BID SET

Piedmont Middle School
Modular Gymnasium

AT

Piedmont Middle School
955 Piedmont Road
San Jose, CA 95132

-TECHNICAL MANUAL-

May 2022
MDG #2106

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

ARCHITECT
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SPECIFICATIONS FOR

Piedmont Middle School
Modular Gymnasium

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1. For additional product information not included in these specifications see attached Product List.

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Piedmont Gymnasium
Modular Bid Specs

ADDITIONAL PRODUCT INFORMATION – PRODUCT LIST:
(All items listed below are “or approved equal”)

CSI Division 03:

1. Concrete slab and footings – Provide concrete mix design and strength as required to meet all code and ASTM requirements.
2. Concrete finish – where noted on the finish schedule, seal concrete slab with an appropriate sealer. Concrete shall have a smooth finish.

CSI Division 05:

1. Metal studs – provide appropriate sizes, gauges, etc. as required to construct the design intent of the gymnasium as shown on plans.

2. Steel framing - provide appropriate sizes, gauges, etc. as required to construct the design intent of the gymnasium as shown on plans.

CSI Division 07:

1. AEP Span metal siding – Flex Series, smooth panels 1.2FX20C/D-12, 22 gauge. Provide clip attached or direct fastener based on modular building framing system. Install panels Horizontally. Color to be selected by architect from full range of manufacturers colors.

2. AEP Span metal roof system at high roof – Design Span hp, Span-Lok hp or SpanSeam or approved equal in 16” widths and 22ga. Color to be selected by Architect.

3. TPO or PVC roof system at lower roof – either roof system is acceptable. Provide 20 year no dollar limit warranty.

4. Insulation – provide thickness and R value to comply with T-24 energy requirements at wall and roof assemblies.

5. Fire stopping – comply with 2019 CBC.

6. Building envelope underlayment – Provide a WRB membrane that will be warranted by the modular manufacturer and provide a watertight envelope.

7. Joint sealants – provide sealants as required to seal all joints. Acceptable manufacturer Sika.

8. Windows – All Weather series 5000 2.25” thermally broken system with nail flange. T-6 aluminum, fixed window systems. Color to be selected by architect. Glazing shall be dual pane, Low E provided by All Weather.

CSI Division 08:

1. Louvers – provide where required. Units shall be fixed, galvanized formed metal, painted with appropriate net free air and drainable blades.

CSI Division 21:

1. Fire sprinklers – provide the design, engineering and installation of a fully functional fire sprinkler system to be approved by DSA.

CSI Division 22:

1. Plumbing – provide the design, engineering and installation of all required piping, fixtures, etc. for a fully functional system as shown on the plans and DSA approved.

CSI Division 23:

1. HVAC – provide the design, engineering and installation of all required mechanical units, duct work, etc. for a fully functional system and DSA approved. Provide air conditioning within the gymnasium space.

2. Ventilation – provide the design, engineering and installation of all required mechanical units, duct work, etc. for a fully functional system and DSA approved. Ventilation shall occur within the restrooms and other auxiliary areas required per code.

CSI Division 26:

1. Electrical - provide the design, engineering and installation of all required panels, conduit, feeders, devices, etc. for a fully functional system and DSA approved.

CSI Division 27:

1. Paging and Clock System - provide the design, engineering and installation of all required panels, conduit, feeders, devices, etc. for a fully functional system and DSA approved.

CSI Division 28:

1. Fire alarm - provide the design, engineering and installation of all required panels, conduit, feeders, devices, etc. for a fully functional system and DSA approved.

END of DOCUMENT

SECTION 01 10 00
SUMMARY OF WORK

PART 1 GENERAL

1.01 SCOPE

A. Work described herein and as shown on the drawings, included within the Performance Specification, shall consist of the production of construction documents, agency approval, modular construction, and installation of the Modular Gym at Piedmont Middle School for Berryessa Union School District under the Base Bid.

B. The Building shall include modules as shown on the plans.

C. General outline of work:

a. The Modular Building Contractor who is the successful bidder shall produce Design and Construction Documents based on the building design described within these Specifications and submit Construction Documents and obtain approval from the Owner's Architect and from DSA. The contractor is responsible for all structural, mechanical, electrical, plumbing, and fire sprinkler design, engineering, code compliance, etc. Minor modifications to the included plans required to comply with building codes are anticipated and shall be included in the contractor's base bid.

b. After obtaining DSA approval, the successful bidder shall fabricate, deliver, and install the modular building at the site. Buildings shall be on **slab-on-grade concrete foundations (raised concrete slabs will NOT be accepted)** with their utilities stubbed as indicated to the outside of the building approximately 15' away. Contractor will be required to provide clearing, off-haul, and grading for the building including all building pad preparation (scarification, baserock, sand, compaction, etc.) and any other site requirements within the area of work that will be required for the contractor to complete his work in conformance with the contract documents and the approved design and plans. This will include any work that must be completed under the building footprint.

1.02 STANDARDS

A. See **Section 01 80 00 Building Design Criteria** for more specific requirements then outlined in this section.

B. Construction and finishes shall be as identified in this package. Technical Specifications for products have been included in order to set a **minimum** standard of quality.

C. All new construction shall comply with applicable sections of Title 19, Public Safety; Title 24, Building Regulations; and the California Amended versions of the Uniform Building, Plumbing, Mechanical and National Electrical Codes, most current editions with California amendments, in effect in 2022.

D. In addition, the Project shall comply with the 'Regulations of the Accommodation of Physically Handicapped Persons In Buildings and Facilities Used by the Public", (pursuant to Government Code Section 11380.1) as administered by the Division of the State Architect, Access Compliance Section and with the Americans with Disabilities Act, (ADA), Public Law 101-336.

E. The building and subsystems shall meet the requirements of the California Energy Commission, Energy Conservation Standards for new, nonresidential buildings, Title 24, Part 6, Division T20, Article 2.

1.03 RESPONSIBILITY OF CONTRACTOR

A. It is the intent of these specifications that all responsibility for the erection and completion of the work in accordance with the plans and specifications is upon the modular building contractor with whom the Owner enters into a contract for the work hereinafter described. The Contractor shall be

responsible to the Owner for the acts and omissions of his employees, subcontractors, and their agents and employees, and other persons performing any of the work under a Contract with the Contractor. Such terms as "the plumber, "the electrician", "other contractors", "this contractor", "work by others", "cooperate with others", "by others", and similar expressions, shall be deemed to refer to the modular building contractor.

B. The Contractor shall not be relieved from his obligations to perform the work in accordance with the Contract Documents either by the activities or duties of the Architect in his administration of the Contract, or by inspections, tests, or approvals required or performed under the Contract documents by persons other than the Contractor.

C. The Contractor shall employ a job superintendent acceptable to the Owner who shall be at the project site full-time as a single point of contact.

D. The Contractor shall take care to protect all new materials from damage. The Owner has the right to reject materials damaged by Contractor's negligence.

E. See the General Conditions.

F. Refer to the **Modular Scope Matrix** at the end of this section that delineates the scope of work between the modular manufacturer and the site contractor/owner.

1.04 WORKMANSHIP

A. It is the intent of these specifications that all workmanship be neat and skilled in every respect and that only new materials be used to render a fully completed and finished job. If, in the course of the work, cutting and patching is required, then any evidence of the same shall be rendered indiscernible and the whole of the renovated area shall present, upon acceptance, the appearance of new work.

1.05 SEPARATE CONTRACTS

A. The Owner has the right to award separate contracts for work at the site. The Contractor shall coordinate his work with that of the other Contractors performing other work on the site under separate contracts, as well as work performed by Owner personnel.

B. See attached scope matrix at the end of this section for additional clarification to the scope of work.

PART 2 ALLOWANCES

A. Contractor ***shall include an allowance of $30,000 in his base bid*** for unforeseen conditions. Any work billed to this allowance must first be approved by the Architect in writing. At the completion of the project, and unused portion of the allowance shall be credited back to the District as a change order.

PART 3 EXECUTION - NOT USED

END OF SECTION

Modular Scope Matrix		Section 01 10 00	
Piedmont M.S. Gymnasium			
	DESCRIPTION	**MODULAR MANUF.**	**SITE CONTRACTOR**
1	Sawcut, demolition, grading, import, export, off-haul of spoils under building and 15' away from building perimeter. There will be overlap with the site contractor.	X	
2	Compaction and pad preparation for building.	X	
3	Excavate foundation footings.	X	
4	Provide/install concrete foundation.	X	
5	Site demolition, excavation, grading and site prep to face of building.		X
6	Foundation backfilling/compaction around perimeter of building.		X
7	Site concrete flatwork.		X
8	Foundation drains stubbed to 15'-0" from perimeter (single POC).	X	
9	Provide/install foundation/building flashing.	X	
10	Exterior stucco finish (3 coat system) and control joints / reveals.	X	
11	Exterior stucco painting.	X	
12	All exterior GSM flashing.	X	
13	Import/export soils as required for building pad.	X	
14	Door hardware and installation.	X	
15	All bathroom accessories (soap & towel dispenser, etc) and plumbing fixtures.	X	
16	Clock-speaker/intercom - design and install all required devices, conduit, boxes and wiring throughout building and terminate at IDF cabinet via PoE. Include a speaker in each restroom.	X	
17	Fire alarm - design entire system to meet code and DSA requirements and install all required conduit, boxes and pull strings throughout building and terminate at IDF cabinet.	X	
18	Fire alarm - Install all required devices and wiring throughout building and terminate at IDF cabinet via PoE. Extend existing FA system from existing Building F to new building IDF. This includes site conduit.		X
19	Security - install conduit, boxes and pull strings throughout building to door contacts and exterior cameras at all building corners. District will notify building contractor which security system they would like. District will identify camera model numbers and building contractor shall purchase and install. Building contractor shall install fiber between cameras and IDF.	X	
20	Security - extend conduit and wiring from existing Building F to new building & terminate at IDF.		X
21	Audio Visual - provide conduit, boxes and pull strings throughout the gymnasium space at selected locations (district to identify) for future speakers, projector, screen and microphone.	X	
22	Data - provide and install a IDF cabinet (selected by District, contractor purchase and installed) with (2) 24 port patch panels and (1) switch. Install the patch panel and required wires, district will provide and install the switch. IDF shall be wall mounted and the room shall be ventilated. Include (1) 4 plex outlet next to the IDF cabinet. District to provide and install a UPS. Provide and install all required conduit, boxes, ports and wiring throughout the building and terminate at the IDF. Fiber shall be 12 strand, single mode. Cabling shall be CAT 6A.	X	
23	WAP - Install (2) exterior and (1) interior OFCI WAP devices. District to program devices.		X
24	Phone - provide and install all required conduit, boxes, device and wiring throughout the building.	X	
25	Install fiber from MDF (existing Admin office) to IDF inside building through existing site conduit.	X	
26	Install main power conduit and pull strings to 15' from the building electrical room.		X
27	Install main power conduit and pull strings from building electrical panels to 15' outside building.	X	
28	Install main power feeders from existing campus MSB (next to main parking lot) to building electrical panels through the existing site conduit and energize panels.	X	
29	Provide 3-phase NEMA-1 electrical panel, sub panels, breakers and wiring to all interior devices.	X	
30	Install all required conduit, boxes, outlets and wiring for power outlets throughout the building.	X	
31	Water stub-out to single point of connection.	X	

Modular Scope Matrix		Section 01 10 00	
Piedmont M.S. Gymnasium			
	DESCRIPTION	**MODULAR MANUF.**	**SITE CONTRACTOR**
32	Electric HVAC and water heater connection to disconnect and electrical panel.	X	
33	Stub building downspouts and roof drains to 15' outside the building perimeter.	X	
34	Downspout and roof drain connection to storm drain system.		X
35	Stub water to a single point of contact 15' outside the building perimeter.	X	
36	Connect building water stub-out to site water.		X
37	Water heaters and connections.	X	
38	Toilet room signage.	X	
39	Stub sewer to single point of contact 15' outside the building perimeter.	X	
40	Connect building sewer stub-out to site sewer.		X
41	Stub Condensate drain to single point of contact 15' outside the building perimeter.	X	
42	Connect condensate drain to sewer system.		X
43	Project signage (all project signage).	X	
44	Floor covering.	X	
45	Establish/maintain building corners/surveying.	X	
46	Construction keying.	X	
47	Master keying (building contractor and District to coordinate).	X	
48	Temporary utilities.	X	
49	Install fire sprinkler system throughout building including riser 15' outside the building.	X	
50	Connect building fire riser stub-out 15' from building to site fire water.		X

SECTION 01 80 00
BUILDING DESIGN CRITERIA

PART 1 GENERAL

1.1 DESCRIPTION OF THE WORK

A. Document Preparation and Division of State Architect Approval:

1. The Modular Building Contractor shall prepare complete Construction Documents based upon the design shown and described within this Specification.
2. The Construction Documents prepared by the Modular Building Contractor shall follow exactly the size and character of the drawings contained in the drawings. Construction Documents will take into consideration minor variations in plans and exterior finishes. This Specification shall be a minimum guideline for the quality of products and construction to be produced for the **Berryessa Union School District**. It is understood that the plans included herein are guidelines and there may be conflicts with the specific modular framing system which require minor modifications to the building plans including window locations, door locations, and the location of mechanical units to allow proper ducting for the system to function. These modifications are the responsibility of the modular building contractor and shall be worked out with the Architect of Record after award. All required modifications are to be included in the contractor's base bid.
3. Structural, Mechanical, Plumbing, Electrical, and Overhead Spinrkler systems shall be designed by the Modular Contractor following this Specification as a minimum guideline.
4. The Geotechnical report for the site is included for use in designing the slab-on-grade foundation system. No raised concrete slab shall be acceptable. Concrete slab must be in contact with building pad (no metal decking of any sort).
5. The Modular Building Contractor shall prepare a project specific set of documents for the **Berryessa Union School District** and shall submit the plans to DSA for approval. It shall be the Modular Building Contractor's responsibility to respond to plan check comments from DSA and obtain final plan check approval for the Modular Building Construction Documents. The modular manufacturer may be required to attend the DSA over-the-counter meeting with the Architect at the Architect's option.
6. The timeline to complete the document preparation and obtain DSA approval shall comply with the schedule described in the Contract with the District.
7. **Submittal of Building Plans to obtain DSA approval shall be by the Modular contractor. The Modular Building Contractor shall pay the DSA plan check fees for this approval and cover all fees associated with the preparation of the documents and obtaining the DSA approval.**
8. **McKim Design Group** shall be the Architect of Record and shall be responsible for obtaining DSA approval for site specific plans which shall include the building footprint as shown in the drawings. When the Modular Building Contractor obtains DSA approval for the custom modular building plans, they shall provide these plans to McKim Design Group within four days of their approval. McKim Design Group shall attach these approved plans to the site plan, and be responsible to obtain DSA approval for the buildings set on the site.
9. Modular Manufacturer may use their previously approved PC plans with current DSA approval as a comparison set or a base set, however, the Modular Building contractor shall prepare custom drawings for **Berryessa Union School District** meeting all of the requirements of these bid documents.

B. Site Demolition, Off-haul of spoils, Excavation, Grading

1. Temporary Fencing shall be provided by the District.
2. The Modular Building Contractor shall contact a utility locating company to locate all utilities in building area prior to beginning work including 20' beyond the building footprint.

3. The Modular Building Contractor will be provided a rough-graded dirt area approximately 12" below the designed finish floor elevation of the Gym building. This area will be generally level and extend approximately 5' beyond the footprint of the building. The District will remove all trees, fencing, or other items within the area of work that need to be demolished.
4. The Modular Building Contractor shall be responsible to provide all addition rough and finish grading, excavation, soil and base preparation, etc. as required for the building foundations and remove surplus materials from site in order to reach the design elevation for the finished floor. Pad shall be over-cut as required but no less then 5'-0" beyond the exterior foundation.
5. The Modular Building Contractor shall grade and compact the building pad as required to prepare the building area to receive the building foundation. This shall include import or export of materials, base rock, drain rock, sand, vapor barriers, etc. as required by the design of the foundation system as provided by the Modular Building Contractor. All work shall conform to the attached Soils Report.
6. Contractor shall off-haul all spoils and excess soils.
7. Contractor shall trench for any under-floor utilities as required for the building designed by the Contractor or for the system required by the building.

C. Building Construction:

1. The Modular Building Contractor shall provide ALL WORK necessary to construct the building per plans.
2. The Modular Building Contractor shall provide all under-foundation utilities required to provide the SINGLE POINT OF CONNECTION required at each building for all utilities. Install any under-slab or under-floor utilities per requirements and current code. The Modular Building Contractor is required to provide all work necessary to allow a single point of connection for all utilities (per building, not per room) including running utilities together underground outside the building footprint or overhead within the building above the ceiling, or under the slab, to the point of connections shown on the plans. Routing plans shall be submitted to the Architect for approval prior to beginning work.
3. Utilities including water and sanitary sewer shall be capped and pressure tested. Inspector of Record (IOR) to observe. Connections to utility services will be provided under a separate bid package by the District.
4. **All utilities shall be run INSIDE the walls – no exterior surface mounted conduits or utilities shall be allowed.**
5. Empty conduit for security, telephone, fire alarm, public address, data, solar systems, and cable TV and empty boxes for associated devices within the Building shall be installed by the Modular Building Contractor, as shown on drawings herein, per the **Electrical Design Criteria section 01 80 20** and as additionally required per code, DSA and terminated in the accessible ceiling spaces.
6. The fire alarm system shall be design-build. See the Electrical Design Criteria 01 80 20 for additional requirements.
7. Delivery, assembly and installation of the modular buildings shall be the responsibility of the Modular Building Contractor.
8. Interior and exterior fixtures, casework, bleachers, finishes, trim and water protection shall be installed by the Modular Building Contractor. Water heaters, accessories, etc. as shown on the plans shall be installed by the modular building contractor.
9. Electrical and mechanical systems shall be installed by the Modular Building Contractor. Systems shall be tested by the Modular Building Contractor after the Owner, under separate contract, has connected the power to the Building's electrical panel.
10. The Modular Building Contractor shall produce a shop drawing indicating the single point of

connection for electrical power, water, sewer, low voltage and communications services. The shop drawing shall indicate location of empty conduit for security, telephone, fire alarm, public address, data, and cable TV. Refere to **Electrical Design Criteria 01 80 20** for additional requirements.

10. Building components shall be fabricated in plant and/or on-site in accordance with the DSA approved plans obtained by the Modular Building Contractor. Components shall be erected on-site and secured to foundations prepared by the Modular Building Contractor.
11. Building shall be completely closed in and secured in a weatherproof condition.
12. The Modular Building Contractor shall work with and coordinate with other contractors hired by the District to provide site utilities, site finishes, building low voltage systems, etc. Modular Building Contractor shall include time required for coordination in his base bid.
13. The Modular Building Contractor shall meet weekly at the job site with the Architect during construction and/or as outlined in the Specifications.

1.2 RELATED WORK

A. The Owner shall provide the site work and will oversee a Site Work Construction Contract concurrent with the Modular Building Project.

