner, pull, and end post.
   b. Galvanized Steel: ¼ inch NPS (1.66 inch OD) Type I or II steel pipe or 1.625 inch by 1.25 inch roll-formed C sections weighing 1.35 lb. per ft.
6. Concrete Footings for posts: Concrete for footings shall be Class "B" (2500 psi) and crowned to shed water. Size as shown below unless noted otherwise on drawings.
   a. Up to 6 feet: 32" deep and 12" in diameter
   b. Over 6 feet: 42" deep and 12" in diameter
   c. Over 10 feet: 60” deep and 16” in diameter
   -Posts shall stop 4” from bottom of post hole when installed

D. Fittings and Accessories
1. Material: Comply with ASTM F626-96. Mill-finished aluminum or galvanized iron or steel, to suit manufacturer's standards.
   a. Zinc Coating: Unless specified otherwise, galvanized steel fence fittings and accessories in accordance with ASTM A153/A153M-95, with zinc weights per Table 1.
   b. Tension Wire: 0.177 inch diameter metallic-coated steel marcelled tension wire conforming to ASTM A 842 with finish to match fabric
   c. Type II Zinc Coated in following class:
      Class 2, with a minimum coating weight of 1.20 oz. Pper sq. ft. of uncoated wire surface
2. Tie Wires: 7 gauge galvanized steel with a minimum of 0.80 oz. per sq. ft. of zinc coating surface area in accordance with ASTM A 641, Class 3 or 9 gauge (0.106 inch diameter) aluminum wire alloy 1100-H14 or equal, to match fabric core material.
3. Post and Line Caps: Provide weather-tight closure cap for each post. Provide line post caps with loop to receive wire or top rail.
4. Tension or Stretcher Bands: Hot-dipped galvanized steel with minimum length 2 inches less than full height of fabric, minimum cross-section of 3/16 inch by 3/4 inch and minimum of 1.2 oz. zinc coating per sq. ft. of surface area. Provide one bar for each gate and end post, and two for each corner and pull post, except where fabric integrally woven into post.
5. Tension and Brace Bands: Minimum 3/4 inch wide hot-dipped galvanized steel with minimum 1.2 oz zinc coating per sq. ft. of surface area.
6. Fabric Ties: Minimum 7 gauge. Aluminum ties will not be allowed.

2.02 FABRICATION

A. Fabrication
1. Provide all new stock of standard sizes specified or detailed. Fabricate materials in shop to produce high grade metal work. Form and fabricate to meet required conditions.
2. Include bolts, screws and other fastenings necessary to secure the work.
3. Conform applicable work to latest edition of AISC Specifications and AWS D1.1 for Welding in Building Construction

4. Accurately make and tightly fit joints and intersections in true planes with adequate fastenings.
5. Coordinate the work with work of other sections. Provide all punchings and drillings indicated or required for the attachment of the work to other sections.
6. Welding: Weld joints, unless otherwise indicated or specified, using shielded electric arc method. Use coated welding rods, not fluxed or type recommended by manufacturer for use with parent metal.
7. Grinding: Grind welds to smooth, flush joints.

2.03 GATES

A. Manually operated gate shall be fabricated to size and configuration indicated on drawings complete with gate hardware. When no hardware is detailed, provide 1" dia. minimum pole slide and 'C' latch and sleeve in ground. Hardware shall accommodate padlock.

B. Gate Frames: 1-1/2 inch diameter steel pipe, welded corners, hot dip galvanized after fabrication.

C. Sizes: As indicated on the drawings, minimum widths of gates shall not be less than 36".

D. Hardware: Heavy-duty, galvanized ferrous metal industrial quality as manufactured by Master Nalco, Fontana, CA, or equal as approved in accordance with Division I for product options and substitutions.

1. Hinges: Industrial malleable, three each leaf, ball and socket type, Series 15750.
2. Gate Fork Latch: Malleable, Series 16600. Remove fork latch at gates requiring panic exit devices, see note 5 below.
3. Latch Assembly: Malleable, Series 17200, drop rods at double gates.
4. Locking: Provide padlock capability.
5. Gate Hardware: Shall be mounted at 40" above finish floor
   a. All attachments to gate shall be welded. No clamp-on or bolted fittings will be permitted.

E. When a pair of gates is called for, contractor to include minimum 1" diameter cane bolt or pole slide with locking function to lock bolt in **UP** and **DOWN** position. Provide 12" diameter concrete base with steel sleeve to receive pole slide or cane bolt. Minimum depth of sleeve to be 6", minimum depth of concrete to be 8". Sleeve to be ½" greater diameter then pole/cane bolt. NOTE: ***Accessible gates CANNOT have cane bolts***.

2.04 FINISH

A. Following fabrication and prior to application of coatings, all metal shall be cleaned in a caustic solution to remove all grease, scale and rust.

B. Chromate Conversion and Clear Acrylic Urethane Coating: Class 1A pipe, in accordance with Section 210-4, SSPWC. Color to be selected by Architect.

C. Interior Surface Coating for Class 1A Pipe: In accordance with Section 210.3.2 SSPWC.

D. Vinyl Finish: Provide Class 2b PVC coating conforming to ASTM F 668, thermally fused and adhered to a thermally cured primer on fence components and associated items. Coating shall be 6 mils minimum thickness and 10 mils maximum thickness.

PART 3 - EXECUTION

3.01 PREPARATION

A. Prior to excavation of footings, layout all equipment for approval by Architect.

B. Preparation of Surfaces: It shall be the responsibility of this trade section to prepare all surfaces requiring paint finish. These surfaces shall be prepared to the standard of the trade and left without discrepancies, ready to receive paint, and in a condition acceptable for painting.

3.02 INSTALLATION OF CHAIN LINK FENCE

A. Conform to layout shown on Drawings, except as modified by the Owner.

B. Erect in strict conformance with approved Drawings, Shop Drawings, and manufacturer's recommendations.
C. Install new footings in conformance with the specifications and as shown in Drawings.
D. Post shall be installed vertical and plumb.
E. General: Install fence in compliance with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted. Apply fabric to outside of framework.
F. Excavation: Drill or hand-excavate (using post hole digger) holes for posts to diameter and spacing indicated in firm, undisturbed or compacted soil.
G. Setting Posts: Center and align posts in holes 3 inches above bottom of excavation. Space maximum 8 feet o.c., unless otherwise indicated. Match spacing of existing fencing when fencing is indicated to match existing.
H. Top Rails: Run rail continuously through line posts caps, bending to radius for curved runs and at other posts termination into rail end attached to posts or post caps fabricated to receive rail. Provide expansion coupling as recommended by fencing manufacturer.
I. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.
J. Bottom Rails: Install bottom rails between posts 2" above finished grade unless otherwise noted on drawings. Provide all necessary trim and accessories as required for a complete installation.
K. Fabric: Leave approximately 2 inches between finish grade and bottom selvages unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.
L. Tension or Stretcher Bars: Thread through or clamp to fabric 4 inches o.c. and secure to end, corner, pull, and gate posts with tension bands spaced not over 15 inches o.c.
M. Tie Wires: Use U-shaped wire of proper length to secure fabric firmly to posts and rails with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing. Maximum spacing: Tie fabric to line posts 12 inches o.c. and to rails and braces 24 inches o.c.
N. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
O. Gates: Install gates plumb, level, and secure for full opening without interference. Install groundset items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.
    1. Provide 1-7/8" O.D. bottom rail gate frame at fence locations.
P. Vinyl Slats: Not Used.

3.03 WARRANTY

A. Provide two year warranty to insure materials against rusting or breakdown of finish. Provide adjustments as needed to assure continued smooth operation of gates.

3.04 TESTING

A. At Owner's Representative's option, Contractor shall be required to cut any pipe column after installation to confirm requirements of this specification. If conformance is confirmed, replacement members shall be installed at Owner's cost. Components not meeting required standards shall be replaced.

END OF SECTION

SECTION 32 31 19

Steel Ornamental Fence System – Fusion Welded and Rackable

PART 1 - GENERAL
1.01 WORK INCLUDED
The contractor shall provide all labor, materials and appurtenances necessary for installation of the welded ornamental steel fence system defined herein at **Toyon Elementary School**.

NOTE: WHEN THE DRAWINGS AND THIS SPECIFICATION DO NOT MATCH, THE CONTRACTOR SHALL INCLUDE THE PRODUCTS AND INSTALLATION THAT IS MOST RESTRICTIVE, MOST EXPENSIVE, AND MOST DURABLE.

1.02 RELATED WORK
Section 31 00 00 – Earthwork
Section 32 12 16 – AC Paving
Section 32 13 13 – Concrete

1.03 SYSTEM DESCRIPTION
The manufacturer shall supply a total fence system of Montage Plus® Welded and Rackable Ornamental Steel Majestic 4" standard air space, as provided by Americstar Fench Products **OR APPROVED EQUAL**. The system shall include all components (i.e., panels, posts, gates and hardware) required.

1.04 QUALITY ASSURANCE
The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES
- ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
- ASTM D523 - Test Method for Specular Gloss
- ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
- ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.

1.06 SUBMITTAL
Submit full shop drawings showing verified field conditions in plan with post locations, sizes, callouts, fencing details, gate details (elevations and hardware detail)s, full hardware submittal, along with manufacturer's literature and recommended installation instructions for approval prior to ordering materials. Provide elevations where there is going to be a change in fence elevations (at sloped ground conditions).

1.07 PRODUCT HANDLING AND STORAGE
Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

1.08 PRODUCT WARRANTY
A. All structural fence components (i.e. rails, pickets, and posts) shall be warranted within specified limitations, by the manufacturer for a period of 20 years from date of original purchase. Warranty shall cover any defects in material finish, including cracking, peeling, chipping, blistering or corroding.

B. Reimbursement for labor necessary to restore or replace components that have been found to be defective under the terms of manufactures warranty shall be guaranteed for five (5) years from date of original purchase.

PART 2 - MATERIALS
2.01 MANUFACTURER
The fence system shall conform to Montage Plus standard picket Welded and Rackable Ornamental Steel, Majestic design, extended picket bottom rail treatment, 2-Rail, style manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma. OR APPROVED EQUAL.

2.02 MATERIAL
A. Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.60 oz/ft^2 (184 g/m^2), Coating Designation G-60.

B. Material for pickets shall be 3/4" square x 18 Ga. tubing. The rails shall be steel channel, 1.5" x 1.4375" x 14 Ga. Picket holes in the rail shall be spaced 4.675" o.c. for standard picket spacing – 4" air space. Fence posts and gate posts shall meet the minimum size requirements of Table 1.

2.03 FABRICATION
A. Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.

B. Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing using a specially calibrated alignment fixture. The aligned pickets and rails shall be joined at each picket-to-rail intersection by Ameristar's proprietary fusion welding process, thus completing the rigid panel assembly (Note: The process produces a virtually seamless, spatter-free good-neighbor appearance, equally attractive from either side of the panel).

C. The manufactured panels and posts shall be subjected to an inline electrode position coating (E-Coat) process consisting of a multi-stage pretreatment/wash (with zinc phosphate), followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The color shall be Black. The coated panels and posts shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2 (Note: The requirements in Table 2 meet or exceed the coating performance criteria of ASTM F2408).

D. The manufactured fence system shall be capable of meeting the vertical load, horizontal load, and infill performance requirements for Commercial weight fences under ASTM F2408.

E. Gates with an out to out leaf dimension less than and including 72 inches shall be fabricated using Montage Plus ornamental panel material and 1-3/4" sq. x 14ga. gate ends. Gate leafs greater than 72 inches shall be fabricated using ForeRunner rails, 17 gauge pickets, intermediate uprights, gussets and 1-3/4" sq. x 14ga. gate ends. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding.

PART 3 - EXECUTION
3.01 PREPARATION
All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 INSTALLATION
Fence post shall be spaced according to Table 3, plus or minus ¼". For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. Fence panels shall be attached to posts with brackets supplied by the manufacturer. Posts shall be set in concrete footers having a minimum depth of 42" (Note: In some cases, local restrictions of freezing weather conditions may require a greater depth). The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application and approved by the District and Architect prior to bid.

3.03 FENCE INSTALLATION MAINTENANCE
When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint

matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.04 GATE INSTALLATION

Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles – but at a minimum shall include the hinges and other hardware called out on the drawings. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.

3.05 CLEANING

The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

Table 1 – Minimum Sizes for Montage Plus Posts

Fence Posts	Panel Height	
2-1/2" x 16 Ga.	Up to & Including 6' Height	
Gate Leaf	Gate Height	
	Up to & Including 4'	Over 4' Up to & Including 6'
Up to 4'	2-1/2" x 14 Ga.	3" x 12 Ga.
4'1" to 6'	3" x 12 Ga.	3" x 12 Ga.
6'1" to 8'	3" x 12 Ga.	4" x 12 Ga.

Table 2 – Coating Performance Requirements

Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 1,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60˚ Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 3 – Montage Plus – Post Spacing By Bracket Type

Span	For CLASSIC, GENESIS, MAJESTIC, & WARRIOR 8' Nominal (91.95" Rail)					
Post Size	2-1/2"	2-1/2"	2-1/2"	3"	2-1/2"	3"
Bracket Type	Montage Plus Universal (BB112)	Montage Plus Line Blvd. (BB114)	Montage Plus Flat Mount (BB111)		Montage Plus Swivel (BB113)*	
Post Settings ± 1/4" O.C.	95"	95"	95"	95-1/2"	*95"	*95-1/2"
*Note: When using BB113 swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This will require trimming one or both ends of the panel.						

DESIGNATED PRE-MODERNIZATION/RENOVATION ASBESTOS AND LEAD SURVEY REPORT

TOYON ELEMENTARY SCHOOL
995 BARD STREET
SAN JOSÉ, CA 95132

2018 PLANNED MODERNIZATION AND EXTERIOR REPAINTING

Prepared for:
BERRYESSA UNION SCHOOL DISTRICT
945 PIEDMONT ROAD
SAN JOSÉ, CA 95132

September 29, 2017

HazMat Doc Project # 17-184

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HazMat Doc

CONTENTS

PART – I

OVERVIEW

HazMat Doc has completed a designated pre-modernization/renovation Asbestos and Lead survey project at Toyon Elementary School, located at 995 Bard Street, San José, CA 95132. This work was performed in response to a request by Mr. James Wilson of Kitchell CEM, Project Managers to the Berryessa Union School District (BUSD), as part of the Toyon Elementary School 2018 planned renovation and Exterior Repainting Project.

