MADRAS ELEMENTARY SCHOOL AND BUFF ELEMENTARY SCHOOL IMPROVEMENTS

PROJECT NO.: 22140B

ADDENDUM NO. 2

DATE: September 29, 2023

BID SET

DATED: September 11, 2023

OWNER
Jefferson County School District 509J
445 SE Buff Street
Madras, OR 97741
541.475.6192

ARCHITECT
SAJ Architecture
721 SW Industrial Way, #130
Bend, Oregon 97702
541.330.6506

PROJECT INFORMATION

Project Name: Madras Elementary School and Buff Elementary School Improvements

Owner: Jefferson County School District 509J

Architect: SAJ Architecture

Architect Project Number: 22140B

NOTICE TO BIDDERS

This Addendum is issued to all registered plan holders pursuant to the Instructions to Bidders and Conditions of the Contract. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.

The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

PART 1: CONTRACTOR QUESTIONS AND CLARIFICATIONS

General Questions and Clarifications:

1. What is the project start date?
    - Answer: The anticipated project start date is at the end of the current school year, June 17th, 2024. Portions of the work may begin earlier so long as they are coordinated with the School District staff and the work does not interfere with the operation of school activities.
2. Regarding the permit, there is a discrepancy between the specifications and the general notes on the drawings. Is the owner obtaining permits?
    - Answer: Specification Section 00 21 13, 1.33, Permits and Fees, takes precedence over general notes on the drawings. Please proceed per that specification section. **Please let the design team know where the discrepancy occurs in the general notes so that we can fix the documents.**
3. Need confirmation that all architectural division 7 specs are null and void as A-Tech specifies the roofing and sheet metal products on the roof.

    - Answer: There are other, non-roof-related portions of the project that are covered by the architectural Division #7 specification sections.
        - 07 26 00 Vapor Retarders
            - Delete this section from the specifications.
        - 07 27 27 Self-Adhered Vapor Permeable Air Barrier
            - This section will remain in the specifications. No revisions.
        - 07 62 00 Sheet Metal Flashing and Trim
            - This section will remain in the specifications. No revisions.
        - 07 92 00
            - This section will remain in the specifications. No revisions.

Buff Elementary Questions and Clarifications:

1. Buff ES, Advertisement for Bid: Restroom upgrades, there are no drawings for this scope in the electrical package, are drawings missing?
    - Answer: Please see Addendum #1. The project scope for both schools has been revised in the Advertisement for Bid, and there are no restroom upgrades in the Buff ES.
2. Buff ES, Drawing E0.01 & E2.01: The MEP Coordination Schedule on E0.01 shows Division 26 to furnish and install disconnects. Please clarify if the disconnects are included in the mechanical package.
    - Answer: Disconnect switches are called out to be factory mounted with all AC- units, so the electrical contractor will not need to provide disconnects for these units. For make up air units and exhaust fans, the electrical contractor will need to provide the fused disconnect or motor starter switch as noted in the MEP Coordination Schedule.
3. Buff ES: For alternate 1, architectural drawings and specs are not worded the same.
    - Answer: Buff Elementary School Alternate #1 is worded correctly in the specifications. It has been revised in the drawing set on Sheet to match.
4. Buff ES Roof Clarifications:
    - Install 5 new retrofit drains on Roof E.
    - New fascia metal wrap is required around all perimeters on Roof E.
    - Base bid Roof A: All HVAC's will be replaced with new HVAC's during the course of the project. Roofers will need to insulate curbs and install new 60mil PVC fully adhered membrane, including all incidentals.
    - Alternate 1 - Roof C, D & E: HVAC's will be replaced with new HVAC's during the course of the project. Roofers will need to insulate curbs and install new fully adhered 60mil TPO membrane, including all incidentals.
    - Alternate 2 - Roof B: HVAC's will be replaced with new HVAC's during the course of the project. Roofers will need to insulate curbs and install new SBS modified roof membrane, including all incidentals.

Madras Elementary Questions and Clarifications:

1. Madras ES, Drawing E1.01: This drawing shows an A1 fixture on a Luminaire Schedule. There are no fixtures shown on the electrical drawings. Please clarify.
    - Answer: There will not be any Type A1 luminaires installed on this project.
2. Madras ES, Alternate #2 Restrooms: There are no electrical drawings for this area. Please clarify.
    - Answer: There will not be any electrical work associated with this alternate.
3. Madras ES, Drawing E2.01 (Keynote #7): Says to provide duct detectors for existing equipment. There are no equipment schedules showing the existing mechanical equipment. Are there any equipment locations showing the locations? Will there be drawings provided so this scope can be included in the pricing, or should this be excluded.
    - Answer: There are two existing units (RD-1 and AH-5) in the cafeteria area that move more than 2000 CFM air and will require duct-type smoke detectors. Presence of smoke at these detectors will shut down the respective unit, and these units will both shut down when the fire alarm system goes into general alarm.
4. Madras ES: Don't see a wall type callout for the wheelchair lift area storage room. Please advise.
    - Answer: A description of this wall type has been added to drawing 1/A2.18. It is 2x6 wood stud-framed with 1 layer of 5/8" type-x gypsum wall board on each side.
5. Madras ES: Confirm that the Jurisdiction Having Authority will allow the relocation and reuse of the existing poured-in-place concrete catch basin at the revised street corner as shown in the drawings.
    - Civil drawings have been revised to show a new catch basin being installed. The existing catch basin is to be removed.
6. Madras ES: Please provide the location of all <u>existing</u> fire smoke dampers, per OFC all existing or new FSD require the monitoring of the Open <u>and</u> Closed positions of the vanes and not the actuator

and the monitoring of the power source to each FSD. =3 points of monitoring and 1 point for control per FSD and testing of same.

- Answer: Bidding contractor shall refer to all available record drawings and coordinate with the control's contractor.

7. Madras ES: Will the Mechanical contractor provide confirmation of AHU shutdown before FSD's are activated to avoid "blowout" of ductwork?
    - Answer: Bidding contractor shall refer to all available record drawings and coordinate with the control's contractor.
8. Madras ES: Is the school to be occupied during construction? If so who provided the required "Fire Watch"?
    - Answer: School will not be in session during construction.

9. Madras ES Roof Clarifications:
    - Roofs M, N, O, P, Q & R are uninsulated above the roof deck. Add a ½'' HD cover board fully adhered to the existing roof system. Install fully adhered 60 mil TPO membrane.
    - Roof H is uninsulated above the roof deck. Add a ½'' HD cover board mechanically attached to the existing roof system. Install fully adhered 60 mil TPO membrane.
    - Roof H: New Bilco E-50TB insulated roof hatch or equivalent, and a ladder are to be installed.
    - Alternate 1 – Madras Elementary School Roofs E & D: HVAC's will be replaced during the course of the project (see mechanical). Roofers will need to insulate curbs and install new membrane.
10. Madras ES: Please verify that intended usage of the FLSS is for Mass Notification and requires Intelligibility in accordance with NFPA 72?
    - Answer: See specification section 28 4621-1.05-5-1-b.
11. Madras ES: The specifications (284621 2.01) are calling out the manufacture of "Siemens MXL" this is an obsolete system, are there any other approved manufactures for the new system?
    - Answer: See Addendum #2 specification section 28 4621.
12. Madras ES: There is a basement in this building with occupied spaces, we need drawings showing these areas to complete a design.
    - Answer: See revised drawing under Addendum #2
13. Madras ES: There are fire roll-up doors in the building that currently appear to be controlled via a fusible link, is this system to remain?
    - Answer: To remain as fusible link, or as directed by the School District.

PART 2: REVISIONS TO THE PROJECT MANUAL

1. 00 10 00 Summary of the Work
    - **a.** Similar to the change made in Section 00 11 13 Advertisement for Bids in Addendum #1, revise the description of the project scope as follows:
      Madras Elementary School:
      1. **New Single-Ply Roof/Parapet Cap**
      2. **Interior/Exterior Accessibility Upgrades**
      3. **Restroom Upgrades**
      4. **HVAC Equipment Upgrades**
      5. **New Fire Alarm System**

      Buff Elementary School:
      1. **New Single-Ply Roof/Parapet Cap**
      2. **HVAC Equipment Upgrades**
2. 07 26 00 Vapor Retarders
    - a. Remove this specification section from the project manual.
3. 22 05 00 General Provisions of Plumbing and HVAC
    - a. Add this specification section to the project manual.
4. 23 05 93 Testing, Adjusting, and Balancing for HVAC
    - a. Add this specification section to the project manual.
5. 28 46 21 Addressable Fire Alarm
    - a. Replace the original specification section with the attached specification section.

PART 3: REVISIONS TO THE WORKING DRAWINGS

Buff Elementary School:

1. A0.01 Title Sheet / General Information
    a. Revised Bid Alternate #1 description to include Roof E. Now matches specification description of alternate #1.
2. M0.01 Mechanical Schedules
    a. Revised Existing Exhaust Fan and Hood Schedule
3. M0.06 Mechanical Details
    a. Revised Detail 8/M0.06. Added field verification note.
4. E0.01 Electrical Schedules
    a. Revised MEP Coordination Schedule 1 regarding note #6
5. R1.01 Roof Plan
    a. Title block outline now black. No project revisions shown
6. R1.02 Roofing Details
    a. Detail 5/R-BES: Added fascia wrap note to detail
7. R1.03 Roofing Details
    a. Added Detail 16/R-BES
8. R1.04 Roof Detail Callout Maps
    a. Added callouts for new detail 16/R-BES
9. R1.05 Roof Detail Callout Maps
    a. Title block outline now black. No project revisions shown

Madras Elementary School:

1. A0.01 Title Sheet / General Information
    a. Revised Sheet Index to show new Roof Improvement Details sheet R1.04.
2. C1.01 Existing Conditions and Removal Plan
    a. Revised Note #9 to show the existing catch basin being removed.
3. C2.01 Grading and Paving Plan
    a. Revised Note #11 to show new catch basin being installed.
4. A2.11 Reference Demolition Plan
    a. Basement Plan is now shown.
5. A2.12 Reference Floor Plan
    a. Basement Plan is now shown.
6. A2.18 Accessible Lift
    a. Added description of the new storage room wall type.
7. M0.03 Mechanical Details
    a. Revised Detail 7/M0.03. Now showing motorized discharge damper.
8. M2.01 Mechanical Partial Floor Plans
    a. Added partial mechanical floor plan showing corridors
9. E0.01 Electrical Schedules and Details
    a. Luminaire Schedule has been removed.
10. E2.01 Electrical Floor Plan
    a. Basement Plan is now shown.
    b. Revised Keynote #7
    c. Various revisions made to the main floor plan
11. ED2.01 Electrical Demolition Plan
    a. Revised Keynote #3
12. R1.01 Roof Plan
    a. Title block outline now black. No project revisions shown
13. R1.02 Roofing Details
    a. Title block outline now black. No project revisions shown

14. R1.03 Roofing Details
    a. Added Details 17/R-MES and 18/R-MES
15. R1.04 Roofing Details
    a. New roofing detail sheet. Added detail 19/R-MES
16. R1.05 Roof Detail Callout Maps
    a. Previously titled R1.04
    b. Revised detail callouts
17. R1.06 Roof Detail Callout Maps
    a. Previously titled R1.05
    b. Title block outline now black. No project revisions shown

PART 4: SUBSTITUTION APPROVALS / REJECTIONS

	SECTION	MANUFACTURER/ ITEM	PROPOSED SUBSTITUTION	COMMENT
1	23 33 00, 2.03	Replacement backdraft dampers for roof exhaust fans	Pottorff Model CBD-150	Accepted
2	23 33 00, 2.05	Replacement motorized and modulating dampers for roof exhaust fans and roof hoods	Pottorff Model CD-41 with Belimo Actuators	Accepted as Noted
3	23 74 16, 2.03	AC-1 to AC-26; RTU-1, 2 Carrier RTUs	TempMaster Omni Pro RTUs	**NOT** Accepted
4	23 74 33, 2.01	1-HV-1, 2; MAU-1 Modine	Valent DOAS (Subsidiary of Greenheck)	**NOT** Accepted
5	23 74 16, 2.03, A	HVAC Rooftop Units at Madras ES and Buff ES	JCI/Fraser-Johnston Models ZLG and ZYG	**NOT** Accepted

THE BIDDER SHALL NOTIFY ALL SUB-BIDDERS OF THIS ADDENDUM AND SHALL ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY INSERTING THE ABOVE ADDENDUM NUMBER IN THE SPACE PROVIDED ON THE BID FORM PRIOR TO SUBMITTING BIDS. FAILURE TO DO SO MAY SUBJECT THE BIDDER TO DISQUALIFICATION.

ATTACHMENTS:

1. Pre-bid Meeting Attendance sign-in Sheets
2. Specification Section 22 05 00 General Provisions of Plumbing and HVAC
3. Specification Section 23 05 93 Testing, Adjusting, and Balancing for HVAC
4. Specification Section 28 46 21 Addressable Fire Alarm
5. Buff ES, Sheet A0.01 Title Sheet / General Information
6. Buff ES, Sheet M0.01 Mechanical Schedules
7. Buff ES, Sheet M0.06 Mechanical Details
8. Buff ES, Sheet E0.01 Electrical Schedules
9. Buff ES, Sheet R1.01 Roof Plan
10. Buff ES, Sheet R1.02 Roofing Details
11. Buff ES, Sheet R1.03 Roofing Details
12. Buff ES, Sheet R1.04 Roof Detail Callout Maps
13. Buff ES, Sheet R1.05 Roof Detail Callout Maps
14. Madras ES, Sheet A0.01 Title Sheet / General Information
15. Madras ES, Sheet C1.01 Existing Conditions and Removal Plan
16. Madras ES, Sheet C2.01 Grading and Pavement Plan
17. Madras ES, Sheet A2.11 Reference Demolition Plan
18. Madras ES, Sheet A2.12 Reference Floor Plan
19. Madras ES, Sheet A2.18 Accessible Lift Plans
20. Madras ES, Sheet M0.03 Mechanical Details
21. Madras ES, Sheet M2.01 Mechanical Partial Floor Plans
22. Madras ES, Sheet E0.01 Electrical Schedules and Details
23. Madras ES, Sheet E2.01 Electrical Floor Plan
24. Madras ES, Sheet ED2.01 Electrical Demolition Plan
25. Buff ES, Sheet R1.01 Roof Plan
26. Buff ES, Sheet R1.02 Roofing Details
27. Buff ES, Sheet R1.03 Roofing Details
28. Buff ES, Sheet R1.04 Roofing Details
29. Buff ES, Sheet R1.05 Roof Detail Callout Maps
30. Buff ES, Sheet R1.06 Roof Detail Callout Maps
31. Approved Substitution Request: Spec 23 33 00, 2.03, Pottorff Model CBD-150
32. Approved Substitution Request: Spec 23 33 00, 2.05, Pottorff Model CD-41 w/ Belimo Actuators
33. Rejected Substitution Request: Spec 23 74 16, 2.03, TempMaster Omni Pro RTUs
34. Rejected Substitution Request: Spec 23 74 33, 2.01, Valent DOAS
35. Rejected Substitution Request: Spec 23 74 16, 2.03, A, JCI/Fraser-Johnston, Models ZLG and ZYG

END OF ADDENDUM NO. 2

Tiller's Schoolhouse Consulting LLC

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Jefferson County School District 509J
UNITE. ENGAGE. SOAR.

Madras / Buff Elementary Schools Improvements
Sign-In Sheet
September 27, 2023 @ 1:00 PM

Name	Company	Phone	Email
SPENCER LEMMON	WILDISH BUILDING CO	541 693-7746	SPENCERL@WILDISH.COM
Mike Jorgensen	Central Oregon Roofing	505-730-3016	mike@centralorroofing.com
Phil Kauffman	K3 Const	541 777-4575	phil@k3groundwork.com
James Snellings	Green Ridge Excavation	541-546-4029	James@greenridgeexcavation.com
Rusty Wilkerson	Aspen Ridge Elec	541-213-0512	rwilkerson@aspenridgeelec.com

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Sign-In Sheet
September 27, 2023 @ 1:00 PM

Name	Company	Phone	Email
Jake Woodruff	Northwest Quality Roofing	541-647-0993	jakw@nwqualityroofing.com
Samuel Griffin	Griffin Construction	5417447237	samuel@griffinconstructionllc.com
Russell Davis	Arrow Roofing	971-334-9824	russ@arrow-roofing.com
James R. Berman	RCI Sheetmetal	360-910-0324	jimb@rcisheetmetal.com
Nate Powell	Bremik	541-527-2693	bids@bremik.com
LARRY BLANTON	KNCC	541-389-7119	bids@kirbynagelhout.co
Shane Harvey	Bliss Heating and AC	541-517-4818	blissbvac2@gmail.com
Kyle Kittelman	O'Brien CO	206-551-5953	Kyk.Kittelman@Obrien-co.com

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Madras / Buff Elementary Schools Improvements
Sign-In Sheet
September 27, 2023 @ 1:00 PM

Name	Company	Phone	Email
Cameron Proctor	Bliss Heating & Air	541 261 7437	Blisshvac1@Gmail.com
Kip Cooper	Central Elect	541 391 2511	Central.ted@live.com
Brandon Gammie	Lorentz Brown Const.	(503) 232-7106	brandon@lbrown.com
Seth Wilson	Apex Mechanical	(360) 558-1986	seth@apexmechanical.org
Doug Jesney	2KG Contractors	503-349-4339	Doug@2KGContractors.com
Steve Leslie	Competitive Commercial Roofing	541-400-0972	Steve@BestRoofUSA.com
Cory Remillard	Alliant Systems	541-610-3700	C.Remillard@Alliant-Systems.com

SECTION 220500 - GENERAL PROVISION OF PLUMBING AND HVAC

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following:
   1. Dielectric Fittings
   2. Pipe Sleeves
   3. Sleeve Seals Systems for Piping
   4. Silicone Sealant
   5. Escutcheons for Piping
   6. Floor Plates

1.2 SUBMITTALS

A. See Section 220000 “General Requirements of Plumbing and HVAC” for Submittal requirements.

1.3 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe and Pressure-Vessel Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

1.4 PERFORMANCE REQUIREMENTS

A. Compatibility: Products shall be suitable for piping service fluids, materials, working pressures, and temperatures.

B. Capability: Products to absorb 200 percent of maximum axial movement between anchors.

PART 2 - PRODUCTS

2.1 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

B. Dielectric Unions:
   1. Dielectric Unions are not allowed.

C. Dielectric Flanges:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Capitol Manufacturing Company; member of the Phoenix Forge Group.
   b. Central Plastics Company.
   c. Matco-Norca.
   d. Watts; a division of Watts Water Technologies, Inc.
   e. Wilkins; a Zurn company.
2. Standard: ASSE 1079.
3. Factory-fabricated, bolted, companion-flange assembly.
4. Pressure Rating: 175 psig.
5. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Insulating Kits:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Advance Products & Systems, Inc.
   b. Calpico, Inc.
   c. Central Plastics Company.
   d. Pipeline Seal and Insulator, Inc.
2. Nonconducting materials for field assembly of companion flanges.
3. Pressure Rating: 150 psig.
4. Gasket: Neoprene or phenolic.
5. Bolt Sleeves: Phenolic or polyethylene.
6. Washers: Phenolic with steel backing washers.

E. PEX Dielectric Separator:
1. Description: 6” long section of pex piping shall be installed between dis-similar piping materials.
2. Pipe Material: PEX plastic according to ASTM F 876.
3. Oxygen Barrier: O2 permeability <= 0.32 mg/m2/day in accordance with DIN 4726.
4. Fittings: ASTM F 1960, cold expansion fittings and reinforcing rings.
5. Pressure/Temperature Rating: Minimum 100 psig and 180 deg F.

2.2 SLEEVES

A. Galvanized-Steel Sheet Pipe Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

2.3 SLEEVE-SEAL SYSTEMS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Advance Products & Systems, Inc.
2. CALPICO, Inc.
3. GPT; an EnPro Industries company.
4. Metraflex Company (The).

B. Description:

1. Modular sealing-element unit, designed for field assembly, for filling annular space between piping and sleeve.
2. Designed to form a hydrostatic seal of 20-psig.
3. Sealing Elements: EPDM-rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size.
4. Pressure Plates: Composite plastic.
5. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

2.4 ASSEMBLY PENETRATIONS

A. All penetrations through a fire rated assembly shall be protected with an approved fire stop system in compliance with the rated assemblies as outlined in the Underwriters Laboratory Listing.
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. 3M Company
      b. Holdrite
      c. Hilti

2.5 SILICONE SEALANTS

A. Silicone, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T and NT. Grade P Pourable (self-leveling) formulation is for opening in floors and other horizontal surfaces that are not fire rated.

2.6 ESCUTCHEONS

A. One-Piece, Cast-Brass Type: With polished, chrome-plated finish and setscrew fastener.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with chrome-plated finish and spring-clip fasteners.

C. One-Piece, Stamped-Steel Type: With chrome-plated finish and spring-clip fasteners.

2.7 FLOOR PLATES

A. One-Piece Floor Plates: Cast-iron flange with holes for fasteners.

2.8 EXECUTION

2.9 DIELECTRIC FITTING INSTALLATION

A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

B. Install Dielectric fittings per the manufacturers written instructions.

C. Install pipe hangers immediately upsteam and downstream of dielectric fittings.

D. Install isolation valves immediately upsteam and downstream of dielectric fittings.

E. Dielectric Fittings for NPS 2 and Smaller: PEX Dielectric Separator.

F. Dielectric Fittings for NPS 2-1/2 and Larger: Dielectric Flange.

2.10 SLEEVE INTALLATION

A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.

B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inchannular clear space between piping and concrete slabs and walls.

C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.
   1. Cut sleeves to length for mounting flush with both surfaces.
      a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.
   2. Using silicone sealant, seal space outside of sleeves in slabs and walls without sleeve-seal system.

D. Fire-Resistance-Rated Penetrations, Horizontal Assembly Penetrations, and Smoke-Barrier Penetrations: Maintain indicated fire or smoke rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with fire- and smoke-stop materials. Comply with requirements for firestopping and fill materials specified in Section 078413 "Penetration Firestopping."

2.11 SLEEVE-SEALS SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls at piping entries into building.

B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal-system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

2.12 SLEEVE-SEAL SCHEDULE

A. Use sleeve and sleeve-seals for the following piping-penetration applications:
   1. Exterior Concrete Walls Above Grade: Galvanized-Steel Sheet Pipe Sleeves with Sleeve-seal system
   2. Exterior Concrete Walls Below Grade: Galvanized-Steel Sheet Pipe Sleeves with Sleeve-seal system
   3. Interior or Exterior Concrete Slabs-on-Grade: Sleeve not required.
   4. Interior Concrete Slabs Above Grade: Galvanized-Steel Sheet Pipe Sleeves with Silicone Sealant or Fire calk
   5. Interior Partitions: Sleeve not require – fire calk penetrations of rated assemblies.

2.13 ESCUTCHEON INSTALLATION

A. Install escutcheons for piping penetrations of walls, ceilings, and finished floors.

B. Install escutcheons with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

2.14 FLOOR PLATE INSTALLATION

A. Install floor plates for piping penetrations of equipment-room floors.

B. Install floor plates with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

PART 3 - EXECUTION

3.1 DIELECTRIC FITTING INSTALLATION

A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

B. Install Dielectric fittings per the manufacturers written instructions.

C. Install pipe hangers immediately upsteam and downstream of dielectric fittings.

D. Install isolation valves immediately upsteam and downstream of dielectric fittings.

E. Dielectric Fittings for NPS 2 and Smaller: PEX Dielectric Separator.

F. Dielectric Fittings for NPS 2-1/2 and Larger: Dielectric Flange.

3.2 SLEEVE INTALLATION

A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.

B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inchannular clear space between piping and concrete slabs and walls.

C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inchesabove finished floor level.

2. Using silicone sealant, seal space outside of sleeves in slabs and walls without sleeve-seal system.

D. Fire-Resistance-Rated Penetrations, Horizontal Assembly Penetrations, and Smoke-Barrier Penetrations: Maintain indicated fire or smoke rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with fire- and smoke-stop materials. Comply with requirements for firestopping and fill materials specified in Section 078413 "Penetration Firestopping."

3.3 SLEEVE-SEALS SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls at piping entries into building.

B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal-system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

3.4 SLEEVE-SEAL SCHEDULE

A. Use sleeve and sleeve-seals for the following piping-penetration applications:
1. Exterior Concrete Walls Above Grade: Galvanized-Steel Sheet Pipe Sleeves with Sleeve-seal system
2. Exterior Concrete Walls Below Grade: Galvanized-Steel Sheet Pipe Sleeves with Sleeve-seal system
3. Interior or Exterior Concrete Slabs-on-Grade: Sleeve not required.
4. Interior Concrete Slabs Above Grade: Galvanized-Steel Sheet Pipe Sleeves with Silicone Sealant or Fire calk
5. Interior Partitions: Sleeve not require – fire calk penetrations of rated assemblies.

3.5 ESCUTCHEON INSTALLATION

A. Install escutcheons for piping penetrations of walls, ceilings, and finished floors.

B. Install escutcheons with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

3.6 FLOOR PLATE INSTALLATION

A. Install floor plates for piping penetrations of equipment-room floors.

B. Install floor plates with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

END OF SECTION 220500

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Balancing Air Systems:
      a. Constant-volume air systems.

1.2 DEFINITIONS

A. AABC: Associated Air Balance Council.

B. NEBB: National Environmental Balancing Bureau.

C. TAB: Testing, adjusting, and balancing.

D. TABB: Testing, Adjusting, and Balancing Bureau.

E. TAB Specialist: An independent entity meeting qualifications to perform TAB work.

F. TDH: Total dynamic head.

1.3 ACTION SUBMITTALS

A. See Section 220000 “General Requirement of Plumbing and HVAC” for submittal requirements

1.4 QUALITY ASSURANCE

A. TAB Specialists Qualifications: Certified by AABC, NEBB, TABB, or as approved by the Engineer prior to bidding.

B. Certify TAB field data reports and perform the following:
   1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
   2. Certify that the TAB team complied with the approved TAB plan and the procedures specified and referenced in this Specification.

C. TAB Report Forms: Use standard TAB contractor's forms.

D. Instrumentation Type, Quantity, Accuracy, and Calibration: Comply with requirements in ASHRAE 111, Section 4, "Instrumentation."

E. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6.7.2.3 - "System Balancing."

PART 2 - PRODUCTS

2.1 Test and Balance Contractors:

A. Air Introduction and Regulation.

B. All other companies must submit for approval by the Engineer prior to bidding the project.

PART 3 - EXECUTION

3.1 PREPARATION

A. Perform system-readiness checks of HVAC systems and equipment to verify system readiness for TAB work. Include, at a minimum, the following:
   1. Airside:
      a. Duct systems are complete with terminals installed.
      b. Volume, smoke, and fire dampers are open and functional.
      c. Clean filters are installed.
      d. Fans are operating, free of vibration, and rotating in correct direction.
      e. Variable-frequency controllers' startup is complete and safeties are verified.
      f. Automatic temperature-control systems are operational.
      g. Ceilings are installed.
      h. Windows and doors are installed.
      i. Suitable access to balancing devices and equipment is provided.

3.2 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Total System Balance", NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" or SMACNA's "HVAC Systems - Testing, Adjusting, and Balancing" and in this Section.

B. Cut insulation, ducts and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
   1. After testing and balancing, patch probe holes in ducts with plastic plugs.
   2. Coordinate with the mechanical insulation contractor to Restore insulation, coverings, vapor barrier, and finish according to Section 230713 "Duct Insulation," Section 230716 "HVAC Equipment Insulation," and Section 230719 "HVAC Piping Insulation."

C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.

3.3 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Cross-check the summation of required outlet volumes with required fan volumes.

B. Prepare schematic diagrams of systems' "as-built" duct layouts.

C. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.

D. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.

E. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

F. Verify that motor starters are equipped with properly sized thermal protection.

G. Check dampers for proper position to achieve desired airflow path.

H. Check for airflow blockages.

I. Check condensate drains for proper connections and functioning.

J. Check for proper sealing of air-handling-unit components.

K. Verify that air duct system is sealed as specified in Section 233113 "Metal Ducts."

3.4 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
   1. Measure total airflow.
      a. Set outside-air, return-air, and relief-air dampers for proper position that simulates minimum outdoor-air conditions.
      b. Where duct conditions allow, measure airflow by Pitot-tube traverse. If necessary, perform multiple Pitot-tube traverses to obtain total airflow.
      c. Where duct conditions are not suitable for Pitot-tube traverse measurements, a coil traverse may be acceptable.
      d. If a reliable Pitot-tube traverse or coil traverse is not possible, measure airflow at terminals and calculate the total airflow.
   2. Measure fan static pressures as follows:
      a. Measure static pressure directly at the fan outlet or through the flexible connection.
      b. Measure static pressure directly at the fan inlet or through the flexible connection.
      c. Measure static pressure across each component that makes up the air-handling system.
      d. Report artificial loading of filters at the time static pressures are measured.
   3. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
   4. Obtain approval from Engineer for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in HVAC Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
   5. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload occurs. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.

B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows.
   1. Measure airflow of submain and branch ducts.
   2. Adjust submain and branch duct volume dampers for specified airflow.
   3. Re-measure each submain and branch duct after all have been adjusted.

C. Adjust air inlets and outlets for each space to indicated airflows.
   1. Set airflow patterns of adjustable outlets for proper distribution without drafts.
   2. Measure inlets and outlets airflow.
   3. Adjust each inlet and outlet for specified airflow.
   4. Re-measure each inlet and outlet after they have been adjusted.

3.5 PROCEDURES FOR MOTORS

A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:
   1. Manufacturer's name, model number, and serial number.
   2. Motor horsepower rating.
   3. Motor rpm.
   4. Efficiency rating.
   5. Nameplate and measured voltage, each phase.
   6. Nameplate and measured amperage, each phase.
   7. Starter thermal-protection-element rating.

B. Motors Driven by Variable-Frequency Controllers: Test for proper operation at speeds varying from minimum to maximum. Test the manual bypass of the controller to prove proper operation. Record observations including name of controller manufacturer, model number, serial number, and nameplate data.

3.6 PROCEDURES FOR TESTING, ADJUSTING, AND BALANCING EXISTING SYSTEMS

A. Perform a preconstruction inspection of existing equipment that is to remain and be reused.
   1. Measure and record the operating speed, airflow, and static pressure of each fan.
   2. Measure motor voltage and amperage. Compare the values to motor nameplate information.
   3. Check the refrigerant charge.
   4. Check the condition of filters.
   5. Check the condition of coils.
   6. Check the operation of the drain pan and condensate-drain trap.
   7. Check bearings and other lubricated parts for proper lubrication.
   8. Report on the operating condition of the equipment and the results of the measurements taken. Report deficiencies.

B. Before performing testing and balancing of existing systems, inspect existing equipment that is to remain and be reused to verify that existing equipment has been cleaned and refurbished. Verify the following:
   1. New filters are installed.
   2. Coils are clean and fins combed.
   3. Drain pans are clean.
   4. Fans are clean.
   5. Bearings and other parts are properly lubricated.
   6. Deficiencies noted in the preconstruction report are corrected.