B. The Owner shall be responsible for locating and identifying all electrical, telephone, signal, plumbing, drainage or other underground utilities which are to serve the building or may be disturbed by this building project.

C. The Owner shall remove trees, shrubs, fencing and other site features as required to provide clear access to the site for installation of Buildings except where identified in this document for the contractor to remove or demolish.

D. The Owner, under a separate contract, shall install underground water and sewer to the points of connection shown on the plans and connect to utilities stubbed out by the Modular Building Contractor. The Owner shall connect the utilities and rain water leaders to the storm drain, grade for drainage around building, install flatwork and landscaping around the Buildings.

E. The Owner shall bring power systems and communications conduit to within 15’ of the Modular building perimeter. See Modular Scope Matrix 01 10 00 and Electrical Design Criteria Section 01 80 20 for additional information.

F. The Modular Building Contractor shall coordinate his concrete foundation work and building delivery schedule with the Owner and the Architect. It is the intent that the Owner will run separate contracts concurrently with the modular building contractor in accordance with the schedule outlined by the Architect. All contractors shall meet at the site with the Architect and a representative of the Owner early in the project to coordinate timing of events.

1.3 WARRANTY

A. The Modular Building Contractor and subcontractors shall guarantee in writing, individually, to the Owner that they will repair or replace any or all work, (together with any other work which may be displaced, damaged or marred in so doing) that may prove defective in failure to conform to contract provisions and requirements workmanship and materials within two years from date of acceptance of the work by the Owner, without any expense whatsoever to the Owner. Ordinary wear-and-tear and unusual abuse or neglect are excepted.

1.4 COMPLIANCE WITH ENERGY REGULATIONS

A. Modular building envelope and equipment supplied by the building manufacturer shall comply with the applicable energy design requirements for non-residential buildings as regulated by Title 24. The building supplier or manufacturer shall provide computations and complete compliance forms for

submittal to the State and the Architect. Modular Building Manufacturer shall also comply with all CalGreen and DSA GL-4 requirements and provide documentation at the completion of the project to the owner and Architect verifying all requirements were met.

1.5 BUILDING DESIGN CRITERIA

a. Occupancy	A-4 (or as shown on plans)
b. Type of Construction	Type V-N, rated walls as required
c. Seismic	See site location
d. Wind Load	Exposure “C”, verify with site location
e. Foundation Soil Bearing	Per Geotechnical Report
f. Roof Live Load	20 P.S.F. *See solar panel information below
g. Walls	20 P.S.F. for partitions
h. Floor Live Load	N/A – concrete slab
i. Clear Ceiling Height	26’ Clear – No obstructions below 26’-0” in Gym.
j. Modules	Moment-Resist Steel or Metal/Wood Shear Wall
i. Solar Panel – Future	Design roof system (metal roofing attachments) and building system (lateral and bearing) to support an additional eight (8) lb/sf solar panel roof load. Design shall support solar rack system clamps similar to those manufactured by Unirac Metalx. Refer to: https://unirac.com/metalx/

A. General Building Description

1. Size: Modular size shall be nominally 12 x 70’-3”. Building shall be clear span construction with no interior columns or pilasters.
2. Structural System: Shall be two dimensional moment resisting steel space frame with or other DSA approved methods of construction including shear wall design as appropriate.
3. Foundation: Concrete slab-on-grade, with foundation system designed to meet the requirements outlined in the geotechnical reports recommendations. .
4. Floor System: Slab-on-grade.
5. Roof System: Shall be a steel frame with metal deck and/or other structural systems as required.
6. Roofing: Shall be standing seam metal roofing with building paper or other water-protective material per roofing manufacturer’s recommendation for the design slopes.
7. Walls: Shall be metal or wood stud non-load bearing walls with exterior plywood and field applied 3-coat cement plaster system finish (30/30) along with metal siding panels per elevations. Interior and exterior finishes must appear as if they were finished in the field and limit seam lines. No mod-lines shall be visible on the interior or the exterior of the building. Gypsum board or other finishes shall completely cover and hide the mod-lines on the interior, and the cement plaster shall completely cover and hide the mod-lines on the exterior.
8. Mechanical System: Shall be roof mounted package units providing adequate heating and cooling for the Gym space. Units shall be **ALL ELECTRIC** as there is **NO GAS** provided at the site or to the building. Units shall be manufactured by Trane, Carrier, or Equal. HVAC units to be controlled by individual thermostats with locations to be determined. Units shall meet Title

24 for efficiency. Ducts shall be fully concealed OR exposed depending on final design and building contractor. Ducts may not run on roof.

9. Exhaust Fans: Provide exhaust fans vented through the roof at the restrooms, and the electrical room. Fans at restrooms shall be switched on with the lights and shall have a delayed shut-off relay allowing fan units to run for up to 10 minutes after the lights have been turned off. Electrical room fan shall be on a thermostat.
10. Plumbing System: Provide all plumbing as shown on the plans and called for in the specifications. Also provide a minimum of one (1) floor drain with trap primer in each restroom and one hose bib in each restroom (under sink). Include (1) hose bib on the roof. Include an electric hot water heater within the janitor room, wall mounted, to serve the janitor sink.
11. Sinks, Bubblers, Faucets and Shower Enclosures

Toilets:	Kohler Elongated Flush Valve Toilet (Wall Hung) or with Royal Model Flushometer.
Urinals:	Kohler brand urinal with Royal Model Flushometer.
Lavatories:	American Standard wall hung to comply with code.
Drinking Fountain:	Elkay model with bottle-filler, no filtration as required to meet code.
Faucets:	Elkay.
Trap Primers:	Provide trap primer to all floor drains located in toilet rooms (3 minimum).
Floor Drains:	Locate, provide, and connect all floor drains to sanitary sewer system. Provide a minimum of one (1) floor drain in each restroom.
Janitor Sink:	American Standard floor mounted, with faucet and mop rack above.

12. Electrical System: Per current code requirements. All electrical to be concealed in walls and above ceiling. No exposed conduit or wire mold shall be allowed unless ceiling design has no concealed space. Locate where required by code and per attached drawings. Outlets, Faceplates, Cover Plates, etc. to be white (not ivory). See Electrical Design Criteria Section 01802.
13. Lighting: Per current code requirements. See Electrical Design Criteria Section 01802.
14. Finishes and Equipment (See attached drawings for location and extent, See included CSI Divisions for minimum guidelines for materials and products.

    Building shall have the following:

    a. Finishes as called out on finish schedules and included in these specifications
    b. Dual-pane aluminum windows per specification.
    c. Door hardware as required to meet code and per hardware schedule in specifications. Hardware schedule is the minimum required. Standard of quality per specifications.
    d. Interior and exterior paint (3 coat system, minimum); Architect may select up to 4 exterior colors to be used in combination, and 4 interior colors

B. Building Plans and Elevations – In bid documents.

END OF SECTION

SECTION 01 80 20
ELECTRICAL DESIGN CRITERIA

1. General Codes, Guidelines and Standards

The equipment, design, materials and installation shall meet or exceed the requirements as set forth in the following codes, guidelines and standards. Do not construe anything contained in this BOD to permit work that does not conform to code. Consider interpretations and rulings of the enforcing agencies as part of the design criteria. All State, Local, County or City Ordinances shall also apply.

ADA Americans with Disabilities Act, Accessibility Guidelines for Buildings and Facilities
ANSI American National Standards Institute, Inc.
CAL/OSHA California Occupational Safety & Health Administration
CBC California Building Code
IEEE Institute of Electrical and Electronic Engineers
IESNA Illuminating Engineering Society of North America
NEC National Electric Code
NECA National Electrical Contractors Association
NEMA National Electrical Manufacturer's Association
NESC National Electrical Safety Code
NFPA National Fire Protection Association
SFM California State and Local Fire Marshal
UBC Uniform Building Code
UFC Uniform Fire Code
UL Underwriters' Laboratories

2. Electrical Distribution

The building design shall include an 800 amp, 120/208V, 3 phase, 4-wire Service/Distribution panel located inside the electrical room fed from below with (4) 4" conduits stubbed to an exterior pull box or vault approximately 15' outside the building walls. This panel and conduits shall be provided and installed by the building contractor. The site contractor will provide (5) 4" conduits (4 power + 1 communication) to the exterior in-ground pull-box, the pull box itself, and all conductors, terminations, etc. to power the 800amp distribution panel provided by the building contractor.

Lighting, receptacles, security, life safety equipment, mechanical/plumbing and miscellaneous loads shall be served at 120/208 volts. The new 800 amp, main breaker Distribution Panel, branch lighting panel, mechanical system panel, receptacle panels, etc. shall be located in the dedicated electrical room in the building and Motor controllers for mechanical equipment shall be located within Electrical or Mechanical Equipment Rooms. Branch circuit panelboards shall be specified and designed to feed lighting, receptacles and smaller power loads. All panel boards shall have 25% spares or spaces. Feeders shall be sized with a minimum of 25% spare capacity. All equipment shall be rated for the maximum available 3-phase symmetrical fault current at the equipment location. All feeders and branch circuits combined shall be sized to accommodate 5% voltage drop maximum. Per California T-24 Energy Code; electrical loads shall be disaggregated (lighting, mechanical, plug loads). Exterior, wet areas and areas with sinks shall be provided with GFCI type receptacles or breakers shall be GFCI type for circuits serving such receptacles.

The main switchboard, distribution equipment (panels, switchboards), conduits, lights, racks, etc. shall be seismically braced.

Building grounding shall consist of a UFER ground cable in the foundation slab, connection to building steel and to cold water piping. A wall mounted ground bar shall be provided near the switchboard to tie all grounds together and in each electrical room. The ground bar shall have spare compression lug

connectors for ground conductors to the main switchboard, step-down transformer (if applicable), telecommunications room and for any future grounding needs.

3. Solar Ready/Solar Photovoltaic (PV) Rough-In

Contractor shall account for dedicated space for future PV Solar equipment and conduits stubbed above/to roof for future PV Panels. All conduits shall NOT be surface mounted but concealed within walls and ceiling spaces.

4. Exterior Lighting

The use of full cut-off fixtures shall be specified to minimize impact on surroundings and less effect on night sky. LED lighting fixtures shall be used to help outperform California Title 24 requirements, reduce energy use and require less maintenance and the longer lamp life will help reduce cost along with environmental impact. The WattStopper DLM (or equal) system with internal astronomic time clock shall be provided as means to turn on and off different areas of the site at allocated times (i.e. evening lights, night lights, etc.). The exterior light fixtures will provide illumination for all areas immediately around the building and provide enough light levels to comply with the path of egress requirements as required within the code.

5. Interior Lighting

Lighting fixtures throughout the interior of the building(s) will use energy efficient LED (Light-emitting diode) light engines to help outperform California Title 24 requirements. The LED light fixtures will provide long lasting and more efficient performance. WattStopper DLM (or equal) controllers will be capable of 100% to 10% dimming and daylight harvesting for the Gym and Lobby areas. Occupancy sensors shall be installed for automatic shut-off controls and the use of lighting relay panel with astronomic time clock for larger open areas is allowed for shut-off (where district allows). Photometrics shall be provided for Open Gymnasium to ensure lighting levels are met per below recommended light level. Light fixtures in Open Gymnasium space shall be of lens type (where fixture selected is lensed) that does not shatter glass and also where necessary, wire guards shall be provided to ensure contact from objects/basketballs or volleyballs do not cause fixture lens to break.

6. Target Light Levels Foot-candles (FC):

a. Corridors/Support Spaces – 25fc
b. Gymnasium floor (sporting events) - 50-65fc
c. All other areas are based on IESNA standards.

7. Emergency and exit lighting

Emergency and exit lighting shall be as required by code. Emergency lighting shall be provided through the path of egress by integral emergency battery racks in selected light fixtures to provide an average of 1 foot-candle of illumination at the floor level and a minimum of 0.1 foot-candle. The emergency egress lighting shall be unswitched and also serve as night lighting for security purposes (maximum of 0.1 watts/square foot in corridors). Exit sign appearance shall enhance the public spaces and all fixture finishes shall be coordinated with Architect.

8. Lighting Controls

Dimming drivers will help to keep lighting levels low when daylight is present in occupied spaces and thus reduce energy costs throughout the day. Dual tech occupancy sensors will be integrated to turn off lights in intermittently occupied areas, when unoccupied, and in turn unnecessary energy is not wasted. The controls have manufacturer recommendations for placement and use for specific systems which help to provide a tool for design. The WattStopper system (or equal) will be controlling both interior and exterior lighting. The system has the capability of being controlled via software on the campus network/energy management system. The set times for control of lighting, sensitivity of occupancy sensors, level of day-lighting and level of dimming shall all be controlled via the WattStopper DLM system. Where an existing

Energy Management system exists at main campus building, the new system shall integrate with the existing for single source control.

9. Fire Alarm System / Emergency Voice Evacuation System

The existing panel is a Silent Knight 6820 EM Voice Evacuation series panel. The site contractor will provide a conduit path from the existing panel at the Administration building or Building F to an in-ground pull-box located approximately 15' outside the electrical room at the Gym building. The building contractor shall provide (1) 2" conduit from the electrical room to the FA pull-box approximately 15' away and a code compliant (California Fire Code/CFC and NFPA 72) design and installation (**design-build**) for the fire alarm system throughout the building. Design and Installation of new Fire Alarm/EM Voice Evacuation System shall be included for entire building. A riser diagram of the existing system will be provided for use in the design. Only the new Gymnasium building interior (or exterior building mounted) devices and connections (amplifiers/remote power supplies, detection initiation devices, and notification devices) shall be included as part of this scope/Gymnasium infrastructure. Site contractor shall be responsible to pull all wires back to the head-end control panel in the Admin building, provide and connect all devices, program and test the system. Building contractor shall be responsible for the design and installation of all conduit, boxes and pull strings throughout the building.

10. Initiation Devices

Smoke detectors shall be specified for installation in all corridors and electrical and communications closets. Heat detectors shall be specified for all combustible storage areas, mechanical rooms and janitor's closets. Duct smoke detectors located in mechanical ducts shall have remote mounted test switches. All initiating circuits shall be designed to have 25% spare capacity. All initiation devices shall be manufactured by main fire alarm system manufacturer. At open Gym Floor space, multiple Beam Smoke Detectors shall be accounted for with testing switches and addressable/compatible with fire alarm system main panel. Duct Smoke Detectors and Fire Smoke Dampers shall be coordinated with Mechanical plans to ensure fire alarm connections are made for shut-down and activation. Listed Wire Guards for all wall devices shall be installed to protect from incidental contact in the gymnasium space.

11. Annunciation Devices

The audible and visual signal levels shall comply with ADA requirements. Fire alarm speakers, speaker-strobes and strobe devices shall be installed with code required temporal patterns acceptable to DSA. All devices shall be wired as Class B with end-of-line devices. Exterior horns shall be provided at the building entrances. All annunciation circuits shall be designed to have 25% spare capacity. All annunciation devices shall be manufactured by Cooper Wheelock/System Sensor or equal. Listed Wire Guards for all wall devices shall be installed to protect from incidental contact in the gymnasium space.

12. Testing

The contractor shall pre-test all devices prior to the final test. The final test shall be conducted with the contractor's job foreman, owner's representative, the inspector of record. A calibrated Decibel Meter shall be used to verify that the audibility of the system is 15dB over ambient noise levels. Initiation devices shall be opened in a least two (2) locations per zone to check for the presence of correct supervisory circuitry. The contractor shall submit to the owner a completed typewritten NFPA 72 Certification form.

13. Telephone and Data Communications Systems

The Gym building shall be served via underground utility. Secured space for a minimum point of entry (MPOE) shall be provided in the new building Electrical Room (space dedicated for racks/cabinets required for telecom entry into new building). Multiple conduits will be installed to the MPOE in the Electrical Room for data circuits and general head-in communications systems (copper/fiber optical cables). Building contractor shall include installation of (1) 4" conduit for fiber and (3) 2" conduits for other low voltage and spares stubbed to 15' outside of the electrical room.

The Gym building shall have an IDF (Intermediate Distribution Frame) installed in the Electrical Room.

Fiber optic backbone cables will be installed from the Main Campus MDF to the Gym's Electrical Room by the building contractor. The building contractor will provide a new building's IT rooms/IDF Racks/Cabinets. Fiber optic cables shall be installed between MDF to each IDF, as necessary by the building contractor.

Services shall be distributed to the major areas of the buildings via conduit. A typical outlet will consist of either two or four Category 6A cables terminated in a 4-11/16" " square back box. Cables will be routed to the outlet in a 1 ¼" EMT conduit to the electrical room. OFCI Wireless Access Points for common areas shall be installed by the building contractor. Building contractor is to provide minimum of (1) location inside the open Gym space and (2) locations on the exterior of the Gym.

14. Audio Visual (AV) System

A separate AV system shall be roughed in for (conduits and boxes) between head-end (coordinate head-end location with District in electrical room) and devices (speakers, amplifiers, microphones, displays/projectors, etc.).

15. Scoreboard and Shot Clocks

Power for scoreboards and shot clocks shall be provided. Telecom connections to scoreboard and shot clocks shall be provided. From Score-Keeper locations (estimated at two locations at gymnasium floor level), floor boxes shall be installed with power, telecom and conduits to scoreboard and shot clocks for communication to scoreboards and shot clocks.

16. Intercom PA Speaker and Clock System

Install clock/pa speaker system devices throughout common spaces and PA Speakers on exterior of building for coverage outdoors. The new devices shall be compatible with the existing main head-end intercom paging and clock system equipment and the connections/cabling from each device shall be routed back to Gym building local IDF/Elec room. A complete and fully functional/tested system shall be installed. All necessary back boxes and mounting hardware included.

17. Emergency Radio Communication Enhancement System (ERCES)

A new FCC approved with building mounted antenna system ERCES System shall be installed for all new buildings. A survey of coverage shall be conducted for each new building to establish the necessity for such a system as required by CFC and NFPA 72. Based on survey findings an established design shall be provided and installation of a fully functional licensed system shall be installed for emergency responders radio coverage. Where survey determines a system is not required, it is acceptable to forgo this system and a written confirmation to District shall be provided.

18. CCTV Cameras

District will supply a specification and building contractor will provide and install conduit, devices and wiring from IDF to each device.

19. Security System

District will supply a specification and building contractor will provide and install conduit, devices and wiring from IDF to each device.

20. Coordination with Other Trades

a. Provide preliminary electrical loads, mechanical room areas, service yard requirements, roof loading, equipment pad information, life safety, security, and any other information required by other disciplines as soon as possible in the early part of the design phase to the District.

b. Provide detailed coordination information to other disciplines including devices provided by other subcontractors such as motor starters, disconnect switches, smoke detection for HVAC equipment, plumbing connections, concrete pads, access doors, etc. during the design phase. Provide other

subcontractors and District this information with sufficient time to incorporate these items into drawings before final design documents are due.

c. Demolition of existing electrical systems to buildings scheduled for demolition/removal shall be provided by the District under a separate contract.