The purpose of the survey was to determine if any materials that may be impacted (as designated on the architectural drawings or as indicated by the Construction Managers) as a part of the modernization/renovation, would require controls as specified in Title 8, California Code of Regulations (OSHA), sections 1529 (Asbestos) and 1532.1 (Lead). HazMat Doc personnel visited the site from September 1 to September 8, 2017. Mr. Miguel Cruz of the BUSD and Mr. Omar Galvan of Kitchell, our site contacts for this survey, made all the necessary arrangements for access. Survey work was performed during off-hours to avoid disrupting the regular activities of the school.

OBSERVATIONS AND WORK PERFORMED

This designated survey is for the following:

- Flooring Replacement
- Glazing Replacement (where Plexiglas windows have become occluded or opaque)
- Interior and Exterior Re-Painting
- Full Renovation for the Flexible Instruction Space (FIS – Building F CR # 19 and 20)
- Full demolition survey for the south side 'add-on' storage space for Building G (Multi-Purpose)

The survey was performed for materials/surfaces in selected areas, as directed.

As part of the Exterior Repainting project and Baseline Lead in Dust and Soil Sampling was also performed. The purpose of the Sampling Project was to give the District and the Contractors bidding on the Project a representation of the conditions that currently exist before the start of activities for the planned exterior Re-Painting Project.

Asbestos

A total of one hundred sixteen (116) suspect asbestos samples were collected during the survey. Samples were collected from various locations within the above referenced buildings. The samples were appropriately bagged, labeled and prepared for delivery. All samples were transported and delivered under chain of custody to EMSL Analytical, Inc., in San Leandro, CA, for Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy (PLM). Original Laboratory results are enclosed for review and inclusion with the District's records for this site.

This survey is limited to materials/surfaces in selected areas that could be impacted as part of the modernization/renovation project, and covers only the accessible materials and surfaces designated by the District's Project Managers. However, materials may be present in inaccessible areas and/or not shown on the architectural drawings as surfaces scheduled to be impacted, and therefore are not included in this report.

Lead

Non-invasive/non-destructive readings were collected from suspect materials/surfaces using a NITON X-Ray Fluorescence Spectrometer (XRF) instrument model XLp-300. Paints or coatings found to contain Lead in a concentration equal to or greater than 1.0 mg/cm^2 as measured by XRF, are considered Lead-based paints by the Environmental Protection Agency (EPA). Items that are at or exceed this threshold are printed in **boldface** on the report enclosed for review and for the District's records for this site.

OBSERVATIONS AND WORK PERFORMED (continued)

This survey is limited to materials/surfaces in selected areas that could be impacted as part of the modernization/renovation project, and covers only the accessible materials and surfaces designated by the District's Project Managers. However, materials may be present in inaccessible areas and/or not shown on the architectural drawings as surfaces scheduled to be impacted, and therefore are not included in this report.

Exterior Re-Paint Project – Lead Bulk Chip Sampling

Sixty-Two (62) suspect bulk Lead containing samples were collected during the Survey. The samples were collected from various locations on the perimeters of the designated buildings and structures that could be impacted as part of the Exterior Re-Painting Project. The samples were appropriately bagged, labeled and prepared for delivery. The samples were transported to EMSL Analytical, Inc., in San Leandro, CA, under chain-of-custody for analysis by EPA SW846-7000B – Lead in Paint. Original Laboratory results are enclosed for review and inclusion with the District's records for this site.

Exterior Re-Paint Project – Lead in Dust Sampling

Thirty (30) "baseline" suspect Lead containing dust samples were collected during the Sampling. The samples were collected from various locations on the perimeters of the designated buildings and structures that could be impacted as part of the Exterior Re-Painting Project. The samples were appropriately bagged, labeled and prepared for delivery. The samples were transported under chain-of-custody to LA Testing in Huntington Beach, CA, for analysis by EPA SW846-3050B/7000B – Lead in Dust.

Exterior Re-Paint Project – Lead in Soil Sampling

Twelve (12) "baseline" suspect Lead containing soil samples were collected during the Sampling. The samples were collected from various locations on the perimeters of the designated buildings and structures that could be impacted as part of the Exterior Re-Painting Project. The samples were appropriately bagged, labeled and prepared for delivery. The samples were transported under chain-of-custody to LA Testing in Huntington Beach, CA, for analysis by EPA SW846-7000B – Lead in Soil.

This Survey is limited to and covers only the accessible materials and surfaces in selected areas, as designated by the District's Project Managers that could be impacted as part of the Modernization/Renovation Project. However, materials may be present in inaccessible areas and/or not shown on the architectural drawings or in the directions from the Project Managers as surfaces scheduled to be impacted, and therefore are not included in this Report.

The asbestos sample results, XRF readings, hazardous material observations and available historical data, if any, were used to create the Asbestos and Lead Scopes of Work for the proposed modernization/renovation project for the site. The Scope(s) include(s) materials that would require controls as specified in Title 8, California Code of Regulations (OSHA), sections 1529 (Asbestos) and 1532.1 (Lead). The Asbestos and Lead Scopes of Work include only areas and materials to be impacted as indicated either on the architectural drawings furnished by or designated in directions received from the Project Managers. DRAFT copies of the Asbestos and Lead Scopes of Work are enclosed in Part III of this report for review.

SUMMARY OF RESULTS AND RECOMMENDATIONS

Since the property is currently occupied, HazMat Doc did NOT perform a destructive survey of the property, i.e., our inspector(s) did not tear into walls or destroy other finishes in order to determine what material, if any, might exist in wall cavities, etc. It is however, recommended that an attempt be made to discover potentially "concealed" material(s) prior to construction activity.

SUMMARY OF RESULTS AND RECOMMENDATIONS (continued)

Asbestos

If any concealed suspect asbestos containing materials are discovered during further investigations prior to demolition/construction activities, they should be tested for asbestos content prior to being disturbed. Any friable material having greater than 1% of asbestos fiber content is considered to be a Regulated Asbestos Containing Material (RACM) by EPA. These materials should be handled by a licensed asbestos abatement contractor, prior to any modernization/renovation activity that might disturb these materials. Please note, however, that disturbance or abatement of any asbestos containing material (even less than 1%) should be performed by trained, certified, licensed and protected personnel who perform this work in accordance with applicable Regulations.

Lead

Eighty-Three (83) of the readings collected from suspect materials/surfaces by XRF indicated the presence of Lead in excess of 1.00 milligrams per square centimeter (1.00 mg/cm^2). Paints or coatings found to contain Lead in a concentration equal to or greater than 1.0 mg/cm^2 as measured by XRF, are considered Lead-based paints by the EPA. These materials should be handled by a licensed Lead removal contractor, prior to any modernization/renovation activity that might disturb these materials. However, it is important to note that there is Lead present in those surfaces with readings reported as "negative" (i.e. below 1.00 mg/cm^2 but above 0.00 mg/cm^2).

The Occupational Safety and Health Administration (OSHA) states that the disturbance of any Lead containing/coated material(s), regardless of the concentration of Lead, is considered a potential hazard. Any trades that might impact these surfaces must be made aware of the presence of Lead. These materials should be handled by appropriately trained and protected personnel who perform this work in accordance with applicable Regulations.

Survey Project

The XRF readings were used to create the Lead Scope of Work for the proposed interior Re-painting Project for the Site. The Scope includes materials that would require controls as specified in Title 8, California Code of Regulations (OSHA), section 1532.1 (Lead).

The Lead Scope of Work includes only areas and materials to be impacted as indicated either on the architectural drawings furnished by or designated in directions received from the District's Construction Project Managers. DRAFT copies of the Lead Scope of Work are included in Part III of this report for review.

Re-Paint Project

The Lead Bulk Chip Samples were used to create a Lead in Paint Summary for the exterior coatings found to contain Lead concentrations, (and if so, at what level), and for the coatings that had no detectable Lead concentration above the Laboratory Reporting Detection Limit. The Lead in Paint Summary is only for those buildings and structures designated to be included in the proposed Exterior Re-Painting Project. Please see the enclosed Summary of Paint Sampling Performed.

The Lead in Dust and Soil sample results were used to create a summary of the "baseline" sampling performed. The Lead in Dust and Soil Summary shows the current, pre-existing conditions on the perimeters of the buildings and structures on this Site that were designated to be included in the proposed Exterior Re-Painting Project. Please see the enclosed Summary of Baseline Dust and Soil Sampling Performed.

SUMMARY OF RESULTS AND RECOMMENDATIONS (continued)

Lead Notification

As directed by the California Department of Public Health (CDPH) in their Lead Hazard Evaluation – Reporting Requirements Reminder dated June 5, 2006 we have submitted the requisite CDPH form 8552 to the Childhood Lead Poisoning Prevention Branch in Richmond, California. A copy of the same CDPH form 8552 is attached to this report for your records.

Please note, this is not a complete survey of asbestos containing materials or of materials/surfaces that may be coated with Lead containing paint for this site. This survey has been exclusively focused on those materials/surfaces that are designated to be impacted as a part of the modernization/renovation project.

HazMat Doc

Zen B. Doctor,
Project Manager

PART – II

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EMSL Order: 091717710
Customer ID: HAZM63
Customer PO: 17-184
Project ID:

Attention: Zen Doctor
HazMat Doc
3080 Olcott Street
Suite 135D
Santa Clara, CA 95054

Phone: (408) 386-3933
Fax: (408) 748-0066
Received Date: 09/09/2017 9:00 AM
Analysis Date: 09/15/2017
Collected Date: 09/05/2017

Project: Job# 17-184 - Berryessa Union School District - Toyon Elementary School

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-001 *091717710-0001*	Bldg K, CR-22, 2'x4' suspended ceiling tile	Tan Fibrous Homogeneous	50% Cellulose 30% Min. Wool	20% Non-fibrous (Other)	None Detected
TA-002 *091717710-0002*	Bldg K, CR-22, south side, vinyl wall covered	White Fibrous Homogeneous	30% Cellulose	50% Matrix 20% Non-fibrous (Other)	None Detected
TA-003-Adhesive *091717710-0003*	Bldg K, CR-22, south side, vinyl wall covered adhesive + fiber board	Tan Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-003-Fiberboard *091717710-0003A*	Bldg K, CR-22, south side, vinyl wall covered adhesive + fiber board	Brown Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
TA-004 *091717710-0004*	Bldg K, CR-22, south side, vinyl wall covered wall panel mastic	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-005 *091717710-0005*	Bldg K, CR-22, east side, interior window black sealant	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-006 *091717710-0006*	Bldg K, CR-22, east side, 4" baseboard beige + brown mastic	Brown/Beige Non-Fibrous Homogeneous		10% Ca Carbonate 70% Matrix 20% Non-fibrous (Other)	None Detected
TA-007 *091717710-0007*	Bldg K, CR-22, east side, exterior wood wall + metal frame white sealant	White Non-Fibrous Homogeneous		50% Ca Carbonate 10% Matrix 40% Non-fibrous (Other)	None Detected
TA-008-Mastic *091717710-0008*	Bldg K, CR-22, east side, floor carpet, yellow mastic + white compound	Yellow Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-008-Compound *091717710-0008A*	Bldg K, CR-22, east side, floor carpet, yellow mastic + white compound	White Non-Fibrous Homogeneous		60% Ca Carbonate 20% Gypsum 20% Non-fibrous (Other)	None Detected
TA-009-Texture *091717710-0009*	Bldg K, CR-22, east side, exterior wood wall rough texture + paint	Gray/White Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (Other)	None Detected
TA-009-Paint *091717710-0009A*	Bldg K, CR-22, east side, exterior wood wall rough texture + paint	White Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-010-Roll Sheet *091717710-0010*	Bldg K, CR-22, roof core, roll sheet + black mastic, top layer	White/Black Non-Fibrous Homogeneous	10% Glass	5% Quartz 10% Ca Carbonate 60% Matrix 15% Non-fibrous (Other)	None Detected

Initial report from: 09/15/2017 15:55:05

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EMSL Order:	091717710
Customer ID:	HAZM63
Customer PO:	17-184
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-010-Mastic *091717710-0010A*	Bldg K, CR-22, roof core, roll sheet + black mastic, top layer	Black Non-Fibrous Homogeneous		95% Matrix 5% Non-fibrous (Other)	None Detected
TA-011-Felt *091717710-0011*	Bldg K, CR-22, roof core, black felt paper + mastic, 2nd layer	Black Fibrous Homogeneous	10% Glass	10% Ca Carbonate 60% Matrix 20% Non-fibrous (Other)	None Detected
TA-011-Mastic *091717710-0011A*	Bldg K, CR-22, roof core, black felt paper + mastic, 2nd layer	Black Non-Fibrous Homogeneous		90% Matrix 10% Non-fibrous (Other)	None Detected
TA-012-Felt *091717710-0012*	Bldg K, CR-22, roof core, black felt paper + mastic, bottom layer	Black Fibrous Homogeneous	10% Glass	10% Ca Carbonate 60% Matrix 20% Non-fibrous (Other)	None Detected
TA-012-Mastic *091717710-0012A*	Bldg K, CR-22, roof core, black felt paper + mastic, bottom layer	Black Non-Fibrous Homogeneous		90% Matrix 10% Non-fibrous (Other)	None Detected
TA-013 *091717710-0013*	Bldg K, CR-22, roof penetration + edges gray & black sealant	Black Non-Fibrous Homogeneous		5% Ca Carbonate 70% Matrix 21% Non-fibrous (Other)	4% Chrysotile

Analyst(s)
Shane Heisser (19)

Matthew Batongbacal
or Other Approved Signatory

Initial report from: 09/15/2017 15:55:05

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EMSL Order:	091717712
Customer ID:	HAZM63
Customer PO:	17-184
Project ID:	