C. Perform testing and balancing of existing systems to the extent that existing systems are affected by the renovation work.
   1. Compare the indicated airflow of the renovated work to the measured fan airflows, and determine the new fan speed and the face velocity of filters and coils.
   2. Verify that the indicated airflows of the renovated work result in filter and coil face velocities and fan speeds that are within the acceptable limits defined by equipment manufacturer.
   3. If calculations increase or decrease the air flow rates and water flow rates by more than 5 percent, make equipment adjustments to achieve the calculated rates. If increase or decrease is 5 percent or less, equipment adjustments are not required.
   4. Balance each air outlet.

3.7 TOLERANCES

A. Set HVAC system's airflow rates and water flow rates within the following tolerances:
   1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent.
   2. Air Outlets and Inlets: Plus or minus 10 percent.
   3. Heating-Water Flow Rate: Plus or minus 10 percent.
   4. Cooling-Water Flow Rate: Plus or minus 10 percent.

B. Maintaining pressure relationships as designed shall have priority over the tolerances specified above.

3.8 FINAL REPORT

A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.
   1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
   2. Include a list of instruments used for procedures, along with proof of calibration.
   3. Certify validity and accuracy of field data.

B. Final Report Contents: In addition to certified field-report data, include the following:
   1. Fan curves.
   2. Manufacturers' test data.
   3. Field test reports prepared by system and equipment installers.
   4. Other information relative to equipment performance; do not include Shop Drawings and Product Data.

C. General Report Data: In addition to form titles and entries, include the following data:
   1. Title page.
   2. Name and address of the TAB specialist.
   3. Project name.
   4. Project location.
   5. Architect's name and address.
   6. Engineer's name and address.
   7. Contractor's name and address.
   8. Report date.
   9. Signature of TAB supervisor who certifies the report.
   10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.

11. Summary of contents including the following:
    a. Indicated versus final performance.
    b. Notable characteristics of systems.
    c. Description of system operation sequence if it varies from the Contract Documents.
12. Nomenclature sheets for each item of equipment.
13. Data for terminal units, including manufacturer's name, type, size, and fittings.
14. Notes to explain why certain final data in the body of reports vary from indicated values.
15. Test conditions for fans performance forms including the following:
    a. Settings for outdoor-, return-, and exhaust-air dampers.
    b. Conditions of filters.
    c. Face and bypass damper settings at coils.
    d. Settings for supply-air, static-pressure controller.
    e. Other system operating conditions that affect performance.

D. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:
1. Unit Data:
    a. Unit identification.
    b. Location.
    c. Make and type.
    d. Model number and unit size.
    e. Manufacturer's serial number.
    f. Unit arrangement and class.
    g. Discharge arrangement.
    h. Sheave make, size in inches, and bore.
    i. Center-to-center dimensions of sheave and amount of adjustments in inches.
    j. Number, make, and size of belts.
    k. Number, type, and size of filters.
2. Motor Data:
    a. Motor make, and frame type and size.
    b. Horsepower and rpm.
    c. Volts, phase, and hertz.
    d. Full-load amperage and service factor.
    e. Sheave make, size in inches, and bore.
    f. Center-to-center dimensions of sheave and amount of adjustments in inches.
3. Test Data (Indicated and Actual Values):
    a. Total airflow rate in cfm.
    b. Total system static pressure in inches wg.
    c. Fan rpm.
    d. Discharge static pressure in inches wg.
    e. Filter static-pressure differential in inches wg.
    f. Preheat-coil static-pressure differential in inches wg.
    g. Cooling-coil static-pressure differential in inches wg.
    h. Heating-coil static-pressure differential in inches wg.
    i. Outdoor airflow in cfm.
    j. Return airflow in cfm.
    k. Outdoor-air damper position.
    l. Return-air damper position.

E. Fan Test Reports: For supply, return, and exhaust fans, include the following:
1. Fan Data:
    a. System identification.
    b. Location.

c. Make and type.
d. Model number and size.
e. Manufacturer's serial number.
f. Arrangement and class.
g. Sheave make, size in inches, and bore.

2. Motor Data:
   a. Motor make, and frame type and size.
   b. Horsepower and rpm.
   c. Volts, phase, and hertz.
   d. Full-load amperage and service factor.
   e. Sheave make, size in inches, and bore.
   f. Number, make, and size of belts.
3. Test Data (Indicated and Actual Values):
   a. Total airflow rate in cfm.
   b. Total system static pressure in inches wg.
   c. Fan rpm.
   d. Discharge static pressure in inches wg.
   e. Suction static pressure in inches wg.

F. Air-Terminal-Device Reports:
1. Unit Data:
   a. System and air-handling unit identification.
   b. Location and zone.
   c. Apparatus used for test.
   d. Area served.
   e. Make.
   f. Number from system diagram.
   g. Type and model number.
   h. Size.
2. Test Data (Indicated and Actual Values):
   a. Airflow rate in cfm.
   b. Air velocity in fpm.
   c. Preliminary airflow rate as needed in cfm.
   d. Preliminary velocity as needed in fpm.
   e. Final airflow rate in cfm.
   f. Final velocity in fpm.

G. Instrument Calibration Reports:
1. Report Data:
   a. Instrument type and make.
   b. Serial number.
   c. Application.
   d. Dates of use.
   e. Dates of calibration.

3.9 DUCT TESTING

A. Duct Testing is required for supply, return or exhaust ductwork that will operate at 3 inWC static pressure or greater.

B. Leakage test procedures shall follow the outlines and classifications in the SMANCA HVAC Air Duct Leakage Test Manual.

C. The Owner and mechanical engineer shall select sections of ductwork from each air handling system for duct leakage testing. The sample shall include at least five transverse joints, typical seams, and access door connections. The sample will include all medium pressure supply ductwork between the air handling unit to within 2’ of the connection to variable air volume terminal units.

D. The Air handling systems shall be tested at 3 inches w.g. and shall meet leakage Class 3.

E. If a section fails to meet allotted leakage level, the contractor shall modify the ductwork to bring it into compliance and shall retest the section until acceptable leakage is demonstrated. One retest shall be provided by the TAB contractor. The mechanical contractor shall pay the TAB contractor for any additional retesting required.

F. All testing and necessary repairs shall be completed prior to concealment of the ductwork.

3.10 ADDITIONAL TESTS

A. Within 120 days of completing TAB, perform additional TAB to verify that balanced conditions are being maintained throughout and to correct unusual conditions.

END OF SECTION 230593

SECTION 284621 – ADDRESSABLE-FIRE ALARM SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. System Description:

1. New fully automated addressable fire alarm system with provisions for voice evacuation.

B. Related Requirements:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
2. In general, fire alarm system shall be installed in accordance with Section 260010 - General Electrical Requirements.

1.02 DEFINITIONS

A. NICET: National Institute for Certification in Engineering Technologies.

B. NRTL: Nationally Recognized Testing Laboratory.

C. HVLS: High Volume, Low Speed.

1.03 REFERENCES AND STANDARDS

A. The fire alarm system shall be designed, manufactured and installed in accordance with the following standards:

1. Oregon Structural Specialty Code – OSSC
2. Oregon Fire Code – OFC
3. Oregon Electrical Specialty Code – OESC
4. FM – Factory Mutual.
5. UL – Underwriters Laboratories.
6. ADA – Americans with Disabilities Act.

1.04 REGULATORY AGENCIES

A. All work shall be done in accordance with requirements of the following regulatory agencies:

1. Local Building Department.
2. Local Fire Department.
3. State Fire Marshall.
4. Insurance Services Office or Insuring Authority having jurisdiction.
5. Owner.

1.05 ACTION SUBMITTALS

2. General Submittal Requirements:

    1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
    2. Shop Drawings shall be prepared by persons with the following qualifications:
        a. Trained and certified by manufacturer in fire alarm system design.
        b. NICET-certified, fire alarm technician; Level 2 minimum.
        c. Licensed or certified by authorities having jurisdiction.

3. Product Data: For each type of product, including furnished options and accessories.

4. Shop Drawings for fire alarm system.

    1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in OFC.
    2. Include plans, elevations, sections, details, and attachments to other work.
    3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
    4. Detail assembly and support requirements.
    5. Include voltage drop calculations for notification-appliance circuits.
    6. Include battery-size calculations.
    7. Include voice/alarm amplifier power calculations.
    8. Include input/output matrix.
    9. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in OFC.
    10. Include performance parameters and installation details for each detector, verifying that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
    11. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.
        a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
        b. Show field wiring required for HVAC unit shutdown on alarm.
        c. Locate detectors according to manufacturer's written recommendations.

    11. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.
    12. Include elevation view of equipment rack or console, grounding schematic and single-line connection diagram.

5. Delegated-Design Submittal: Basic device placement is shown on the electrical plans for system compliance. Note that quantity and location of speakers on the plan is approximate (the required quantity and location of speakers will vary depending on the characteristics and capabilities of different manufacturer's speakers). Supplier shall provide additional devices (including auxiliary power supplies with associated smoke detection, etc.) as required to provide a complete and functional system. Since connections between devices, circuit sizing, voltage drop and device performance are dependent on the system manufacturer's specific equipment and circuiting, the contractor shall provide system layout drawings that include interconnections and calculations for the specific equipment. These shall be prepared by a Level 2, or greater, NICET-certified designer. Drawings shall include:

    1. Device Locations:
        a. Location of each initiation device with ratings and installation details as needed to comply with listing conditions the devices and to give proper coverage of the area.
        b. Quantity and location of speakers, based on characteristics and capabilities of manufacturer's speakers, to allow for proper sound levels and intelligibility in accordance with OFC and as acceptable by the Authority Having Jurisdiction (AHJ).
    2. Design Calculations:
        a. Voltage drop and loading calculations for each circuit.
        b. Calculate requirements for selecting the spacing and sensitivity of detection devices to comply with OFC.
        c. Calculate spacing and intensities for strobe signals and sound-pressure levels for audible appliances.
        d. Using speaker manufacturer's software and other engineering resources, calculate speaker sound levels and intelligibility in each area. Note that in the event the installed voice evacuation system is not accepted by the AHJ, it is the responsibility of the fire alarm supplier to make whatever corrections (including installation of additional speakers, removal of speakers, or relocation of speakers) to satisfy the AHJ. This shall be done at no additional cost to the Owner or Engineer.

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

B. Seismic Qualification Certificates: For fire alarm control unit, accessories, and components, from manufacturer.

    1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
    2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
    3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements. C. Field quality-control reports.

D. Sample warranty.

1.07 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire alarm systems and components to include in emergency, operation, and maintenance manuals. Include the following and deliver copies to authorities having jurisdiction:

1. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in OFC.
2. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" article in the "Documentation" section of the "Fundamentals" chapter in OFC.
3. Complete wiring diagrams showing connections between all devices and equipment.
4. Riser diagram.
5. Record copy of site-specific software.
6. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in OFC, and include the following: a. Equipment tested.
   b. Frequency of testing of installed components.
   c. Frequency of inspection of installed components.
   d. Requirements and recommendations related to results of maintenance.
   e. Manufacturer's user training manuals.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens. C. As-built drawings that include:

1. Plan views showing the location of all equipment, outlets and cabling routes.
2. Notation for each outlet and cable to signify the labeling scheme.

1.08 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lamps for Remote Indicating Lamp Units: Quantity equal to 10 percent of amount installed, but no fewer than 1 unit.
2. Lamps for Strobe Units: Quantity equal to 10 percent of amount installed, but no fewer than 1 unit.
3. Smoke Detectors, Fire Detectors : Quantity equal to 10 percent of amount of each type installed, but no fewer than 1 unit of each type.
4. Detector Bases: Quantity equal to 2 percent of amount of each type installed, but no fewer than 1 unit of each type.
5. Keys and Tools: One extra set for access to locked and tamperproofed components.
6. Audible and Visual Notification Appliances: One of each type installed.
7. Fuses: Two of each type installed in the system.

1.09 QUALITY ASSURANCE

A. Installer Qualifications:

1. Personnel shall be trained and certified by manufacturer for installation of units required for this Project.
2. Installer Qualifications: Installation shall be by personnel certified by NICET as fire alarm Level 2 technician.

B. Source Limitations for Fire alarm System and Components: Obtain fire alarm system from single source from single manufacturer. Components shall be compatible with, and operate as, an extension of existing system.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in OESC, by a qualified testing agency, and marked for intended location and application.

D. NFPA Certification: Obtain certification according to OFC by a UL-listed alarm company.

1.10 RECORD DRAWINGS

A. At the completion of work, the Contractor shall turn over one CAD file (DXF) of fire alarm system as-built drawings to the Engineer for review. After approval, the Contractor shall reproduce the drawings and submit to the Owner. B. The drawings shall include:

1. Plan views showing the location of all equipment, outlets and cabling routes.
2. Notation for each outlet and cable to signify the labeling scheme.

1.11 OPERATION AND MAINTENANCE MANUAL: Provide all operation and maintenance information for the system. Additional information shall be provided as follows:

A. Electrical schematics showing all devices.

B. As-built drawings showing device locations, conduits, wires, etc.

C. Operational sequences including A narrative describing elevator recall and shut-down sequences.

D. Final test certificates showing compliance with OFC testing procedures.

E. Final approval of the authority having jurisdiction.

F. A certificate of equipment manufacturer stating that the system has been installed in accordance with manufacturer's guidelines and applicable codes and regulations.

1.12 WARRANTY

A. Standard Warranty: Fire alarm contractor shall supply complete parts and labor warranty (including travel expenses) for one (1) year from date of substantial completion.

1. Warranty shall cover entire fire alarm system and all associated equipment and devices.
2. Warranty shall include necessary repairs or loaner replacement assuring complete restoration of operation within 48 hours from time service call is requested.
3. Warranty shall include job site visit at completion of warranty period to inspect, clean, adjust, repair and re-certify entire system.
4. Site visit shall also include basic orientation and operator training review with owner's designated personnel.

1.13 SERVICE CONTRACT

A. Fire alarm contractor shall offer Owner and annual service contract at end of warranty period. Acceptance or rejection of service contract will be Owner's option.

1.14 PROJECT CONDITIONS

A. Interruption of Existing Fire alarm Service: Do not interrupt fire alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:

1. Notify Construction Manager no fewer than two days in advance of proposed interruption of fire alarm service.
2. Do not proceed with interruption of fire alarm service without Construction Manager's written permission.

1.15 SEQUENCING AND SCHEDULING

A. Existing Fire alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service and label existing fire alarm equipment "NOT IN SERVICE" until removed from the building.

1.16 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning with Substantial Completion, provide software support for two years.

C. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.

1. Provide 30 days' notice to Owner to allow scheduling and access to system and to allow Owner to upgrade computer equipment if necessary.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include the following:

1. Silent Knight; a Honeywell company.

2.02 SYSTEM DESCRIPTION

A. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

B. Automatic sensitivity control of certain smoke detectors.

C. All components provided shall be listed for use with the selected system.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in OESC, by a qualified testing agency, and marked for intended location and application.

2.03 FIRE ALARM CONTROL PANEL (FACP)

A. General Requirements for Fire alarm Control Unit:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864 and listed and labeled by an NRTL.
   a. System software and programs shall be held in flash electrically erasable programmable read-only memory (EEPROM), retaining the information through failure of primary and secondary power supplies.
   b. Include a real-time clock for time annotation of events on the event recorder.

   c. Addressable Initiation Device Circuits: The FACP shall indicate which communication zones have been silenced and shall provide selective silencing of alarm notification appliance by building communication zone.

   d. Smoke sensors shall additionally communicate sensitivity setting and allow for adjustment of sensitivity at fire alarm control unit.
   e. Temperature sensors shall additionally test for and communicate the sensitivity range of the device.

   f. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.

B. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type.
2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

C. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:

1. Pathway Class Designations: OFC, Class B.
2. Pathway Survivability: Level 1. – There are various Survivability Levels and these are defined in OFC, Section 12.4.

D. Notification-Appliance Circuit:

1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in OFC.
2. Where notification appliances provide signals to sleeping areas, the alarm signal shall be a 520-Hz square wave with an intensity 15 dB above the average ambient sound level or 5 dB above the maximum sound level, or at least 75 dBA, whichever is greater, measured at the pillow.
3. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in OFC.

E. Smoke-Alarm Verification:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire alarm control unit.
2. Activate an NRTL-listed and -approved "alarm-verification" sequence at fire alarm control unit and detector.
3. Sound general alarm if the alarm is verified.
4. Cancel fire alarm control unit indication and system reset if the alarm is not verified.

F. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke barrier walls shall be connected to fire alarm system.

G. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory.

H. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.

I. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory and digital alarm communicator transmitters shall be powered by 24-V dc source.

1. Alarm current draw of entire fire alarm system shall not exceed 80 percent of the power-supply module rating.

J. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

1. System shall be provided with sufficient battery capacity to operate entire system upon loss of primary power.
   a. 5 minutes of operation in Alarm Mode, after 24 hours of continuous operation in Supervisory Mode.

b. System shall automatically transfer to standby batteries upon primary power failure.

2. All battery charging and recharging operations shall be automatic and monitored by the control panel.
3. Batteries: Sealed lead calcium.
4. Auxiliary power supplies, meeting battery backup requirements as listed above, shall be provided as required to power all NAC's.

K. Voice/Alarm Signaling Service: Central emergency communication system with redundant microphones, preamplifiers, amplifiers, and tone generators provided as a special module that is part of fire alarm control unit.

1. Indicated number of alarm channels for automatic, simultaneous transmission of different announcements to different zones or for manual transmission of announcements by use of the central-control microphone. Amplifiers shall comply with UL 1711 and be listed by an NRTL.

a. Allow the application of and evacuation signal to indicated number of zones and, at same time, allow voice paging to the other zones selectively or in any combination.
b. Programmable tone and message sequence selection.
c. Standard digitally recorded messages for "Evacuation" and "All Clear."
d. Generate tones to be sequenced with audio messages of type recommended by OFC and that are compatible with tone patterns of notification appliance circuits of fire alarm control unit.

2. Status Annunciator: Indicate the status of various voice/alarm speaker zones and the status of firefighters' two-way telephone communication zones.
3. Preamplifiers, amplifiers, and tone generators shall automatically transfer to backup units, on primary equipment failure.

L. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.04 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.05 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.
2. Store an internal identifying code for control panel use to identify the module type.
3. Listed for controlling HVAC fan motor controllers.
4. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

B. Integral Relay: Capable of providing a direct signal to the elevator controller to initiate elevator recall, and to the circuit-breaker shunt trip for power shutdown.

1. Allow the control panel to switch the relay contacts on command.
2. Have a minimum of two normally open and two normally closed contacts available for field wiring.
3. Control Module:

4. Operate notification devices.
5. Operate solenoids for use in sprinkler service.

2.06 DIGITAL ALARM COMMUNICATOR TRANSMITTER (DACT)

A. DACT shall be acceptable to the remote central station, shall comply with UL 632 and be listed and labeled by an NRTL.

B. Telephone DACT Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire alarm control unit and automatically capture one of two telephone lines and dial a preset number for a remote central station. When contact is made with central station, signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.

C. Local functions and display at the digital alarm communicator transmitter shall include the following:

1. Verification that both telephone lines are available.
2. Programming device.
3. LED display.
4. Manual test report function and manual transmission clear indication.
5. Communications failure with the central station or fire alarm control unit.

D. Digital data transmission shall include the following:

1. Address of the alarm-initiating device.
2. Address of the supervisory signal.
3. Address of the trouble-initiating device.
4. Loss of ac supply.
5. Loss of power.
6. Low battery.
7. Abnormal test signal.
8. Communication bus failure.

E. Secondary Power: Integral rechargeable battery and automatic charger.

F. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.07 MANUAL FIRE ALARM BOXES

A. General Requirements for Manual Fire alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire alarm control unit.
2. Station Reset: Key- or wrench-operated switch.

2.08 DETECTOR BASES

A. Two-wire operation.

2.09 DETECTOR GUARDS

A. DAMAGE PROTECTION GRADE - Wherever detectors may be subject to damage (in gymnasiums, locker rooms, etc.), protective wire guards (Hallmann Sales STI-96 Series or equivalent) shall be installed, whether specifically shown on drawings or not.

1. Wire guards shall be properly sized (for detectors being supplied), constructed with #9 guage (or thicker) coated steel wire arranged to provide strength and to ensure that no detector sensitivity adjustment is required.
2. Wire guards shall be UL Listed to US safety standards for any UL Listed detector.
3. Wire guards shall allow fast and easy installation with tamper resistant hardware. Turn over to Owner two or any specialty tools required for tamper resistant hardware.

2.10 SYSTEM SMOKE DETECTORS

A. Smoke detectors shall be compatible (UL cross-listed) with the FACP.

B. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.

5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at fire alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire alarm control unit.
    a. Rate-of-rise temperature characteristic shall be selectable at fire alarm control unit for 15 or 20 deg F (8 or 11 deg C) per minute.
    b. Fixed-temperature sensing shall be independent of rate-of-rise sensing and shall be settable at fire alarm control unit to operate at 135 or 155 deg F (57 or 68 deg C).
    c. Provide multiple levels of detection sensitivity for each sensor.
    d. Sensitivity levels can be based on time of day.

C. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.
    b. Device type.
    c. Present average value.
    d. Present sensitivity selected.
    e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
    a. Primary status.
    b. Device type.
    c. Present average value.
    d. Present sensitivity selected.
    e. Sensor range (normal, dirty, etc.).

    f. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector.
3. Each sensor shall have multiple levels of detection sensitivity.
4. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
5. Integral Visual-Indicating Light: LED type. Indicating detector has operated and power-on status.
6. Relay Fan Shutdown: Rated to interrupt fan motor-control circuit.

2.11 HEAT DETECTORS

A. Heat detectors shall be compatible (UL cross-listed as required) with the FACP.

B. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

C. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F (57 deg C) or a rate of rise that exceeds 15 deg F (8 deg C) per minute unless otherwise indicated. Provide combination type devices wherever heat detectors are used, with the exception of those installed adjacent to fire sprinkler heads, such as those associated with the elevator equipment.
   a. Mounting: Twist-lock base interchangeable with smoke-detector bases.
   b. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire alarm control unit.

2.06 NOTIFICATION APPLIANCE GUARDS

A. DAMAGE PROTECTION GRADE - Wherever horn/strobes may be subject to damage (in gymnasiums, locker rooms, etc.), protective wire guards (Hallmann Sales STI-96 Series or equivalent) shall be installed, whether specifically shown on drawings or not.

1. Wire guards shall be properly sized (for detectors being supplied), constructed with #9 guage (or thicker) coated steel wire arranged to provide strength and to ensure that no detector sensitivity adjustment is required.
2. Wire guards shall be UL Listed to US safety standards for any UL Listed detector.
3. Wire guards shall allow fast and easy installation with tamper resistant hardware. Turn over to Owner two or any specialty tools required for tamper resistant hardware.

2.07 NOTIFICATION APPLIANCES

A. All notification appliances shall be compatible (UL cross-listed as required) with the FACP.

B. General Requirements for Notification Appliances: Individually addressed, connected to a signaling line circuit, equipped for mounting as indicated and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated and with screw terminals for system connections.

C. Visible Notification Appliances: Xenon strobe lights comply with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "ALERT" is engraved in minimum 1-inch- (25-mm-) high letters on the lens.

1. Rated Light Output:
   a. 15/30/75/110 cd, selectable in the field.

b. Mounting: Wall mounted unless otherwise indicated.

2. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
3. Flashing shall be in a temporal pattern, synchronized with other units.
4. Strobe Leads: Factory connected to screw terminals.
5. Mounting Faceplate: Factory finished, white.

D. Voice/Tone Notification Appliances:

1. Appliances shall comply with UL 1480 and shall be listed and labeled by an NRTL.
2. High-Range Units: Rated 2 to 15 W for noisy environments.
3. Low-Range Units: Rated 1 to 2 W for quiet environments.
4. Mounting: Semi-recessed or surface mounted and bidirectional.
5. Matching Transformers: Tap range matched to acoustical environment of speaker location.

2.08 MAGNETIC DOOR HOLDERS

A. Description: Units are equipped for wall or floor mounting as indicated and are complete with matching doorplate.

1. Electromagnet: Requires no more than 3 W to develop 25-lbf (111-N) holding force.
2. Wall-Mounted Units: Flush mounted unless otherwise indicated.
   a. Rating: 24-V ac or dc.

B. Material and Finish: Match door hardware.

2.09 CABLES AND RACEWAYS

A. Minimum raceway size: 3/4”.

B. Exposed conduit in non-public areas shall be painted with red enamel.

C. Junction boxes shall have covers painted red with label to identify it as fire alarm.

D. Conductors for all initiating and signal circuits shall be solid copper, with minimum gauge of #18. All conductors shall terminate under screw terminal.

E. Conductors for all notification appliance circuits (NACs) shall be sized for distance and current load, in strict accordance with manufacturer's recommendations. Minimum wire size shall be #14 AWG. Whenever practical, NAC wiring should not be larger than #12 AWG wire. Where larger size is required to serve load, additional circuit module shall be provided to split load current.

F. To minimize voltage drop, conductors serving activation devices shall be #12 AWG minimum. Conductors for external control circuits and annunciator panels should be sized according to applicable code requirements and manufacturer's recommendations.

G. Fire alarm raceways shall not contain any conductors not part of fire alarm system.

PART 3 - EXECUTION

3.01 EQUIPMENT INSTALLATION

A. Comply with OFC, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire alarm equipment. Install all electrical wiring to comply with requirements in OESC including, but not limited to, Article 760, "Fire Alarm Systems."

B. Installation of all smoke detectors shall be in strict accordance with OFC, paragraph 17.7.1.11. - Detectors shall be covered, or not be installed until after construction clean-up of all trades is complete and final.

C. Connecting to Existing Equipment: Verify that existing fire alarm system is operational before making changes or connections.

1. Connect new equipment to existing control panel in existing part of the building.
2. Connect new equipment to existing monitoring equipment at the supervising station.
3. Expand, modify, and supplement existing control and monitoring equipment as necessary to extend existing control and monitoring functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.

D. Manual Fire alarm Boxes:
1. Install manual fire alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire alarm box on a background of a contrasting color.
3. The operable part of manual fire alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

E. Whether shown on plans or not, a smoke detector shall be installed at FACP and at any/all NAC power extenders.

F. Smoke- or Heat-Detector Spacing:

1. Comply with OFC, "Smoke-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for smoke-detector spacing.
2. Comply with OFC, "Heat-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for heat-detector spacing.
3. Smooth ceiling spacing shall not exceed 30 feet.
4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Appendix A in OFC.
5. HVAC: Locate detectors not closer than 5 feet from air-supply diffuser or return-air opening.
6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture.

G. Duct Smoke Detectors: Comply with OFC and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

H. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.

I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

3.02 CONDUCTOR INSTALLATION

A. All cables/conductors associated with the fire alarm system shall be plenum rated.

1. Accessible ceiling spaces are acceptable for use as raceways.
   a. Hooks or fasteners shall be placed at intervals on 24 inch centers.
   b. Cable sag between supports shall not exceed 16 inches.
   c. Attaching wire to pipes or other mechanical items shall not be permitted.
   d. Cables shall be routed to avoid light fixtures (18 inches minimum spacing), sources of heat (12 inches minimum spacing) power feeder conduits (12 inches minimum spacing).
   e. Cabling shall be spaced minimum 120 inches (10 feet) from bus duct.
2. Provide conduit where wiring will be concealed within walls, under floors or above non-lay-in ceilings.
3. Provide approved conduit sleeves through all area separation fire walls and other walls.
4. Cables located less than 120 inches above the floor shall be installed in conduit.

3.03 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire alarm system.

1. Verify that hardware and devices are NRTL listed for use with fire alarm system in this Section before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Alarm-initiating connection to smoke-control system (smoke management) at firefighter smoke-control system panel.
2. Alarm-initiating connection to stairwell and elevator-shaft pressurization systems.
3. Smoke dampers in air ducts of designated air-conditioning duct systems.
4. Magnetically held-open doors.
5. Electronically locked doors and access gates.
6. Alarm-initiating connection to elevator recall system and components.
7. Alarm-initiating connection to activate emergency lighting control.
8. Alarm-initiating connection to activate emergency shutoffs for gas and fuel supplies.
9. Supervisory connections at valve supervisory switches.

3.04 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire alarm control unit.

C. Test switches shall have plastic laminated labels with 1/2" letters describing the switch function.

3.05 GROUNDING

A. Ground fire alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.06 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by authorities having jurisdiction.
B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

    a. Inspection shall be based on completed Record Drawings and system documentation that is required by OFC in its "Completion Documents, Preparation" Table in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter.
    b. Comply with "Visual Inspection Frequencies" Table in the "Inspection" Section of the "Inspection, Testing and Maintenance" Chapter in OFC; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with "Test Methods" Table in the "Testing" Section of the "Inspection, Testing and Maintenance" Chapter in OFC.

3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.
    a. The Contractor shall test dB levels in all rooms throughout facility. Assuming that testing will occur before or after business hours, to avoid business interruption, allowances shall be made for expected differential between business operation noise and ambient conditions when building is not in use.
    b. The sound level differential shall be at least 15 dBA, above average ambient, in rooms that also have visual annunciation.
    c. The sound level differential shall be at least 20 dBA, above average ambient, in rooms (such as offices) where visual annunciation is not present. For readings

taken in individual offices with no audible or visual device, meter should be pointed toward office's closed entry door.

d. Sound levels shall not be more than 100 dBA in any location.

e. The Contractor shall adjust horn volume levels as required to "balance" the sound and ensure that it is at proper dBA levels throughout facility.

4. Test visible appliances for the public operating mode according to manufacturer's written instructions.
5. Demonstrate proper function of fire door release/closure based on fire alarm status.
6. Demonstrate proper signaling via DACT whenever system goes into trouble or alarm condition.
7. Coordinate with mechanical contractor and demonstrate proper function of mechanical equipment shutdown/activation based on fire alarm system status.
8. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in OFC and the "Inspection and Testing Form" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in OFC.
9. A 24-hour battery test will be required prior to final testing in accordance with local Authority Having Jurisdiction.

D. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

E. Fire alarm system will be considered defective if it does not pass tests and inspections.

F. Prepare test and inspection reports.

G. Annual Test and Inspection: One year after date of Substantial Completion, test fire alarm system complying with visual and testing inspection requirements in OFC. Use forms developed for initial tests and inspections.

