Bid #B-02-2019-2020
HVAC UPGRADE AT MORRILL MIDDLE SCHOOL MUSIC ROOM

April 24, 2020

Berryessa Union School District
SAN JOSE, CALIFORNIA

This Addendum forms a part of the Contract Documents and modifies and clarifies the Notice to Bidders as noted below. Bidders must acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

GENERAL:

Item 01: COVID-19 BID OPENING PROCEDURES

1. Bids will only be received at curbside at the District Office's main entrance beginning at 9:00 am the day of the bid thru the bid due time. Please call Bonny Gregorius at 408.923.1871 or 408-396-9626 when you arrive at the District Office, and someone will come out to your vehicle to receive the Bid.

2. Bids will be opened and read aloud in the District Board Room approximately 10 minutes after the time they are due. Entry to the Board Room will be allowed 5 minutes before the Bid opening.

3. Masks are required of all attendees at the Bid opening. Please bring your own mask.

4. The District Board Room will be set up to follow Social Distancing Guidelines.

5. Once the Bids are opened, any requests for document copies must be made in writing to Bonny Gregorius at bgregorius@busd.net. She will scan and email the documents.

Item 02: Update your Safety Plan to Comply with OSHA and Santa Clara County COVID-19 Guidelines:

1. Update your Safety Plan to Comply with OSHA and Santa Clara County COVID-19 Guidelines: Contractor's Safety Plan specifically adapted for the Project to include Covid-19 Construction Field Safety Guidelines. These have been included for reference in this addendum.

2. The COVID-19 Construction Field Safety Guidelines and OSHA - Guidance on Preparing Workplaces for COVID-19 are included for reference in this addendum.

PROJECT MANUAL:

Item 03: Section 00 11 16 Notice to Bidders: Replace the section in its entirety with the attached section. Revisions have been highlighted.

Item 04: Section 00 21 13 Instructions to Bidders: Replace the section in its entirety with the attached section. Revisions have been highlighted.

Item 05: Section 00 41 26 Bid Form: Replace the section in its entirety with the attached section. Use the attached bid form when preparing and submitting your bids.

Item 06: Section 26 00 00 Electrical general Requirements:

Revised paragraph 1.05 to read:

1.05 RECORD DRAWINGS AND SYSTEM OPERATION AND MAINTENANCE

A. Refer to Division 1 Sections "Closeout Procedures", "Operation and Maintenance Data", "Project Record Documentation" and "Demonstration and Training".

B. Prepare record documents indicating the following installed conditions:
   a. Indicate actual inverts and horizontal locations of underground conduits.
   b. Equipment locations (exposed and concealed), dimensioned from prominent building lines.
   c. Accepted substitutions, contract modifications, and actual equipment and materials installed. This includes updating all equipment schedules with actual equipment provided.

C. Contractor shall maintain a complete set of documents on site that are marked-up during the construction process indicating all changes that have been made. These mark-ups shall be maintained on a regular basis so they are current as the construction is in process and available for inspection by the Architect/Engineer. Markups shall include changes to duct and pipe routing and sizing.

D. Upon completion of the construction, the contractor shall transfer all mark-ups into AutoCAD and update the contract documents into record documents and the shop/coordination drawings in to as-built documents. Upon contractor's request, engineer will make electronic data files available in order to enable contractor to expedite the production of record drawings for the project. Transfer of the electronic data files to Contractor is for informational purposes only and will only be completed after a waiver is signed by contractor and owner relieving engineer of all liability resulting from use of electronic files and all engineer costs to produce electronic files in a format suitable for distribution are paid by contractor. (Files will be transferred in AutoCad format). Architect/engineer makes no representations as to the accuracy or completeness of electronic data files. They are provided to the contractor as a start point to upgrade to Record Drawings.
   The contractor record documents shall be in the same CAD program, version, and operating system as the original Contract Drawings, and a .pdf of the documents shall be provided to the District with the CAD file as-builts. Delete architect/engineer name and seal from all documents.

E. Record and as-built document updates shall include schedules where contractor has supplied alternate manufacturers to those scheduled or where submitted performance varies.

F. Contractor shall prepare an electronic CAD file of record and as-built drawings and the drawings shall be updated with the mark-up, RFI and change orders.

G. Provide a minimum of one copy of the markup documents, a .pdf set of prints of the record and as built documents, and one electronic copy (disk) of the CAD files

DRAWING CLARIFICATIONS:

Item 07: Sheet E0.1 Electrical Symbols, Abbreviations, Notes & Drawing Index:

1. Added general note 17 to read: Contractor shall prepare electronic CAD files of record and as-built drawings including all field mark-ups, RFI's and change orders. Refer to specification 26 00 00 1.05 for additional requirement.

Item 08: Sheet E7.1 Fire Alarm Details:

1. Revised riser diagram and calculations. Connection location for fire alarm devices has changed and will be to the RPS located within our building. See AD4-E1.

Item 09: Sheet M0.1 Mechanical Legends, Notes, and Drawing Index:

1. Extended Mechanical General Note 15: "…THE ENGINEER'S AND/OR ARCHITECT'S REVIEW IS FOR THE CONVENIENCE OF THE DISTRICT IN FOLLOWING THE WORK AND DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF DEVIATIONS FROM THE REQUIREMENTS STATED IN SPECIFICATION 23 00 00 AND THE CONTRACT DOCUMENTS."

2. Added Mechanical General Note 16: “CONTRACTOR SHALL PREPARE AN ELECTRONIC CAD FILE OF RECORD AND AS-BUILT DRAWINGS AND THE DRAWINGS SHALL BE UPDATED WITH THE MARK-UP, RFI AND CHANGE ORDERS.”

Item 10: Sheet M4.1 Mechanical Schedules:

1. Extended Mechanical Rooftop Package Unit Schedule Note 2: “… ECONOMIZER DAMPER CONTROLS SHALL BE BY PELICAN WIRELESS SYSTEM.”

Item 11: Sheet M7.1 Mechanical Controls:

1. Modified mechanical controls diagram to be controlled by Pelican Wireless System. Other references to DDC controls shall be replaced with the Pelican system. Supplemental information has been provided in this addendum for the Pelican system, and the controls diagram and notes have been changed to reflect this change in controls. See AD4-M1.

Attachments (8.5x11 and 11x17):

1. Section 00 11 16 Notice to Bidders
2. Section 00 21 13 Instructions to Bidders
3. Section 00 41 26 Bid Form

4. AD4-E1
5. AD4-M1

6. Pelican Wireless Systems Installation Guide
7. Pelican 3-wire Alternate Wiring Diagram
8. Pelican GW400 Wireless Gateway Installation Guide

9. OSHA 3990 COVID-19 – Guidance on Preparing Workplaces for COVID-19
10. COVID-19 Construction Field Safety Guidelines

End of Addendum #04

DOCUMENT 00 11 16

NOTICE TO BIDDERS

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

HVAC upgrade at Morrill Middle School Music Room
Morrill Middle School
1970 Morrill Ave.
San Jose, CA 95132

MORRILL MIDDLE SCHOOL- MUSIC ROOM will be constructed utilizing a single General Contractor with a direct contract with the Owner.

Bids will be received for:

HVAC UPGRADE AT MORRILL MIDDLE SCHOOL MUSIC ROOM

Work in the Contract comprises: All work shown on the drawings, in the specifications, and in the project manual.

Pre-Bid Conference/Job Site Visit

A non-mandatory pre-bid conference/job site visit will be held to familiarize bidders with the project.

Pre-bid conference will be conducted on March 12, 2020 @ 2:30 pm

Pre-Bid conferences/job site visits will be held at:

Morrill Middle School
1970 Morrill Avenue
San Jose, CA 95132

The lowest bid shall be determined:

1. On the amount of the base bid plus any alternates.

Pre-Bid Questions/RFI's

Requests for clarification or interpretation of the Bidding Documents must be in writing.

The last day to submit questions is March 17, 2020, based on the current Bid Date. All questions shall be sent in writing and via email to the Attention of

Kirk S. McKim, McKim Design Group (Architect)
Please email to kmckim@mckimdesign.com AND COPY dchin@mckimdesign.com

Submission of Bids

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

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

Before 2:00 pm on April 28, 2020

Faxed Bids Will Not Be Accepted

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

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

Addendum
Revisions, additions or deletions will be made by written addenda only as issued by McKim Design Group. The last Addendum, if any, will be issued on/or before **April 24, 2020.**

Basis of Award
The Architect and the Owner will award the contract in accordance with Section 00 21 13 Instructions to Bidders.

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

HVAC UPGRADE AT MORRILL MIDDLE SCHOOL MUSIC ROOM

Project Documents
Project Bidding Documents will be available at:

https://www.berryessa.k12.ca.us/OUR-DISTRICT/Departments/Business-Services/Purchasing/Current-Bids/index.html

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

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

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

Schedule
Time of completion for the Project shall be Ninety (90) calendar days from the date of commencement of the Work as established in the Owner's Notice to Proceed.

Bids will be opened and read aloud in the Purchasing Department of the Owner at:

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

HVAC UPGRADE AT MORRILL MIDDLE SCHOOL MUSIC ROOM bids shall be submitted April 28, 2020, before 2:00 p.m. on the clock designated by the Owner or its representative as the bid clock. Facsimile (FAX) copies of the bid will not be accepted.

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

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

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

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

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

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

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

The Director of Industrial Relations of the State of California, in the manner provided by law, has ascertained the general prevailing rate of per diem wages and rate for legal holidays and overtime work. The Contractor must pay for any labor therein described or

classified in an amount not less than the rates specified. Copies of the required rates are on file at the Owner's business office and are available to any interested party on request.

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

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

Advertise: 1st Publication Date _____
2nd Publication Date

_____

By: _____
Its: _____

END OF DOCUMENT

DOCUMENT 00 21 13

INSTRUCTIONS TO BIDDERS

SECURING DOCUMENTS:

Project Bidding Documents will be available at:

https://www.berryessa.k12.ca.us/OUR-DISTRICT/Departments/Business-Services/Purchasing/Current-Bids/index.html

Contact: Kirk McKim: kmckim@mckimdesign.com (408) 927-8110

REGISTRATION:

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

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

BIDS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

10. **THIS CONTRACT IS NOT SUBJECT TO THE DVBE REQUIREMENTS OF EDUCATION CODE SECTION 17076.11.**

WITHDRAWAL OF BIDS:

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

OPENING OF BIDS:

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

EXAMINATION OF CONTRACT DOCUMENTS AND SITE:

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

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

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR:

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

ADDENDA OR BULLETINS:

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

EVIDENCE OF RESPONSIBILITY:

Upon the request of Owner, a bidder shall submit promptly to the Owner or its designee satisfactory evidence showing the bidder's financial resources, the bidder's experience in the type of work required by the Owner, the bidder's organization available for the performance of the Contract, and any other required evidence of the bidder's or its

subcontractor's qualifications to perform the proposed Contract. The Owner may consider such evidence before making its decision awarding the proposed Contract. Failure to submit evidence of the bidder's or its subcontractors' responsibility to perform the proposed Contract may result in rejection of the bid.

AWARD OF CONTRACT:

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

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

EXECUTION OF AGREEMENT BETWEEN OWNER AND CONTRACTOR:

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

CONTRACT BONDS:

As required by the Contract Documents, two bonds, as itemized below and in the forms presented in these Contract Documents, shall be furnished by the successful bidder on the Project at the time of entering into the Contract and filed with the Owner before the successful bidder commences any work on the Project. They shall be in the form of surety bonds issued by Admitted Surety insurers (an insurance organization authorized by the Insurance Commissioner to transact business of insurance in the State of California during this calendar year). The surety insurers must, unless otherwise agreed to by Owner in writing, at the time of issuance of the bond, have a rating not lower than "A-"

as rated by A.M. Best Company, Inc. or other independent rating companies. Owner reserves the right to approve or reject the surety insurers selected by Contractor and to require Contractor to obtain bonds from surety insurers satisfactory to the Owner.

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

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

DRAWINGS, SPECIFICATIONS AND ADDENDA OR BULLETINS:

Check back regularly to the District's website for all documents including addenda and bulletins. The contractor shall be responsible for checking and obtaining all addenda and bulletins for the project.

SUBSTITUTION OF MATERIALS:

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

PAYMENTS:

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

TAXES:

The Owner is generally exempt from payment of Federal Excise Tax on materials. The Owner will furnish exemption certificates to the Contractor to be used to obtain materials ordinarily subject to Federal Excise Tax without payment of the tax. Bidder shall deduct Federal Excise Taxes from their bid prices before submitting bids, so that such taxes will not be included in the Contract Sum.

EARLY TERMINATION:

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

TIME OF COMPLETION AND LIQUIDATED DAMAGES:

Time of completion for the Project shall be Ninety (90) calendar days from the date of commencement of the Work as established in the Owner's Notice to Proceed.

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

END OF DOCUMENT

DOCUMENT 00 41 26

BID FORM

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

Dear Board Members:

The undersigned doing business under the firm name of:

_____

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

HVAC UPGRADE AT MORRILL MIDDLE SCHOOL MUSIC ROOM
1970 Morrill Ave., San Jose, CA 95132

prepared by: McKim Design Group
4595 Cherry Avenue, First Floor
San Jose, CA 95118

for the amount of:

1) Allowance	Twenty-Five Thousand dollars,	$ 25,000.00
2) _____	dollars	$ _____
TOTAL BASE BID: (Add 1+2)	_____	dollars $ _____

11.1.6.1 HAZMAT UNIT PRICES

N/A

3) Alternate #1: Scrim sheet on ceiling at Music Room

Cost for Alternate _____ dollars $ _____

11.1.6.2 COURSE-OF-CONSTRUCTION INSURANCE REQUIREMENTS

Contractor, during the progress of the Work and until final acceptance of the Work by Owner upon completion of the entire Contract, shall maintain Builder's Risk/Course-of-Construction insurance satisfactory to the Owner, issued on a completed value basis on all insurable Work included under the Contract Documents. This insurance shall insure

against all risks, including but not limited to the following perils: vandalism, theft, malicious mischief, fire, sprinkler leakage, civil authority, sonic boom, explosion, collapse, flood, earthquake (for projects not solely funded through revenue bonds, limited to earthquakes equivalent to or under 3.5 on the Richter Scale in magnitude), wind, hail, lightning, smoke, riot or civil commotion, debris removal (including demolition) and reasonable compensation for the Architect's services and expenses required as a result of such insured loss. This insurance shall provide coverage in an amount not less than the full cost to repair, replace or reconstruct the Work. Such insurance shall include the Owner, the Architect, and any other person or entity with an insurable interest in the Work as an additional named insured.

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

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

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

_____

Our Public Liability and Property Damage Insurance is placed with:

_____

Our Workers' Compensation Insurance is placed with:

_____

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

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

Addendum No. __1___ Date _3.23.20_	Addendum No. __3____ Date _4.17.20_
Addendum No. __2___ Date _4.1.20_	Addendum No. __4____ Date _4.24.20_

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

A bidder shall not submit a bid unless the bidder's California contractor's license number appears clearly on the bid, the license expiration date and class are stated, and the bid

contains a statement that the representations made therein are made under penalty of perjury. Any bid submitted by a contractor who is not licensed pursuant to Business and Professions Code section 7028.15 shall be considered nonresponsive and shall be rejected. Any bid not containing the above information may be considered nonresponsive and may be rejected.