END OF SECTION

SECTION 01 80 40
OVERHEAD FIRE PROTECTION DESIGN CRITERIA

1. OVERHEAD FIRE PROTECTION SYSTEM

Overhead fire sprinkler system throughout the New Gym Building shall include, but not be limited to overhead riser, flow switches, tamper switches, alarm bell, piping, fittings, valves, sprinkler heads, seismic bracing, hangers, gauges, accessories, overhead riser with connection to In Building Riser, and permit drawings with hydraulic calculations for approval by DSA.

2. WATER SUPPLY

The availability of 35 psi at the base of the riser for the required fire sprinkler demand shall be used for bidding purposes.

3. GOVERNING CODES

2019 CBC (California Building Code)
2019 CFC (California Fire Code)
2016 NFPA 13
2016 NFPA 24

4. PRODUCT DATA

Flow Switches:	Potter VSR with adjustable retard or approved equal.
Tamper Switches:	System Sensor OSY2 used to monitor position of outside screw and yoke or approved equal.
Alarm Bell:	Potter PBA12010, 10” 120V, CSFM approved and UL listed, or approved equal.
Piping:	ASTM UL listed fire sprinkler pipe black carbon steel (schedule 40 with threaded fittings or schedule 10 with welded or roll groove fittings) Bull Moose Tube or approved equal. Exterior piping shall be hot dipped galvanized painted to match building in accordance with Division 09.
Fittings:	Black ductile iron threaded fittings meeting requirements of ASTM A536 for 1 1/2” pipe and smaller, butt-welded joints or roll grooved joint for pipes 2” and larger. Hot dipped galvanized coating for exterior fittings. SPF, Anvil, Victaulic or approved equal.
Seismic Joint:	Metraflex Fireloop or approved equal.
Main Drain:	Nibco T-301 or approved equal.
Riser Check Valve:	Tyco CV-1 or approved equal.
Control Valve:	Tyco BFV-N butterfly valve with tamper switches.
Inspector’s Test:	AGF Model 1011A Test and Drain with Model 7000 pressure relief valve set at 175 psi.
Sprinkler Heads:	Automatic glass bulb type, quick response, Tyco FRB or approved equal.
Hanger and Bracing Components:	UL listed in accordance with NFPA13, Tolco, Bline or approved equal.
Pressure Gauge:	4” FFPI-PG 300 psi air/water gauge with 3way valve gauge kit, FPPI approved equal.
Spare Head Cabinet:	Tyco Spare Head Cabinet or approved equal.
Semi Recessed Escutcheons:	Tyco Style 10, 15.., semi recessed escutcheon, finish as required by Architect or approved equal.

5. UNDERGROUND FIRE SERVICE

Provide underground fire service connection from the New Gym Building with in-Building riser to a connection point up to 15 feet outside the building to the underground fire service specified under Division 33 and provided by the Site contractor. The building contractor's scope is to include but is not limited to: in-building riser, thrust block, piping, fittings, mechanical joint restraint, bolt up sets, polyethylene wrap, tracer wire, and warning tape to the connection point approximately 15' from building. Coordinate with site design and site contractor during design and installation.

6. PRODUCT DATA

In building riser:	UL listed one piece 304 stainless steel, Ames IBR or approved equal.
Thrust blocks:	Thrust blocks shall be a minimum of 2000 psi strength concrete.
Underground fire service piping:	Piping shall be DR14 C900 PVC, Manville Blue Brute or approved equal. Piping within 5 feet of buildings or under footings shall be Class 50 cement lined ductile iron.
Fittings:	Ductile Iron in accordance with AWWA C110 and C151, Tyler Union or approved equal.
Mechanical Joint Restraint:	Joint restraint for PVC piping shall be EBAA Iron Megalug series 2000PV or approved equal. Mechanical joint restraint for ductile iron piping shall be EBAA Iron Megalug series 1100 or approved equal.
Bolt up sets:	All bolt up sets shall be 316 stainless steel.
Polyethylene encasement:	All metallic pipe fittings and appurtenances below grade shall be wrapped for protection from corrosive soil with a minimum of 8 mil polyethylene encasement in accordance with ASSI/AWWA C105/A21.5, Polyethylene encasement shall be Christy's Fitting wrap or approved equal
Tracer wire:	Wire shall be a minimum #10 awg copper, UL listed for direct burial.
Warning tape:	Detectable marking tape shall be a minimum of 5 mil polyethylene and meeting ASTM D882-80A standards, Christy's or approved equal.
Mastic:	Bituminous Tar Mastic meeting ASTM D 4541 standards, Christy's HD50 or approved equal

END OF SECTION

SECTION 05 51 33
ALUMINUM LADDER – FIXED

PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Aluminum fixed vertical ladders.

1.2 RELATED SECTIONS
- A. Structural Steel
- B. Metal Fabrications
- C. Rough Carpentry
- D. Roofing

1.3 REFERENCES
- A. ANSI A14.3: Ladders - Fixed - Safety Requirements.
- B. OSHA 1910.27: Fixed Ladders.

1.4 SUBMITTALS
- A. Submit the following:
- 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. Shop Drawings for Ladders:
  1. Plan and section of ladder installation including blocking and fasteners.

1.5 DELIVERY, STORAGE, AND HANDLING
- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products until installation inside under cover. If stored outside, under a tarp or suitable cover.

1.6 WARRANTY
- A. Limited Warranty: Five years against defective material and workmanship, covering parts only, no labor or freight. Defective parts, if deemed so by the manufacturer, will be replaced at no charge, freight excluded, upon inspection at manufacturer's plant which warrants same.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Acceptable Manufacturer: O'Keeffe's, Inc.; 325 Newhall St. San Francisco, CA 94124. ASD. Toll Free Tel: (888) 653-3333. Tel: (415) 824-4900. Fax: (415) 824-5900. Email: info@okeeffes.com. Web: http://www.okeeffes.com. ***OR approved equal***.

2.2 ALUMINUM FIXED VERTICAL LADDER
- A. Aluminum Fixed Vertical Ladder and Components: Ladder, mounting brackets, and side rails.
  1. Model: Standard duty Model 500 -*** (***= vertical height in inches) Aluminum Fixed Vertical Ladder. Provide "Safety Post" and refer to details for additional information and requirements.
  2. Capacity: Unit shall support a 1500 lb (680 kg) loading without failure, and individual treads shall withstand a 3,000 lb (1361 kg) loading without failure.
  3. Performance Standard: Units designed and manufactured to meet or exceed ANSI A14.3 and OSHA 1910.27.
- B. Components:
  1. Ladder Stringer: 3 inch by 1 inch by 1/8 inch 6063-T5 aluminum channel.

Pitch: 90 degrees.

2. Ladder Tread: 1-1/4 inch by 1-1/4 inch extruded 6061-T6 aluminum with deeply serrated surfaces.
3. Ladder Mounting Bracket: 3/16-inch-thick aluminum. 4' on center maximum, with one at top and bottom of ladder min. In addition, anchor ladder to floor with anchor bolts per details.
4. Finishes:
   a. Standard: Mill finish on aluminum ladder components.

2.3 FABRICATION

A. Completely fabricate ladder ready for installation before shipment to the site.
B. Completely fabricate handrail components and ship to site ready for field assembly and attachment to ladder.

PART 3 EXECUTION

3.1 EXAMINATION

A. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
B. Examine materials upon arrival at site. Notify the carrier and manufacturer of any damage.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.3 PROTECTION

A. Protect installed products until completion of project.
B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 62 00
SHEET METAL FLASHING AND TRIM

Where conflicts exist between this specification and other specifications, the higher quality and greater number shall govern. Nothing in this specification shall be used that reduces the manufacturer's warranty provided in the above reverenced sections.

PART I – GENERAL

1.01 WORK INCLUDED
A. Coping parapet and cap flashings.
B. Facias and scuppers.
C. Roof flashings.
D. Counter flashings over bituminous base flashings.
E. Roof joint cover flashings.
F. Counter flashings at roof mounted mechanical equipment and vent stacks.
G. Counterflashings for roof hatches and skylights.
H. Gutters and Downspouts.
I. Reglets.

1.02 REFERENCES
A. ASTM A525 - Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process.
B. ASTM B32 – Solder Metal.
C. ASTM D4601 – Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.

1.03 SUBMITTALS FOR REVIEW
A. Submit shop drawings, samples manufactures instructions and product data under provisions of Division 1.
B. Describe material profile, jointing pattern, jointing details, fastening methods and installation details.

1.04 STORAGE AND HANDLING
A. Stack preformed and prefinished material to prevent twisting, bending, or abrasion and to provide ventilation.
B. Prevent contact with materials during storage which may cause discoloration, staining or damage.

PART II – PRODUCTS
2.01 SHEET MATERIALS
A. Galvanized Steel: ASTM A525, G90.

2.02 ACCESSORIES
A. Fastener: Galvanized steel with soft neoprene washers at exposed fasteners. Finish exposed fasteners same as flashing metal.
B. Underlayment: ASTM D4601, asphalt coated roofing felt, 25 or 28 lbs. Per 100 s.f.
C. Metal Primer: Zinc chromate type.
D. Protective Backing Paint: Bituminous.
E. Sealant: Two component, polyurethane type specified in Section 07 92 00, Joint Sealers.
F. Reglets: Surface-mounted or recessed as indicated on the drawings, 24 gage with 26 gage counter flashing, galvanized steel SPRINGLOCK; manufactured by FRY Reglet Corp., Alhambra, CA, or an approved equal, face and ends covered with plastic tape.
G. Solder: ASTM B32; 50/50 type.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square and free from distortion or defects.
B. Fabricate cleats and starter strips of same material as sheet, interlockable with sheet.
C. Form pieces in longest practical lengths.
D. Hem exposed edges on underside 1/2 inch; miter and seam corners.
E. Form material with flat lock seam.
F. Solder and seal metal joints. After soldering, remove flux. Wipe and wash solder joints clean.
G. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
H. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
I. Fabricate flashings to allow toe to extend 2 inches over roofing. Return and brake edges.
J. Form sheet metal pitch pockets with 3 inch upstand and 4 inch flanges.
K. Coordinate curved gable trim, rake wall trim, and head wall trim with specification for metal roofing. Fabricate pieces in longest practical lengths.

2.04 FINISH

A. Shop prepare and prime exposed ferrous metal surfaces.
B. Backpaint concealed metal surfaces with protective backing paint when in contact with copper, redwood or red cedar.
B. Add Alternate - Provide Kynar 500 finish on ALL exposed fascia, soffit, etc…sheet metal trim. Color to be selected by architect.

PART III – EXECUTION

3.01 INSPECTION

A. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant strips and reglets in place and nailing strips located.
B. Verify membrane termination and base flashings are in place, sealed and secure.
C. Beginning of installation means acceptance of existing conditons.

3.02 PREPARATION

A. Field measure site conditions prior to fabricating work.
B. Install starter and edge strips and cleats before starting installation.
C. Install surface-mounted reglets true to lines and levels. Seal top of reglets with sealant.
D. Insert flashings into reglets to form tight fit. Seal flashings into reglets with sealant.
E. Secure flashings in place using concealed fasteners. Use exposed fasteners only in locations approved by Architect.
F. Lock and seal all joints.
G. Apply plastic cement compound between metal flashings and felt flashings.
H. Fit flashings tight in place. Make corners square, surfaces true and straight in planes and lines accurate to profiles.
I. Seal metal joints watertight.

3.03 INSTALLATION

A. Coping Parapet and Cap Flashing: Use 20 gage galvanized steel. Provide all coping and caps of the types and shapes indicated on the drawings. Build in integral expansion joints allowing for movement of the metal without resulting in distortion of coping or leaks of any kind. All work shall be watertight.
B. Gravel Stops: Fabricate of 24 gage galvanized steel. Form true-to-line and detail as indicated. Provide corners locked and soldered full, with flashing flanges at least 4 inches under overlapping roofing materials and with aprons formed to straight lines. Install gravel stops in full bed of plastic cement and nail at 6 inch centers. All joints in gravel stops shall be butt type with back-up plates 12 inches long, of same gage and profile as the gravel stop. Wipe all exposed surfaces clean. Protect adjacent, exposed surfaces from plastic cement smears and stains.
C. Fascia Members: Fabricate to details of 18 gage galvanized sheet metal. Form true-to-line and detail as indicated. Provide corners locked and soldered full, with flashing flanges at least 4 inches under

overlapping roofing materials and with the face formed to straight lines. Install in full bed of plastic cement and nail at 6 inch centers to roof structure. All joints/seams shall overlap 6 inches with back-up plates 12 inches long at joints/seams, of same gage and profile as the fascia member. Joints/seams shall be spaced as long as possible and per SMACNA guidelines to avoid oil canning. Provide 18 gage continuous galvanized clips at bottom of fascia per details and anchored at 16 inch centers. Wipe all exposed surfaces clean. Protect adjacent, exposed surfaces from plastic cement smears and stains.

D. Gutter: Fabricate to detail of 24 gage galvanized sheet metal. Install an expansion joint every 30 linear feet of gutter; install cover plates over expansion joints. Fabricate gutter without longitudinal seams. Install cradles of 1/4 inch x 1-1/2 inch galvanized steel at 36 inch centers. Gutters shall rest in cradles, but shall not be mechanically fastened to allow for expansion and Contraction.

E. Scuppers: Fabricate to detail of 20 gage galvanized sheet. Apply sealant in all crevices.

E. Downspouts and Strainers: Downspouts shall be Schedule 40 galvanized steel pipe, 3" minimum, sized to match existing where tying into existing system. Strainers shall be10 gage galvanized steel wire basket type. Provide all anchor clips and straps as required for installation. Install a wire basket strainer in all downspouts at gutter level.

F. Leader Heads – Provide leader heads of 20 gage galvanized steel minimum (gage per details if details are heavier gage) in shapes as shown on plans. Provide wire strainers in all leader heads.

G. Drips: Provide drips of 20 gage galvanized sheet metal at heads of all doors in exterior walls where no roof or overhead protection occurs. Extend drips 2 inches beyond jambs, unless otherwise indicated.

H. Miscellaneous: Provide miscellaneous flashings as shown and required to complete entire project, except for items provided under other Sections. Submit shop drawings showing details for approval and use minimum 24 gage galvanized steel.

END OF SECTION

SECTION 07 72 33
ROOF HATCHES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide factory-fabricated roof hatches for fixed ladder access.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data.

B. Shop Drawings: Submit shop drawings including profiles, accessories, location, adjacent construction interface, and dimensions.

C. Warranty: Submit executed copy of manufacturer's standard warranty.

1.3 QUALITY ASSURANCE

A. Manufacturer: A minimum of 5 years experience manufacturing similar products.

B. Installer: A minimum of 2 years experience installing similar products.

C. Manufacturer's Quality System: Registered to ISO 9001:2008 Quality Standards including in-house engineering for product design activities.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver products in manufacturer's original packaging. Store materials in a dry, protected, well-vented area. Inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.

1.5 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard warranty. Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis-of-Design Manufacturer: Type S Roof Hatch by The BILCO Company, P.O. Box 1203, New Haven, CT 06505, 1-800-366-6530, Fax: 1-203-535-1582, Web: www.bilco.com. Approved equals are acceptable.

2.2 ROOF HATCH

A. Furnish and install where indicated on plans metal roof hatch Type S, size width: 36" (914mm) x length: 30" (762mm). Length denotes hinge side. The roof hatch shall be single leaf. The roof hatch shall be pre-assembled from the manufacturer.

B. Performance characteristics:

1. Cover shall be reinforced to support a minimum live load of 40 psf (195kg/m^2) with a maximum deflection of 1/150th of the span and a 140 psf (684 kg/m^2) wind uplift for galvanized steel (Type S-20) roof hatches.
2. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
3. Operation of the cover shall not be affected by temperature.
4. Entire hatch shall be weather tight with fully welded corner joints on cover and curb.
5. Galvanized steel (Type S-20) roof hatches shall be Miami-Dade Product approved (NOA No. 14-0708.07 Expiration Date: December 2, 2019), meeting large and small missile impact requirements. Florida Product Approval #FL15110.

C. Cover: Shall be 14 gauge (1.9mm) paint bond G-90 galvanized steel with a 3" (76mm) beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.

D. Cover insulation: Shall be fiberglass of 1" (25mm) thickness, fully covered and protected by a metal liner 22 gauge (.8mm) paint bond G-90 galvanized steel.

E. Curb: Shall be 12" (305mm) in height and of 14 gauge (1.9mm) paint bond G-90 galvanized steel. The curb shall be formed with a 3-1/2" (89mm) flange with 7/16" (11.1mm) holes provided for securing to the roof deck. The curb shall be equipped with an integral metal cap flashing of the same gauge and material as the curb, fully welded at the corners, that features the Bil-Clip® flashing system, including stamped tabs, 6" (153mm) on center, to be bent inward to hold single ply roofing membrane securely in place.

F. Curb insulation: Shall be rigid, high-density fiberboard of 1" (25mm) thickness on outside of curb.

G. Lifting mechanisms: Manufacturer shall provide compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe for steel construction: through bolted to the curb assembly.

H. Hardware

1. Heavy pintle hinges shall be provided
2. Cover shall be equipped with a spring latch with interior and exterior turn handles
3. Roof hatch shall be equipped with interior and exterior padlock hasps.
4. The latch strike shall be a stamped component bolted to the curb assembly.
5. Cover shall automatically lock in the open position with a rigid hold open arm equipped with a 1" (25mm) diameter red vinyl grip handle to permit easy release for closing.
6. Compression spring tubes shall be an anti-corrosive composite material and all other hardware shall be zinc plated and chromate sealed.
7. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.

I. Finishes: Factory finish shall be alkyd based red oxide primed steel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install products in strict accordance with manufacturer's instructions and approved submittals. Locate units level, plumb, and in proper alignment with adjacent work.

1. Test units for proper function and adjust until proper operation is achieved.
2. Repair finishes damaged during installation.
3. Restore finishes so no evidence remains of corrective work.

3.3 ADJUSTING AND CLEANING

A. Clean exposed surfaces using methods acceptable to the manufacturer which will not damage finish.

END OF SECTION

SECTION 08 11 13
STANDARD STEEL FRAMES

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. This includes electronic strikes where noted in door hardware specification.

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. This is required at ALL exterior door and window openings.**
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.
E. Provide provisions within frames to account for conduit to security and electric door strikes.

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, cold rolled steel
   2. Finish: grey primer, field paint final color.
   3. Labeling: Unit shall have UL or WH label.
   4. Fire Rating: NA
   5. Glazing: dual pane 1" insulated, low E.
   6. Aesthetics: Tight mitered corners, 90 degree angles on glass stop.
   7. Interior Doors: Cold Rolled Steel
   8. Exterior Doors: Unit shall be hot-dip galvanized after fabrication OR Stainless Steel.
   9. Mounting: Countersink, one-way vandal resistant heads, through bolts.

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 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.
D. Provide sizes as noted on ALL plans or if not noted provide sizes to accommodate the scope of work. This includes mechanical, plumbing and electrical disciplines.

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 division 01 specifications.