END OF SECTION 284621

BUFF ELEMENTARY SCHOOL IMPROVEMENTS

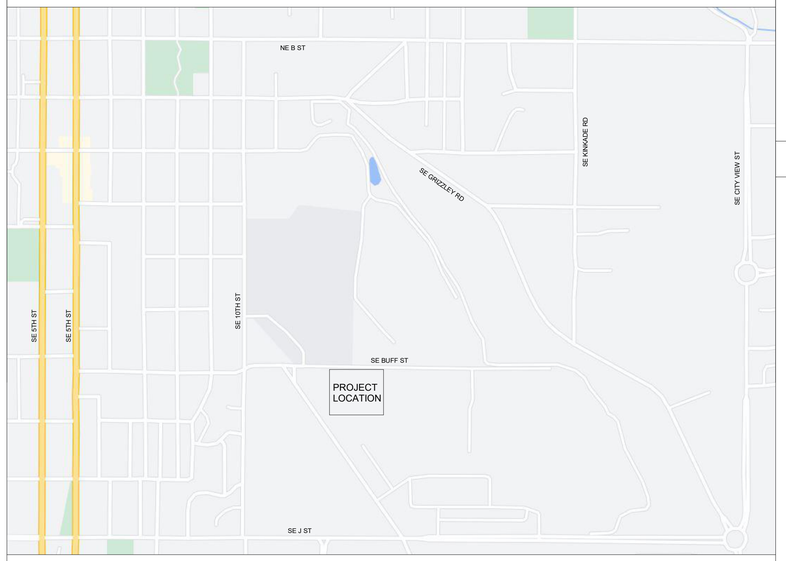
445 SE BUFF STREET, MADRAS, OREGON 97741

JEFFERSON COUNTY SCHOOL DISTRICT (509J)

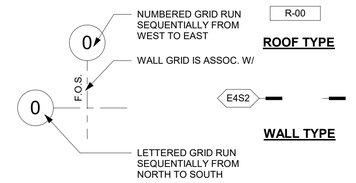
PROJECT DATA

PROJECT ADDRESS:	445 SE BUFF STREET
TAX PARCEL #1:	111312XXXXXXX
PARCEL #1 AREA:	###,### SF (##.## ACRES)
ZONING:	OS
BUILDING USE(S):	ELEMENTARY SCHOOL
BUILDING CODE:	20## OREGON STRUCTURAL SPECIALTY CODE
OCCUPANCY GROUP(S):	EDUCATION (E)
CONSTRUCTION TYPE:	VB
BUILDING AREA:	##,### SF
STORIES:	1
FIRE SPRINKLER:	VERIFY
SEWER DISTRICT:	THE CITY OF MADRAS UTILITIES DEPARTMENT
WATER SOURCE:	THE CITY OF MADRAS UTILITIES DEPARTMENT
POWER SOURCE:	CENTRAL ELECTRIC CO-OP, INC.

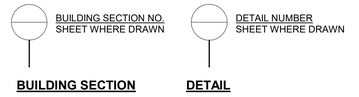
VICINITY MAP



ARCHITECTURAL SYMBOLS

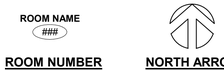


GRID LINES
GRID LINES SHOWS STRUCTURAL BAYS



BUILDING SECTION **DETAIL**

DOOR NO. **WINDOW TYPE** **LOUVER TYPE**



ROOM NUMBER **NORTH ARROW**

ABBREVIATIONS

AB	ANCHOR BOLT
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
BD	BOARD
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BO	BOTTOM OF
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONT	CONTINUOUS
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
EA	EACH
ELEV	ELEVATION
EQ	EQUAL
EXP	EXPANSION
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FF	FINISHED FLOOR
FIN	FINISH
FOB	FACE OF BRICK
FOC	FACE OF CONCRETE
FOF	FACE OF FOUNDATION
FOS	FACE OF STUD
FT	FOOT
GA	GAUGE
GALV	GALVANIZED
GYP	GYPSUM
GWB	GYPSUM WALL BOARD
HB	HOSE BIB
HM	HOLLOW METAL
HR	HOUR
ID	INSIDE DIAMETER
INSUL	INSULATION
JT	JOINT
MAX	MAXIMUM
MTL	METAL
MFR	MANUFACTURER
MIN	MINIMUM
MIR	MIRRORED
NC	NON-COMBUSTIBLE
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OVERFLOW DRAIN
OFCI	OWNER FURNISHED / CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED / OWNER INSTALLED
OPG	OPENING
OVHD	OVERHEAD
PL	PLATE
PPM	PRE-PAINTED METAL
R	RISER
RAD	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REINF	REINFORCING
REQ	REQUIREMENT
SEC	SECTION
SHTNG	SHEATHING
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
STD	STANDARD
STL	STEEL
STRL	STRUCTURAL
TEL	TELEPHONE
TFCI	TENANT FURNISHED / CONTRACTOR INSTALLED
TFTI	TENANT FURNISHED / TENANT INSTALLED
TO	TOP OF
TOB	TOP OF BRICK
TOC	TOP OF CURB
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
WD	WOOD
WP	WATERPROOF
WR	WATER RESISTANT
WT	WEIGHT

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS AND LAYOUT PRIOR TO PROCEEDING WITH WORK. NOTIFY ARCHITECT OF ANY DISCREPANCIES OR INCONSISTENCIES. FAILURE TO REPORT ANY DISCREPANCIES WITHIN THESE CONSTRUCTION DOCUMENTS TO THE ARCHITECT WILL NOT BE GROUNDS FOR ADDITIONAL COST OR CHANGE ORDERS.
2. "PROVIDE" MEANS "FURNISH AND INSTALL."
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS (UNLESS OTHERWISE NOTED), AND WORKMANSHIP IN ACCORDANCE WITH FEDERAL, STATE, CITY AND LOCAL BUILDING CODES AND THEIR REQUIREMENTS.
4. DO NOT SCALE THE DRAWINGS.

BID ADD-ALTERNATES

1. MECHANICAL WORK AT ROOFS C, D & E AND ASSOCIATED STRUCTURAL AND ELECTRICAL WORK (2)
2. ALL MECHANICAL WORK AT ROOF B AND ASSOCIATED ELECTRICAL WORK

PROJECT TEAM

OWNER:
JEFFERSON COUNTY SCHOOL DISTRICT 509J
1301 BUFF STREET
MADRAS, OR, 97741
CONTACT: SIMON WHITE
541.279.1126

OWNER'S MANAGING CONSULTANT:
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BEND, OR, 97701
CONTACT: MIKE TILLER
541.550.9431

GENERAL CONTRACTOR / CONSTRUCTION MANAGER:
TBD

ARCHITECT:
BLRB ARCHITECTS
721 SW INDUSTRIAL, SUITE 130
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CONTACT: HEIDI SLAYBAUGH
541.330.6506

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2863 NW CROSSING DRIVE, SUITE 201
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541.330.6869

MECHANICAL, ELECTRICAL & PLUMBING ENGINEER:
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BEND, OR, 97702
OFFICE LEADER CONTACT: ERIC J. WEBBER
MECHANICAL CONTACT: DOUG DOWNIE
ELECTRICAL CONTACT: GARTH STEVENS
PLUMBING CONTACT: PATRICK HONSINGER
541.699.5434

SHEET INDEX

SHEET #	SHEET NAME
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DRAWING REVISIONS

#	Date	Description
2	2023-09-28	Addendum #2

BUFF ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: TITLE SHEET / GENERAL INFORMATION

Drawn By : LCG
Project No. 22140
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CONTROLS

THE SCHOOL DISTRICT HAS HIRED ALLIANT MECHANICAL AS A THIRD-PARTY CONTROLS CONTRACTOR TO SPECIFY, INSTALL AND PROGRAM ALL NEW CONTROLS SYTSEMS WITHIN THE SCHOOL. THE CONTRACTORS SHALL COORDINATE MECHANICAL AND PLUMBING EQUIPMENT INSTALLATION WITH THE CONTROLS CONTRACTOR AS NECESSARY FOR A FULLY FUNCTIONING SYSTEM. SEE SPECIFICATION SECTIONS FROM CONTROLS CONTRACTOR FOR ADDITIONAL INFORMATION. THE CONTROLS CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS SPECIFIED IN 230900 SECTION 1.2 TO THE ENGINEER AND OWNER FOR REVIEW PRIOR TO PROCUREMENT OR INSTALLATION OF ANY CONTROL COMPONENTS.

PACKAGED ROOFTOP UNIT SCHEDULE

MARK	MFGR	SERIES	MINIMUM OUTSIDE AIR (CFM)	SUPPLY FAN				DX COOLING PERFORMANCE (HFC 410A)		NATURAL GAS HEATING PERFORMANCE (AT SEA LEVEL)				FILTER TYPE	BASIS OF DESIGN WEIGHT (LB.)	ACTION NEW (N), EXISTING (E), DEMOLISH (D)	REMARKS
				CFM	ESP (IN. WG)	DRIVE	HP	NOMINAL TONS	SEER	INPUT (MBH)	OUTPUT (MBH)	STAGES	EFFICIENCY (%)				
AC-1	CARRIER	48GCE	200	1975	0.75	DIRECT	2	6	16.1	110	88	2	80	MERV 13	1485	N	1,2,3,4,6,8,9,10,11
AC-2	CARRIER	48GCE	120	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-3	CARRIER	48GCE	380	1400	0.75	DIRECT	1.5	5	16.1 SEER 2	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,10,11
AC-4	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-5	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-6	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-7	CARRIER	48GCE	600	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-8	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-9	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-10	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-11	CARRIER	48GCE	450	2400	0.75	DIRECT	2	6	16.1	110	88	2	80	MERV 13	1485	N	1,2,3,4,5,6,8,9,10,11
AC-12	CARRIER	48GCE	450	1975	0.75	DIRECT	2	6	16.1	110	88	2	80	MERV 13	1485	N	1,2,3,4,6,8,9,10,11
AC-13	CARRIER	48GCE	450	1400	0.75	DIRECT	1.5	5	16.1 SEER 2	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,10,11
AC-14	CARRIER	48GCE	300	800	0.75	DIRECT	0.7	3	16.1 SEER 2	110	88	2	80	MERV 13	727	N	1,2,3,4,6,7,10,11
AC-15	CARRIER	48GCE	300	1975	0.75	DIRECT	2	6	16.1	110	88	2	80	MERV 13	1485	N	1,2,3,4,6,8,9,10,11
AC-16	CARRIER	48GCE	450	1600	0.75	DIRECT	1.5	5	16.1 SEER 2	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,10,11
AC-17	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-18	CARRIER	48GCE	450	1600	0.75	DIRECT	1.5	5	16.1 SEER 2	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,10,11
AC-19	CARRIER	48GCE	450	1600	0.75	DIRECT	1.5	5	16.1 SEER 2	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,10,11
AC-20	CARRIER	48GCE	450	1400	0.75	DIRECT	1.5	5	16.1 SEER 2	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,10,11
AC-21	CARRIER	48GCE	450	1600	0.75	DIRECT	1.5	5	16.1 SEER 2	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,10,11
AC-22	CARRIER	48GCE	450	1800	0.75	DIRECT	2	6	16.1	110	88	2	80	MERV 13	1485	N	1,2,3,4,6,8,9,10,11
AC-23	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-24	CARRIER	48GCE	450	1400	0.75	DIRECT	1.5	5	16.1 SEER 2	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,10,11
AC-25	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-26	CARRIER	48GCE	450	1200	0.75	DIRECT	1	4	16.1 SEER 2	110	88	2	80	MERV 13	775	N	1,2,3,4,6,7,10,11
AC-27	CARRIER	48GCE	450	1800	0.75	DIRECT	2	6	16.1	110	88	2	80	MERV 13	820	N	1,2,3,4,6,8,9,10,11

NOTES:
1.) ALL INFORMATION TAKEN FROM AVAILABLE RECORD DRAWINGS AND FIELD OBSERVATIONS. CONTRACTOR TO VERIFY EXACT CONDITIONS IN THE FIELD AND NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES, PRIOR TO PLACING EQUIPMENT ORDERS.
2.) PROVIDE UNIT COMPLETE WITH TERMINAL STRIP FOR CONNECTION TO NEW DDC CONTROLS SYSTEM. PROVIDE 7-DAY SCHEDULE, NIGHT SET BACK AND OPTIMUM START FUNCTIONS. PROVIDE 5° F DEADBAND BETWEEN HEATING AND COOLING MODES.
3.) PROVIDE PREMIUM EFFICIENCY OR ECM MOTORS, ECONOMIZER WITH FIELD INSTALLED SENSORS, POWER EXHAUST, LOW LEAK DAMPERS, FACTORY MOUNTED DISCONNECT WITH CONVENIENCE OUTLET, SINGLE POINT ELECTRICAL CONNECTION. 1, AND REPLACEMENT NATURAL GAS PRESSURE REGULATOR.
4.) PROVIDE ECONOMIZER FAULT DETECTION AND DIAGNOSTICS PER OREGON STATE ENERGY CODE. REPORT TO DDC SYSTEM.
5.) PROVIDE SMOKE DETECTOR AT RETURN AIR DUCT CONNECTION. SHUT DOWN RTU ON SMOKE DETECTION. PROVIDE MANUAL RESET CONTROLS.
6.) EQUIPMENT WEIGHTS INCLUDE MANUFACTURER'S 14" HIGH ROOF CURB, AND AIRSIDE ECONOMIZER.
7.) POWER EXHAUST TO HAVE PROPELLER FAN TO MATCH EXISTING.
8.) POWER EXHAUST TO HAVE CENTRIFUGAL FAN TO MATCH EXISTING.
9.) PROVIDE SEISMICALLY RESTRAINED VIBRATION ISOLATION CURB.
10.) COORDINATE ALL CONTROL FUNCTION REQUIREMENTS WITH THE CONTROLS CONTRACTOR PRIOR TO PLACING ORDER.
11.) SEE FLOOR PLANS FOR BASE AND BID ALERNATE SCOPE OF WORK.
12.) PROVIDE NEW 14" HIGH FACTORY ROOF CURB (VIBRATION ISOLATION CURB WHERE NOTED), ONLY WHEN EXISTING ROOF CURB DOES NOT EXACTLY MATCH NEW EQUIPMENT, OR IS NOT IN EXCELLENT CONDITION....

MAKE-UP AIR HANDLING UNIT SCHEDULE

MARK	MFGR	MODEL	DESCRIPTION	MINIMUM OUTSIDE AIR FLOW (CFM)	SUPPLY FAN			NATURAL GAS HEATING PERFORMANCE (AT SEA LEVE)					FILTER			ACTION NEW (N), EXISTING (E), DEMOLISH (D)	REMARKS
					AIR FLOW (CFM)	ESP (in W.C.)	HP	GAS INPUT (MBH)	GAS OUTPUT (MBH)	EFFICIENCY(%)	STAGES HEAT	EAT/LAT (°F)	SIZE	QTY	TYPE		
1-HV-1	MODINE	HDP700	MAKE-UP AIR	5815	8500	0.75	7.5	700	567	81	MODULATING	19/80	20"x16"x2"	12	MERV 13	N	1,2,3,4,5
1-HV-2	MODINE	HDP250	MAKE-UP AIR	1260	4500	0.75	3	250	202.5	81	MODULATING	49/91	20"x16"x2"	8	MERV 13	N	1,2,3,4,5
MAU-1	MODINE	HDP250	MAKE-UP AIR	2000	3600	1.0	3	250	205.5	81	MODULATING	28/80	20"x16"x2"	8	MERV 13	N	1,2,3,4,5

NOTES:
1.) PROVIDE MANUFACTURER'S 14" HIGH INSULATED ROOF CURB AND REPLACEMENT GAS PRESSURE REGULATOR.
2.) PROVIDE BOTTOM INLET AND OUTLET. MODULATING OUTSIDE AIR/RETURN AIR DAMPERS, PROVIDE RETURN AIR SMOKE DETECTOR AT UNIT INLET.
3.) ALL INFORMATION TAKEN FROM AVAILABLE RECORD DRAWINGS AND FIELD OBSERVATIONS. CONTRACTOR TO VERIFY EXACT CONDITIONS IN THE FIELD AND NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES, PRIOR TO PLACING EQUIPMENT ORDERS.
4.) COORDINATE ALL CONTROL FUNCTION REQUIREMENTS WITH THE CONTROLS CONTRACTOR PRIOR TO PLACING EQUIPMENT ORDER.
5.) SEE ROOF PLAN FOR BASE AND BID ALTERNATE SCOPE OF WORK.

EXISTING EXHAUST FAN AND HOOD SCHEDULE

MARK	MANUFACTURER	MODEL #	TYPE	LOCATION	DRIVE	CFM	ESP (IN.WG)	DAMPER	ACTION NEW (N), EXISTING (E), DEMOLISH (D)	REMARKS
EF-1	GREENHECK	GB-071-6-X	SPUN DOWNBLAST	ROOF B	BELT	150	0.4	BACKDRAFT	E	1,2,3,4,5
EF-2	GREENHECK	GB-101-3-X	SPUN DOWNBLAST	ROOF B	BELT	1000	0.5	MOTORIZED	E	1,2,3,4,5
EF-3	GREENHECK	GB-071-6-X	SPUN DOWNBLAST	ROOF A	BELT	100	0.4	BACKDRAFT	E	1,2,3,4,5
EF-4	GREENHECK	GB-091-4-X	SPUN DOWNBLAST	ROOF A	BELT	500	0.5	MOTORIZED	E	1,2,3,4,5
EF-5	GREENHECK	GB-071-6-X	SPUN DOWNBLAST	ROOF A	BELT	100	0.4	BACKDRAFT	E	1,2,3,4,5
EF-6	GREENHECK	GB-091-4-X	SPUN DOWNBLAST	ROOF B	BELT	400	0.4	MOTORIZED	E	1,2,3,4,5
EF-7	GREENHECK	CUBE-240XP-1...	SPUN UPBLAST	ROOF E	BELT	2000	0.75	MOTORIZED	E	1,2,3,4,5
EF-8	GREENHECK	CUBE-098-4-X	SPUN UPBLAST	ROOF E	BELT	615	0.5	MOTORIZED	E	1,2,3,4,5
PENN EF	PENN	DOMEX CB-051	SPUN DOWNBLAST	ROOF C	N/A				E	1,2,3,4,5
RH-1	- -	- -	PENTHOUSE	ROOF E	- -	- -	- -	MODULATING	E	1,2,3,4,5
RH-2	- -	- -	PENTHOUSE	ROOF E	- -	- -	- -	MODULATING	E	1,2,3,4,5
LOUVERED RH	- -	- -	PENTHOUSE	ROOF B	- -	- -	- -	MOTORIZED	E	1,2,3,4,5
STEEL RH	GREENHECK	FHR - 21" X 21" NECK	GRAVITY VENT	ROOF A	- -	- -	- -	VERFIY EXISTING CONDITIONS IN THE FIELD	N	1,2,3,4,5

NOTES:
1.) VERIFY DAMPER SIZE AND TYPE IN THE FIELD. REPLACEMENT MOTORIZED AND MODULATING DAMPERS SHALL BE LOW LEAKAGE. MOTOR ACTUATOR BY CONTROLS CONTRACTOR TO INTERFACE WITH BMS.
2.) REUSE EXISTING ROOF CURB.
3.) ALL INFORMATION TAKEN FROM AVAILABLE RECORD DRAWINGS AND FIELD OBSERVATIONS. CONTRACTOR TO VERIFY EXACT CONDITIONS IN THE FIELD AND NOTIFY THE OWNER AND ENGINEER OF ANY DISCREPANCIES, PRIOR TO PLACING EQUIPMENT ORDERS.
4.) COORDINATE ALL CONTROL FUNCTION REQUIREMENTS WITH THE CONTROLS CONTRACTOR PRIOR TO PLACING EQUIPMENT ORDERS.
5.) SEE ROOF PLAN FOR BASE AND BID ALTERNATE SCOPE OF WORK.

1

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BEND / PORTLAND

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EXPIRES: JUNE 30, 2024

DRAWING REVISIONS

#	Date	Description
1	09/29/2023	BID SET - ADDENDUM #2

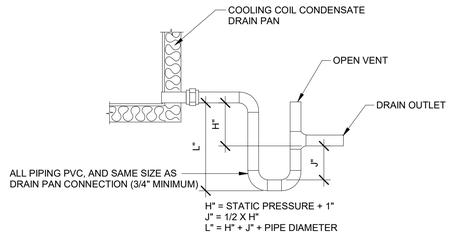
BUFF ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: MECHANICAL SCHEDULES
Drawn By : DPD
Project No. 22140
Date : SEPTEMBER 11, 2023
Revised :

Sheet No.
M0.01

SAJ ARCHITECTS

9/28/2023 9:03:13 AM



1 CONDENSATE DETAIL
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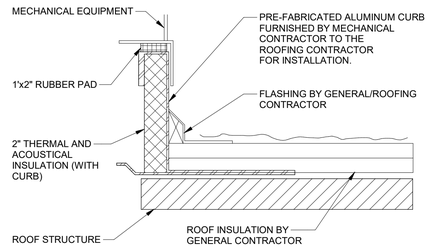

2 MECHANICAL EQUIPMENT CURB DETAIL
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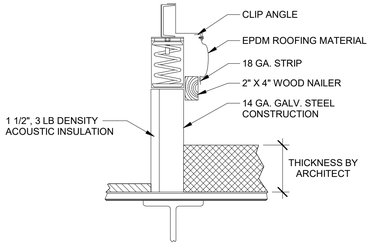

3 ROOFTOP UNIT NOISE DAMPENING CURB DETAIL
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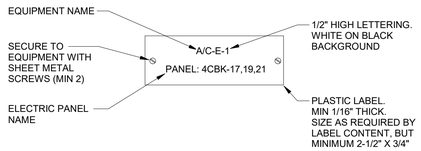

4 EQUIPMENT NAMEPLATE DETAIL
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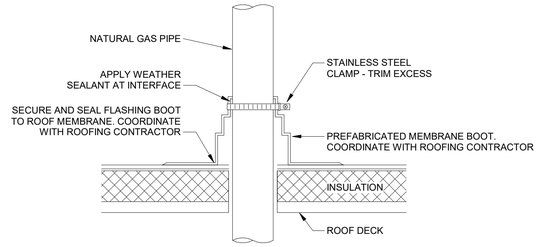
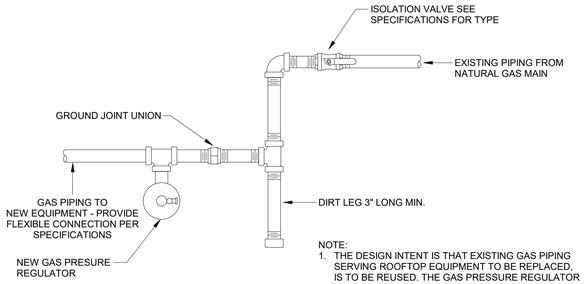


5 NATURAL GAS PIPE THRU ROOF DETAIL
N.T.S.



6 GAS CONNECTION DETAIL
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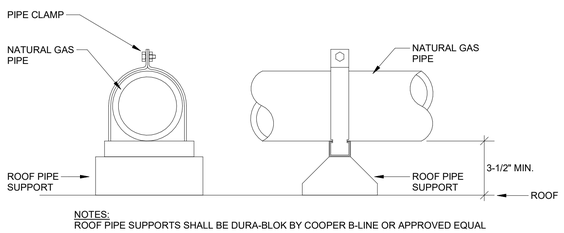

7 GAS PIPE SUPPORT DETAIL
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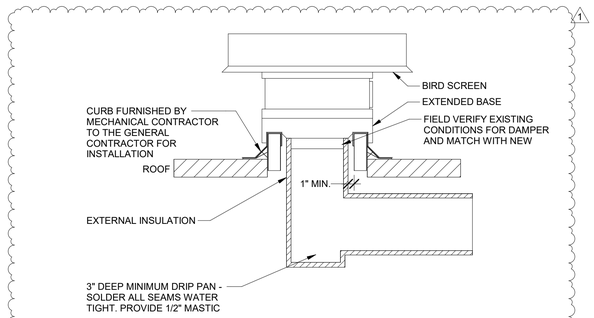

8 GRAVITY VENT DETAIL
N.T.S.

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EXPIRES: JUNE 30, 2024

DRAWING REVISIONS

#	Description	Date
1	BID SET - ADDENDUM #2	09/29/2023

BUFF ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: MECHANICAL DETAILS
Drawn By : DPD
Project No. 22140
Date : SEPTEMBER 11, 2023
Revised :
Sheet No. M0.06

SAJ ARCHITECTS

9/28/2023 9:03:13 AM

MEP COORDINATION SCHEDULE 1

MARK	DESCRIPTION	ELECTRICAL DATA		CONTROL		NOTES	DISCONNECT / STARTER		DISCONNECT			FEEDER		CIRCUIT	
		LOAD	VOLT-PHASE	TYPE	DIV		TYPE	DIV	SWITCH (AMPS)	FUSE (AMPS)	ENCL (NEMA)	COPPER WIRE (AWG)	CONDUIT (INCHES)	EXISTING BREAKER	EXISTING CKT DESCRIPTION
MECHANICAL EQUIPMENT															
AC-1	PACKAGED ROOFTOP UNIT	39 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2D1-1,3,5
AC-2	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 3, 6	FW	26/26	--	--	--	#10	3/4"	20A-3P	2D1-7,9,11
AC-3	PACKAGED ROOFTOP UNIT	36 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2D1-13,15,17
AC-4	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2D1-19,21,23
AC-5	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2D1-25,27,29
AC-6	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2D1-31,33,35
AC-7	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2D1-37,39,41
AC-8	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2D1-2,4,6
AC-9	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2D1-8,10,12
AC-10	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2D1-14,16,18
AC-11	PACKAGED ROOFTOP UNIT	39 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	50A-3P	2D1-20,22,24
AC-12	PACKAGED ROOFTOP UNIT	39 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F1-1,3,5
AC-13	PACKAGED ROOFTOP UNIT	36 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F1-7,9,11
AC-14	PACKAGED ROOFTOP UNIT	25 A	208/1	BAS	23/23	1, 5, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-2P	2F1-13,15
AC-15	PACKAGED ROOFTOP UNIT	39 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F1-19,21,23
AC-16	PACKAGED ROOFTOP UNIT	36 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F1-25,27,29
AC-17	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2F1-31,33,35
AC-18	PACKAGED ROOFTOP UNIT	36 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F1-37,39,41
AC-19	PACKAGED ROOFTOP UNIT	36 A	208/3	BAS	23/23	1, 4, 6	FW	26/26	--	--	--	#8	3/4"	30A-3P	2F1-2,4,6
AC-20	PACKAGED ROOFTOP UNIT	36 A	208/3	BAS	23/23	1, 4, 6	FW	26/26	--	--	--	#8	3/4"	30A-3P	2F1-8,10,12
AC-21	PACKAGED ROOFTOP UNIT	36 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F1-14,16,18
AC-22	PACKAGED ROOFTOP UNIT	39 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F1-20,22,24
AC-23	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2F1-26,28,30
AC-24	PACKAGED ROOFTOP UNIT	36 A	208/3	BAS	23/23	1, 4, 6	FW	26/26	--	--	--	#8	3/4"	30A-3P	2F1-32,34,36
AC-25	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 5, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F1-38,40,42
AC-26	PACKAGED ROOFTOP UNIT	30 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	30A-3P	2F2-1,3,5
AC-27	PACKAGED ROOFTOP UNIT	39 A	208/3	BAS	23/23	1, 6	FW	26/26	--	--	--	EXISTING	EXISTING	40A-3P	2F2-7,9,11
1-HV1-1	MAKE UP AIR UNIT	33.1 A	208/3	BAS	23/23	1	FD	26/26	30	NOTE 1	3R	EXISTING	EXISTING	60A-3P	V1-25,27,29
1-HV-2	MAKE UP AIR UNIT	14.7 A	208/3	BAS	23/23	1	FD	26/26	30	NOTE 1	3R	EXISTING	EXISTING	30A-3P	2D1-38,40,42
MUA-1	MAKE UP AIR UNIT	14.7 A	208/3	BAS	23/23	1	FD	26/26	30	NOTE 1	3R	EXISTING	EXISTING	30A-3P	2D1-26,28,30
EF-1	EXISTING EXHAUST FAN	1/6 HP	EXISTING	BAS	23/23	1	MSS	26/26	--	--	3R	EXISTING	EXISTING	20A-1P	2D2-2
EF-2	EXISTING EXHAUST FAN	1/3 HP	EXISTING	BAS	23/23	1	MSS	26/26	--	--	3R	EXISTING	EXISTING	20A-1P	2D2-4
EF-3	EXISTING EXHAUST FAN	1/6 HP	EXISTING	BAS	23/23	1	MSS	26/26	--	--	3R	EXISTING	EXISTING	20A-1P	2D2-6
EF-4	EXISTING EXHAUST FAN	1/4 HP	EXISTING	BAS	23/23	1	MSS	26/26	--	--	3R	EXISTING	EXISTING	20A-1P	2F2-8
EF-5	EXISTING EXHAUST FAN	1/6 HP	EXISTING	BAS	23/23	1	MSS	26/26	--	--	3R	EXISTING	EXISTING	20A-1P	2F2-10
EF-6	EXISTING EXHAUST FAN	1/4 HP	EXISTING	BAS	23/23	1	MSS	26/26	--	--	3R	EXISTING	EXISTING	20A-1P	2F2-6
EF-7	EXISTING EXHAUST FAN	1-1/2 HP	EXISTING	BAS	23/23	1	FD	26/26	30	NOTE 1	3R	EXISTING	EXISTING	20A-3P	2D2-26,28,30
EF-8	EXISTING EXHAUST FAN	1/4 HP	EXISTING	BAS	23/23	1	MSS	26/26	--	--	3R	EXISTING	EXISTING	20A-1P	2D2-32
PENN EF	EXISTING EXHAUST FAN	UNKNOWN	EXISTING	BAS	23/23	1	FD	26/26	30	NOTE 1	3R	EXISTING	EXISTING	NOTE 2	NOTE 2

BAS	BUILDING AUTOMATION SYSTEM
CO	CARBON MONOXIDE DETECTOR
CONT	CONTINUOUS OPERATION
EF	INTERLOCK WITH EXHAUST FAN
HCP	HOOD CONTROL PANEL
INT	INTEGRAL
L	LIGHT SWITCH
MS	MANUAL SWITCH
OS	OCCUPANCY SENSOR
PS	PRESSURE SWITCH
T	THERMOSTAT
TC	TIME CLOCK
UC	UNIT CONTROLLER
VE	VEHICLE EXHAUST DETECTION SYSTEM
N/A	NOT APPLICABLE

DISCONNECT/STARTER TYPE:

CB	PANELBOARD CIRCUIT BREAKER WITHIN SIGHT OF EQUIPMENT
CSFD	COMBINATION STARTER/DISCONNECT - HOA
FD	FUSED DISCONNECT
FST	FUSTAT
FW	FACTORY-WIRED SINGLE POINT CONNECTION
MOCP	MOTOR OVER-CURRENT PROTECTION
MSS	MANUAL STARTER SWITCH WITH THERMAL OVERLOADS (1-, 2- OR 3-POLE AS REQUIRED)
NFD	NON-FUSED DISCONNECT
RCPT	20A DUPLEX RECEPTACLE (GFCI PROTECTED AS REQUIRED), CORD AND PLUG
RVSS	REDUCED VOLTAGE SOLID-STATE
VFD	VARIABLE FREQUENCY DRIVE - HOA
N/A	NOT APPLICABLE

DIVISION OF RESPONSIBILITIES:

22/22	FURNISHED AND INSTALLED BY DIV. 22, WIRED BY DIV. 22
22/26	FURNISHED AND INSTALLED BY DIV. 22, WIRED BY DIV. 26
23/23	FURNISHED AND INSTALLED BY DIV. 23, WIRED BY DIV. 23
23/26	FURNISHED AND INSTALLED BY DIV. 23, WIRED BY DIV. 26
26/26	FURNISHED AND INSTALLED BY DIV. 26, WIRED BY DIV. 26

NOTES:

1. SIZE FUSES IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES FOR INSTALLED EQUIPMENT.
2. IT WAS NOT POSSIBLE TO FIELD VERIFY MOTOR SIZE OR EXISTING CIRCUIT FOR THIS FAN. DISCONNECT SHOWN IS CONSIDERED A WORST CASE.
3. EXISTING BREAKER WILL BE UNDERSIZED FOR THE NEW UNIT. PROVIDE 30A. 3-POLE BREAKER AND REPLACE WIRING AS REQUIRED.
4. EXISTING BREAKER WILL BE UNDERSIZED FOR THE NEW UNIT. PROVIDE 40A. 3-POLE BREAKER AND REPLACE WIRING AS REQUIRED.
5. EXISTING BREAKER WILL BE OVERSIZED FOR THE NEW UNIT. FUSE IT DOWN AT THE DISCONNECT SWITCH.
6. MECHANICAL EQUIPMENT SCHEDULE CALLS FOR UNIT TO COME WITH INTEGRAL DISCONNECT.