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

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

Print or Type Name: _____

Title: _____

Name of Company as Licensed: _____

Business Address: _____

_____

Telephone Number: _____

California Contractor License No.: _____

Class and Expiration Date: _____

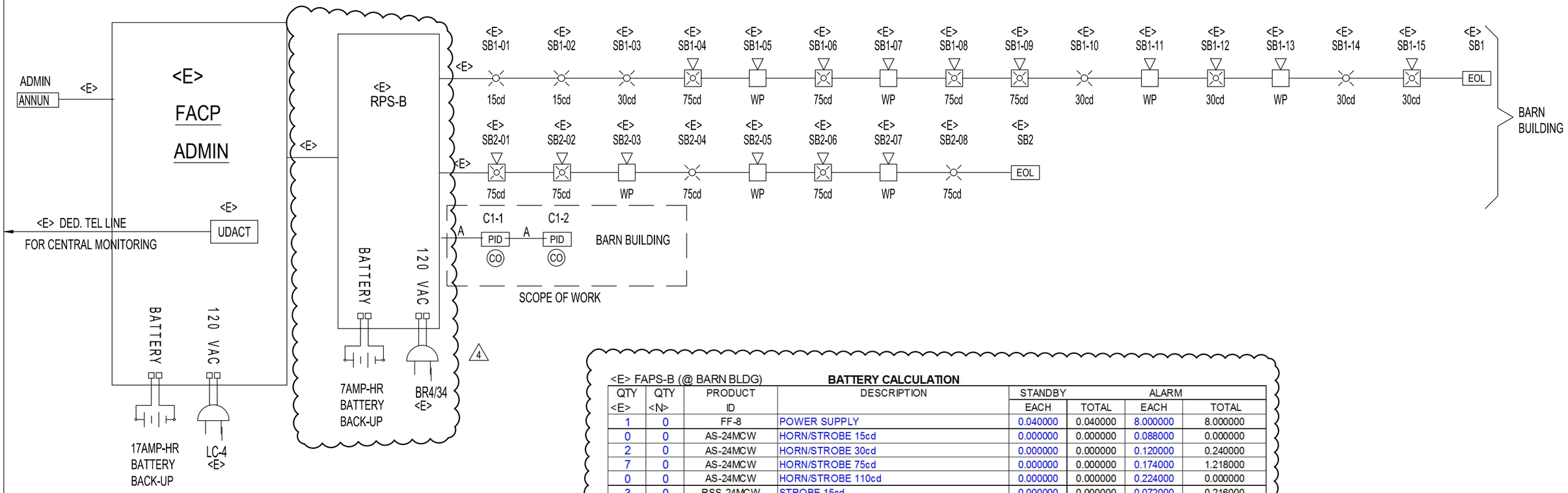
State of Incorporation, if Applicable: _____

( ) Evidence of authority to bind corporation is attached.

Dated: _____, _____

Signed: _____

END OF DOCUMENT



PARTIAL RISER DIAGRAM

<E> FAPS-B (@ BARN BLDG) **BATTERY CALCULATION**

QTY <E>	QTY <N>	PRODUCT ID	DESCRIPTION	STANDBY EACH	STANDBY TOTAL	ALARM EACH	ALARM TOTAL
1	0	FF-8	POWER SUPPLY	0.040000	0.040000	8.000000	8.000000
0	0	AS-24MCW	HORN/STROBE 15cd	0.000000	0.000000	0.088000	0.000000
2	0	AS-24MCW	HORN/STROBE 30cd	0.000000	0.000000	0.120000	0.240000
7	0	AS-24MCW	HORN/STROBE 75cd	0.000000	0.000000	0.174000	1.218000
0	0	AS-24MCW	HORN/STROBE 110cd	0.000000	0.000000	0.224000	0.000000
3	0	RSS-24MCW	STROBE 15cd	0.000000	0.000000	0.072000	0.216000
2	0	RSS-24MCW	STROBE 30cd	0.000000	0.000000	0.102000	0.204000
2	0	RSS-24MCW	STROBE 75cd	0.000000	0.000000	0.205000	0.410000
0	0	RSS-24MCW	STROBE 110cd	0.000000	0.000000	0.238000	0.000000
0	0	AH-24R	MINI-HORN	0.000000	0.000000	0.027000	0.000000
7	0	AH-24RW-WP	EXTERIOR HORN	0.000000	0.000000	0.041000	0.287000
0	2	CO1224	CO DETECTORS	0.002000	0.000000	0.004000	0.000000
			TOTAL DEVICE STANDBY CURRENT		0.040000		
			X 24 HOURS STANDBY		0.960000		
			TOTAL DEVICE ALARM CURRENT				10.575000
			TOTAL ALARM CURRENT				10.575000
			5 MINUTES OF ALARM (X .083)				0.877725
			TOTAL BATTERY REQUIREMENT				1.837725
			BATTERY SUPPLIED				7AH

4

REGISTERED PROFESSIONAL ENGINEER
S. MARK FISHER
E16525
Exp. 12-31-21
ELECTRICAL
STATE OF CALIFORNIA

Date Signed 04-23-20

McKim Design Group
Planning - Design - Architecture
4595 Cherry Ave 1st Floor
San Jose, CA 95118
ph. (408) 927-8110 fax (408) 927-8112

FIRE ALARM DETAILS

MORRILL MIDDLE SCHOOL
HVAC UPGRADE
Berryessa Union School District

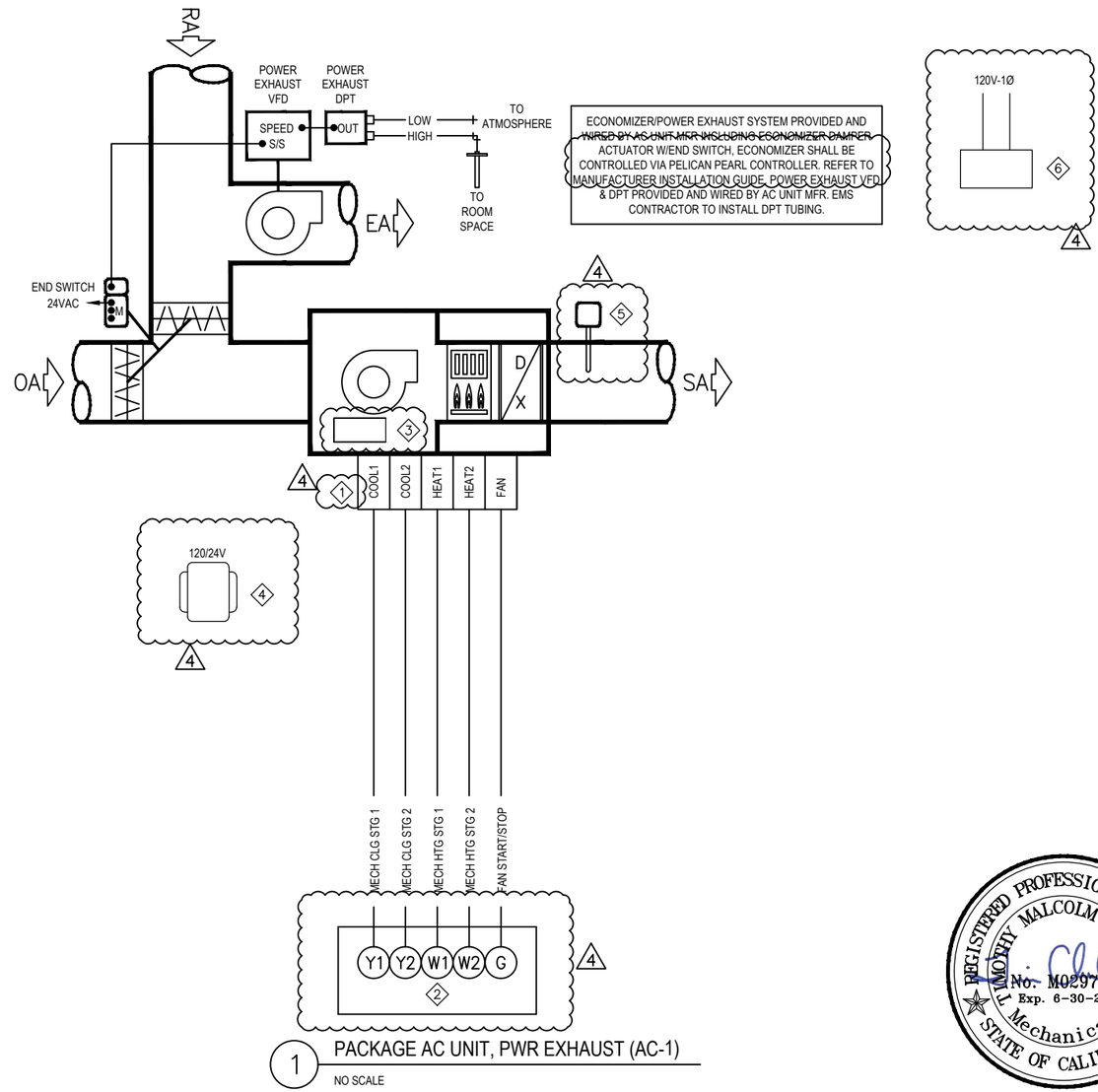
SCALE NONE	DSA # 01-118687
PROJ. NO. 1919	DATE 04-23-20
REFERENCE SHEET E7.1	
DRAWING NO. AD4-E1	

GENERAL NOTES

1. REFER TO SUPPLEMENTAL INFORMATION FOR INSTALLATION GUIDELINES FOR PELICAN WIRELESS INTERNET SYSTEM.

SHEET NOTES

1. PELICAN WIRING MODULE WM 500. TO BE LOCATED AT UNIT. MODULE SHALL BE CONNECTED TO UNIT'S CONTROLS CONNECTION STRIP.
2. PELICAN INTERNET PROGRAMMABLE THERMOSTAT MODEL TS250H.
3. PELICAN ECONOMIZER CONTROLLER TO BE LOCATED AT AC UNIT. CONNECT CONTROLLER TO THERMOSTAT (TOTAL OF 3 WIRES). FIELD INSTALL OUTSIDE AIR, SUPPLY AIR, AND RETURN AIR SENSORS. SENSORS SUPPLIED WITH CONTROLLER.
4. 24 VOLT POWER SHALL BE OBTAINED FROM AC UNIT TRANSFORMER FOR PELICAN WIRELESS SYSTEM.
5. SMOKE DETECTOR SHALL BE WIRED IN SERIES WITH AC UNIT'S START/STOP WIRINGTO ACHIEVE CODE REQUIRED AUTOMATIC SHUT DOWN BY CONTROLS CONTRACTOR.
6. PELICAN SYSTEM INTERNET GATEWAY. LOCATION SHALL BE COORDINATED WITH FACILITY STAFF. 120V BY BMS CONTRACTOR.
7. ALL CONTROLS WIRING SHALL BE CODE COMPLIANT.



1 PACKAGE AC UNIT, PWR EXHAUST (AC-1)
NO SCALE

Date Signed 04-23-20

McKim Design Group
Planning - Design - Architecture
4595 Cherry Ave 1st Floor
San Jose, CA 95118
ph. (408) 927-8110 fax (408) 927-8112

MECHANICAL CONTROLS DIAGRAM

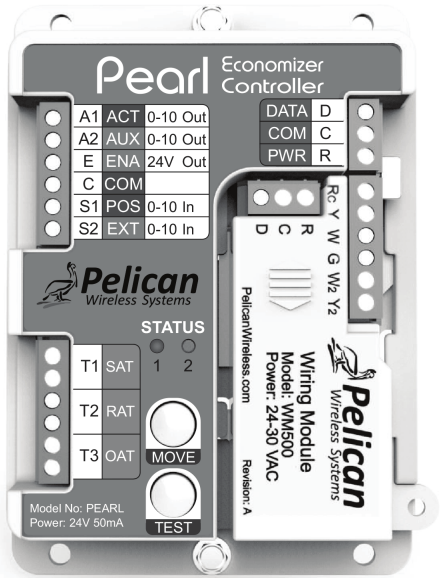
MORRILL MIDDLE SCHOOL
HVAC UPGRADE
Berryessa Union School District

SCALE NONE	DSA # 01-118687
PROJ. NO. 1919	DATE 04-23-20
REFERENCE SHEET M7.1	
DRAWING NO. AD4-M1	

Pelican
Wireless Systems

Installation Guide

PEARL Economizer Controller



Pelican Wireless Systems, 2655 Collier Canyon Rd. Livermore, CA 94551
Phone: 888.512.0490
Email: support@pelicanwireless.com Website: www.PelicanWireless.com

Compatibility

The PEARL is an add-on accessory to the Pelican thermostat (TS200 or TS250). It provides inputs, outputs and logic that allow for intelligent economization and demand ventilation control.

The PEARL is designed to control most 24VAC HVAC systems, including: gas, electric, oil, heat pump, and forced air. It is also designed to control 0-10VDC variable speed fans and modulating economizer damper actuators.

Caution

Failure to follow these instructions or improper installation, service, adjustments, maintenance, and/or use can result in personal injury, damage to personal property, and/or cause a hazardous and dangerous situation. Consult a qualified installer, distributor, or Pelican Wireless Systems for assistance or support. Follow all safety codes and regulations and all local and state building codes. Read instructions thoroughly and follow any warnings or notes.

Disconnect power during the installation of this product. All wiring must conform to local and state codes and ordinances. The PEARL is designed to communicate with Pelican products only. This guide is designed to assist Pelican Certified Contractors on installing the PEARL for economizer damper control and/or demand control ventilation applications. For Certification assistance or other support questions contact Pelican Support at 888.512.0490.

Table of Contents

Installation and Mounting 3

Wiring 6

Start Up 15

Status Lights 16

Actuator Calibration 17

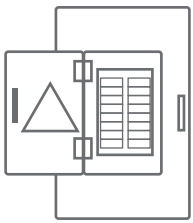
Setup and Configuration 18

Troubleshooting 20

Sequence of Operations 21

1. Switch off power

This will protect you, the HVAC equipment, and prevent electrical faults. This step is required for safety.



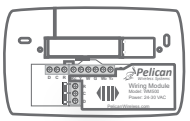
Electrical Panel

or

Electrical Switch

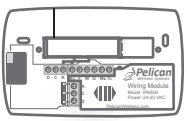
2. Remove the Pelican thermostat faceplate

Begin by removing the cover of your Pelican Thermostat (TS200 or TS250). To remove the cover, gently pull the thermostat faceplate away from the back plate.



TS200

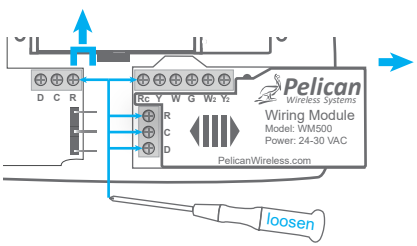
or



TS250

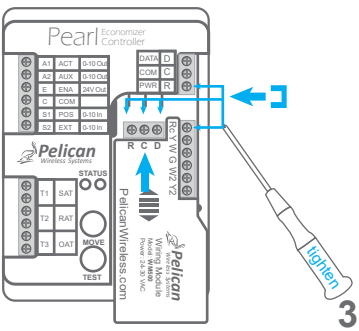
3. Remove the wire module (WM500) from the thermostat base

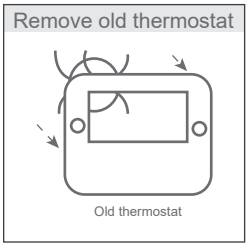
Loosen the R and Rc terminals to remove the jumper (save jumper). Loosen R, C, D terminals on WM500. Gently slide WM500 to the right to remove.



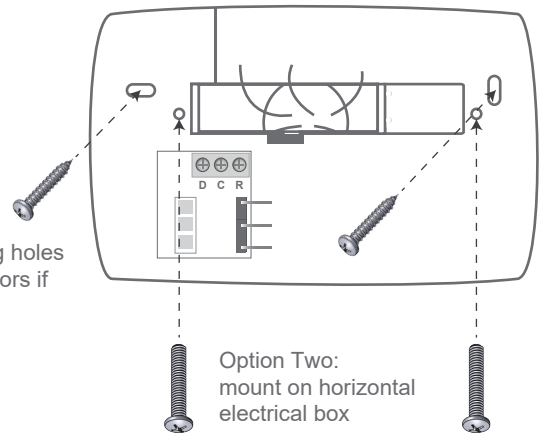
4. Insert the WM500 into the PEARL

Gently push WM500 all the way into the PEARL. Install jumper between R and Rc and tighten. Tighten R, C, D terminals on WM500.