2.02 ACCESS UNITS

A. Flush in gypsum board finish: **Model M** (flush door, exposed frame) with concealed hinges, cam lock, size as required for access, 16 gage frame, 16 gage door. See selected finish below. **(PM – this is the typical access door used where the frame is exposed on the wall)**

B. Flush in cement plaster finish: **Model K** (flush door, exposed frame) with concealed hinges, cam lock, size as required for access, 16 gage frame, 14 gage door. See selected finish below.

C. At fire rated walls or ceilings provide equivalent access door as selected above meeting the fire rated requirement.

2.03 FABRICATION

A. Weld, fill, and grind joints to assure flush and square unit.

2.04 FINISH

A. Prime painted finish to receive field paint. Paint color to be selected by architect.

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 2019 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 master key 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 occur 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 Closers: Where closers are indicated for doors, provide adjustable units complying with 11B-404.2.8. This applies to all doors in path of travel equipped with closers. Door closer shall comply with 11B-404.2.8 closer delay time ensuring that the force required to open a door does not exceed 5lbs. 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 all closers in the path of travel for 5 lbs. (exterior), or 5 lbs. (interior) maximum opening effort (11B-404.2.9). 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.

Where panic hardware and vision lights occur locate the panic hardware below the bottom of the vision light. Vision lights per code shall be installed with the sill at 42” A.F.F.

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.

Adjust and maintain door and gate closers per 11B-404.2.8.1, so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

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 ND Series and ND Series “Vandalgard”, “Rhodes” Design Lever.

Acceptable Manufacturer:

ADA Signage: Per Plans and Signage Specifications

Butts and Hinges: Ives*.

Locks and Cylinders: Schlage*.

Exit Devices: Von Duprin*.

Overhead Closers: LCN*.

Door Control Devices: Ives*.

Door Trim Units: Ives*.

Door Stripping, Thresholds and Seals: 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.

DISTRICT STANDARDS:

1. Berryessa USD lock shop will oversee all keying, re-keying and keys.
2. All hardware to be Satin Chromium US26D.
3. E-Keyway.
4. Cores are to be interchangeable
5. Provide construction cores and keys will be “1” bitted I/C core, 626 verify keyway.
6. All key codes will be furnished by the BUSD lock shop four months prior to project completion.
7. All keys will be stamped with hook number and Do Not Duplicate (DNP).
8. All doors to have Schlage Primus cylinders.

EXTERIOR DOORS:

Group 01 Gymnasium, Exit, Double doors with Panic Hardware

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW	626	IVE
2	EA	PANIC HARDWARE	CD-PA-AX-99NLx990NLx99EO	626	VON
1	EA	REMOVALBE MULLION	KR4954		VON
2	EA	SURFACE CLOSER	4011/4111 - TB	689	LCN
4	EA	KICK PLATE	8400-10″x1″ LDWx.050″xB4E	626	IVE
2	EA	FLOOR STOP	FS455	626	IVE
2	SET	SEAL/WEATHER STRIP	188S	BK	ZERO
2	EA	DOOR SWEEP	18062CNB	ALU	PEM
2	EA	DRIP GUARD	11A x 4″ PDW	ALU	ZERO
2	EA	THRESHOLD	103 x 36" - CONTRACTOR TO VERIFY INSTALLATION PRIOR TO ORDER	MIL	ZERO

Group 02 Fire riser and Electrical Room, Single door

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW	626	IVE
1	EA	LOCKSET	ND80	626	SCH
1	EA	SURFACE CLOSER	4011/4111 - TB	689	LCN
2	EA	KICK PLATE	8400-10″x1″ LDWx.050″xB4E	626	IVE
1	EA	FLOOR STOP	FS455	626	IVE
1	SET	SEAL/WEATHER STRIP	188S	BK	ZERO
1	EA	DOOR SWEEP	18062CNB	ALU	PEM
1	EA	DRIP GUARD	11A x 4″ PDW	ALU	ZERO
1	EA	THRESHOLD	103 x 36" - CONTRACTOR TO VERIFY INSTALLATION PRIOR TO ORDER	MIL	ZERO

INTERIOR DOORS

Group 03 Storage Room, Double door

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1	626	IVE
1	EA	LOCKSET	ND80	626	SCH
2	EA	FLUSH BOLTS	FB458 (TOP AND BOTTOM)	626	IVE
1	EA	SURFACE CLOSER	4011/4111 - TB	689	LCN
2	EA	KICK PLATE	8400-10″x1″ LDWx.050″xB4E	626	IVE
1	EA	FLOOR STOP	FS455	626	IVE
1	SET	SEAL/WEATHER STRIP	188S	BK	ZERO
1	EA	DOOR SWEEP	18062CNB	ALU	PEM
1	EA	THRESHOLD	546 x 36" - CONTRACTOR TO VERIFY INSTALLATION PRIOR TO ORDER. INSTALL RECEIVING CUP AT FLUSH BOLT LOCATIONS.	MIL	ZERO

Group 04 Janitor Room, Single door

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1	626	IVE
1	EA	LOCKSET	ND80	626	SCH
1	EA	SURFACE CLOSER	4011/4111 - TB	689	LCN
2	EA	KICK PLATE	8400-10″x1″ LDWx.050″xB4E	626	IVE
1	EA	FLOOR STOP	FS455	626	IVE
1	SET	SEAL/WEATHER STRIP	188S	BK	ZERO
1	EA	DOOR SWEEP	18062CNB	ALU	PEM
1	EA	THRESHOLD	546 x 36" - CONTRACTOR TO VERIFY INSTALLATION PRIOR TO ORDER	MIL	ZERO

Group 05 Restroom, Single door

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1	626	IVE
1	EA	LOCKSET	TBD BY DISTRICT	626	SCH
1	EA	SURFACE CLOSER	4011/4111 - TB	689	LCN
2	EA	KICK PLATE	8400-10″x1″ LDWx.050″xB4E	626	IVE
1	EA	FLOOR STOP	FS455	626	IVE
1	SET	SEAL/WEATHER STRIP	188S	BK	ZERO
1	EA	DOOR SWEEP	18062CNB	ALU	PEM
1	EA	THRESHOLD	546 x 36" - CONTRACTOR TO VERIFY INSTALLATION PRIOR TO ORDER	MIL	ZERO

Group 06 Boys' and Girls' Restroom, Single door

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1	626	IVE
1	EA	PUSH PLATE	8200 – 4 x 16	626	IVE
1	EA	PULL PLATE	8300 – 4 X 16	626	IVE
1	EA	SURFACE CLOSER	4011/4111 - TB	689	LCN
2	EA	KICK PLATE	8400-10″x1″ LDWx.050″xB4E	626	IVE
1	EA	FLOOR STOP	FS455	626	IVE
1	SET	SEAL/WEATHER STRIP	188S	BK	ZERO
1	EA	DOOR SWEEP	18062CNB	ALU	PEM
1	EA	THRESHOLD	546 x 36" - CONTRACTOR TO VERIFY INSTALLATION PRIOR TO ORDER	MIL	ZERO

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.
- B. T-24 Documents – Comply with all requirements within the T-24 documents in order to achieve the required energy values.

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. Vitro, Cheswick, 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. INCLUDE SOLARBAN 70XL minimum.

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, inner pane space purged dry air; total unit thickness of 1 inch.

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 09 21 16
GYPSUM BOARD SYSTEMS

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 or Tile backer board for tile application. Walls only.
- E. Gypsum 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.

PART 2 PRODUCTS
2.1 MANUFACTURERS - GYPSUM BOARD SYSTEM

- C. Gypsum Wallboard Materials: Products of United States Gypsum Corporation (USG), 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.
- D. ESR – 1222, at drywall suspension system where occurs.

2.2 FRAMING MATERIALS

E. 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.

F. Angles: 1-3/8 inch by 7/8 inch, 24 gage, USG GALVANIZED METAL ANGLES.

G. Runner Channels: Minimum weights, sizes and maximum spans as defined in CBC Section 2506 and Table 2506.2, cold rolled or hot rolled as defined therein.

H. 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.

I. Hanger Wire: 8 gage for 16 sq ft maximum, galvanized annealed, size of wire in accordance with California Building Code.

J. Tie Wire: 18 gage galvanized annealed.

K. 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.

L. 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.

M. Adhesive: DUROCK ceramic tile mastic, DURABOND D-2001.

2.3 GYPSUM BOARD MATERIALS

N. Regular: ASTM C36; 5/8 inch thick, maximum permissible length; ends square cut, tapered round edges, SHEETROCK BRAND GYPSUM PANELS.
O. 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, TAPERED EDGE.
P. 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.
Q. Cementitious Backing Board: Standard type; 5/8 inch thick; V-grooved edges, ends square cut, maximum permissible length, DUROCK INTERIOR TILE CEMENT BOARD.
R. Tile Backing Board: Standard type; 5/8 inch thick panels; square edges, maximum permissible length. DensShield Tile Backer, Georgia-Pacific. At fire rated walls provide DensShield Fireguard Tile Backer which is classified as Type "X" per ASTM C1178.
S. Gypsum Sheathing Board (exterior): ASTM C79; moisture resistant and fire resistant type; ½ inch or 5/8" thick, Type X where fire rating is required, maximum permissible length; ends square cut, tongue and grooved edges; water repellent paper faces, 48 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.

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 07 92 00, both sides of partition.

E. Sound-rated Partitions: Perimeters of sound-rated partitions shall be caulked with acoustical sealant as specified in Section 07 92 00, 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:

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.

1. No Texture: Surfaces to be painted shall have Level 4 finish minimum or Level 5 finish per section 3.5, D, 4 or unless noted otherwise in this specification or on the plans.

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. At restrooms and other locations noted on plans and details. 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 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 and 2510, 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: Formed steel; minimum 26 gauge thick; thickness governed by plaster thickness; maximum possible lengths; expanded flange with square edges; galvanized finish.
J. Galvanized Reveals: Formed steel; minimum 26 gauge thick; thickness governed by plaster thickness; maximum possible lengths (10' min.); expanded flange with square edges; galvanized finish. Provide 2 inch min. reveal with 1/8" vent slots for eave vents, channel screeds size per plans, and other moldings as shown on drawings. Where reveals are shown, include reveals as manufactured by Flannery, Inc, Stockton Products or approved equal in sizes called out or 2" max. if no call out on drawings. Paint all exposed reveals.

K. Aluminum Reveals: Extruded aluminum alloy 6063 T5, .050 inch thick; thickness governed by plaster thickness; maximum possible lengths (10' min.); expanded flange with square edges. Provide 2 inch reveal with 1/8" vent slots for eave vents, channel screed PCS sizes per plans, and other moldings as shown on drawings. Where reveals are shown, include reveals as manufactured by Fry Reglet Corp, Flannery, Inc, Stockton Products or approved equal in sizes called out or 2" max. if no call out on drawings. Aluminum finish to remain exposed, do not paint unless noted otherwise.

L. 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.

M. 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 part 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. Alkali resistant glass fiber reinforcing mesh.

B. Mesh shall be 4.5 oz /yd and meet ASTM D-3775, D-3776, D-1777 and D-5035.

C. To be installed over all walls where cement plaster is being installed including EPS shapes (where occurs). Install per manufactures' requirements and include any additional adhesive, plaster material, etc…required to embed mesh into the cement plaster system. Provide system from BMI, OMEGA or approved equal and confirm product is compatible with proposed plaster system.

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. Install control joints/expansions joints at all ceiling and soffit locations if not already indicated on plans. Layout of joints shall be approved by Architect.

B. Establish control and expansion joints with specified joint device.

C. Joint placement shall be approved by Architect before plastering. Provide layout of all joints and submit to Architect for review and approval prior to installation.

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 bonding agent per CBC 2510.7, 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 2512.6, California Building Code for required 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 Uniform Fine 30/30, Fine 20/30, Medium 16/20 or Heavy 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.

I. **(PM – Keep or delete this item)** Dash Coat: Provide a dash coat over the exposed concrete stem wall on all sides of the building. Finish shall be one of the following to be selected by the architect. Light Dash, Medium Dash, Heavy Dash or Knockdown Dash. The Dash coat shall be painted.

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 RELATED SECTIONS

A. Section 09 21 16 – Gypsum Board Systems – for backing material behind wall tile.
B. Section 09 67 23 – Resinous Flooring – Epoxy.

1.3 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. TCNA/TCA - (Tile Council of North America) Handbook for Ceramic Tile Installation, Current Edition
K. CBC 11B – 302.1

1.4 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. Submit TCNA method number and detail references for each type of material installation on project.
E. Deliver master grade certificates complying with ANSI A137.1 or CTI 69.5. Required: Standard grade.
F. On manufactured dry-set Portland cement or latex-cement mortars and grouts provide labels certifying compliance with referenced standards.
G. Submit maintenance data.
H. Include recommended cleaning and stain removal methods, cleaning material and polishes and waxes.

1.5 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.

1.6 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.

1.7 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

1.8 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.

1.9 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

A. 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 and interior edges to be Schluter-strip, color/finish and style to be selected. Where base material is not tile provide a Schluter strip trim piece between wall tile and base material, such as epoxy.
   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.

B. Base: Match wall tile for moisture absorption, surface finish, and color: coved bottom.

C. 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.

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 and new 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. Refer to Gypsum Board System specifications for cementitious backer board material and installation requirements prior to tile installation. Confirm backer board installation complies with all TCA tolerance requirements.

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. Once tile is installed the installer assumes are responsibility and liability for improperly installed backer board.
D. Lay tile to pattern indicated on Drawings or request tile pattern from Architect. Do not interrupt tile pattern through openings.
E. Place Schluter 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 65 13
TOP-SET RESILIENT BASE

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resilient base – wall and stair stringer

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. Forbo Flooring, Hazleton, PA
K. 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 or selected by architect (either 4" or 6" height) include in base bid the cost for 6" height, color as selected by the Architect from manufacturer's standard list of colors. Base shall be a continuous roll. Provide base at wall and stair stringer locations.
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 67 23
RESINOUS FLOORING - EPOXY

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Trowel applied monolithic epoxy flooring for kitchen, food processing and toilet rooms.
B. Perimeter edging and integral ½ inch thick coved base, 6 inches high.

1.2 REFERENCES

A. ASTM D2240 – Test Method for Rubber Property – Durometer Hardness.
B. Not Used.

1.3 REGULATORY REQUIREMENTS

A. Conform to CBC, current edition: Minimum 0.22 watts per cm for Class II, Interior Floor Finish.

1.4 PERFORMANCE REQUIREMENTS

A. Install flooring to conform to the following:
   1. Slip Resistance: Dry leather, .37. Minimum Coefficient of Friction of 0.6 min. per ASTM D2047
   2. Surface Hardness: ASTM D2240 (Durometer) Scale “D” 70.
   3. Chemical resistance per manufacturer’s tables.

1.5 QUALIFICATIONS

A. Applicator: Company specializing in epoxy flooring applications with five years experience and approved by the materials manufacturer.

1.6 OPERATION AND MAINTENANCE DATA

A. Submit cleaning and maintenance data.
B. Include procedures for stain removal, repairing surface and cleaning.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in un-opened containers, factory mixed and packaged.
B. Store materials in a dry, secure area.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not install flooring when temperature is below 60 degrees F or above 90 degrees F.
B. Maintain this temperature range, 24 hours before, during and 72 hours after installation of flooring.
C. Restrict traffic from area where flooring is being installed or is curing.

1.9 WARRANTY

A. Provide three year warranty.
B. Warranty: Include coverage against flooring delamination from substrate and degradation of surface finish.

1.10 CURING

A. Concrete surfaces shall be cured and dry prior to application.
B. Commencement of work indicates acceptance of conditions.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Tera-Lite Inc., San Jose, CA. Product:
   1. TERA-GEM III - DQ – Natural Sand System with CLEAR COATS (B23) (Muted color with visible sand in the mix – 8 standard colors. Architect to select color)

B. Or equal.

2.2 MATERIALS

A. Primer: Three component, damp-tolerant epoxy primer.
B. Coating: Two component, epoxy resin, pigmented, color as selected by Architect.
C. Aggregate: Fine-graded, chemical resistant, silica.
D. Sealer Coat: Improves cleanability and chemical resistance. Color to match basecoat.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work, that sub-floor is clean, and free of substances which could affect bond. Verify surfaces are free of depressions, crevices, loose fasteners or protrusions.
B. Verify concrete floors are dry to a maximum moisture vapor emissions of 3 lbs per 1000 sf in 24 hours; and exhibit negative alkalinity, carbonization, or dusting.
C. Beginning of installation means acceptance of existing surfaces.

3.2 PROTECTION

A. Protect elements surrounding the work of this Section from damage or disfigurement.

3.3 PREPARATION

A. Clean substrate surface free of laitence, grease, and other foreign matter.
B. Sandblasting, bead-blasting, or acid etch are approved cleaning methods.
C. 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 the bid with a credit to be given to Owner, if after confirmation, material is not needed.
D. Where existing ceramic tile floors and coved tile base have been demolished down to mortar bed, the Contractor is to patch and fill as required for installation of epoxy floor system. Use Mapei Novoplan 2 underlayment or approved equal. Follow manufacturer's instructions for installation prior to epoxy floor system installation. Coordinate with demolition contractor and epoxy flooring installer as required – coordinate with general contractor at bid time to confirm all costs are covered.

3.4 INSTALLATION – FLOORING

A. Mix components according to manufacturer's recommendations.
B. Apply bonding coat by trowel or brush. Trowel apply 3/16 – ¼ inch body coat.
C. Apply minimum two coats. Power sand to remove trowel marks. Roller apply final-finish dressing in texture selected.
D. Base Application: Apply vertical areas with same materials. Height of base application: 6 inches, including cove, unless otherwise indicated. Provide metal edge trim along top of base to set level to finish edge (and to receive tile/grout above), Schluter or approved equal.

E. Texture: **(To be decided during submittal process)**
   a. #70 Mesh - Dry Storage, Restrooms (light to medium texture, typical for schools)
   c. Flintshot– All wet areas, kitchens, shower rooms, wash-down areas, outside walkways with regular traffic, restrooms (medium to heavy texture)

F. Apply sealer coat per manufacturer’s instructions.

3.5 PROTECTION

A. Protect finished installation from traffic until curing is complete.

END OF SECTION

SECTION 09 77 00
FIBERGLASS REINFORCED PLASTIC PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Fiberglass Reinforced Plastic Wall and Ceiling Panels.
- B. Components and Moldings.

1.2 REFERENCES
- A. AQMD, Local Regulations.
- B. USDA – U.S. Department of Agriculture.
- C. ASTM E84 – Surface Burning Characteristics of Building Materials.
- D. LEED and CalGreen: Shall meet or exceed both requirements.
- E. CBC - California Building Code – 2019 Edition.

1.3 QUALITY ASSURANCE
- A Product Manufacturer. Company Specializing in manufacturing products specified herein with minimum ten years experience.
- B. Applicator Company specializing in installation of specified products with minimum five years experience
- C. Fire Resistive Standards: California Building Code.
- D. Surface Burning Characteristics: Conform to ASTM E84, smoke density maximum 450, flame spread maximum 75.
- E. USDA approval required for all materials.