GENERAL NOTES:

A. CONTROL WIRING SHALL BE CONCEALED WITHIN WALL CONSTRUCTION, ABOVE CEILING, OR RUN IN CONDUIT. EXPOSED CONTROL WIRING IS UNACCEPTABLE.
B. UNLESS SPECIFICALLY NOTED, ALL FEEDERS SHALL INCLUDE A FULL SIZE NEUTRAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY WITH THE MANUFACTURER OF THE ACTUAL EQUIPMENT BEING SUPPLIED WHETHER A NEUTRAL IS REQUIRED PRIOR TO ROUGH IN.

/saj/ Architecture
BEND / PORTLAND

Stamp
REGISTERED PROFESSIONAL ENGINEER
93955PE
OREGON
NOV 19, 2018
GARTH L. STEVENS
EXPIRES: JUNE 30, 2024

DRAWING REVISIONS

#	Date	Description
1	09/29/2023	BID SET - ADDENDUM #2

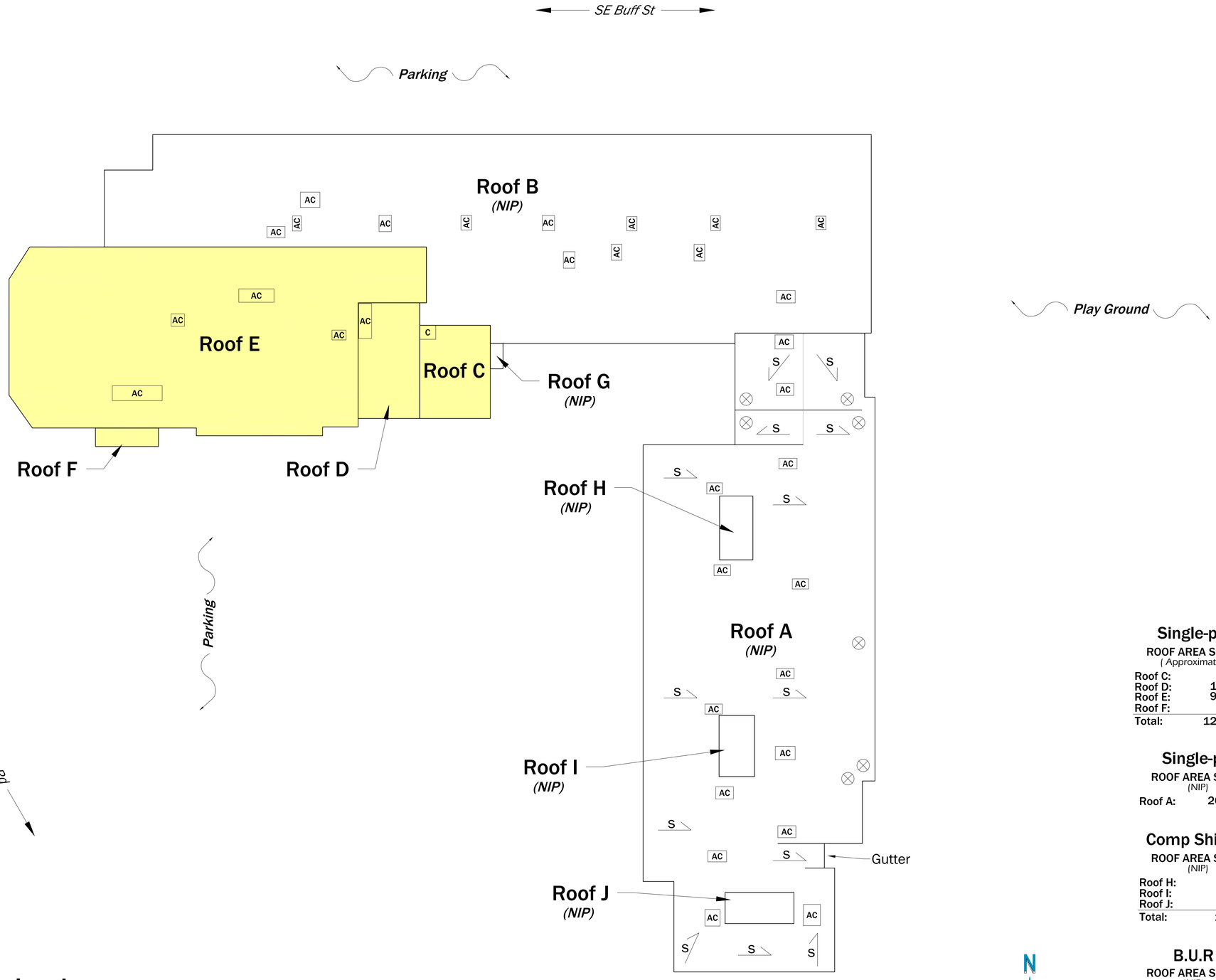
BUFF ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: ELECTRICAL SCHEDULES
Drawn By : PMH
Project No. 22140
Date : SEPTEMBER 11, 2023
Revised :

Sheet No.
E0.01

SAJ ARCHITECTS

9/28/2023 16:08:58



- Project Area

Buff Elementary School
375 SE Buff St
Madras, Oregon

Single-ply
ROOF AREA SQ.FT.
(Approximate)

Roof C:	869 sf
Roof D:	1,244 sf
Roof E:	9,985 sf
Roof F:	227 sf
Total:	12,325 sf

Single-ply
ROOF AREA SQ.FT.
(NIP)

Roof A:	20,456 sf

Comp Shingle
ROOF AREA SQ.FT.
(NIP)

Roof H:	344 sf
Roof I:	352 sf
Roof J:	347 sf
Total:	1,043 sf

B.U.R
ROOF AREA SQ.FT.
(NIP)

Roof B:	19,314 sf
Roof G:	50 sf
Total:	19,364 sf

Roof Total:	53,188 sf

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Prineville, OR 97754
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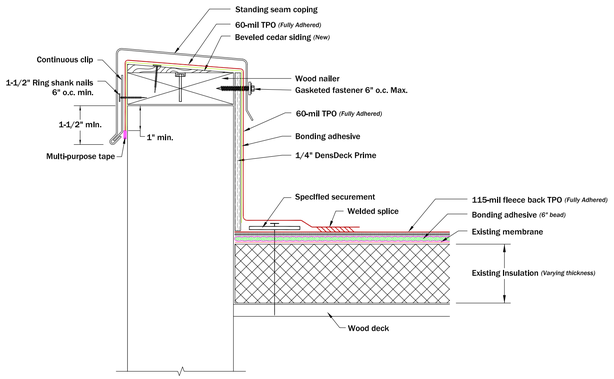
DRAWING REVISIONS

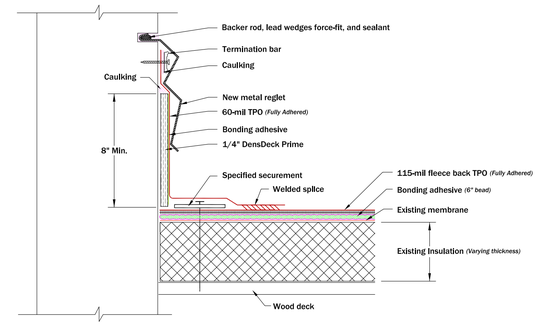
#	Description	Date

BUFF ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

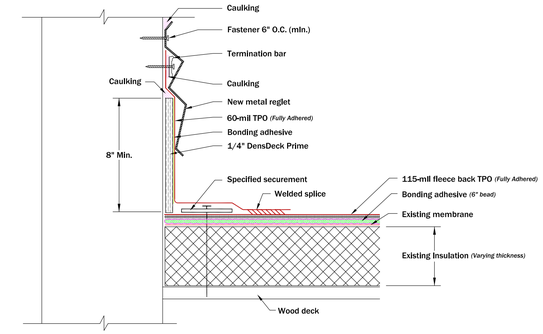
Drawing Title: Roof Plan
Drawn By: D.V.G.
Project No. 22140
Date: SEPTEMBER 11, 2023
Revised:
Sheet No. R1.01



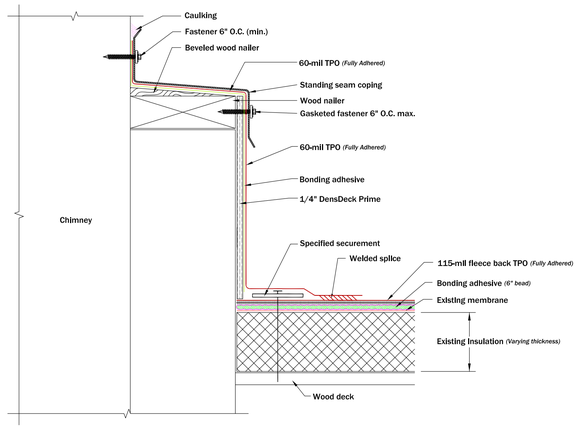
1 R-BES Perimeter - Parapet & Coping NTS



2 R-BES Perimeter - Saw Cut Reglet NTS

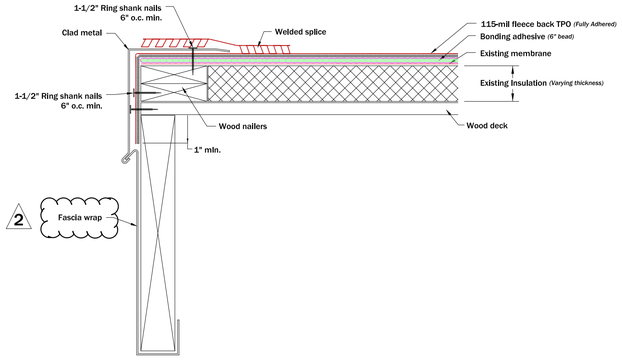


3 R-BES Perimeter - Surface Mounted Reglet NTS

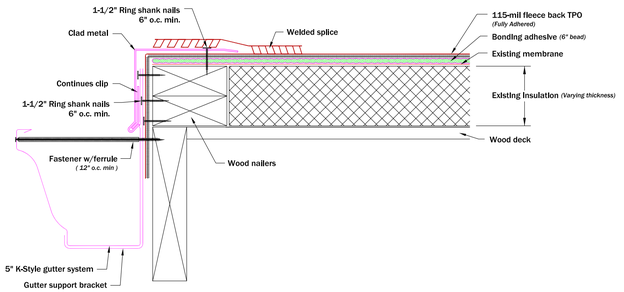


4 R-BES Perimeter - Chimney & Coping NTS

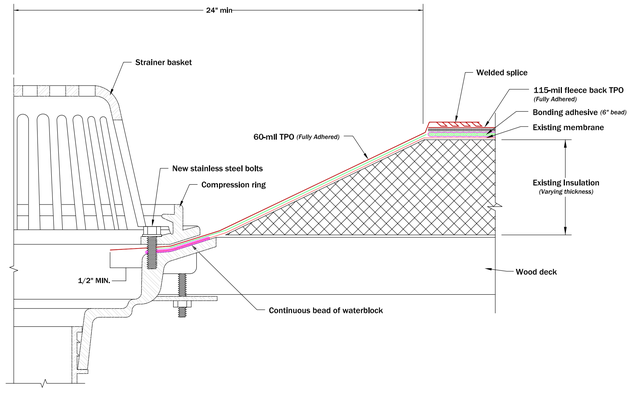
Note: must meet manufactures requirements



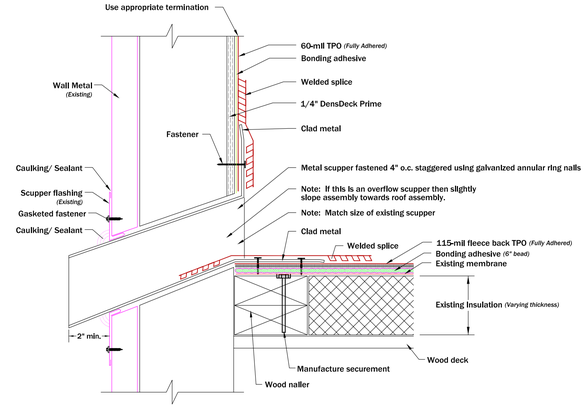
5 R-BES Drainage - Drip edge NTS



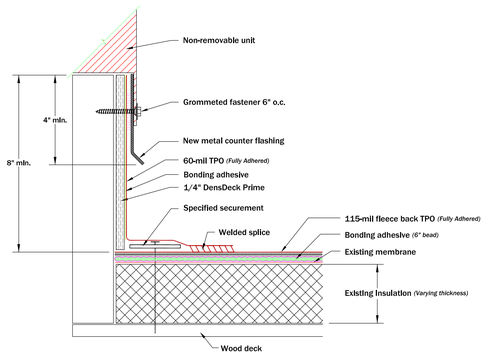
6 R-BES Drainage - Drip edge w/ Gutter NTS



7 R-BES Drainage - Roof Drain - Sumped NTS



8 R-BES Drainage - Thru-wall Scupper - Primary NTS



9 R-BES Equipment - Non-Removable Unit Curb NTS

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2501 NW Garfield Rd
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DRAWING REVISIONS

#	Date	Description
2	2023-09-29	Addendum #2

Drawing Title: Roofing details

Drawn By : D.V.G.

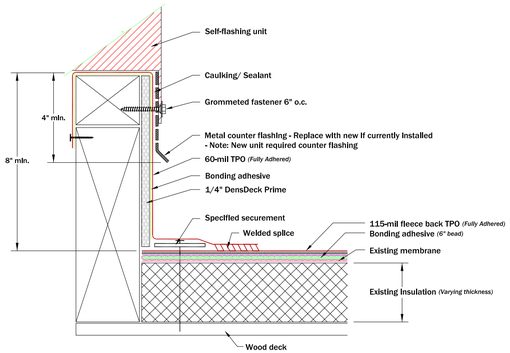
Project No. 22140

Date : SEPTEMBER 11, 2023

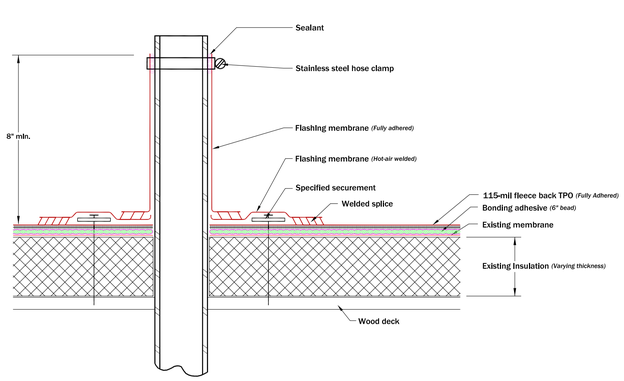
Revised :

Sheet No.

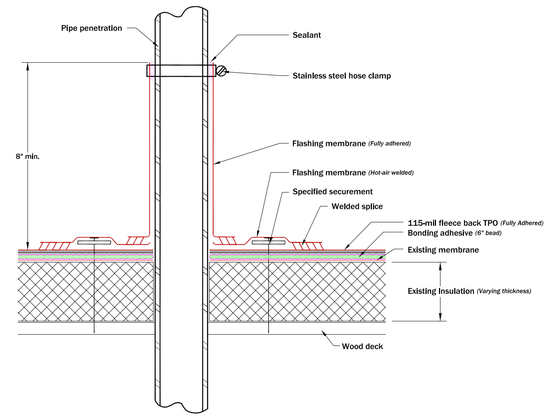
R1.02



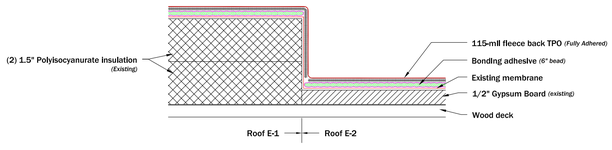
10 R-BES Equipment - Removable Unit Curb NTS



11 R-BES Penetration - Vent Stack NTS



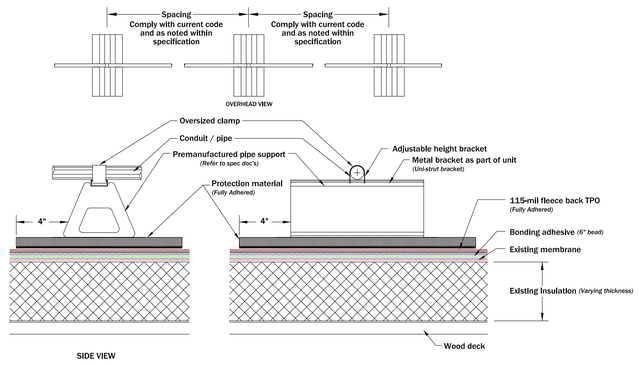
12 R-BES Penetration - Pipe Penetration NTS



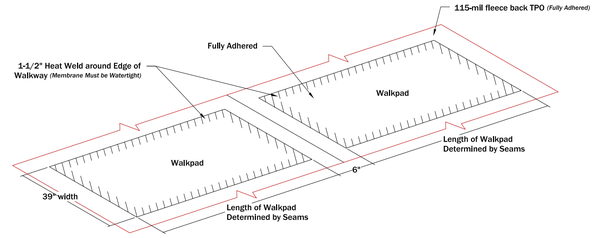
13 R-BES Perimeter - Roof E-1 to Roof E-2 Transition NTS

NOTES:

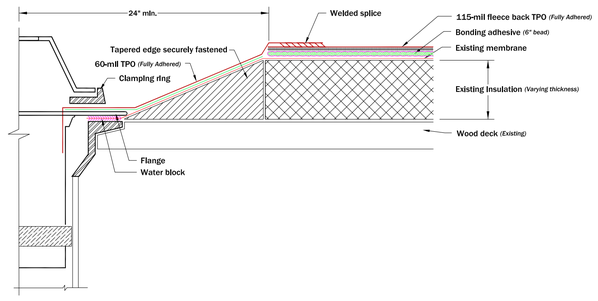
1) The brackets should retain the pipe in a manner to allow for movement without binding.
2) The supports should be placed at intervals to maintain a straight continuity of the pipe line - 10' max. spacing.
3) Protection material should be applied in a full bed of plastic cement.



14 R-BES Misc - Conduit / Pipe Support NTS



15 R-BES Misc - Walk Pad - Fully Adhered NTS



*Example of Retro drain detail

16 R-BES Drainage - Retro Roof Drain NTS

2

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Stamp

DRAWING REVISIONS

#	Date	Description
2	2023-09-29	Addendum #2

Drawing Title: Roofing details

Drawn By : D.V.G.

Project No. 22140

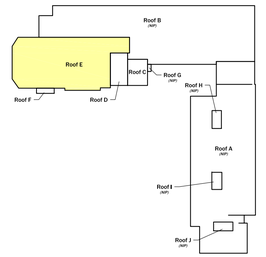
Date : SEPTEMBER 11, 2023

Revised :

Sheet No.

R1.03

JCSD – JEFFERSON COUNTY SD
Buff Elementary School - MADRAS, OR
ROOF LAYOUT



- Project Area

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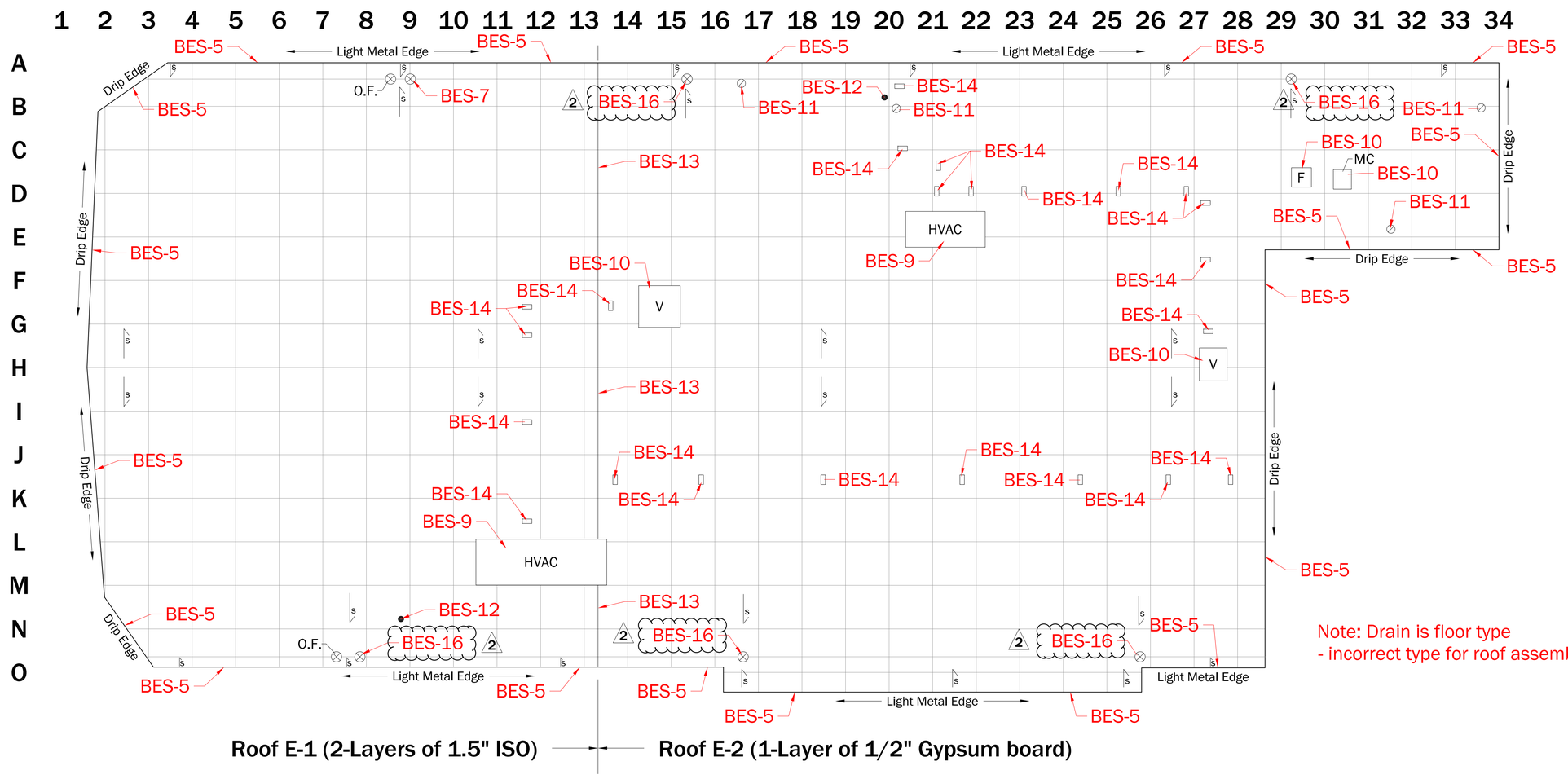
Roof E

5'



Roof E-1 (2-Layers of 1.5" ISO) — Roof E-2 (1-Layer of 1/2" Gypsum board)

Note: Drain is floor type
- incorrect type for roof assembly

N

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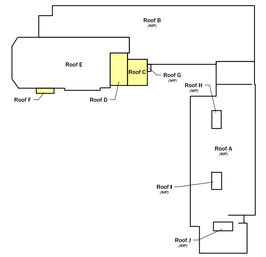
DRAWING REVISIONS

#	Date	Description
2	2023-09-29	Addendum #2

BUFF ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: Detail Callout Maps
Drawn By: D.V.G.
Project No. 22140
Date: SEPTEMBER 11, 2023
Revised:
Sheet No. R1.04

JCSD – JEFFERSON COUNTY SD
Buff Elementary School - MADRAS, OR
ROOF LAYOUT



- Project Area

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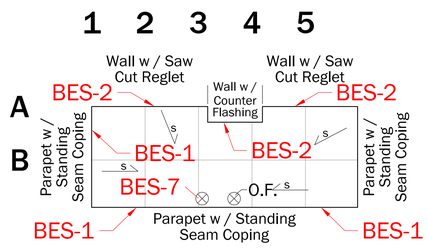
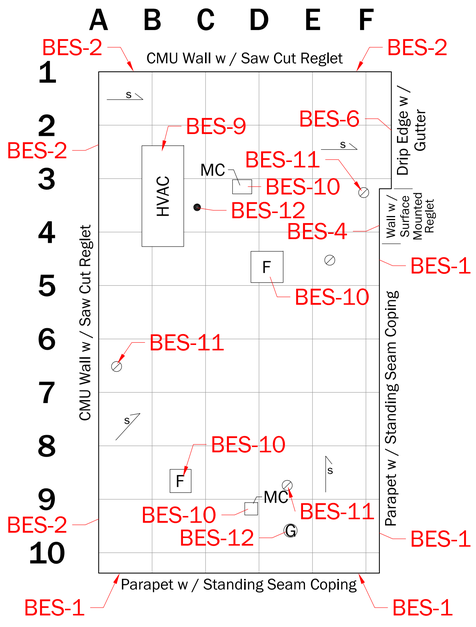
Roof F

5'



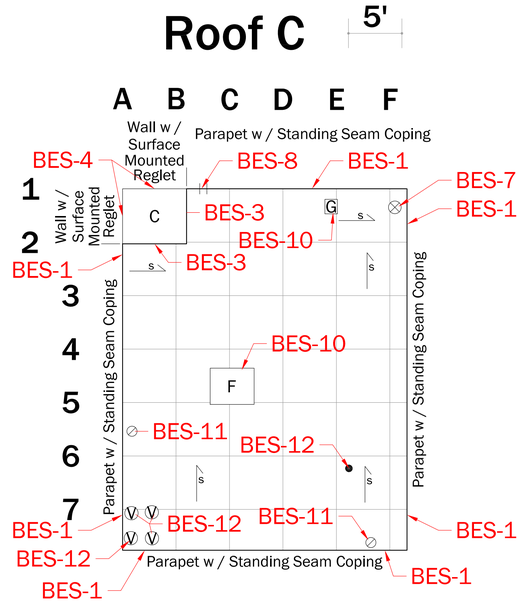
Roof D

5'



Roof C

5'



N

DRAWING REVISIONS

Description	Date

Stamp

BUFF ELEMENTARY SCHOOL IMPROVEMENTS

JEFFERSON COUNTY SCHOOL DISTRICT (509J)

BID SET

Drawing Title: Detail Callout Maps

Drawn By : D.V.G.

Project No. 22140

Date : SEPTEMBER 11, 2023

Revised :

Sheet No.

R1.05

PROJECT DATA

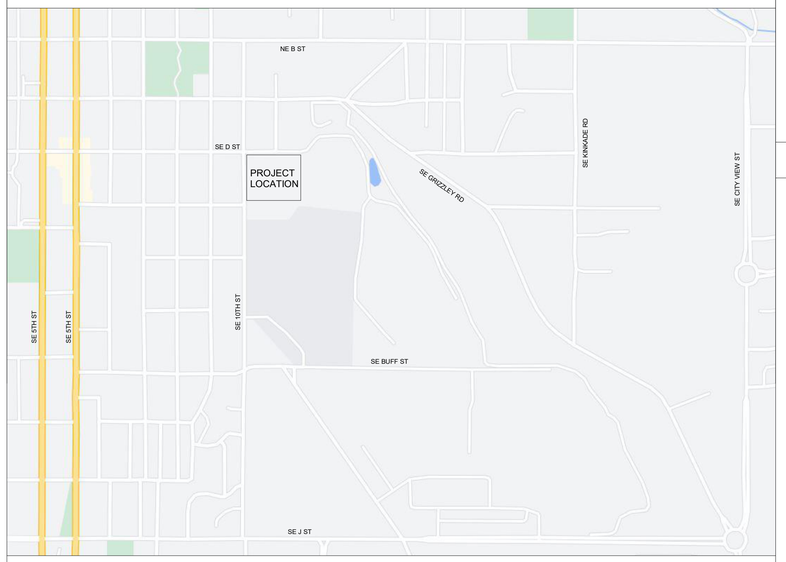
PROJECT ADDRESS:	215 SE 10TH STREET, MADRAS, OR 97741
TAX LOT:	111312BA04200
PARCEL AREA:	354,578.4 SF (8.14 ACRES)
ZONING:	OS
BUILDING USE(S):	EDUCATION
BUILDING CODE:	2022 OREGON STRUCTURAL SPECIALTY CODE 2021 OREGON EXISTING BUILDING CODE
OCCUPANCY GROUP(S):	EDUCATION (E)
CONSTRUCTION TYPE:	VB
BUILDING AREA:	54,915 SF
STORIES:	1
FIRE SPRINKLER:	YES
SEWER DISTRICT:	THE CITY OF MADRAS UTILITIES DEPARTMENT
WATER SOURCE:	THE CITY OF MADRAS UTILITIES DEPARTMENT
POWER SOURCE:	CENTRAL ELECTRIC CO-OP, INC.