5. Mount thermostat sub-base onto the wall

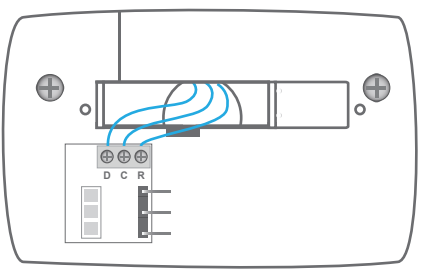


Option One:
standard mounting holes
(use dry wall anchors if
needed)

Option Two:
mount on horizontal
electrical box

6. Connect 3 unique wires to D, C, and R terminals

Record which wires used for each terminal. These wires will connect to the same terminals at the PEARL.

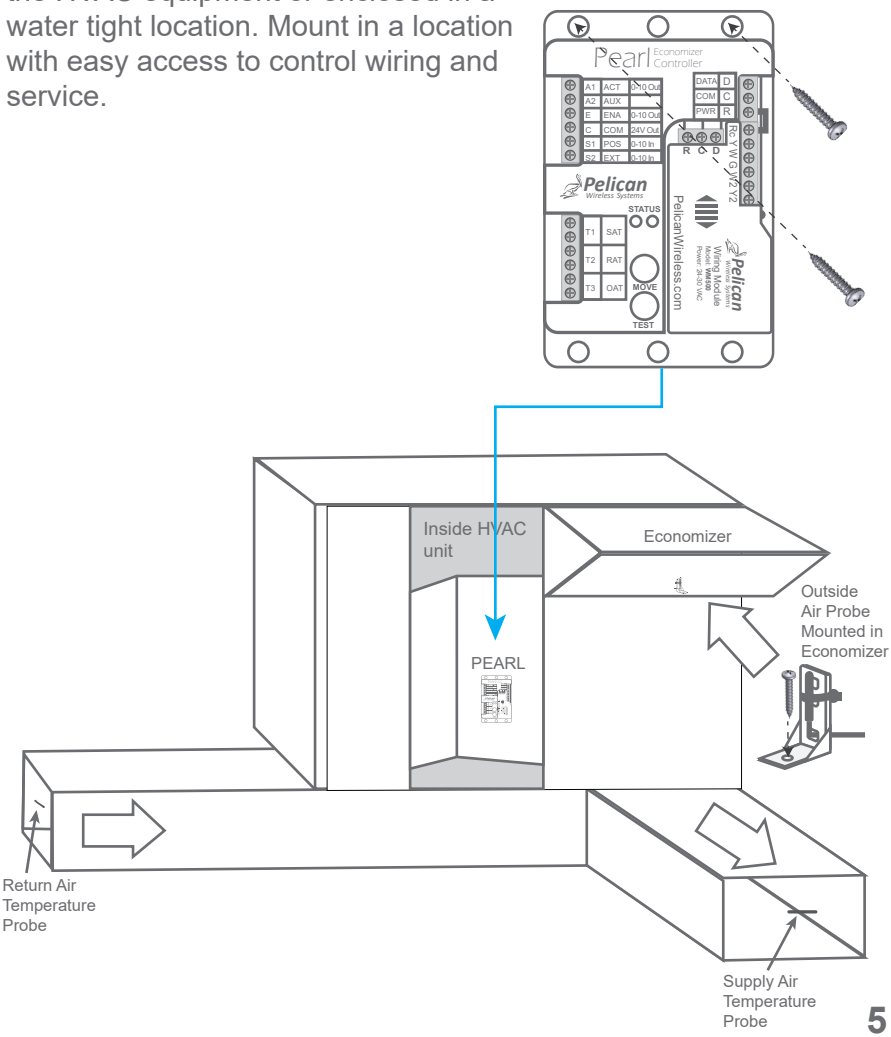


7. Attach thermostat faceplate

Line up the three pin male connector on the thermostat faceplate's electrical board with the three pin female connector on the thermostat sub-base. Gently press the thermostat front plate onto the mounted sub-base.

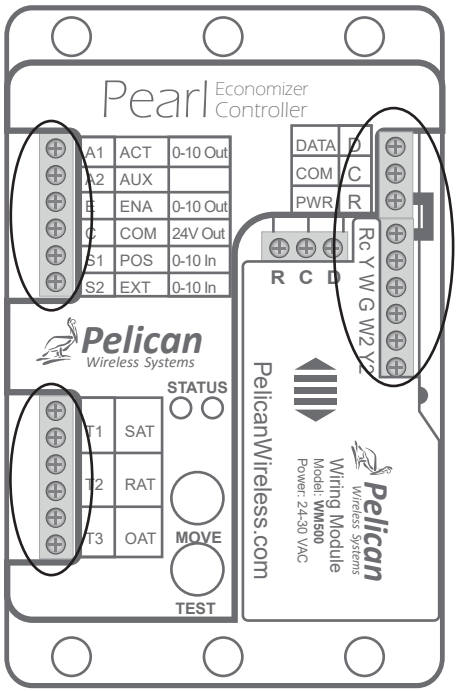
8. Install the PEARL inside the HVAC equipment

The PEARL should be mounted inside the HVAC equipment or enclosed in a water tight location. Mount in a location with easy access to control wiring and service.



The PEARL has three terminal blocks. Refer to the following charts and wiring diagrams for proper connections.

Left-Top Terminal Block



Left-Bottom Terminal Block

Right Terminal Block

Conventional Control (Right Terminals)

DATA	D	⊕
COMMON	C	⊕
24VAC PWR	R	⊕
24VAC	Rc	⊕
COOL STAGE 1	Y	⊕
HEAT STAGE 1	W	⊕
FAN or 24V VFD ENABLE	G	⊕
HEAT STAGE 2	W2	⊕
COOL STAGE 2	Y2	⊕

Heat Pump Control (Right Terminals)

DATA	D	⊕
COMMON	C	⊕
24VAC PWR	R	⊕
24VAC	Rc	⊕
COMPRESSOR STAGE 1	Y	⊕
REVERSING VALVE (O/B)	W	⊕
FAN or 24V VFD ENABLE	G	⊕
AUXILIARY HEAT	W2	⊕
COMPRESSOR STAGE 2	Y2	⊕

Economizer and VFD Control (Left-Top Terminal Block)

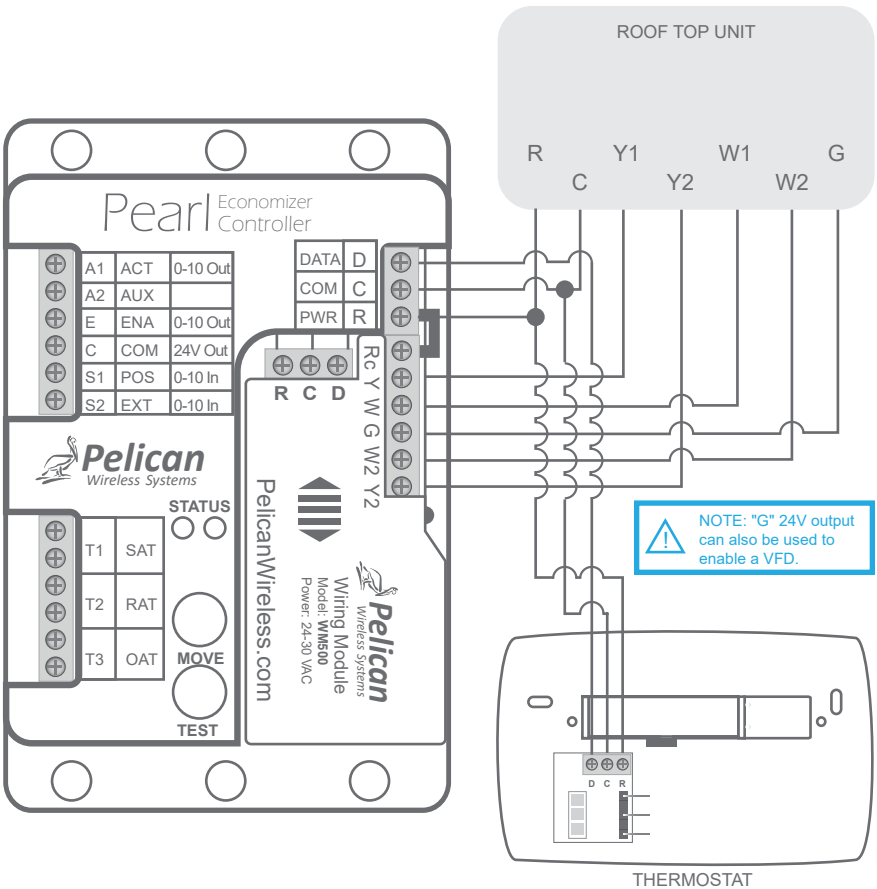
⊕	A1	ECONOMIZER ACTUATOR (output)	0-10 Out
⊕	A2	VARIABLE FREQUENCY DRIVE (output)	0-10 Out
⊕	E	24VAC ENABLE OUTPUT	24V Out
⊕	C	COMMON	NEUTRAL
⊕	S1	ACTUATOR FEEDBACK (input)	0-10 In
⊕	S2	0-10VDC INPUT	0-10 In

10K Type II Temperature Probe Inputs (Left-Bottom Terminal Block)

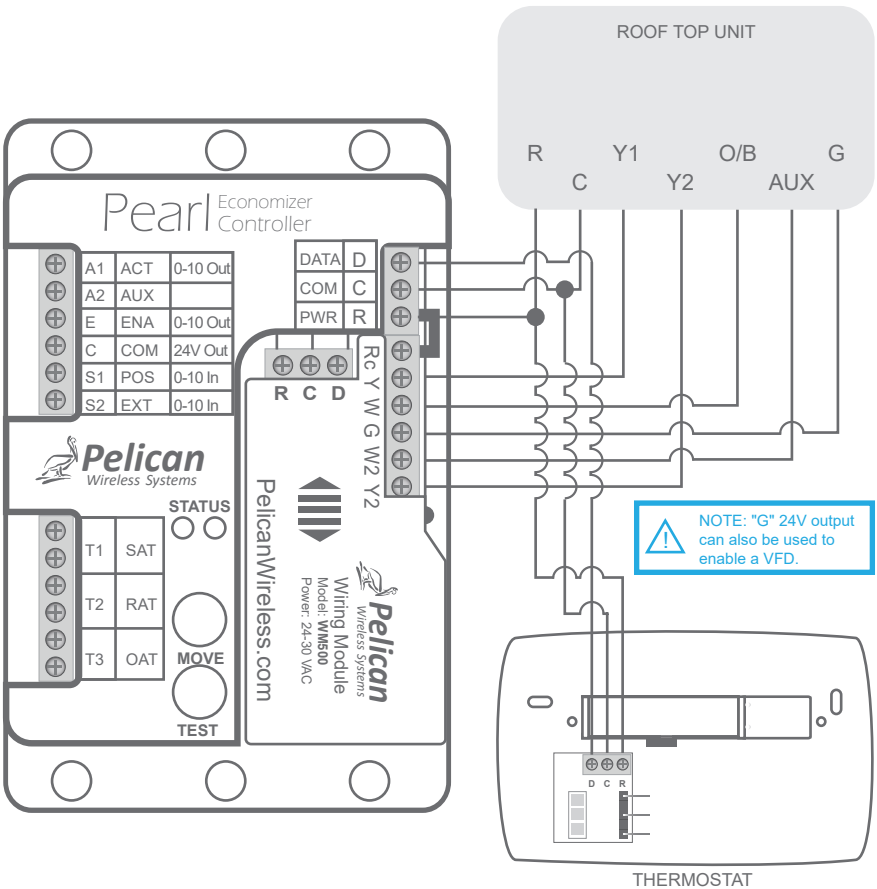
⊕ ⊕	T1	SAT	SUPPLY TEMPERATURE
⊕ ⊕	T2	RAT	RETURN TEMPERATURE
⊕ ⊕	T3	OAT	OUTSIDE AIR TEMPERATURE

⚠ CAUTION: Do **NOT** connect 24V or any other electrical voltage to these terminals.

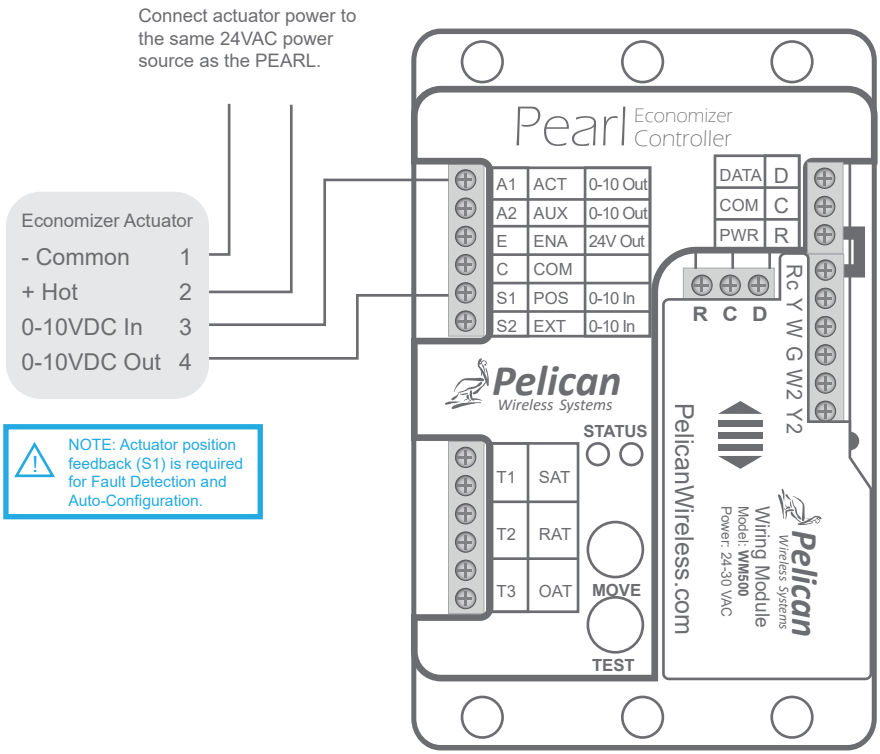
Conventional Unit Wiring (Right Terminal Block)



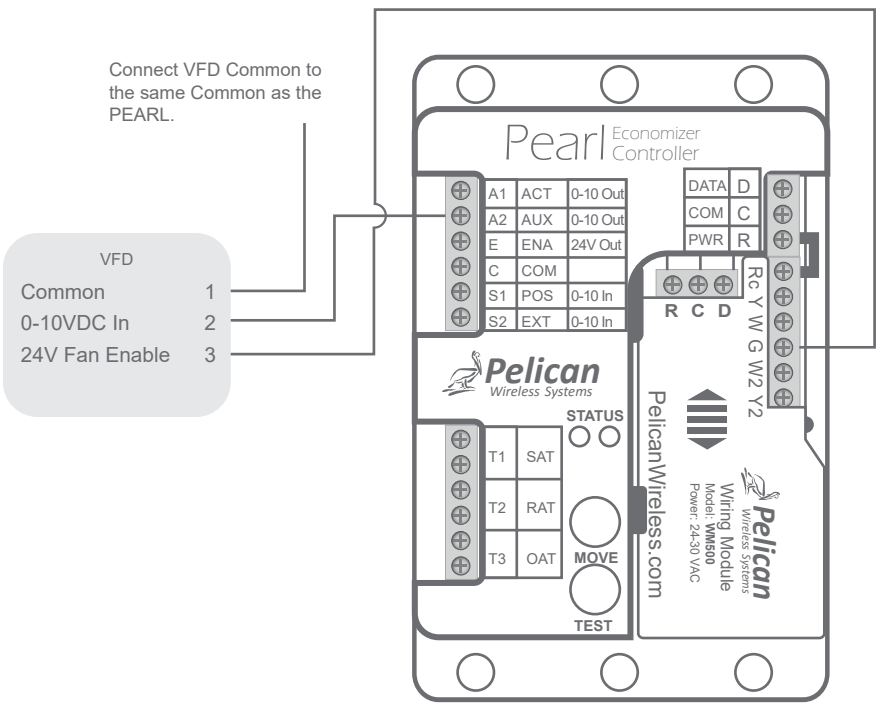
Heat Pump Unit Wiring (Right Terminal Block)



Economizer Actuator Wiring (Left-Top Terminal Block)

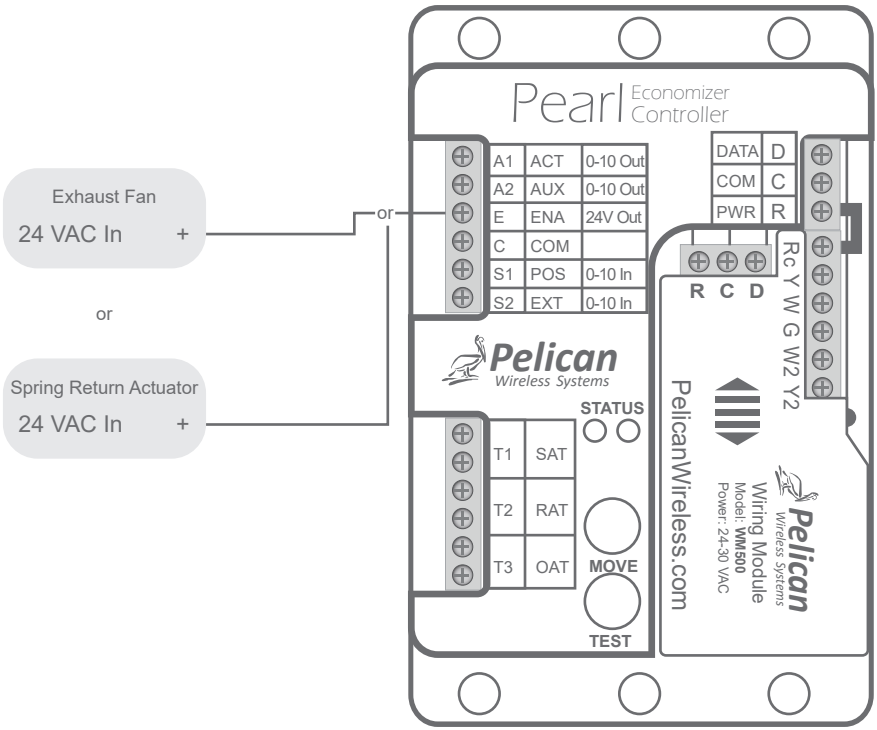


Variable Frequency Drive (VFD) Wiring (Left-Top Terminal Block)

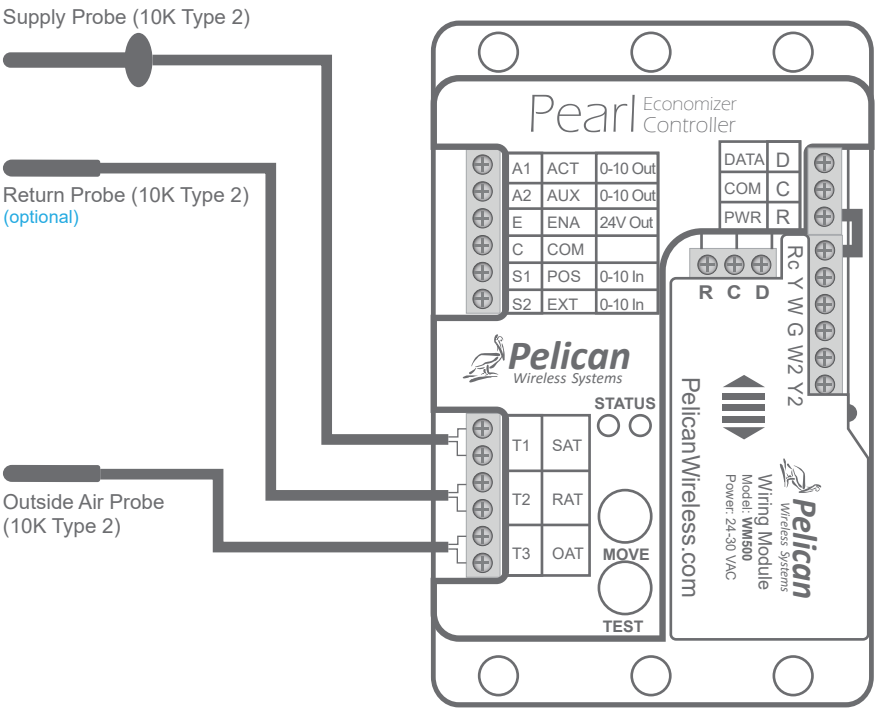


24VAC Economizer Enable Output (Left-Top Terminal Block)

The “E” terminal is energized whenever the Economizer is active and can be used to control exhaust fans or auxiliary economizer equipment.



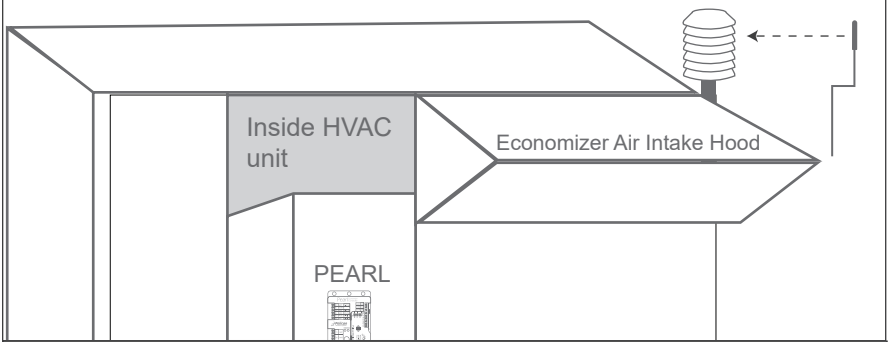
10K Type 2 Thermistor Wiring (Left-Bottom Terminal Block)



CAUTION: The Outside Air Temperature Probe must be mounted outside in a weather resistant, sunsheilded enclosure or inside the air intake hood mounted on the provided nylon mounting stand.

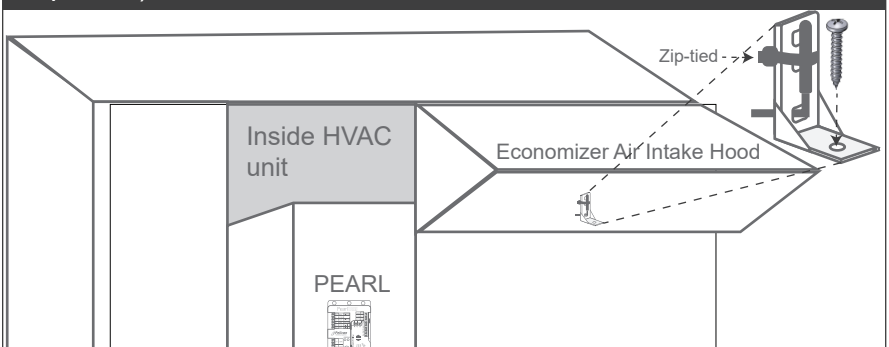
Mounting Outside Air Probe

Option 1) Install Outside Air Probe Inside PVC Enclosure



Mount outside air probe inside a weather resistant, sun shielded PVC enclosure directly outside of Air Intake Hood.

Option 2) Install Outside Air Probe Inside the Air Intake Hood



Attach the outside air probe to the provided Nylon Mount. Place mount inside the air intake hood where sun and water will not affect temperature readings.

Start Up

Restore power to the HVAC equipment.

The PEARL will need to be calibrated and configured to work with the HVAC system and must conform to local and state codes and ordinances. If being installed as part of a Utility program, the PEARL must be configured to meet all requirements for that program.

IMPORTANT

The PEARL must be correctly wired to the HVAC equipment and a Pelican thermostat following all instructions outlined in this install guide for the device to work properly.

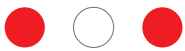
The PEARL comes with an **Automated One-Touch Calibration and Configuration** option. This configuration follows the sequence of operation found on pages 28-33. Custom configuration adjustments can be made to the PEARL by logging into the Pelican Web Portal using any Internet Enabled Smart phone, Tablet, or PC.

Completing the installation is accomplished in three steps detailed on the following pages. These steps are:

1. Verify Pearl Status Lights
2. Verify Actuator Movement
3. Perform Automated One-Touch Calibration and Configuration.

To perform these steps, the Pearl and Pelican Thermostat should be installed, all wiring should be complete, and power should be On for both devices.

Status Lights During Normal Operation

	1 green light	2 red light
Normal Operation	 Solid	 Off
No Power *Check transformer and R, C connections.*	 Off	 Off
Connecting *PEARL is synchronizing with the thermostat.*	 Blinking	 Off
No Communication *PEARL is unable to communicate with thermostat. Verify R, C, D terminals are tightly screwed down at PEARL and thermostat. Check that the R, C, D wires match from PEARL to thermostat.*	 Off	 Blinking
Damper Position Error *Damper feedback is indicating incorrect position. Check damper, actuator and S1 (POS) signal.*	 Solid	 Solid
Supply Temperature Error *Unable to read the supply temperature probe. Check supply probe, wires, and terminal (T1).*	 Solid	 *every 2 seconds* 1 Blink
Outside Temperature Error *Unable to read the outside temperature probe. Check outside air probe, wires, and terminal (T3).*	 Solid	 *every 2 seconds* 3 Blinks
Reseting *24 VAC power has just been applied or losing power. Check transformer and R, C connections.*	 Flashing	 Off

Testing the Actuator with the Move Button

Before configuring the PEARL, it is easy to test if the economizer actuator is correctly wired to the PEARL (A1) output terminal and to verify damper movement. When powered ON (A1) will output 2.0 VDC. This is the default and typically used as the closed damper position.

Pressing the MOVE button 

will output the opposite voltage or 10.0 VDC. Status light 1 (green light) will begin flashing indicating the PEARL is moving the damper to the open position.

Opening economizer damper ..... 1 1 1 1 1 *flashing*

Pressing the MOVE button again will switch the output back to 2.0 VDC. Status light 2 (blue light) will begin flashing indicating the PEARL is moving the damper to the closed position.

Closing economizer damper ..... 2 2 2 2 2 *flashing*

The MOVE button 

can be pressed as many times as required to test the actuator and damper movement. Flashing green always indicates the PEARL is outputting a high DC voltage or is opening the damper, flashing blue always indicates the PEARL is outputting a low DC voltage or is closing the damper.

Automated One-Touch Configuration

The Automated One-Touch Configuration process is designed to program the PEARL based on feedback from the equipment the PEARL has been wired to. The automated configuration sequence can also be activated Online from a Smart phone, Tablet, or PC.

IMPORTANT

The PEARL must be correctly wired to the HVAC equipment and a Pelican thermostat following the directions in this installation guide for the Automated One-Touch Setup to complete. All devices must be powered ON and communicating for setup.

To use the **Automated One-Touch Configuration** process you must have an economizer actuator with a position feedback output wired to the S1 terminal on the PEARL. At this time you will also want to set any manual actuator stops if required.

NOTE: The Automated One-Touch Configuration will program the PEARL following ASHRAE and California Title 24 CEC specifications for economization and demand control ventilation sequence of operations (pages 21). To modify the PEARL's configuration settings, you must program the PEARL through the Pelican Web Portal using an Internet Enabled Smart phone, Tablet, or PC.

To begin Automated One-Touch Configuration:

NOTE: Each step can take 1 to 2 minutes to complete.

1. Switch power **ON** at breaker box or electrical switch.

2. The PEARL will power on. Status light 1 (green light) must be solid indicating **NORMAL OPERATION**.

Normal operation ····· 1 *solid*

3. Press the TEST button to start the Automated One-Touch Configuration. Status light 1 (green light) and Status light 2 (blue light) will begin slowly blinking.

Test started ····· 1 ○ 1 ○ 1 (*blinking*) 2 ○ 2 ○ 2 (*blinking*)

4. After approximately 60 seconds Status light 2 (blue light) will begin flashing to indicate the PEARL is moving the damper to the **FULLY CLOSED** position.

Closing economizer damper ····· 2 2 2 2 2 (*flashing*)

If the economizer damper begins OPENING during Step 5 then press the MOVE button to switch to closing the damper.

Switching damper direction ····· 1 1 1 1 1 (*flashing*)

Status light 2 (blue light) will begin flashing to indicate the PEARL is now correctly moving the damper to the FULLY CLOSED position.

Closing economizer damper ····· 2 2 2 2 2 (*flashing*)

5. 30 seconds after reaching FULLY CLOSED: Status light 1 (green light) will begin flashing to indicate the PEARL is moving the damper to the **FULLY OPEN** position.

Opening economizer damper ····· 1 1 1 1 1 (*flashing*)

6. If test is successful settings will be stored. Status light 1 will be solid green. *Normal operation* ····· 1 *solid*

If any other light pattern is present, refer to the following section to determine the reason for the error. Correct the problem and then re-run the One-Touch Configuration.

Trouble Shooting One-Touch Configuration

If status light 2 turns or flashes **RED** at anytime during or after the configuration sequence, follow this guide to identify the issue:

	1 green light	2 red light
Unable to Test *PEARL is unable to communicate with thermostat. Verify R, C, D terminals are tightly screwed down at the PEARL and thermostat. Check that the R, C, D wires match from PEARL to thermostat.*	Off	Solid
No Communication *PEARL is unable to communicate with thermostat. Verify R, C, D terminals are tightly screwed down at the PEARL and thermostat. Check that the R, C, D wires match from PEARL to thermostat.*	Off	Blinking
Damper Error *Damper feedback (S1) is receiving incorrect position. Check damper and actuator.*	Solid	Solid
Supply Temperature Error *Unable to read the supply temperature probe. Check supply probe, wires, and terminal (T1).*	Solid	*every 2 seconds* 1 Blink
Outside Temperature Error *Unable to read the outside temperature probe. Check outside air probe, wires, and terminal (T3).*	Solid	*every 2 seconds* 3 Blinks

Sequence of Operation

Overview

The Pearl Economizer Controller provides automated control of HVAC Economizers and associated equipment. The controller has built-in logic to:

- Deliver cool outdoor air to reduce the need for mechanical cooling.
- Provide necessary ventilation in commercial buildings.
- Supply Demand-Controlled ventilation based on measured CO2 levels in the conditioned space.
- Control a variable speed fan based on types of demand.

The sequence of operation for each of these functions works independently except for the overlap of damper position requested by each function. The overlapping requirements are arbitrated to provide the required outdoor air for each function.

Controller Inputs/Outputs

HVAC Signals

Y, Y2, G, W, W2, O/B 24VAC – Industry standard 24VAC signal outputs directly control up to 2 stages of Heat and 2 stages Cool for both Conventional and Heat Pump systems. Auxiliary and Emergency Heat are also supported.

Economizer Signals

ACT 0-10 VDC Actuator Output – This signal modulates the damper actuator.

POS 0-10 VDC Actuator Position Input – This signal tracks damper position.

ENA 24 VAC Enable Output – This signal energizes when the Economizer is active and can be used to control exhaust fans or auxiliary economizer equipment.

Variable Speed Fan Signals

AUX 0-10 VDC Speed Output – This signal adjusts the speed of the fan.

G 24 VAC fan start/stop signal.

Temperature Sensors

SAT 10K type 2 input for Supply Temperature

RAT 10K type 2 input for Return Temperature

OAT 10K type 2 input for Outside Air Temperature

Supplied Accessories

(3) 10K type 2 temperature sensors – 1% accuracy with 0.1 °F resolution

(1) Outside Air Sensor Mount – insulated intake hood mount

Thermostat Inputs

Integrated Room Temperature Sensor: -20 °F – 128 °F with 0.1 °F resolution (Model TS200)

Integrated CO2 sensor: 0 – 2000 ppm +/- 50 ppm accuracy, 1 ppm resolution (Model TS250)

Integrated Humidity sensor: 0 – 100% RH (Model TS200H or TS250H)

Supplied Online Data

Outside Relative Humidity - local humidity levels based on installation location zip code.

Barometric Pressure - local barometric pressure levels based on installation location zip code

Optional Accessories

TA1 – wired sensor: -20 °F – 128 °F with 0.1 °F resolution or input for dry contact Occupancy sensor

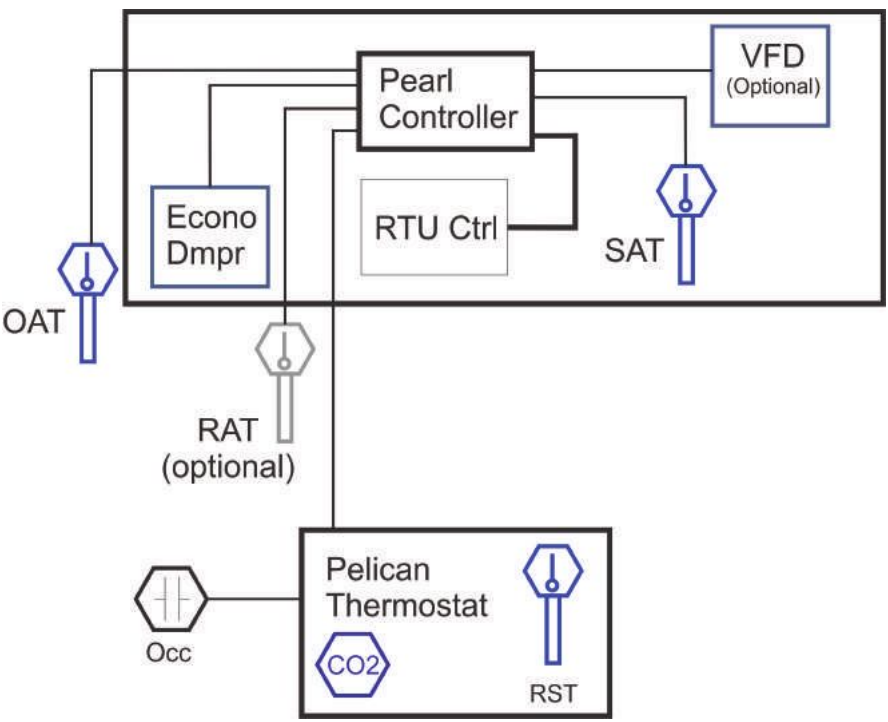
RT1 – wireless remote sensors: -20 °F – 128 °F with 0.1 °F resolution

PRX1 - wireless input for dry contact Occupancy sensor

Input/Output Wiring

All interconnect wiring for Thermostats, Pearl Controller, Optional Sensors, Actuators and HVAC signals can be done with standard 18 AWG solid thermostat wire or similar.

Location of Components in an Economizer System.



Configuration Parameters

Parameter	Range	Default
High Limit Temperature *Maximum outside temperature to allow active economization.*	Automatic or 30°F – 90°F	Automatic (blank)
Differential Limit *Economizer is only enabled if the outside temperature is at least this many degrees below the room space temperature.*	0°F – 6°F	2°F
Variable Damper *Set the damper to be Modulating (ON) or Open/Close (OFF).*	On / Off	On
Damper Voltage - Open *Set the output voltage for fully open damper.*	0.0 – 10.0 V	10.0 V
Damper Voltage - Closed *Set the output voltage for fully closed damper.*	0.0 – 10.0 V	2.0 V
Minimum Damper Position *Minimum damper percent open for ventilation.*	0 – 100%	10%
Track Damper Position *Use S1 analog input to track and verify economizer damper position.*	On / Off	On
Demand Ventilation *Adjust ventilation based on CO_2 levels and high limit setting.*	On / Off	On
VFD Cooling Fan Speed *Fan speed to use during a cooling cycle.*	0 – 100%	100%
VFD Heating Fan Speed *Fan speed to use during a heating cycle.*	0 – 100%	100%
VFD Ventilation Fan Speed *Fan speed to use during a fan circulation or ventilation cycle.*	0 – 100%	50%

Parameter	Range	Default
Input Sensor T1 *10K type 2 temperature sensor input, dry contact alarm input, or dry contact occupancy input.*	Temperature, Temp Monitor, Alarm, Occupancy	Supply Temperature
Input Sensor T2 *10K type 2 temperature sensor input, dry contact alarm input, or dry contact occupancy input.*	Temperature, Temp Monitor, Alarm, Occupancy	Return Temperature
Input Sensor T3 *10K type 2 temperature sensor input, dry contact alarm input, or dry contact occupancy input.*	Temperature, Temp Monitor, Alarm, Occupancy	Outside Temperature
Fixed Enthalpy Limit *Economizer is only enabled if the outside air enthalpy is below 28 Btu/lb or at higher elevations below the calculated enthalpy at 75°F and 50% relative humidity at that elevation.*	On / Off	Off

Thermostat Control

Thermostat sequence of operation is outside the scope of this guide. However, the operation of the Pearl Economizer Controller is directly tied to the thermostat's decision to enable Heating, Cooling or Ventilation. These decisions are based on thermostat configuration, user set points, operating schedules, Demand Response signals, and Occupancy sensors which are all fully supported by Pelican thermostats. Setup and management of the thermostat and all economizer and ventilation functions are provided through an integrated Web-App.

Economizer Control

The economizer sequence provides cool outside air to satisfy room cooling demand either by itself or in combination with mechanical cooling stages. The proprietary algorithm maximizes the use of free cooling and minimizes the use of mechanical cooling.

1. Configurable limits – High Temperature Limit, Minimum Temperature Differential, and Fixed Enthalpy Limit restrict the economizer from operating when set.

   a. High Temperature Limit – If set, the economizer will be disabled if the outside temperature (**OAT**) exceeds this value. If left unset, the system will automatically adjust the high limit based on the room temperature.

   b. Minimum Temperature Differential – The economizer will only be enabled if the outside temperature (**OAT**) is at least this many degrees below the room temperature. This should be configured based on the location's climate zone. The default is 2°F.

c. Fixed Enthalpy Limit – If enabled, the Economizer is only active if the outside air enthalpy is below 28 Btu/lb or at higher elevations below the calculated enthalpy at 75°F and 50% relative humidity at that elevation.

2. Activation – The economizer will be activated if the thermostat logic is calling for cooling and the conditions in item 1 are satisfied.

3. The outside air damper modulates in the following modes:

a. Outside temperature (**OAT**) is below room temperature and above target discharge temperature (55°F) – damper open 100%.

b. Outside temperature (**OAT**) is below Target Supply Temperature – damper will modulate to maintain Target Supply Temperature.

4. Mechanical Cooling – At the beginning of the cooling cycle, all mechanical cooling will be inhibited to give the economizer the opportunity to provide all necessary cooling. The system will monitor room temperature Rate-of-Change. If the rate of change is unacceptable, mechanical cooling will be engaged to “assist” with outside air cooling. The mechanical cooling will be staged up and down as necessary to meet space cooling demands.

5. Ventilation coordination – If Demand Ventilation is required (See next section Ventilation) the damper will modulate to meet demand for the subsystem requiring the most outside air.

Economizer Faults

The controller continually monitors inputs to verify proper operation. When a fault is detected it will be displayed as a notification on the Web-App control console. In addition, the notification will be sent to an unlimited list of designated service personnel via email and Text Message.

1. Supply Temperature (**SAT**) – A fault will be generated if a failure of the supply temperature probe is detected.

2. Outside Air Temperature (**OAT**) – A fault will be generated if a failure of the outside air temperature probe is detected.

3. Room/Space Temperature - A fault will be generated if a failure of the room air temperature probe is detected.

4. Damper Position – A fault will be generated if a failure of the economizer damper is detected. Four different faults are detected and reported:

a. Not economizing – Damper is not opening when attempting to provide outside air.

b. Economizing when not needed – Damper is open when it should be closed.

c. Excess outdoor air – Damper is open more than it should be and won't close.

d. Not modulating – Damper will not modulate to the correct position.

5. Economizer not operational – A fault will be generated if a failure of the economizer controller or thermostat electronics is detected.

6. Cool/Heat Failure – A fault will be generated if the equipment is unable to heat or cool the conditioned space.

Ventilation Control

The Pearl Economizer Controller supports multiple Ventilation modes depending on installed equipment and the desired ventilation strategy. These modes are:

1. Continuous Ventilation – In this mode outside air is delivered continuously to the space. The thermostat schedule must be set for the Fan to be “On” during all scheduled set times. Whenever the fan is running, the economizer damper will be opened to the configured “Minimum Damper Position”.

2. Scheduled Occupied Ventilation – Similar to item 1 above, the schedule is adjusted to only provide ventilation during scheduled hours of operation. For this mode, the schedule must have it's Fan set to “Auto” during non-occupied hours.

3. Temporary Reduction Ventilation – The rate of outdoor air provided to a space may be reduced by setting an hourly “Fan Circulation Time” with the schedule Fan set to “Auto”. In this mode higher ventilation will be provided for the configured number of minutes each hour with no ventilation during the remaining portion of the hour. For California Title 24 compliance the average rate must be equal or greater than the required ventilation.

4. Occupant Sensor Ventilation – If an occupancy sensor is installed, the schedule can be set to Fan “On” with Fan “Auto” during unoccupied times. In this mode the ventilation will only occur when people are present. A minimum hourly ventilation time will override this when “Fan Circulation Time” has been set.

To comply with California Title 24 the “Fan Circulation Time” must be set to a minimum of 30 minutes.

5. Pre-occupancy Ventilation – During the 1-hour period immediately before the building is normally occupied a schedule entry can be created with the Fan set to “On”. During this time ventilation will be delivered based on the “Minimum Damper Position”.

6. Demand Ventilation – The Pearl Economizer Controller will provide demand ventilation when installed with a Pelican thermostat which has an integrated CO2 sensor (Model TS250 or TS250H).

a. Activation – Ventilation will be provided when the CO2 level exceeds the CO2 set point (default = 800ppm). Ventilation will start by turning ON the Fan and opening the damper to the “Minimum Damper Position.”

b. Advanced Logic – If the CO2 level continues to increase above the CO2 set point, the damper will open further until reaching the Maximum Ventilation Position (default 100%) open at CO2 level of 1500ppm. The Damper position will be continuously modulated to maintain CO2 levels below 1000ppm.

c. Supply temperature restriction – The damper opening will be automatically restricted to limit Supply Temperature (**SAT**) to not exceed the active thermostat set point. *Note: Heat and Cool set points should be active to keep from over-heating or over-cooling the conditioned space due to ventilation from outside air.*

Ventilation Faults

All of the Economizer Faults previously listed are also active for Ventilation. In addition, if the CO2 sensor fails, a fault will be generated and continuous ventilation will be provided during occupied hours.

Variable Speed Fan

The Pearl Economizer Controller can control a Variable Speed Fan or Variable Frequency Drive (VFD).

1. Activation – This function is only active if the “Variable Speed Fan” configuration has been turned “On” and fan speeds have been configured through the management console.

2. Speed Control – Whenever the thermostat is calling for “Fan” the Fan Speed Control will be active. The control signal (**AUX**) is a 0-10 VDC output. Fan speeds are configured as percentages with 100% equal to 10.0 VDC and 0% equal to 0.0 VDC. The speed control will be set to the configured setting for the mode of operation (ie. Fan/Ventilation, Heat, Cool).

3. Fan Speed Enable – The Fan signal (**G**) can be used to enable the Variable Speed Drive Controller. It will be energized any time the system requires the Variable Speed Fan to be running.

THIS PAGE
INTENTIONALLY
LEFT BLANK

THIS PAGE
INTENTIONALLY
LEFT BLANK

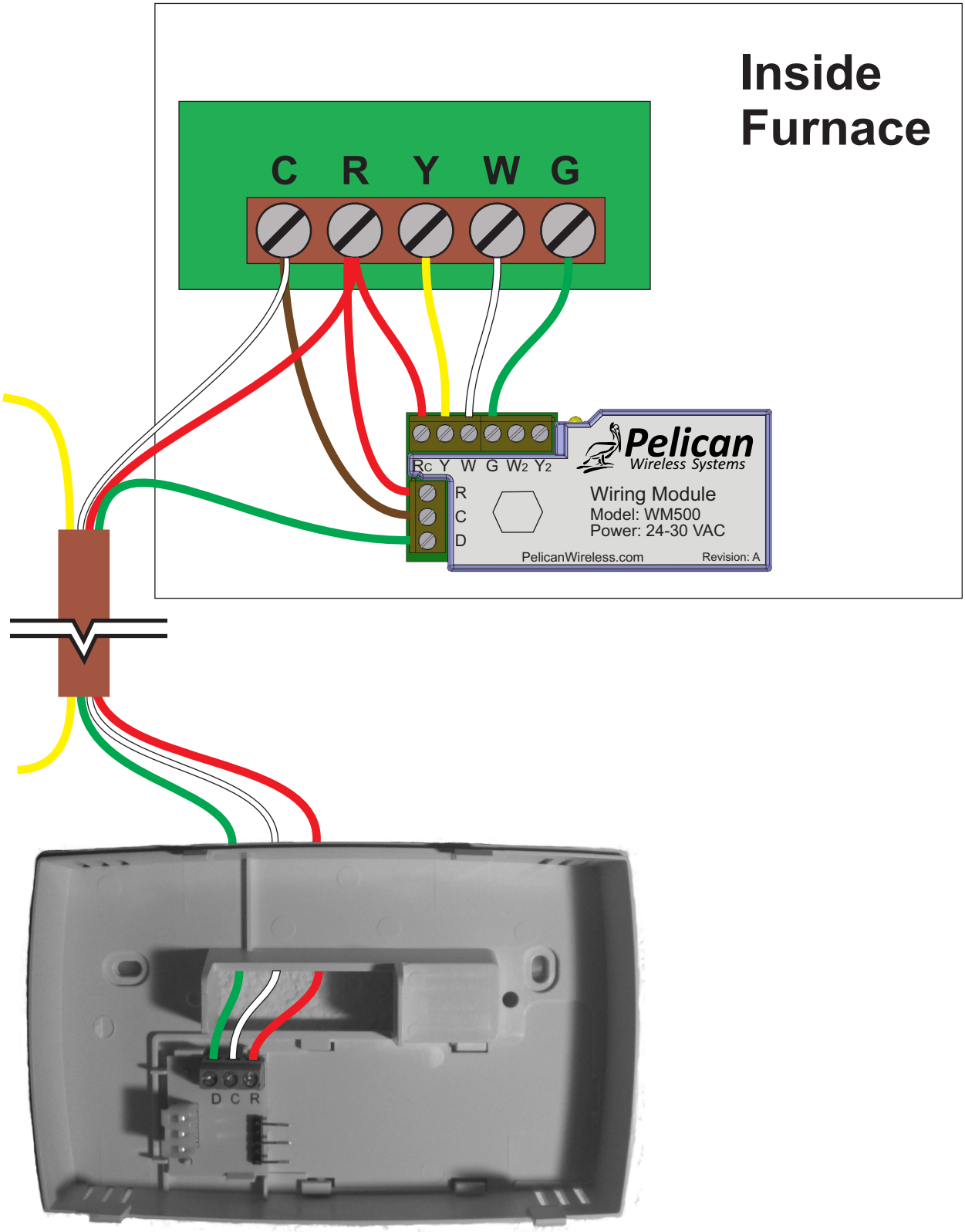
For More Information Please Visit:
www.pelicanwireless.com

Pelican Wireless Systems, 2655 Collier Canyon Rd. Livermore, CA 94551
Phone: 888.512.0490
Email: support@pelicanwireless.com Website: www.PelicanWireless.com

37-0004

Pelican Wireless Systems

Alternate Wiring Connection Diagram



The Wireless Gateway provides communication between the Pelican products installed at your site and the Internet. The Pelican devices communicate wirelessly with the Gateway. The Internet connection is established through the Ethernet port on the Gateway.

The Gateway does not require a public IP address and does not require any inbound ports to be opened on the Firewall. Sites with more restrictive Firewall settings may need additional Firewall configurations. See the section labeled “Firewall Settings” at the end of this guide for a complete explanation.

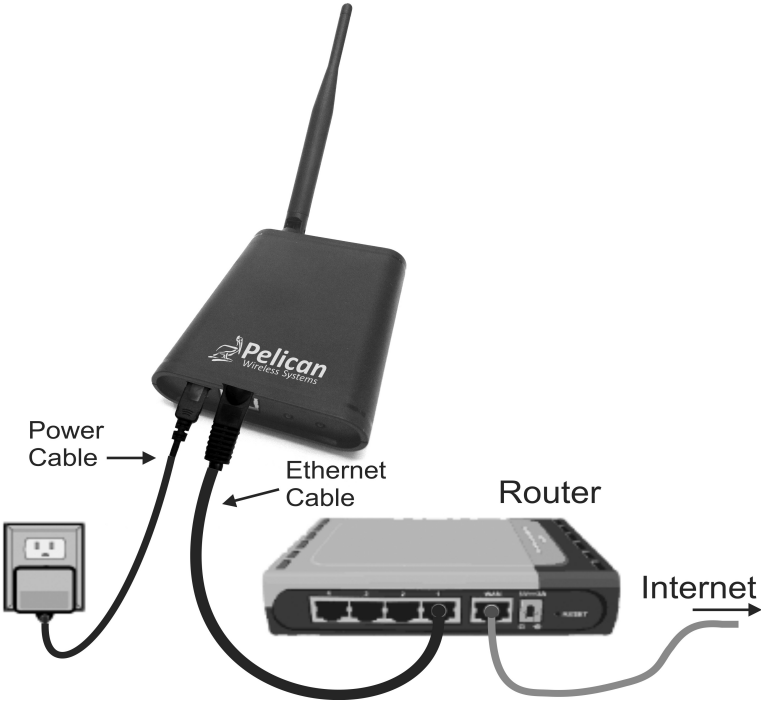
Wall Mounting

The Wireless Gateway is designed to be wall mounted using the included 3M Command Removable Strips or using the screw mount on the rear of the unit.

Find a suitable location which is:

- Within 6 feet of an electrical outlet
- At least 4 feet away from other wireless devices
- Away from large metal objects which may interfere with the wireless signal
- Above office equipment which may interfere with the wireless signal

Installation Diagram



Installation Steps (See diagram)

1. Attach the Command Strip to the back of the Wireless Gateway.
2. Insert the included Ethernet cable into the port on the Wireless Gateway.
3. Insert the other end of the Ethernet cable into a free port on the back of your Internet router (Note: The Wireless Gateway can alternately be connected to any Ethernet port at your site which has Internet access).
4. Insert the power cable from the included power adapter into the Wireless Gateway.
5. Plug the power adapter into an electrical outlet.
6. Attach the Wireless Gateway to the wall using the Command Strip you attached to the back of the unit.

Site Setup

Once your newly installed Wireless Gateway is connected and powered up, you are ready to perform the initial site setup. This is done using the Pelican “New Site Wizard”.

You will need the Serial Number printed on the side of your Wireless Gateway to complete the setup.

The New Site Wizard can be found using your browser and going to www.PelicanWireless.com. Then select the “New Site Setup” tab on the Pelican home page.

Follow the Instructions on the New Site Wizard page to complete your setup and begin accessing and programming your thermostats.

Status Indicator Lights

There are 4 indicator lights on the gateway. Two are directly above the RJ-45 Ethernet connector. They are labeled LINK and ACT. The other two indicators are labeled LAN and INTERNET.

The indicators have the following meanings:

LAN
Off – No Power
Fast Blink – Power Up (1 second)
Slow Blink – Getting IP Configuration (DHCP)
Solid On – Local Configuration Complete (LAN Active)

INTERNET
Off – Waiting for LAN
Slow Blink – Trying to reach Cloud Servers
Solid On – Internet Active (Connected to Cloud Server)

LINK – Ethernet Link Status
ACT – Ethernet Activity Indicator

Firewall Settings

The Pelican Wireless Gateway requires the ability to make outbound TCP connections from the local network to the Internet. If you are using the New Site Setup and are receiving the message “Invalid serial number or unreachable Gateway”, the gateway may be having difficulty registering itself on the Internet. The following instructions can be provided to your IT department to resolve Firewall issues.

By default the Gateway will request a local IP address using DHCP. This is identical to any standard computer or laptop which is attached to the local network. Alternatively the Gateway can be given a static IP address (Contact Pelican Technical Support for assistance in setting a static address). The Gateway does not require a public IP address and does not require any inbound ports to be opened on the Firewall. The Gateway will need to initiate 2 outbound TCP connections through the Firewall. The first one is on port 9742. The second one will be assigned to the Gateway once it makes its first connection to the Pelican Servers. This second port will be in the range of 9800-11000.

Pelican recommends modifying the firewall configuration to allow unrestricted outbound connections based on the MAC address of the Wireless Gateway. The MAC address is printed on the side of the Gateway.

If network security policy is more restricted, the firewall configuration can be modified to either allow outbound connections on the range of ports listed above or to restrict the connections to ports 9742 and the assigned port. Once port 9742 has been opened contact Pelican Technical support at to find out the unique port which has been defined for your site.

Guidance on Preparing Workplaces for COVID-19

OSHA 3990-03 2020

OSHA®
www.osha.gov

Occupational Safety and Health Act of 1970

"To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health."

This guidance is not a standard or regulation, and it creates no new legal obligations. It contains recommendations as well as descriptions of mandatory safety and health standards. The recommendations are advisory in nature, informational in content, and are intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with safety and health standards and regulations promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, the Act's General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm.

This information will be made available to sensory-impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: 1-877-889-5627.

Guidance on Preparing Workplaces for COVID-19

U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3990-03 2020

U.S. Department of Labor

Contents

Introduction 3

About COVID-19 4

How a COVID-19 Outbreak Could Affect Workplaces 6

Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2 7

Classifying Worker Exposure to SARS-CoV-2. 18

Jobs Classified at Lower Exposure Risk (Caution): What to Do to Protect Workers 20

Jobs Classified at Medium Exposure Risk: What to Do to Protect Workers 21

Jobs Classified at High or Very High Exposure Risk: What to Do to Protect Workers 23

Workers Living Abroad or Travelling Internationally 25

For More Information 26

OSHA Assistance, Services, and Programs 27

OSHA Regional Offices 29

How to Contact OSHA 32

Introduction

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus. It has spread from China to many other countries around the world, including the United States. Depending on the severity of COVID-19's international impacts, outbreak conditions—including those rising to the level of a pandemic—can affect all aspects of daily life, including travel, trade, tourism, food supplies, and financial markets.

To reduce the impact of COVID-19 outbreak conditions on businesses, workers, customers, and the public, it is important for all employers to plan now for COVID-19. For employers who have already planned for influenza pandemics, planning for COVID-19 may involve updating plans to address the specific exposure risks, sources of exposure, routes of transmission, and other unique characteristics of SARS-CoV-2 (i.e., compared to pandemic influenza viruses). Employers who have not prepared for pandemic events should prepare themselves and their workers as far in advance as possible of potentially worsening outbreak conditions. Lack of continuity planning can result in a cascade of failures as employers attempt to address challenges of COVID-19 with insufficient resources and workers who might not be adequately trained for jobs they may have to perform under pandemic conditions.

The Occupational Safety and Health Administration (OSHA) developed this COVID-19 planning guidance based on traditional infection prevention and industrial hygiene practices. It focuses on the need for employers to implement engineering, administrative, and work practice controls and personal protective equipment (PPE), as well as considerations for doing so.

This guidance is intended for planning purposes. Employers and workers should use this planning guidance to help identify risk levels in workplace settings and to determine any appropriate control measures to implement. Additional guidance may be needed as COVID-19 outbreak conditions change, including as new information about the virus, its transmission, and impacts, becomes available.

The U.S. Department of Health and Human Services' Centers for Disease Control and Prevention (CDC) provides the latest information about COVID-19 and the global outbreak: www.cdc.gov/coronavirus/2019-ncov.

The OSHA COVID-19 webpage offers information specifically for workers and employers: www.osha.gov/covid-19.

This guidance is advisory in nature and informational in content. It is not a standard or a regulation, and it neither creates new legal obligations nor alters existing obligations created by OSHA standards or the *Occupational Safety and Health Act* (OSH Act). Pursuant to the OSH Act, employers must comply with safety and health standards and regulations issued and enforced either by OSHA or by an OSHA-approved State Plan. In addition, the OSH Act's General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. OSHA-approved State Plans may have standards, regulations and enforcement policies that are different from, but at least as effective as, OSHA's. Check with your State Plan, as applicable, for more information.

About COVID-19

Symptoms of COVID-19

Infection with SARS-CoV-2, the virus that causes COVID-19, can cause illness ranging from mild to severe and, in some cases, can be fatal. Symptoms typically include fever, cough, and shortness of breath. Some people infected with the virus have reported experiencing other non-respiratory symptoms. Other people, referred to as *asymptomatic cases*, have experienced no symptoms at all.

According to the CDC, symptoms of COVID-19 may appear in as few as 2 days or as long as 14 days after exposure.

How COVID-19 Spreads

Although the first human cases of COVID-19 likely resulted from exposure to infected animals, infected people can spread SARS-CoV-2 to other people.

The virus is thought to spread mainly from person-to-person, including:

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

Medium exposure risk jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) other people who may be infected with SARS-CoV-2.

It may be possible that a person can get COVID-19 by touching a surface or object that has SARS-CoV-2 on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the primary way the virus spreads.

People are thought to be most contagious when they are most symptomatic (i.e., experiencing fever, cough, and/or shortness of breath). Some spread might be possible before people show symptoms; there have been reports of this type of asymptomatic transmission with this new coronavirus, but this is also not thought to be the main way the virus spreads.

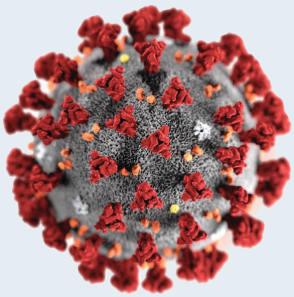
Although the United States has implemented public health measures to limit the spread of the virus, it is likely that some person-to-person transmission will continue to occur.

The CDC website provides the latest information about COVID-19 transmission: www.cdc.gov/coronavirus/2019-ncov/about/transmission.html.

How a COVID-19 Outbreak Could Affect Workplaces

Similar to influenza viruses, SARS-CoV-2, the virus that causes COVID-19, has the potential to cause extensive outbreaks. Under conditions associated with widespread person-to-person spread, multiple areas of the United States and other countries may see impacts at the same time. In the absence of a vaccine, an outbreak may also be an extended event. As a result, workplaces may experience:

- **Absenteeism.** Workers could be absent because they are sick; are caregivers for sick family members; are caregivers for children if schools or day care centers are closed; have at-risk people at home, such as immunocompromised family members; or are afraid to come to work because of fear of possible exposure.
- **Change in patterns of commerce.** Consumer demand for items related to infection prevention (e.g., respirators) is likely to increase significantly, while consumer interest in other goods may decline. Consumers may also change shopping patterns because of a COVID-19 outbreak. Consumers may try to shop at off-peak hours to reduce contact with other people, show increased interest in home delivery services, or prefer other options, such as drive-through service, to reduce person-to-person contact.
- **Interrupted supply/delivery.** Shipments of items from geographic areas severely affected by COVID-19 may be delayed or cancelled with or without notification.



This illustration, created at the Centers for Disease Control and Prevention (CDC), reveals ultrastructural morphology exhibited by the 2019 Novel Coronavirus (2019-nCoV). Note the spikes that adorn the outer surface of the virus, which impart the look of a corona surrounding the virion, when viewed electron microscopically. This virus was identified as the cause of an outbreak of respiratory illness first detected in Wuhan, China.

Photo: CDC / Alissa Eckert & Dan Higgins

Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2

This section describes basic steps that every employer can take to reduce the risk of worker exposure to SARS-CoV-2, the virus that causes COVID-19, in their workplace. Later sections of this guidance—including those focusing on jobs classified as having low, medium, high, and very high exposure risks—provide specific recommendations for employers and workers within specific risk categories.

Develop an Infectious Disease Preparedness and Response Plan

If one does not already exist, develop an infectious disease preparedness and response plan that can help guide protective actions against COVID-19.

Stay abreast of guidance from federal, state, local, tribal, and/or territorial health agencies, and consider how to incorporate those recommendations and resources into workplace-specific plans.

Plans should consider and address the level(s) of risk associated with various worksites and job tasks workers perform at those sites. Such considerations may include:

- Where, how, and to what sources of SARS-CoV-2 might workers be exposed, including:
  - The general public, customers, and coworkers; and
  - Sick individuals or those at particularly high risk of infection (e.g., international travelers who have visited locations with widespread sustained (ongoing) COVID-19 transmission, healthcare workers who have had unprotected exposures to people known to have, or suspected of having, COVID-19).
- Non-occupational risk factors at home and in community settings.

- Workers' individual risk factors (e.g., older age; presence of chronic medical conditions, including immunocompromising conditions; pregnancy).
- Controls necessary to address those risks.

Follow federal and state, local, tribal, and/or territorial (SLTT) recommendations regarding development of contingency plans for situations that may arise as a result of outbreaks, such as:

- Increased rates of worker absenteeism.
- The need for social distancing, staggered work shifts, downsizing operations, delivering services remotely, and other exposure-reducing measures.
- Options for conducting essential operations with a reduced workforce, including cross-training workers across different jobs in order to continue operations or deliver surge services.
- Interrupted supply chains or delayed deliveries.

Plans should also consider and address the other steps that employers can take to reduce the risk of worker exposure to SARS-CoV-2 in their workplace, described in the sections below.

Prepare to Implement Basic Infection Prevention Measures

For most employers, protecting workers will depend on emphasizing basic infection prevention measures. As appropriate, all employers should implement good hygiene and infection control practices, including:

- Promote frequent and thorough hand washing, including by providing workers, customers, and worksite visitors with a place to wash their hands. If soap and running water are not immediately available, provide alcohol-based hand rubs containing at least 60% alcohol.
- Encourage workers to stay home if they are sick.
- Encourage respiratory etiquette, including covering coughs and sneezes.

- Provide customers and the public with tissues and trash receptacles.
- Employers should explore whether they can establish policies and practices, such as flexible worksites (e.g., telecommuting) and flexible work hours (e.g., staggered shifts), to increase the physical distance among employees and between employees and others if state and local health authorities recommend the use of social distancing strategies.
- Discourage workers from using other workers' phones, desks, offices, or other work tools and equipment, when possible.
- Maintain regular housekeeping practices, including routine cleaning and disinfecting of surfaces, equipment, and other elements of the work environment. When choosing cleaning chemicals, employers should consult information on Environmental Protection Agency (EPA)-approved disinfectant labels with claims against emerging viral pathogens. Products with EPA-approved emerging viral pathogens claims are expected to be effective against SARS-CoV-2 based on data for harder to kill viruses. Follow the manufacturer's instructions for use of all cleaning and disinfection products (e.g., concentration, application method and contact time, PPE).

Develop Policies and Procedures for Prompt Identification and Isolation of Sick People, if Appropriate

- Prompt identification and isolation of potentially infectious individuals is a critical step in protecting workers, customers, visitors, and others at a worksite.
- Employers should inform and encourage employees to self-monitor for signs and symptoms of COVID-19 if they suspect possible exposure.
- Employers should develop policies and procedures for employees to report when they are sick or experiencing symptoms of COVID-19.

- Where appropriate, employers should develop policies and procedures for immediately isolating people who have signs and/or symptoms of COVID-19, and train workers to implement them. Move potentially infectious people to a location away from workers, customers, and other visitors. Although most worksites do not have specific isolation rooms, designated areas with closable doors may serve as isolation rooms until potentially sick people can be removed from the worksite.
- Take steps to limit spread of the respiratory secretions of a person who may have COVID-19. Provide a face mask, if feasible and available, and ask the person to wear it, if tolerated. Note: A face mask (also called a surgical mask, procedure mask, or other similar terms) on a patient or other sick person should not be confused with PPE for a worker; the mask acts to contain potentially infectious respiratory secretions at the source (i.e., the person's nose and mouth).
- If possible, isolate people suspected of having COVID-19 separately from those with confirmed cases of the virus to prevent further transmission—particularly in worksites where medical screening, triage, or healthcare activities occur, using either permanent (e.g., wall/different room) or temporary barrier (e.g., plastic sheeting).
- Restrict the number of personnel entering isolation areas.
- Protect workers in close contact with (i.e., within 6 feet of) a sick person or who have prolonged/repeated contact with such persons by using additional engineering and administrative controls, safe work practices, and PPE. Workers whose activities involve close or prolonged/repeated contact with sick people are addressed further in later sections covering workplaces classified at medium and very high or high exposure risk.

Develop, Implement, and Communicate about Workplace Flexibilities and Protections

- Actively encourage sick employees to stay home.
- Ensure that sick leave policies are flexible and consistent with public health guidance and that employees are aware of these policies.
- Talk with companies that provide your business with contract or temporary employees about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
- Do not require a healthcare provider's note for employees who are sick with acute respiratory illness to validate their illness or to return to work, as healthcare provider offices and medical facilities may be extremely busy and not able to provide such documentation in a timely way.
- Maintain flexible policies that permit employees to stay home to care for a sick family member. Employers should be aware that more employees may need to stay at home to care for sick children or other sick family members than is usual.
- Recognize that workers with ill family members may need to stay home to care for them. See CDC's Interim Guidance for Preventing the Spread of COVID-19 in Homes and Residential Communities: www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html.
- Be aware of workers' concerns about pay, leave, safety, health, and other issues that may arise during infectious disease outbreaks. Provide adequate, usable, and appropriate training, education, and informational material about business-essential job functions and worker health and safety, including proper hygiene practices and the use of any workplace controls (including PPE). Informed workers who feel safe at work are less likely to be unnecessarily absent.

- Work with insurance companies (e.g., those providing employee health benefits) and state and local health agencies to provide information to workers and customers about medical care in the event of a COVID-19 outbreak.

Implement Workplace Controls

Occupational safety and health professionals use a framework called the "hierarchy of controls" to select ways of controlling workplace hazards. In other words, the best way to control a hazard is to systematically remove it from the workplace, rather than relying on workers to reduce their exposure. During a COVID-19 outbreak, when it may not be possible to eliminate the hazard, the most effective protection measures are (listed from most effective to least effective): engineering controls, administrative controls, safe work practices (a type of administrative control), and PPE. There are advantages and disadvantages to each type of control measure when considering the ease of implementation, effectiveness, and cost. In most cases, a combination of control measures will be necessary to protect workers from exposure to SARS-CoV-2.

In addition to the types of workplace controls discussed below, CDC guidance for businesses provides employers and workers with recommended SARS-CoV-2 infection prevention strategies to implement in workplaces: www.cdc.gov/coronavirus/2019-ncov/specific-groups/guidance-business-response.html.

Engineering Controls

Engineering controls involve isolating employees from work-related hazards. In workplaces where they are appropriate, these types of controls reduce exposure to hazards without relying on worker behavior and can be the most cost-effective solution to implement. Engineering controls for SARS-CoV-2 include:

- Installing high-efficiency air filters.
- Increasing ventilation rates in the work environment.
- Installing physical barriers, such as clear plastic sneeze guards.

- Installing a drive-through window for customer service.
- Specialized negative pressure ventilation in some settings, such as for aerosol generating procedures (e.g., airborne infection isolation rooms in healthcare settings and specialized autopsy suites in mortuary settings).

Administrative Controls

Administrative controls require action by the worker or employer. Typically, administrative controls are changes in work policy or procedures to reduce or minimize exposure to a hazard. Examples of administrative controls for SARS-CoV-2 include:

- Encouraging sick workers to stay at home.
- Minimizing contact among workers, clients, and customers by replacing face-to-face meetings with virtual communications and implementing telework if feasible.
- Establishing alternating days or extra shifts that reduce the total number of employees in a facility at a given time, allowing them to maintain distance from one another while maintaining a full onsite work week.
- Discontinuing nonessential travel to locations with ongoing COVID-19 outbreaks. Regularly check CDC travel warning levels at: www.cdc.gov/coronavirus/2019-ncov/travelers.
- Developing emergency communications plans, including a forum for answering workers' concerns and internet-based communications, if feasible.
- Providing workers with up-to-date education and training on COVID-19 risk factors and protective behaviors (e.g., cough etiquette and care of PPE).
- Training workers who need to use protecting clothing and equipment how to put it on, use/wear it, and take it off correctly, including in the context of their current and potential duties. Training material should be easy to understand and available in the appropriate language and literacy level for all workers.

Safe Work Practices

Safe work practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or intensity of exposure to a hazard. Examples of safe work practices for SARS-CoV-2 include:

- Providing resources and a work environment that promotes personal hygiene. For example, provide tissues, no-touch trash cans, hand soap, alcohol-based hand rubs containing at least 60 percent alcohol, disinfectants, and disposable towels for workers to clean their work surfaces.
- Requiring regular hand washing or using of alcohol-based hand rubs. Workers should always wash hands when they are visibly soiled and after removing any PPE.
- Post handwashing signs in restrooms.

Personal Protective Equipment (PPE)

While engineering and administrative controls are considered more effective in minimizing exposure to SARS-CoV-2, PPE may also be needed to prevent certain exposures. While correctly using PPE can help prevent some exposures, it should not take the place of other prevention strategies.

Examples of PPE include: gloves, goggles, face shields, face masks, and respiratory protection, when appropriate. During an outbreak of an infectious disease, such as COVID-19, recommendations for PPE specific to occupations or job tasks may change depending on geographic location, updated risk assessments for workers, and information on PPE effectiveness in preventing the spread of COVID-19. Employers should check the OSHA and CDC websites regularly for updates about recommended PPE.

All types of PPE must be:

- Selected based upon the hazard to the worker.
- Properly fitted and periodically refitted, as applicable (e.g., respirators).

- Consistently and properly worn when required.
- Regularly inspected, maintained, and replaced, as necessary.
- Properly removed, cleaned, and stored or disposed of, as applicable, to avoid contamination of self, others, or the environment.

Employers are obligated to provide their workers with PPE needed to keep them safe while performing their jobs. The types of PPE required during a COVID-19 outbreak will be based on the risk of being infected with SARS-CoV-2 while working and job tasks that may lead to exposure.

Workers, including those who work within 6 feet of patients known to be, or suspected of being, infected with SARS-CoV-2 and those performing aerosol-generating procedures, need to use respirators:

- National Institute for Occupational Safety and Health (NIOSH)-approved, N95 filtering facepiece respirators or better must be used in the context of a comprehensive, written respiratory protection program that includes fit-testing, training, and medical exams. See OSHA's Respiratory Protection standard, 29 CFR 1910.134 at www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134.
- When disposable N95 filtering facepiece respirators are not available, consider using other respirators that provide greater protection and improve worker comfort. Other types of acceptable respirators include: a R/P95, N/R/P99, or N/R/P100 filtering facepiece respirator; an air-purifying elastomeric (e.g., half-face or full-face) respirator with appropriate filters or cartridges; powered air purifying respirator (PAPR) with high-efficiency particulate arrestance (HEPA) filter; or supplied air respirator (SAR). See CDC/NIOSH guidance for optimizing respirator supplies at: www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy.

- Consider using PAPRs or SARs, which are more protective than filtering facepiece respirators, for any work operations or procedures likely to generate aerosols (e.g., cough induction procedures, some dental procedures, invasive specimen collection, blowing out pipettes, shaking or vortexing tubes, filling a syringe, centrifugation).
- Use a surgical N95 respirator when both respiratory protection and resistance to blood and body fluids is needed.
- Face shields may also be worn on top of a respirator to prevent bulk contamination of the respirator. Certain respirator designs with forward protrusions (duckbill style) may be difficult to properly wear under a face shield. Ensure that the face shield does not prevent airflow through the respirator.
- Consider factors such as function, fit, ability to decontaminate, disposal, and cost. OSHA's Respiratory Protection eTool provides basic information on respirators such as medical requirements, maintenance and care, fit testing, written respiratory protection programs, and voluntary use of respirators, which employers may also find beneficial in training workers at: www.osha.gov/SLTC/etools/respiratory. Also see NIOSH respirator guidance at: www.cdc.gov/niosh/topics/respirators.
- Respirator training should address selection, use (including donning and doffing), proper disposal or disinfection, inspection for damage, maintenance, and the limitations of respiratory protection equipment. Learn more at: www.osha.gov/SLTC/respiratoryprotection.
- The appropriate form of respirator will depend on the type of exposure and on the transmission pattern of COVID-19. See the NIOSH "Respirator Selection Logic" at: www.cdc.gov/niosh/docs/2005-100/default.html or the OSHA "Respiratory Protection eTool" at www.osha.gov/SLTC/etools/respiratory.

Follow Existing OSHA Standards

Existing OSHA standards may apply to protecting workers from exposure to and infection with SARS-CoV-2.

While there is no specific OSHA standard covering SARS-CoV-2 exposure, some OSHA requirements may apply to preventing occupational exposure to SARS-CoV-2. Among the most relevant are:

- OSHA's Personal Protective Equipment (PPE) standards (in general industry, 29 CFR 1910 Subpart I), which require using gloves, eye and face protection, and respiratory protection. See: www.osha.gov/laws-regs/regulations/standardnumber/1910#1910_Subpart_I.
  - When respirators are necessary to protect workers or where employers require respirator use, employers must implement a comprehensive respiratory protection program in accordance with the Respiratory Protection standard (29 CFR 1910.134). See: www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134.
- The General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health (OSH) Act of 1970, 29 USC 654(a)(1), which requires employers to furnish to each worker "employment and a place of employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm." See: www.osha.gov/laws-regs/oshact/completeoshact.

OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) applies to occupational exposure to human blood and other potentially infectious materials that typically do not include respiratory secretions that may transmit SARS-CoV-2. However, the provisions of the standard offer a framework that may help control some sources of the virus, including exposures to body fluids (e.g., respiratory secretions) not covered by the standard. See: www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030.

The OSHA COVID-19 webpage provides additional information about OSHA standards and requirements, including requirements in states that operate their own OSHA-approved State Plans, recordkeeping requirements and injury/illness recording criteria, and applications of standards related to sanitation and communication of risks related to hazardous chemicals that may be in common sanitizers and sterilizers. See: www.osha.gov/SLTC/covid-19/standards.html.

Classifying Worker Exposure to SARS-CoV-2

Worker risk of occupational exposure to SARS-CoV-2, the virus that causes COVID-19, during an outbreak may vary from very high to high, medium, or lower (caution) risk. The level of risk depends in part on the industry type, need for contact within 6 feet of people known to be, or suspected of being, infected with SARS-CoV-2, or requirement for repeated or extended contact with persons known to be, or suspected of being, infected with SARS-CoV-2. To help employers determine appropriate precautions, OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk. The Occupational Risk Pyramid shows the four exposure risk levels in the shape of a pyramid to represent probable distribution of risk. Most American workers will likely fall in the lower exposure risk (caution) or medium exposure risk levels.

Occupational Risk Pyramid for COVID-19

Very High Exposure Risk

Very high exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures. Workers in this category include:

- Healthcare workers (e.g., doctors, nurses, dentists, paramedics, emergency medical technicians) performing aerosol-generating procedures (e.g., intubation, cough induction procedures, bronchoscopies, some dental procedures and exams, or invasive specimen collection) on known or suspected COVID-19 patients.
- Healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients (e.g., manipulating cultures from known or suspected COVID-19 patients).
- Morgue workers performing autopsies, which generally involve aerosol-generating procedures, on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

High Exposure Risk

High exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19. Workers in this category include:

- Healthcare delivery and support staff (e.g., doctors, nurses, and other hospital staff who must enter patients' rooms) exposed to known or suspected COVID-19 patients. (Note: when such workers perform aerosol-generating procedures, their exposure risk level becomes *very high.*)
- Medical transport workers (e.g., ambulance vehicle operators) moving known or suspected COVID-19 patients in enclosed vehicles.
- Mortuary workers involved in preparing (e.g., for burial or cremation) the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

Medium Exposure Risk

Medium exposure risk jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-19 patients. In areas without ongoing community transmission, workers in this risk group may have frequent contact with travelers who may return from international locations with widespread COVID-19 transmission. In areas where there *is* ongoing community transmission, workers in this category may have contact with the general public (e.g., schools, high-population-density work environments, some high-volume retail settings).

Lower Exposure Risk (Caution)

Lower exposure risk (caution) jobs are those that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2 nor frequent close contact with (i.e., within 6 feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers.

Jobs Classified at Lower Exposure Risk (Caution): What to Do to Protect Workers

For workers who do not have frequent contact with the general public, employers should follow the guidance for "Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2," on page 7 of this booklet and implement control measures described in this section.

Engineering Controls

Additional engineering controls are not recommended for workers in the lower exposure risk group. Employers should ensure that engineering controls, if any, used to protect workers from other job hazards continue to function as intended.

Administrative Controls

- Monitor public health communications about COVID-19 recommendations and ensure that workers have access to that information. Frequently check the CDC COVID-19 website: www.cdc.gov/coronavirus/2019-ncov.
- Collaborate with workers to designate effective means of communicating important COVID-19 information.

Personal Protective Equipment

Additional PPE is not recommended for workers in the lower exposure risk group. Workers should continue to use the PPE, if any, that they would ordinarily use for other job tasks.

Jobs Classified at Medium Exposure Risk: What to Do to Protect Workers

In workplaces where workers have medium exposure risk, employers should follow the guidance for "Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2," on page 7 of this booklet and implement control measures described in this section.

Engineering Controls

- Install physical barriers, such as clear plastic sneeze guards, where feasible.

Administrative Controls

- Consider offering face masks to ill employees and customers to contain respiratory secretions until they are able leave the workplace (i.e., for medical evaluation/care or to return home). In the event of a shortage of masks, a reusable face shield that can be decontaminated may be an acceptable method of protecting against droplet transmission. See CDC/NIOSH guidance for optimizing respirator supplies, which discusses the use of surgical masks, at: www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy.

- Keep customers informed about symptoms of COVID-19 and ask sick customers to minimize contact with workers until healthy again, such as by posting signs about COVID-19 in stores where sick customers may visit (e.g., pharmacies) or including COVID-19 information in automated messages sent when prescriptions are ready for pick up.
- Where appropriate, limit customers' and the public's access to the worksite, or restrict access to only certain workplace areas.
- Consider strategies to minimize face-to-face contact (e.g., drive-through windows, phone-based communication, telework).
- Communicate the availability of medical screening or other worker health resources (e.g., on-site nurse; telemedicine services).

Personal Protective Equipment (PPE)

When selecting PPE, consider factors such as function, fit, decontamination ability, disposal, and cost. Sometimes, when PPE will have to be used repeatedly for a long period of time, a more expensive and durable type of PPE may be less expensive overall than disposable PPE. Each employer should select the combination of PPE that protects workers specific to their workplace.

Workers with medium exposure risk may need to wear some combination of gloves, a gown, a face mask, and/or a face shield or goggles. PPE ensembles for workers in the medium exposure risk category will vary by work task, the results of the employer's hazard assessment, and the types of exposures workers have on the job.

High exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19.

Very high exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures that involve aerosol generation or specimen collection/handling.

In rare situations that would require workers in this risk category to use respirators, see the PPE section beginning on page 14 of this booklet, which provides more details about respirators. For the most up-to-date information, visit OSHA's COVID-19 webpage: www.osha.gov/covid-19.

Jobs Classified at High or Very High Exposure Risk: What to Do to Protect Workers

In workplaces where workers have high or very high exposure risk, employers should follow the guidance for "Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2," on page 7 of this booklet and implement control measures described in this section.

Engineering Controls

- Ensure appropriate air-handling systems are installed and maintained in healthcare facilities. See "Guidelines for Environmental Infection Control in Healthcare Facilities" for more recommendations on air handling systems at: www.cdc.gov/mmwr/preview/mmwrhtml/rr5210a1.htm.
- CDC recommends that patients with known or suspected COVID-19 (i.e., person under investigation) should be placed in an airborne infection isolation room (AIIR), if available.
- Use isolation rooms when available for performing aerosol-generating procedures on patients with known or suspected COVID-19. For postmortem activities, use autopsy suites or other similar isolation facilities when performing aerosol-generating procedures on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death. See the CDC postmortem guidance at: www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-postmortem-specimens.html. OSHA also provides guidance for postmortem activities on its COVID-19 webpage: www.osha.gov/covid-19.

- Use special precautions associated with Biosafety Level 3 when handling specimens from known or suspected COVID-19 patients. For more information about biosafety levels, consult the U.S. Department of Health and Human Services (HHS) "Biosafety in Microbiological and Biomedical Laboratories" at www.cdc.gov/biosafety/publications/bmbl5.

Administrative Controls

If working in a healthcare facility, follow existing guidelines and facility standards of practice for identifying and isolating infected individuals and for protecting workers.

- Develop and implement policies that reduce exposure, such as cohorting (i.e., grouping) COVID-19 patients when single rooms are not available.
- Post signs requesting patients and family members to immediately report symptoms of respiratory illness on arrival at the healthcare facility and use disposable face masks.
- Consider offering enhanced medical monitoring of workers during COVID-19 outbreaks.
- Provide all workers with job-specific education and training on preventing transmission of COVID-19, including initial and routine/refresher training.
- Ensure that psychological and behavioral support is available to address employee stress.

Safe Work Practices

- Provide emergency responders and other essential personnel who may be exposed while working away from fixed facilities with alcohol-based hand rubs containing at least 60% alcohol for decontamination in the field.

Personal Protective Equipment (PPE)

Most workers at high or very high exposure risk likely need to wear gloves, a gown, a face shield or goggles, and either a face mask or a respirator, depending on their job tasks and exposure risks.

Those who work closely with (either in contact with or within 6 feet of) patients known to be, or suspected of being, infected with SARS-CoV-2, the virus that causes COVID-19, should wear respirators. In these instances, see the PPE section beginning on page 14 of this booklet, which provides more details about respirators. For the most up-to-date information, also visit OSHA's COVID-19 webpage: www.osha.gov/covid-19.

PPE ensembles may vary, especially for workers in laboratories or morgue/mortuary facilities who may need additional protection against blood, body fluids, chemicals, and other materials to which they may be exposed. Additional PPE may include medical/surgical gowns, fluid-resistant coveralls, aprons, or other disposable or reusable protective clothing. Gowns should be large enough to cover the areas requiring protection. OSHA may also provide updated guidance for PPE use on its website: www.osha.gov/covid-19.

NOTE: Workers who dispose of PPE and other infectious waste must also be trained and provided with appropriate PPE.

The CDC webpage "Healthcare-associated Infections" (www.cdc.gov/hai) provides additional information on infection control in healthcare facilities.

Workers Living Abroad or Travelling Internationally

Employers with workers living abroad or traveling on international business should consult the "Business Travelers" section of the OSHA COVID-19 webpage (www.osha.gov/covid-19), which also provides links to the latest:

- CDC travel warnings: www.cdc.gov/coronavirus/2019-ncov/travelers
- U.S. Department of State (DOS) travel advisories: travel.state.gov

Employers should communicate to workers that the DOS cannot provide Americans traveling or living abroad with medications or supplies, even in the event of a COVID-19 outbreak.

As COVID-19 outbreak conditions change, travel into or out of a country may not be possible, safe, or medically advisable. It is also likely that governments will respond to a COVID-19 outbreak by imposing public health measures that restrict domestic and international movement, further limiting the U.S. government's ability to assist Americans in these countries. It is important that employers and workers plan appropriately, as it is possible that these measures will be implemented very quickly in the event of worsening outbreak conditions in certain areas.

More information on COVID-19 planning for workers living and traveling abroad can be found at: www.cdc.gov/travel.

For More Information

Federal, state, and local government agencies are the best source of information in the event of an infectious disease outbreak, such as COVID-19. Staying informed about the latest developments and recommendations is critical, since specific guidance may change based upon evolving outbreak situations.

Below are several recommended websites to access the most current and accurate information:

- Occupational Safety and Health Administration website: www.osha.gov
- Centers for Disease Control and Prevention website: www.cdc.gov
- National Institute for Occupational Safety and Health website: www.cdc.gov/niosh

OSHA Assistance, Services, and Programs

OSHA has a great deal of information to assist employers in complying with their responsibilities under OSHA law. Several OSHA programs and services can help employers identify and correct job hazards, as well as improve their safety and health program.

Establishing a Safety and Health Program

Safety and health programs are systems that can substantially reduce the number and severity of workplace injuries and illnesses, while reducing costs to employers.

Visit www.osha.gov/safetymanagement for more information.

Compliance Assistance Specialists

OSHA compliance assistance specialists can provide information to employers and workers about OSHA standards, short educational programs on specific hazards or OSHA rights and responsibilities, and information on additional compliance assistance resources.

Visit www.osha.gov/complianceassistance/cas or call 1-800-321-OSHA (6742) to contact your local OSHA office.

No-Cost On-Site Safety and Health Consultation Services for Small Business

OSHA's On-Site Consultation Program offers no-cost and confidential advice to small and medium-sized businesses in all states, with priority given to high-hazard worksites. On-Site consultation services are separate from enforcement and do not result in penalties or citations.

For more information or to find the local On-Site Consultation office in your state, visit www.osha.gov/consultation, or call 1-800-321-OSHA (6742).

Under the consultation program, certain exemplary employers may request participation in OSHA's **Safety and Health Achievement Recognition Program (SHARP)**. Worksites that receive SHARP recognition are exempt from programmed inspections during the period that the SHARP certification is valid.

Cooperative Programs

OSHA offers cooperative programs under which businesses, labor groups and other organizations can work cooperatively with OSHA. To find out more about any of the following programs, visit www.osha.gov/cooperativeprograms.

Strategic Partnerships and Alliances

The OSHA Strategic Partnerships (OSP) provide the opportunity for OSHA to partner with employers, workers, professional or trade associations, labor organizations, and/or other interested stakeholders. Through the Alliance Program, OSHA works with groups to develop compliance assistance tools and resources to share with workers and employers, and educate workers and employers about their rights and responsibilities.

Voluntary Protection Programs (VPP)

The VPP recognize employers and workers in the private sector and federal agencies who have implemented effective safety and health programs and maintain injury and illness rates below the national average for their respective industries.

Occupational Safety and Health Training

OSHA partners with 26 OSHA Training Institute Education Centers at 37 locations throughout the United States to deliver courses on OSHA standards and occupational safety and health topics to thousands of students a year. For more information on training courses, visit www.osha.gov/otiec.

OSHA Educational Materials

OSHA has many types of educational materials to assist employers and workers in finding and preventing workplace hazards.

All OSHA publications are free at www.osha.gov/publications and www.osha.gov/ebooks. You can also call 1-800-321-OSHA (6742) to order publications.

Employers and safety and health professionals can sign-up for *QuickTakes*, OSHA's free, twice-monthly online newsletter with the latest news about OSHA initiatives and products to assist in finding and preventing workplace hazards. To sign up, visit www.osha.gov/quicktakes.

OSHA Regional Offices

Region 1
Boston Regional Office
(CT*, ME*, MA, NH, RI, VT*)
JFK Federal Building
25 New Sudbury Street, Room E340
Boston, MA 02203
(617) 565-9860 (617) 565-9827 Fax

Region 2
New York Regional Office
(NJ*, NY*, PR*, VI*)
Federal Building
201 Varick Street, Room 670
New York, NY 10014
(212) 337-2378 (212) 337-2371 Fax

Region 3
Philadelphia Regional Office
(DE, DC, MD*, PA, VA*, WV)
The Curtis Center
170 S. Independence Mall West, Suite 740 West
Philadelphia, PA 19106-3309
(215) 861-4900 (215) 861-4904 Fax

Region 4
Atlanta Regional Office
(AL, FL, GA, KY*, MS, NC*, SC*, TN*)
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Room 6T50
Atlanta, GA 30303
(678) 237-0400 (678) 237-0447 Fax

Region 5
Chicago Regional Office
(IL*, IN*, MI*, MN*, OH, WI)
John C. Kluczynski Federal Building
230 South Dearborn Street, Room 3244
Chicago, IL 60604
(312) 353-2220 (312) 353-7774 Fax

Region 6
Dallas Regional Office
(AR, LA, NM*, OK, TX)
A. Maceo Smith Federal Building
525 Griffin Street, Room 602
Dallas, TX 75202
(972) 850-4145 (972) 850-4149 Fax

Region 7
Kansas City Regional Office
(IA*, KS, MO, NE)
Two Pershing Square Building
2300 Main Street, Suite 1010
Kansas City, MO 64108-2416
(816) 283-8745 (816) 283-0547 Fax

Region 8
Denver Regional Office
(CO, MT, ND, SD, UT*, WY*)
Cesar Chavez Memorial Building
1244 Speer Boulevard, Suite 551
Denver, CO 80204
(720) 264-6550 (720) 264-6585 Fax

Region 9
San Francisco Regional Office
(AZ*, CA*, HI*, NV*, and American Samoa,
Guam and the Northern Mariana Islands)
San Francisco Federal Building
90 7th Street, Suite 2650
San Francisco, CA 94103
(415) 625-2547 (415) 625-2534 Fax

Region 10
Seattle Regional Office
(AK*, ID, OR*, WA*)
Fifth & Yesler Tower
300 Fifth Avenue, Suite 1280
Seattle, WA 98104
(206) 757-6700 (206) 757-6705 Fax

*These states and territories operate their own OSHA-approved job safety and health plans and cover state and local government employees as well as private sector employees. The Connecticut, Illinois, Maine, New Jersey, New York and Virgin Islands programs cover public employees only. (Private sector workers in these states are covered by Federal OSHA). States with approved programs must have standards that are identical to, or at least as effective as, the Federal OSHA standards.

Note: To get contact information for OSHA area offices, OSHA-approved state plans and OSHA consultation projects, please visit us online at www.osha.gov or call us at 1-800-321-OSHA (6742).

How to Contact OSHA

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to help ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

For assistance, contact us.
We are OSHA. We can help.

OSHA®
www.osha.gov

U.S. Department of Labor

For more information:

OSHA® Occupational Safety and Health Administration

www.osha.gov (800) 321-OSHA (6742)

COVID-19 Construction Field Safety Guidelines

These field guidelines have been developed collaboratively by construction industry professional organizations, contractors, and workers' representatives in response to the need for work on construction projects that is permissible under the Health Officer's March 31, 2020 Order to continue as safely as possible.

These guidelines are not all encompassing and may need to be tailored to individual construction sites and updated as the COVID-19 pandemic evolves.

Implementation of these guidelines is within each contractor's means and methods and not a direction from the County of Santa Clara ("County") related to any specific projects.

Contractors should prepare a new or updated Site-Specific Health and Safety Plan to address Covid-19-related issue and are strongly urged to adopt and implement the following measures as industry best practices under that safety plan. Also contractors should review the latest OSHA COVID-19 Workplace Safety Guidance document (https://www.osha.gov/Publications/OSHA3990.pdf) as a resource in preparation of their Site Specific Health and Safety Plan.

1. If requested, submit to the appropriate County Representative the new or updated Site-Specific Health and Safety Plan consistent with these guidelines.
2. Establish an assembly point for staff, before the start of work each day that complies with the recommended social distancing parameters.
3. Establish a daily screening protocol for arriving staff, to ensure that potentially infected staff do not enter the work site. If workers leave and re-enter the work site during the shift, re-screen individuals prior to re-entry into the work site.
4. Provide a **daily** tailgate session reviewing site protocols to mitigate potential spread of the virus. As information is changing continuously regarding COVID-19, these tailgates should occur daily and contractors should document attendance and require worker signatures.
5. Designate a Site Safety Rep (SSR) to monitor and implement all recommended safety practices regarding the COVID-19 virus with all contractor staff members. Labor supervisors must have the authority, through consultation with the SSR, to halt all activities that do not adhere to the COVID-19 safety practices. The SSR should have training commensurate with this hazard and all required industrial hygiene practices that may be required on the job site. This person will be

responsible to maintain supplies of disinfectants and make sure that workers follow decontamination, hand washing, and distancing.

6. Employ a task specific Job Hazard Analysis (JHA).
7. For work sites where multi-employers share the same work space, inform all employers about each site-specific COVID-19 Construction Field Safety Guideline. Where one contractor enters the space of another contractor, the most stringent guidelines will be followed.
8. Regularly clean and sanitize trailers, toilets, and other enclosed spaces.
9. Social distancing must be maintained in elevators and lifts. Establish a regular cleaning and disinfection schedule for elevators and lifts.
10. Establish a cleaning and decontamination protocol prior to entry and exit of the job site. Establish a similar cleaning protocol within the job site area.
11. Establish cleaning and/or hand washing stations within the work areas. They should be of sufficient quantity to allow staff to remain within the work areas without exiting into break areas. It is critical to adequately maintain these stations continuously.
12. Establish adequate time in the work day to allow for proper cleaning and decontamination including prior to leaving the job site for the day.
13. Ensure easy access to parking, since public transit is limited
14. Assign a second safety officer to the construction site to ensure protocols are being followed.

Also, as part of the Site Specific Health and Safety Plan contractors should draft and implement a Code of Safe Practices that will at a minimum require staff/labor to follow the following guidelines during the course of their work:

a. If you feel sick, or have been exposed to anyone who is sick with COVID-19, stay at home. You may be required to provide COVID-19 test result showing a negative result (not infected with COVID-19) before being allowed to return to work. This is critical to preventing spread of the virus.
b. Wash hands frequently for at least 20 seconds with soap and water. Avoid touching your face with un-sanitized hands. Avoid touching common surfaces with bare hands.
c. Constantly observe your work distances in relation to other staff. Maintain the recommended minimum 6 feet separation from one another at all times feasible. Do not shake hands or make other unnecessary direct contact with other staff.

Do not carpool with other staff unless they are family members living within your household.

d. Do not share phones. Use of microwaves, water coolers, and other similar group equipment for breaks is suspended until further notice.
e. Clean personal tools prior to use, as well as group tools.
f. Disposable paper towels and similar waste must be deposited in non-touch waste bins.
g. Do not cough or sneeze into your hand; rather, direct coughs and sneezes into a cloth or tissue or, if not available, the crook of your arm at your elbow; follow established CDC guidelines.
h. Workers should change work clothes and shoes prior to arriving at home. All clothing should not be shook out. Launder work clothes separate from other laundry.