Attention:	Zen Doctor	**Phone:**	(408) 386-3933
	HazMat Doc	**Fax:**	(408) 748-0066
	3080 Olcott Street	**Received Date:**	09/09/2017 9:00 AM
	Suite 135D	**Analysis Date:**	09/11/2017
	Santa Clara, CA 95054	**Collected Date:**	09/05/2017
Project:	Job# 17-184 - Berryessa Union School District - Toyon Elementary School		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-014-Roll Sheet *091717712-0001*	Bldg G, Storage Room, roof core, roll sheet + black mastic, top layer	Black Non-Fibrous Homogeneous	5% Glass	20% Quartz 70% Matrix 5% Non-fibrous (Other)	None Detected
TA-014-Mastic *091717712-0001A*	Bldg G, Storage Room, roof core, roll sheet + black mastic, top layer	Black Non-Fibrous Homogeneous		98% Matrix 2% Non-fibrous (Other)	None Detected
TA-015-Roof Felt *091717712-0002*	Bldg G, Storage Room, roof core, black felt paper + mastic, 2nd layer	Black Fibrous Homogeneous	15% Glass	80% Matrix 5% Non-fibrous (Other)	None Detected
TA-015-Mastic *091717712-0002A*	Bldg G, Storage Room, roof core, black felt paper + mastic, 2nd layer	Black Non-Fibrous Homogeneous		98% Matrix 2% Non-fibrous (Other)	None Detected
TA-016 *091717712-0003*	Bldg G, Storage Room, roof core, black felt paper + mastic, 3rd layer	Black Fibrous Homogeneous	15% Glass	80% Matrix 5% Non-fibrous (Other)	None Detected
TA-017 *091717712-0004*	Bldg G, Storage Room, roof core, lt brown gray roof insulation, 4th layer	Tan Fibrous Homogeneous	100% Cellulose		None Detected
TA-018-Roof Felt *091717712-0005*	Bldg G, Storage Room, roof core, black felt paper + mastic, 5th layer	Black Fibrous Homogeneous	10% Cellulose	80% Matrix 10% Non-fibrous (Other)	None Detected
TA-018-Mastic *091717712-0005A*	Bldg G, Storage Room, roof core, black felt paper + mastic, 5th layer	Black Non-Fibrous Homogeneous		90% Matrix 10% Non-fibrous (Other)	None Detected
TA-019 *091717712-0006*	Bldg G, Storage Room, roof core, pink paper only, bottom layer	Pink Fibrous Homogeneous	100% Cellulose		None Detected
TA-020-Penetration Mastic *091717712-0007*	Bldg G, Storage Room, roof penetration + edge gray, white + black sealant	Gray Non-Fibrous Homogeneous	5% Cellulose	90% Matrix 5% Non-fibrous (Other)	None Detected
TA-020-White Sealant *091717712-0007A*	Bldg G, Storage Room, roof penetration + edge gray, white + black sealant	White Non-Fibrous Homogeneous		90% Matrix 10% Non-fibrous (Other)	None Detected

Initial report from: 09/15/2017 13:37:52

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EMSL Order: 091717712
Customer ID: HAZM63
Customer PO: 17-184
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
TA-020-Black Sealant *091717712-0007B*	Bldg G, Storage Room, roof penetration + edge gray, white + black sealant	Black Non-Fibrous Homogeneous		98% Matrix 2% Non-fibrous (Other)	None Detected
TA-021-Skim Coat *091717712-0008*	Bldg G, Storage Room, south side, exterior skim coat + paint, for stucco	Tan/White Non-Fibrous Homogeneous		95% Ca Carbonate 5% Non-fibrous (Other)	None Detected
TA-021-Paint *091717712-0008A*	Bldg G, Storage Room, south side, exterior skim coat + paint, for stucco	White Non-Fibrous Homogeneous		98% Matrix 2% Non-fibrous (Other)	None Detected
TA-022 *091717712-0009*	Bldg G, Storage Room, south side, exterior wall gray stucco	Gray Non-Fibrous Homogeneous		50% Quartz 40% Ca Carbonate 10% Non-fibrous (Other)	<1% Chrysotile
TA-023 *091717712-0010*	Bldg G, Storage Room, south side, exterior wall black felt paper	Brown/Black Fibrous Homogeneous	100% Cellulose		None Detected
TA-024-Skim Coat *091717712-0011*	Bldg G, Storage Room, south side, interior skim coat + paint for stucco	Tan/White Non-Fibrous Homogeneous		95% Ca Carbonate 5% Non-fibrous (Other)	None Detected
TA-024-Paint *091717712-0011A*	Bldg G, Storage Room, south side, interior skim coat + paint for stucco	White Non-Fibrous Homogeneous		90% Matrix 10% Non-fibrous (Other)	None Detected
TA-025 *091717712-0012*	Bldg G, Storage Room, south side, interior gray stucco	Gray Non-Fibrous Homogeneous		50% Quartz 40% Ca Carbonate 10% Non-fibrous (Other)	None Detected

Analyst(s)
Oscar Merino (19)

Matthew Batongbacal
or Other Approved Signatory

Initial report from: 09/15/2017 13:37:52

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EMSL Order:	091717700
Customer ID:	HAZM63
Customer PO:	17-184
Project ID:	

Attention:	Maheen B. Doctor	**Phone:**	(408) 748-0055
	HazMat Doc	**Fax:**	(408) 748-0066
	3080 Olcott Street	**Received Date:**	09/09/2017 9:00 AM
	Suite 135D	**Analysis Date:**	09/15/2017
	Santa Clara, CA 95054	**Collected Date:**	09/06/2017
Project:	17-184 - Berryessa Union School District - Toyon Elementary School		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
TA-026 *091717700-0001*	Building G, Kitchen Only Tan and Dark Brown Mastic for 6" Blue Baseboard	Brown/Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-027 *091717700-0002*	Building G, Kitchen, Blue Vinyl Sheeting (Flooring)	Blue Non-Fibrous Homogeneous		40% Ca Carbonate 40% Matrix 20% Non-fibrous (Other)	None Detected
TA-028-Mastic *091717700-0003*	Building G, Kitchen, Tan and Black Mastic for Vinyl Sheeting & Leveling compound	Tan/Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	<1% Chrysotile
TA-028-Leveling Compound *091717700-0003A*	Building G, Kitchen, Tan and Black Mastic for Vinyl Sheeting & Leveling compound	Gray Non-Fibrous Homogeneous		30% Quartz 50% Ca Carbonate 20% Non-fibrous (Other)	<1% Chrysotile
TA-029 *091717700-0004*	Building G, MPR, Blue 12"x12" VFT	Blue Non-Fibrous Homogeneous		50% Ca Carbonate 30% Matrix 20% Non-fibrous (Other)	None Detected
TA-030 *091717700-0005*	Building G, MPR, White 12"x12" VFT	White Non-Fibrous Homogeneous		70% Ca Carbonate 10% Matrix 20% Non-fibrous (Other)	None Detected
TA-031 *091717700-0006*	Building G, MPR, Mastic for Blue and White VFT	Tan/Black Non-Fibrous Homogeneous	10% Cellulose	10% Ca Carbonate 60% Matrix 20% Non-fibrous (Other)	None Detected
TA-032 *091717700-0007*	Building G, MPR, Mastic for 4" Gray Baseboard	Beige Non-Fibrous Homogeneous		15% Ca Carbonate 70% Matrix 15% Non-fibrous (Other)	None Detected
TA-033 *091717700-0008*	Building G, Publishing Center (Classroom) Tan and Black Mastic for Carpet	Tan/Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	<1% Chrysotile
TA-034 *091717700-0009*	Building G, Publishing Center (Classroom) Mastic for 4" Blue Baseboard	Beige Non-Fibrous Homogeneous		15% Ca Carbonate 70% Matrix 15% Non-fibrous (Other)	None Detected
TA-035 *091717700-0010*	Buildiing H Library, Tan Mastic for Carpet	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-036 *091717700-0011*	Buildiing H Library, Tan Mastic and Beige Adhesive for 4" Blue Baseboard	Tan/Beige Non-Fibrous Homogeneous		10% Ca Carbonate 70% Matrix 20% Non-fibrous (Other)	None Detected
TA-037-Mastic *091717700-0012*	Buildiing H Library, RSP Room, Tan Mastic for Carpet & Leveling Compound	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-037-Leveling Compound *091717700-0012A*	Buildiing H Library, RSP Room, Tan Mastic for Carpet & Leveling Compound	Gray Non-Fibrous Homogeneous		50% Quartz 50% Non-fibrous (Other)	None Detected

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EMSL Order:	091717700
Customer ID:	HAZM63
Customer PO:	17-184
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type

Analyst(s)
Shane Heisser (14)

Matthew Batongbacal
or Other Approved Signatory

Initial report from: 09/15/2017 14:51:58

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EMSL Order:	091717709
Customer ID:	HAZM63
Customer PO:	17-184
Project ID:	

Attention:	Zen Doctor	**Phone:**	(408) 386-3933
	HazMat Doc	**Fax:**	(408) 748-0066
	3080 Olcott Street	**Received Date:**	09/09/2017 9:00 AM
	Suite 135D	**Analysis Date:**	09/15/2017
	Santa Clara, CA 95054	**Collected Date:**	09/06/2017
Project:	Job# 17-184 - Berryessa Union School District - Toyon Elementary School		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-038 *091717709-0001*	Building A, Staff Kitchen, Blue 12"x12" VFT	Blue Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-039 *091717709-0002*	Building A, Staff Kitchen, Mastic for VFT	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-040 *091717709-0003*	Building A, Staff Lounge, Tan Mastic for Carpet	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-041 *091717709-0004*	Building A, Staff Kitchen Hallway, Mastic for 4" Blue Baseboard	White Non-Fibrous Homogeneous		25% Ca Carbonate 65% Matrix 10% Non-fibrous (Other)	None Detected
TA-042-VFT *091717709-0005*	Building A, Storage Room, White 12"x12" VFT (+Mastic)	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-042-Mastic *091717709-0005A*	Building A, Storage Room, White 12"x12" VFT (+Mastic)	Yellow Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-043-Mastic *091717709-0006*	Building A, Storage Room, Tan and Dark Brown Mastic for VFT (+Compound)	Brown/Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-043-Compound *091717709-0006A*	Building A, Storage Room, Tan and Dark Brown Mastic for VFT (+Compound)	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-044 *091717709-0007*	Building A, Admin Area, 2'x4' Suspended Ceiling Tile	Gray Fibrous Homogeneous	60% Cellulose 10% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
TA-045 *091717709-0008*	Building B, Room 1, Tan Mastic for Carpet	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-046-Mastic *091717709-0009*	Building B, Room 1, Tan Mastic and White Adhesive for 4" Baseboard				Insufficient Material
Insufficient amount of tan/brown mastic present in sample					
TA-046-Adhesive *091717709-0009A*	Building B, Room 1, Tan Mastic and White Adhesive for 4" Baseboard	White Non-Fibrous Homogeneous		20% Ca Carbonate 70% Matrix 10% Non-fibrous (Other)	None Detected
TA-047 *091717709-0010*	Building B, Room 2, Grout for 8"x8" Ceramic Floor Tile	Gray Non-Fibrous Homogeneous		45% Quartz 15% Ca Carbonate 20% Gypsum 20% Non-fibrous (Other)	None Detected
TA-048 *091717709-0011*	Building C, Room 3, Tan Mastic for Carpet	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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EMSL Order:	091717709
Customer ID:	HAZM63
Customer PO:	17-184
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
TA-049-VFT *091717709-0012*	Building C, Room 3, White 12"x12" VFT (+Mastic) Under Carpet	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-049-Mastic *091717709-0012A*	Building C, Room 3, White 12"x12" VFT (+Mastic) Under Carpet	Yellow Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

Analyst(s)
Cecilia Yu (15)

Matthew Batongbacal
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro, CA NVLAP Lab Code 101048-3, WA C884

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EMSL Order:	091717694
Customer ID:	HAZM63
Customer PO:	17-184
Project ID:	

Attention:	Maheen B. Doctor	**Phone:**	(408) 748-0055
	HazMat Doc	**Fax:**	(408) 748-0066
	3080 Olcott Street	**Received Date:**	09/09/2017 9:00 PM
	Suite 135D	**Analysis Date:**	09/15/2017
	Santa Clara, CA 95054	**Collected Date:**	09/06/2017

Project: 17-184 - Berryessa Union School District - Toyon Elementary School

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-050 *091717694-0001*	Building C, Room 3, Tan and Dark Brown Mastic VFT Under Carpet	Brown/Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-051 *091717694-0002*	Building C, Room 3, Grout for 8" x8" Ceramic Floor Tile	Gray Non-Fibrous Homogeneous		20% Quartz 60% Ca Carbonate 20% Non-fibrous (Other)	None Detected
TA-052 *091717694-0003*	Building C, Room 5, Tan Mastic for Carpet	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-053 *091717694-0004*	Building C, Room 5, Only Mastic/Adhesive for 4" Baseboard	Tan Non-Fibrous Homogeneous		15% Ca Carbonate 70% Matrix 15% Non-fibrous (Other)	None Detected
TA-054 *091717694-0005*	Building C, Room 5, Grout for 8"x8" Cereamic Floor Tile	Gray Non-Fibrous Homogeneous		20% Quartz 60% Ca Carbonate 20% Non-fibrous (Other)	None Detected
TA-055 *091717694-0006*	Building C, Room 5, White 12"x12" VFT (+mastic) Under carpet	White Non-Fibrous Homogeneous		70% Ca Carbonate 5% Matrix 25% Non-fibrous (Other)	None Detected
TA-056 *091717694-0007*	Building C, Room 5, Mastic for VFT Under Carpet	Brown/Yellow Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-057 *091717694-0008*	Building J Room 7 Tan Mastic for Carpet	Brown/Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-058 *091717694-0009*	Bldg. J Room 7 Only Mastic for 4" Baseboard	Beige Non-Fibrous Homogeneous		15% Ca Carbonate 70% Matrix 15% Non-fibrous (Other)	None Detected
TA-059 *091717694-0010*	Bldg. J Room 7 Tan and Black Mastic for VFT (Under Carpet)	Tan/Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	<1% Chrysotile
TA-060 *091717694-0011*	Bldg. J Room 7 White 12"x12" VFT (Under Carpet)	White Non-Fibrous Homogeneous		70% Ca Carbonate 5% Matrix 25% Non-fibrous (Other)	None Detected
TA-061 *091717694-0012*	Bldg. J Room 7 Grout for 8"x8" Ceramic Floor Tile	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 15% Gypsum 15% Non-fibrous (Other)	None Detected

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EMSL Order:	091717694
Customer ID:	HAZM63
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Project ID:	

Analyst(s)
Shane Heisser (12)

Matthew Batongbacal
or Other Approved Signatory

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EMSL Order:	091717713
Customer ID:	HAZM63
Customer PO:	17-184
Project ID:	