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS

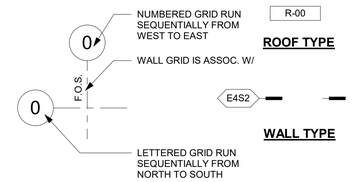
215 SE 10TH STREET, MADRAS, OREGON 97741

JEFFERSON COUNTY SCHOOL DISTRICT (509J)

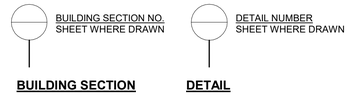
VICINITY MAP

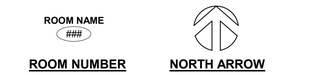


ARCHITECTURAL SYMBOLS



GRID LINES
GRID LINES SHOWS STRUCTURAL BAYS





ABBREVIATIONS

AB	ANCHOR BOLT	NO	NUMBER
AFF	ABOVE FINISHED FLOOR	NTS	NOT TO SCALE
AL	ALUMINUM	OC	ON CENTER
BD	BOARD	OD	OVERFLOW DRAIN
BFF	BELOW FINISHED FLOOR	OFCI	OWNER FURNISHED / CONTRACTOR INSTALLED
BLDG	BUILDING	OFOI	OWNER FURNISHED / OWNER INSTALLED
BO	BOTTOM OF	OPG	OPENING
CLG	CEILING	OVHD	OVERHEAD
CMU	CONCRETE MASONRY UNIT	PL	PLATE
CONC	CONCRETE	PPM	PRE-PAINTED METAL
CONT	CONTINUOUS	R	RISER
DIA	DIAMETER	RAD	RADIUS
DIM	DIMENSION	RD	ROOF DRAIN
DN	DOWN	REF	REFERENCE
DWG	DRAWING	REINF	REINFORCING
EA	EACH	REQ	REQUIREMENT
ELEV	ELEVATION	SEC	SECTION
EQ	EQUAL	SHTNG	SHEATHING
EXP	EXPANSION	SHT	SHEET
FD	FLOOR DRAIN	SIM	SIMILAR
FE	FIRE EXTINGUISHER	SPEC	SPECIFICATION
FF	FINISHED FLOOR	SQ	SQUARE
FIN	FINISH	STD	STANDARD
FOB	FACE OF BRICK	STL	STEEL
FOC	FACE OF CONCRETE	STRL	STRUCTURAL
FOF	FACE OF FOUNDATION	TEL	TELEPHONE
FOS	FACE OF STUD	TFCI	TENANT FURNISHED / CONTRACTOR INSTALLED
FT	FOOT	TFTI	TENANT FURNISHED / TENANT INSTALLED
GA	GAUGE	TO	TOP OF
GALV	GALVANIZED	TOB	TOP OF BRICK
GYP	GYPSUM	TOC	TOP OF CURB
GWB	GYPSUM WALL BOARD	TOW	TOP OF WALL
HB	HOSE BIB	TYP	TYPICAL
HM	HOLLOW METAL	UNO	UNLESS OTHERWISE NOTED
HR	HOUR	VIF	VERIFY IN FIELD
ID	INSIDE DIAMETER	W/	WITH
INSUL	INSULATION	W/O	WITHOUT
JT	JOINT	WD	WOOD
MAX	MAXIMUM	WP	WATERPROOF
MTL	METAL	WR	WATER RESISTANT
MFR	MANUFACTURER	WT	WEIGHT
MIN	MINIMUM		
MIR	MIRRORED		
NC	NON-COMBUSTIBLE		
NIC	NOT IN CONTRACT		

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS AND LAYOUT PRIOR TO PROCEEDING WITH WORK. NOTIFY ARCHITECT OF ANY DISCREPANCIES OR INCONSISTENCIES. FAILURE TO REPORT ANY DISCREPANCIES WITHIN THESE CONSTRUCTION DOCUMENTS TO THE ARCHITECT WILL NOT BE GROUNDS FOR ADDITIONAL COST OR CHANGE ORDERS.
2. "PROVIDE" MEANS "FURNISH AND INSTALL."
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS (UNLESS OTHERWISE NOTED), AND WORKMANSHIP IN ACCORDANCE WITH FEDERAL, STATE, CITY AND LOCAL BUILDING CODES AND THEIR REQUIREMENTS.
4. DO NOT SCALE THE DRAWINGS.

BID ADD-ALTERNATES

1. RTU REPLACEMENT
2. RESTROOM REMODELS
   A. BOYS RESTROOM AT NE HALLWAY (MECHANICAL EXHAUST FAN WORK IS BASE BID)
   B. GIRLS RESTROOM AT NE HALWAY (MECHANICAL EXHAUST FAN WORK IS BASE BID)
   C. UNISEX RESTROOM AT SOUTH END OF CENTRAL HALLWAY

PROJECT TEAM

OWNER:
JEFFERSON COUNTY SCHOOL DISTRICT 509J
445 SE BUFF STREET
MADRAS, OR, 97741
CONTACT: SIMON WHITE
541.279.1126

OWNER'S MANAGING CONSULTANT:
TILLER'S SCHOOLHOUSE CONSULTING
21464 HYDE LANE
BEND, OR, 97701
CONTACT: MIKE TILLER
541.550.9431

GENERAL CONTRACTOR:
TBD

ARCHITECT:
BLRB ARCHITECTS
721 SW INDUSTRIAL, SUITE 130
BEND, OR, 97702
CONTACT: HEIDI SLAYBAUGH
541.330.6506

MECHANICAL, ELECTRICAL, PLUMBING, & STRUCTURAL ENGINEER:
MORRISON-MAIERLE
1001 SW DISK DRIVE, SUITE 110
BEND, OR, 97702
OFFICE LEADER CONTACT: ERIC J. WEBBER
MECHANICAL CONTACT: DOUG DOWNIE
ELECTRICAL CONTACT: GARTH STEVENS
PLUMBING CONTACT: PATRICK HONSINGER
541.699.5434

ROOF CONSULTANT:
A-TECH/ NORTHWEST, INC.
2501 NW GERKE RD.
PRINEVILLE, OR 97754
CONTACT: DAVID ANDERSON
503.628.2882

CIVIL ENGINEER & SURVEYOR:
HWA CIVIL ENGINEERING, SURVEYING, AND PLANNING
62930 O.B. REILY RD. SUITE 100
BEND, OR 97703
CONTACT: GRANT HARDGRAVE
541.389.9351

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AC0.03 ACCESSIBILITY AND CODE INFO DIAGRAMS

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C2.01 GRADING AND PAVING PLAN
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A2.13 MAIN ENTRANCE PLANS
A2.14 ACCESSIBLE SINGLE-USE RESTROOM
A2.15 SPED RESTROOM PLANS & ELEVATIONS
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PLUMBING
P0.00 PLUMBING SYMBOLS AND ABBREVIATIONS
P0.01 PLUMBING SCHEDULES & DETAILS
P2.01 PLUMBING ENLARGED FLOOR PLANS

MECHANICAL
M0.00 MECHANICAL SYMBOLS AND ABBREVIATIONS
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2

/saj/ Architecture
BEND / PORTLAND

Stamp

DRAWING REVISIONS

#	Date	Description
2	2023-09-29	Addendum #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: TITLE SHEET / GENERAL INFORMATION
Drawn By: LCG
Project No. 22140
Date: SEPTEMBER 11, 2023
Revised:

Sheet No.
A0.01

9/28/2023 8:40:21 PM

SAJ ARCHITECTURE

REMOVAL KEY NOTES

1. SAWCUT AND REMOVE EXISTING PCC PAVEMENT AND AGGREGATE AS SHOWN
2. SAWCUT AND REMOVE EXISTING HMAC PAVEMENT AND AGGREGATE AS SHOWN
3. SAWCUT AND REMOVE EXISTING CURB
4. REMOVE STAIRS AND LANDING
5. REMOVE HANDRAIL
6. REMOVE PLANTER BLOCK WALL
7. RELOCATE STOP SIGN
8. RELOCATE WATER METER (APPROXIMATE METER LOCATION SHOWN)
9. REMOVE CATCH BASIN
10. RELOCATE ACCESSIBLE SIGN

GENERAL SURVEY NOTES

1. PROJECT SITE IS LOCATED IN SECTION 12, TOWNSHIP 11 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, JEFFERSON COUNTY, OREGON.
2. TOPOGRAPHIC SURVEY INFORMATION DEPICTED HEREIN IS FROM SURVEY PREPARED BY HWA IN APRIL 2023. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, INCLUDING POTHOLING OF EXISTING UTILITIES AS NECESSARY TO VERIFY LOCATION, DEPTH, AND SIZE.
3. WITH REGARD TO UNDERGROUND UTILITIES, INFORMATION FROM CITY OF MADRAS AND UTILITY LOCATE MARKINGS WERE COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, EXCAVATION MAY BE NECESSARY.
4. THIS PROPERTY IS SUBJECT TO ALL EASEMENTS, RESTRICTIONS, AND RIGHT-OF-WAYS OF RECORD AND THOSE COMMON AND APPARENT ON THE LAND.
5. THE COORDINATES SHOWN ARE BASED ON THE CENTRAL OREGON COORDINATE SYSTEM. ELEVATIONS SHOWN ARE BASED ON THE VERTICAL DATUM NGVD29 AND WERE DERIVED FROM PUBLISHED CENTRAL OREGON COORDINATE SYSTEM BENCHMARKS.

CONTACT INFORMATION

OWNER / DEVELOPER: JEFFERSON COUNTY SCHOOL DISTRICT
445 SE BUFF STREET
MADRAS, OR 97741
PH: (541)-475-6192

SURVEYOR / ENGINEER: HWA, INC.
62930 O.B. RILEY ROAD, SUITE 100
BEND, OR 97703
PH: (541) 389-9351

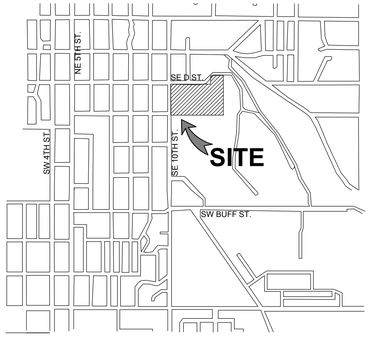
ARCHITECT: BLRB ARCHITECTURE
721 SW INDUSTRIAL WAY, SUITE 130
BEND, OR 97702
PH: (541) 330-6506

REMOVAL GENERAL NOTES

1. MINIMUM SAWCUT REMOVAL SHOWN - ACTUAL SAWCUT LINES TO FOLLOW EXISTING CONCRETE SCORE LINES (TYPICAL FOR ALL CONCRETE REMOVAL).

LEGEND

- PROPERTY LINE
- ASSESSOR'S TAX LOT LINE (APPROX. LOCATION)
- CURB LINE
- GAS — UNDERGROUND GAS LINE
- OHP — OVERHEAD POWER LINE
- HMAC PAVEMENT
- PCC PAVEMENT
- 3641 — CONTOUR LINE, 1' INTERVAL
- 3645 — CONTOUR LINE, 5' INTERVAL
- CB — CATCH BASIN
- WATER METER
- WATER VALVE
- SIGN
- FLAG POLE
- DECIDUOUS TREE (SIZE AS NOTED)
- PINE TREE (SIZE AS NOTED)
- SHRUB
- EXISTING CURB/WALL TO BE REMOVED
- EXISTING HANDRAIL TO BE REMOVED
- EXISTING PCC PAVEMENT TO BE REMOVED
- EXISTING HMAC PAVEMENT TO BE REMOVED



VICINITY MAP
SCALE: 1"=1000'
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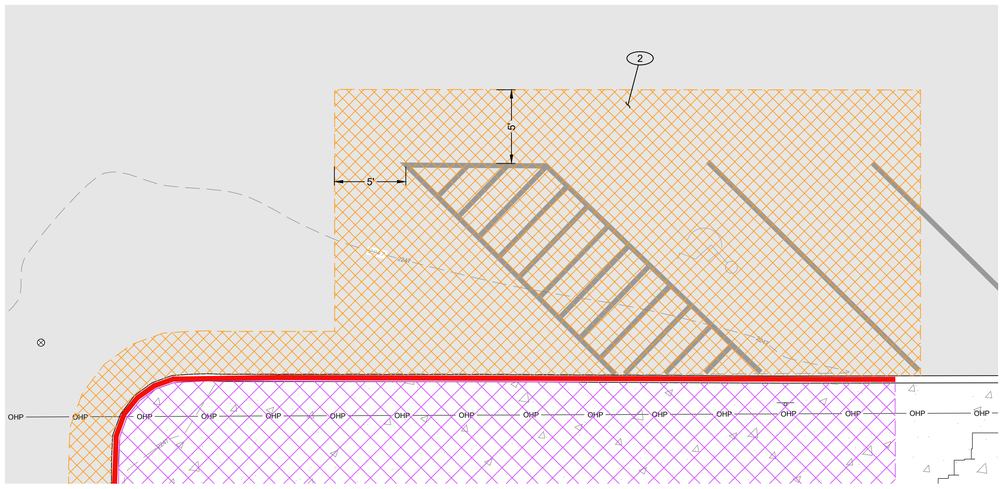
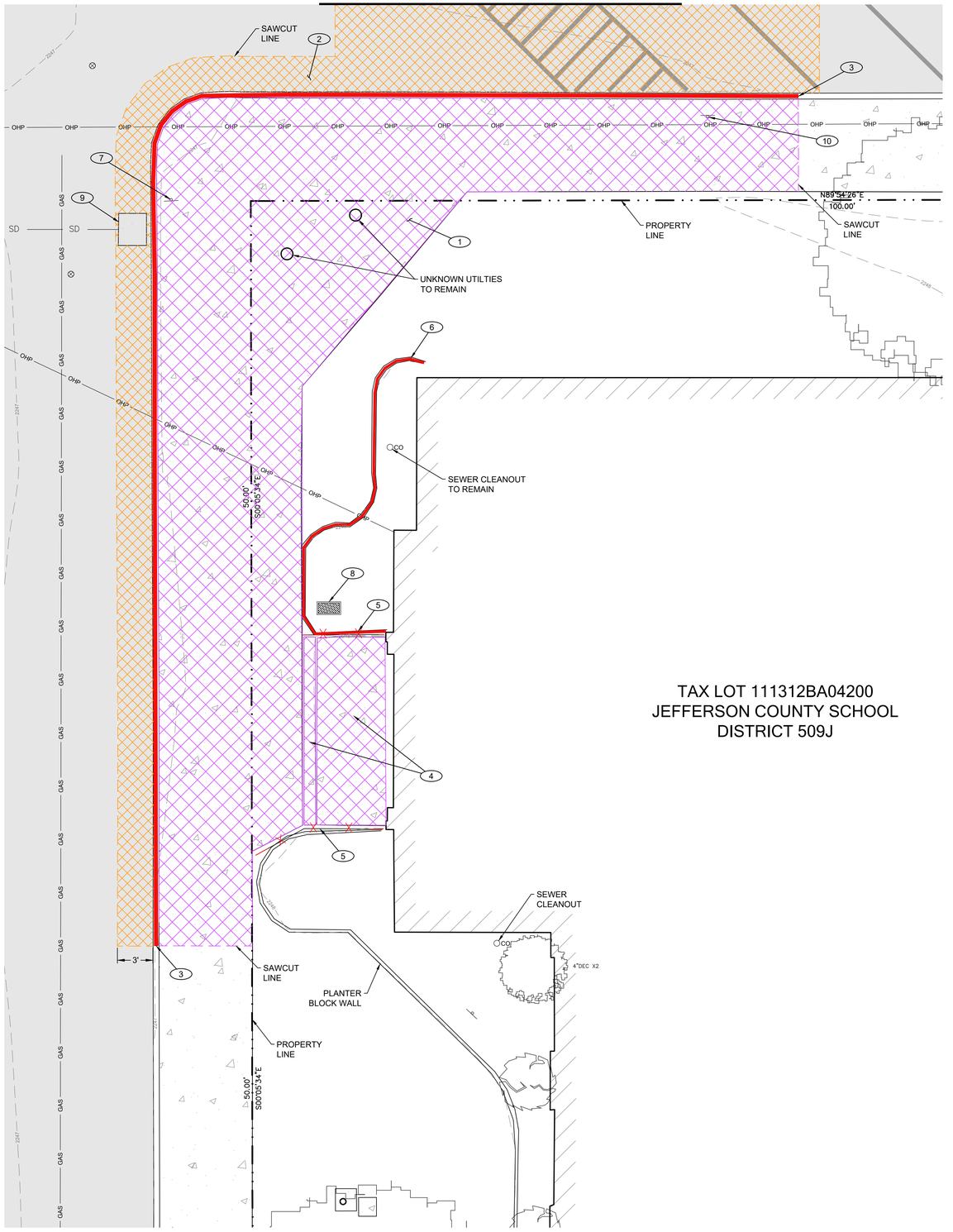


ADA DEMOLITION DETAILS
SCALE: 1"=5'

SEE THIS SHEET FOR ADA DEMOLITION DETAILS



TAX LOT 111312BA04200
JEFFERSON COUNTY SCHOOL DISTRICT 509J

0 2.5 5 10 15
SCALE: 1" = 5'

N

0 2.5 5 10 15
SCALE: 1" = 5'

N

/saj/ Architecture

REGISTERED PROFESSIONAL ENGINEER
92977PE
OREGON
JULY 13, 1984
GRANT HARDGRAVE
Stamp

DRAWING REVISIONS

#	Date	Description
2	09/28/2023	ADDENDUM #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)

BID SET

Drawing Title: EXISTING CONDITIONS AND REMOVAL PLAN
Date: SEPTEMBER 11, 2023
Revised:
Drawn By: MWB
Project No. 22140
Sheet No. C1.01

BLRB ARCHITECTS, P.S.

GENERAL GRADING NOTES

1. ALL GRADING SHALL BE IN CONFORMANCE WITH THE CURRENT 2019 OREGON STRUCTURAL SPECIALTY CODE AND WITH THE C.O.M. STANDARDS.
2. EXCAVATORS SHALL COMPLY WITH THE PROVISIONS OF OAR 952-001-0090.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "UNDERGROUND LOCATE SERVICE" AT 1-800-332-2344 AT LEAST 2 FULL BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION FOR LOCATION OF UNDERGROUND WATER, SEWER, STORM DRAIN, POWER, GAS, OIL, CABLE TV, AND TELEPHONE FACILITIES.
4. ALL UNSUITABLE SOILS MATERIALS, RUBBISH, AND DEBRIS RESULTING FROM GRADING OPERATIONS SHALL BE REMOVED FROM THE JOB SITE AND DISPOSED OF PROPERLY.
5. THE CONTRACTOR SHALL EMPLOY ALL LABOR, EQUIPMENT, AND METHODS REQUIRED TO PREVENT HIS OPERATIONS FROM PRODUCING DUST IN AMOUNTS DAMAGING TO PROPERTY, CULTIVATED VEGETATION, AND DOMESTIC ANIMALS OR CAUSING A NUISANCE TO PERSONS OCCUPYING BUILDINGS IN THE VICINITY OF THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST RESULTING FROM HIS OPERATIONS.
6. ALL ACCESSIBLE ROUTES SHALL BE CONSTRUCTED WITH A SLOPE OF NO MORE THAN 5.0% IN THE DIRECTION OF TRAVEL AND A CROSS SLOPE OF NO MORE THAN 2.0%.

CONSTRUCTION KEY NOTES

1. CONSTRUCT LIGHT-DUTY PCC PAVEMENT (4" PCC ON 4" AGGREGATE BASE) (PER ODOT STD DWG RD720, SHEET C3.01)
2. CONSTRUCT HMAC PAVEMENT (4" HMAC ON 6" AGGREGATE BASE) (PER COM STD DWG 7-5, SHEET C3.01)
3. CONSTRUCT SINGLE PERPENDICULAR ADA RAMP (PER ODOT STD DWG RD916, SHEET C3.01)
4. CONSTRUCT 12" CONCRETE CURB (REVEAL PER PLANS) (PER COM STD DTL 7-15, SHEET C3.01)
5. INSTALL SALVAGED WATER METER (PER COM STD DTL 6-1, SHEET C3.02)
6. CONSTRUCT CONCRETE ACCESSIBLE RAMP
7. CONSTRUCT CONCRETE LANDING AND STAIRS
8. INSTALL HANDRAILS
9. CONSTRUCT TRANSITION PANEL (PER ODOT DTD DWG RD722, SHEET C3.02)
10. INSTALL SALVAGED STOP SIGN W/ STREET SIGNS (PER COM STD DWG 7-17, SHEET C3.02)
11. INSTALL STANDARD CATCH BASIN. EXTEND STORM DRAIN PIPE 2 LF. (PER ODOT STD DWG RD364, SHEET C3.02)
12. INSTALL SALVAGED ACCESSIBLE SIGN (PER DETAIL 1/3.03 & COM STD DWG 7-17, SHEET C3.02)
13. STRIPE ADA PARKING SPACE AND LOADING ZONE PER DETAIL 1/C3.03

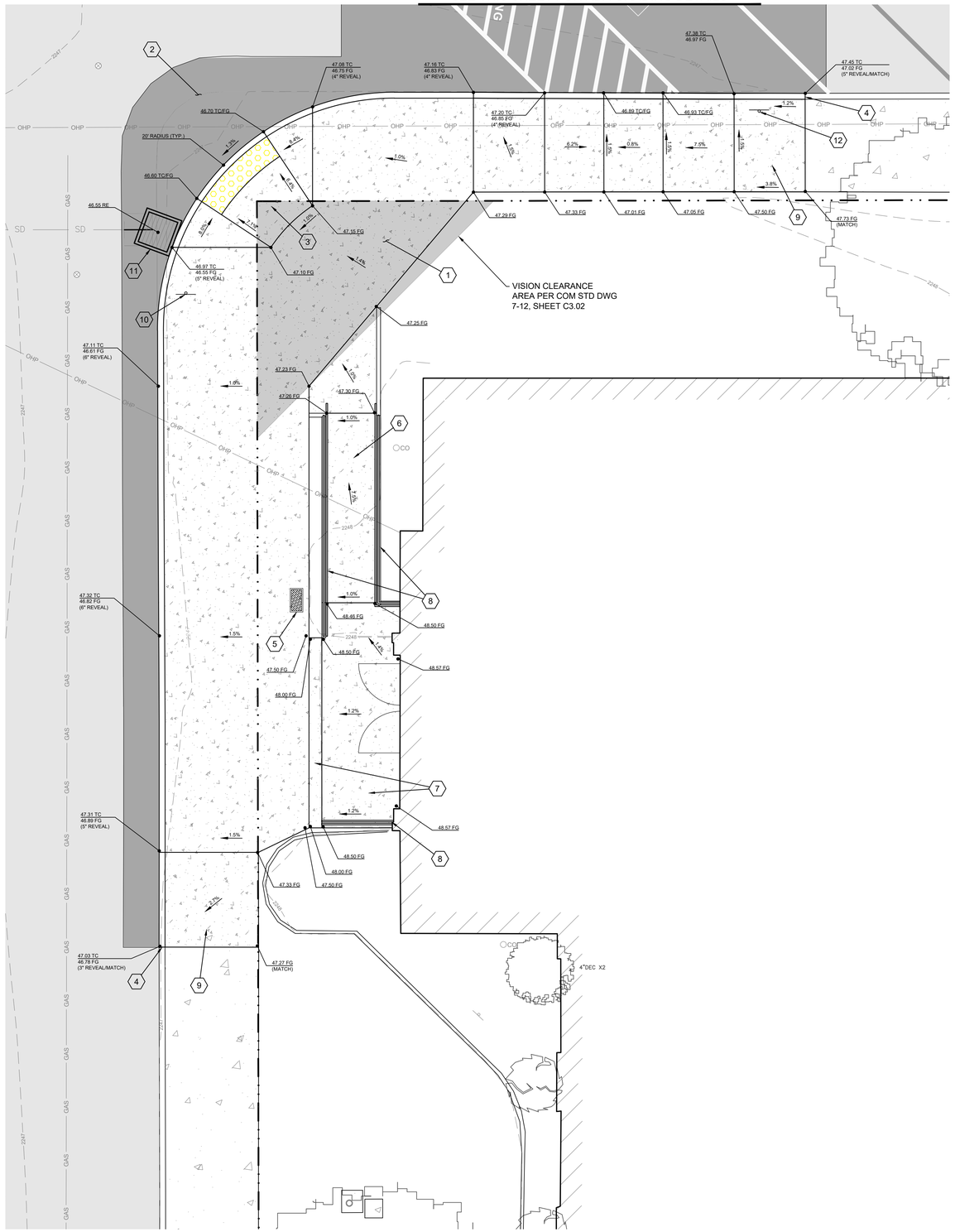
GRADING LEGEND

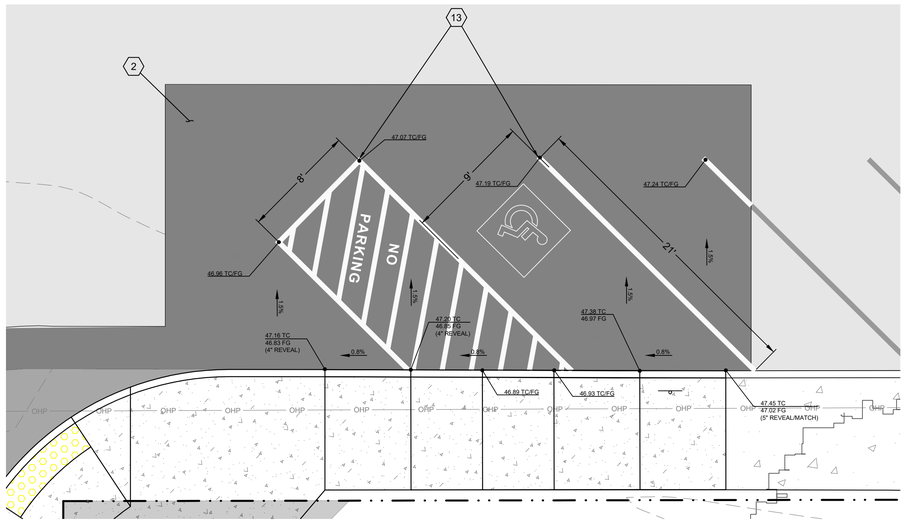
- EXISTING CURB
- 2201 — EXISTING 1' GROUND SURFACE CONTOUR
- 2205 — EXISTING 5' GROUND SURFACE CONTOUR
- 60.50 FG — PROPOSED SPOT ELEVATION
- FG — FINISH GRADE
- EG — EXISTING GRADE
- EP — EDGE OF PAVEMENT
- RE — RIM ELEVATION

NOTE:
ADD 2200.00 FT TO ALL SPOT ELEVATIONS

- EXISTING HMAC PAVEMENT TO REMAIN
- PROPOSED HMAC PAVEMENT
- EXISTING CONCRETE TO REMAIN
- PROPOSED PCC PAVEMENT

SEE THIS SHEET FOR ADA GRADING DETAILS





ADA GRADING DETAILS
SCALE: 1"=5'

0 2.5 5 10 15
SCALE: 1" = 5'

N

0 2.5 5 10 15
SCALE: 1" = 5'

N

/saj/ Architecture

Stamp: OREGON REGISTERED PROFESSIONAL ENGINEER 32977PE Grant Hardgrave JULY 13, 1984 GRANT HARDGRAVE

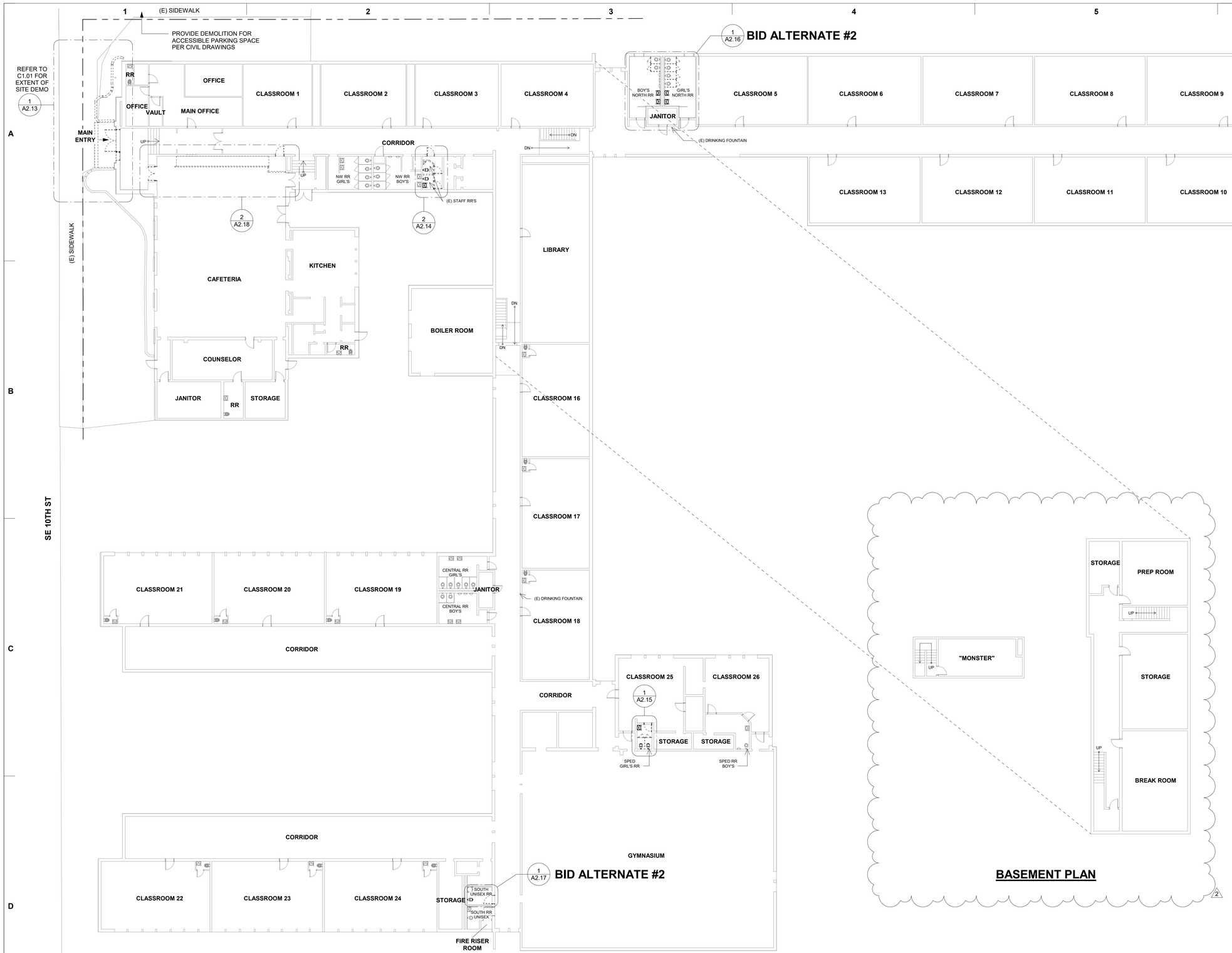
DRAWING REVISIONS

#	Date	Description
2	09/28/2023	ADDENDUM #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: GRADING AND PAVING PLAN
Date: SEPTEMBER 11, 2023
Revised:
Drawn By: MWB
Project No. 22140
Sheet No. C2.01

BLRB ARCHITECTS, P.S.



FLOOR PLAN GENERAL NOTES

A. DRAWINGS ARE SHOWN TO SCALE AS NOTED AS AIDS IN DETERMINING SIZE AND PROPORTION. ONLY WRITTEN DESCRIPTIONS AND SIZES SHALL BE UTILIZED FOR CONSTRUCTION. DRAWINGS SHALL NOT BE SCALED.
- UNLESS NOTED OTHERWISE, DIMENSIONS ON PLANS ARE:
- FACE OF STUD (F.O.S.)
- FACE OF CONCRETE (F.O.C.)
- CENTERLINE OF DOOR AND WINDOW OPENINGS.