1.4 SUBMITTALS
- A. Submit product data in accordance with the provisions of Section 01 30 00.
- B. Submit three (3) sets of samples of panels and molding illustrating color, texture, thickness and physical characteristics.

1.5 DELIVERY, STORAGE AND HANDLING
- A. Deliver materials to the project site with manufacturers labels intact and legible.
- B. Handle materials with care to prevent damage.
- C. Deliver materials bearing USDA accepted label and required classification numbers.
- D. Store materials under cover, stacked flat, off floor.
- E. Stack panels so that long lengths are not over short lengths.

1.6 ENVIRONMENTAL CONDITIONS
- A. Maintain temperature range between 55 degrees E to 70 degrees F. for 24 hours before, during and after gypsum wallboard and joint treatment applications.
- B. Provide ventilation during and following sealing of joints.
- C. Adhesives shall conform to AQMD, Local Regulations.

PART 2 PRODUCTS

2.1 MANUFACTURERS
- A. Fiberglass Reinforced Plastic Panels: Products of Nudo Products, Inc., Springfield, IL, are the standard of quality required and specified herein. Similar products of Ornite Fiberglass Co., Chino, CA, meeting or exceeding standards of the proprietary products listed herein, may be submitted as a substitution per the Division 1 requirements.

2.2 MATERIALS

A. FiberLite FRP – wall and ceiling panels, conforming to the following:

1. Panels: 0.090 thick, chemical, stain, odor, moisture and impact resistant. Panels shall not support mold or mildew and 100% moisture resistant. Panels shall be textured or smooth, selected by architect during construction. At kitchen locations confirm with local health department which finish is acceptable. Color selected by architect.
2. Meets USDA and FDA requirements.
3. Fire rating: Class A.
4. Meets ASTM D-5319.
5. Sizes:
   a. Walls - Provide 4'x height indicated on plans. If not indicated provide 4'x8' min.
   b. Ceilings – Provide 2'x2' or 2'x4' as indicated on plans.
6. Color: Provide full range of options from manufacturer. Color to be selected by architect.
7. Moldings: Color-match. Designs and thickness shall match panels. Provide at all edges and divider joints and in the longest lengths possible. Architect to select vinyl or aluminum, provide both options in bid.
8. Sealant: One-part silicone type compatible with panels and moldings.
9. Miscellaneous Fasteners: Drive screw shank nails as required, 302-304 stainless steel, diamond point, checkered head, painted white.
10. Adhesive: As recommended by manufacturer, VOC Compliant.
11. Accessory Items: Recommended by the manufacturer of the panels specified.

PART 3 EXECUTION

3.1 EXAMINATION

A Verify that surfaces are ready to receive the work of this Section.
B. Verify that gypsum board substrate has been taped and sanded, all joints.
C. Beginning of installation means installer accepts existing surfaces.

3.2 INSTALLATION

A. Install panels plumb, level and with all vertical joints on bearing.
B. Verify location and install all trim required. Install all trim and sealant in accordance with the manufacturer's recommendations.

3.3 CLEANING

A. Do not allow the accumulation of debris, immediately remove spilled or splashed material and all trace of residues.

END OF SECTION

SECTION 09 84 20
ACOUSTICAL WALL and CEILING TREATMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Custom fabricated acoustical co-polymer wall and ceiling panels.

1.02 REFERENCES

A. ASTM International:

1. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.

3. ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements:

1. Surface Burning Characteristics (ASTM E84):

a. Flamespread: 25 maximum.
b. Smoke Developed: 450 maximum.
c. Fire ratings for all fabric covered panels is based on testing of the panel wrapped with the standard in stock fabric, Guilford of Maine, Model FR 701.
d. This rating applies to all acoustical wall treatment unless specifically excluded in the product specification section 2.02.

1.04 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.

B. Product Data: Submit product data sheet, for specified products.

C. Shop Drawings: Submit shop drawings showing layout, edge profiles and panel components, including anchorage, accessories, finish colors and textures.

D. Samples: Submit selection and verification samples of finishes, colors and textures.

E. Test Reports: Certified test reports showing compliance with specified performance requirements.

1. Standard Systems: Submit certified copies of previous test reports substantiating performance of system in lieu of retesting.

1.05 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements Section.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

1.06 PROJECT CONDITIONS

A. Environmental Requirements: Do not install panels until wet work, such as concrete and plastering, is complete; the building is enclosed; and the temperature and relative humidity are stabilized at 60 - 80 degrees F (16 - 27 degrees C) and 35% MINIMUM RH and 55% MAXIMUM RH, respectively. All products constructed with wood or wood fiber content must be stored for at least 72 hours in the controlled environment specified herein prior to installation to allow the materials to stabilize.

PART 2 PRODUCTS

2.01 ACOUSTICAL WALL AND CEILING PANELS

A. Manufacturer: Kinetics Noise Control.

1. Contact: PO Box 655, 6300 Irelan Place, Dublin, OH 43017; Telephone: (614) 889-0480; Fax: (614) 889-0075; E-mail: intsales@kineticsnoise.com; Web site: www.kineticsnoise.com.

2.02 MANUFACTURED UNITS

A. SportsBoard Conform co-polymer Panels:

1. Thickness: 2 1/16 inches (52 mm). See plans for locations.

2. Size: As indicated on the drawings up to a maximum 42 inch (1067 mm) x 92 inch (2337 mm) panel.

3. Core: 2 inches (51 mm) thick, 6 - 7 pcf (96- 112 kg/m^3) density fiberglass.

4. Edge Detail: Square.

5. Formed Copolymer Facing and Edges: 1/16 inch (1.6 mm) thick copolymer perforated with 3/32 inch (2.4 mm) holes on 5/32 inch (4 mm) staggered centers. Copolymer is a single sheet heat formed to cover all panel edges.

a. Color: As selected from panel manufacturer's range of standard colors.

6. Install with minimum 1/8 inch (3.2 mm) reveal at the perimeter to allow for expansion and contraction of copolymer due to temperature changes.

7. Sound Absorption (ASTM C423): Noise Reduction Coefficient (NRC) as follows:

a. 1 1/16 inches (27 mm) Panel: 0.70, minimum.
b. 2 1/16 inches (52 mm) Panel 1.00, minimum

B. Equals: Metro Rebound by Wall Technology or approved equal.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

Installation Requirements:

1. All panels shall be installed per manufactures recommendation and shall comply with DSA requirements and the 2019 CBC.
2. Ceiling installation shall provide a direct and positive anchorage to the new or existing ceiling finish material and ceiling/roof framing. Furring strips shall not be used unless the thickness will not make the panel installation interfere with the new or existing fire sprinkler head spray coverage. Provide blocking as required within walls and ceiling/roof structure to support panel installation.
3. Wall installation shall utilize “Z” bar method as shown on plans and per manufactures recommendation.
4. Submit proposed installation methods to architect for review and approval.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer’s instructions.

1. Verify that stud spacing is 16 inches (406 mm) oc, maximum, for panels installed over open studs.

2. Do not install panels until unsatisfactory conditions are corrected.

3.03 CLEANING

A. Follow manufacturer’s instructions for cleaning panels soiled during installation. Replace panels that cannot be cleaned to as new condition.

B. Keep site free from accumulation of waste and debris.

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. Basis of design is based on DuraPoxy HP Interior/ Exterior (Ultra Premium), Acryshield Exterior (Premium) and DuraPoxy Interior (Ultra Premium) paint finish. Model numbers listed in the schedule below may need to adjust based on the current paints provided by manufacturer.

Note: The DuraPoxy HP line shall be used at all interior and exterior doors and frames on both sides and all faces and edges. All other exterior surfaces shall be painted with the AcryShield paint finish.

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: Semi-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 or Semi-Gloss
   b. Metal fascia, leader-heads, rainwater leaders, downspouts, perforated metals, miscellaneous metals: Semi-gloss
   c. Handrails, Metal Doors & Frames: Semi-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, all six sides. Avoid streaking or uneven application.

N. Wood Doors Scheduled for Painting: Seal top, bottom and all edges with primer and then paint. 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.
NOTE: BACK ROLL AFTER EACH APPLICATION.

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***

		Other	**Kelly Moore DuraPoxy HP**	**Kelly Moore AcryShield**
A.	Wood – Flat - Acrylic			
	1. One Coat			255
	2. Two Coats			1240
B.	Wood – Semi-Gloss - Acrylic			
	1. One Coat			255
	2. Two Coats			1250
C.	Wood – Gloss - Acrylic			

	1. One Coat	S-30 Griptec		
	2. One Coat	S-39 Beyond		
	3. One Coat	S-39 Beyond		
D.	Wood – Stain- Transparent – Acrylic			
	1. Two Coats			1285
E.	Wood – Stain – Solid – Acrylic			
	1. Two Coats			1240
F.	Wood – Clear – Spar Varnish			
	1. Three Coats	Old Master Spar Marine Varnish		
G.	Concrete – Flat – Acrylic			
	1. One Coat			247
	2. Two Coats			1240
H.	Concrete – Low Sheen – Acrylic			
	1. One Coat			247
	2. Two Coats			1245
I.	Concrete – Elastomeric			
	1. One Coat	247		
	2. Two Coats	1128		
J.	Concrete Block – Flat – Acrylic			
	1. One Coat	521		
	2. Two Coats			1240
K.	Concrete Block – Low Sheen – Acrylic			
	1. One Coat	521		
	2. Two Coats			1245
L.	Concrete Block – Elastomeric			
	1. One Coat	521		
	2. Two Coats	1128		
M.	Cement Plaster – Flat – Acrylic			
	1. One Coat			247
	2. Two Coats			1240
N.	Cement Plaster – Low Sheen – Acrylic			
	1. One Coat			247
	2. Two Coats			1245
O.	Cement Plaster – Elastomeric			
	1. One Coat	247		
	2. Two Coats	1128		
P.	Ferrous – Flat – Acrylic			

	1. One Coat	5725		
	2. One Coat			1240
	3. One Coat			1240
Q.	Ferrous – Semi-Gloss – Acrylic			
	1. One Coat	5725		
	2. One Coat	5885		
	3. One Coat	5885		
R.	Ferrous – Gloss – Alkyd			
	1. One Coat	265		
	2. One Coat	1999		
	3. One Coat	1999		
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	Surface Prep: SSPC-SP1 Krud Kutter Metal Clean		
	2. One Coat	5725		
	3. One Coat			1240
	4. One Coat			1240
U.	Galvanized and Aluminum – Semi Gloss – Acrylic			
	1. One Coat	Surface Prep: SSPC-SP1 Krud Kutter Metal Clean		
	2. One Coat	5725		
	3. One Coat	5885		
	4. One Coat	5885		
V.	Galvanized and Aluminum – Gloss – Alkyd			
	1. One Coat	Surface Prep: SSPC-SP1 Krud Kutter Metal Clean		
	2. One Coat	5725		
	3. One Coat	1999		
	4. One Coat	1999		
W	Entry Doors, & Door Casings - Semi-Gloss – Interior/ Exterior High Performance Acrylic			
	1. One Coat	295		
	2. One Coat			2888
	3. One Coat			2888

3.9 **SCHEDULE – *INTERIOR SURFACES***

		Other	Kelly Moore DuraPoxy	Kelly Moore DuraPoxy HP
A.	Wood – Matte - Acrylic			
	1. One Coat	295/973		
	2. Two Coats		1600	
B.	Wood – Semi-Gloss - Acrylic			
	1. One Coat	295/973		
	2. Two Coats		1685	
C.	Wood – Eggshell - Acrylic			
	1. One Coat	295/973		
	2. Two Coats		1686	
D.	Wood – Gloss – Acrylic			
	1. One Coat	295/973		
	2. Two Coats		1680	
E.	Wood – Stain – Transparent, Non-Yellowing - Flat – Lacquer			
	1. One Coat	GemGlo 6700 Series		
	2. One Coat	Gemini Precat Sealer 210-0222		
	3. Two Coats	Gemini Precat 510-0277		
F.	Wood – Stain – Transparent, Non-Yellowing – Semi-Gloss - Lacquer			
	1. One Coat	GemGlo 6700 Series		
	2. One Coat	Gemini Precat Sealer 210-0222		
	3. Two Coats	Gemini Precat		
	1. One Coat	GemGlo 6700 Series		
	2. One Coat	Gemini Precat Sealer 210-0222		
	3. Two Coats	Gemini Precat 510-0275		
G.	Wood – Stain – Transparent, Non-Yellowing – Gloss - Lacquer			
	1. One Coat	GemGlo 6700 Series		
	2. One Coat	Gemini Precat Sealer 210-0222		
	3. Two Coats	Gemini Precat 510-0274		
H.	Wood – Stain – High Solids – Satin – Acrylic Urethane			
	1. One Coat	Old Masters Stain		

	2. One Coat	2097		
	3. Two Coats	2097		
I.	Wood – Stain – High Solids – Semi-Gloss - Acrylic Urethane			
	1. One Coat	Old Masters Stain		
	2. One Coat	2094		
	3. Two Coats	2094		
J.	Wood – Stain Solid – Gloss - Acrylic Urethane			
	1. One Coat	Old Masters Stain		
	2. One Coat	2096		
	3. Two Coats	2096		
K.	Concrete, Plaster, Masonry – Matte - Acrylic			
	1. One Coat	971		
	2. One Coat		1600	
L.	Concrete, Plaster, Masonry – Eggshell - Acrylic			
	1. One Coat	971		
	2. Two Coats		1686	
M.	Gypsum Board – Matte - Acrylic			
	1. One Coat	971		
	2. One Coat		1600	
N.	Gypsum Board – Semi-Gloss - Acrylic			
	1. One Coat	971		
	2. Two Coats		1685	
O.	Gypsum Board – Eggshell - Acrylic			
	1. One Coat	971		
	2. Two Coats		1686	
P.	Gypsum Board – Gloss - Acrylic			
	1. One Coat	971		
	2. Two Coats		1680	
Q.	Ferrous – Matte – Acrylic			
	1. One Coat	5725		
	2. One Coat		1600	
	3. One Coat		1600	
R.	Ferrous – Semi-Gloss – Acrylic			
	1. One Coat	5725		
	2. One Coat		1685	
	3. One Coat		1685	
S.	Ferrous – Gloss – Acrylic			
	1. One Coat	5725		
	2. One Coat		1680	
	3. One Coat		1680	

T.	Ferrous – Factory Primed: Touch-up primer coat in lieu of full primer coat. Finish coats as specified above.			
U.	Galvanized and Aluminum – Matte - Acrylic			
	1. One Coat	Surface Prep: SSPC-SP1 Krud Kutter Metal Clean &Ettch		
	2. One Coat	5725		
	3. One Coat		1600	
	4. One Coat		1600	
V.	Galvanized and Aluminum – Semi-Gloss - Acrylic			
	1. One Coat	Surface Prep: SSPC-SP1 Krud Kutter Metal Clean & Etch		
	2. One Coat	5725		
	3. One Coat		1685	
	4. One Coat		1685	
W	Galvanized and Aluminum – Gloss - Acrylic			
	1. One Coat	SurfacePrep: SSPC-SP1 Krud Kutter Metal Clean & Etch		
	2. One Coat	5725		
	3. One Coat		1680	
	4. One Coat		1680	
X.	Acoustical Ceiling Tiles – sheen per Manufacturer Recommendation			
	1. One Coat	295		
	2. Two Coats	485		
Y.	Window Systems - Satin – Interior/ Exterior High Performance Acrylic			
	1. One Coat	295/973		
	2. One Coat			2888
	3. One Coat			2888
Z.	Entry Doors, & Door Casings - Semi-Gloss – Interior/ Exterior High Performance Acrylic			
	1. One Coat	295/973		
	2. One Coat			2888
	3. One Coat			2888

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		**Rustoleum**	
1.	Unprimed or shop primed –				

	Ferrous – Gloss - Polyurethane				
	a. One Coat	50-330		9100	
	b. One Coat	74		9700	
2.	Unprimed or shop primed – Ferrous – Semi-Gloss - Polyurethane				
	a. One Coat	50-330		9100	
	b. One Coat	75		9700	
3.	Galvanized or Aluminum – Gloss - Polyurethane				
	a. One Coat	P-66		9100	
	b. One Coat	74		9700	
4.	Galvanized or Aluminum –Semi-Gloss - Polyurethane				
	a. One Coat	P-66		9100	
	b. One Coat	75		9700	

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, 2019 California Building Code, 11B Division 7.
B. Chapter 3, Title 19, CCR.
C. ASTM D4802 – Poly (Methyl Methacrylate) Acrylic Plastic Sheet.
D. 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 Division 1.
B. Submit shop drawings listing sign styles, lettering and locations and overall dimensions of each sign. Submit proofs of ALL signs prior to ordering for final approval.
C. Submit samples under provisions of Section Division 1.
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 Division 1.

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% maximum 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 and shall comply with CBC Section 11B-703.6.
    7. Signs shall be located within 18 inches from edge of door on wall adjacent to latch side of door or nearest adjacent wall (where there isn't wall space at the latch side). They shall be mounted 60 inches maximum above finished floor to

baseline of highest row of tactile characters, and 48 inches minimum to baseline of the lowest braille cells. For double doors with an inactive leaf and an active leaf, sign shall be mounted on the inactive leaf. For double doors with two active leafs, sign shall be mounted to the right of the right leaf.

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. Include up to (3) different colors of plastic to be used as part of the sign.
B. Fasteners: Clear silicone sealant, as specified in Section 07 92 00 and screws.
C. Frames: Where noted on drawings provide anodized aluminum frame with recessed edge at all signs. The color and finish of frame shall be selected by architect from full range of colors and finishes from the manufacture and colors that match the plastic sign material color.

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: Minimum 8 inches long, surface application, Room ID 1.5", Room Name ¾", Exit ¾" 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: Neutra Text Demi.

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 than 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: minimum 4 inches high, minimum 8 inches long, sub-surface application, letters and numerals to comply with Table 11B-703.5.5 based on mounting height and distance from viewing location.
D. Lettering Type Style: Neutra Text Demi 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.

2.6 ASSISTIVE LISTENING SYSTEM SIGN (ALS)

A. Provide in each Classroom and assembly spaces such as Conference Room, Gymnasiums, Multi-Use, etc. Graphic layout to include "ASSISTIVE LISTENING SYSTEM AVAILABLE" text and a graphic symbol of an ear as indicated on sign detail.
B. Material: (2) layers of laminated plastic, ¼ inch thick, colors as selected by Architect.
C. Lettering: 5/8" high Helvetica Medium tactile font, raised 1/32"
D. Conform to CBC 11B 703.2.1 for raised characters & CBC 11B 703.7.2.1.

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 Torx Pin-Head stainless steel wood screws, 2" long minimum. Where indicated, provide colored covers to conceal screws. Where signs are to be installed directly on glass, provide vinyl backer in color specified by Architect, to mask adhesive on substrate. OR use the plastic material in same color as the sign. DO NOT USE "BLACK" UNLESS ARCHITECT NOTES THIS WITHIN THE SUBMITTAL. 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.
D. Where aluminum frames are used, anchor to walls with TapCon self tapping fasteners and anchor signs to frame with tape and silicone. At glass locations the frames shall be mounted to the glass with tape and silicone and include backing as noted above.

END OF SECTION

SECTION 10 14 11

SIGNS - RESTROOMS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Plastic signs at restroom(s)

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 and install 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. SIGNAGE REQUIREMENTS - Room Identification:
   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 "I". 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 "I". Stroke thickness shall be 15% max. of the height of the character.
   2. Characters and symbols shall be contrasting 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. 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 and shall comply with CBC Section 11B-703.6.
   7. Signs shall be located within 18 inches from edge of door on wall adjacent to latch side of door or nearest adjacent wall (where there isn't wall space at the latch side). They shall be mounted 60 inches maximum above finished floor to baseline of highest row of tactile characters, and 48 inches minimum to baseline of the lowest braille cells. For double doors with an inactive leaf and an active leaf, sign shall be mounted on the inactive leaf. For double doors with two active leafs, sign shall be mounted to the right of the right leaf.
   8. Conform to all other CBC requirements including finishes and contrasts.

2 PART 2 PRODUCTS

2.1 MATERIALS

A. Acrylic Plastic Sheet: ASTM D4802, laminated acrylic plastic, ¼ inch thick. Include up to (3) different colors of plastic to be used as part of the sign.

B. Fasteners: Clear silicone sealant, as specified in Section 07 92 00 and screws.

C. Frames: Where noted on drawings provide anodized aluminum frame with recessed edge at all signs. The color and finish of frame shall be selected by architect from full range of colors and finishes from the manufacture and colors that match the plastic sign material color.

2.2 RESTROOM SIGNAGE

A. 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. Any pictograms shall be flush.

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.

B. 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. Any pictograms shall be flush.

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.

C. 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

facilities shall be identified as Gender Neutral per DSA BU 17-01. Triangle color shall contrast 70% min. with color of circle. Any pictograms shall be flush.

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.

D. Sign colors shall contrast with color of door (and wall when mounted on wall).
E. Lettering Type Style: Neutra Text Demi, caps only.
F. 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.
E. Install accessories into wall blocking. Refer to plans and details for locations and size.

3.4 SCHEDULE

Note:

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”.
c. Provide the following items in all restrooms and dressing room locations, whether noted or not on the plans.

Typical at all restrooms

1.	Grab Bars	B-6806.99 with covers, sized as required
2.	Toilet Tissue Dispenser	B-2888 (one per water closet)
3.	Soap Dispenser	B-2111 (wall mounted, one per lavatory)
4.	Soap Dispenser	B-822 (deck mounted, one per lavatory or sink)
5.	Paper Towel Dispenser	B-262 (one per lavatory)
6.	Mirror	B-290, 1830 (one per lavatory)

Add the following at all Middle School Girls Restrooms and all Women’s Restrooms

1.	Sanitary Napkin Dispenser	B-2706 25 (one per restroom)
2.	Sanitary Napkin Disposal	B-254 (one per water closet)

Add the following at all Staff and Adult Restrooms

1.	Seat Cover Dispenser	B221 (one per water closet)
2.	Utility Hook	B671 (one per water closet)

Dressing Rooms and Showers		
1.	Towel Hooks	B232 (location per drawings)
2.	Vinyl Shower Curtain & Rod	B6047, 204-2 (or -3 based on shower size) and 204-1 Hooks
3.	Accessible Shower Seat	B-5181 or B-5191 (see plans for style)
4.	Tall Mirror	B290-2460
Janitor's Room		
1.	Mop Rack	B-223 x 36

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.
- D. CCR Title 19 – Public Safety

1.3 QUALITY ASSURANCE
- A. Conform to NFPA 10 and CFC requirements for extinguishers.
- B. Conform to CBC 11B-307, 308, 309 and 403.

1.4 SUBMITTALS FOR REVIEW
- A. Submit product data under provisions of the contract.
- 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.

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 11 66 23
GYMNASIUM EQUIPMENT

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 SUMMARY

A. This Section includes the following gymnasium equipment:

1. Basketball equipment.
2. Volleyball equipment.
3. Wall-mounted and post column safety pads.
4. Score Boards and Shot Clocks.

B. Related Sections include the following:

1. Division 3 Section "Cast-in-Place Concrete" for oversized recessed voids to be cast in concrete subfloors and footings.
2. Division 5 Section "Structural Steel" for structural supports not provided by gymnasium equipment manufacturer for supporting gymnasium equipment to building structure.
3. Division 16 Sections for electrical service and connections for motor operators, controls, limit switches, and other powered devices and for system disconnect switches for motorized gymnasium equipment.

C. Products furnished, but not installed under this Section, include floor insert sleeves for inserts to be cast in concrete subfloors and footings.

1.3 DEFINITIONS

A. FIBA: International Basketball Federation (Federation Internationale de Basketball Amateur).

B. FIVB: International Volleyball Federation (Federation Internationale de Volleyball).

C. NAGWS: National Association for Girls and Women in Sport.

D. NCAA: National Collegiate Athletic Association.

E. NFHS: National Federation of State High School Associations.

F. USAV: United States of America Volleyball (formerly, USVBA: U.S. Volleyball Association).

1.4 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Provide basketball backstops capable of withstanding the effects of earthquake motions determined according to the building code in effect for this Project or ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 9, "Earthquake Loads," whichever is more stringent.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, features, and finishes. Include details of anchors, hardware, and fastenings. If applicable, include assembly, disassembly, and storage instructions.

1. Gymnasium Equipment Operators: Include operating instructions.
2. Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.

B. Shop Drawings: Show location and extent of fully assembled gymnasium equipment. Show location and extent of disassembled equipment and components and transport and storage accessories. Include elevations, sections, and details not shown in Product Data. Show method of field assembly, connections, installation details, mountings, floor inserts, attachments to other Work, operational clearances, and relationship to adjoining work.

1. Blocking and Reinforcement: Show locations of blocking and reinforcement required for support of gymnasium equipment.
2. Setting Drawings: For cast-in floor insert sleeves for post standards.
3. Design Calculations: Signed and sealed by a qualified professional engineer. Calculate requirements for supporting gymnasium equipment and for seismic restraint. Verify capacity of members and connections to support loads and verify loads, point reactions, and locations for attachment of gymnasium equipment to structure with those indicated on Drawings.
4. Gymnasium Equipment Operators: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.
5. Wiring Diagrams: Power, signal, and control wiring.

C. Coordination Drawings: Court layout plans and elevations drawn to scale and coordinating oversized recesses for deferred installation of floor insert sleeves**,** floor-insert penetrations and game lines and markers applied to finished flooring.

D. Samples for Initial Selection: For each type of gymnasium equipment indicated.

E. Samples for Verification: For the following products:

1. Basketball, Volleyball Net: Full size.
2. Volleyball Floor Insert: Full size unit.
3. Volleyball Post Standard: Full size unit with net tensioner.
4. Sports Divider Curtain Fabric/Mesh: Not less than 12 inch square.
5. Safety Pad Fabric: Not less than 12 inch square.

F. Product Certificates: For each type of gymnasium equipment, signed by product manufacturer.

G. Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements. Include evidence of manufacturing experience.

H. Qualification Data: For installer, professional engineer.

I. Maintenance Data: For gymnasium equipment and gymnasium equipment operator to include in maintenance manuals. *(Project Close-Out Item)*

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer employing workers trained and approved by manufacturer.

B. Source Limitations: Obtain each type of gymnasium equipment through one source from a single manufacturer.

C. 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.

D. Standards: Provide gymnasium equipment complying with or exceeding requirements of DSA.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install gymnasium equipment until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Field Measurements: Verify position and elevation of floor inserts and layout for gymnasium equipment. Verify dimensions by field measurements.

1.8 COORDINATION

A. Coordinate installation of floor inserts with structural floors and finish flooring installation and with court layout and game lines and markers on finish flooring.

B. Coordinate layout and installation of overhead-supported gymnasium equipment and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.

1.9 WARRANTY *(Project Close-Out Item)*

A. Furnish a written guarantee against defects in material and workmanship for the gymnasium equipment for a period of one (1) year from date of Substantial Completion. All defects due to improper fabrication or installation will be repaired or replaced immediately after receipt of written notice from Owner or Architect.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The standard of quality is set by the particular products specified. Other manufacturers are requested to submit samples, specifications and substantiating data to the Architect for approval at least ten (10) days before bid opening to ensure the advantage of prior approval.

B. Manufacturer:

1. Basketball Equipment:

a. Porter Athletic Equipment Co. or equal.

2. Volleyball Equipment:

a. Porter Athletic Equipment Co. or equal.

3. Wall-Mounted and Post Column Safety Pads:

a. Porter Athletic Equipment Co. or equal.

4. Score Board and Shot Clocks:

a. Daktronics or equal.

2.2 MATERIALS, GENERAL

A. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated; mill finish or decorative, baked-enamel, powder-coat finish.

1. Extruded Bars, Profiles, and Tubes: ASTM B 221.
2. Cast Aluminum: ASTM B 179.

B. Steel: Comply with the following:

1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M, hot-dip galvanized.
2. Steel Pipe: Standard-weight steel pipe complying with ASTM A 53.
3. Cold-Formed Steel Tubing: ASTM A 500, Grade A, unless another grade is required by structural loads.
4. Steel Mechanical Tubing: Cold-rolled, electric-resistance-welded carbon or alloy steel tubing complying with ASTM A 513 or steel tubing fabricated from steel complying with ASTM A 569/A 569M and complying with the dimensional tolerances in ASTM A 500.
5. Malleable-Iron Castings: ASTM A 47, grade required by structural loads.
6. Support Cable: 1/4-inch- diameter, 7x19 galvanized steel aircraft cable with a breaking strength of 7000 lb. Provide fittings complying with cable manufacturer's written recommendations for size, number, and method of installation.
7. Support Chain: Proof coil chain, complying with ASTM A 413/A 413M, Grade 30, size and diameter as required by structural loads; plated or painted. Provide fittings

complying with chain manufacturer's written recommendations for size, number, and method of installation.

C. Anchors, Fasteners, Fittings and Hardware: Manufacturer's standard corrosion-resistant or noncorrodible units; concealed tamperproof. Provide as required for gymnasium equipment assembly, mounting, and secure attachment.

D. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107 with minimum strength recommended in writing by gymnasium equipment manufacturer.

2.3 BASKETBALL EQUIPMENT

A. General: Provide equipment complying with requirements in "NCAA" Basketball Rule Book." Protruding fasteners or exposed bolt heads on front face of backboards are not permitted.

B. Overhead-Supported Retractable Backstop: Complete assembly spanning height indicated on Drawings, including primary and secondary superstructure support framing to building structure, pipe and cable bracing, adjustable hangers, clamps, cables, chains, pulleys, fittings, hardware, and fasteners.

1. Shall be Boom Type Swing-Up Model. Back stops shall be of welded construction. Main members shall be 1-1/2 inch I.D. pipe with intermediate braces of 1 inch I.D. pipe. Backstop to be attached to an all-welded rectangular frame having 2 inch I.D. pipe vertical members and 1-1/2 inch I. D. horizontal members. Face of backstop shall be placed at a minimum of 10 inches in front of the frame with adjustable fittings. Backstop shall be braced with ¼ inch diameter by 6 by 37 preformed steel cable cross guys and a 1 inch I.D. horizontal pipe brace at mid span. Hinge points to be self-aligning pillow block bearings at heights shown on the drawings. Stay cables of ¼ inch diameter (minimum) preformed steel shall attach to the upper pipe members at the welded frame and at the motor platform.

2. Stay cables shall have forged steel turnbuckles for adjustment. All steel shall be factory painted with one coat of gray primer, for field painting by Division 9 "Painting".

C. Backstop/Backboard Safety Device: Designed to limit free fall if support cable, support chain, pulleys, fittings, winch, or related components fail; with mechanical automatic reset; 6000-lb load capacity.

1. Retractor Device: Manufacturer's standard device designed to retract both support and safety cables, chains, and straps away from play of the basketball when backstop is in playing position.

D. Electric Operator: Provide factory-assembled electric operator for backstop designed for lifting and lowering basketball equipment of type, size, weight, construction, use, and operation frequency indicated. Provide operation system, of size and capacity and with features, characteristics, and accessories suitable for Project conditions, recommended by gymnasium equipment manufacturer; complete with winch or hoist designed to move and hold backstop in any raised or lowered position, electric motor and factory-prewired motor controls with limit controls, remote-control stations, remote-control devices, power disconnect switch, enclosures protecting controls and all operating parts, and accessories required for proper operation. Include wiring from motor controls to motor. Coordinate operator wiring requirements and electrical characteristics with the building electrical system.

1. Each backstop shall be hoisted with a ¼ H.P., 155 V., 60-cycle, single phase, instantly reversible, right angle combination gear motor with a drum pregrooved for ¼ inch diameter by 6 by 37 preformed steel cable. Drum shall be integrally connected to gear motor output shaft for positive power transmission. A rotary type travel limit control switch shall operate directly off of the drum shaft and stop the backstop automatically in the "up" or "down" position. Control switch at lighting control center to be by Electrical Contractor. Refer to Electrical Drawings.

E. Basketball Backboard: Provide predrilled holes or preset inserts for mounting goals.

1. Description at main and side court locations: Rectangular tempered glass (Herculite) glass backstop. Backstop shall be 72 inches by 48 inches. Backstop shall be set into an extruded aluminum frame and cushioned with neoprene. Backstop to have goal mounting plates front and back with neoprene sheeting between glass and plates. Holes in plates to be bushed for mounting goal. Backstop to have a white border and center rectangular target of vitreous enamel fired permanently into glass. Equip all backstops with safety padding.

F. Basketball Goals: Complete with flanges, braces, attachment plate, and evenly spaced loops welded around underside of ring.

1. The goal ring shall consist of 5/8 inch round steel, rolled to 18 inch inside diameter with "no tie" hooks welded to underside for attaching the net. Ring shall be welded to mounting plate and braced with two additional steel rods. The inside face of the goal shall be 6 inches from the face of the backboard. The goal shall be finished on bright orange enamel.

G. Basketball Nets: 12-loop-mesh net, between 15 and 18 inches long, sized to fit rim diameter, and as follows:

1. Competition Cord: Antiwhip, made from white nylon cord not less than 120 gm nor more than 144 gm thread.

H. Safety Pads: Provide safety pads, complying with NCAA and NFHS, designed for backboard thickness indicated and extending continuously along bottom and up sides of backboard and over goal mounting and backboard supports as per manufacturer's standard design.

1. Safety Pad Attachment: Manufacturer's standard.
2. Color: Manufacturer's standard color.

2.4 VOLLEYBALL EQUIPMENT

A. General: Provide equipment as follows:

1. For single competition court:Provide Porter "Indoor Recreational System" consisting of a pair of standards, pair of protective pads, competiton net and a pair of net antennas with boundary markers.
   a. Floor Sleeves: Provide floor sleeves with covers as required to accommodate the volleyball court construction. The floor is not a "floating" system.

2.5 WALL-MOUNTED AND POST COLUMN SAFETY PADS

Refer to plans for locations.

A. Safety Pad Surface-Burning Characteristics: Provide safety pads with flame-spread index of 25 or less and smoke-developed index of 450 or less, as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

B. Pad Covers: Provide safety pad fabric covers fabricated from puncture- and tear-resistant, not less than 14-oz. PVC-coated polyester or nylon-reinforced PVC fabric treated with fungicide for mildew resistance, with the fire-test-response characteristics indicated.

1. Flame-Resistance Ratings: Passes NFPA 701.

C. Wall Safety Pads: Padded wall wainscot panels designed to be attached in a continuous row; each panel section consisting of fill laminated to backer board with visible surfaces fully covered by seamless fabric cover, free from sag and wrinkles and firmly attached to back of backer board.

1. Backer Board: Not less than 3/8-inch-thick fire-retardant-treated plywood per AWPA C27, Interior Type A.
2. Fire-Resistive Fill: Multiple-impact-resistant foam not less than 2-inch-thick fire-resistive neoprene, 6-lb density.
3. Size: Each panel section, 24 inches wide by not less than 72 inches long or as indicated on Drawings.
4. Number of Panel Sections: As indicated on Drawings modular panel sections.
5. Installation Method: Manufacturer's standard.
6. Fabric Cover Colors: As selected by Architect from manufacturer's full range for two colors.
7. Graphics: Custom graphics as indicated on Drawings.

D. Corner Wall Safety Pads: Wall corner pad consisting of not less than 2-inch- thick, multiple-impact-resistant, closed-cell polyethylene-foam filler, covered both sides and all edges of pad by fabric cover with self-adhesive hook-and-loop attachment.

1. Length: Each pad not less than 72 inches or as indicated on Drawings.
2. Fabric Cover Colors: As selected by Architect from manufacturer's full range for two colors.

E. Column Safety Pads: Pads covering exposed columns as indicated on the drawings to height indicated, consisting of not less than 2-inch- thick, multiple-impact-resistant, closed-cell polyethylene-foam filler, covered both sides and all edges of pad by fabric cover with self-adhesive hook-and-loop attachment to exposed face of column.

1. Length: Each pad not less than 72 inches or as indicated on Drawings.
2. Fabric Cover Colors**:** As selected by Architect from manufacturer's full range for two colors.

F. Post Column Safety Pads: Wraparound pads fully covering exposed column to height indicated, consisting of not less than 2-inch-thick, multiple-impact-resistant, bonded polyurethane-foam filler, 6-lb density, covered both sides and all edges of pad by fabric cover with cord lace and grommet attachment to column.

1. Length: Each pad not less than 72 inches or as indicated on Drawings.

2.6 Fabric Cover Colors: As selected by Architect from manufacturer's full range for two colors.

2.7 SCORE BOARD AND SHOT CLOCKS

A. Basketball Score Board:

1. Daktronics: Model BB-2155. Single sided LED scoreboard displays period time, HOME and GUEST scores, PERIOD, PLAYER number, player FOUL, team FOULS, T.O.L. (time outs left) and indicates possession and bonus. Electronic captions automatically change when volleyball and wrestling modes are selected.
   a. Digit sizes: 10” and 13”.
   b. Size of unit: 6’Hx10’Wx6”D.
   c. Digit technology: PanaView.
   d. Construction: Durable, lightweight aluminum Tuff Sport cabinet.
   e. Cabinet color: 150+ colors. Color to be selected by Architect.
   f. Digit colors: per manufacturer’s standard LED colors.

B. Basketball Shot Clock:

1. Daktronics: Model BB-2115. Single sided LED shot clock displays game clock and shot clock timer.
   a. Digit sizes: game time 7” and shot clock 13”.
   b. Size of unit: 2’-4’Hx2’-5”Wx6”D.
   c. Digit technology: PanaView.
   d. Construction: Durable, lightweight aluminum Tuff Sport cabinet.
   e. Cabinet color: 150+ colors. Color to be selected by Architect.
   f. Digit colors: game clock is amber, shot clock is red.

C. Controls: Wired, using All Sport 5000 unit. Provide wiring and controls from the score board and shot clock to the scoring table located in the bleachers.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for play court layout, alignment of mounting substrates, installation tolerances, operational clearances, accurate locations of connections to building electrical system**,** and other conditions affecting performance.

1. Verify critical dimensions.
2. Examine supporting structure and below finished floor for subgrades, subfloors and footings.
3. Examine wall assemblies, where reinforced to receive anchors and fasteners, to verify that locations of concealed reinforcements have been clearly marked for installers. Locate reinforcements and mark locations if not already done.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Comply with manufacturer's written installation instructions and competition rules indicated for each type of gymnasium equipment. Complete equipment field assembly, where required.

B. Unless otherwise indicated, install gymnasium equipment after other finishing operations, including painting, have been completed.

C. Permanently Placed Gymnasium Equipment and Components: Rigid, level, plumb, square, and true; anchored securely to supporting structure; positioned at locations and elevations indicated on Shop Drawings; in proper relation to adjacent construction; and aligned with court layout.

1. Floor Insert Location: Coordinate location with application of game lines and markers.
2. Floor Insert Elevation: Coordinate installed heights of floor insert with installation and field finishing of finish flooring and type of floor plate.
3. Operating Gymnasium Equipment: Verify clearances for movable components of gymnasium equipment throughout entire range of operation and for access to operating components.

D. Floor Insert Setting: Grout sleeve for post standards in oversized, recessed voids in concrete slabs and footings. Clean holes of debris. Position sleeve and fill void around sleeves with grout, mixed and placed to comply with grout manufacturer's written instructions. Protect portion of sleeve above subfloor and footing from splatter. Verify that sleeves are set plumb, aligned, and at correct height and spacing; hold in position during placement and finishing operations until grout is sufficiently cured. Set insert so top surface of completed unit is flush with finished flooring surface.

E. Anchoring to In-Place Construction: Use anchors and fasteners where necessary for securing built-in and permanently placed gymnasium equipment to structural support and for properly transferring load to in-place construction.

F. Connections: Connect automatic operators to building electrical system.

G. Portable Gymnasium Equipment and Components: Assemble in place to verify that equipment and components are complete and in proper working order. Instruct Owner's designated personnel in properly handling, assembling, adjusting, disassembling, transporting, storing, and maintaining units. Disassemble portable gymnasium equipment after assembled configuration has been approved by Architect, and store units in location indicated on Drawings.

3.3 ADJUSTING

A. Adjust movable components of gymnasium equipment to operate safely, smoothly, easily, and quietly, free from binding, warp, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Lubricate hardware and moving parts.

3.4 CLEANING AND PROTECTION

A. After completing gymnasium equipment installation, inspect components. Remove spots, dirt, and debris and touch up damaged shop-applied finishes according to manufacturer's written instructions.

B. Provide final protection and maintain conditions acceptable to manufacturer and Installer that ensure gymnasium equipment is without damage or deterioration at time of Substantial Completion.

C. Replace gymnasium equipment and finishes that cannot be cleaned and repaired, in a manner approved by Architect, before time of Substantial Completion.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain gymnasium equipment. Refer to Division 1 Section "Closeout Procedures."

END OF SECTION

SECTION 126613
TELESCOPIC SEATING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Telescopic Gym Seating includes **manually operated** multiple-tiered seating rows comprising of seat, deck components, understructure that permits closing without requiring dismantling, into a nested configuration for storing or for moving purposes.

1. **Wall-attached telescoping stands**

1.2 REFERENCES

A. Aluminum Association (AA):

1. ADM 1- Aluminum Design Manual

B. American Institute of Steel Construction (AISC):

1. AISC 360- Steel Construction Manual.

C. American Iron & Steel Institute (AISI):

1. AISI S100 – Design of Cold Formed Steel Structural Members.

D. American Society for Testing Materials (ASTM):

1. ASTM - Standard Specifications for Properties of Materials.

E. American Wood Council (AWC):

1. ANSI/AWC NDS (National Design Specification for Wood Construction).

F. American Welding Society (AWS):

1. AWS D1.1 Structural Welding Code – Steel
2. AWS D1.3 Structural Welding Code - Sheet Steel

G. Canadian Welding Bureau: CWB Division 3 W47.1

H. U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

I. Forest Stewardship Council:

1. Chain of Custody Certification (FSC-STD-40-004)

J. International Building Code (IBC): **2019**

K. International Code Council (ICC): **2019**

1. ICC 300: Standard for Bleachers, Folding and Telescopic Seating and Grandstands.

L. National Fire Protection Association (NFPA):

1. NFPA 101 2019
2. NFPA 5000 **current edition:** Building Construction and Safety Code
3. NFPA 70: National Electrical Code.

M. National Institute of Standards and Technology (NIST)

1. PS 1: Structural Plywood.

N. Southern Pine Inspection Bureau (SPIB):

1. SPIB: Standard Grading Rules for Southern Pine.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Engineer, fabricate and install telescopic gym seating systems to the following structural loads without exceeding allowable design working stresses of materials involved, including anchors and connections. Apply each load to produce maximum stress in each respective component of each telescoping stand unit according to ICC 300 current edition.

B. Manufacturer's System Design Criteria:

1. Gymnasium seat assembly; Design to support and resist, in addition to its own weight, the following forces:
   a.) Live load of 120 lbs. per linear foot (1.75 kN/m) on seats and decking
   b.) Uniformly distributed live load of not less than 100 psf (4.79 kN/m^2) of gross horizontal projection.
   c.) Parallel sway load of 24 lbs. per linear foot (0.35 kN/m) of row combined with (b.) above
   d.) Perpendicular sway load of 10 lbs. per linear foot (0.15 kN/m) of row combined with uniformly distributed live load above.
   e.) Parallel and Perpendicular sway loads are not applied concurrently.
2. Hand Railings, Posts and Supports: Engineered to withstand the following forces applied separately:
   a.) Concentrated load of 200 lbs. (0.89 kN) applied at any point and in any direction.
   b.) Uniform load of 50 lbs. per foot (0.73 kN/m) applied in any direction.
3. Guard Railings, Post and Supports: Engineered to withstand the following forces applied separately:
   a.) Concentrated load of 200 lbs. (0.89 kN) applied at any point and in any direction along top rail.
   b.) Uniform load of 50 lbs. per foot (0.73 kN/m) applied in any direction at top rail
   c.) Uniform load of 50 lbs. (0.22 kN) applied on an area equal to 1 ft^2 (0.09 m^2) applied on all guardrail infill panels.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Environmental Data Package: Provide project specific environmental data work sheet with project header and LEED calculations completed based on actual project weight and project price. Environmental Data Package required to be submitted with formal submittal package prior to project award.

1. Regional Manufacturing:
   a.) Provide manufacturing location and distance to project site by product material type as required. Use straight-line travel as defined by USGBC.
2. Recycled Content:
   a.) Provide Packaging Material Listing & Recycled Content by Material Type; total percentage of recycled content, total percentage of pre consumer and post consumer materials.
   b.) Provide Product Material Listing & Recycled Content by Material Type; total percentage of recycled content, total percentage of pre consumer and post consumer materials.
3. Indoor Environmental Quality:
   a.) Provide documentation that the specified product passes ANSI/BIFMA X7.1-2007 Standard for Formaldehyde and TVOC Emissions of Low-emitting Office Furniture Systems and Seating
   b.) Provide documentation that the specified product solid core ply-form or engineered fiber panels are manufactured with resins that are free of added urea-formaldehyde.
4. Product Life Cycle Deconstruction & Reclaiming Opportunity:
   a.) Provide listing of product materials that can be recycled at the end of the product life cycle and re-enter the recycled or reuse material stream.

C. Shop Drawings: For telescoping stands in both stacked and extended positions. Show seat heights, row spacing and rise, aisle widths and locations, assembly dimensions, anchorage to supporting structure, material types and finishes.

D. Samples: For units with factory-applied finishes.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified manufacturer and installer.

B. Welding certificates.

C. Product Test Reports: Load test to all loads, observed by a qualified independent testing laboratory, and certified by a registered professional structural engineer verifying the integrity of the manufacturer's design.

D. Warranty: Manufacturers standard warranty documents.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For telescopic bleacher to include video operations manual.

1.7 QUALITY ASSURANCE

A. Manufacturer's Qualifications: A minimum of 40 years of experience manufacturing telescoping stands and can demonstrate continual design enhancement and 25-year minimum product life-cycle support of telescopic seating.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

Below standard may be more stringent than applicable building code requirements. Coordinate with local building code requirements for telescoping stands.

C. Seating Layout: Provide telescoping stands to comply with ICC 300 <**Insert year**> Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, except where additional requirements are indicated or imposed by authorities having jurisdiction.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver telescoping stands in manufacturers packaging clearly labeled with manufacturer name and content.

B. Handle bleacher equipment in a manner to prevent damage.

C. Deliver the telescoping stands at a scheduled time for installation that will not interfere with other trades operating in the building when at all possible.

1.9 PROJECT CONDITIONS

A. Field Measurements: Coordinate actual dimensions of construction affecting telescoping stands installation by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid delay of Work.

1.10 WARRANTY

A. Manufacturer's Warranty: Includes the repair or replacement of the defective product; or defective component thereof, with a comparable product; or component thereof, or a refund of the purchase price prorated over the warranty period.

1. Includes: Labor, materials, and freight for replacement or repairs.
2. Structural Component parts of Understructure Warranty Period: **10 years** from Date of Acceptance
3. Decking systems, seating collections, electrical, portable and integral dolly systems, end closure curtains, surface material finishes Warranty Period **5 years** from Date of Acceptance.

PART 2 PRODUCTS

A. Wood:

1. Lumber: NIST PS 20, southern pine complying with SPIB's "Standard Grading Rules for Southern Pine Lumber" for B&B Finish (B and better) grade-of-finish requirements.
2. Plywood: NIST PS 1, APA-grade trademarked, A-C grade.

B. Steel:

1. Structural-Steel Shapes, Plates, and Bars: ASTM A36.
2. Galvanized-Steel Sheet: ASTM A653, coating designation G60.
3. Uncoated Steel Strip; Non-Structural Components: ASTM A1011, Commercial Quality, Type B, Hot-Rolled Strip.
4. Uncoated Steel Strip; Structural Components: ASTM A1011 Grade 33, Grade 36, Grade 40, Grade 45, or Grade 50, Structural Quality, Hot-Rolled.
5. Galvanized Steel Strip: ASTM A653 Grade 40, structural quality, coating designation G60.
6. Tubing: ASTM A500, cold formed; Grade B.

C. Polyethylene Plastic: High-density polyethylene; injection molded, color-pigmented, textured, impact-resistant, and dimensionally stable.

2.2 MANUFACTURERS

A. Basis of Design: Hussey Seating Company, U.S.A. / B.T. Mancini Co., Inc. Attention: Jared Fleming; Email: jared.fleming@btmancini.com

B. Substitutions: Permitted.

1. Upon compliance with all of the criteria specified in this section, Manufacturers wishing to bid products equal to the product specified must be submitted to the Architect 10 days prior to bidding complete data in support of compliance and a list of three past installations of products similar to those listed. The submitting manufacturer guarantees the proposed substituted product complies with the performance items specified and as detailed on the drawings.

2.3 TELESCOPING STANDS

A. **Wall-Attached Telescoping Stands:** Forward-folding system with the rear of the understructure permanently attached to the floor and to the rear wall. Rear wall provides structural support and must support loads imposed by the bleacher.

2.4 DIMENSIONAL AND OPERATIONAL CRITERIA

A. Dimensions:

1. Bank Length: See floor plan.
2. Aisle Width: See floor plan.
3. Number of Tiers: See floor plan.
4. Row Spacing: 24 inches
5. Row Rise: 9-5/8 inches

B. Operation: **Manual**

1. Manual: User operates system by manually pulling/pushing each section with operating handles

2.5 SEATING

A. Polymer Seat System: Courtside Collection **XC10**.

1. Material: Gas assist injection-molded, 100 percent recyclable HDPE, high density polyethylene.
2. Module Size: **18 inches long by 10 inches** deep.
3. Module Load: Tested to 600 lbs.
4. Integrally molded end caps at aisle end locations.
5. Integrally molded recess pockets to accept seat number and row letters.
6. Integrally molded rear closure panel at back of seat to allow for "continuous clean sweep" of debris at deck level and minimized visibility of structural ribbing.
7. Color: [As selected by Architect from manufacturers 15 standard colors][Custom color as selected by Architect].
8. Seat Numbers: **1-3/4 inch** by **1-1/4 inch** oval Lexan plate.
   a.) Color: Black number over grey background.
9. Row Identification: **1-3/4 inch** by **1-1/4 inch** oval Lexan plate.
   a.) Color: Black letter over gray background.

B. ADA Accessible Seating:

1. Locate **first tier modular units** to provide wheelchair-accessible seating at locations indicated on Drawings.
   a.) Flex-Row™: Provide first row modular recoverable seating units that can be closed to accommodate persons requiring ADA spaces (or any other temporary space needs) or opened for standard usage. Each Flex-Row unit shall have a handle for easy operation.
      1.) Provide a black full-surround steel skirting with no more than ¾" floor clearance for safety and improved aesthetics.
      2.) Provide a black injection molded end cap for the nose beam for safety and improved aesthetics.
      3.) Provide a mechanical positive lock when the Flex-Row system is in both the open and closed position. Handle shall unlock the modular recoverable seating unit for operation.
      4.) Flex-Row can be utilized with the full system in the open or closed position.
      5.) Flex-Row modular units are designed to achieve multi-use front row seating to accommodate team seating, ADA requirements and facility specific requirements. Flex-Row units are available in modular units from 2 to 7 seats wide as well as full section widths.

2.6 RAILS, PANELS AND STEPS

A. End Rails:

1. **Self-storing**
   a.) Provide steel self-storing starting no higher than tier 2 **42 inches** high above seat, end rail with tubular supports and intermediate members designed with **4 inch** sphere passage requirements.
2. Material and Finish: Manufacturer's standard powder coated steel.
3. Color: **As selected by Architect from manufacturers 15 colors**.

B. Center Aisle Rails:

1. **Manual Rotating**
   a.) Provide single pedestal mount handrails **34 inches** high with terminating mid rail. Permanently attached handrail shall rotate in a permanently mounted socket for rail storage. Rail shall deploy

easily, lock in the use position, and require intent and effort to unlock, and return to the stowed position. Ends of the handrail shall return to the post, and not extend away from it. Rails having openings to avoid interference with closed decks are not acceptable.

2. Material and Finish: Manufacturer's standard powder coated steel.
3. Color: **As selected by Architect from manufacturer's 15 colors**.

C. Steps

1. **Sure-Step (Flip-up Front Aisle Step)**: Permanently hinged to the front row to ensure availability and ease of operation. Two 3" diameter x ¾" wide non-marking front wheels are provided so that the system can be operated with the Sure-Step in the stored or deployed position. All edges coined, hemmed or radiused with front edge protective rubber bumpers. Abrasive-backed non-slip tread identifier on leading edge of nosing. For aisle widths greater than 6'-0", two side by side hinged steps are provided.
2. **Intermediate Aisle Steps**: Fully enclosed, at each vertical aisle. Full radius end caps on all four edges. Adhesive-backed abrasive non-slip tread surface.

2.7 COMPONENTS

A. Decking

1. **Plywood**
   a.) 5/8 inch (16 mm) thick AC grade tongue and groove Southern Yellow Pine with clear urethane, high gloss finish.

B. Understructure:

1. Finish: Manufacturer's standard
2. Hardware finish: Manufacturer's standard
3. Posi-locks and other surfaces: Manufacturer's standard
4. Nose beam and Rear Riser beam: Nose beam shall be continuously roll-formed closed tubular shape of ASTM A653 grade 40. Riser beam shall be continuously roll-formed of ASTM A653 grade 40. Nose and Riser beam shall be designed with no steel edges exposed to spectator after product assembly. Nose beam and riser beams are through-bolted fore/aft to deck stabilizers and frame cantilevers to create the deck structure.
5. Frame: The frames are welded assemblies (one left hand, one right hand per tier) comprised of the following components:
   a.) Lower Track subassembly: ASTM A1011 Grade 50: Continuous Positive Interglide System (casterhorn) interlocks each adjacent frame casterhorn using an integral, continuous, anti-drift feature and captive interlock with adjustable row spacing at front to prevent separation and misalignment.
   b.) Lower Track Wheels: 3 per frame Not less than **5 inches** diameter by **1-1/4 inches** with non-marring soft rubber face to protect wood and synthetic floor surfaces, with molded-in sintered iron oil-impregnated bushings to fit **3/8 inch** diameter axles secured with E-type snap rings.
      1.) Option: up to 6 wheels per frame for load distribution
   c.) Slant Columns: A500 Grade B, tubular shape.
   d.) Cantilever Subassembly: Consists of ASTM A1011 Grade 50 nose connection plate, cantilever, and riser attachment plate welded together into a subassembly.
6. Sway Bracing: ASTM A653 grade 40, tension members bolted to columns.
7. Deck Stabilizer: A1011 Grade 45, member through-bolted to nose and riser at three locations per section. Securely captures front and rear edge of decking at rear edge of nose beam and lower edge of riser beam for entire length of section. Interlocks with adjacent stabilizer on upper tier using low-friction nylon roller to prevent separation and misalignment.

C. Fasteners: Vibration proof, in manufacturer's standard size and material.

2.8 FABRICATION

A. Fabricate understructure from structural-steel members in size, spacing, and form required to support design loads specified in referenced safety standard.

B. Weld understructure to comply with applicable AWS standards.

C. Round corners and edges of components and exposed fasteners to reduce snagging and pinching hazards.

D. Form exposed sheet metal with flat, flush surfaces, level and true in line, and without cracking and grain separation.

2.9 ACCESSORIES

A. Scorer's Table: Removable unit with a gray textured top of molded **2 inch** thick polymer with eased edges and integral 16 gage (1.51 mm) cantilevered comfort C-style leg.

1. Size: 8 feet or 6 feet by 18 inches by 30 inches.

B. Operating Handles: Manual operating handles; **3/4 inch** OD steel tubing. Handles to engage at the first tier.

C. Rear Wall Column Cutouts: Provide custom bleacher cutouts at rear wall building columns. Top row(s) to be cut out and fitted to meet wall column conditions.

D. Vinyl End Curtains: Include manufacturer's standard vinyl end curtains on both ends of the bleacher to reduce access beneath bleacher. Color: Selected from manufacturer's standard vinyl color chart.

2.10 GRAPHICS

A. CourtSide Graphic Logo: Decorative graphic logo that is applied to the integrally molded end cap recess area of the CourtSide **10 XC** seat module.

1. Logo is approximately **4.7 inches** x **3.5 inches** with full color.
2. Logo is trimmed to a precise custom cut shape with two mounting holes.

B. StepSign Graphic Logo: Decorative graphic logos or text-based graphic applied to the vertical surface of the front and intermediate aisle steps.

C. CourtSign Graphic Logo: Decorative graphic logos or text-based graphic applied to the vertical surface of the front skirt panel.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas where telescoping stands are to be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Tolerances:

1. Flooring [and rear wall]: Level [and plumb] within **1/8 inch** in **8 feet**.
2. Maximum bleacher force on the floor of a **27 foot** section: Static point load of less than 300 psi

B. Install telescoping stands to comply with referenced safety standard and manufacturer's written instructions.

3.3 ADJUSTING AND CLEANING

A. On completion of installation, lubricate, test, and adjust each telescoping stand unit so that it operates according to manufacturer's written operating instructions.

B. Clean installed telescoping stands on exposed surfaces. Touch up shop-applied finishes or replace components as required to restore damaged or soiled areas.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner’s maintenance personnel to adjust, operate, and maintain telescoping stands.

END OF SECTION

SECTION 126613
TELESCOPIC SEATING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Telescopic Gym Seating includes **manually operated** multiple-tiered seating rows comprising of seat, deck components, understructure that permits closing without requiring dismantling, into a nested configuration for storing or for moving purposes.

1. **Wall-attached telescoping stands**

1.2 REFERENCES

A. Aluminum Association (AA):

1. ADM 1- Aluminum Design Manual

B. American Institute of Steel Construction (AISC):

1. AISC 360- Steel Construction Manual.

C. American Iron & Steel Institute (AISI):

1. AISI S100 – Design of Cold Formed Steel Structural Members.

D. American Society for Testing Materials (ASTM):

1. ASTM - Standard Specifications for Properties of Materials.

E. American Wood Council (AWC):

1. ANSI/AWC NDS (National Design Specification for Wood Construction).

F. American Welding Society (AWS):

1. AWS D1.1 Structural Welding Code – Steel
2. AWS D1.3 Structural Welding Code - Sheet Steel

G. Canadian Welding Bureau: CWB Division 3 W47.1

H. U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

I. Forest Stewardship Council:

1. Chain of Custody Certification (FSC-STD-40-004)

J. International Building Code (IBC): **2019**

K. International Code Council (ICC): **2019**

1. ICC 300: Standard for Bleachers, Folding and Telescopic Seating and Grandstands.

L. National Fire Protection Association (NFPA):

1. NFPA 101 2019
2. NFPA 5000 **current edition:** Building Construction and Safety Code
3. NFPA 70: National Electrical Code.

M. National Institute of Standards and Technology (NIST)

1. PS 1: Structural Plywood.

N. Southern Pine Inspection Bureau (SPIB):

1. SPIB: Standard Grading Rules for Southern Pine.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Engineer, fabricate and install telescopic gym seating systems to the following structural loads without exceeding allowable design working stresses of materials involved, including anchors and connections. Apply each load to produce maximum stress in each respective component of each telescoping stand unit according to ICC 300 current edition.

B. Manufacturer's System Design Criteria:

1. Gymnasium seat assembly; Design to support and resist, in addition to its own weight, the following forces:
   a.) Live load of 120 lbs. per linear foot (1.75 kN/m) on seats and decking
   b.) Uniformly distributed live load of not less than 100 psf (4.79 kN/m^2) of gross horizontal projection.
   c.) Parallel sway load of 24 lbs. per linear foot (0.35 kN/m) of row combined with (b.) above
   d.) Perpendicular sway load of 10 lbs. per linear foot (0.15 kN/m) of row combined with uniformly distributed live load above.
   e.) Parallel and Perpendicular sway loads are not applied concurrently.
2. Hand Railings, Posts and Supports: Engineered to withstand the following forces applied separately:
   a.) Concentrated load of 200 lbs. (0.89 kN) applied at any point and in any direction.
   b.) Uniform load of 50 lbs. per foot (0.73 kN/m) applied in any direction.
3. Guard Railings, Post and Supports: Engineered to withstand the following forces applied separately:
   a.) Concentrated load of 200 lbs. (0.89 kN) applied at any point and in any direction along top rail.
   b.) Uniform load of 50 lbs. per foot (0.73 kN/m) applied in any direction at top rail
   c.) Uniform load of 50 lbs. (0.22 kN) applied on an area equal to 1 ft^2 (0.09 m^2) applied on all guardrail infill panels.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Environmental Data Package: Provide project specific environmental data work sheet with project header and LEED calculations completed based on actual project weight and project price. Environmental Data Package required to be submitted with formal submittal package prior to project award.

1. Regional Manufacturing:
   a.) Provide manufacturing location and distance to project site by product material type as required. Use straight-line travel as defined by USGBC.
2. Recycled Content:
   a.) Provide Packaging Material Listing & Recycled Content by Material Type; total percentage of recycled content, total percentage of pre consumer and post consumer materials.
   b.) Provide Product Material Listing & Recycled Content by Material Type; total percentage of recycled content, total percentage of pre consumer and post consumer materials.
3. Indoor Environmental Quality:
   a.) Provide documentation that the specified product passes ANSI/BIFMA X7.1-2007 Standard for Formaldehyde and TVOC Emissions of Low-emitting Office Furniture Systems and Seating
   b.) Provide documentation that the specified product solid core ply-form or engineered fiber panels are manufactured with resins that are free of added urea-formaldehyde.
4. Product Life Cycle Deconstruction & Reclaiming Opportunity:
   a.) Provide listing of product materials that can be recycled at the end of the product life cycle and re-enter the recycled or reuse material stream.

C. Shop Drawings: For telescoping stands in both stacked and extended positions. Show seat heights, row spacing and rise, aisle widths and locations, assembly dimensions, anchorage to supporting structure, material types and finishes.

D. Samples: For units with factory-applied finishes.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified manufacturer and installer.

B. Welding certificates.

C. Product Test Reports: Load test to all loads, observed by a qualified independent testing laboratory, and certified by a registered professional structural engineer verifying the integrity of the manufacturer's design.

D. Warranty: Manufacturers standard warranty documents.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For telescopic bleacher to include video operations manual.

1.7 QUALITY ASSURANCE

A. Manufacturer's Qualifications: A minimum of 40 years of experience manufacturing telescoping stands and can demonstrate continual design enhancement and 25-year minimum product life-cycle support of telescopic seating.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

Below standard may be more stringent than applicable building code requirements. Coordinate with local building code requirements for telescoping stands.

C. Seating Layout: Provide telescoping stands to comply with ICC 300 <**Insert year**> Standard for Bleachers, Folding and Telescopic Seating, and Grandstands, except where additional requirements are indicated or imposed by authorities having jurisdiction.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver telescoping stands in manufacturers packaging clearly labeled with manufacturer name and content.

B. Handle bleacher equipment in a manner to prevent damage.

C. Deliver the telescoping stands at a scheduled time for installation that will not interfere with other trades operating in the building when at all possible.

1.9 PROJECT CONDITIONS

A. Field Measurements: Coordinate actual dimensions of construction affecting telescoping stands installation by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid delay of Work.

1.10 WARRANTY

A. Manufacturer's Warranty: Includes the repair or replacement of the defective product; or defective component thereof, with a comparable product; or component thereof, or a refund of the purchase price prorated over the warranty period.

1. Includes: Labor, materials, and freight for replacement or repairs.
2. Structural Component parts of Understructure Warranty Period: **10 years** from Date of Acceptance
3. Decking systems, seating collections, electrical, portable and integral dolly systems, end closure curtains, surface material finishes Warranty Period **5 years** from Date of Acceptance.

PART 2 PRODUCTS

A. Wood:

1. Lumber: NIST PS 20, southern pine complying with SPIB's "Standard Grading Rules for Southern Pine Lumber" for B&B Finish (B and better) grade-of-finish requirements.
2. Plywood: NIST PS 1, APA-grade trademarked, A-C grade.

B. Steel:

1. Structural-Steel Shapes, Plates, and Bars: ASTM A36.
2. Galvanized-Steel Sheet: ASTM A653, coating designation G60.
3. Uncoated Steel Strip; Non-Structural Components: ASTM A1011, Commercial Quality, Type B, Hot-Rolled Strip.
4. Uncoated Steel Strip; Structural Components: ASTM A1011 Grade 33, Grade 36, Grade 40, Grade 45, or Grade 50, Structural Quality, Hot-Rolled.
5. Galvanized Steel Strip: ASTM A653 Grade 40, structural quality, coating designation G60.
6. Tubing: ASTM A500, cold formed; Grade B.

C. Polyethylene Plastic: High-density polyethylene; injection molded, color-pigmented, textured, impact-resistant, and dimensionally stable.

2.2 MANUFACTURERS

A. Basis of Design: Hussey Seating Company, U.S.A. / B.T. Mancini Co., Inc. Attention: Jared Fleming; Email: jared.fleming@btmancini.com

B. Substitutions: Permitted.

1. Upon compliance with all of the criteria specified in this section, Manufacturers wishing to bid products equal to the product specified must be submitted to the Architect 10 days prior to bidding complete data in support of compliance and a list of three past installations of products similar to those listed. The submitting manufacturer guarantees the proposed substituted product complies with the performance items specified and as detailed on the drawings.

2.3 TELESCOPING STANDS

A. **Wall-Attached Telescoping Stands:** Forward-folding system with the rear of the understructure permanently attached to the floor and to the rear wall. Rear wall provides structural support and must support loads imposed by the bleacher.

2.4 DIMENSIONAL AND OPERATIONAL CRITERIA

A. Dimensions:

1. Bank Length: See floor plan.
2. Aisle Width: See floor plan.
3. Number of Tiers: See floor plan.
4. Row Spacing: 24 inches
5. Row Rise: 9-5/8 inches

B. Operation: **Manual**

1. Manual: User operates system by manually pulling/pushing each section with operating handles

2.5 SEATING

A. Polymer Seat System: Courtside Collection **XC10**.

1. Material: Gas assist injection-molded, 100 percent recyclable HDPE, high density polyethylene.
2. Module Size: **18 inches long by 10 inches** deep.
3. Module Load: Tested to 600 lbs.
4. Integrally molded end caps at aisle end locations.
5. Integrally molded recess pockets to accept seat number and row letters.
6. Integrally molded rear closure panel at back of seat to allow for "continuous clean sweep" of debris at deck level and minimized visibility of structural ribbing.
7. Color: [As selected by Architect from manufacturers 15 standard colors][Custom color as selected by Architect].
8. Seat Numbers: **1-3/4 inch** by **1-1/4 inch** oval Lexan plate.
   a.) Color: Black number over grey background.
9. Row Identification: **1-3/4 inch** by **1-1/4 inch** oval Lexan plate.
   a.) Color: Black letter over gray background.

B. ADA Accessible Seating:

1. Locate **first tier modular units** to provide wheelchair-accessible seating at locations indicated on Drawings.
   a.) Flex-Row™: Provide first row modular recoverable seating units that can be closed to accommodate persons requiring ADA spaces (or any other temporary space needs) or opened for standard usage. Each Flex-Row unit shall have a handle for easy operation.
      1.) Provide a black full-surround steel skirting with no more than ¾" floor clearance for safety and improved aesthetics.
      2.) Provide a black injection molded end cap for the nose beam for safety and improved aesthetics.
      3.) Provide a mechanical positive lock when the Flex-Row system is in both the open and closed position. Handle shall unlock the modular recoverable seating unit for operation.
      4.) Flex-Row can be utilized with the full system in the open or closed position.
      5.) Flex-Row modular units are designed to achieve multi-use front row seating to accommodate team seating, ADA requirements and facility specific requirements. Flex-Row units are available in modular units from 2 to 7 seats wide as well as full section widths.

2.6 RAILS, PANELS AND STEPS

A. End Rails:

1. **Self-storing**
   a.) Provide steel self-storing starting no higher than tier 2 **42 inches** high above seat, end rail with tubular supports and intermediate members designed with **4 inch** sphere passage requirements.
2. Material and Finish: Manufacturer's standard powder coated steel.
3. Color: **As selected by Architect from manufacturers 15 colors**.

B. Center Aisle Rails:

1. **Manual Rotating**
   a.) Provide single pedestal mount handrails **34 inches** high with terminating mid rail. Permanently attached handrail shall rotate in a permanently mounted socket for rail storage. Rail shall deploy

easily, lock in the use position, and require intent and effort to unlock, and return to the stowed position. Ends of the handrail shall return to the post, and not extend away from it. Rails having openings to avoid interference with closed decks are not acceptable.

2. Material and Finish: Manufacturer's standard powder coated steel.
3. Color: **As selected by Architect from manufacturer's 15 colors**.

C. Steps

1. **Sure-Step (Flip-up Front Aisle Step)**: Permanently hinged to the front row to ensure availability and ease of operation. Two 3" diameter x ¾" wide non-marking front wheels are provided so that the system can be operated with the Sure-Step in the stored or deployed position. All edges coined, hemmed or radiused with front edge protective rubber bumpers. Abrasive-backed non-slip tread identifier on leading edge of nosing. For aisle widths greater than 6'-0", two side by side hinged steps are provided.
2. **Intermediate Aisle Steps**: Fully enclosed, at each vertical aisle. Full radius end caps on all four edges. Adhesive-backed abrasive non-slip tread surface.

2.7 COMPONENTS

A. Decking

1. **Plywood**
   a.) 5/8 inch (16 mm) thick AC grade tongue and groove Southern Yellow Pine with clear urethane, high gloss finish.

B. Understructure:

1. Finish: Manufacturer's standard
2. Hardware finish: Manufacturer's standard
3. Posi-locks and other surfaces: Manufacturer's standard
4. Nose beam and Rear Riser beam: Nose beam shall be continuously roll-formed closed tubular shape of ASTM A653 grade 40. Riser beam shall be continuously roll-formed of ASTM A653 grade 40. Nose and Riser beam shall be designed with no steel edges exposed to spectator after product assembly. Nose beam and riser beams are through-bolted fore/aft to deck stabilizers and frame cantilevers to create the deck structure.
5. Frame: The frames are welded assemblies (one left hand, one right hand per tier) comprised of the following components:
   a.) Lower Track subassembly: ASTM A1011 Grade 50: Continuous Positive Interglide System (casterhorn) interlocks each adjacent frame casterhorn using an integral, continuous, anti-drift feature and captive interlock with adjustable row spacing at front to prevent separation and misalignment.
   b.) Lower Track Wheels: 3 per frame Not less than **5 inches** diameter by **1-1/4 inches** with non-marring soft rubber face to protect wood and synthetic floor surfaces, with molded-in sintered iron oil-impregnated bushings to fit **3/8 inch** diameter axles secured with E-type snap rings.
      1.) Option: up to 6 wheels per frame for load distribution
   c.) Slant Columns: A500 Grade B, tubular shape.
   d.) Cantilever Subassembly: Consists of ASTM A1011 Grade 50 nose connection plate, cantilever, and riser attachment plate welded together into a subassembly.
6. Sway Bracing: ASTM A653 grade 40, tension members bolted to columns.
7. Deck Stabilizer: A1011 Grade 45, member through-bolted to nose and riser at three locations per section. Securely captures front and rear edge of decking at rear edge of nose beam and lower edge of riser beam for entire length of section. Interlocks with adjacent stabilizer on upper tier using low-friction nylon roller to prevent separation and misalignment.

C. Fasteners: Vibration proof, in manufacturer's standard size and material.

2.8 FABRICATION

A. Fabricate understructure from structural-steel members in size, spacing, and form required to support design loads specified in referenced safety standard.

B. Weld understructure to comply with applicable AWS standards.

C. Round corners and edges of components and exposed fasteners to reduce snagging and pinching hazards.

D. Form exposed sheet metal with flat, flush surfaces, level and true in line, and without cracking and grain separation.

2.9 ACCESSORIES

A. Scorer's Table: Removable unit with a gray textured top of molded **2 inch** thick polymer with eased edges and integral 16 gage (1.51 mm) cantilevered comfort C-style leg.

1. Size: 8 feet or 6 feet by 18 inches by 30 inches.

B. Operating Handles: Manual operating handles; **3/4 inch** OD steel tubing. Handles to engage at the first tier.

C. Rear Wall Column Cutouts: Provide custom bleacher cutouts at rear wall building columns. Top row(s) to be cut out and fitted to meet wall column conditions.

D. Vinyl End Curtains: Include manufacturer's standard vinyl end curtains on both ends of the bleacher to reduce access beneath bleacher. Color: Selected from manufacturer's standard vinyl color chart.

2.10 GRAPHICS

A. CourtSide Graphic Logo: Decorative graphic logo that is applied to the integrally molded end cap recess area of the CourtSide **10 XC** seat module.

1. Logo is approximately **4.7 inches** x **3.5 inches** with full color.
2. Logo is trimmed to a precise custom cut shape with two mounting holes.

B. StepSign Graphic Logo: Decorative graphic logos or text-based graphic applied to the vertical surface of the front and intermediate aisle steps.

C. CourtSign Graphic Logo: Decorative graphic logos or text-based graphic applied to the vertical surface of the front skirt panel.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas where telescoping stands are to be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Tolerances:

1. Flooring [and rear wall]: Level [and plumb] within **1/8 inch** in **8 feet**.
2. Maximum bleacher force on the floor of a **27 foot** section: Static point load of less than 300 psi

B. Install telescoping stands to comply with referenced safety standard and manufacturer's written instructions.

3.3 ADJUSTING AND CLEANING

A. On completion of installation, lubricate, test, and adjust each telescoping stand unit so that it operates according to manufacturer's written operating instructions.

B. Clean installed telescoping stands on exposed surfaces. Touch up shop-applied finishes or replace components as required to restore damaged or soiled areas.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner’s maintenance personnel to adjust, operate, and maintain telescoping stands.

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 in assembly areas, including conference and meeting rooms, cafeterias, and multi-purpose rooms. Refer to plans for room locations indicated by ALS signage.

1.2 RELATED WORK

A. Division 26 Section “Electrical General Requirement”.

1.3 QUALITY ASSURANCE

A. System shall comply with CBC 11B-219, 219.4, 706 and 706.3.

1.4 SUBMITTALS

A. Provide submittals for materials and equipment in accordance with Division 1 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 areas listed below including wireless transmitters, microphones, receivers, headphones, associated hardwires and connection to the local sound system. **Williams Sound, Gentner (Starin), Listen or equal**.

B. FM transmitter: One (1) wireless FM transmitter with digital tuning and lapel microphone, one for each identified area and each classroom, conference rooms and multi-use rooms. Provide 2-AA Duracell or equal batteries for transmitter.

C. Receivers: Per code provide min. 4% of the total number of seats allowed in each assembly area, but in no case less than two (2) FM receivers, single channel, wrist strap and adjustable headphones. Provide hearing-aid compatible receivers equal to 25% of the total number of receivers required in each area, but no fewer than two. If assembly rooms do not have fixed seating, calculate the number of seats using 7sf per occupant. 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 materials and equipment with closed cell foam material to securely hold and protect all contents in place. Provide and attach engraved phenolic label “Assistive Listening System” label with lettering not smaller than ¾” in height and mechanically fastened to the exterior of the case. Provide a laminated system operation instruction and a list of system contents contained in the case. Case color to be yellow or orange. Store system in or near the assembly area.

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