Attention:	Zen Doctor	**Phone:**	(408) 386-3933
	HazMat Doc	**Fax:**	(408) 748-0066
	3080 Olcott Street	**Received Date:**	09/09/2017 9:00 AM
	Suite 135D	**Analysis Date:**	09/11/2017 - 09/13/2017
	Santa Clara, CA 95054	**Collected Date:**	09/07/2017
Project:	Job# 17-184 - Berryessa Union School District - Toyon Elementary School		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
TA-062 *091717713-0001*	Bldg D, Classroom 9-D09, South Side, 4" baseboard beige mastic	Beige Non-Fibrous Homogeneous		30% Ca Carbonate 60% Matrix 10% Non-fibrous (Other)	None Detected
TA-063-Mastic *091717713-0002*	Bldg D, Classroom 9-D09, South Side, floor carpet yellow mastic + gray compound	Yellow Non-Fibrous Homogeneous		25% Ca Carbonate 60% Matrix 15% Non-fibrous (Other)	None Detected
TA-063-compound *091717713-0002A*	Bldg D, Classroom 9-D09, South Side, floor carpet yellow mastic + gray compound	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-064 *091717713-0003*	Bldg D, Classroom 9-D09, South Side, 12" off white vinyl floor tile	White Non-Fibrous Homogeneous		70% Ca Carbonate 10% Matrix 20% Non-fibrous (Other)	None Detected
TA-065-Mastic *091717713-0004*	Bldg D, Classroom 9-D09, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Yellow Non-Fibrous Homogeneous		20% Ca Carbonate 60% Matrix 20% Non-fibrous (Other)	None Detected
TA-065-Mastic 2 *091717713-0004A* *Limited material*	Bldg D, Classroom 9-D09, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Black Non-Fibrous Homogeneous		30% Ca Carbonate 50% Matrix 20% Non-fibrous (Other)	None Detected
TA-065-Compound *091717713-0004B*	Bldg D, Classroom 9-D09, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Gray Non-Fibrous Homogeneous		10% Quartz 50% Ca Carbonate 30% Matrix 10% Non-fibrous (Other)	None Detected
TA-066 *091717713-0005*	Bldg D, Classroom 9-D09, South Side, 8" ceramic floor tile gray grout	Gray Non-Fibrous Homogeneous		10% Quartz 70% Ca Carbonate 20% Non-fibrous (Other)	None Detected
TA-067 *091717713-0006*	Bldg D, Classroom 11-D11, South Side, 4" baseboard beige mastic	Beige Non-Fibrous Homogeneous		30% Ca Carbonate 60% Matrix 10% Non-fibrous (Other)	None Detected
TA-068-Mastic *091717713-0007*	Bldg D, Classroom 11-D11, South Side, floor carpet yellow mastic + gray compound	Yellow Non-Fibrous Homogeneous		25% Ca Carbonate 60% Matrix 15% Non-fibrous (Other)	None Detected

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EMSL Order: 091717713
Customer ID: HAZM63
Customer PO: 17-184
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
TA-068-Compound *091717713-0007A*	Bldg D, Classroom 11-D11, South Side, floor carpet yellow mastic + gray compound	Gray Non-Fibrous Homogeneous		60% Ca Carbonate 20% Matrix 20% Non-fibrous (Other)	None Detected
TA-069 *091717713-0008*	Bldg D, Classroom 11-D11, South Side, 12" off white vinyl floor tile	White Non-Fibrous Homogeneous		50% Ca Carbonate 40% Matrix 10% Non-fibrous (Other)	None Detected
TA-070-Mastic *091717713-0009*	Bldg D, Classroom 11-D11, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Tan Non-Fibrous Homogeneous		15% Ca Carbonate 70% Matrix 15% Non-fibrous (Other)	None Detected
TA-070-Mastic 2 *091717713-0009A* *Limited material*	Bldg D, Classroom 11-D11, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Black Non-Fibrous Homogeneous		25% Ca Carbonate 50% Matrix 25% Non-fibrous (Other)	None Detected
TA-070-Compound *091717713-0009B*	Bldg D, Classroom 11-D11, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Gray Non-Fibrous Homogeneous		60% Ca Carbonate 25% Gypsum 15% Non-fibrous (Other)	None Detected
TA-071 *091717713-0010*	Bldg D, Classroom 11-D11, South Side, 8" ceramic floor tile gray grout	Gray/Black Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-072 *091717713-0011*	Bldg E, Classroom 13-E13, South Side, 4" baseboard beige mastic	Beige Non-Fibrous Homogeneous		30% Ca Carbonate 60% Matrix 10% Non-fibrous (Other)	None Detected
TA-073-Mastic *091717713-0012*	Bldg E, Classroom 13-E13, South Side, floor carpet, yellow mastic + gray compound	Yellow Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-073-Compound *091717713-0012A*	Bldg E, Classroom 13-E13, South Side, floor carpet, yellow mastic + gray compound	Gray Non-Fibrous Homogeneous		25% Quartz 70% Ca Carbonate 5% Non-fibrous (Other)	None Detected
TA-074 *091717713-0013*	Bldg E, Classroom 13-E13, South Side, 12" off white vinyl floor tile	White Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (Other)	None Detected
TA-075-Mastic *091717713-0014*	Bldg E, Classroom 13-E13, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Yellow Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected

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EMSL Order: 091717713
Customer ID: HAZM63
Customer PO: 17-184
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-075-Mastic 2 *091717713-0014A* *Limited material*	Bldg E, Classroom 13-E13, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Black Non-Fibrous Homogeneous		25% Ca Carbonate 60% Matrix 15% Non-fibrous (Other)	None Detected
TA-075-Compound *091717713-0014B*	Bldg E, Classroom 13-E13, South Side, 12" off white vinyl floor tile, yellow + black mastic + gray compound	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-076 *091717713-0015*	Bldg E, Classroom 13-E13, South Side, 8" ceramic floor tile gray grout	White Non-Fibrous Homogeneous		20% Quartz 70% Ca Carbonate 10% Non-fibrous (Other)	None Detected
TA-077 *091717713-0016*	Bldg E, Classroom 15-E15, South Side, 4" baseboard beige mastic	Beige Non-Fibrous Homogeneous		30% Ca Carbonate 70% Matrix	None Detected
TA-078-Mastic *091717713-0017*	Bldg E, Classroom 15-E15, South Side, floor carpet yellow mastic + gray compound	Yellow Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-078-Compound *091717713-0017A*	Bldg E, Classroom 15-E15, South Side, floor carpet yellow mastic + gray compound	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-079 *091717713-0018*	Bldg E, Classroom 15-E15, South Side, 12" off white vinyl floor tile	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-080-Mastic *091717713-0019*	Bldg E, Classroom 15-E15, South Side, 12" off white vinyl floor tile yellow + black mastic	Yellow Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-080-Mastic 2 *091717713-0019A* *Limited material*	Bldg E, Classroom 15-E15, South Side, 12" off white vinyl floor tile yellow + black mastic	Black Non-Fibrous Homogeneous		25% Ca Carbonate 60% Matrix 15% Non-fibrous (Other)	None Detected
TA-081 *091717713-0020*	Bldg E, Classroom 15-E15, South Side, 8" ceramic floor tile gray grout	Gray Non-Fibrous Homogeneous		10% Quartz 70% Ca Carbonate 20% Non-fibrous (Other)	None Detected
TA-082 *091717713-0021*	Bldg E, Classroom 16-E16, North Side, exterior window putty	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-083-Skim Coat *091717713-0022*	Bldg E, Boys Restroom E18, North Wall, skim coat + paint, for gypsum board	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected

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EMSL Order: 091717713
Customer ID: HAZM63
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-083-Paint *091717713-0022A*	Bldg E, Boys Restroom E18, North Wall, skim coat + paint, for gypsum board	White Non-Fibrous Homogeneous		60% Matrix 40% Non-fibrous (Other)	None Detected
TA-084-Joint Tape *091717713-0023*	Bldg E, Boys Restroom E18, North Wall, joint tape + mud, for gypsum board	White Fibrous Homogeneous	100% Cellulose		None Detected
TA-084-Mud *091717713-0023A*	Bldg E, Boys Restroom E18, North Wall, joint tape + mud, for gypsum board	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
TA-085 *091717713-0024*	Bldg E, Boys Restroom E18, North Wall, gypsum board	White Non-Fibrous Homogeneous	2% Cellulose 1% Glass	80% Gypsum 17% Non-fibrous (Other)	None Detected
TA-086 *091717713-0025*	Bldg E, Boys Restroom E18, West Side, vinyl wall covered adhesive	Clear Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-087 *091717713-0026*	Bldg E, Boys Restroom E18, West Side, 8" ceramic wall tile gray grout	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-088 *091717713-0027*	Bldg E, Boys Restroom E18, West Side, 8" ceramic floor tile gray grout	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-089 *091717713-0028*	Bldg F, Classroom 18-F18, South Side, 4" baseboard beige mastic	Beige Non-Fibrous Homogeneous		25% Ca Carbonate 60% Matrix 15% Non-fibrous (Other)	None Detected
TA-090-Mastic *091717713-0029*	Bldg F, Classroom 18-F18, South Side, floor carpet, yellow mastic + gray compound	Yellow Non-Fibrous Homogeneous		15% Ca Carbonate 60% Matrix 25% Non-fibrous (Other)	None Detected
TA-090-Compound *091717713-0029A*	Bldg F, Classroom 18-F18, South Side, floor carpet, yellow mastic + gray compound	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-091 *091717713-0030*	Bldg F, Classroom 18-F18, South Side, 12" off white vinyl floor tile	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-092-Mastic *091717713-0031*	Bldg F, Classroom 18-F18, South Side, 12" off white vinyl floor tile, yellow mastic + gray + white compound	Tan Non-Fibrous Homogeneous		25% Ca Carbonate 60% Matrix 15% Non-fibrous (Other)	None Detected
TA-092-Compound *091717713-0031A*	Bldg F, Classroom 18-F18, South Side, 12" off white vinyl floor tile, yellow mastic + gray + white compound				Insufficient Material

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EMSL Order:	091717713
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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-092-Compound 2 *091717713-0031B*	Bldg F, Classroom 18-F18, South Side, 12" off white vinyl floor tile, yellow mastic + gray + white compound	White Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (Other)	None Detected
TA-093 *091717713-0032*	Bldg F, Classroom 18-F18, South Side, 8" ceramic floor tile gray grout	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-094 *091717713-0033*	Bldg F, Classroom 20-F20, 1'x1' ceiling tile	Gray Fibrous Homogeneous	45% Cellulose 10% Min. Wool	45% Non-fibrous (Other)	None Detected
TA-095-Skim Coat *091717713-0034*	Bldg F, Classroom 20-F20, east wall, skim coat + paint, for gypsum board				Insufficient Material
TA-095-Paint *091717713-0034A*	Bldg F, Classroom 20-F20, east wall, skim coat + paint, for gypsum board	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
TA-096-Joint Tape *091717713-0035*	Bldg F, Classroom 20-F20, northeast corner wall, joint tape + mud, for gypsum board	White Fibrous Homogeneous	100% Cellulose		None Detected
TA-096-Mud *091717713-0035A*	Bldg F, Classroom 20-F20, northeast corner wall, joint tape + mud, for gypsum board	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
TA-097 *091717713-0036*	Bldg F, Classroom 20-F20, east wall, gypsum board	White Non-Fibrous Homogeneous	1% Glass	80% Gypsum 19% Non-fibrous (Other)	None Detected
TA-098 *091717713-0037*	Bldg F, Classroom 20-F20, northeast corner wall, vinyl wall covered	White Non-Fibrous Homogeneous	5% Cellulose	60% Matrix 35% Non-fibrous (Other)	None Detected
TA-099 *091717713-0038*	Bldg F, Classroom 20-F20, northeast corner, vinyl wall covered adhesive	Brown/White Fibrous Homogeneous	5% Cellulose	60% Matrix 35% Non-fibrous (Other)	None Detected
TA-100-Fiberboard *091717713-0039*	Bldg F, Classroom 20-F20, northeast corner, vinyl wall covered panel, fiberboard + brown mastic	Brown Non-Fibrous Homogeneous		15% Gypsum 70% Matrix 15% Non-fibrous (Other)	None Detected
TA-100-Mastic *091717713-0039A*	Bldg F, Classroom 20-F20, northeast corner, vinyl wall covered panel, fiberboard + brown mastic	Brown Non-Fibrous Homogeneous		25% Gypsum 60% Matrix 15% Non-fibrous (Other)	None Detected
TA-101 *091717713-0040*	Bldg F, Classroom 20-F20, north side, interior window putty	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 28% Non-fibrous (Other)	2% Chrysotile

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-102 *091717713-0041*	Bldg F, Classroom 20-F20, southeast corner, 4" baseboard beige mastic	Beige Non-Fibrous Homogeneous		20% Ca Carbonate 60% Matrix 20% Non-fibrous (Other)	None Detected
TA-103-Mastic *091717713-0042*	Bldg F, Classroom 20-F20, southeast corner, floor carpet yellow + black mastic + gray compound	Tan Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-103-Mastic 2 *091717713-0042A* *Limited Material*	Bldg F, Classroom 20-F20, southeast corner, floor carpet yellow + black mastic + gray compound	Black Non-Fibrous Homogeneous	5% Cellulose	60% Matrix 35% Non-fibrous (Other)	None Detected
TA-103-Compound *091717713-0042B*	Bldg F, Classroom 20-F20, southeast corner, floor carpet yellow + black mastic + gray compound	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-104 *091717713-0043*	Bldg F, Classroom 20-F20, south side, 12" off white vinyl floor tile	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-105-Mastic *091717713-0044*	Bldg F, Classroom 20-F20, south side, 12" off white vinyl floor tile yellow mastic + gray compound	Yellow Non-Fibrous Homogeneous		60% Matrix 40% Non-fibrous (Other)	None Detected
TA-105-Compound *091717713-0044A*	Bldg F, Classroom 20-F20, south side, 12" off white vinyl floor tile yellow mastic + gray compound	Gray Non-Fibrous Homogeneous		10% Quartz 70% Ca Carbonate 20% Non-fibrous (Other)	None Detected
TA-106 *091717713-0045*	Bldg F, Classroom 20-F20, south side, 8" ceramic floor tile, gray grout	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-107-Skim Coat *091717713-0046*	Bldg F, Classroom 20-F20, south side, exterior wall skim coat + paint, for stucco	Green Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (Other)	None Detected
TA-107-Paint *091717713-0046A*	Bldg F, Classroom 20-F20, south side, exterior wall skim coat + paint, for stucco	White/Yellow Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
TA-108 *091717713-0047*	Bldg F, Classroom 20-F20, south side, exterior wall gray stucco	Gray Non-Fibrous Homogeneous		30% Quartz 70% Non-fibrous (Other)	None Detected
TA-109-Putty *091717713-0048*	Bldg F, Classroom 20-F20, north side, exterior window white + gray putty	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-109-Putty 2 *091717713-0048A*	Bldg F, Classroom 20-F20, north side, exterior window white + gray putty	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected

Initial report from: 09/13/2017 16:24:50

EMSL Analytical, Inc.
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EMSL Order: 091717713
Customer ID: HAZM63
Customer PO: 17-184
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TA-110 *091717713-0049*	Bldg G, Multipurpose G01, east side, interior window black sealant	Black Non-Fibrous Homogeneous		30% Ca Carbonate 70% Matrix	None Detected
TA-111 *091717713-0050*	Bldg H, Library H01, north side, exterior window black sealant	Black Non-Fibrous Homogeneous		70% Matrix 28% Non-fibrous (Other)	2% Chrysotile
TA-112 *091717713-0051*	Bldg A, Lounge A01, north side, exterior window gray putty	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-113-Putty *091717713-0052*	Bldg B, Classroom 2-B02, north side, exterior window white + gray putty	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-113-Putty 2 *091717713-0052A*	Bldg B, Classroom 2-B02, north side, exterior window white + gray putty	Gray Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (Other)	None Detected
TA-114-Putty *091717713-0053*	Bldg C, Classroom 3-C03, north side, exterior window white + gray putty	White Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-114-Putty 2 *091717713-0053A*	Bldg C, Classroom 3-C03, north side, exterior window white + gray putty	Gray Non-Fibrous Homogeneous		60% Ca Carbonate 40% Non-fibrous (Other)	None Detected
TA-115 *091717713-0054*	Bldg J, Classroom 7-J07, north side, exterior window gray putty	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
TA-116-White *091717713-0055*	Bldg D, Classroom 11-D11, north side, exterior window gray + white putty				Insufficient Material
TA-116-White *091717713-0055A*	Bldg D, Classroom 11-D11, north side, exterior window gray + white putty				Insufficient Material