B. FIXTURES AND EQUIPMENT SHOWN ARE FOR COORDINATION PURPOSES ONLY. REFER TO THE MANUFACTURER'S PRODUCT DATA, ENGINEERING DRAWINGS, AND SPECIFICATIONS FOR FIXTURE AND EQUIPMENT DESCRIPTIONS AND LOCATIONS.

C. PRESERVATION OF ADJACENT OR EXISTING CONSTRUCTION:
- AVOID DAMAGE TO EXISTING STRUCTURES, SIDEWALKS, CURBS, PAVING AND LANDSCAPING.
- PATCH, REPAIR, OR REPLACE ANY ITEMS DAMAGED, OR AS DIRECTED BY THE PROPERTY OWNER.

D. AVOID UNNECESSARY DISRUPTIONS TO THE FUNCTIONS AND ACTIVITIES OF ADJACENT BUILDINGS.

E. CAREFULLY REVIEW ALL CONTRACT DOCUMENTS PRIOR TO CONSTRUCTION. BRING DISCREPANCIES OR CONFLICTING DATA TO THE ATTENTION OF THE ARCHITECT PRIOR TO COMMENCING WORK.

F. UNLESS NOTED OTHERWISE, INSTALL DOORS WITH 4" FROM HINGE SIDE OF DOOR TO ADJACENT WALL FRAMING.

G. CONTRACTOR TO VERIFY SIZES OF ROUGH DOOR AND WINDOW OPENINGS PRIOR TO ORDERING DOORS AND WINDOWS.

H. SEE SHEET A9.11 FOR MATERIALS/FINISHES

1 DEMO FLOOR PLAN

1/16" = 1'-0" @ FULL SIZE

0' 4' 8' 16'

/saj/ Architecture
BEND / PORTLAND

Stamp

DRAWING REVISIONS

#	Date	Description
1	2023-09-29	Addendum #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS

JEFFERSON COUNTY SCHOOL DISTRICT (509J)

BID SET

Drawing Title: REFERENCE DEMOLITION PLAN

Drawn By : LCG

Project No. 22140

Date : SEPTEMBER 11, 2023

Revised :

Sheet No. A2.11

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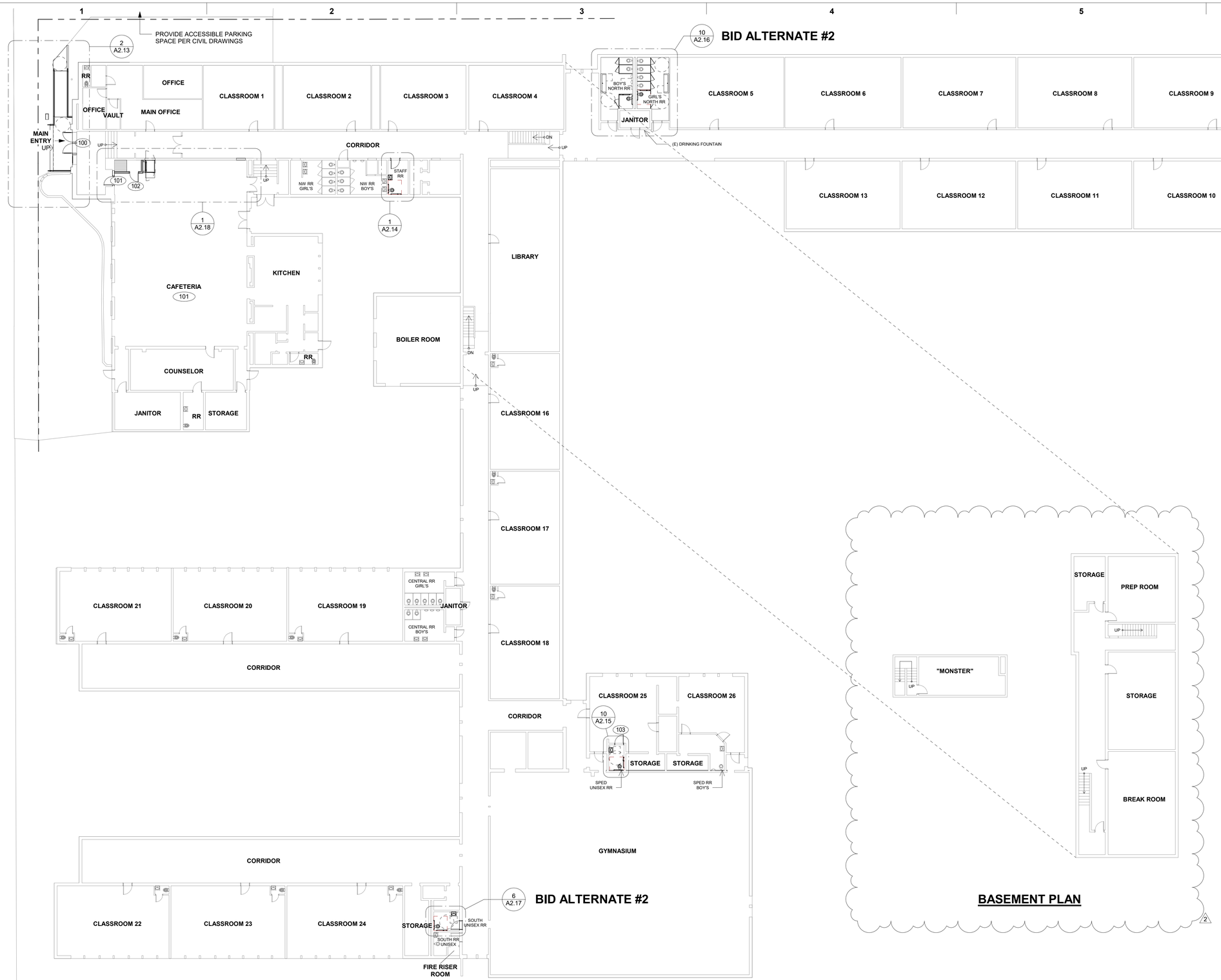
SAJ ARCHITECTURE



FLOOR PLAN GENERAL NOTES

A. DRAWINGS ARE SHOWN TO SCALE AS NOTED AS AIDS IN DETERMINING SIZE AND PROPORTION. ONLY WRITTEN DESCRIPTIONS AND SIZES SHALL BE UTILIZED FOR CONSTRUCTION. DRAWINGS SHALL NOT BE SCALED.
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D. AVOID UNNECESSARY DISRUPTIONS TO THE FUNCTIONS AND ACTIVITIES OF ADJACENT BUILDINGS.

E. CAREFULLY REVIEW ALL CONTRACT DOCUMENTS PRIOR TO CONSTRUCTION. BRING DISCREPANCIES OR CONFLICTING DATA TO THE ATTENTION OF THE ARCHITECT PRIOR TO COMMENCING WORK.

F. UNLESS NOTED OTHERWISE, INSTALL DOORS WITH 4" FROM HINGE SIDE OF DOOR TO ADJACENT WALL FRAMING.

G. CONTRACTOR TO VERIFY SIZES OF ROUGH DOOR AND WINDOW OPENINGS PRIOR TO ORDERING DOORS AND WINDOWS.

H. SEE SHEET A9.11 FOR MATERIALS/FINISHES

1 NEW FLOOR PLAN
1/16" = 1'-0" @ FULL SIZE
0' 4' 8' 16'

/saj/ Architecture
BEND / PORTLAND

Stamp

DRAWING REVISIONS

#	Date	Description
2	2023-09-29	Addendum #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
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SAJ ARCHITECTURE

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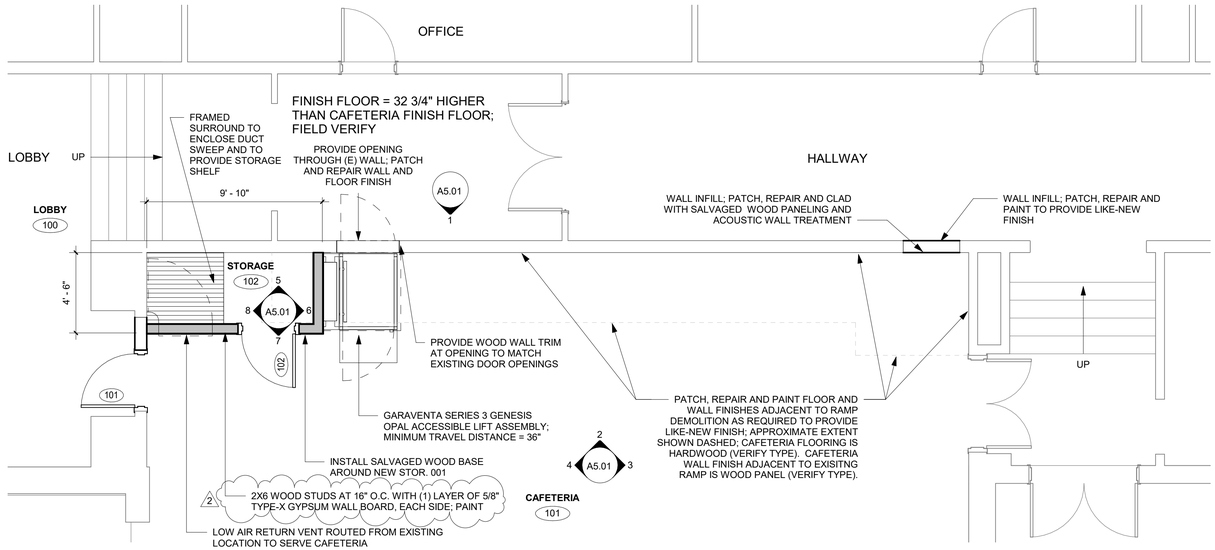

1 ACCESSIBILITY PLAN AT NORTH HALLWAY

1/4" = 1'-0" @ FULL SIZE

0' 1" 2" 4'

2 DEMO FLOOR PLAN - NORTH HALL AND CAFETERIA

1/4" = 1'-0" @ FULL SIZE

0' 1" 2" 4'

PATCH, REPAIR AND PAINT FLOOR AND WALL FINISHES ADJACENT TO RAMP DEMOLITION AS REQUIRED TO PROVIDE LIKE-NEW FINISH; APPROXIMATE EXTENT SHOWN DASHED; CAFETERIA FLOORING IS HARDWOOD (VERIFY TYPE). CAFETERIA WALL FINISH ADJACENT TO EXISITNG RAMP IS WOOD PANEL (VERIFY TYPE).

3 EXISTING CONDITIONS AT CAFETERIA RAMP

N.T.S.

REMOVE DOOR AND TRIM IN PREPARATION FOR WALL INFILL; PATCH, REPAIR AND PAINT WALL FINISHES; WAINSCOT CAP AND BASE TO PROVIDE LIKE NEW FINISH.

4 EXISTING CONDITIONS AT CAFETERIA UPPER ENTRY

N.T.S.

/saj/ Architecture
BEND / PORTLAND

Stamp

DRAWING REVISIONS

#	Date	Description
1	2023-09-29	Addendum #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: ACCESSIBLE LIFT
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Project No. 22140
Date: SEPTEMBER 11, 2023
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Sheet No.
A2.18

SAJ ARCHITECTURE

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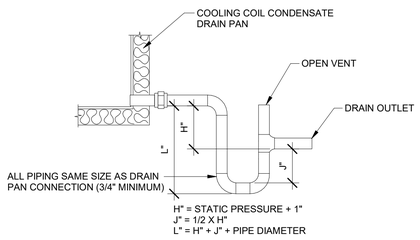

1 CONDENSATE DETAIL
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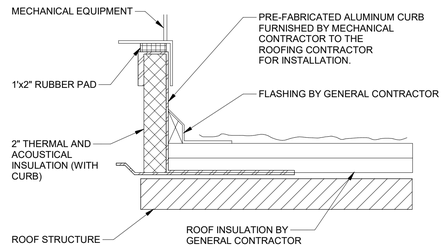
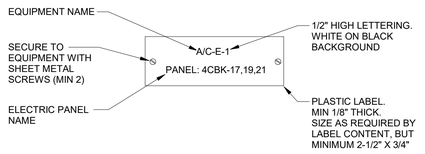


2 MECHANICAL EQUIPMENT CURB DETAIL
N.T.S.

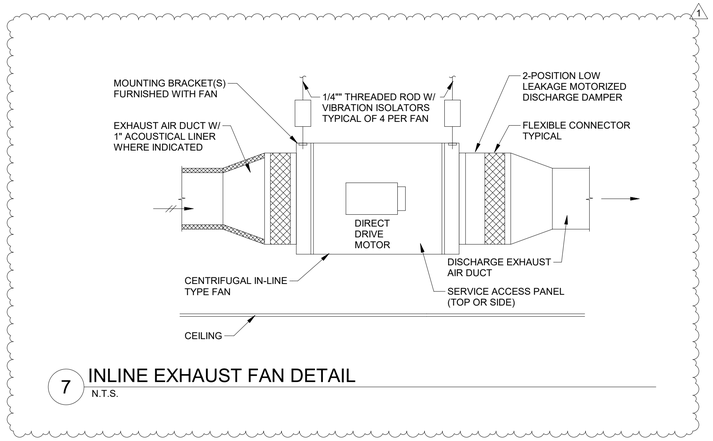


3 EQUIPMENT NAMEPLATE DETAIL
N.T.S.

4 NATURAL GAS PIPE THRU ROOF DETAIL
N.T.S.

5 GAS CONNECTION DETAIL
N.T.S.

6 GAS PIPE SUPPORT DETAIL
N.T.S.



7 INLINE EXHAUST FAN DETAIL
N.T.S.

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93757PE
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JULY 01, 2022
ERIC J. WEBBER
Stamp
EXPIRES: JUNE 30, 2024

DRAWING REVISIONS

#	Date	Description
1	09/29/2023	BID SET - ADDENDUM #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: MECHANICAL DETAILS
Drawn By : DPD
Project No. 22140
Date : SEPTEMBER 11, 2023
Revised :
Sheet No. M0.03

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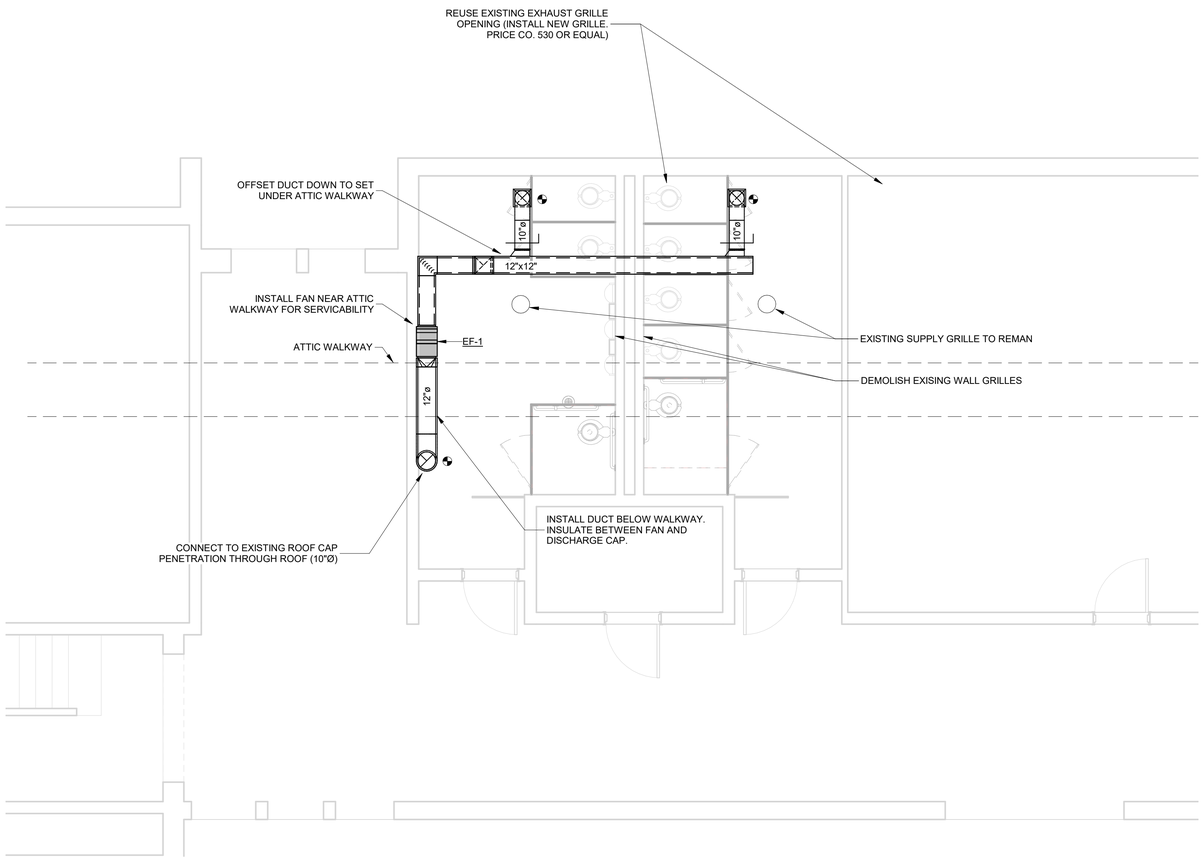
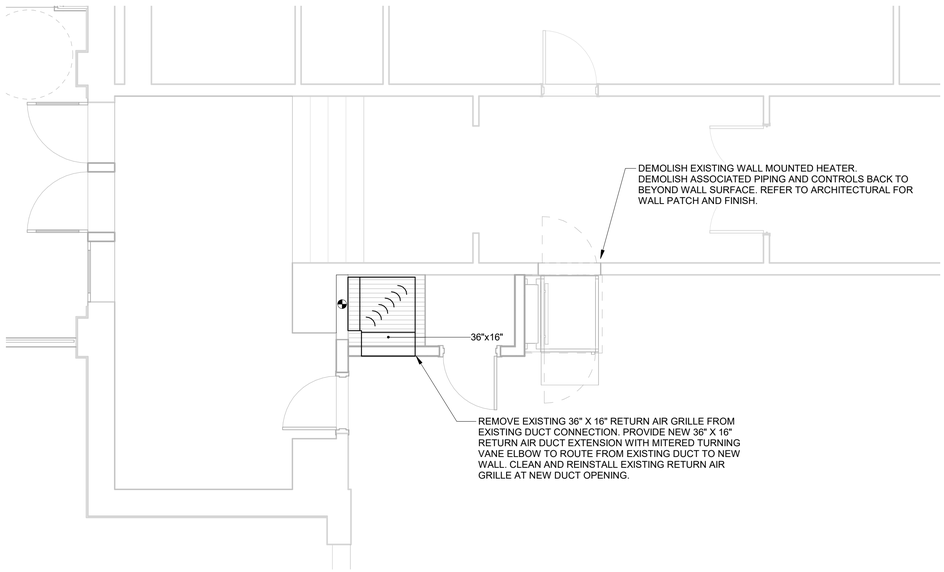
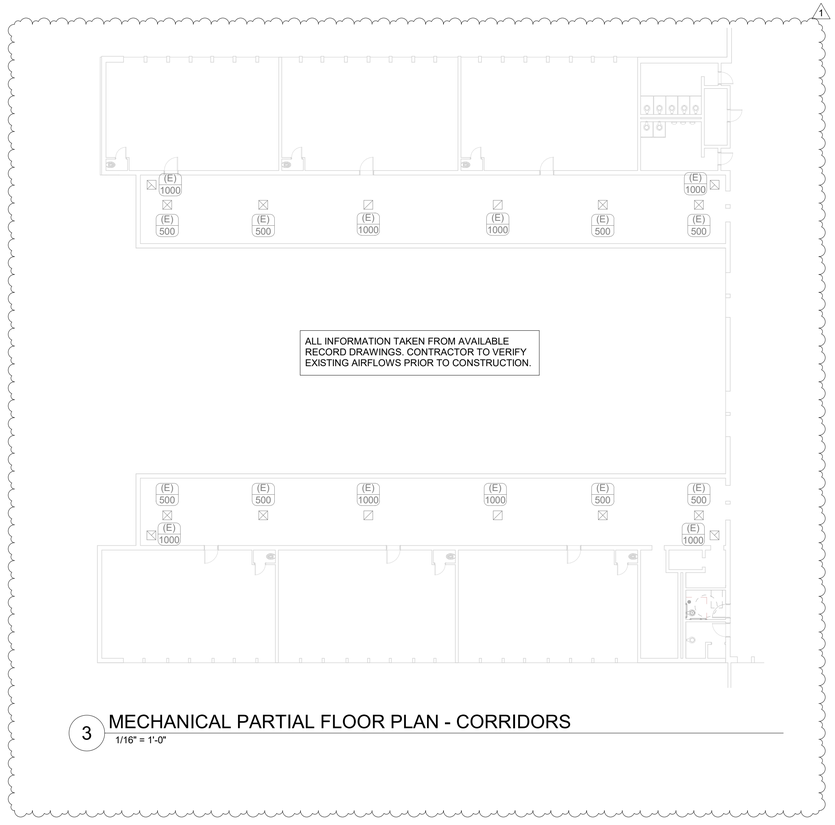


1 MECHANICAL PARTIAL FLOOR PLAN - NORTH BATHROOMS
1/4" = 1'-0"



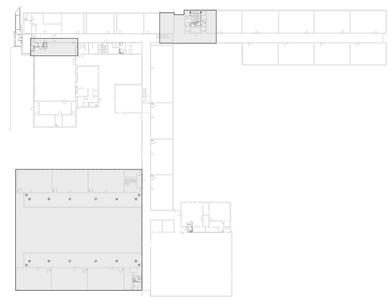
2 MECHANICAL PARTIAL FLOOR PLAN - CAFETERIA
N.T.S.



3 MECHANICAL PARTIAL FLOOR PLAN - CORRIDORS
1/16" = 1'-0"

MECHANICAL GENERAL NOTES

A. VERIFY THE LOCATION OF THERMOSTATS AND SENSORS WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION. INSTALL THERMOSTATS 48" ABOVE FINISHED FLOOR PER ADA REQUIREMENTS.
B. PROVIDE AND INSTALL SEISMIC BRACING FOR EQUIPMENT, DUCTWORK AND PIPING PER THE REQUIREMENTS OF THE CURRENTLY ADOPTED INTERNATIONAL BUILDING CODE.
C. FLEXIBLE DUCTWORK BETWEEN BRANCH DUCTS AND GRILLES, REGISTERS, OR DIFFUSERS SHALL BE LIMITED TO 5 FT. FLEXIBLE DUCT SHALL NOT BE USED IN PLACE OF ELBOWS.
D. PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION FIRE/SMOKE DAMPERS WHERE DUCTWORK PASSES THROUGH RATED ASSEMBLIES. ASSOCIATED DUCT DETECTORS SHALL BE ADDRESSABLE. SMOKE DAMPERS AND COMBINATION SMOKE/FIRE DAMPERS SHALL INCLUDE A KEYED REMOTE TEST SWITCH LOCATED IN AN ACCESSIBLE LOCATION. FIELD COORDINATE THE LOCATION OF TEST SWITCHES WITH THE ARCHITECT AND ENGINEER PRIOR INSTALLATION.
E. SEAL DUCT AND PIPE PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH A UL-APPROVED FIRE STOP SYSTEM.
F. PROVIDE ACCESS DOORS TO ALLOW SERVICE AND INSPECTION OF EQUIPMENT, VALVES, DAMPERS AND DEVICES INSTALLED ABOVE NON-REMOVABLE CEILINGS. COORDINATE SUCH INSTALLATIONS WITH THE ARCHITECT AND ENGINEER.
G. EXPOSED DUCTWORK TO BE HOT DIPPED GALVANIZED STEEL AND PAINTED PER ARCHITECTURAL. CONTRACTOR TO CLEAN AND DRY DUCTWORK PRIOR TO PAINTING.



KEY PLAN

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#	Date	Description
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JEFFERSON COUNTY SCHOOL DISTRICT (509J)
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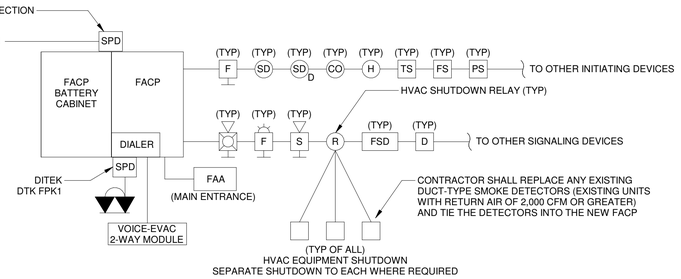

NOTES:
- ALL FIRE ALARM SYSTEM CONDUCTORS SHALL BE PLENUM RATED.
- FIRE ALARM SYSTEM CONDUCTORS SHALL BE RUN IN CONDUIT WHEREVER EXISTING CONDUIT IS AVAILABLE. CONDUCTORS MAY BE INSTALLED ABOVE ACCESSIBLE CEILING USING STEEL J-HOOKS MOUNTED 24" OC IN ACCORDANCE WITH OESC 760.24.
- PROVIDE POWER SUPPLIES AS REQUIRED FOR SIGNALING DEVICES. PROVIDE A SMOKE DETECTOR WITHIN 5 FEET OF FACP AND EACH POWER SUPPLY LOCATION.
- SPEAKER STROBES SHALL BE WHITE AND SHALL SAY "ALERT" IN LIEU OF "FIRE".
- BREAKER SERVING THE FIRE ALARM SYSTEM SHALL HAVE PERMANENT PROVISIONS FOR BEING SECURED IN THE "ON" POSITION AND SHALL BE IDENTIFIED IN RED AS "FIRE ALARM CIRCUIT."

1 FIRE ALARM RISER DIAGRAM
N.T.S.

MEP COORDINATION SCHEDULE

MARK	DESCRIPTION	ELECTRICAL DATA		CONTROL		NOTES	DISCONNECT / STARTER		DISCONNECT			FEEDER		CIRCUIT
		LOAD	VOLT-PHASE	TYPE	DIV		TYPE	DIV	SWITCH (AMPS)	FUSE (AMPS)	ENCLOSURE (NEMA)	COPPER WIRE (AWG)	CONDUIT (INCHES)	
MECHANICAL EQUIPMENT														
RTU-1	PACKAGED ROOFTOP UNIT	29 A	208/3	BAS	23/23	6, 8	FD	26/26	30	NOTE 6	3R	EXISTING	EXISTING	2B3-13,15,17
RTU-2	PACKAGED ROOFTOP UNIT	29 A	208/3	BAS	23/23	6, 8	FD	26/26	30	NOTE 6	3R	EXISTING	EXISTING	2B3-14,16,18
EF-1	EXHAUST FAN	0.144 HP	120/1	BAS	23/23	6	FST	26/26	20	NOTE 6	--	#12	1/2"	NEAREST CIRCUIT

CONTROL TYPE:

BAS	BUILDING AUTOMATION SYSTEM
CO	CARBON MONOXIDE DETECTOR
CONT	CONTINUOUS OPERATION
EF	INTERLOCK WITH EXHAUST FAN
HCP	HOOD CONTROL PANEL
INT	INTEGRAL
L	LIGHT SWITCH
MS	MANUAL SWITCH
OS	OCCUPANCY SENSOR
PS	PRESSURE SWITCH
T	THERMOSTAT
TC	TIME CLOCK
UC	UNIT CONTROLLER
VE	VEHICLE EXHAUST DETECTION SYSTEM
N/A	NOT APPLICABLE

DISCONNECT/STARTER TYPE:

CB	PANELBOARD CIRCUIT BREAKER WITHIN SIGHT OF EQUIPMENT
CSFD	COMBINATION STARTER/DISCONNECT - HOA
FD	FUSED DISCONNECT
FST	FUSTAT
FW	FACTORY-WIRED SINGLE POINT CONNECTION
MOCP	MOTOR OVER-CURRENT PROTECTION
MSS	MANUAL STARTER SWITCH WITH THERMAL OVERLOADS (1-, 2- OR 3-POLE AS REQUIRED)
NFD	NON-FUSED DISCONNECT
RCPT	20A DUPLEX RECEPTACLE (GFCI PROTECTED AS REQUIRED), CORD AND
RVSS	PLUG
VFD	REDUCED VOLTAGE SOLID-STATE
N/A	VARIABLE FREQUENCY DRIVE - HOA NOT APPLICABLE

DIVISION OF RESPONSIBILITIES:

22/22	FURNISHED AND INSTALLED BY DIV. 22, WIRED BY DIV. 22
22/26	FURNISHED AND INSTALLED BY DIV. 22, WIRED BY DIV. 26
23/23	FURNISHED AND INSTALLED BY DIV. 23, WIRED BY DIV. 23
23/26	FURNISHED AND INSTALLED BY DIV. 23, WIRED BY DIV. 26
26/26	FURNISHED AND INSTALLED BY DIV. 26, WIRED BY DIV. 26

NOTES:
1. INTEGRAL DISCONNECTS AND OVERLOADS
2. INTEGRAL OVERLOADS
3. SINGLE POINT CONNECTION
4. PROVIDE RECEPTACLE AND DATA CONNECTION FOR PANEL
5. MOUNT ON UNI-STRUT IN FRONT OF UNIT
6. SIZE FUSES IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES FOR INSTALLED EQUIPMENT
7. INTEGRAL VARIABLE FREQUENCY DRIVE
8. DUCT SMOKE DETECTOR(S) REQUIRED. SEE GENERAL NOTE C.

GENERAL NOTES:
- A. CONTROL WIRING SHALL BE CONCEALED WITHIN WALL CONSTRUCTION, ABOVE CEILING, OR RUN IN CONDUIT. EXPOSED CONTROL WIRING IS UNACCEPTABLE.
- B. UNLESS SPECIFICALLY NOTED, ALL FEEDERS SHALL INCLUDE A FULL SIZE NEUTRAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY WITH THE MANUFACTURER OF THE ACTUAL EQUIPMENT BEING SUPPLIED WHETHER A NEUTRAL IS REQUIRED PRIOR TO ROUGH IN.
- C. ALL DUCT SMOKE DETECTORS FURNISHED BY DIV. 26, INSTALLED BY DIV. 23, AND WIRED BY DIV. 26. DIV. 26 SHALL WIRE ALL FANS TO SHUT DOWN WHEN ALARM IS INITIATED BY ANY DUCT SMOKE DETECTOR.

2 LUMINAIRE SCHEDULE REMOVED

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OREGON
NOV 19, 2018
GARTH L. STEVENS
EXPIRES: JUNE 30, 2024

DRAWING REVISIONS

#	Date	Description
4	09/29/2023	BID SET - ADDENDUM #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: ELECTRICAL SCHEDULES AND DETAILS
Date : SEPTEMBER 11, 2023
Revised :
Drawn By : PMH
Project No. 22140
Sheet No. E0.01

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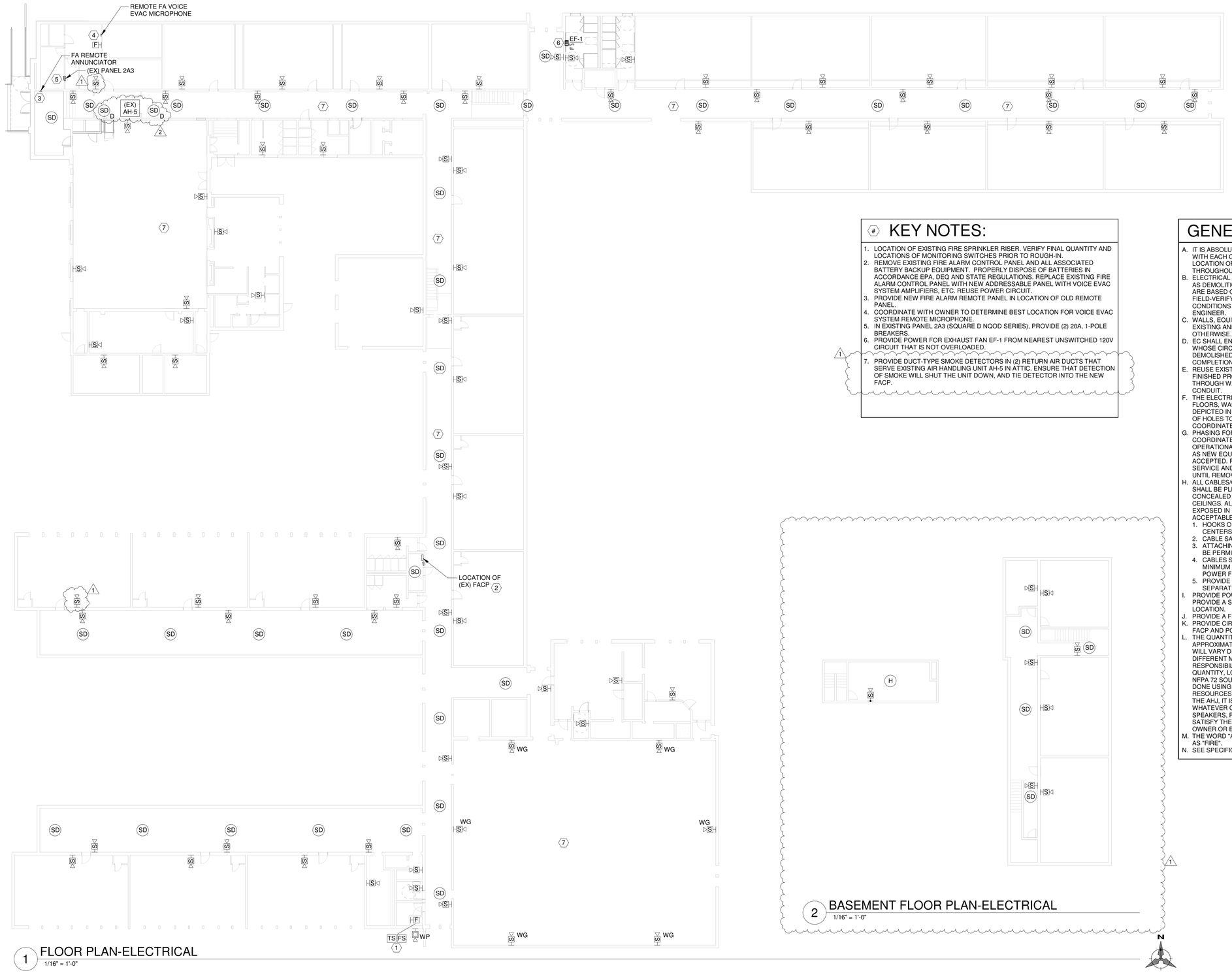

KEY NOTES:

1. LOCATION OF EXISTING FIRE SPRINKLER RISER. VERIFY FINAL QUANTITY AND LOCATIONS OF MONITORING SWITCHES PRIOR TO ROUGH-IN.
2. REMOVE EXISTING FIRE ALARM CONTROL PANEL AND ALL ASSOCIATED BATTERY BACKUP EQUIPMENT. PROPERLY DISPOSE OF BATTERIES IN ACCORDANCE EPA, DEQ AND STATE REGULATIONS. REPLACE EXISTING FIRE ALARM CONTROL PANEL WITH NEW ADDRESSABLE PANEL WITH VOICE EVAC SYSTEM AMPLIFIERS, ETC. REUSE POWER CIRCUIT.
3. PROVIDE NEW FIRE ALARM REMOTE PANEL IN LOCATION OF OLD REMOTE PANEL.
4. COORDINATE WITH OWNER TO DETERMINE BEST LOCATION FOR VOICE EVAC SYSTEM REMOTE MICROPHONE.
5. IN EXISTING PANEL 2A3 (SQUARE D NQOD SERIES), PROVIDE (2) 20A, 1-POLE BREAKERS.
6. PROVIDE POWER FOR EXHAUST FAN EF-1 FROM NEAREST UNSWITCHED 120V CIRCUIT THAT IS NOT OVERLOADED.
7. PROVIDE DUCT-TYPE SMOKE DETECTORS IN (2) RETURN AIR DUCTS THAT SERVE EXISTING AIR HANDLING UNIT AH-5 IN ATTIC. ENSURE THAT DETECTION OF SMOKE WILL SHUT THE UNIT DOWN, AND TIE DETECTOR INTO THE NEW FACP.

GENERAL FIRE ALARM NOTES

A. IT IS ABSOLUTELY NECESSARY FOR ALL TRADES INVOLVED TO COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF DUCTS, CONDUITS, DIFFUSERS, BOXES, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.
B. ELECTRICAL DRAWINGS SHOWING EXISTING BUILDING CONDITIONS, SUCH AS DEMOLITION/REMODEL DRAWINGS, EXISTING PANEL SCHEDULES, ETC. ARE BASED ON RECORD DRAWINGS AND SITE INVESTIGATION. EC SHALL FIELD-VERIFY EXISTING CONDITIONS, PRIOR TO BID. IF ACTUAL EXISTING CONDITIONS DIFFER FROM THOSE SHOWN ON DRAWINGS, PLEASE NOTIFY ENGINEER.
C. WALLS, EQUIPMENT, FIXTURES AND DEVICES SHOWN IN GRAY, ARE EXISTING AND ITEMS IN BLACK ARE NEW, UNLESS SPECIFICALLY NOTED OTHERWISE.
D. EC SHALL ENSURE THAT ANY EXISTING DEVICES THAT ARE TO REMAIN, WHOSE CIRCUITING WAS ROUTED THROUGH AN AREA THAT WAS DEMOLISHED, HAVE POWER AND FUNCTION PROPERLY AT THE COMPLETION OF THIS PROJECT.
E. REUSE EXISTING RACEWAY TO THE EXTENT POSSIBLE TO INSURE A CLEAN FINISHED PRODUCT. WHERE PRACTICAL, AND ALLOWED PER CODE, FISHING THROUGH WALLS WITH MC CABLE IS PREFERRED TO SURFACE-MOUNTED CONDUIT.
F. THE ELECTRICAL CONTRACTOR (EC) IS RESPONSIBLE FOR ALL CUTTING OF FLOORS, WALLS, CEILINGS, AND ROOFS TO PERFORM THE REQUIRED WORK DEPICTED IN THESE DOCUMENTS. EC IS RESPONSIBLE FOR ALL PATCHING OF HOLES TO THE SATISFACTION OF THE ARCHITECT/ENGINEER. COORDINATE WITH GENERAL CONTRACTOR.
G. PHASING FOR REPLACEMENT OF EXISTING FIRE ALARM SYSTEM SHALL BE COORDINATED WITH OWNER. MAINTAIN EXISTING EQUIPMENT FULLY OPERATIONAL UNTIL NEW EQUIPMENT HAS BEEN TESTED AND ACCEPTED. AS NEW EQUIPMENT IS INSTALLED, LABEL IT "NOT IN SERVICE" UNTIL IT IS ACCEPTED. REMOVE LABELS FROM NEW EQUIPMENT WHEN PUT INTO SERVICE AND LABEL EXISTING FIRE ALARM EQUIPMENT "NOT IN SERVICE" UNTIL REMOVED FROM THE BUILDING.
H. ALL CABLES/CONDUCTORS ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE PLENUM RATED. PROVIDE CONDUIT WHERE WIRING WILL BE CONCEALED WITHIN WALLS, UNDER FLOORS OR ABOVE NON-LAY-IN CEILINGS. ALSO PROVIDE CONDUIT WHERE WIRING WOULD OTHERWISE BE EXPOSED IN PUBLIC AREAS. ACCESSIBLE CEILING AND ATTIC SPACES ARE ACCEPTABLE FOR USE AS RACEWAYS.
   1. HOOKS OR FASTENERS SHALL BE PLACED AT INTERVALS ON 48 INCH CENTERS.
   2. CABLE SAG BETWEEN SUPPORTS SHALL NOT EXCEED 16 INCHES.
   3. ATTACHING WIRE TO PIPES OR OTHER MECHANICAL ITEMS SHALL NOT BE PERMITTED.
   4. CABLES SHALL BE ROUTED TO AVOID LIGHT FIXTURES (18 INCHES MINIMUM SPACING), SOURCES OF HEAT (12 INCHES MINIMUM SPACING) POWER FEEDER CONDUITS (12 INCHES MINIMUM SPACING).
   5. PROVIDE APPROVED CONDUIT SLEEVES THROUGH ALL AREA SEPARATION FIRE WALLS AND OTHER WALLS.
I. PROVIDE POWER SUPPLIES AS REQUIRED FOR SIGNALING DEVICES. PROVIDE A SMOKE DETECTOR WITHIN 5 FEET OF EACH POWER SUPPLY LOCATION.
J. PROVIDE A FIRE ALARM DOCUMENTS BOX ADJACENT TO FACP.
K. PROVIDE CIRCUIT BREAKER LOCKS AND RED LABELS FOR 120V POWER FOR FACP AND POWER BOOSTERS.
L. THE QUANTITY AND LOCATION OF SPEAKERS ON THE PLAN ARE APPROXIMATE. THE REQUIRED QUANTITY AND LOCATION OF SPEAKERS WILL VARY DEPENDING ON THE CHARACTERISTICS AND CAPABILITIES OF DIFFERENT MANUFACTURER'S SPEAKERS. THEREFORE, IT IS THE RESPONSIBILITY OF THE FIRE ALARM SUPPLIER TO DETERMINE THE FINAL QUANTITY, LOCATIONS AND SETTINGS OF SPEAKERS IN ORDER TO MEET NFPA 72 SOUND LEVEL AND INTELLIGIBILITY REQUIREMENTS. THIS SHALL BE DONE USING SUPPLIER'S SOFTWARE AND OTHER ENGINEERING RESOURCES. IN THE EVENT THE INSTALLED SYSTEM IS NOT ACCEPTED BY THE AHJ, IT IS THE RESPONSIBILITY OF THE FIRE ALARM SUPPLIER TO MAKE WHATEVER CORRECTIONS, INCLUDING INSTALLATION OF ADDITIONAL SPEAKERS, REMOVAL OF SPEAKERS, OR RELOCATION OF SPEAKERS TO SATISFY THE AHJ. THIS SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER OR ENGINEER.
M. THE WORD "ALERT" SHALL APPEAR ON SPEAKER STROBES. DO NOT LABEL AS "FIRE".
N. SEE SPECIFICATIONS FOR FURTHER INFORMATION.

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93955PE
OREGON
NOV 19, 2018
GARTH L. STEVENS
EXPIRES: JUNE 30, 2024

DRAWING REVISIONS

#	Description	Date
4	BID SET - ADDENDUM #2	09/29/2023

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: ELECTRICAL FLOOR PLAN
Drawn By : PMH
Project No. 22140
Date : SEPTEMBER 11, 2023
Revised :

Sheet No.
E2.01

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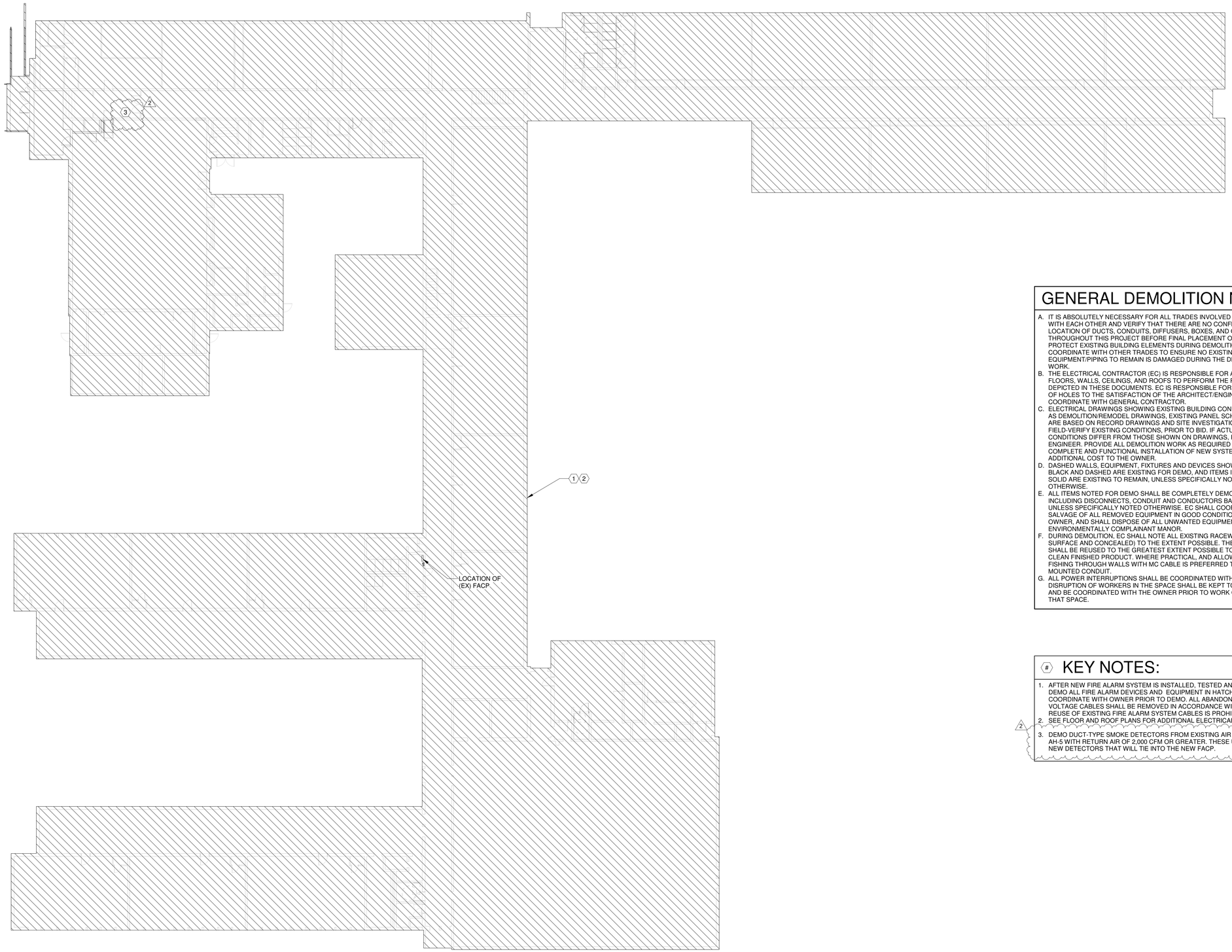

1 FLOOR PLAN-ELECTRICAL DEMOLITION
1/16" = 1'-0"

GENERAL DEMOLITION NOTES

A. IT IS ABSOLUTELY NECESSARY FOR ALL TRADES INVOLVED TO COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF DUCTS, CONDUITS, DIFFUSERS, BOXES, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS. PROTECT EXISTING BUILDING ELEMENTS DURING DEMOLITION WORK AND COORDINATE WITH OTHER TRADES TO ENSURE NO EXISTING EQUIPMENT/PIPING TO REMAIN IS DAMAGED DURING THE DEMOLITION WORK.
B. THE ELECTRICAL CONTRACTOR (EC) IS RESPONSIBLE FOR ALL CUTTING OF FLOORS, WALLS, CEILINGS, AND ROOFS TO PERFORM THE REQUIRED WORK DEPICTED IN THESE DOCUMENTS. EC IS RESPONSIBLE FOR ALL PATCHING OF HOLES TO THE SATISFACTION OF THE ARCHITECT/ENGINEER. COORDINATE WITH GENERAL CONTRACTOR.
C. ELECTRICAL DRAWINGS SHOWING EXISTING BUILDING CONDITIONS, SUCH AS DEMOLITION/REMODEL DRAWINGS, EXISTING PANEL SCHEDULES, ETC. ARE BASED ON RECORD DRAWINGS AND SITE INVESTIGATION. EC SHALL FIELD-VERIFY EXISTING CONDITIONS, PRIOR TO BID. IF ACTUAL EXISTING CONDITIONS DIFFER FROM THOSE SHOWN ON DRAWINGS, PLEASE NOTIFY ENGINEER. PROVIDE ALL DEMOLITION WORK AS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION OF NEW SYSTEMS AT NO ADDITIONAL COST TO THE OWNER.
D. DASHED WALLS, EQUIPMENT, FIXTURES AND DEVICES SHOWN BLACK, OR BLACK AND DASHED ARE EXISTING FOR DEMO, AND ITEMS IN GRAY AND SOLID ARE EXISTING TO REMAIN, UNLESS SPECIFICALLY NOTED OTHERWISE.
E. ALL ITEMS NOTED FOR DEMO SHALL BE COMPLETELY DEMOLISHED, INCLUDING DISCONNECTS, CONDUIT AND CONDUCTORS BACK TO SOURCE, UNLESS SPECIFICALLY NOTED OTHERWISE. EC SHALL COORDINATE SALVAGE OF ALL REMOVED EQUIPMENT IN GOOD CONDITION WITH THE OWNER, AND SHALL DISPOSE OF ALL UNWANTED EQUIPMENT IN AN ENVIRONMENTALLY COMPLAINANT MANOR.
F. DURING DEMOLITION, EC SHALL NOTE ALL EXISTING RACEWAY (BOTH SURFACE AND CONCEALED) TO THE EXTENT POSSIBLE. THESE RACEWAYS SHALL BE REUSED TO THE GREATEST EXTENT POSSIBLE TO ENSURE A CLEAN FINISHED PRODUCT. WHERE PRACTICAL, AND ALLOWED PER CODE, FISHING THROUGH WALLS WITH MC CABLE IS PREFERRED TO SURFACE-MOUNTED CONDUIT.
G. ALL POWER INTERRUPTIONS SHALL BE COORDINATED WITH OWNER. ANY DISRUPTION OF WORKERS IN THE SPACE SHALL BE KEPT TO A MINIMUM AND BE COORDINATED WITH THE OWNER PRIOR TO WORK COMMENCING IN THAT SPACE.

(#) KEY NOTES:

1. AFTER NEW FIRE ALARM SYSTEM IS INSTALLED, TESTED AND CERTIFIED, DEMO ALL FIRE ALARM DEVICES AND EQUIPMENT IN HATCHED GRID REGION. COORDINATE WITH OWNER PRIOR TO DEMO. ALL ABANDONED LOW VOLTAGE CABLES SHALL BE REMOVED IN ACCORDANCE WITH OESC 800.25. REUSE OF EXISTING FIRE ALARM SYSTEM CABLES IS PROHIBITED.
2. SEE FLOOR AND ROOF PLANS FOR ADDITIONAL ELECTRICAL WORK.
3. DEMO DUCT-TYPE SMOKE DETECTORS FROM EXISTING AIR HANDLING UNIT AH-5 WITH RETURN AIR OF 2,000 CFM OR GREATER. THESE UNIT WILL GET NEW DETECTORS THAT WILL TIE INTO THE NEW FACP.

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REGISTERED PROFESSIONAL ENGINEER
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OREGON
NOV 19, 2018
GARTH L. STEVENS
EXPIRES: JUNE 30, 2024

DRAWING REVISIONS

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JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: ELECTRICAL DEMOLITION PLAN
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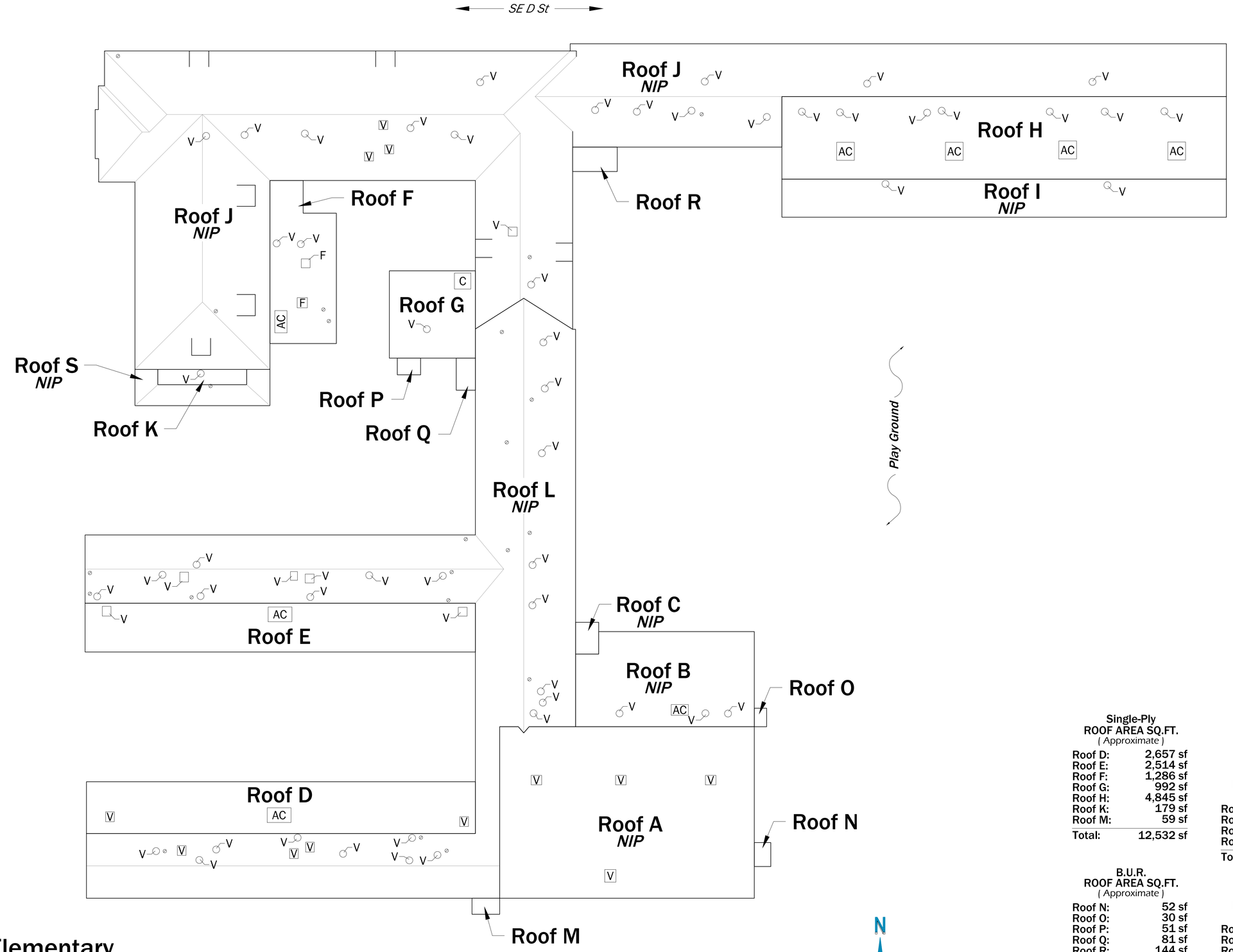

Madras Elementary
215 SE 10th St
Madras, Oregon

Single-Ply
ROOF AREA SQ.FT.
(Approximate)

Roof D:	2,657 sf
Roof E:	2,514 sf
Roof F:	1,286 sf
Roof G:	992 sf
Roof H:	4,845 sf
Roof K:	179 sf
Roof M:	59 sf
Total:	12,532 sf

Metal
ROOF AREA SQ.FT.
(NIP)

Roof I:	2,422 sf
Roof J:	20,765 sf
Roof L:	13,941 sf
Roof S:	506 sf
Total:	37,634 sf

B.U.R.
ROOF AREA SQ.FT.
(Approximate)

Roof N:	52 sf
Roof O:	30 sf
Roof P:	51 sf
Roof Q:	81 sf
Roof R:	144 sf
Total:	358 sf

Single-Ply
ROOF AREA SQ.FT.
(NIP)

Roof A:	6,523 sf
Roof B:	2,174 sf
Roof C:	97 sf
Total:	8,794 sf

Roof Total: 59,318 sf

TECH / NORTHWEST, INC.
ROOF CONSULTING, INDUSTRIAL TESTING & ANALYSIS
2301 NW Gerke Rd
Prineville, OR 97754
t 503.628.2882, | 503.246.2428

Stamp

DRAWING REVISIONS

#	Description	Date

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: Roof Plan
Drawn By : D.V.G.
Project No. 22140
Date : SEPTEMBER 11, 2023
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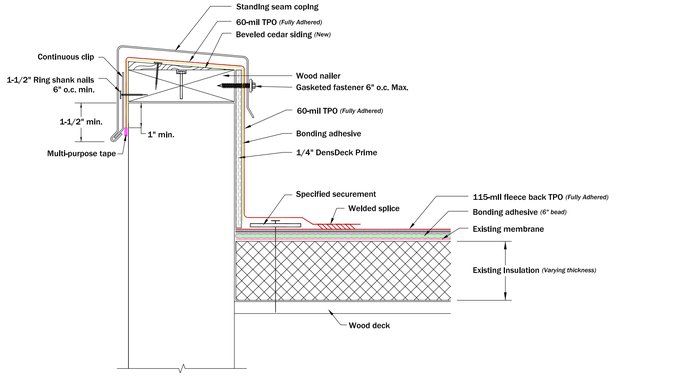
R1.01



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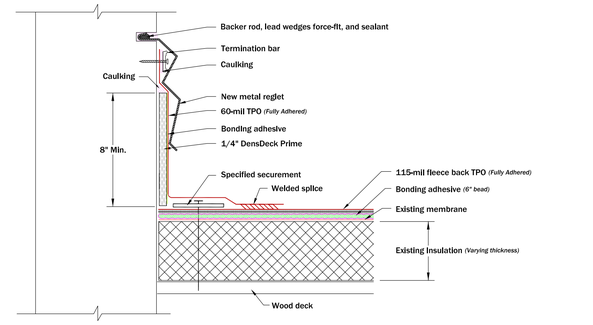

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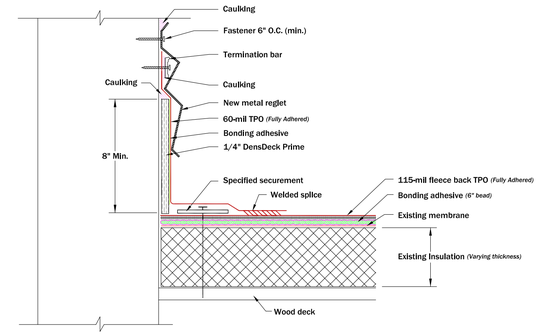
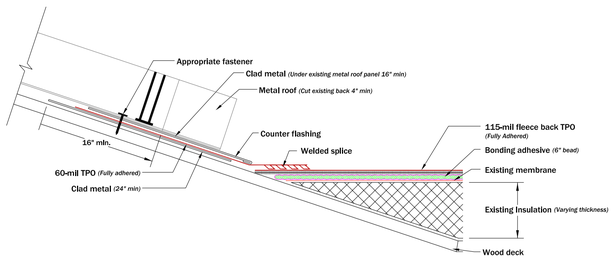
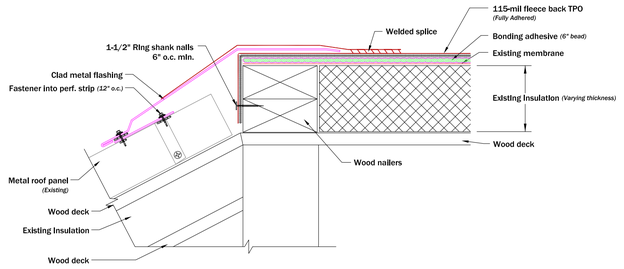


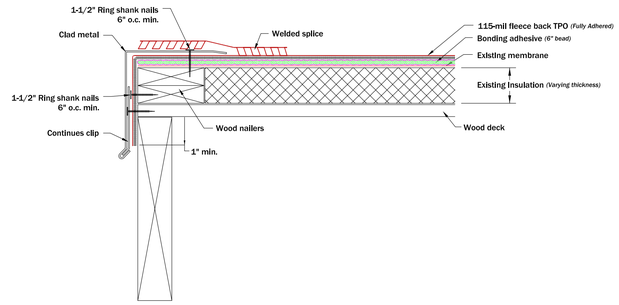
3 R-MES Perimeter - Surface Mounted Reglet NTS



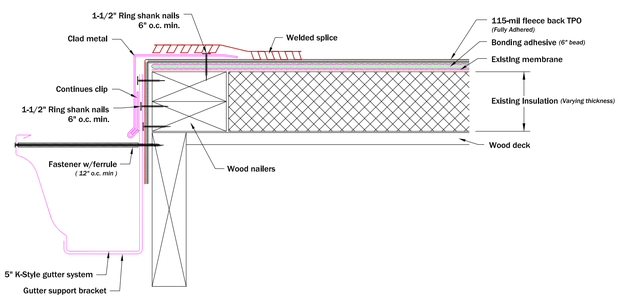
4 R-MES Perimeter - Metal to Single-ply NTS



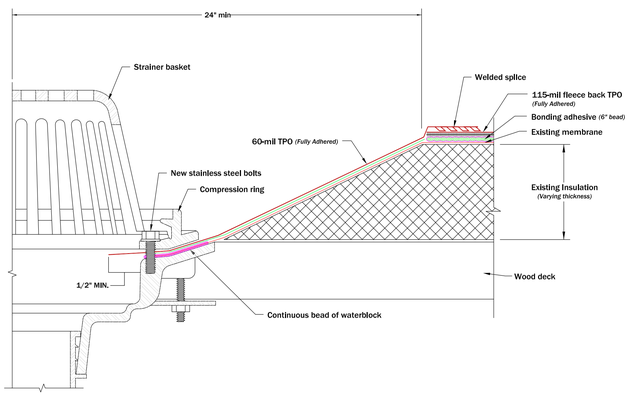
5 R-MES Perimeter - Drip Edge to Existing Metal Roof NTS



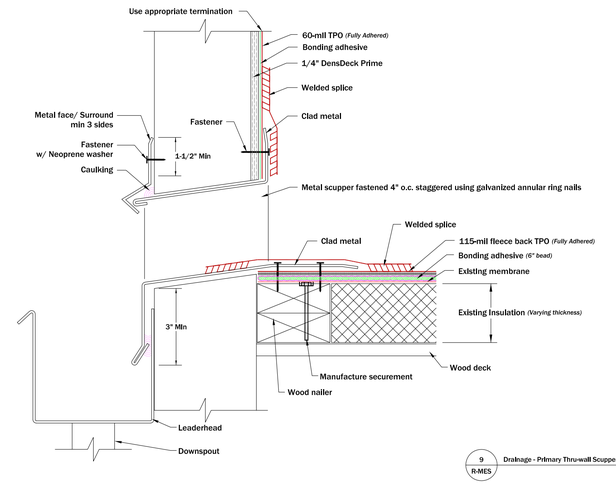
6 R-MES Drainage - Drip edge NTS



7 R-MES Drainage - Drip edge w/Gutter NTS



8 R-MES Drainage - Roof Drain NTS



9 R-MES Drainage - Primary Thru-wall Scupper NTS

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2501 NW Gerke Rd
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Stamp

DRAWING REVISIONS

#	Date	Description

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS

JEFFERSON COUNTY SCHOOL DISTRICT (509J)

BID SET

Drawing Title: Roofing details

Drawn By : D.V.G.