Analyst(s)
Jared Martin (66)
Kevin Lares (12)

Matthew Batongbacal
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc San Leandro, CA NVLAP Lab Code 101048-3, WA C884

Initial report from: 09/13/2017 16:24:50

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LA Testing Order: 331717733
CustomerID: HAZM63
CustomerPO:
ProjectID:

Attn: **HazMat Doc**
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Fax: (408) 748-0066
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Collected: 9/1/2017

Project: **Berr Yessa Union School District, Toyon Elementary School, #17-184**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
TP-01	9/1/2017	9/8/2017	100 ppm	<100 ppm
331717733-0001	Site: Bldg A, South side, exterior metal & wood door system, blue			
TP-02	9/1/2017	9/8/2017	200 ppm	6200 ppm
331717733-0002	Site: Bldg A, South side, exterior metal & wood window system, white			
TP-03	9/1/2017	9/8/2017	100 ppm	<100 ppm
331717733-0003	Site: Bldg A, South side, exterior plaster wall & overhang, white			
TP-04	9/1/2017	9/8/2017	100 ppm	380 ppm
331717733-0004	Site: Bldg A, East side, exterior metal & wood, flashing & gutter & fascia, blue			
TP-05	9/1/2017	9/8/2017	100 ppm	<100 ppm
331717733-0005	Site: Bldg A, East side, exterior metal downspout			
TP-06	9/1/2017	9/8/2017	1000 ppm	13000 ppm
331717733-0006	Site: Bldg B, South side, exterior metal & wood, flashing, gutter & fascia, blue			
TP-07	9/1/2017	9/8/2017	100 ppm	<100 ppm
331717733-0007	Site: Bldg B, South side, exterior plaster wall & overhang, white			
TP-08	9/1/2017	9/8/2017	1000 ppm	16000 ppm
331717733-0008	Site: Bldg B, South side, exterior metal & wood window system, white			
TP-09	9/1/2017	9/8/2017	1000 ppm	24000 ppm
331717733-0009	Site: Bldg B, South side, exterior wood door system, blue			
TP-10	9/1/2017	9/8/2017	500 ppm	8200 ppm
331717733-0010	Site: Bldg B, South side, exterior metal downspout, white			

Michael Chapman

Michael Chapman, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by LA Testing Huntington Beach, CA AIHA-LAP, LLC--ELLAP Accredited #101650, CA ELAP 1406

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Project: **Berr Yessa Union School District, Toyon Elementary School, #17-184**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
TP-11 *331717733-0011*	9/1/2017 Site: Bldg C, South side, exterior metal & wood, flashing, gutter & fascia, blue	9/8/2017	1000 ppm	14000 ppm
TP-12 *331717733-0012*	9/1/2017 Site: Bldg C, South side, exterior plaster wall & overhang, white	9/8/2017	100 ppm	<100 ppm
TP-13 *331717733-0013*	9/1/2017 Site: Bldg C, South side, exterior metal & wood window system, white	9/8/2017	100 ppm	3800 ppm
TP-14 *331717733-0014*	9/1/2017 Site: Bldg C, South side, exterior wood door system, blue	9/8/2017	200 ppm	6100 ppm
TP-15 *331717733-0015*	9/1/2017 Site: Bldg C, South side, exterior metal downspout, white	9/8/2017	100 ppm	3600 ppm
TP-16 *331717733-0016*	9/1/2017 Site: Bldg D, North side, exterior metal & wood flashing, gutter, fascia, blue	9/8/2017	100 ppm	1400 ppm
TP-17 *331717733-0017*	9/1/2017 Site: Bldg D, North side, exterior plaster overhang & wall, white	9/8/2017	100 ppm	<100 ppm
TP-18 *331717733-0018*	9/1/2017 Site: Bldg D, North side, exterior metal & wood window system, white	9/8/2017	100 ppm	930 ppm
TP-19 *331717733-0019*	9/1/2017 Site: Bldg D, South side, exterior wood door system, blue	9/8/2017	1000 ppm	15000 ppm
TP-20 *331717733-0020*	9/1/2017 Site: Bldg D, North side, exterior metal downspout, white	9/8/2017	200 ppm	6100 ppm
TP-21 *331717733-0021*	9/1/2017 Site: Bldg D, West side, exterior metal column, blue	9/8/2017	100 ppm	1500 ppm

Michael Chapman

Michael Chapman, Laboratory Manager
or other approved signatory

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Samples analyzed by LA Testing Huntington Beach, CA AIHA-LAP, LLC--ELLAP Accredited #101650, CA ELAP 1406

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Project: **Berr Yessa Union School District, Toyon Elementary School, #17-184**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
TP-22 *331717733-0022*	9/1/2017	9/8/2017 Site: Bldg E, South side, exterior metal & wood, flashing, gutter & fascia, blue	1000 ppm	17000 ppm
TP-23 *331717733-0023*	9/1/2017	9/8/2017 Site: Bldg E, South side, exterior plaster overhang & wall, white	100 ppm	<100 ppm
TP-24 *331717733-0024*	9/1/2017	9/8/2017 Site: Bldg E, North side, exterior metal & wood window system, white	500 ppm	12000 ppm
TP-25 *331717733-0025*	9/1/2017	9/8/2017 Site: Bldg E, South side, exterior wood door system, blue	500 ppm	9200 ppm
TP-26 *331717733-0026*	9/1/2017	9/8/2017 Site: Bldg E, South side, exterior metal downspout, white	200 ppm	5400 ppm
TP-27 *331717733-0027*	9/1/2017	9/8/2017 Site: Bldg F, South side, exterior metal & wood, flashing, gutter & fascia, blue	100 ppm	210 ppm
TP-28 *331717733-0028*	9/1/2017	9/8/2017 Site: Bldg F, South side, exterior plaster overhang & wall, white	100 ppm	<100 ppm
TP-29 *331717733-0029*	9/1/2017	9/8/2017 Site: Bldg F, South side, exterior metal & wood window system, white	100 ppm	310 ppm
TP-30 *331717733-0030*	9/1/2017	9/8/2017 Site: Bldg F, South side, exterior wood door system, blue	200 ppm	6800 ppm
TP-31 *331717733-0031*	9/1/2017	9/8/2017 Site: Bldg F, South side, exterior metal downspout, white	100 ppm	570 ppm

Michael Chapman

Michael Chapman, Laboratory Manager
or other approved signatory

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Project: **Berr Yessa Union School District, Toyon Elementary School, #17-184**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
TP-32	9/1/2017	9/8/2017	100 ppm	2000 ppm
331717733-0032	Site: Bldg J, South side, exterior metal & wood, flashing, gutter & fascia, blue			
TP-33	9/1/2017	9/8/2017	100 ppm	<100 ppm
331717733-0033	Site: Bldg J, South side, exterior plaster overhang & wall, white			
TP-34	9/1/2017	9/8/2017	100 ppm	2300 ppm
331717733-0034	Site: Bldg J, South side, exterior metal & wood window system, white			
TP-35	9/1/2017	9/8/2017	200 ppm	6000 ppm
331717733-0035	Site: Bldg J, South side, exterior wood door system, blue			
TP-36	9/1/2017	9/8/2017	100 ppm	810 ppm
331717733-0036	Site: Bldg J, South side, exterior metal downspout, white			

Michael Chapman

Michael Chapman, Laboratory Manager
or other approved signatory

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Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
TP-37 *091717663-0001*	9/5/2017	9/15/2017 Site: BLDG H NORTH SIDE EXTERIOR METAL ROOF FLASHING	100 ppm	<100 ppm
TP-38 *091717663-0002*	9/5/2017	9/15/2017 Site: BLDG H NORTH SIDE EXTERIOR PLASTER WALL + OVERHANG	100 ppm	<100 ppm
TP-39 *091717663-0003*	9/5/2017	9/15/2017 Site: BLDG H NORTH SIDE EXTERIOR WOOD WINDOW SYSTEM	100 ppm	<100 ppm
TP-40 *091717663-0004*	9/5/2017	9/15/2017 Site: BLDG H NORTH SIDE EXTERIOR WOOD DOOR	100 ppm	<100 ppm
TP-41 *091717663-0005*	9/5/2017	9/15/2017 Site: BLDG H NORTH SIDE EXTERIOR METAL DOWNSPOUT	100 ppm	980 ppm
TP-42 *091717663-0006*	9/5/2017	9/15/2017 Site: BLDG G WEST SIDE EXTERIOR METAL + WOOD ROOF FLASHING + FASCIA	100 ppm	1300 ppm
TP-43 *091717663-0007*	9/5/2017	9/15/2017 Site: BLDG G WEST SIDE EXTERIOR PLASTER WALL + OVERHANG	100 ppm	<100 ppm
TP-44 *091717663-0008*	9/5/2017	9/15/2017 Site: BLDG G WEST SIDE EXTERIOR WOOD+METAL WINDOW SYSTEM	100 ppm	140 ppm
TP-45 *091717663-0009*	9/5/2017	9/15/2017 Site: BLDG G WEST SIDE EXTERIOR METAL + WOOD DOOR SYSTEM	100 ppm	3700 ppm
TP-46 *091717663-0010*	9/5/2017	9/15/2017 Site: BLDG G WEST SIDE EXTERIOR METAL DOWNSPOUT	100 ppm	2400 ppm

Julian Neagu, Lead Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 09/15/2017 15:08:39

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Attn: **Zen Doctor**
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Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
TP-47	9/5/2017	9/15/2017	100 ppm	290 ppm
091717663-0011	Site: BLDG G SOUTH SIDE EXTERIOR PLASTER WALL			
TP-48	9/5/2017	9/15/2017	100 ppm	4300 ppm
091717663-0012	Site: BLDG K NORTH SIDE EXTERIOR WOOD WALL			
TP-49	9/5/2017	9/15/2017	100 ppm	<100 ppm
091717663-0013	Site: PORTABLE 24 EAST SIDE EXTERIOR METAL ROOF FLASHING			
TP-50	9/5/2017	9/15/2017	100 ppm	<100 ppm
091717663-0014	Site: PORTABLE 24 EAST SIDE EXTERIOR METAL + WOOD WALL SYSTEM			
TP-51	9/5/2017	9/15/2017	100 ppm	<100 ppm
091717663-0015	Site: PORTABLE 24 EAST SIDE EXTERIOR METAL + WOOD DOOR SYSTEM			
TP-52	9/5/2017	9/15/2017	100 ppm	<100 ppm
091717663-0016	Site: PORTABLE 24 EAST SIDE EXTERIOR METAL RAILING			
TP-53	9/5/2017	9/15/2017	100 ppm	4000 ppm
091717663-0017	Site: MAIN COVERED WALKWAY WEST SIDE EXTERIOR WOOD FASCIA			
TP-54	9/5/2017	9/15/2017	100 ppm	1200 ppm
091717663-0018	Site: MAIN COVERED WALKWAY WEST SIDE EXTERIOR METAL GUTTER COLUMN+DOWNSPOUT			
TP-55	9/5/2017	9/15/2017	100 ppm	1400 ppm
091717663-0019	Site: MAIN COVERED WALKWAY WEST SIDE EXTERIOR PLASTER SOFFIT			

Julian Neagu, Lead Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

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Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
TP-56 *091717663-0020*	9/5/2017 Site: BLDG L NORTH SIDE EXTERIOR METAL + WOOD ROOF FLASHING	9/15/2017	100 ppm	<100 ppm
TP-57 *091717663-0021*	9/5/2017 Site: BLDG L EAST SIDE EXTERIOR WOOD WALL + OVERHANG	9/9/2017	100 ppm	<100 ppm
TP-58 *091717663-0022*	9/5/2017 Site: BLDG L SOUTH SIDE EXTERIOR METAL + WOOD DOOR + WINDOW SYSTEM	9/9/2017	100 ppm	<100 ppm
TP-59 *091717663-0023*	9/5/2017 Site: BLDG E CLASSROOM 16-E16 1'1 CEILING TILE	9/9/2017	100 ppm	<100 ppm
TP-60 *091717663-0024*	9/5/2017 Site: BLDG E BOYS RESTROOM E18 NORTH WALL GYPSUM BOARD	9/9/2017	100 ppm	<100 ppm
TP-61 *091717663-0025*	9/5/2017 Site: BLDG E CLASSROOM 14-E14 EAST WALL TILE FIBERBOARD	9/9/2017	100 ppm	<100 ppm
TP-62 *091717663-0026*	9/5/2017 Site: BLDG F CLASSROOM 20-F20 NORTH SIDE INTERIOR WOOD WINDOW SILL	9/9/2017	100 ppm	1500 ppm

Julian Neagu, Lead Laboratory Manager
or other approved signatory

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EMSL Order:	091717658
CustomerID:	HAZM63
CustomerPO:	
ProjectID:	

Attn: **Zen Doctor**
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Phone:	(408) 748-0055
Fax:	(408) 748-0066
Received:	09/09/17 9:00 AM
Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Area Sampled*	*RDL*	*Lead Concentration*
W-001	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717658-0001	Site: A BUILDING SOUTH SIDE ADMIN OFFICE ENTRY DOOR				
W-002	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717658-0002	Site: A BUILDING EAST SIDE ADMIN OFFICE SIDE ENTRY DOOR				
W-003	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717658-0003	Site: A BUILDING NORTH SIDE CORNER AT DRIPLINE				
W-004	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717658-0004	Site: A BUILDING WEST SIDE CENTER OF BLDG PIPES AT DRIPLINE				
W-005	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717658-0005	Site: H BUILDING NORTH SIDE RESOURCE CENTER ENTRY DOOR				
W-006	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717658-0006	Site: G BUILDING EAST SIDE MPR DOUBLE DOORS ENTRY				
W-007	9/5/2017	9/9/2017	144 in²	10 µg/ft²	16 µg/ft²
091717658-0007	Site: G BUILDING SOUTH SIDE KITCHEN CENTER DRAIN PIPE				
W-008	9/5/2017	9/9/2017	144 in²	10 µg/ft²	14 µg/ft²
091717658-0008	Site: G BUILDING NORTH SIDE MPR ENTRY DOOR				
W-009	9/5/2017	9/9/2017	144 in²	10 µg/ft²	12 µg/ft²
091717658-0009	Site: B BUILDING EAST SIDE RM 1 SIDE ENTRY DOOR				
W-010	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717658-0010	Site: B BUILDING SOUTH SIDE RM 1 STORAGE ENTRY DOOR				
W-011	9/5/2017	9/9/2017	144 in²	10 µg/ft²	16 µg/ft²
091717658-0011	Site: B BUILDING WEST SIDE RM 2 SIDE ENTRY DOOR				

Julian Neagu, Lead Laboratory Manager
or other approved signatory

Reporting limit is 10 ug/wipe. The QC data associated with these sample results included in this report meet the method quality control requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected . This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities.

* slight modifications to methods applied

Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 09/09/2017 13:50:50

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Received:	09/09/17 9:00 AM
Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Area Sampled*	*RDL*	*Lead Concentration*
W-012	9/5/2017	9/9/2017	144 in²	10 µg/ft²	27 µg/ft²
091717658-0012	Site: C BUILDING EAST SIDE ELECTRICAL RM ENTRY DOOR				

Julian Neagu, Lead Laboratory Manager
or other approved signatory

Reporting limit is 10 ug/wipe. The QC data associated with these sample results included in this report meet the method quality control requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected . This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities.

* slight modifications to methods applied

Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 09/09/2017 13:50:50

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Received:	09/09/17 9:00 AM
Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Area Sampled*	*RDL*	*Lead Concentration*
W-013	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0001	Site: C BUILDING WEST SIDE PATROL RM ENTRY DOOR				
W-014	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0002	Site: C BUILDING SOUTH SIDE RM 4 ENTRY DOOR				
W-015	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0003	Site: D BUILDING WEST SIDE CENTER OF OVERHANG AT DRIPLINE				
W-016	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0004	Site: D BUILDING SOUTH SIDE RM 10 ENTRY DOOR				
W-017	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0005	Site: E BUILDING SOUTH SIDE RRM 14 ENTRY DOOR				
W-018	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0006	Site: E BUILDING WEST SIDE CENTER OF OVERHANG AT DRIPLINE				
W-019	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0007	Site: F BUILDING EAST SIDE CENTER OF OVERHANG AT WALL				
W-020	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0008	Site: F BUILDING SOUTH SIDE RM 18 ENTRY DOOR				
W-021	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717660-0009	Site: F BUILDING WEST SIDE CENTER OF OVERHANG AT WALL				
W-022	9/5/2017	9/9/2017	144 in²	10 µg/ft²	18 µg/ft²
091717660-0010	Site: K BUILDING NORTH SIDE RM 25 ENTRY DOOR				
W-023	9/5/2017	9/9/2017	144 in²	10 µg/ft²	14 µg/ft²
091717660-0011	Site: K BUILDING EAST SIDE RM 26 ENTRY DOOR				

Julian Neagu, Lead Laboratory Manager
or other approved signatory

Reporting limit is 10 ug/wipe. The QC data associated with these sample results included in this report meet the method quality control requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected . This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities.

* slight modifications to methods applied

Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 09/09/2017 17:01:13

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CustomerPO:	
ProjectID:	

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Fax:	(408) 748-0066
Received:	09/09/17 9:00 AM
Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Area Sampled*	*RDL*	*Lead Concentration*
W-024	9/5/2017	9/9/2017	144 in²	10 µg/ft²	18 µg/ft²
091717660-0012	Site: J BUILDING EAST SIDE RM 7 CORNER DOWNSPOUT				

Julian Neagu, Lead Laboratory Manager
or other approved signatory

Reporting limit is 10 ug/wipe. The QC data associated with these sample results included in this report meet the method quality control requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected . This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities.

* slight modifications to methods applied

Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 09/09/2017 17:01:13

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Received:	09/09/17 9:00 AM
Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Area Sampled*	*RDL*	*Lead Concentration*
W025	9/5/2017	9/9/2017	144 in²	10 µg/ft²	13 µg/ft²
091717661-0001	Site: J BUILDING SOUTH SIDE RM 8 ENTRY DOOR				
W026	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717661-0002	Site: L BUILDING EAST SIDE RM 27 CENTER OF WINDOW				
W027	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717661-0003	Site: L BUILDING SOUTH SIDE DOOR AT CENTER OF WALL				
W028	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717661-0004	Site: L BUILDING WEST SIDE CENTER OF WALL				
W029	9/5/2017	9/9/2017	144 in²	10 µg/ft²	<10 µg/ft²
091717661-0005	Site: L BUILDING NORTH SIDE CENTER OF WALL				
W030	9/5/2017	9/9/2017	144 in²	10 µg/ft²	17 µg/ft²
091717661-0006	Site: C BUILDING/OVERHANG BY DOUBLE PIPE OF OVERHANG				

Julian Neagu, Lead Laboratory Manager
or other approved signatory

Reporting limit is 10 ug/wipe. The QC data associated with these sample results included in this report meet the method quality control requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected . This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities.

* slight modifications to methods applied

Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 09/09/2017 17:02:22

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Fax:	(408) 748-0066
Received:	09/09/17 9:00 AM
Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Soils by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
S01 *091717656-0001*	9/5/2017	9/13/2017 Site: B BUILDING NORTH SIDE CENTER OF WALL	40 ppm	<40 ppm
S02 *091717656-0002*	9/5/2017	9/13/2017 Site: C BUILDING NORTH SIDE CENTER OF WALL	40 ppm	<40 ppm
S03 *091717656-0003*	9/5/2017	9/13/2017 Site: D BUILDING EAST SIDE LEFT OF ENTRY DOOR AT WALL	40 ppm	47 ppm
S04 *091717656-0004*	9/5/2017	9/13/2017 Site: E BUILDING EAST SIDE LEFT OF ENTRY DOOR AT DRIPLINE	40 ppm	<40 ppm
S05 *091717656-0005*	9/5/2017	9/13/2017 Site: F BUILDING EAST SIDE BY ELECTRICAL POLE AT COVERED WALKWAY	40 ppm	<40 ppm
S06 *091717656-0006*	9/5/2017	9/13/2017 Site: G BUILDING EAST SIDE MPR SINGLE DOOR ENTRY BELOW CORNER OF OVERHANG	40 ppm	<40 ppm
S07 *091717656-0007*	9/5/2017	9/13/2017 Site: K BUILDING SOUTH SIDE RM 25 AT ENTRY DOOR	40 ppm	<40 ppm
S08 *091717656-0008*	9/5/2017	9/13/2017 Site: K BUILDING SOUTH SIDE RM 26 AT CORNER OF OVERHANG	40 ppm	<40 ppm
S09 *091717656-0009*	9/5/2017	9/13/2017 Site: A BUILDING NOTH SIDE HEALTH OFFICE NEAR DOWNSPOUT AT DRIPLINE	40 ppm	<40 ppm
S10 *091717656-0010*	9/5/2017	9/13/2017 Site: D BUILDING NORTH SIDE RM 10 BY DOWNSPOUT AT DRIPLINE	40 ppm	<40 ppm

Julian Neagu, Lead Laboratory Manager
or other approved signatory

*Analysis following Lead in Soil/Solids by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 40 mg/kg based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. Results reported based on dry weight. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 09/13/2017 18:31:08

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EMSL Order:	091717656
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Received:	09/09/17 9:00 AM
Collected:	9/5/2017

Project: **BERRYESSA UNION SCHOOL DISTRICT; TOYON ELEMENTARY SCHOOL 17-184**

Test Report: Lead in Soils by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
S11	9/5/2017	9/13/2017	40 ppm	<40 ppm
091717656-0011	Site: E BUILDING NORTH SIDE RM 14 BY DOWNSPOUT AT DRIPLINE			
S12	9/5/2017	9/13/2017	40 ppm	<40 ppm
091717656-0012	Site: F BUILDING NORTH SIDE RM 18 BY DOWNSPOUT AT DRIPLINE			

Julian Neagu, Lead Laboratory Manager
or other approved signatory

*Analysis following Lead in Soil/Solids by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 40 mg/kg based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. Results reported based on dry weight. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA A2LA Accredited Environmental Testing Cert #2845.09

Initial report from 09/13/2017 18:31:08

HazMat Doc

CHAIN-OF-CUSTODY

JOB # 17-184

CLIENT NAME: BERRYESSA UNION SCHOOL DISTRICT

PROJECT LOCATION: TOYON ELEMENTARY SCHOOL

SAMPLED BY: _____ DATE: _____

TURNAROUND TIME
STANDARD
OTHER 5 DAY

Sample #	Location/Type	Time On / Time Off	FLOW RATES Start	Stop	Average	Total Time	PCM	PLM	TEM	LEAD (Air, Paint, Soil, Water, Wipe)
S01	B Building, North Side, Center of Wall						Baseline Sample			
S02	C Building, North Side, Center of Wall						Baseline Sample			
S03	D Building, East Side, Left of Entry Door at Wall						Baseline Sample			
S04	E Building, East Side, Left of Entry Door at Dripline						Baseline Sample			
S05	F Building, East Side, By Electrical Pole at Covered Walkway							Baseline Sample		
S06	G Building, East Side, MPR single-door entry, below corner of overhang, Baseline Sample									
S07	K Building, South Side, Rm. 25 at Entry Door							Baseline Sample		
S08	K Building, South Side, Rm 26 at Corner of Overhang/Drip-line, Baseline Sample									
S09	A Building, North Side, Health Office, Near Downspout at Dripline, Baseline Sample									
S10	D Building, North Side, Rm. 10, By Downspout at Drip line							Baseline Sample		
S11	E Building, North Side, Rm. 14, By Downspout at Drip-line							Baseline Sample		
S12	F Building North Side, Rm. 18 By Downspout at Dripline							Baseline Sample		

Relinquished By: _____ Date & Time: _____ Received By: _____ Date & Time: _____

Relinquished By: _____ Date & Time: _____ Received By: _____ Date & Time: _____

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PART – III

APPENDIX –A

SCOPE OF WORK

SHEET NOTES FOR THE ABATEMENT SCOPE OF WORK

The following notes will apply in their entirety, without exclusions or exemptions, to the entire Scope of Work for this Project unless otherwise instructed to in writing:

1. This building is slated for renovation. Coordinate work activities with HPM, Construction Manager and other trades as applicable. Prior to the commencement of abatement or removal activities, it is the Contractor's responsibility to reconcile all the abatement/removal scope of work materials and locations listed herein with the intent of the Project Construction Manager.

2. The Contractor shall be responsible for the abatement/removal of ALL LISTED MATERIALS - IN ALL LOCATIONS as indicated in these documents AND the Project Construction Drawings.

3. The Contractor shall be responsible for the quantification of all materials actually removed from ALL LOCATIONS.

4. Any and all items that are left in/on the Building(s) that may be affected by of this Scope of Work are to be protected in place unless otherwise directed (in writing) by the Construction Manager.

5. These Scopes of Work are created on the basis of the Architectural Drawings and/or the information received from the Owner/the Owners representative. It is restricted to those materials surfaces and quantities that are designated to be impacted during the modernization. This is not a complete inventory of all known or suspect hazardous materials in these areas, nor should it be construed to be a comprehensive hazardous materials report for these work areas.

Asbestos Abatement Scope of Work Notes:

a) All items enumerated are to be removed in accordance with Section 02 82 00 of the attached Specifications and in full compliance with current Local, State and Federal regulations. In the event of a conflict between the regulations and the specifications the most stringent shall apply.

b) Multiple Containment(s) could be required in the same locations in order to coordinate activities with other trades. The Asbestos Removal Contractor's Base Bid shall include two (2) additional mobilizations (in addition to the initial mobilization) and containment costs per Building for Asbestos related work.

c) For the removal of Flooring Mastic/Adhesives –
   a. If the Mastic/Adhesive is removed by Mechanical Means
      (1a) AQMB Notification and Friable Material Removal Preparations will be required, and
      (1b) The waste products must be disposed of as Hazardous Waste;
   b. If the Mastic/Adhesive is removed with Regulated Solvents
      The waste products must be disposed of in accordance with prevailing regulations and the MSDS for that Solvent.

d) For the removal of Asbestos Containing Roofing Materials (ACRM) or roof related materials/sealants etc., an additional 1' of roofing material around each roof penetration is to be removed (all layers to roof deck) to ensure the complete removal of the roofing sealant(s).

Lead Abatement/ Removal Scope of Work Notes:

a) All items enumerated are to be removed in accordance with Section 02 83 00 of the attached Specifications and in full compliance with current Local, State and Federal regulations. In the event of a conflict between the regulations and the specifications, the most stringent shall apply.

b) Multiple Containment(s) could be required in the same locations in order to coordinate activities with other trades. The Lead Removal Contractor's Base Bid shall include two (2) additional mobilizations (in addition to the initial mobilization) and containment costs per building for Lead related work.

c) Special Removal and Disposal Instructions:

(i) In Areas for Removal
Remove and Dispose of Material/Component as Lead Containing Waste to framing, including any insulation materials; framing to be cleaned and remain intact.
NOTE: If Lead Coated Metal Components are to be "recycled" instead of being disposed of as Lead Containing Waste, the Contractor must – (I) provide the owner with documentation from the Metal Recycler, confirming acceptance of known Lead Coated materials; (II) transport these materials under proper manifest/trip ticket; and (III) provide a copy of the trip ticket signed by the Recycler, proving appropriate disposal of the Scope of Work Item(s).

(ii) In areas for Modification/Attachment
Remove all Layers of Paint and Dispose of as Lead Containing Waste. Stabilize ('Coat' Over) leading edge of removed area with an approved "Sealant" to enable Prep, Priming, and Repainting by Others. For anticipated welding, torching or other 'hot work' on metal remove all layers of paint to bare metal at a minimum of 18 inches on each side of (on all faces of the metal) the anticipated work.

(iii) In Areas for Repainting
Manually Abrade/Scrape all accessible surfaces in their entirety, being careful to remove all 'peeling-chipping' paint. Manually Wash/Scrub all 'build-up' (Chalking residue, Grime, etc.) from all accessible surfaces. Dispose of all Waste Products and Debris as Lead Containing Waste. Stabilize ('Coat' Over) exposed Substrate with an approved "Sealant" to enable Prep, Priming, and Repainting by Others.

Poly Chlorinated Biphenyl Remediation Notes:

a) All items enumerated are to be removed in accordance with Section 02 84 00 of the attached Specifications and in full compliance with current Local, State and Federal regulations. In the event of a conflict between the regulations and the specifications the most stringent shall apply.

b) Light bulbs/tubes are to be removed and disposed of as Mercury containing waste.

c) Light fixture ballasts are to be removed and disposed of as Poly-Chlorinated Bi-Phenyl (PCB) containing waste unless expressly labeled as "Non-PCB" or "No PCB's". If ballasts are labeled as "Non-PCB" or "No PCB's", they must be appropriately disposed of and/or recycled.

TOYON ELEMENTARY SCHOOL

PORTABLE CLASSROOM BUILDING 'K'

All items enumerated below are to be removed and disposed of as ACM or ACRM unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior) Roof of the Entire Building / Gray and Black Roof Penetration Sealants	*≈ 10 SF*
2.	(Exterior/Interior) Perimeter of the Entire Building / Asbestos Cement Weatherproof Window Panels	*≈ 13 EA (2' x 3' panels)*
3.	(Exterior/Interior) Entire Building / Suspect Insulated Doors. **NOTE:** Remove Intact. If Abatement Contractor determines by coring that Doors have Suspect ACM Core Insulation, Dispose of as Asbestos Containing Material. If Door(s) are determined to have no Core Insulation, dispose of properly as construction waste.	*2 EA*
4.	(Interior) Entire Building / Florescent Light Fixture Assemblies (Including Fixtures, Light Bulbs/Tubes and Ballasts). **NOTE:** – Light bulbs/tubes are to be removed and disposed of as Mercury containing waste. – Light fixture ballasts are to be removed and disposed of as Poly-Chlorinated Bi-Phenyl (PCB) containing waste unless expressly labeled as "Non-PCB" or "No PCB's". If ballasts are labeled as "Non-PCB" or "No PCB's", they must be appropriately disposed of and/or recycled.	*≈ 48 EA (4' Light Fixture Assemblies)*
5.	(Exterior) Entire Building / Refrigerant Gas from HVAC Units **NOTE:** Recover, Manifest and Dispose of the Refrigerant Gas	**≈ 20 pounds of Refrigerant Gas**

NOTES

A. **REFER TO APPENDIX-A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.**

B. **THIS BUILDING IS SLATED FOR DEMOLITION.**

Key: ACM = Asbestos Containing Material; ACRM = Asbestos Containing Roofing Material; SF= Square Feet; LF=Linear Feet; EA=Each

TOYON ELEMENTARY SCHOOL

MULTI-PURPOSE BUILDING 'G'

All items enumerated below are to be removed and disposed of as ACM or ACRM unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior) South Side Storage Area of the Building / Gray Painted Stucco ***Note to the reviewer .If this south side 'add-on' storage area is to be demolished, the stucco ≈ 900 SF will have to be abated prior to demolition.***	***Per the Project Construction Drawings***
2.	(Interior) Entire Building including kitchen / Blue Sheet Vinyl Flooring and associated backing material (adhesive) and leveling compound. **NOTE:** Abate ALL layers of the floor covering and leveling material to bare concrete	***Per the Project Construction Drawings***
3.	(Interior) Entire Building / Carpet (Multi-Color) and associated adhesive and leveling compound. **NOTE:** Abate ALL layers of the floor covering and leveling material to bare concrete	***Per the Project Construction Drawings***

NOTES

A. **REFER TO APPENDIX-A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.**

B. **THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING**

Key: ACM = Asbestos Containing Material; ACRM = Asbestos Containing Roofing Material; SF= Square Feet; LF=Linear Feet; EA=Each

TOYON ELEMENTARY SCHOOL

CLASSROOM BUILDING 'J'

All items enumerated below are to be removed and disposed of as ACM or ACRM unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Interior) Entire Building / Carpet (Multi-Color), Underlying Vinyl Floor Tile and associated adhesive and leveling compound. **NOTE:** Abate ALL layers of the floor covering and leveling material to bare concrete	***Per the Project Construction Drawings***

NOTES

A. **REFER TO APPENDIX-A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.**

B. **THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING**

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TOYON ELEMENTARY SCHOOL

CLASSROOM BUILDING 'F'

All items enumerated below are to be removed and disposed of as ACM or ACRM unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Interior) Entire Building / Window Glazing Sealant (putty).	*Per the Project Construction Drawings*
2.	(Interior) Classroom F19 and F20 / Suspect Insulated Doors. **NOTE:** Remove Intact. If Abatement Contractor determines by coring that Doors have Suspect ACM Core Insulation, Dispose of as Asbestos Containing Material. If Door(s) are determined to have no Core Insulation, dispose of properly as construction waste. ***Note to the reviewer: If these rooms (F19 and F20) are to be completely remodeled for the new F. I. S. and the doors are to be replaced these 3EA doors will have to be abated prior to demolition.***	*Per the Project Construction Drawings*
3.	(Interior) Classroom F19 and F20 / Florescent Light Fixture Assemblies (Including Fixtures, Light Bulbs/Tubes and Ballasts). **NOTE:** – Light bulbs/tubes are to be removed and disposed of as Mercury containing waste. – Light fixture ballasts are to be removed and disposed of as Poly-Chlorinated Bi-Phenyl (PCB) containing waste unless expressly labeled as "Non-PCB" or "No PCB's". If ballasts are labeled as "Non-PCB" or "No PCB's", they must be appropriately disposed of and/or recycled. ***Note to the reviewer: If these rooms (F19 and F20) are to be completely remodeled for the new F. I. S. and the doors are to be replaced these ≈ 36 EA (4' Light Fixture Assemblies) will have to be abated prior to demolition***	*Per the Project Construction Drawings*

NOTES

A. REFER TO APPENDIX-A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.

B. THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING

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TOYON ELEMENTARY SCHOOL

LIBRARY BUILDING 'H'

All items enumerated below are to be removed and disposed of as ACM or ACRM unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior) Entire Building / Window Glazing Sealant (putty).	*Per the Project Construction Drawings*

NOTES

A. REFER TO APPENDIX-A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.

B. THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING

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LEAD SCOPE OF WORK

September 27, 2017

TOYON ELEMENTARY SCHOOL

PORTABLE CLASSROOM BUILDING 'K'

All items enumerated below are to be removed and disposed of as Lead Containing Waste unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior/Interior) Entire Building / Blue painted Metal Doors *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	2 EA
2.	(Exterior) Entire Building / White Painted Exterior Wood Panels (Sidings) *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	≈ 2,000 SF
3.	(Exterior) Entire Building / White Painted Exterior Concrete Wall Base (foundation) *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	≈ 200 SF
4.	(Interior) Entire Building / White Metal Sink *** **Component Removal** ***	2 EA

NOTES

A. REFER TO APPENDIX -A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.

B. THIS BUILDING IS SCHEDULED FOR DEMOLITION. REMOVE ALL PEELING/CHIPPING/DELAMINATING PAINT ON THE ITEMS ABOVE (UNLESS OTHERWISE NOTED) AND PREPARE THE BUILDING FOR DEMOLITION BY OTHERS.

Key: SF = Square Feet; LF = Linear Feet; EA = Each

LEAD SCOPE OF WORK

September 27, 2017

TOYON ELEMENTARY SCHOOL

MULTI-PURPOSE BUILDING 'G'

All items enumerated below are to be removed and disposed of as Lead Containing Waste unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior/Interior) Kitchen (South) Storage Room / Blue painted wood door frame*** **See Special Removal and Disposal Instructions *i, ii, or iii.* *** ***Note to the reviewer .If this south side 'add-on' storage area is to be demolished, the Painted doorframe will have to be either removed or the paint stabilized prior to demolition.***	***Per the Project Construction Drawings***
2.	(Exterior) Kitchen (South) Storage Room Roof / Roof Pipe Penetration lead sleeves*** **See Special Removal and Disposal Instructions *i, ii, or iii.* *** ***Note to the reviewer .If this south side 'add-on' storage area is to be demolished, these roof jack sleeves (2 EA) will have to be removed prior to demolition.***	***Per the Project Construction Drawings***

NOTES

A. **REFER TO APPENDIX -A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.**

B. **THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING**

Key: SF = Square Feet; LF = Linear Feet; EA = Each

LEAD SCOPE OF WORK

September 27, 2017

TOYON ELEMENTARY SCHOOL

CLASSROOM BUILDING 'B'

All items enumerated below are to be removed and disposed of as Lead Containing Waste unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior/Interior) Entire Building / Blue painted wood door frames *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***
2.	(Exterior/Interior) Entire Building / Blue painted wood window system (including window frame, window trim, glazing frame, window sills/stoops, window stops, etc. *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***

NOTES

A. REFER TO APPENDIX -A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.

B. THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING

Key: SF = Square Feet; LF = Linear Feet; EA = Each

LEAD SCOPE OF WORK

September 27, 2017

TOYON ELEMENTARY SCHOOL

CLASSROOM BUILDING 'C'

All items enumerated below are to be removed and disposed of as Lead Containing Waste unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior/Interior) Entire Building / Blue painted wood door frames *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***
2.	(Exterior/Interior) Entire Building / White and Blue painted wood window system (including window frame, window trim, glazing frame, window sills/stoops, window stops, etc. *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***
3.	(Interior) Entire Building / White Painted Vinyl Covered Walls*** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***
4.	(Interior) Entire Building / White Painted Wood Beams *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***
5.	(Interior) Entire Building / White Painted Wood Upper Wall (ceiling) Trim *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***

NOTES

A. REFER TO APPENDIX -A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.

B. THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING

Key: SF = Square Feet; LF = Linear Feet; EA = Each

LEAD SCOPE OF WORK

September 27, 2017

TOYON ELEMENTARY SCHOOL

CLASSROOM BUILDING 'D'

All items enumerated below are to be removed and disposed of as Lead Containing Waste unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior/Interior) Entire Building / Blue painted wood door frames and trim *** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*
2.	(Exterior/Interior) Entire Building / White and Blue painted wood window system (including window frame, window trim, glazing frame, window sills/stoops, window stops, etc. *** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*
3.	(Interior) Entire Building / White Painted Vinyl Covered Walls*** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*
4.	(Interior) Entire Building / White Painted Wood Beams *** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*
5.	(Interior) Entire Building / White Painted Wood Upper Wall (ceiling) Trim *** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*

NOTES

A. REFER TO APPENDIX -A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.

B. THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING

Key: SF = Square Feet; LF = Linear Feet; EA = Each

LEAD SCOPE OF WORK

September 27, 2017

TOYON ELEMENTARY SCHOOL

CLASSROOM BUILDING 'E'

All items enumerated below are to be removed and disposed of as Lead Containing Waste unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Exterior/Interior) Entire Building / Blue painted wood door frames and trim *** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*
2.	(Exterior/Interior) Entire Building / White and Blue painted wood window system (including window frame, window trim, glazing frame, window sills/stoops, window stops, etc. *** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*
3.	(Interior) Entire Building / White Painted Vinyl Covered Walls*** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*
4.	(Interior) Entire Building / White Painted Wood Beams *** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*
5.	(Interior) Entire Building / White Painted Wood Upper Wall (ceiling) Trim *** See Special Removal and Disposal Instructions *i, ii, or iii.* ***	*Per the Project Construction Drawings*

NOTES

A. REFER TO APPENDIX -A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.

B. THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING

Key: SF = Square Feet; LF = Linear Feet; EA = Each

LEAD SCOPE OF WORK

September 27, 2017

TOYON ELEMENTARY SCHOOL

CLASSROOM BUILDING 'F'

All items enumerated below are to be removed and disposed of as Lead Containing Waste unless otherwise noted.

ITEM #	LOCATION / MATERIAL	APPROXIMATE QUANTITY*
1.	(Interior) Entire Building / White Painted Vinyl Covered Walls*** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***
2.	(Interior) Entire Building / White Painted Wood Upper Wall (ceiling) Trim *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***
3.	(Interior) Classroom F20 / White foil-backed marker boards *** **See Special Removal and Disposal Instructions *i, ii, or iii.*** ***	***Per the Project Construction Drawings***

NOTES

A. **REFER TO APPENDIX -A SCOPE OF WORK SHEET NOTES FOR ALL RELEVANT DIRECTIONS/INSTRUCTIONS FOR THIS SCOPE OF WORK.**

B. **THIS BUILDING IS SCHEDULED FOR RENOVATIONS. PLEASE REFER TO THE ARCHITECT'S DRAWINGS FOR THE EXTENT OF WORK IN THIS BUILDING**

Key: SF = Square Feet; LF = Linear Feet; EA = Each

HazMat Doc
3080 Olcott St., Ste 135D
Santa Clara, CA 95054

BESD - 2017 Re-Painting Project
Toyon E.S.
Summary of Paint Sampling Performed

Only a random sampling of buildings and surfaces was performed. These results are enumerated below. This is NOT intended to be a comprehensive Lead paint investigation on a surface-by-surface basis, but is believed to represent the Re-Painting (and not a Lead Abatement) Project.

It is the intent of this Project to provide preliminary sample results to the Contractors involved, of the pre-existing conditions on the Site. It is the responsibility of the Contractor to ensure compliance with all Local, State and Federal regulations AND be in full compliance with the Project Specifications.
It is also the Contractors responsibility to fully protect the Project Site and its environs and the public at large.

Coatings that were determined to be lead based paints (i.e. >5,000 ppm)

Sample #	Building	Sample Location	Surface Sampled	Paint Color	Result (ppm)
TP-02	Bldg A	South Side	Exterior Metal & Wood Window System	White	6,200
TP-06	Bldg B	South Side	Exterior Metal & Wood, Flashing & Gutter & Fascia	Blue	13,000
TP-08	Bldg B	South Side	Exterior Metal & Wood Window System	White	16,000
TP-09	Bldg B	South Side	Exterior Wood Door System	Blue	24,000
TP-10	Bldg B	South Side	Exterior Metal Downspout	White	8,200
TP-11	Bldg C	South Side	Exterior Metal & Wood Flashing Gutter & Fascia	Blue	14,000
TP-14	Bldg C	South Side	Exterior Wood Door System	Blue	6,100
TP-19	Bldg D	South Side	Exterior Wood Door System	Blue	15,000
TP-20	Bldg D	North Side	Exterior Metal Downspout	White	6,100
TP-22	Bldg E	South Side	Exterior Metal & Wood, Flashing & Gutter & Fascia	Blue	17,000
TP-24	Bldg E	North Side	Exterior Metal & Wood Window System	White	12,000
TP-25	Bldg E	South Side	Exterior Wood Door System	Blue	9,200
TP-26	Bldg E	South Side	Exterior Metal Downspout	White	5,400
TP-30	Bldg F	South Side	Exterior Wood Door System	Blue	6,800
TP-35	Bldg J	South Side	Exterior Wood Door System	Blue	6,000

Coatings that were determined to be lead containing paints (i.e. <5,000 ppm but > RDL)

Sample #	Building	Sample Location	Surface Sampled	Paint Color	Result (ppm)
TP-04	Bldg A	East Side	Exterior Metal & Wood, Flashing & Gutter & Fascia	Blue	380
TP-13	Bldg C	South Side	Exterior Metal & Wood Window System	White	3,800
TP-15	Bldg C	South Side	Exterior Metal Downspout	White	3,600
TP-16	Bldg D	North Side	Exterior Metal & Wood Flashing Gutter & Fascia	Blue	1,400
TP-18	Bldg D	North Side	Exterior Metal & Wood Window System	White	930
TP-21	Bldg D	West Side	Exterior Metal Column	Blue	1,500

< = Less than
> = Greater than

ppm = parts per million
RDL= Reporting Detection Limit

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BESD - 2017 Re-Painting Project
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Coatings that were determined to be lead containing paints (i.e. <5,000 ppm but > RDL)

Sample #	Building	Sample Location	Surface Sampled	Paint Color	Result (ppm)
TP-27	Bldg F	South Side	Exterior Metal & Wood, Flashing & Gutter & Fascia	Blue	210
TP-29	Bldg F	South Side	Exterior Metal & Wood Window System	White	310
TP-31	Bldg F	South Side	Exterior Metal Downspout	White	570
TP-32	Bldg J	South Side	Exterior Metal & Wood, Flashing & Gutter & Fascia	Blue	2,000
TP-34	Bldg J	South Side	Exterior Metal & Wood Window System	White	2,300
TP-36	Bldg J	South Side	Exterior Metal Downspout	White	810
TP-41	Bldg H	North Side	Exterior Metal Downspout	White	980
TP-42	Bldg G	West Side	Exterior Metal & Wood Roof Flashing & Fascia	Blue	1,300
TP-44	Bldg G	West Side	Exterior Metal & Wood Window System	White	140
TP-45	Bldg G	West Side	Exterior Metal & Wood Door System	Blue	3,700
TP-46	Bldg G	West Side	Exterior Metal Downspout	White	2,400
TP-47	Bldg G	South Side	Exterior Plaster Wall	White	290
TP-48	Bldg K	North Side	Exterior Wood Wall	White	4,300
TP-49	Portable 24	East Side	Exterior Metal Roof Flashing	Blue	290
TP-53	Main Covered Walkway	West Side	Exterior Wood Fascia	Blue	4,000
TP-54	Main Covered Walkway	West Side	Exterior Metal Gutter Column & Downspout	Blue	1,200
TP-55	Main Covered Walkway	West Side	Exterior Plaster Soffit	White	1,400
TP-62	Bldg F	Classroom 20-20F North Side	Interior Wood Window Sill	Blue	1,500

Coatings which were < RDL

Sample #	Building	Sample Location	Surface Sampled	Paint Color	Result (ppm)
TP-01	Bldg A	South Side	Exterior Metal & Wood Door System	Blue	<100
TP-03	Bldg A	South Side	Exterior Plaster Wall & Overhang	White	<100
TP-05	Bldg A	East Side	Exterior Metal Downspout	N/A	<100
TP-07	Bldg B	South Side	Exterior Plaster Wall & Overhang	White	<100
TP-12	Bldg C	South Side	Exterior Plaster Wall & Overhang	White	<100
TP-17	Bldg D	North Side	Exterior Plaster Wall & Overhang	White	
TP-23	Bldg E	South Side	Exterior Plaster Wall & Overhang	White	<100

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> = Greater than

ppm = parts per million
RDL= Reporting Detection Limit

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Santa Clara, CA 95054

BESD - 2017 Re-Painting Project
Toyon E.S.
Summary of Paint Sampling Performed

Only a random sampling of buildings and surfaces was performed. These results are enumerated below. This is NOT intended to be a comprehensive Lead paint investigation on a surface-by-surface basis, but is believed to represent the Re-Painting (and not a Lead Abatement) Project.

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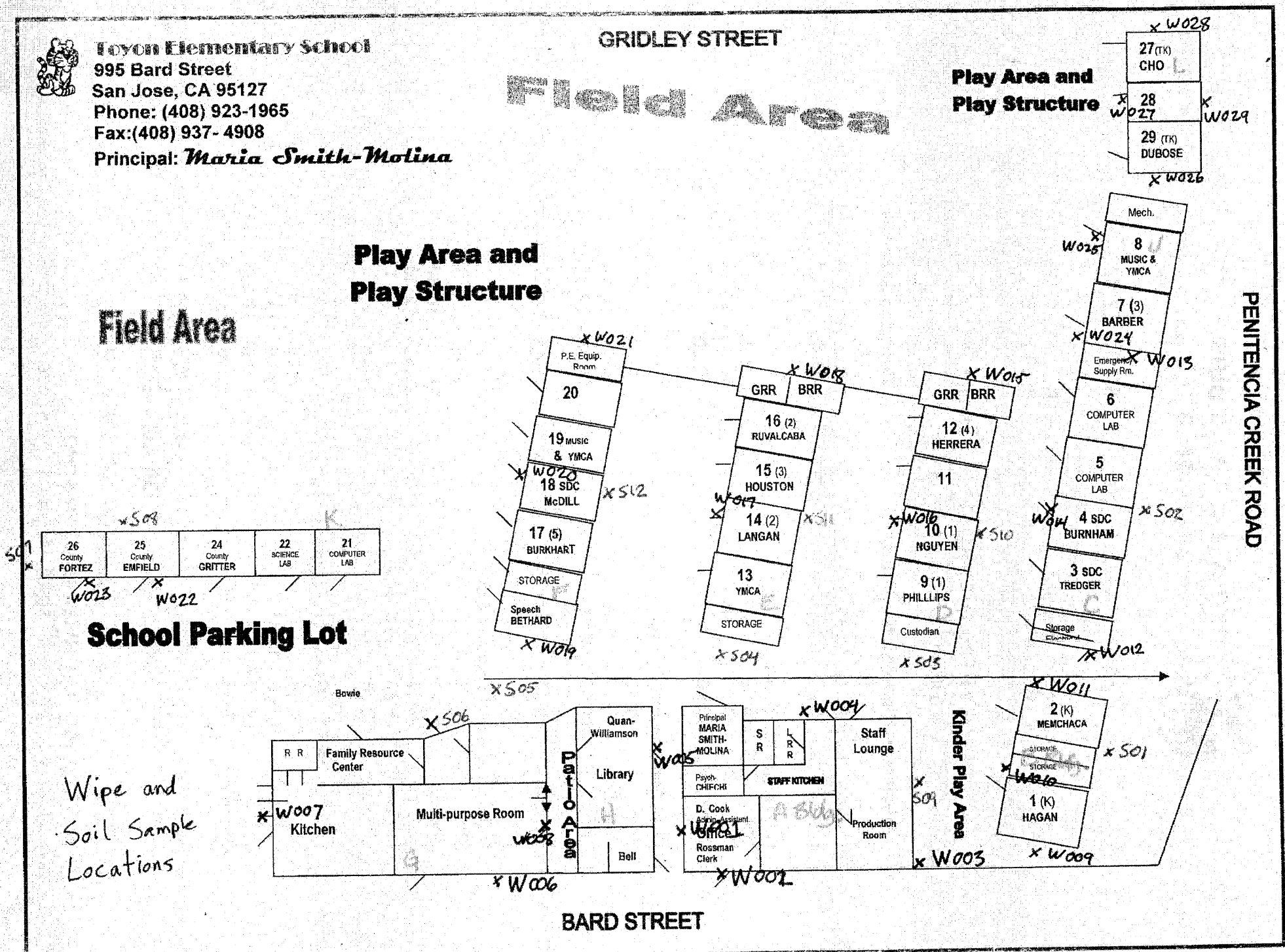
Coatings which were < RDL

Sample #	Building	Sample Location	Surface Sampled	Paint Color	Result (ppm)
TP-28	Bldg F	South Side	Exterior Plaster Wall & Overhang	White	<100
TP-33	Bldg J	South Side	Exterior Plaster Wall & Overhang	White	<100
TP-37	Bldg H	North Side	Exterior Metal Roof Flashing	Blue	<100
TP-38	Bldg H	North Side	Exterior Plaster Wall & Overhang	White	<100
TP-39	Bldg H	North Side	Exterior Wood Window System	White	<100
TP-40	Bldg H	North Side	Exterior Wood Door	Blue	<100
TP-43	Bldg G	West Side	Exterior Plaster Wall & Overhang	White	<100
TP-50	Portable 24	East Side	Exterior Metal & Wood Wall System	White	<100
TP-51	Portable 24	East Side	Exterior Metal & Wood Door System	Blue	<100
TP-52	Portable 24	East Side	Exterior Metal Railing	Blue	<100
TP-56	Bldg L	North Side	Exterior Metal Roof Flashing, Gutter, Downspout, Fascia	Blue	<100
TP-57	Bldg L	East Side	Exterior Wood Wall & Overhang	White	<100
TP-58	Bldg L	South Side	Exterior Metal & Wood Door & Window System	Blue	<100
TP-59	Bldg E	Classroom 16-E16	1'x1' Ceiling Tile, Fiberboard	White	<100
TP-60	Bldg E	Boys Restroom E18 North Wall	Gypsum Board	White	<100
TP-61	Bldg E	Classroom 14-14E East Wall	Wall Tile Fiberboard	White	<100

< = Less than
> = Greater than

ppm = parts per million
RDL= Reporting Detection Limit


Toyon Elementary School
995 Bard Street
San Jose, CA 95127
Phone: (408) 923-1965
Fax:(408) 937- 4908
Principal: Maria Smith-Molina
GRIDLEY STREET
Field Area
Play Area and
Play Structure
27 (TK) CHO
28
29 (TK) DUBOSE
Play Area and
Play Structure
Field Area
Mech.
8 MUSIC & YMCA
7 (3) BARBER
Emergency Supply Rm.
6 COMPUTER LAB
5 COMPUTER LAB
4 SDC BURNHAM
3 SDC TREDGER
Storage
P.E. Equip. Room
20
19 Music & YMCA
18 SDC McDILL
17 (5) BURKHART
STORAGE
Speech BETHARD
GRR
BRR
16 (2) RUVALCABA
15 (3) HOUSTON
14 (2) LANGAN
13 YMCA
STORAGE
12 (4) HERRERA
11
10 (1) NGUYEN
9 (1) PHILLLIPS
Custodian
26 County FORTEZ
25 County EMFIELD
24 County GRITTER
22 SCIENCE LAB
21 COMPUTER LAB
School Parking Lot
PENITENCIA CREEK ROAD
Bowie
R R
Family Resource Center
Kitchen
Multi-purpose Room
Patio Area
Quan-Williamson
Library
Bell
Principal MARIA SMITH-MOLINA
S R
L R R
Psych-CHIECHI
STAFF KITCHEN
D. Cook
Rossman Clerk
Staff Lounge
Production Room
Kinder Play Area
2 (K) MEMCHACA
STORAGE
1 (K) HAGAN
BARD STREET
Wipe and Soil Sample Locations

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Santa Clara, CA 95054

BESD - 2017 Re-Painting Project
Toyon E.S.
Summary of Wipe Sampling Performed

Baselines Collected		
Sample #	Location	Lead Conc ug/SF
W-001	A Building South Side Admin Office Entry Door	<10
W-002	A Building East Side Admin Office Entry Door	<10
W-003	A Building North Side Corner at Dripline	<10
W-004	A Building West Side Center of Bldg Pipes at Dripline	<10
W-005	H Building North Side Resource Center Entry Door	<10
W-006	G Building East Side MPR Double Doors Entry	<10
W-007	G Building South Side Kitchen Center Drain Pipe	16
W-008	G Building North Side MPR Entry Door	14
W-009	B Building East Side Room 1 Side Entry Door	12
W-010	B Building East Side Room 1 Storage Entry Door	<10
W-011	B Building West Side Room 2 Side Entry Door	16
W-012	C Building East Side Electrical Room Entry Door	27
W-013	C Building West Side Patrol Room Entry Door	<10
W-014	C Building South Side Room 4 Entry Door	<10
W-015	D Building West Side Center Overhang at Dripline	<10
W-016	D Building South Side Room 10 Entry Door	<10
W-017	E Building South Side Restroom 14 Entry Door	<10
W-018	E Building West Side Center of Overhang at dripline	<10
W-019	F Building East Side Center of Overhang at Wall	<10
W-020	F Building South Side Room 18 Entry Door	<10
W-021	F Building West Side Center of Overhang at Wall	<10
W-022	K Building North Side Room 25 Entry Door	18
W-023	K Building East Side Room 26 Entry Door	14

Post Painting Sampling to be Collected Once Painting is Complete		
Sample #	Location	Lead Conc ug/SF

< = Less than
> = Greater than

ug/SF = micrograms per square foot
All Samples collected on the Floor U.O.N.

HazMat Doc
3080 Olcott St., Ste 135D
Santa Clara, CA 95054

BESD - 2017 Re-Painting Project
Toyon E.S.
Summary of Wipe Sampling Performed

Baselines Collected		
W-024	J Building East Side Room 7 Corner Downspout	18
W-025	J Building South Side Room 8 Entry Door	13
W-026	L Building East Side Room 27 Center of Window	<10
W-027	L Building South Side Door at Center of Wall	<10
W-028	L Building West Side Center of Wall	<10
W-029	L Building North Side Center of Wall	<10
W-030	C Building/Overhang by Double Pipe of Overhang	17

Post Painting Sampling to be Collected Once Painting is Complete		

< = Less than
> = Greater than

ug/SF = micrograms per square foot
All Samples collected on the Floor U.O.N.

HazMat Doc
3080 Olcott St., Ste 135D
Santa Clara, CA 95054

BESD - 2017 Re-Painting Project
Toyon E.S.
Summary of Soil Sampling Performed

Baselines Collected		
Sample #	Location	Lead Conc ppm
S01	B Building North Side Center of Wall	<40
S02	C Building North Side Center of Wall	<40
S03	D Building East Side Left of Entry Door at Wall	47
S04	E Building East Side Left of Entry at Dripline	<40
S05	F Building East Side by Electrical Pole at Covered Walkway	<40
S06	G Building East Side MPR Sing Door Entry Below Corner of Overhang	<40
S07	K Building South Side Room 25 at Entry Door	<40
S08	K Building South Side Room 26 at Corner of Overhang	<40
S09	A Building North Side Health Office Near Downspout at Dripline	<40
S10	D Building North Side Room 10 by Downspout at Dripline	<40
S11	E Building North Side Room 14 by Downspout at Dripline	<40
S12	F Building North Side Room 18 by Downspout at Dripline	<40

Post Painting Sampling to be Collected Once Painting is Complete		
Sample #	Location	Lead Conc ppm

< = Less than
> = Greater than

ppm=parts per million