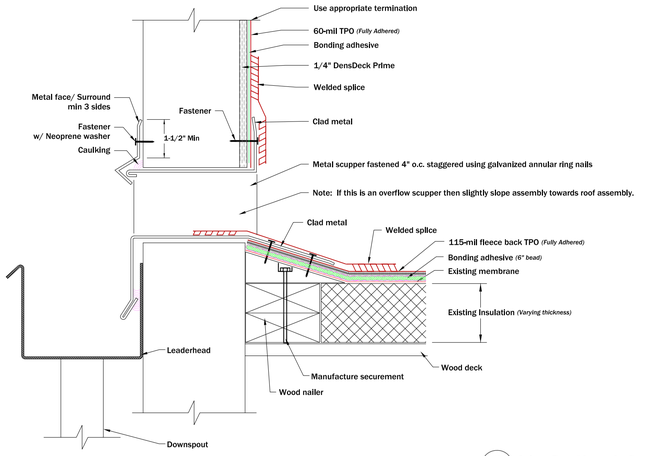
Project No. 22140

Date : SEPTEMBER 11, 2023

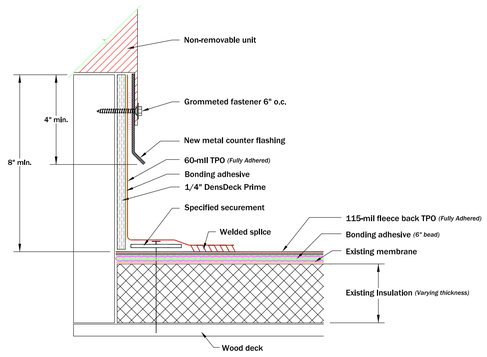
Revised :

Sheet No.

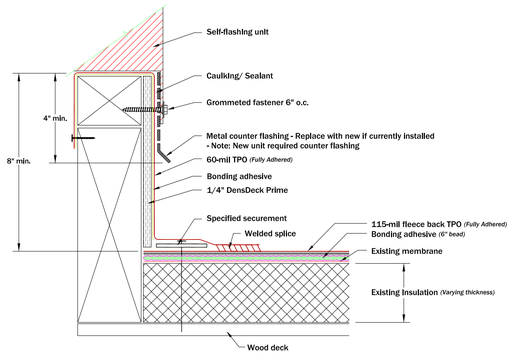
R1.02



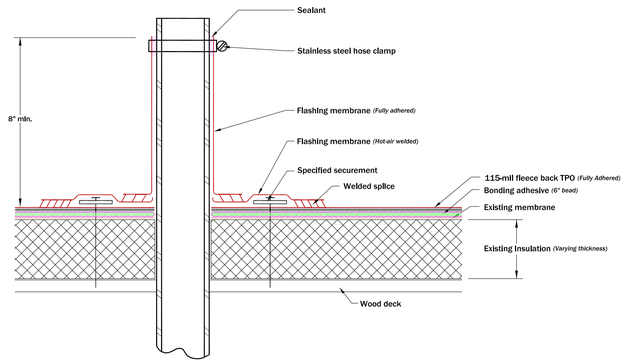
10 R-MES Drainage - Thru-wall Scupper - Over Flow NTS



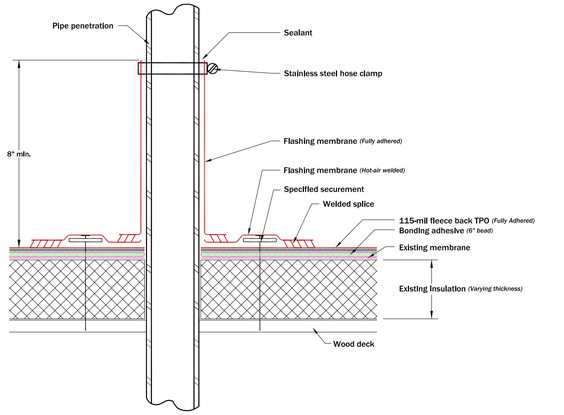
11 R-MES Equipment - Non-removable Unit Curb NTS



12 R-MES Equipment - Removable Unit Curb NTS



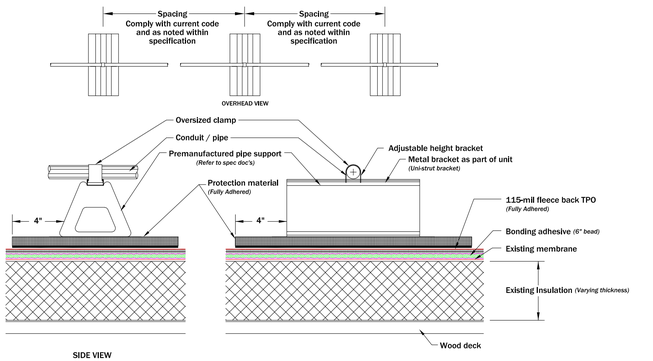
13 R-MES Penetration - Vent Stack Flashing NTS



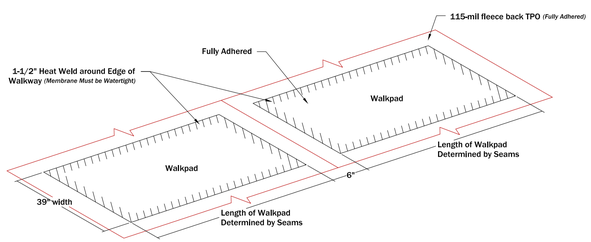
14 R-MES Penetration - Pipe Penetration NTS

NOTES:

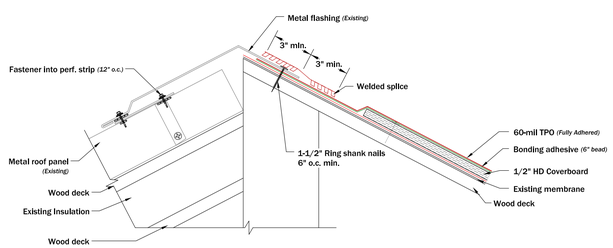
1) The brackets should retain the pipe in a manner to allow for movement without binding.
2) The supports should be placed at intervals to maintain a straight continuity of the pipe line - 10' max. spacing.
3) Protection material should be applied in a full bed of plastic cement.



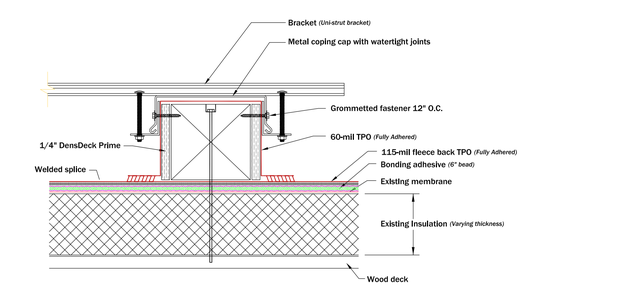
15 R-MES Misc - Conduit/Pipe Support NTS



16 R-MES Misc - Walk Pad - Fully Adhered NTS



2 17 R-MES Perimeter - Single-ply to Existing Metal Roof Roof H NTS



2 18 R-MES Equipment - Equipment Support Curb NTS

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DRAWING REVISIONS

#	Date	Description
1	2023-09-29	Addendum #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS

JEFFERSON COUNTY SCHOOL DISTRICT (509J)

BID SET

Drawing Title: Roofing details

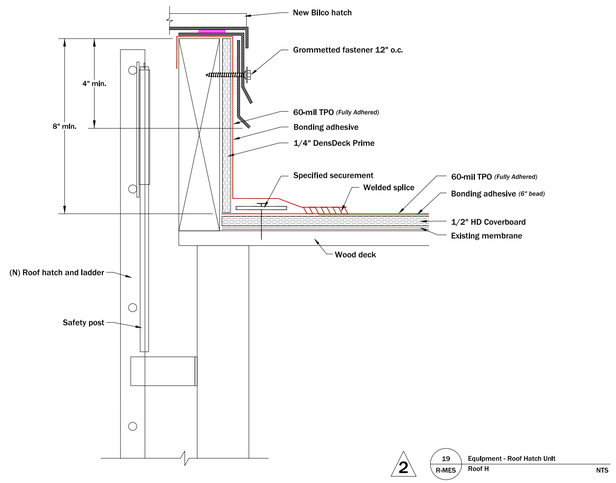
Drawn By: D.V.G.

Project No. 22140

Date: SEPTEMBER 11, 2023

Revised:

Sheet No. R1.03



2 — 19 / R-MES — Equipment - Roof Hatch Unit — Roof H — NTS

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DRAWING REVISIONS

#	Date	Description
2	2023-09-29	Addendum #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS

JEFFERSON COUNTY SCHOOL DISTRICT (509J)

BID SET

Drawing Title: Roofing details

Date : SEPTEMBER 11, 2023

Drawn By : D.V.G.

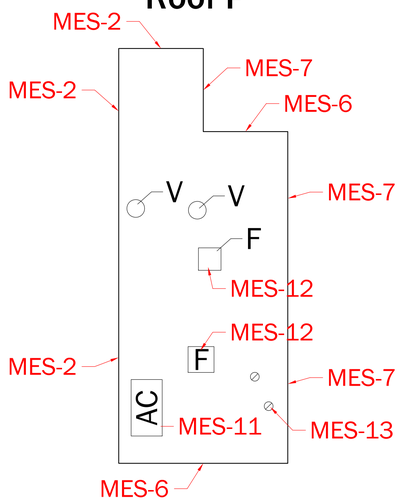
Revised :

Project No. 22140

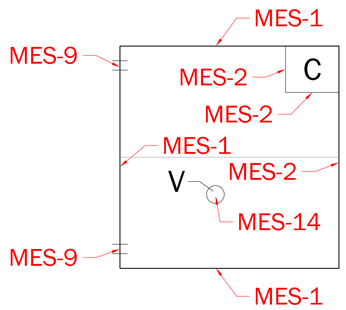
Sheet No.

R1.04

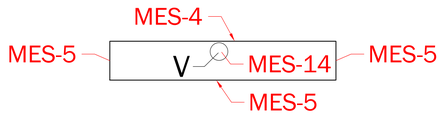
Roof F



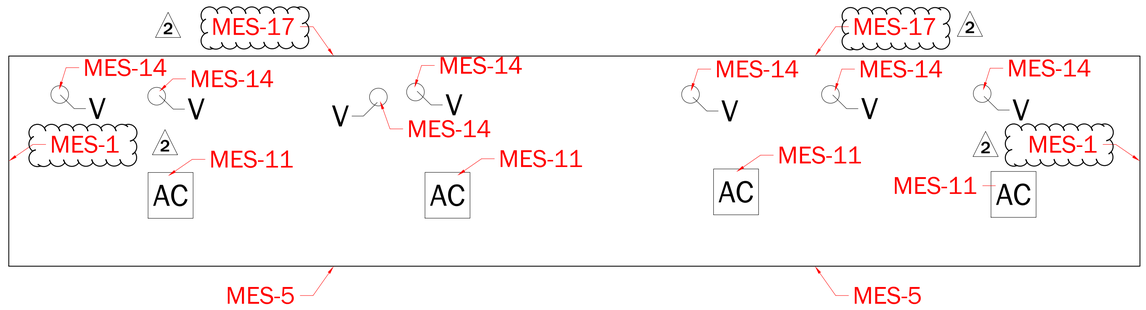
Roof G



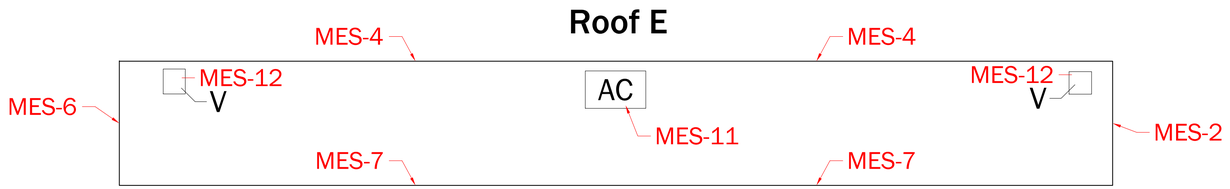
Roof K



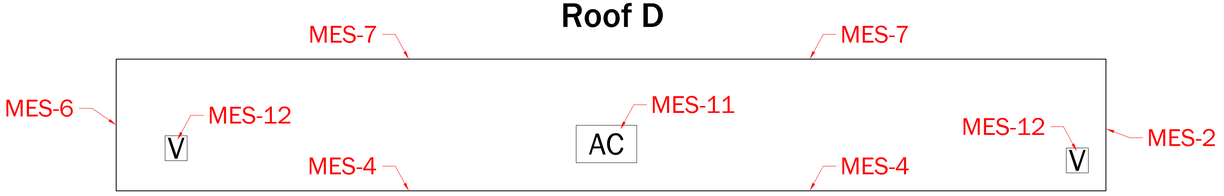
Roof H



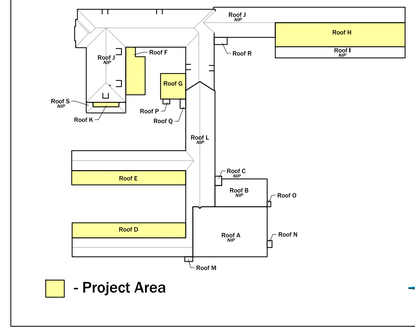
Roof E



Roof D



JCSD – JEFFERSON COUNTY SD
Madras Elementary - Madras, OR
ROOF LAYOUT



NORTHWEST, INC.
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DRAWING REVISIONS

#	Date	Description
1	2023-09-29	Addendum #2

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS

JEFFERSON COUNTY SCHOOL DISTRICT (509J)

BID SET

Drawing Title: Detail Callout Maps

Date : SEPTEMBER 11, 2023

Revised :

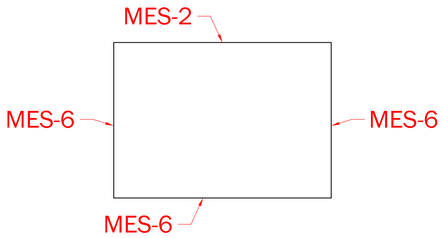
Drawn By : D.V.G.

Project No. 22140

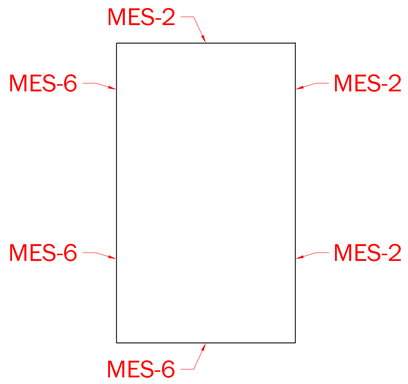
Sheet No.

R1.05

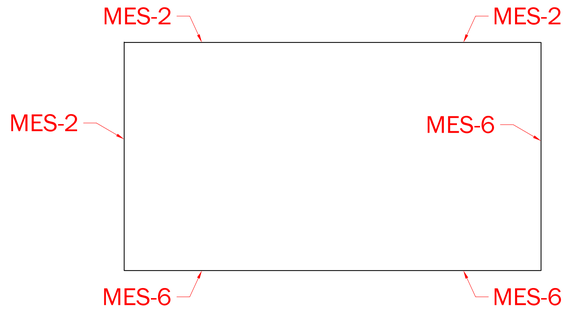
Roof P



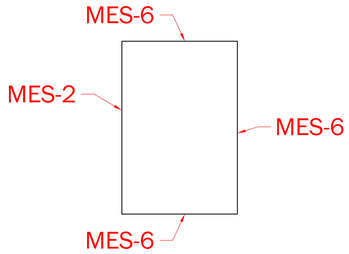
Roof Q



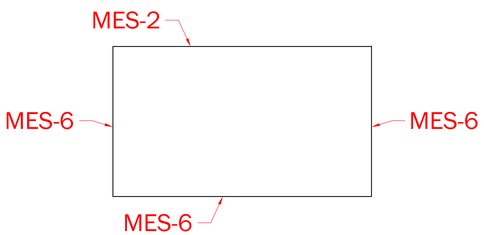
Roof R



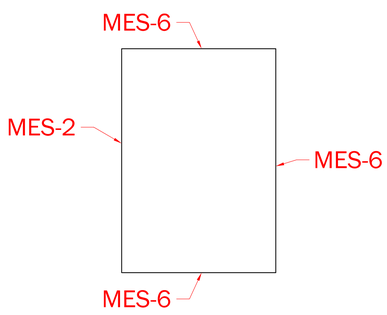
Roof O



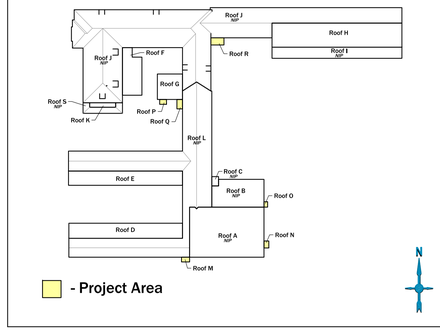
Roof M



Roof N



JCSD – JEFFERSON COUNTY SD
Madras Elementary - Madras, OR
ROOF LAYOUT



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Prineville, OR 97754
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DRAWING REVISIONS

#	Date	Description

MADRAS ELEMENTARY SCHOOL IMPROVEMENTS
JEFFERSON COUNTY SCHOOL DISTRICT (509J)
BID SET

Drawing Title: Detail Callout Maps
Drawn By : D.V.G.
Project No. 22140
Date : SEPTEMBER 11, 2023
Revised :

Sheet No.
R1.06

TO: **SaJ Architects**
721 SW Industrial Way, Suite 130
Bend, OR 97702

PROJECT NAME: Madras Elementary School & Buff Elementary School Upgrades

We hereby submit for consideration, the following product instead of specified item for above project:

Section: 233300 Paragraph: 2.03 Backdraft and Pressure Relief Dampers

Specified Item Replacement backdraft dampers for roof exhaust fans

Proposed Substitution: Pottorff model CBD-150

Attach complete dimensional information and technical data including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or specifications, which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiating data to provide equal quality, performance, and appearance to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance. Differences in quality of materials and construction shall be indicated.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitutions do not affect dimensions shown on drawings.

2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.

3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.

4. Maintenance and service parts will be locally available for the proposed substitution.

5. The proposed substitution will have no effect on applicable codes.

6. The manufacturer's guarantee or warranties of proposed product is equivalent to; or exceeds that of the specified product.

7. Proposed substituted item will match all sizes, profiles, specifications and colors of item originally specified.

List of names and location of three similar projects on which product was used, date of installation, and Architect's name and phone number.

Project No. 1:

Project No. 2:

Project No. 3:

SECTION 01 2500
SUBSTITUTIONS

CERTIFICATION OF EQUAL PERFORMANCE AND ASSUMPTION OF LIABILITY FOR EQUAL PERFORMANCE

UNDERSIGNED ATTESTS THAT

FUNCTION AND QUALITY ARE

EQUAL TO OR SUPERIOR TO SPECIFIED ITEMS.

FOR USE BY ARCHITECT:

X Accepted _____ Accepted as Noted
_____ Not Accepted _____ Received Too Late

By: D Downie

Date: 9/28/23

Remarks: _____

Submitted By: Abigail Lovell

Signature : 

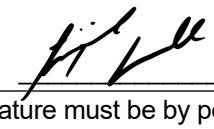
Title: Air Distribution Estimator

Firm: Johnson Barrow

Address: 735 SW 20th Pl, Ste 230
Portland OR, 97205

Telephone: 503-686-4354

Date : September 26th, 2023

Signature: 

Above signature must be by person having authority to legally bind his firm to the above terms.

SECTION 01 2500
SUBSTITUTIONS

TO: **SaJ Architects**
721 SW Industrial Way, Suite 130
Bend, OR 97702

PROJECT NAME: Madras Elementary School & Buff Elementary School Upgrades

We hereby submit for consideration, the following product instead of specified item for above project:

Section: 233300 Paragraph: 2.05 Control Dampers

Specified Item Replacement motorized and modulating dampers, for roof exhaust fans and roof hoods

Proposed Substitution: Pottorff model CD-41 with Belimo actuators

Attach complete dimensional information and technical data including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or specifications, which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiating data to provide equal quality, performance, and appearance to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance. Differences in quality of materials and construction shall be indicated.

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7. Proposed substituted item will match all sizes, profiles, specifications and colors of item originally specified.

List of names and location of three similar projects on which product was used, date of installation, and Architect's name and phone number.

Project No. 1:

Project No. 2:

Project No. 3:

SECTION 01 2500
SUBSTITUTIONS

CERTIFICATION OF EQUAL PERFORMANCE AND ASSUMPTION OF LIABILITY FOR EQUAL PERFORMANCE

UNDERSIGNED ATTESTS THAT

FUNCTION AND QUALITY ARE

EQUAL TO OR SUPERIOR TO SPECIFIED ITEMS.

FOR USE BY ARCHITECT:

_____Accepted x Accepted as Noted
_____Not Accepted_____Received Too Late

By: D Downie

Date: 9/28/23

Remarks: Coordinate actuators with the Controls Contractor

Submitted By: Abigail Lovell

Signature : 

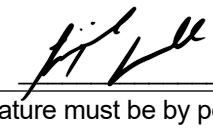
Title: Air Distribution Estimator

Firm: Johnson Barrow

Address: 735 SW 20th Pl, Ste 230
Portland OR, 97205

Telephone: 503-686-4354

Date : September 26th, 2023

Signature: 

Above signature must be by person having authority to legally bind his firm to the above terms.

SECTION 01 2500
SUBSTITUTIONS

TO: **SaJ Architects**
721 SW Industrial Way, Suite 130
Bend, OR 97702

PROJECT NAME: Madras Elementary School & Buff Elementary School Upgrades

We hereby submit for consideration, the following product instead of specified item for above project:

Section: 237416 Paragraph: 2.03 Manufacturers

Specified Item AC-1 to AC-26; RTU-1,2 Carrier RTUs

Proposed Substitution: TempMaster Omni™ Pro RTUs

Attach complete dimensional information and technical data including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or specifications, which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiating data to provide equal quality, performance, and appearance to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance. Differences in quality of materials and construction shall be indicated.

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4. Maintenance and service parts will be locally available for the proposed substitution.

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7. Proposed substituted item will match all sizes, profiles, specifications and colors of item originally specified.

List of names and location of three similar projects on which product was used, date of installation, and Architect's name and phone number.

Project No. 1:

Project No. 2:

Project No. 3:

SECTION 01 2500
SUBSTITUTIONS

CERTIFICATION OF EQUAL PERFORMANCE AND ASSUMPTION OF LIABILITY FOR EQUAL PERFORMANCE

UNDERSIGNED ATTESTS THAT

FUNCTION AND QUALITY ARE

EQUAL TO OR SUPERIOR TO SPECIFIED ITEMS.

FOR USE BY ARCHITECT:

_____Accepted _____Accepted as Noted
X_____Not Accepted_____Received Too Late

By: D Downie

Date: 09/28/23

Remarks: _____

Submitted By:

Signature : 

Title: Account Manager

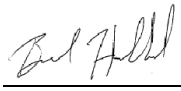
Firm: CMS- Custom Mechanical Solutions

Address: 12507 Bel-Red Road

Bellevue, WA 98005

Telephone: 971-386-4818

Date : 9/13/23

Signature: 

Above signature must be by person having authority to legally bind his firm to the above terms.

SECTION 01 2500
SUBSTITUTIONS

TO: **SaJ Architects**
721 SW Industrial Way, Suite 130
Bend, OR 97702

PROJECT NAME: Madras Elementary School & Buff Elementary School Upgrades

We hereby submit for consideration, the following product instead of specified item for above project:

Section: 237433 Paragraph: 2.01 Manufacturers

Specified Item 1-HV-1,2; MAU-1 Modine

Proposed Substitution: Valent DOAS (subsidiary of Greenheck)

Attach complete dimensional information and technical data including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or specifications, which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiating data to provide equal quality, performance, and appearance to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance. Differences in quality of materials and construction shall be indicated.

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1. The proposed substitutions do not affect dimensions shown on drawings.

2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.

3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.

4. Maintenance and service parts will be locally available for the proposed substitution.

5. The proposed substitution will have no effect on applicable codes.

6. The manufacturer's guarantee or warranties of proposed product is equivalent to; or exceeds that of the specified product.

7. Proposed substituted item will match all sizes, profiles, specifications and colors of item originally specified.

List of names and location of three similar projects on which product was used, date of installation, and Architect's name and phone number.

Project No. 1:

Project No. 2:

Project No. 3:

SECTION 01 2500
SUBSTITUTIONS

CERTIFICATION OF EQUAL PERFORMANCE AND ASSUMPTION OF LIABILITY FOR EQUAL PERFORMANCE

UNDERSIGNED ATTESTS THAT

FUNCTION AND QUALITY ARE

EQUAL TO OR SUPERIOR TO SPECIFIED ITEMS.

FOR USE BY ARCHITECT:

_____Accepted _____Accepted as Noted
__X__Not Accepted_____Received Too Late

By: D Downie

Date: 09/28/23

Remarks: _____

Submitted By:

Signature : 

Title: Account Manager

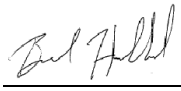
Firm: CMS- Custom Mechanical Solutions

Address: 12507 Bel-Red Road

Bellevue, WA 98005

Telephone: 971-386-4818

Date : 9/13/23

Signature: 

Above signature must be by person having authority to legally bind his firm to the above terms.

TO: **SaJ Architects**
721 SW Industrial Way, Suite 130
Bend, OR 97702

PROJECT NAME: Madras Elementary School & Buff Elementary School Upgrades

We hereby submit for consideration, the following product instead of specified item for above project:

Section: 237416 Paragraph: Part 2, 2.03 A.

Specified Item Buff ES: AC-14, AC-2,4-10,17,23,25,26, AC-3,13,16,18-21,24 and AC-1,11,12,15,22, and 27
Madras ES: RTU-1,2

Proposed Substitution: JCI/Fraser-Johnston manufactured in same facility, to same specs, and with same mtls. as JCI/York.
Buff ES: Model ZLG, except for ZYG on AC-1,11,12,15,22, and 27; Madras ES: Model ZLG

Attach complete dimensional information and technical data including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or specifications, which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiating data to provide equal quality, performance, and appearance to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance. Differences in quality of materials and construction shall be indicated.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitutions do not affect dimensions shown on drawings.

2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.

3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.

4. Maintenance and service parts will be locally available for the proposed substitution.

5. The proposed substitution will have no effect on applicable codes.

6. The manufacturer's guarantee or warranties of proposed product is equivalent to; or exceeds that of the specified product.

7. Proposed substituted item will match all sizes, profiles, specifications and colors of item originally specified.

List of names and location of three similar projects on which product was used, date of installation, and Architect's name and phone number.

Project No. 1: City of Newberg, 2020 collaborating directly with HVAC Sub Alliant-Systems

Project No. 2: Ilani Resort Warehouse, 2021 collaborating directly with HVAC Sub Harder Mechanical
Project No. 3: Les Schwab, Klamath Falls, 2021 collaborating directly with HVAC Sub Alliant-Systems

SECTION 01 2500
SUBSTITUTIONS

CERTIFICATION OF EQUAL PERFORMANCE AND ASSUMPTION OF LIABILITY FOR EQUAL PERFORMANCE

UNDERSIGNED ATTESTS THAT

FUNCTION AND QUALITY ARE

EQUAL TO OR SUPERIOR TO SPECIFIED ITEMS.

FOR USE BY ARCHITECT:

_____Accepted _____Accepted as Noted
__X__Not Accepted_____Received Too Late

By: D Downie

Date: 09/29/2023

Remarks: _____

Submitted By:

Signature : *Dave Havelick*

Title: Sales Engineer

Firm: Sustainable Mechanical Systems

Address: 7412 SW Beaverton Hillsdale Hwy., Ste. 101
Portland, OR 97225

Telephone: 503-703-2042

Date : September 27, 2023

Signature: *Dave Havelick*

Above signature must be by person having authority to legally bind his firm to the above terms.

SUBMITTAL DATA

Order #: **Date:** 09/27/2023

Project: Madras Elementary School Improvements

Project #:

Submitter: David Havelick
Sustainable Mechanical Systems
7412 SW Beaverton Hillsdale Hwy, Suite 101
Portland, Oregon 97225
503-703-2042
dhavelick@sustainmech.com

Notes:

1. Fraser Johnston manufactured by JCI use same configuration, performance/ efficiencies, materials, etc. as York.
2. Fraser Johnston CORE family of RTUS have same footprint, utility connection locations, weights, etc. as existing Carrier models and are designed for retrofit market.
3. Alliant Systems (Control contractor for project) has JCI software tool and vast experience starting up and servicing Fraser Johnston RTUS provided by SMS.

Date
09/27/2023
Project Name
Madras Elementary School Improvements
Project Number
Client / Purchaser

Johnson Controls

Submittal Summary Page

Qty	Tag #	Model # / Material #	Description
2	RTU-1,2	ZLG06E2C3AB2B321A2	5 Ton, Fraser-Johnston 3-12.5 Ton Relia Core Single Packaged R-410A Air Conditioner, Two Stage Cooling, 15.8 SEER / 12.4 EER, Gas Heat, 112 MBH Two Stage Input Medium Heat Aluminized Gas, 208/230-3-60 • VFD IntelliSpeed • Dry Bulb Economizer (Downflow only) (with Barometric Relief) with Economizer Fault Detection & Diagnostic (Meets ASHRAE 90.1-2013, IECC 2015, California Title 24, AMCA 511) • High Static Belt Drive Blower • Smart Equipment Controller including Discharge Air, Return Air, and Outdoor Air Temperature Sensors. BACNet MS/TP, Modbus and N2 Communication Card. • Powered Convenience Outlet • Non-fused Disconnect (60 Amp) • Return Air Smoke Detector • Microchannel All Aluminum Condenser Coil, Copper tube/Aluminum fin Evaporator Coil
2	RTU-1,2	1RC0456	Curb Rigid 14" (356 mm) Small Footprint
2	RTU-1,2	2PE04704225	Power Exhaust Vert Flow Small Footprint 208V-230V 3-ph

Equipment start-up and commissioning by a factory trained technician is recommended.
Contact your supplying distributor or sales representative for additional information & guidance.


WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov