Jefferson County School District
Metolius Elementary School Upgrades

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420 Butte Ave
Metolius, Oregon 97741

ADDENDUM NO. 01
June 01, 2023 - Revised June 30, 2023

CLARIFICATIONS: To the Construction Documents
PART 1: Revisions to the Project Manual
PART 2: Revisions to the Working Drawings
PART 3: Substitution Requests

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CLARIFICATIONS: TO THE CONSTRUCTION DOCUMENTS

GENERAL NOTES:

1. Copy of the Pre-Bid Sign-in Sheet is attached to this Addendum.

2. Supplementary Attachments:

    a. The site survey of existing conditions is attached to this Addendum.
    b. The door hardware schedule / sets have been revised to remove door 135A. This door is to remain as existing. See attached.

QUESTIONS (*italics*) and CLARIFICATION/RESPONSE: N/A

PART 1: REVISIONS TO THE PROJECT MANUAL

1.1 Edits to section 00 0110 Table of Contents:
- A) Edits, Additions & replacement of specification sections as listed below.
- B) Section 26 0000 Electrical General Requirements was on the TOC but was not included in the manual. This section is to be removed from TOC.
- C) Section 26 0800 Electrical Commissioning was previously noted on the TOC but was not included in the manual. It is now attached, and the section was re-ordered on the TOC in the correct order.

1.2 Addition of section 22 0800 – Plumbing Commissioning Requirements

1.3 Replace entirety of section 23 05 93 – Testing Adjusting & Balancing of HVAC Systems

1.4 Addition of Section 23 0800 – HVAC Commissioning

1.5 Addition of Section 26 0800 – Electrical Commissioning

1.6 Modifications to section 26 2416 – Panelboards:
- D) Paragraph 2.03, D. is added and reads as follows:
    - a. Standard plug-on breakers are acceptable, but only in those specific locations where a load center is allowed.
- E) Paragraph 2.07, F. is added and reads as follows:
    - a. Load centers with plug-on breakers may be installed. But only where flush mounted in an existing wall that would not be deep enough to accommodate a normal panelboard.

1.6 Addition of Section 28 4621 – Addressable Fire Alarm System

PART 2: REVISIONS TO THE WORKING DRAWINGS

2.1 Modifications to Sheet G0.00 – Cover Sheet:
- A) Modified project description: revised replacement of (6) cooling coils/condensers to (7).
- B) Modified project description: added “New fire alarm system throughout”

2.2 Modifications to Sheet AD6.01 – Demolition Reflected Ceiling Plan:
- A) Added Keynote 3

2.3 Modifications to Sheet A6.01 – Reflected Ceiling Plan:
- A) Added Keynote 1

2.4 Modifications to Sheet A8.01 – Schedules:
- A) Door Schedule – Door 135A revised. This door is existing to remain.

2.5 Modifications to Sheet A8.10 – Details:
- A) Detail 6 – Added product information for transition strip.

2.6 Modifications to Sheet M2.11 – Floor Plan – Level 1 – Sector B:
- A) Added tags to ductwork

2.7 Modifications to Sheet M2.13 – Mezzanine – Level 1 – Sector B:
- A) Added tags to ductwork
- B) Revised keynote on F-4

2.8 Modifications to Sheet M8.01 – Mechanical Schedules:
- A) Revised control note on exhaust fan schedule to match MEP coordination schedule.

2.9 Modifications to Sheet E0.02 – Electrical Details:
- A) Existing one line diagram #1 – Key notes added to better explain existing panels that are being replaced. Added single-phase service replacement notes
- B) Added keynote 10 to address existing panel P.
- C) Feeder schedule – Information added for 100A single-phase feed.
- D) Utility information – Added to indicate existing service loads and expected load on three-phase service when loads from the single-phase service are added to it.

2.10 Modifications to Sheet E1.01 – Electrical Site Plan:
- A) Key note 2 revised to better describe feed for EV charging stations.

2.11 Modifications to Sheet E2.01 – Overall Electrical Floor Plan:
- A) Key note Key notes revised to avoid redundancy and potential conflict with those on sheet E0.02.

2.12 Modifications to Sheet E2.02 – Overall Fire Alarm Floor Plan:
- A) Speaker/strobes added to single-user restrooms 105A and room 135.

2.13 Modifications to Sheet E2.11 – Floor Plan – Level 1 – Sector B:
- A) Key note 2 revised to more clearly refer to the receptacles in the staff room.

2.14 Modifications to Sheet E8.01 – Electrical Schedules:
- A) MEP Coordination schedule – Clarifications made to the conduit sizes and note added for EF-3
- B) Panel A – Changed to include 60A breaker locations and associated spare breakers
- C) Panel D – Two spare single-pole, 20A breakers were added.

2.15 Modifications to Door Hardware Schedule – Hardware Sets:
- A) Removed Door 135A from new hardware sets. Existing door and hardware to remain. No new door or hardware required. See revised sheet A8.01 - Schedules

PART 3: SUBSTITUTION APPROVALS

NONE AT THIS TIME

SECTION	MANUFACTURER	PRODUCT (w/ Notes)

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:

- Mandatory Pre-Bid Meeting Sign-in Sheet
- Section 00 0110 Table of Contents
- Section 22 0800 Plumbing Commissioning
- Section 23 0593 Testing, Adjusting, & Balancing of HVAC
- Section 26 0800 HVAC Commissioning
- Section 26 0800 Electrical Commissioning
- Section 26 2416 Panelboards
- Section 284621 Addressable Fire Alarm System
- Sheet G0.00 – Cover Sheet
- Sheet AD6.01 - Demolition Reflected Ceiling Plan
- Sheet A6.01 – Reflected Ceiling Plan
- Sheet A8.01 - Schedules
- Sheet A8.10 – Details
- Sheet M2.11 – Floor Plan – Level 1 – Sector B
- Sheet M2.13 – Mezzanine – Level 1 – Sector B
- Sheet M8.01 – Mechanical Schedules
- Sheet E0.02 – Electrical Details
- Sheet E1.01 – Electrical Site Plan
- Sheet E2.01 – Overall Electrical Floor Plan
- Sheet E2.02 – Overall Fire Alarm Floor Plan
- Sheet E2.11 – Floor Plan – Level 1 – Sector B
- Sheet E8.01 – Electrical Schedules

SUPPLEMENTARY ATTACHMENTS:

- Existing Site Survey
- Door Hardware Schedule – Hardware Sets

END OF PAGE

Tiller's Schoolhouse Consulting LLC

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

Metolius Elementary Pre-Bid Meeting
Sign-In Sheet
June 29, 2023

Name	Company	Phone	Email
Eric Webber	Morrison-Maierle	541-699-5432	ewebber@m-m.net
Andrey Tervo	Apex Mechanical	360-666-8735	andrey@apexmechanical.org
Maille Ryan	Morrison-Maierle	541-699-5437	mryan@m-m.net
Isaac Young	Morrison-Maierle	425-890-5907	iyoung@m-m.net
Samuel Griffin	Griffin Constr.	541.447.7237	Samuel@griffinconstructionllc.co
Gabe Dailey	M2 Integration	503-314-5769	GDailey@M2Integration.net
Scott Mehlig	Bremik Construction	503-688-1000	bids@bremik.com
Rigo Alonso	Alonso's G Construction	541 420 14-17	alonsos general construction@gmail
Tony Massie	Tomco Electric	541-389-5424	tony@tomcoelectric.com

SECTION ADDED VIA ADDENDUM NO. 1, JUNE 30, 2023

100% CONSTRUCTION DOCUMENTS –
SPECIFICATION TABLE OF CONTENTS

DIVISION 13 - SPECIAL CONSTRUCTION

None

DIVISION 14 - CONVEYING SYSTEMS

None

DIVISION 20 – GENERAL MECHANICAL

None

DIVISION 21 – FIRE SUPPRESSION

None

DIVISION 22 – PLUMBING

DIVISION 23 – HVAC

DIVISION 25 – INTEGRATED AUTOMATION

None

DIVISION 26 – ELECTRICAL

DIVISION 27 – COMMUNICATIONS

DIVISION 28 – ELECTRONIC SAFETY & SECURITY

DIVISION 31 – EARTHWORK

DIVISION 32 – EXTERIOR IMPROVEMENTS

SUPPLEMENTARY ATTACHMENTS

Roof Repair Scope – Roof Plan
Roof Repair Scope – Ridge Detail
Existing Site Survey – ***Added via Addendum no. 1, June 30th, 2023.***
Door Hardware Schedule – ***Edited via Addendum no. 1, June 30th, 2023.***

END OF TABLE OF CONTENTS

SECTION ADDED VIA ADDENDUM NO. 1, JUNE 30, 2023

SECTION 22 0800
COMMISSIONING OF PLUMBING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes Commissioning activities required for work of Division 22 Sections including but not limited to construction checks, equipment start-up, functional testing, and operator training.
   1. Comply with Section 01 91 13 – General Commissioning Requirements for Commissioning activities for Division 22 work.

1.02 SEQUENCING

A. Provide written notification to Commissioning Provider (CxP) in advance of significant project dates as directed and as listed below.
   1. Four weeks prior to installation of lay-in ceiling tiles or other partial concealment of equipment to be commissioned
   2. Four weeks prior to any system being ready for balancing

1.03 SUBMITTALS

A. Provide submittals of systems being commissioned to Owner's Authorized Representative as required by Section 01 91 13.

B. Contractor to provide electronic copies of work products and other items as specified to support development of Commissioning documents. Refer to Section 01 91 13 for specific submittal requirements.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 CONSTRUCTION CHECKLISTS

A. Contractor shall execute as required by Section 01 91 13. Construction Checklists for each system being commissioned will be prepared by the CxP during construction.

3.02 FUNCTIONAL TESTING

A. Contractor shall assist CxP with functional testing as required by Section 01 91 13. Functional Test Plans for each system being commissioned will be prepared by CxP during construction and will generally include a rigorous verification of instrument calibration, equipment performance, package equipment control system operations, automatic control sequence of operations, fire and life safety sequences, and operator interface functions. CxP will supervise and document functional testing. Contractor shall provide qualified technicians to assist CxP during on-site testing and perform the following functions.
   1. Operate equipment and systems as necessary to conduct testing.
   2. Manipulate control parameters to simulate test conditions as detailed in Functional Test Plans.
   3. Provide proprietary hardware and software as needed to interface with manufacturers packaged control systems.

B. Labor required for retesting due to failure of equipment, or systems not performing in accordance with Contract Documents shall be provided at no additional cost to Owner.

3.03 OPERATIONS AND MAINTENANCE TRAINING

A. The Contractor shall provide operation and maintenance instruction to Owner's personnel as required by Division 01 and 22.

3.04 SCHEDULE OF SYSTEM BEING COMMISSIONED

A. Commission systems and equipment listed below including associated equipment, piping, and control systems.

B. Plumbing Systems:

1. Natural gas connections to commissioned mechanical equipment.

END OF SECTION

SECTION EDITED VIA ADDENDUM NO. 1, JUNE 30, 2023

SECTION 23 0593
TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. Section describes testing, adjusting, and balancing of air and water systems specified in Division 23. Work shall generally consist of volume adjustments, speed adjustments, performing tests, recording equipment data and measurements, and preparing reports.

B. Work Provided Under Separate Contract: Owner's Commissioning Provider (CxP) will provide testing, adjusting and balancing services. Work will be performed by a NEBB certified TAB Contractor. All work will be performed under the direct supervision of a NEBB certified Project Supervisor.

C. Contractor shall provide the following related services:
   1. Incorporate balancing activities in Contractor’s construction schedule.
   2. Attend pre-balancing coordination meeting.
   3. Provide access to the Work.
   4. Incidental labor, facilities, and equipment to assist TAB Contractor in conducting work.

1.02 RELATED SECTIONS

A. Section 01 91 03 – General Commissioning Requirements

B. Section 22 08 00 – Commissioning of Plumbing

C. Section 23 08 00 – Commissioning of HVAC

1.03 DEFINITIONS

A. TAB: Testing, adjusting, and balancing

B. BAS: Building Automation System. Automatic control system consisting of stand-alone or integrated digital controllers used to control HVAC equipment.

C. NEBB: National Environmental Balancing Bureau

D. Project Supervisor: Individual employed by TAB Contractor having administrative and technical responsibility for work performed under this Section

1.04 QUALITY ASSURANCE

A. Contractor shall attend a pre-balancing coordination meeting with the Owner, Engineer, and CxP. Meeting agenda shall include: coordination of work between TAB Contractor and Control Contractor, balancing procedures, and sequencing and scheduling work.

1.05 SEQUENCING

A. Pre-balancing meeting shall be conducted 30 days prior to start of balancing.

B. Provide notification in the form of a Pre-TAB Checklist to CxP four weeks prior to each major mechanical system ready for balancing. Refer to SUBMITTALS below. Notification of changes in scheduled start date shall be made a minimum of 24 hours in advance. If required notification is not provided, Contractor shall compensate Owner for additional costs by Contract modification.

C. Schedule adequate time in the construction schedule as determined by CxP for execution of TAB work. TAB work will be performed during normal business hours and be completed prior to occupancy. The Owner will be compensated for additional TAB costs caused by the Contractor's failure to provide adequate time for TAB work by Contract modification.

1.06 SUBMITTALS

A. Pre-TAB Checklist: A Pre-TAB Checklist is included in the Construction Checklists for the project. Contractor shall execute checklist and return to Owner’s Authorized Representative once systems are ready for testing adjusting and balancing. TAB Contractor will not begin balancing until a fully executed checklist is received.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Provide all belts and sheaves for fans as required to meet scheduled fan RPM. Furnish additional belts and sheaves to balancer as required for balancer to obtain specified performance requirements.

PART 3 - EXECUTION

3.01 APPLICATION

A. Systems Ready to Balance

1. CxP and CxP's TAB Contractor shall verify systems are ready for testing, adjusting, and balancing. If systems are found not to be ready for balancing, as described in the Pre-TAB Checklist, TAB Contractor will not perform balancing until all deficiencies have been corrected. Retests will be performed after notification from the Contractor that work is complete. If corrective work is not complete and additional testing is required, Contractor shall compensate Owner for costs of additional CxP testing sessions by Contract modification.

3.02 BAS CALIBRATION AND TESTING

A. TAB Contractor will perform tests as described below to determine the following BAS control setpoints and control parameters. BAS contractor shall provide all instruction, hardware, and software necessary for the TAB contractor to perform work including but not limited to laptop computer, interconnecting cables, BAS application software, passwords, and on-site assistance of a qualified BAS technician.

1. Minimum outside air ventilation parameters to achieve minimum ventilation rates as specified and as shown on drawings
2. Provide a summary report of final BAS control setpoints and parameters in final report.

3.03 ACCESS TO WORK

A. Contractor shall provide facilities and access for TAB Contractor to perform work including but not limited to:

1. Keys, security passes, etc.
2. Lifts where work is more than 12 feet above floor level.
3. Removal of ceiling tiles, partitions, panels, or other fixed construction necessary for completion of TAB work.

END OF SECTION

SECTION ADDED VIA ADDENDUM NO. 1, JUNE 30, 2023

SECTION 23 0800
COMMISSIONING OF HVAC

PART 1 GENERAL

1.01 SUMMARY

A. Section includes Commissioning activities required for work of Division 23 Sections including but not limited to construction checks, equipment start-up, functional testing, and operator training.
   1. Comply with Section 01 91 13 – General Commissioning Requirements for Commissioning activities for Division 23 work.

1.02 SEQUENCING

A. Provide written notification to Commissioning Provider (CxP) in advance of significant project dates as directed and as listed below.
   1. Two weeks prior to start-up of air handling units, air-conditioning units, exhaust fans
   2. Four weeks prior to installation of lay-in ceiling tiles or other partial concealment of equipment to be commissioned
   3. Four weeks prior to any system ready for balancing

1.03 SUBMITTALS

A. Provide control system custom software, hardware, and technical manuals as necessary for development of Commissioning activities. Control system submittals include but are not limited to operating sequences, point database, workstation remote access, on-site custom programming/editing software, and programming and operations manual as necessary for development of Commissioning activities. Submit a minimum of 12 weeks prior to equipment start-up.

B. Provide submittals of systems being commissioned to Owner's Authorized Representative as required by Section 01 91 13.

C. Provide electronic copies (or hard copies where appropriate) of control system final configuration parameters, programs, databases, files, and electrical data as necessary to reconfigure and/or replace control components upon device failure.

D. Contractor to provide electronic copies of work products and other items as specified to support development of Commissioning documents. Refer to Section 01 91 13 for specific submittal requirements.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide all necessary control hardware, software, and temporary licenses to enable Commissioning Provider to conduct activities and to fully access any electronic control systems furnished for this project. Commissioning Provider's laptop computer may be used for access if software and hardware systems provided are compatible with existing computer configuration, otherwise furnish laptop computer where required for duration of project.

B. Provide minimum of two HVAC control operator interface sites for both on-site and remote access as described below:
   1. Commissioning Provider Access Functions: Review and modification of control programming, monitoring of control system operations, review and modification of software database, setup, and monitoring trend data in tabular and graphical formats.
   2. Remote Access: Remote access using Internet and shall include all functions described above.
   3. Provide credentials for Commissioning Provider. Security access level shall be suitable to perform necessary commissioning functions.
   4. Provide labor required to install hardware and software on personal computers at Commissioning Provider's office. Software will be manufacturer's most recent version and

will be compatible with the CxP's personal computers. Provide Commissioning Provider with two hours training after fully functional remote access is established.

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Manufacturer's Representative to execute Construction Checklists and perform operational training as specified in Division 23 including the following systems:
   1. Packaged Air Handlers
   2. Makeup Air Units
   3. Variable Frequency Drives
   4. Building Automation System

3.02 CONSTRUCTION CHECKLISTS

A. Contractor shall execute as required by Section 01 91 13. Construction Checklists for each system commissioned will be prepared by Commissioning Provider during construction.

3.03 CONTROL VERIFICATION REPORTS

A. Building Automation System: BAS control contractor shall perform verification of the function and performance of control hardware and software. Provide verification report demonstrating proper system installation and operation. Verification report shall include the following:
   1. Network Communication: Verify that all network devices properly communicate on network. Verify communication speed and reliability is acceptable.
   2. Input and Output Verification:
      a. Verify that all input and output points are indicating properly. Verification tests shall be "end-to-end," meaning field measurement to workstation graphic display value.
      b. Calibrate all analog inputs. Acceptance accuracy shall be as specified for product accuracy. Repair or replace all devices that do not conform to specified accuracy.
      c. Operate all analog outputs from 0% to 100% of operating range. Verify that controlled device operates over the entire output range and that maximum and minimum operating conditions are achieved.
      d. Valves and dampers shall close fully and provide tight shutoff. Leakage rates shall not exceed specified values.
      e. Verify that all digital outputs operate controlled devices.
   3. Sequence of Operation Verification: Systematically verify automatic control sequence of operation functions in field after installation is complete. Verification shall include:
      a. Time scheduling.
      b. Operating modes.
      c. Tune and adjust control loops and control sequences to optimize efficiency and performance. Control loops shall be stable and maintain desired setpoints.
   4. Trending: Confirm trending utilities storage of operating data as required to verify operation and performance of control modes, sequence, and loops. Meet with Owner and CxP to review configuration, parameter interval, and duration prior to trend setup.
   5. Operator Interface: Review function of operator interface. Confirm that graphic operator interface accurately depicts as-constructed system configuration and that all required content is displayed and functions as intended.
   6. Alarms: Confirm alarm utilities are configured as required, alarm conditions are displaying in alarm logs and on graphic displays, and provide annunciation and reporting as required. Meet with Owner and CxP to review configuration parameters prior to alarm utility setup.
   7. Coordination: Assist balancing contractor with development of control setpoints and parameters as specifically indicated or otherwise required to provide Sequence of Operation. Setpoints would include but would not be limited to actuator positions required to provide minimum ventilation rates, supply air pressure setpoints for variable air volume air distribution systems, and terminal unit calibration parameters.

8. Controls Verification Report: After system operation is completely verified, provide written certification to Owner that systems have been fully tested, are operating according to specifications, and ready for functional testing. Include documentation to the Commissioning Provider detailing verification results. Report shall include:
    a. Updated control construction drawings and equipment data that incorporates all changes made during construction.
    b. Printed as-built control code.
    c. Printed point data base.
    d. Input/Output Verification Log: Submit point verification log including point identification, control system readout value, verification measurement, and required calibration offset where applied.
    e. Sequence of Operation Verification: Submit verification test report listing complete text of control sequence and test results. Verify all specified control sequences.
    f. Trend Logs: Submit printed trend reports for the following:
        1) Time schedules. Seven-day log demonstrating that equipment operates according to programmed time schedules.
        2) Automatic control sequences. Trends shall be set-up as follows:
            a) Analog Control: Points that modulate over time shall be sampled at appropriate intervals and durations to demonstrate proper operating sequences. For example, a discharge temperature control loop would require trending during the morning warm-up mode and normal daytime operation mode. Each trend shall include all measured variables, control output signal, actual output signal, and controlled variable.
            b) Digital Control: Dual-state control or monitoring points shall be recorded as COV (+) or change of value meaning that the changed parameter only needs to be recorded after the value changes from its previous state. A minimum of one week of samples shall be provided to properly demonstrate equipment cycles, modes, and schedules.
    g. Include trend graphs as described below:
        3) Lines shall be labeled and shall be distinguishable from each other by using either different line types, or different line colors.
        4) Indicate engineering units of the y-axis values; e.g., degrees F., inches w.g., Btu/lb, percent wide open, etc.
        5) The y-axis scale shall be chosen so that all trended values are in a readable range. Do not mix trended values on one graph if their unit ranges are incompatible.
        6) All points trended for one HVAC subsystem; e.g., air handling unit, chilled water system, etc. shall be trended during the same trend period.
        7) Each graph shall be clearly labeled with HVAC subsystem title, date, and times.
    h. List of incomplete work.
9. Demonstration: Demonstrate operation of control system to Engineer, Commissioning Provider, and Owner including:
    a. Menu functions.
    b. Point overrides.
    c. Control loop response after point modification.
    d. Alarm response time.

3.04 FUNCTIONAL TESTING

A. Contractor shall assist Commissioning Provider with functional testing as required by Section 01 91 13. Functional Test Plans for each system being commissioned will be prepared by Commissioning Provider during construction and will generally include a rigorous verification of instrument calibration, equipment performance, packaged equipment control system operations, automatic control sequence of operations, fire and life safety sequences, and operator interface functions. Commissioning Provider will supervise and document functional testing. Contractor

shall provide qualified technicians to assist Commissioning Provider during on-site testing and perform the following functions.

1. Operate equipment and systems as necessary to conduct testing.
2. Manipulate control parameters to simulate test conditions as detailed in Functional Test Plans.
3. Access control programming and database as required to verify control configuration or to correct observed deficiencies.
4. Create graphic displays and/or trend report as required to document test results.
5. Provide proprietary hardware and software as needed to interface with manufacturer's packaged control systems.

B. Labor required for retesting due to failure of equipment, or systems not performing in accordance with Contract Documents shall be provided at no additional cost to Owner.

3.05 SCHEDULE OF SYSTEMS BEING COMMISSIONED

A. Commission systems and equipment listed below, including associated equipment, piping, ductwork, and control systems.

B. HVAC Systems: All HVAC systems, equipment, and controls

END OF SECTION

SECTION ADDED VIA ADDENDUM NO. 1, JUNE 30, 2023

SECTION 26 0800
COMMISSIONING OF ELECTRICAL

PART 1 GENERAL

1.01 SUMMARY

A. Section includes Commissioning activities required for work of Division 26 Sections including but not limited to construction checks, equipment start-up, functional testing, and operator training.
   1. Comply with Section 01 91 13 – General Commissioning Requirements for Commissioning activities for Division 26 work.

1.02 SUBMITTALS

A. Provide submittals of systems being commissioned to Owner's Authorized Representative as required by Section 01 91 13.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Manufacturer's representative to perform construction checks and operational training as specified in Division 26.

3.02 CONSTRUCTION CHECKLISTS

A. Contractor shall perform as required by Section 01 91 13. Construction checklists for each system being commissioned will be prepared by Commissioning Provider during construction.
   1. Perform voltage and amperage measurements for mechanical equipment as required in Section 22 08 00 and 23 08 00.

3.03 FUNCTIONAL TESTING

A. Contractor shall perform testing as directed by Commissioning Provider and as required by Section 01 91 13. Functional Test Plans for each system being commissioned will be prepared by Commissioning Provider during construction. Provide an allowance of on-site labor hours per trade for assisting Commissioning Provider with Functional Testing as listed below. Labor required for retesting due to failure of equipment or systems to perform in accordance with Contract Documents shall be provided at no additional cost to Owner.

3.04 OPERATIONS AND MAINTENANCE TRAINING

A. The Contractor shall provide operation and maintenance instruction to Owner's personnel as required by Division 01 and 26.

3.05 SCHEDULE OF SYSTEMS BEING COMMISSIONED

A. Commission systems and equipment listed below including associated equipment and control systems.
   1. Electrical connections to commissioned mechanical equipment.

END OF SECTION

SECTION EDITED VIA ADDENDUM NO. 1, JUNE 30, 2023

SECTION 26 2416
PANELBOARDS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Distribution panelboards.
   2. Lighting and appliance branch-circuit panelboards.

1.02 RELATED SECTIONS

A. Section 26 2813 – Fuses

B. Section 26 4313 - Surge Protection for Low-Voltage Electrical Power Circuits

1.03 DEFINITIONS

A. OCPD: Overcurrent protective device.

B. MCCB: Molded-case circuit breaker.

C. SPD: Surge protective device.

D. NRTL: Nationally Recognized Testing Laboratory.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of panelboard, overcurrent protective device, surge protection device, ground-fault protector, accessory, and component.

B. Shop Drawings: For each panelboard and related equipment.
   1. Include dimensioned plans, elevations, sections, and details.
   2. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.
   3. Detail bus configuration, current, and voltage ratings.
   4. Short-circuit current rating of panelboards and all individual overcurrent protective devices.
   5. Current limitation curves and time-current coordination curves for each type and rating of overcurrent protective device.
   6. Time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.
   7. Schematic and wiring diagrams for power, signal, and control wiring.

1.05 INFORMATIONAL SUBMITTALS

A. Panelboard schedules for installation in panelboards.

B. Seismic Qualification Data: Certificates, for panelboards, overcurrent protective devices, 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.

1.06 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.
   1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
   2. Field settings for all adjustable overcurrent protective devices.

B. Record of performance testing for ground fault breakers in accordance with NEC 230.95(C).

1.07 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. Keys: Two (2) spares for each type of panelboard cabinet lock.

1.08 QUALITY ASSURANCE

A. Installer Qualifications: Workers qualified as defined in NEMA PB 1.1 and trained in electrical safety as required by NFPA 70E.

1.09 FIELD CONDITIONS

A. Environmental Limitations:
   1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
   2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
      a. Ambient Temperature: Not exceeding 23 deg F (minus 5 deg C) to plus 104 deg F (plus 40 deg C).
      b. Altitude not exceeding 6600 feet (2000 m).

B. Service Conditions: NEMA PB 1.1, usual service conditions, as noted above.

1.10 COORDINATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, ductwork, encumbrances to workspace clearance requirements and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels in accordance with NEC 110.26.

1.11 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards enclosures, buswork, overcurrent protective devices, accessories that fail in materials or workmanship within specified warranty period.
   1. Panelboard Warranty Period: 12 months from date of Substantial Completion.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Seismic Requirements: Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Section 26 0548.16 "Seismic Controls for Electrical Systems."
   1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.02 PANELBOARDS COMMON REQUIREMENTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Square D by Schneider Electric.
   2. Eaton Cutler-Hammer.
   3. ABB/General Electric Company.
   4. Siemens Corporation.

B. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.

D. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Section 26 0548.16 "Seismic Controls for Electrical Systems."

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Comply with NEMA PB 1.

G. Comply with NFPA 70.

H. Enclosures: Flush and Surface-mounted (as noted on plans), dead-front cabinets.
   1. Rated for environmental conditions at installed location.
      a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
      b. Outdoor Locations: NEMA 250, Type 3R.
      c. Kitchen or Wash-Down Areas: NEMA 250, Type 4X, stainless steel.
      d. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
      e. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.
   2. Mounting Height: 84 inches to top of enclosure (so that maximum height of highest breaker is 79 inches maximum).
   3. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box. Trims shall cover all live parts and shall have no exposed hardware.
   4. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Trims shall cover all live parts and shall have no exposed hardware.

I. Incoming Mains Location: Top or Bottom as determined by Contractor, based on field conditions, UNO.

J. Phase, Neutral, and Ground Buses: Hard-drawn copper (98 percent conductivity), or tin-plated aluminum.

K. Conductor Connectors: Suitable for use with conductor material, quantity and sizes. Refer to the Feeder Schedule on the contract documents.
   1. Material: Hard-drawn copper (98 percent conductivity), or tin-plated aluminum.
   2. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
   3. Ground Lugs and Bus - Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.

L. NRTL Label: Panelboards shall be labeled by an NRTL acceptable to authority having jurisdiction for use as service equipment with one or more main service disconnecting and overcurrent protective devices.

M. Future Devices: Panelboards shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

N. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity.

2.03 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. All OCPDs shall be fully rated for available fault current. No series rating will be allowed.

B. Manufacturers – Breakers shall be manufactured by the same manufacturer as the panelboard in which they are installed.

C. Branch Overcurrent Protective Devices - Bolt-on circuit breakers or plug-in circuit breakers where individual positive-locking device requires mechanical release for removal. Replaceable without disturbing adjacent units.

D. Standard plug-on breakers are acceptable, but only in those specific locations where a load center is allowed.

2.04 CIRCUIT BREAKERS

A. General requirements
   1. Breakers shall meet current NEMA and UL specifications as applicable to frame size, standard rating and interrupting capability.
   2. Breakers shall be one-, two-, or three-pole as scheduled, operate manually for normal ON-OFF switching and automatically under overload and short circuit conditions.
   3. The operating handle shall open and close all poles simultaneously on multi-pole breakers. The operating mechanism shall be trip-free so that contacts cannot be held closed against abnormal overcurrent or short circuit conditions. Do not use single-pole circuit breakers with handle ties where multi-pole breakers are indicated on the panel schedule or where required for poly-phase loads.
   4. Breakers shall be of the type noted on panel schedule (shunt-trip, GFCI, arc-fault, etc.) or as required by the equipment being provided.
   5. Breakers noted as GFI protected for equipment shall have a 30mA or greater trip.
   6. Breakers noted as GFI protected for personnel shall have a 6mA trip.
   7. A control transformer with primary and secondary fusing shall be provided as required for control of shunt-trip breakers.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
   1. Molded case circuit breakers shall be bolt-on type only and suitable for individual as well as panelboard mounting. No breakers designated "plug-on" type allowed unless specifically noted on plans.
   2. Thermal-Magnetic Circuit Breakers:
      a. Inverse time-current element for low-level overloads.
      b. Instantaneous magnetic trip element for short circuits.
      c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
   3. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
   4. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings (LSIG):
      a. Instantaneous trip.
      b. Long- and short-time pickup levels.
      c. Long- and short-time adjustments.
      d. Ground-fault pickup level, time delay, and I squared t response.
   5. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
   6. GFCI Circuit Breakers: Single- and double-pole configurations with Class A ground-fault protection (6-mA trip).
   7. GFEP Circuit Breakers: Class B ground-fault protection (30-mA trip).
   8. Arc-Fault Circuit Interrupter Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration.
   9. Sub-feed Circuit Breakers: Vertically mounted.
   10. MCCB Features and Accessories:
      a. Standard frame sizes, trip ratings, and number of poles.
      b. Breaker handle indicates tripped status.
      c. UL listed for reverse connection without restrictive line or load ratings.
      d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
      e. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and HID lighting circuits.
      f. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
      g. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
      h. Handle Clamp: Loose attachment, for holding circuit-breaker handle in ‘on’ position.

2.05 SURGE PROTECTION DEVICES

A. Refer to Section 26 4313; Surge Protection for Low-Voltage Electrical Power Circuits.

2.06 DISTRIBUTION PANELBOARDS

A. Design is generally based on the Square D, I-Line panelboard.

B. Panelboards: NEMA PB 1, distribution type.

C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
   1. For doors more than 36 inches (914 mm) high, provide two latches, keyed alike.

D. Mains: As noted on drawings.

E. Branch OCPDs: Bolt-on or plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.07 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

B. Mains: As noted on drawings.

C. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

D. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

E. Column-Type Panelboards: Single row of overcurrent devices with narrow gutter extension and overhead junction box equipped with ground and neutral terminal buses.

F. Load centers with plug-on breakers may be installed, but only where flush mounted in an existing wall that would not be deep enough to accommodate a normal panelboard.

2.08 IDENTIFICATION

A. Service Equipment Label: NRTL labeled for use as service equipment for switchboards (as applicable) with one or more service disconnecting and overcurrent protective devices.

B. Breaker Labels - Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.

B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.

C. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.

D. Examine all OCPDs before installation. Reject any that are moisture damaged or physically damaged.

E. Examine utilization equipment nameplates and installation instructions. Install OCPDs of sizes and with characteristics appropriate for each piece of equipment.

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

3.02 INSTALLATION

A. Comply with NECA 1.

B. Install panelboards and accessories according to NEMA PB 1.1.

C. Comply with mounting and anchoring requirements specified in Section 26 0548.16 "Seismic Controls for Electrical Systems."

D. Mount top of enclosure (standard panelboards or ADA dwelling unit panelboards) in accordance with mounting heights noted in paragraph 2.2 above.

E. Mount panelboard cabinet plumb and rigid without distortion of box.

F. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

G. Install filler plates in unused spaces.

H. Install overcurrent protective devices and controllers not already factory installed.
   1. Set field-adjustable, circuit-breaker trip ranges.

I. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.

J. Ground fault breaker settings.
   1. Set GF Trip Pickup at 0.5 for all Main and Branch GF breakers, UNO.
   2. Set GF Trip Delay to 0.1 for the Main breaker and to 0 or OFF for all Branch GF breakers, UNO.
   3. Set GF Trip Slope to 0 for all Main and Branch GF breakers, UNO.

K. Spare conduit stub-outs at recessed panels
   1. In the following paragraphs, accessible is defined as being arranged so that an appropriately dressed person, 6'-2" tall, weighing 250 pounds, may approach the area in question with tools and products necessary for the work intended, and may then position himself/herself to properly and safely perform the task to be accomplished, without disassembly or damage to the surrounding installation.
   2. All spare conduits shall be terminated in locations where they are accessible from a crawlspace, attic, or by ladder in areas that have t-grid ceilings. They shall be terminated away from equipment, ducts or pipes that would obstruct access.
   3. Stub four (4) 1-inch empty conduits from panelboard into accessible ceiling space above the panel, or a space designated to be ceiling space in the future.
   4. Where applicable, stub four (4) 1-inch empty conduits into accessible floor space or accessible ceiling space on the level below.

L. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

M. Panelboards shall not be used as pull-boxes for any wiring that does not terminate in that panelboard.

3.03 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 26 0553 "Identification for Electrical Systems."

B. Circuit Directory: Directory card inside panelboard door, mounted in transparent card holder. Indicate installed circuit loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 26 0553 "Identification for Electrical Systems." Include: Panel name, voltage, amperage, number of phases and wires, source and available fault current with date calculated.

D. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in Section 26 0553 "Identification for Electrical Systems."

E. Install warning signs/labels complying with requirements in Section 26 0553 "Identification for Electrical Systems" identifying source of remote circuit.

F. On main distribution panel door provide a laminated one-line diagram of the electrical system and all panel configurations.

3.04 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:
   1. Acceptance:

a. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit. Open control and metering circuits within the panelboard, and remove neutral connection to surge protection and other electronic devices prior to insulation test. Reconnect after test.
b. Test continuity of each circuit.

2. Test ground-fault protection of equipment for service equipment per NFPA 70.
3. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
4. Test and adjust controls, remote monitoring, and safeties. Replace any damaged and malfunctioning controls and equipment.
5. Test and demonstrate proper function of all GFCI, AFCI and shunt-trip breakers.

B. Panelboards will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.05 DEMONSTRATION

A. Train Owner's maintenance personnel:
1. To adjust, operate, and maintain panelboards, overcurrent protective devices, instrumentation, and accessories.
2. How to set and reset arc fault reduction switches for maintenance.

END OF SECTION

SECTION ADDED AT ADDENDUM NO. 1, JUNE 30, 2023

SECTION 284621
ADDRESSABLE FIRE ALARM SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fire alarm control unit.
      a. Fire Alarm Control Panel (FACP).
      b. Secondary Power System.
      c. Digital Alarm Communicator Transmitter (DACT).
      d. Intelligent control, monitor and isolation modules.
      e. Remote annunciator.
   2. Initiating Devices
      a. Manual fire alarm boxes.
      b. System smoke detectors.
      c. Non-system smoke detectors.
      d. Heat detectors.
      e. Sprinkler flow, tamper and pressure switches.
      f. Dust collector blast gate suppression system.
   3. Notification appliances
      a. Horns
      b. Speakers
      c. Strobes.
      d. NAC power extender.
   4. Activation Devices
      a. Addressable interface devices.
      b. Magnetic door holders.
      c. Door closers.
      d. Air handling equipment shutdown
      e. Smoke dampers

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.

1.2 DEFINITIONS

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

B. NRTL: Nationally Recognized Testing Laboratory.

C. HVLS: High Volume, Low Speed.

1.3 REFERENCES AND STANDARDS

A. The fire alarm system shall be designed, manufactured and installed in accordance with the following standards:
   1. IBC – International Building Code
   2. IFC – International Fire Code
   3. NFPA 70 – National Electric Code.
   4. NFPA 72 – National Fire Alarm Code.
   5. FM – Factory Mutual.

6. UL – Underwriters Laboratories - Although this list is not exhaustive, the following standards shall apply:
    a. UL 38 Manually Actuated Signaling Boxes for Use with Fire Protective Signaling Systems
    b. UL 228 Door Closers-Holders, With or Without Integral Smoke Detectors
    c. UL 268 Smoke Detectors for Fire Protective Signaling Systems
    d. UL 268A Smoke Detectors for Duct Application
    e. UL 346 Waterflow Indicators for Fire-Protective Signaling Systems
    f. UL 464 Audible Signal Appliances
    g. UL 497B Protectors for Data communication and Fire Alarm Circuits
    h. UL 521 Heat Detectors for fire Protective Signaling Systems
    i. UL 632 Electrically Actuated Transmitters
    j. UL 753 Alarm Accessories for Automatic Water-Supply Control Valves for Fire Protection Service
    k. UL 827 Central-Stations for Watchman, Fire-Alarm, and Supervisory Services
    l. UL 864 Control Units for Fire-Protective Signaling Systems
    m. UL 1424 Cables for Power-Limited Fire Protective Signaling Circuits
    n. UL 1480 Speakers for Fire Protective Signaling Systems
    o. UL 1481 Power Supplies for Fire Protective Signaling Systems
    p. UL 1638 Visual Signaling Appliances - Private Mode Emergency and General Utility Signaling
    q. UL 1711 Amplifiers for Fire Protective Signaling Systems
    r. UL 1971 Signaling Devices for Hearing Impaired
    s. Note that all devices shall be cross-listed for use with control unit.
7. ADA – Americans with Disabilities Act.

1.4 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.

1.5 ACTION SUBMITTALS

A. 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 II minimum.
        c. Licensed or certified by authorities having jurisdiction.

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

C. Shop Drawings for fire alarm system.
    1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
    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 input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. 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.
10. 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 voice/alarm signaling-service equipment rack or console layout, grounding schematic, amplifier power calculation, and single-line connection diagram.

D. Delegated-Design Submittal: For notification appliances and smoke and heat detectors, in addition to submittals listed above, indicate compliance with performance requirements and design criteria, including analysis data signed and sealed by the Level II NICET-certified technician engineer responsible for their preparation.
1. Drawings showing the location of each notification appliance and smoke and heat detector, ratings of each, and installation details as needed to comply with listing conditions of the device.
2. Design Calculations: Calculate requirements for selecting the spacing and sensitivity of detection, complying with NFPA 72. Calculate spacing and intensities for strobe signals and sound-pressure levels for audible appliances.
3. Indicate audible appliances required to produce square wave signal per NFPA 72.

1.6 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.

1.7 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 NFPA 72.
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 NFPA 72.
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 NFPA 72, 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.

1.8 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.

1.9 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 II 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 NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. NFPA Certification: Obtain certification according to NFPA 72 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 BROCHURE OF EQUIPMENT: 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 NFPA 72 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 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.

1.14 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.

B. Equipment Removal: After acceptance of new fire alarm system, remove existing disconnected **fire alarm equipment and wiring.**

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. EST Edwards Fire Safety; an Edwards Signal company.
   2. Gamewell; a Honeywell company.
   3. Notifier; a Honeywell company.
   4. Cerberus Pyrotronics; a Siemens company.
   5. SimplexGrinnell LP; a Tyco International company.
   6. Faraday; a Honeywell company.
   7. Fire Lite Alarms; a Honeywell company.
   8. GE Vigilant; a General Electric company.
   9. FireNET; a Hochiki company.

10. National Time and Signal
11. Silent Knight; a Honeywell company.

2.2 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 NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.3 SYSTEMS OPERATIONAL DESCRIPTION

A. Alarm Signal
   1. Initiation shall be by one or more of the following devices or systems:
      a. Manual pull stations.
      b. Smoke detectors.
      c. Automatic sprinkler system water flow.
      d. Fire standpipe system.
   2. The following actions shall occur when an alarm is initiated:
      a. Continuously operate alarm notification appliances including the exterior fire alarm notification appliance.
      b. Activate voice/alarm communication system.
      c. Release fire and smoke doors held open by magnetic door holders.
      d. Identify alarm and specific initiating device at fire alarm control unit at and remote annunciators.
      e. Record events in the system memory.
      f. Transmit an alarm signal to the remote alarm receiving station.
      g. Switch heating, ventilating, and air-conditioning equipment controls to fire alarm mode.
      h. Close smoke dampers in air ducts of designated air-conditioning duct systems.

B. System Trouble Signal
   1. System trouble signal initiation shall be by one or more of the following devices and actions:
      a. Duct smoke detectors.
      b. Open circuits, shorts, and grounds in designated circuits.
      c. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
      d. Loss of communication with any addressable sensor, input module, relay, control module, or remote annunciator.
      e. Loss of primary power at fire alarm control unit.
      f. Ground or a single break in internal circuits of fire alarm control unit.
      g. Abnormal ac voltage at fire alarm control unit.
      h. Break in standby battery circuitry.
      i. Failure of battery charging.
      j. Abnormal position of any switch at fire alarm control unit or annunciator.
   2. The following shall occur when a trouble signal is initiated:
      a. Initiate beeping notification at the FACP.
      b. Identify specific device/condition initiating the event at fire alarm control unit and remote annunciators.
      c. After a maximum time-delay of 200 seconds, transmit a trouble signal to the remote alarm receiving station.

C. System Supervisory Signal
   1. Initiation shall be by one or more of the following devices or actions:

a. Loss of communication with any panel on the network.
b. Valve supervisory switch.
c. Automatic sprinkler system Tamper Switch.

2. The following shall occur when a trouble signal is initiated:
a. Initiate beeping notification at the FACP.
b. Identify specific device/condition initiating the event at fire alarm control unit and remote annunciators.
c. After a maximum time-delay of 200 seconds, transmit a supervisory signal to the remote alarm receiving station.

2.4 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Fire alarm control unit and raceways shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.5 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.
2. 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.
a. Smoke sensors shall additionally communicate sensitivity setting and allow for adjustment of sensitivity at fire alarm control unit.
b. Temperature sensors shall additionally test for and communicate the sensitivity range of the device.
3. 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: NFPA 72, Class B. – There are various Class designations and these are defined in NFPA 72, Section 12.3. Class B is the most commonly used system with modern addressable systems.
2. Pathway Survivability: Level 1. – There are various Survivability Levels and these are defined in NFPA 72, Section 12.4.

D. Notification-Appliance Circuit:
1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
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 NFPA 72.

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.
   2. System shall automatically transfer to standby batteries upon primary power failure.
   3. All battery charging and recharging operations shall be automatic and monitored by the control panel.
   4. Batteries: Sealed lead calcium.
   5. 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 [**in a separate cabinet located in the fire command center**] [**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 NFPA 72 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.

2.6 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.

2.7 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.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

C. 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.

D. Control Module:
   1. Operate notification devices.
   2. Operate solenoids for use in sprinkler service.

2.8 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. IP-DACT Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire alarm control unit and automatically transmit on IP Network line. If service on network is interrupted for longer than 90 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of network. Transmitter shall automatically report IP network service restoration to the central station. If network service is lost for more than 90 seconds, transmitter shall initiate the local trouble signal. Where IP-DACT is utilized, also provide provisions for communication via cellular transmission.

D. 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.

E. 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.

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

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

2.9 DATA NETWORK LINE-INTERACTIVE UPS UNIT

A. Provide all equipment and batteries necessary to maintain a minimum 39 minutes of backup power for the main 48-port Ethernet switch (1100W load).

B. Line-Interactive UPS Unit (Liebert PSI5 Model PSI5-1500RT120; 1500VA/1350W; 120VAC, or equivalent).
1. Line interactive design with a Pure Sinewave output
2. 0.9 Power Factor Unit in 2U rack/tower design with tower stands and rack mount fixed rail kits.
3. Configurable Input Voltage Window (100/115/120/125)
4. Full-time input and output noise and transient filtering
5. Automatic battery self-testing
6. Alarms for Low Battery, Site Wiring Fault and Overload
7. USB HID Communications
8. Intellislot Port for SNMP web card communications
9. RJ-45 port for data line protection
10. Battery start capability
11. Emergency Power off (EPO) capability
12. Two-year warranty
13. Code and Standard Compliance:
    a. UL 1778 4th Edition
    b. FCC Part 15, Class A
    c. Transportation - ISTA Procedure 1A certification

C. External matching battery cabinet (Liebert PSI5-48VBATT, or equivalent).

2.10 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.

2.11 DETECTOR BASES

A. Two-wire operation.

2.12 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.

2.13 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.).

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

2.14 FIRE SPRINKLER SYSTEM SWITCHES

A. Flow, tamper and pressure switches will be provided by fire sprinkler subcontractor. Fire alarm contractor shall coordinate with fire sprinkler contractor to ensure that switches are compatible with (UL cross-listed as required) the FACP. Fire alarm contractor shall connect sprinkler system switches via addressable monitoring modules. See mechanical plans for switch locations and quantities

2.15 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.

2.16 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. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 90 dBA, measured 10 feet (3 m) from the horn, using the coded signal prescribed in UL 464 test protocol.

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

E. 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.

3. Low-Range Units: Rated 1 to 2 W.
4. Mounting: Semi-recessed or surface mounted and bidirectional.
5. Matching Transformers: Tap range matched to acoustical environment of speaker location.

2.17 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.
   3. Rating: 24-V ac or dc.

B. Material and Finish: Match door hardware.

2.18 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

3.1 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, 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 NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

B. Installation of all smoke detectors shall be in strict accordance with NFPA 72, 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. Install wall-mounted equipment, with tops of cabinets not more than 72 inches above the finished floor.
   1. Comply with requirements for seismic-restraint devices specified in Section 260548.16 "Seismic Controls for Electrical Systems."

D. 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**] [**monitoring**] equipment as necessary to extend existing [**control**] [**monitoring**] functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.

E. 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.

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

G. Smoke- or Heat-Detector Spacing:
1. Comply with NFPA 72, "Smoke-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for smoke-detector spacing.
2. Comply with NFPA 72, "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 NFPA 72.
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.

H. Duct Smoke Detectors: Comply with NFPA 72 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.

I. Remote Status and Alarm Indicators: Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.

J. 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.

K. 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.

L. Device Location-Indicating Lights: Locate in public space near the device they monitor.

M. Fire alarm Control Unit: Surface mounted, with tops of cabinets not more than 72 inches above the finished floor.

N. Remote Annunciator: Install with top of panel not more than 72 inches above the finished floor.

3.2 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 48 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.

3.3 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.

C. Coordinate with IT contractor to ensure that the following are connected to the Main Ethernet Switch that is backed up by a Line Interactive UPS unit capable of maintaining a minimum 39 minutes of backup power for the 48-port switch (1100W load).
   1. Fire Alarm IP-DACT.
   2. Elevator car emergency phone.

3.4 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.

3.5 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.

3.6 DACT PROGRAMMING:

A. Program DACT for alarm transmission central station receiver. Provide all programming & integration of the DACT, receiver, and the alarm server necessary for full addressable ID including point description reporting transmission and annunciation for each individual alarm point.

3.7 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 NFPA 72 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 NFPA 72; 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 NFPA 72.
   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 NFPA 72 and the "Inspection and Testing Form" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.
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 NFPA 72. Use forms developed for initial tests and inspections.

3.8 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire alarm system. Training shall continue until Owner is satisfied that he understands the operation of his system. Training shall be accomplished using the operation and maintenance manual and shall be video recorded and distributed to the owner upon completion in DVD format.

END OF SECTION

JEFFERSON COUNTY SCHOOL DISTRICT

METOLIUS ELEMENTARY SCHOOL UPGRADES

ABBREVIATIONS

ABV	ABOVE
ACT	ACOUSTICAL CEILING TILE
ADA	AMERICANS WITH DISABILITIES ACT
ADR	ART DISPLAY RAIL
AFF	ABOVE FINISH FLOOR
AFP	ACOUSTICAL FIBERBOARD PANEL
AL /ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATELY
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
ATTM	ATTACHMENT
ARCH	ARCHITECTURAL
@	AT
AWC	ACOUSTIC WALL COVERING
AWI	ACOUSTIC WALL INSULATION
AWP	ACOUSTIC WALL PANEL
BD	BOARD
BLDG	BUILDING
CB	CATCH BASIN
CG	CORNER GUARD
CJ	CONTROL JOINT
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CON	CONCRETE
CONT	CONTINUOUS
COORD	COORDINATE
CPT	CARPET TILE
CT	CERAMIC TILE
℄	CENTER LINE
DBA	DEFORMED BAR ANCHOR
DEG	DEGREE
DIA OR Ø	DIAMETER
DIM	DIMENSION
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
(E)	EXISTING
EL / ELEV	ELEVATION
EMT	ELECTRICAL METAL TUBING
EFP	EPOXY FLOOR PAINT
EOS	EDGE OF SLAB
EQ	EQUAL
ER	EPOXY RESIN
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
FC	FIBER CEMENT
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER IN CABINET
FF	FACTORY FINISH
FFHB	FROST FREE HOSE BIB
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF FINISH WALL
FRL	FIBER REINFORCED LAMINATE
FRP	FIBERGLASS-REINFORCED PLASTIC
FT	FOOT, FEET
FSD	FIRE SMOKE DAMPER
GA	GAUGE
GALV	GALVANIZED
GRC	GLASSFIBER REINFORCED CONCRETE
GWB	GYPSUM WALL BOARD
GWS	GLASS WRITING SURFACE
HB	HOSE BIBB
HDWR	HARDWARE
HM	HOLLOW METAL
HS	HOLLOW STEEL
HORIZ	HORIZONTAL
HT	HEIGHT
IN	INCH, INCHES
INSUL	INSULATION
INT	INTERIOR
JT	JOINT
LAM	LAMINATED
LVT	LUXURY VINYL TILE
MAX	MAXIMUM
MDF	MEDIUM-DENSITY FIBERBOARD
MECH	MECHANICAL
MFG	MANUFACTURING
MFR	MANUFACTURER
MIN	MINIMUM
MTL	METAL
MP	METAL PANEL
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OVERHEAD
OPH	OPPOSITE HAND
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
OSSC	OREGON STRUCTURAL SPECIALTY CODE
OTA	OPEN TO ABOVE
P	PAINT
PB	PUSH BUTTON
PL	PLASTIC LAMINATE
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
PS	PAINT SYSTEM
PR	PAIR
PT	PRESSURE TREATED
PVC	POLYVINYL CHLORIDE
RAF	RUBBER ATHLETIC FLOORING
RB	RUBBER BASE
RC	RESILIENT CHANNEL
RD	ROOF DRAIN
REF	REFERENCE
REQD	REQUIRED
RF	RUBBER FLOORING
RM	ROOM
RO	ROUGH OPENING
RR	RESTROOM
RST	RUBBER STAIR TREAD AND RISER
SAM	SELF-ADHERING MEMBRANE
SAMF	SELF-ADHERING MEMBRANE FLASHING
SC	SEALED CONCRETE
SDT	STATIC DISSIPATIVE TILE
SECT	SECTION
SF	SQUARE FEET
SFRM	SPRAYED FIRE-RESISTIVE MATERIAL
SHT	SHEET
SIM	SIMILAR
SM	SHEET METAL
SS	STAINLESS STEEL
SSF	SPRUNG STAGE FLOORING
SSM	SOLID SURFACE MATERIAL
STD	STANDARD
STF	SEAMLESS TROWELED FLOORING
STL	STEEL
STRUCT	STRUCTURAL
STV	SMART TV
TB	TACK BOARD
TBD	TO BE DETERMINED
TEMP	TEMPERED
TO	TOP OF
TP	TOILET PARTITION
TS	TUBE STEEL
TWS	TACKABLE WALL SURFACE
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
WD	WOOD
WAF	WOOD ATHLETIC FLOORING
WOM	WALK OFF MAT
WP	WALL PROTECTION
WRB	WEATHER RESISTIVE BARRIER

SYMBOLS

- GRID BUBBLE (0)
- ROOM TAG (ROOM / 103)
- OCCUPANCY TAG (1000 | 100 / 10 | 1)
- WALL ASSEMBLY TAG (A1)
- WALL ASSEMBLY TYPE / STUD WIDTH (A2 / 6")
- EXTERIOR/INTERIOR ELEVATION TAG (1 / A1.01)
- SECTION TAG (1 / A101 / SIM)
- KEYNOTE TAG (#)
- WINDOW TAG (1i)
- DOOR TAG (101)
- CASEWORK TAG (ii)
- TOILET ACCESSORY TAG
- ELEVATION HEIGHT TAG
- DETAIL TAG (10 / A8.10)
- EXIT SIGN TAG
- FLOOR MATERIAL TAG (1t)
- PATTERN DIRECTION TAG
- BID ALTERNATE TAG (1)
- REVISION TAG (1)
- CEILING HEIGHT TAG (9'-0")

PROJECT DESCRIPTION

THIS PROJECT INCLUDES VARIOUS UPGRADES TO THE EXISTING METOLIUS ELEMENTARY SCHOOL:

EXTERIOR
- MINOR REPAIRS TO EXISTING ROOF. SEE "SUPPLEMENTARY ATTACHMENTS" IN SPECIFICATIONS.
- NEW EXTERIOR ADA ACCESSIBLE RAMP AND HANDRAIL.
- IMPROVEMENTS TO EXISTING RAMPS AND EXTERIOR WALKWAYS.
- NEW PARENT PICK-UP/DROP-OFF LOOP WITH (16) NEW PARKING SPACES AND (1) NEW ADA PARKING SPACE. POWER CONDUIT FOR (3) FUTURE EV PARKING SPACES.
- NEW ACCESS CONTROL ADDED TO (4) EXISTING EXTERIOR DOORS.

INTERIOR
- DEMOLITION & RENOVATON OF (3) EXISTING RESTROOMS TO BE ADA COMPLIANT FAMILY RESTROOMS WITH UPDATED FLOOR, WALL, & CEILING FINISHES AND FIXTURES.
- (1) NEW FLOOR THRESHOLD WHERE EXISTING FLOOR IS DAMAGED.
- MECHANICAL UPGRADES INCLUDE REPLACEMENT OF (10) EXISTING FURNACES AND (7) COOLING COILS/CONDENSERS
- NEW FIRE ALARM SYSTEM THROUGHOUT

BID ALTERNATES

NONE

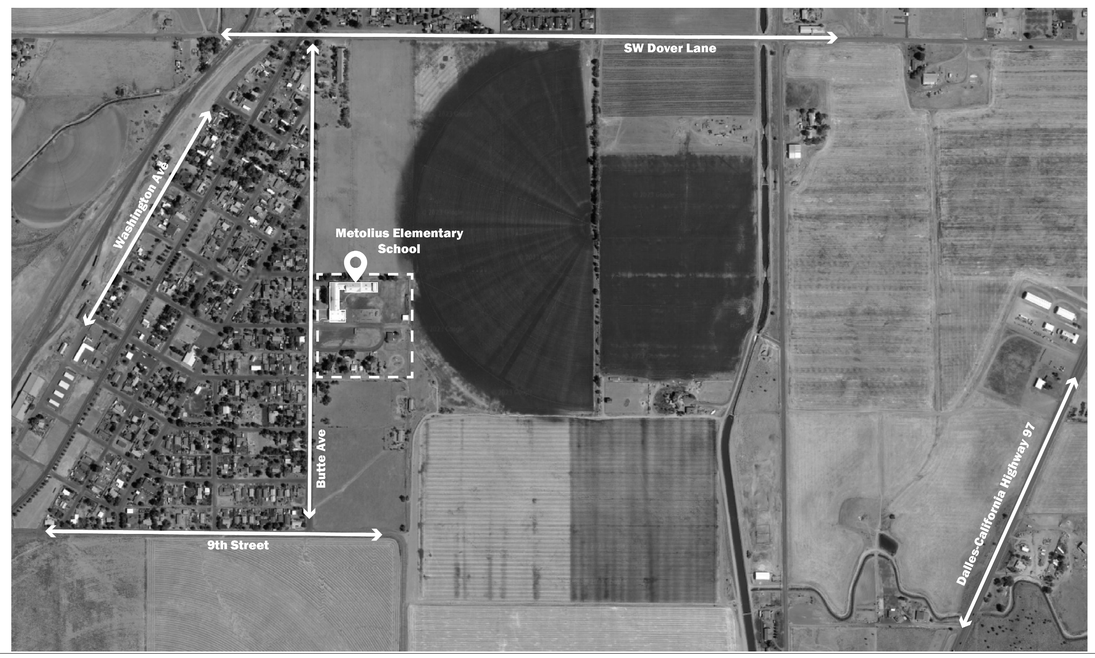
DEFFERED SUBMITTALS

FIRE ALARM

DRAWING INDEX

DRAWING INDEX

VICINITY MAP



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RENEE P. ALEXANDER
BEND, OREGON
STATE OF OREGON

Jefferson County School District Metolius Elementary School Upgrades

420 Butte Ave
Metolius, OR 97741

No.	Description	Date
1	Addendum #1	6/30/23

Project Number 2304
Date 6/01/2023

Bid / Permit

COVER SHEET

G0.00

LEGEND

AREA NOT MODIFIED BY THIS PROJECT

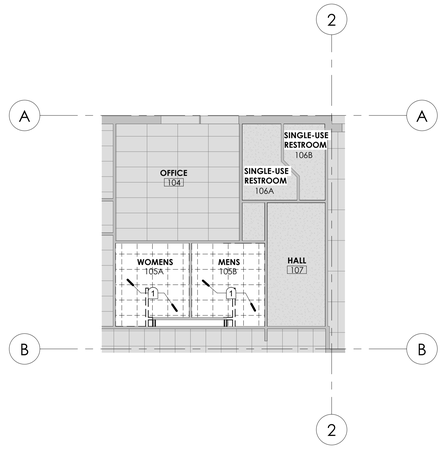
GENERAL NOTES

A. SEE SHEET G0.00 FOR ARCHITECTURAL ABBREVIATIONS AND SYMBOLS
B. SEE SHEET G0.04 FOR WALL TYPES
C. SEE SHEET A8.01 FOR DOOR SCHEDULE
D. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INTENDED TO ASSIST IN THE GENERAL SCOPE OF DEMOLITION
E. THE CONTRACTOR SHALL VERIFY & PROVIDE ALL DEMOLITION NECESSARY FOR THE FINISH WORK
F. SEE OTHER DICIPLINES FOR FULL DEMO EXTENTS
G. CEILINGS SHOWN DASHED BELOW TO BE DEMOLISHED

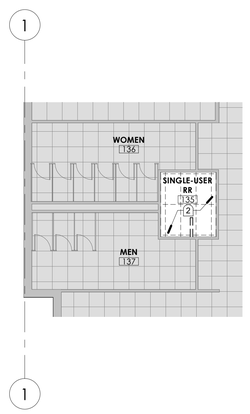
DEMO RCP KEYNOTES

1 DEMO (E) 12" X 12" PERFORATED CEILING TILE & ASSOCIATED LIGHTS AND FIXTURES
2 DEMO (E) 2' X 4' ACT CEILING TILE & ASSOCIATED LIGHTS AND FIXTURES
3 IF NEEDED, DEMO & SALVAGE EXISTING EXTERIOR WD CEILING AND LIGHT FIXTURE TO EXTENT REQUIRED FOR MECHANICAL EQUIPMENT REPLACEMENT. PATCH, REPAIR, & REINSTALL CEILING AND FIXTURE BACK TO EXISTING CONDITIONS ONCE MECHANICAL WORK IS COMPLETE.

1 AD6.01 **RCP - DEMO**
SCALE: 1/16" = 1'-0"



2 AD6.01 **RCP - DEMO - Callout 1**
SCALE: 1/8" = 1'-0"



3 AD6.01 **RCP - DEMO - Callout 2**
SCALE: 1/8" = 1'-0"

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420 Butte Ave
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DEMOLITION REFLECTED CEILING PLAN

AD6.01

LEGEND

AREA NOT MODIFIED BY THIS PROJECT

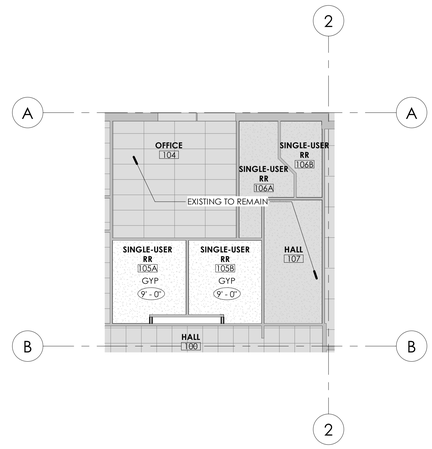
GENERAL NOTES

A. SEE SHEET G0.01 FOR ARCHITECTURAL ABBREVIATIONS AND SYMBOLS
B. SEE SHEET G0.04 FOR WALL TYPES
C. SEE SHEET A8.01 FOR DOOR SCHEDULE
D. PLAN DIMENSIONS ARE MEASURED FROM THE OUTSIDE FACE OF STUDS / FACE OF CONCRETE ON EXTERIOR WALLS TO THE CENTER LINES OF INTERIOR WALLS AND OPENINGS U.N.O.
E. GRID LINES ALIGN WITH FACE OF STUD U.N.O.

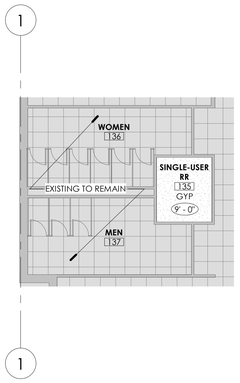
#REFLECTED CEILING KEYNOTES

1 EXISTING WOOD CEILING AND LIGHT FIXTURE TO BE RE-INSTALLED AND RETURNED TO ORIGINAL CONDITIONS ONCE MECHANICAL WORK IS COMPLETE

1 A6.01 **OVERALL RCP**
SCALE: 1/16" = 1'-0"



2 A6.01 **ENLARGED RCP - ADMIN RESTROOMS**
SCALE: 1/8" = 1'-0"



3 A6.01 **ENLARGED RCP - RESTROOM 135**
SCALE: 1/8" = 1'-0"

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REFLECTED CEILING PLAN

A6.01

FINISH LEGEND

SPEC SECTION	MATERIAL	ABBREVIATION	MANUFACTURER	MODEL NAME/ #	FINISH/COLOR	COMMENTS
03 3511	**CONCRETE FLOOR FINISHES**					
	POLISHED CONCRETE	POL-1				
06 2000	**FINISH CARPENTRY**					
	WOOD TRIM	WD-1			PAINTED, MATCH EXISTING	
08 1416	**FLUSH WOOD DOORS**					
	WOOD DOOR	DR-1	VT INDUSTRIES		BIRCH VENEER, CLEAR FINISH	
09 2116	**GYPSUM BOARD ASSEMBLIES**					
	GYPSUM WALLBOARD	GWB-1			PAINTED	
09 3000	**TILING**					
	CERAMIC TILE	CT-1	DALTILE	NATURAL HUES; 6" X 12" WALL TILE	GLOSS, COLOR TO BE SELECTED BY ARCH FROM MANUFACTURERS STANDARD LINE	REFER TO TILE REPEAT DETAIL PER SHEET A8.10
		CT-2	DALTILE	NATURAL HUES; 5" X 12" COVE BASE TILE; FLAT TOP	GLOSS, COLOR TO BE SELECTED BY ARCH FROM MANUFACTURERS STANDARD LINE	REFER TO TILE REPEAT DETAIL PER SHEET A8.10
09 6500	**RESILIENT FLOORING**					
	RUBBER BASE	RB-1	TARKETT		4", MATCH EXISTING	
09 9000	**PAINTING**					
	PAINT	P-1	SHERWIN WILLIAMS		MATCH EXISTING / ADJACENT INTERIOR GYP. PAINT COLOR	FIELD- GYP WALLS, CEILING
		P-2	SHERWIN WILLIAMS		MATCH EXISTING ADJACENT EXTERIOR STEEL HANDRAILS	EXTERIOR STEEL HANDRAILS, COLUMNS

GENERAL FINISH LEGEND NOTES:

A. SEE DETAIL SHEET A8.10 FOR EXTERIOR PAINT SYSTEMS
B. SEE SPECIFICATIONS FOR PAINT SYSTEMS

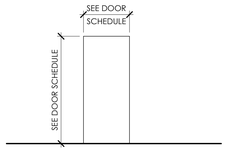
ROOM FINISH SCHEDULE

NUMBER	NAME	CEILING		WALL		FLOOR FINISH	BASE FINISH	COMMENTS
		MATERIAL	FINISH	MATERIAL	FINISH			
100	HALL	(E)	(E)	(E)	P-1	(E)	RB-1	PATCH, REPAIR & PAINT WALL WHERE DOOR, FRAMES, AND DRINKING FOUNTAIN ARE REPLACED. INFILL RUBBER BASE AS NEEDED. SEE A2.11 FOR LOCATION.
105A	SINGLE-USER RR	GYP	P-1	GYP	CT-1, P-1	POL-1	CT-1	
105B	SINGLE-USER RR	GYP	P-1	GYP	CT-1, P-1	POL-1	CT-1	
106A	SINGLE-USER RR	(E)	(E)	(E)	(E)	(E)	(E)	
106B	SINGLE-USER RR	(E)	(E)	E	(E)	(E)	(E)	
107	HALL	(E)	(E)	(E)	(E)	(E)	(E)	
115	MEN	(E)	(E)	(E)	(E)	(E)	(E)	
116	WOMEN	(E)	(E)	(E)	(E)	(E)	(E)	
120	HALL	(E)	(E)	(E)	(E)	(E)	(E)	
133	HALL	(E)	(E)	(E)	(E)	(E)	(E)	
135	SINGLE-USER RR	GYP	P-1	GYP	CT-1, P-1	POL-1	CT-1	
136	WOMEN	(E)	(E)	(E)	(E)	(E)	(E)	
137	MEN	(E)	(E)	E	(E)	(E)	(E)	

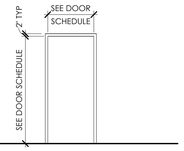
DOOR SCHEDULE

MARK	WIDTH	HEIGHT	PANEL			FRAME			HARDWARE GROUP	COMMENTS
			TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH		
104A	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
104B	2' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
105A	3' - 0"	7' - 0"	A	WD	FF	1	WD	P-1		1
105B	3' - 0"	7' - 0"	A	WD	FF	1	WD	P-1		1
106A	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
106B	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
107A	0' - 0"	0' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
108A	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
120A	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2, 3
120B	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2, 3
120C	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
120D	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
120E	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2, 3
120F	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2, 3
120G	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
120H	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
127A	5' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2, 4
135A	3' - 0"	7' - 0"	(E)	(E)	(E)	(E)	(E)	(E)		2
136A	0' - 0"	0' - 0"	(E)	-	(E)	(E)	(E)	(E)		2
137A	0' - 0"	0' - 0"	(E)	-	(E)	(E)	(E)	(E)		2

GENERAL NOTES	ABBREVIATIONS	COMMENTS
1. SEE A8.01 FOR DOOR FRAME AND TYPES. 2. CONTRACTOR TO VERIFY HM THROAT SIZE BASED ON WALL ASSEMBLY. 3. SEE A8.10 FOR TYPICAL U.N.O. WD DOOR HEAD AND JAMB DETAILS.	-- / (E) - EXISTING TO REMAIN AL - ALUMINUM FF - FACTORY FINISH PT - PAINT WD - WOOD HM - HOLLOW METAL L - LAMINATED GLAZING I - INSULATED GLAZING T - TEMPERED GLAZING F - FIRE RATED GLAZING	1. NEW DOOR 2. EXISTING DOOR/OPENING TO REMAIN 3. ADD ACCESS CONTROL (CARD READER) 4. ADD NEW THRESHOLD



DOOR PANEL TYPES
SCALE: 1/4" = 1'-0"



FRAME TYPES
SCALE: 1/4" = 1'-0"

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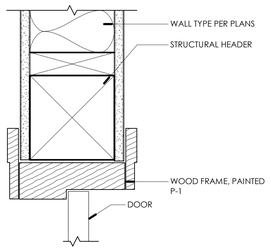
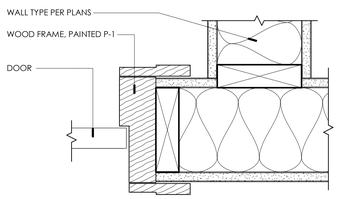
SCHEDULES

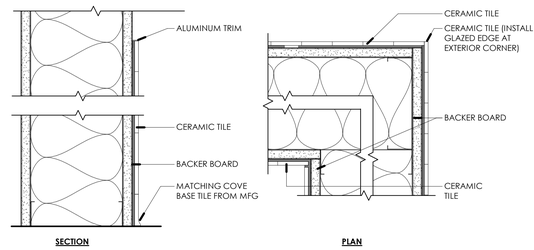
A8.01



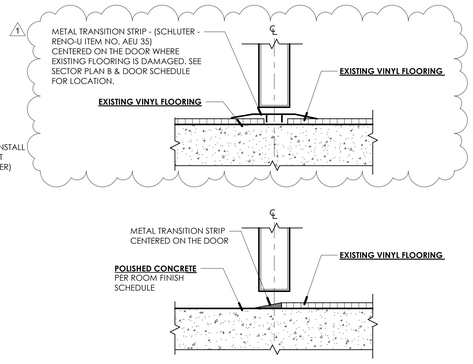
1 A8.10 **INTERIOR - WD FRAME HEAD**
SCALE: 3" = 1'-0"



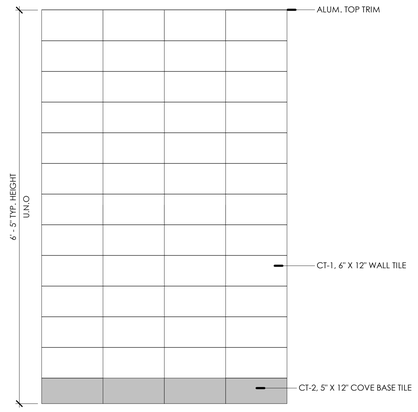
2 A8.10 **INTERIOR - WD FRAME JAMB**
SCALE: 3" = 1'-0"



3 A8.10 **CERAMIC TILE, TYPICAL**
SCALE: 3" = 1'-0"



4 A8.10 **FLOOR - TRANSITIONS**
SCALE: 3" = 1'-0"

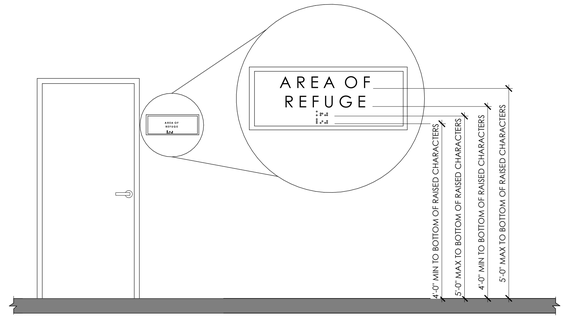


5 A8.10 **WALL TILE REPEAT, TYP. U.N.O**
SCALE: 1" = 1'-0"

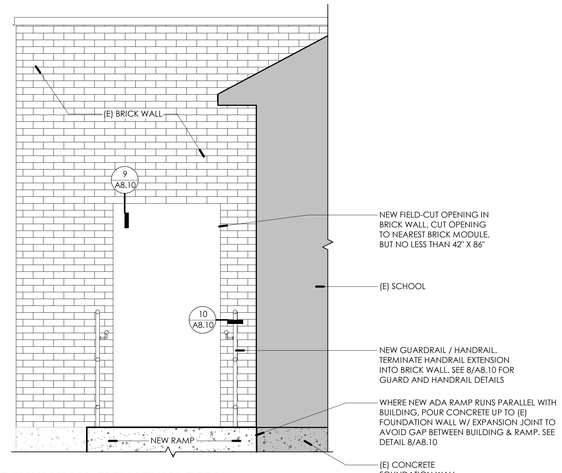
INTERIOR ROOM SIGNAGE
-.080" ACRYLIC PANEL, PAINTED 2ND SURFACE - MATCH EXISTING
-ROOM NUMBER -1" H
-BRAILLE IN ENGLISH
-FONT STYLE: MATCH EXISTING, COLOR: MATTE WHITE
- ROOM NAMES SHOWN FOR EXAMPLE ONLY
- SEE SPECIFICATIONS FOR FURTHER DETAILS
- SEE 9/A8.10 FOR MOUNTING HEIGHTS

PLATE TYPE A
REGULATORY SIZE
ENGLISH
BRAILLE IN ENGLISH
(INCLUDES WOMEN'S, MEN'S, UNISEX, FAMILY)

6 A8.10 **SIGNAGE**
SCALE: 3" = 1'-0"



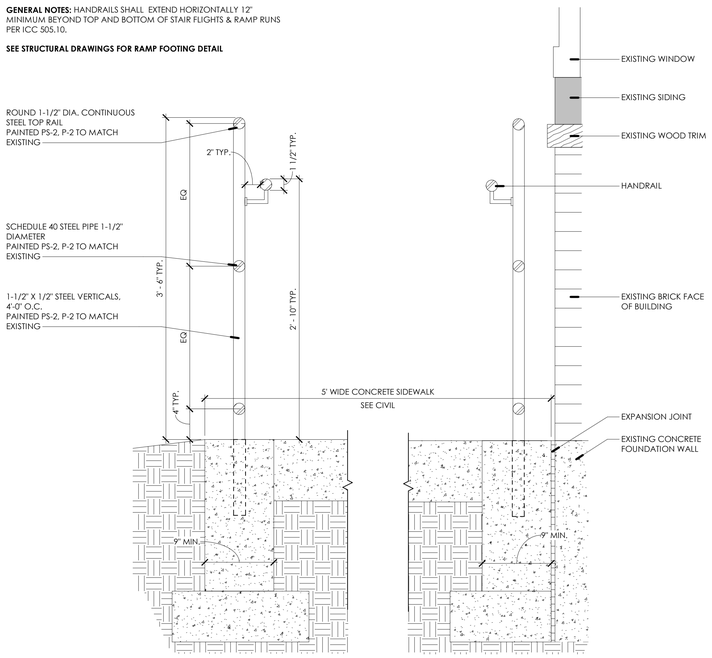
7 A8.10 **ADA SIGNAGE HEIGHT**
SCALE: 1/2" = 1'-0"



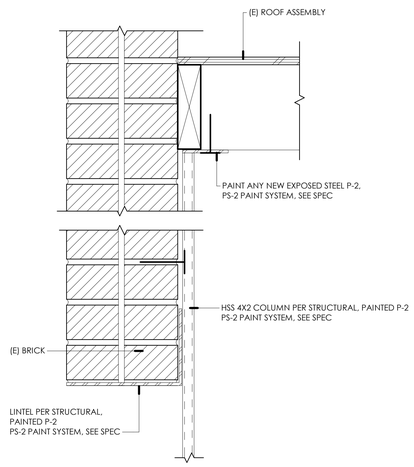
11 A8.10 **BRICK WALL ELEVATION DETAIL**
SCALE: 1/2" = 1'-0"

GENERAL NOTES: HANDRAILS SHALL EXTEND HORIZONTALLY 12" MINIMUM BEYOND TOP AND BOTTOM OF STAIR FLIGHTS & RAMP RUNS PER ICC 505.10.

SEE STRUCTURAL DRAWINGS FOR RAMP FOOTING DETAIL

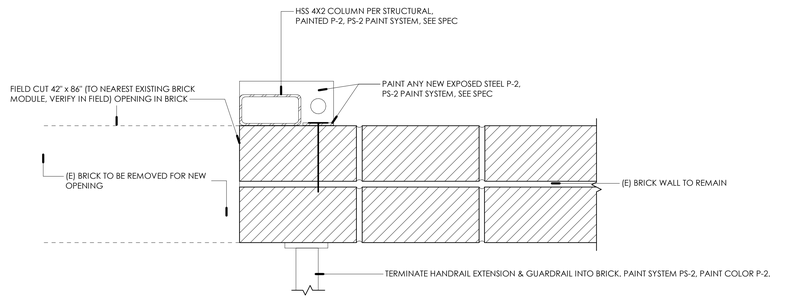


8 A8.10 **EXTERIOR RAMPS - TYP. GUARD/HAND RAIL DETAIL**
SCALE: 1 1/2" = 1'-0"



COORDINATE ARCHITECTURAL DETAILS WITH STRUCTURAL DRAWINGS & DETAILS

9 A8.10 **EXTERIOR - BRICK WALL @ HSS LINTEL DETAIL**
SCALE: 3" = 1'-0"



COORDINATE ARCHITECTURAL DETAILS WITH STRUCTURAL DRAWINGS & DETAILS

10 A8.10 **EXTERIOR - BRICK WALL @ HSS BASE DETAIL**
SCALE: 3" = 1'-0"

BBT ARCHITECTS
1140 sw Simpson Ave. - Suite 200
Bend, Oregon 97702
t 541.382.5535 | f 541.389.8033

REGISTERED ARCHITECT
5499
RENEE P. ALEXANDER
BEND, OREGON
STATE OF OREGON

Jefferson County School District
Metolius Elementary School Upgrades

420 Butte Ave
Metolius, OR 97741

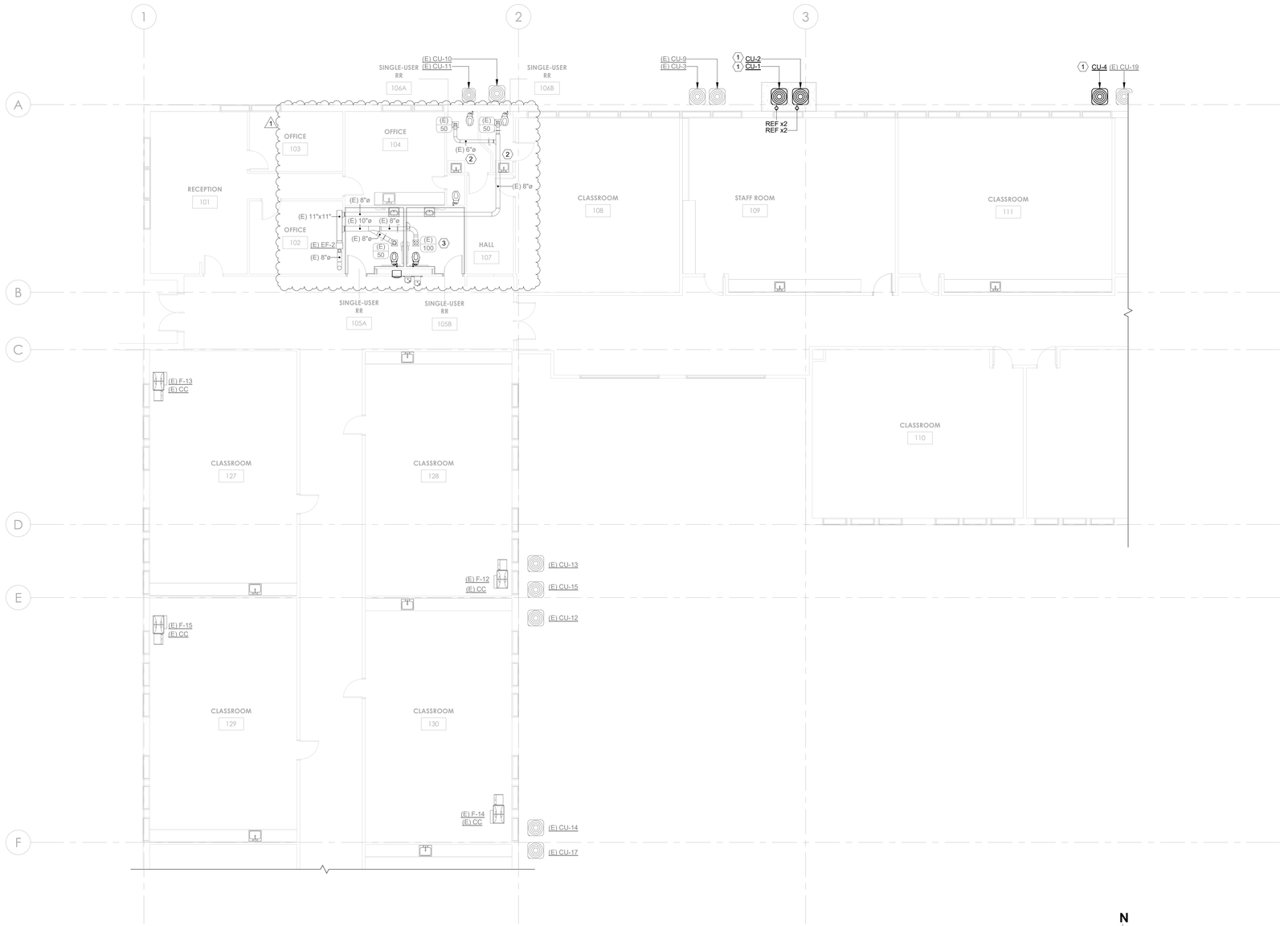
No.	Description	Date
1	Addendum #1	6/30/23

Project Number 2304
Date 6/01/2023

Bid / Permit

DETAILS

A8.10



1 M2.11 **MECHANICAL FLOOR PLAN - LEVEL 1 SECTOR B**

SCALE: 1/8" = 1'-0"

MECHANICAL PLAN NOTES

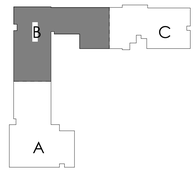
A. VERIFY THE LOCATION OF THERMOSTATS AND SENSORS WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION. INSTALL THERMOSTATS 48" ABOVE FINISHED FLOOR PER ADA REQUIREMENTS.
B. PROVIDE AND INSTALL SEISMIC BRACING FOR EQUIPMENT, DUCTWORK AND PIPING PER THE REQUIREMENTS OF THE CURRENTLY ADOPTED INTERNATIONAL 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. PIPING SHALL BE IDENTIFIED WITH PIPE LABELS MARKED AT A MAXIMUM OF EVERY 25 FT. VALVES SHALL BE IDENTIFIED WITH BRASS OR ALUMINUM VALVE TAGS.
H. PROVIDE AND INSTALL PIPE GUIDES, EXPANSION JOINTS, AND HANGERS PER MANUFACTURER'S RECOMMENDATIONS.
I. PIPING WALL PENETRATIONS SHALL SHALL BE FINISHED WITH A CHROME ESCUTCHEON PLATE.
J. MINIMUM TERMINAL DEVICE BRANCH PIPE SIZE IS 3/4"ø UNLESS OTHERWISE NOTED.
K. EXPOSED DUCTWORK TO BE HOT DIPPED GALVANIZED STEEL AND PAINTED PER ARCHITECTURAL. CONTRACTOR TO CLEAN AND DRY DUCTWORK PRIOR TO PAINTING.

KEY NOTES:

1. INSTALL NEW CONDENSING UNIT IN SAME LOCATION AS EXISTING CONDENSING UNIT. INSTALL 4" CONCRETE MOUNTING PAD BELOW UNIT 6" WIDER THAN THE FOOTPRINT. ROUTE NEW REFRIGERANT PIPING UP TO CORRESPONDING FURNACE UTILIZING EXISTING REFRIGERANT PIPING PATHWAY. REPLACE INSULATION ON THE SUCTION AND LIQUID LINES WITH NEW FLEXIBLE ELASTOMERIC INSULATION.
2. EXISTING EXHAUST DUCTWORK TO REMAIN.
3. REBALANCE EXISTING EXHAUST FAN.

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.



KEY PLAN

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REGISTERED PROFESSIONAL ENGINEER
93757PE
OREGON
JULY 01, 2022
ERIC J. WEBBER

EXPIRES: JUNE 30, 2024

Morrison Maierle
engineers - surveyors - planners - scientists
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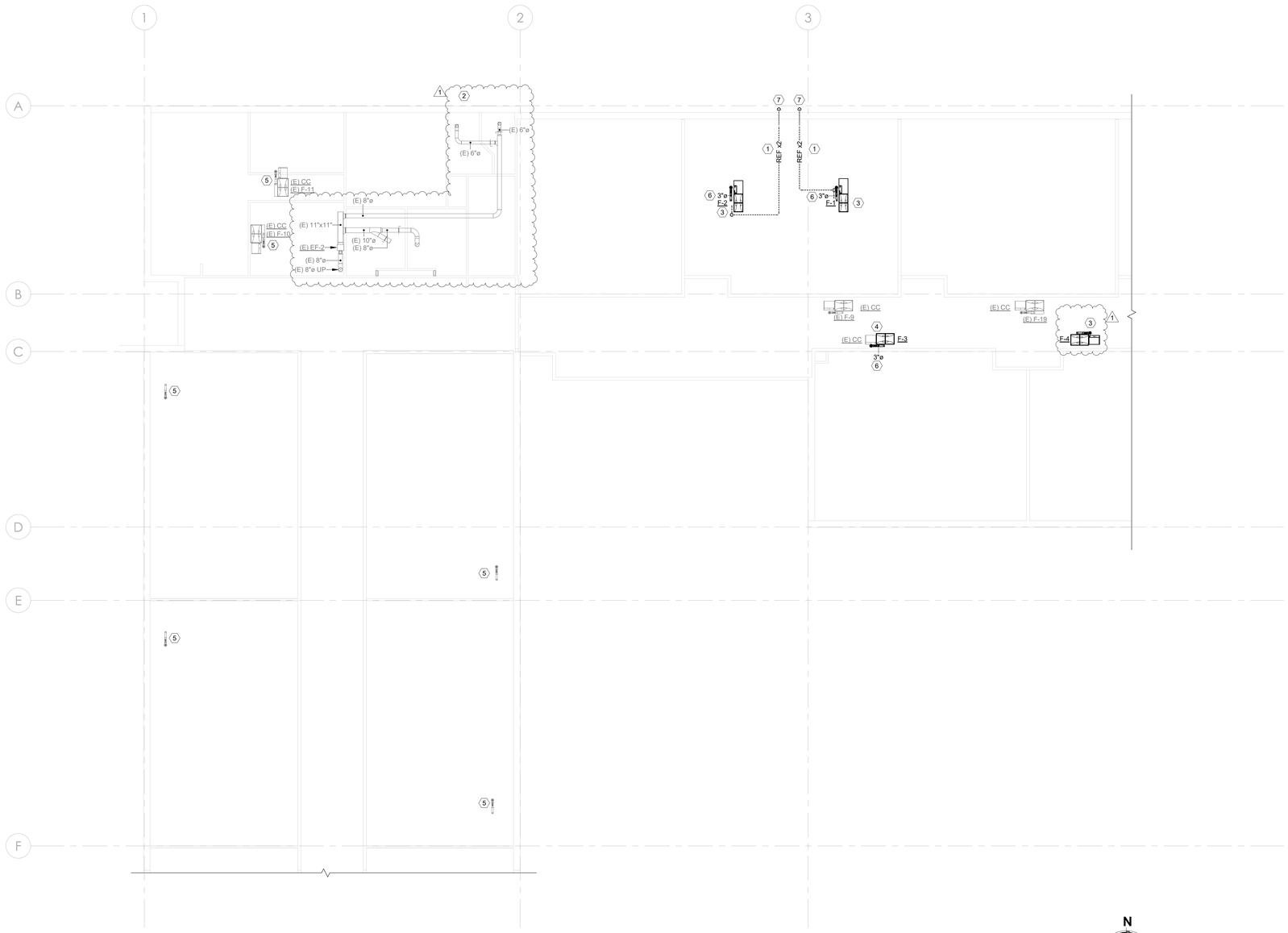
FLOOR PLAN - LEVEL 1 - SECTOR B

M2.11



N

1 M2.13 **MECHANICAL FLOOR PLAN - MEZZANINE - SECTOR B**

SCALE: 1/8" = 1'-0"

MECHANICAL PLAN NOTES

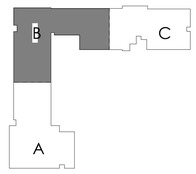
A. VERIFY THE LOCATION OF THERMOSTATS AND SENSORS WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION. INSTALL THERMOSTATS 48" ABOVE FINISHED FLOOR PER ADA REQUIREMENTS.
B. PROVIDE AND INSTALL SEISMIC BRACING FOR EQUIPMENT, DUCTWORK AND PIPING PER THE REQUIREMENTS OF THE CURRENTLY ADOPTED INTERNATIONAL 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. PIPING SHALL BE IDENTIFIED WITH PIPE LABELS MARKED AT A MAXIMUM OF EVERY 25 FT. VALVES SHALL BE IDENTIFIED WITH BRASS OR ALUMINUM VALVE TAGS.
H. PROVIDE AND INSTALL PIPE GUIDES, EXPANSION JOINTS, AND HANGERS PER MANUFACTURER'S RECOMMENDATIONS.
I. PIPING WALL PENETRATIONS SHALL SHALL BE FINISHED WITH A CHROME ESCUTCHEON PLATE.
J. MINIMUM TERMINAL DEVICE BRANCH PIPE SIZE IS 3/4"ø UNLESS OTHERWISE NOTED.
K. EXPOSED DUCTWORK TO BE HOT DIPPED GALVANIZED STEEL AND PAINTED PER ARCHITECTURAL. CONTRACTOR TO CLEAN AND DRY DUCTWORK PRIOR TO PAINTING.

KEY NOTES:

1. APPROXIMATE LOCATION OF EXISTING REFRIGERANT PIPING ROUTING. MECHANICAL CONTRACTOR TO FIELD COORDINATE EXISTING ROUTING AND INSTALL NEW REFRIGERANT PIPING IN SAME LOCATION.
2. TERMINATE WITH AMERICAN ALDES WALL CAP.
3. INSTALL NEW FURNACE AND COOLING COIL IN SAME LOCATION AS EXISTING FURNACE. FIELD COORDIANTE DUCT TRANSITIONS AND CONNECT TO EXISTING DUCTWORK. INSTALL FURNACES SUSPENDED FROM STRUCTURE WITH VIBRATION ISOLATORS. CONTRACTOR TO REPLACE EXISTING FLEXIBLE DUCT CONNECTIONS WITH NEW. CONTRACTOR TO COORDINATE CONNECTION OF COMBUSTION CONDENSATE DRAIN TO NEW FURNACE AND COOLING COIL.
4. INSTALL NEW FURNACE IN SAME LOCATION AS EXISTING FURNACE. FIELD COORDINATE DUCT TRANSITIONS AND CONNECT TO EXISTING DUCTWORK. INSTALL FURNACES SUSPENDED FROM STRUCTURE WITH VIBRATION ISOLATORS. EXISTING COOLING COIL AND CONNECTION TO CONDENSATE DRAIN TO REMAIN. CONTRACTOR TO REPLACE EXISTING FLEXIBLE DUCT CONNECTIONS WITH NEW. CONTRACTOR TO COORDINATE CONNECTION OF COMBUSTION CONDENSATE DRAIN TO NEW FURNACE.
5. EXISTING COMBUSTION VENT PIPING TO REMAIN.
6. INSTALL NEW CONCENTRIC VENT KIT UP THROUGH ROOF. UTILIZE EXISTING ROOF PENETRATIONS.
7. NEW REFRIGERANT PIPING ROUTED IN ATTIC. UTILIZE EXISTING PATHWAY.

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.



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FLOOR PLAN - MEZZANINE - SECTOR B

M2.13

FURNACE SCHEDULE

ACCESSORIES:
1. CONDENSATE DRAIN KIT. CONNECT TO EXISTING CONDENSATE DRAINS.
2. TWO-STAGE GAS VALVE
3. ECM MOTOR
4. CONDENSATE NEUTRALIZATION KIT

CONTROLS:
1. SEE DDC SCHEDULES (BY OTHERS) FOR CONTROL SEQUENCE

NOTE TO CONTRACTOR:
1. CONTRACTOR TO TEST TO VERIFY EXISTING SUPPLY AND OUTSIDE AIR FLOW RATES ON ALL UNITS PRIOR TO REMOVING EXISTING UNIT. RESET UNIT AIRFLOW RATES TO EXISTING ON RE-INSTALLATION OF UNIT.
2. CONTRACTOR TO VERIFY EXISTING SMOKE DETECTOR SYSTEM FOR UNITS GREATER THAN OR EQUAL TO 2000 CFM.

ELECTRICAL DATA:
SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

MARK	ACTION NEW (N), EXISTING (E), DEMO (D)	MANUF.	MODEL	CONFIG.	AIRFLOW DATA			EVAP. COOLING COIL				HEATING COIL							PHYSICAL DATA			
					SUPPLY (CFM)	OUTSIDE AIR (CFM)	ESP (IN WC)	TYPE	ACTION NEW (N), EXISTING (E), DEMO (D)	MODEL	NOMINAL COOLING CAPACITY (TON)	TYPE	INPUT (MBH)		OUTPUT (MBH)		AFUE (%)	COMBUSTION AIR	VENT	FURNACE + COOLING COIL LENGTH (IN)	FURNACE + COOLING COIL WIDTH (IN)	FURNACE + COOLING COIL HEIGHT (IN)	FURNACE + COOLING COIL WEIGHT (LBS)
													HIGH	LOW	HIGH	LOW							
F-1	N	CARRIER	59TP6B060V17-14	HORIZONTAL	1400	400	0.50	DX	N	CAPMP	3	TWO-STAGE GAS	60	39	58	38	96			29.50 + 20.625	17.50 + 17.50	35.00 + 17.50	139 + 66.5
F-2	N	CARRIER	59TP6B040V17-12	HORIZONTAL	1200	300	0.50	DX	N	CAPMP	2.5	TWO-STAGE GAS	40	26	39	25	96			29.50 + 20.625	17.50 + 25.8125	35.0 + 17.50	133 + 64.5
F-3	N	CARRIER	59TP6B100V21-20	HORIZONTAL	2000	500	0.50	DX	E	CAPMP	3.5	TWO-STAGE GAS	100	65	97	63	96			29.50 + 20.625	17.50 + 29.75	35.00 + 21.00	170 + 78
F-4	N	CARRIER	59TP6B100V21-20	HORIZONTAL	2000	500	0.50	DX	N	CAPMP	5	TWO-STAGE GAS	100	65	97	63	96			29.50 + 20.625	21.00 + 35.00	35.00 + 21.00	170 + 101
F-5	N	CARRIER	59TP6B100V21-20	HORIZONTAL	2000	500	0.50	DX	E	CAPMP	3.5	TWO-STAGE GAS	100	65	97	63	96			29.50 + 20.625	21.00 + 29.75	35.00 + 21.00	170 + 78
F-6	N	CARRIER	59TP5A080V21-20	HORIZONTAL	2000	500	0.50	DX	N	CAPMP	3.5	TWO-STAGE GAS	80	52	78	50	96			29.50 + 20.625	21.00 + 29.75	35.00 + 21.00	156 + 78
F-7	N	CARRIER	59TP5A080V21-20	HORIZONTAL	2000	500	0.50	DX	E	CAPMP	3.5	TWO-STAGE GAS	80	52	78	50	96			29.50 + 20.625	21.00 + 29.75	35.00 + 21.00	156 + 78
F-8	N	CARRIER	59TP5A080V21-20	HORIZONTAL	2000	500	0.50	DX	N	CAPMP	3.5	TWO-STAGE GAS	80	52	78	50	96			29.50 + 20.625	21.00 + 29.75	35.00 + 21.00	156 + 78
F-9	E	CARRIER	59TP5A080V21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	5	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-10	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	2	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-11	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	3	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-12	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	4	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-13	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	3.5	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-14	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	4	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-15	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	3.5	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-16	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	4	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-17	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	3.5	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-18	E	CARRIER	59TP5A100E21-20	VERTICAL	- -	- -	- -	DX	E	CNPHP	5	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-19	E	CARRIER	59TP5A100E21-20	HORIZONTAL	- -	- -	- -	DX	E	CNPHP	3.5	EXISTING	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
F-20	N	CARRIER	59TP6B100V21-20	HORIZONTAL	2000	500	0.50	DX	N	CAPMP	3.5	TWO-STAGE GAS	100	65	97	63	96			29.50 + 20.625	21.00 + 35.00	35.00 + 21.00	170 + 101
F-21	N	CARRIER	59TP6B100V21-20	HORIZONTAL	2000	500	0.50	DX	N	CAPMP	3.5	TWO-STAGE GAS	100	65	97	63	96			29.50 + 20.625	21.00 + 29.75	35.00 + 21.00	170 + 78

CONDENSING UNIT SCHEDULE

CONDENSING UNIT ACCESSORIES:
1. TIME DELAY RELAY
2. EVAP. FREEZE T-STAT
3. CYCLE PROTECTOR
4. THERMOSTATIC EXP. VALVE (HARD SHUT OFF)
5. FILTER / DRYER
6. BALL BEARING FAN MOTOR
7. HIGH PRESSURE SWITCH
8. LOW PRESSURE SWITCH
9. LIQUID LINE SOLENOID VALVE
10. COMPRESSOR HARD START KIT WHERE REQUIRED

REMARKS:
1. UNIT SHALL OPERATE DOWN TO 45°F

AHRI RATING TEMPERATURE DATA:
1. 80°F DB / 67°F WB INDOOR RETURN AIR, 95°F DB OUTDOOR AIR

ELECTRICAL DATA:
SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

MARK	ACTION NEW (N), EXISTING (E), DEMO (D)	MANUF.	MODEL	NOMINAL CAPACITY (TON)	SENSIBLE CAPACITY (MBH)	LATENT CAPACITY (MBH)	SEER	REFRIGERANT	COMPRESSOR	SOUND DATA (dB)	UNIT PHYSICAL DATA		
											LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)
CU-1	3/4	CARRIER	24SPA636W*0	3	28.85	1.18	16	R-410A	SCROLL	74.0	32	32	38
CU-2	3/4	CARRIER	24SPA630W*0	2.5	25.25	1.13	16	R-410A	SCROLL	72.0	32	32	36
CU-3	E	CARRIER	24ACC642	3.5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-4	3/4	CARRIER	24SPA660W*0	5	51.80	0.31	16	R-410A	SCROLL	74.0	32	32	38
CU-5	E	CARRIER	24ACC642	3.5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-6	3/4	CARRIER	24SPA642W*0	3.5	38.92	1.98	16	R-410A	SCROLL	74.0	32	32	32
CU-7	E	CARRIER	24ACC642	3.5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-8	3/4	CARRIER	24SPA642W*0	3.5	38.92	1.98	16	R-410A	SCROLL	74.0	32	32	32
CU-9	E	CARRIER	24ACC660	5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-10	E	CARRIER	24ACC624	3	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-11	E	CARRIER	24ACC636	2	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-12	E	CARRIER	24ACC648	3.5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-13	E	CARRIER	24ACC642	3.5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-14	E	CARRIER	24ACC648	4	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-15	E	CARRIER	24ACC642	3.5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-16	E	CARRIER	24ACC648	4	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-17	E	CARRIER	24ACC642	3.5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-18	E	CARRIER	24ACC660	5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-19	E	CARRIER	24ACC642	3.5	- -	- -	16	R-410A	SCROLL	- -	- -	- -	- -
CU-20	3/4	CARRIER	24SPA660W*0	5	51.80	0.31	16	R-410A	SCROLL	74.0	32	32	38
CU-21	3/4	CARRIER	24SPA642W*0	3.5	38.92	1.98	16	R-410A	SCROLL	74.0	32	32	32

EXHAUST FAN SCHEDULE

ACCESSORIES:
1. FAN SPEED CONTROLLER.
2. GRAVITY BACKDRAFT DAMPER.
3. STANDARD FINISH.
4. VIBRATION ISOLATORS.

ELECTRICAL DATA:
SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.

MARK	MANUF.	MODEL	AIRFLOW (CFM)	SONES	ESP (IN WC)	DRIVE	TYPE	MOUNTING	CONTROL	WEIGHT (LBS)
EF-3	LOREN COOK COMPANY	GC	50	2	0.550	DIRECT	CEILING	CEILING	BAS	12

1

MEP COORDINATION SCHEDULE

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 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. 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

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.

MARK	DESCRIPTION	ELECTRICAL DATA		CONTROL		NOTES	DISCONNECT / STARTER		DISCONNECT				FEEDER	
		LOAD	VOLT-PHASE	TYPE	DIV		TYPE	DIV	SIZE (NEMA)	SWITCH (AMPS)	FUSE (AMPS)	ENCLOSURE (NEMA)	COPPER WIRE (AWG)	CONDUIT (INCHES)
CC-4														
CU-1	CONDENSING UNIT	16.7 MCA	208-1	BAS	23/23	6	FD	26/26	--	30	NOTE 6	3R	#12	3/4
CU-2	CONDENSING UNIT	15.2 MCA	208-1	BAS	23/23	6	FD	26/26	--	30	NOTE 6	3R	#12	3/4
CU-4	CONDENSING UNIT	33.4 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
CU-6	CONDENSING UNIT	32.8 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
CU-8	CONDENSING UNIT	32.8 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
CU-20	CONDENSING UNIT	33.4 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
CU-21	CONDENSING UNIT	32.8 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
DF-1	DRINKING FOUNTAIN	370 W	120-1	INT	23/23	4	RCPT	26/26	--	--	--	--	#12	3/4
EF-3	EXHAUST FAN	26 W	120-1	BAS	23/23	1	FW	23/26	--	--	--	--	#12	3/4
F-1	GAS-FIRED SPLIT SYSTEM FURNACE	10.9 MCA 15 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-2	GAS-FIRED SPLIT SYSTEM FURNACE	7.2 MCA 15 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-3	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-4	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-5	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-6	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-7	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-8	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-20	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-21	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4

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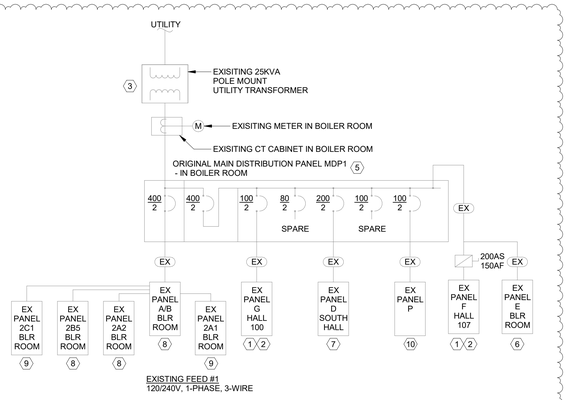
No.	Description	Date
1	Addendum #1	6/30/23

Project Number 2304
Date 6/01/2023

Bid / Permit

MECHANICAL SCHEDULES

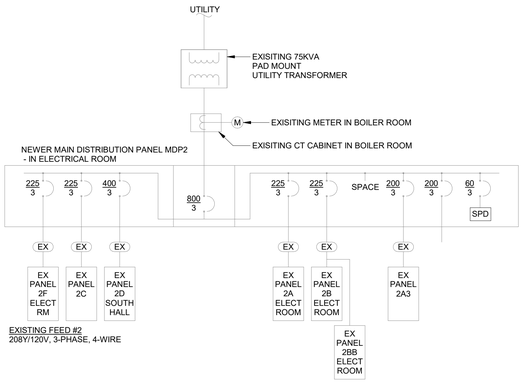
M8.01



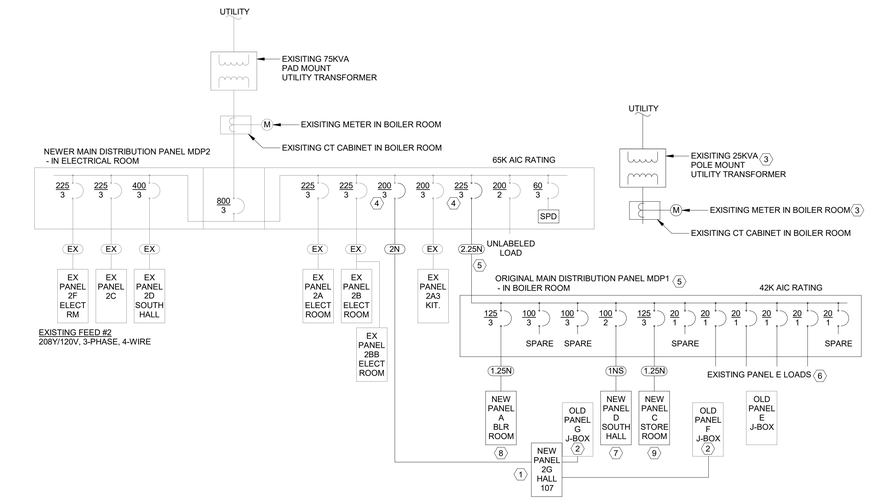
1 EXISTING ONE LINE DIAGRAM #1
N.T.S.

SINGLE-PHASE SERVICE REPLACEMENT NOTES

1. DURING ON-SITE INVESTIGATION OF THE ELECTRICAL SYSTEM, IT WAS NOT POSSIBLE TO LOCATE/IDENTIFY ALL PANELS AND LOADS FED FROM THE ORIGINAL SINGLE-PHASE SERVICE. FROM PEAK LOADING INFORMATION FOR THIS SERVICE, IT IS CLEAR THAT VERY FEW LOADS ARE FED FROM IT.
2. CONTRACTOR SHALL INVESTIGATE THE SYSTEM AND REPLACE/REFEED ALL LOADS FROM THE NEW MDP2.
3. IF THE CONTRACTOR LOCATES ANY 240V SINGLE-PHASE LOADS (MOTORS, ETC.) THAT WILL NOW BE FED WITH 208V POWER, HE WILL NOTE THESE AND BRING THEM TO THE ENGINEER'S ATTENTION FOR FURTHER EVALUATION AND REPLACEMENT AS REQUIRED.



2 EXISTING ONE LINE DIAGRAM #2
N.T.S.



3 REVISED ONE LINE DIAGRAM
N.T.S.

FEEDER SCHEDULE - COPPER

SCHEDULE IS BASED ON 75 DEGREE C. COPPER CONDUCTORS IN NEC 310.60 TABLE.

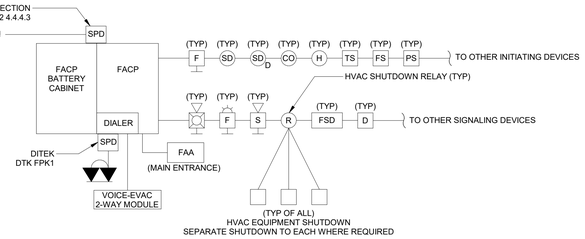
FEEDER NUMBER KEY:
A = ALUMINUM CONDUCTORS
N = INCLUDES NEUTRAL CONDUCTOR
S = SINGLE PHASE

NOTE: GROUNDING CONDUCTOR IS SIZED ACCORDING TO NEC 250.122 TABLE. UNLESS FEEDER NUMBER IS FOLLOWED BY AN ASTERISK (*) INDICATING THAT THE GROUNDING CONDUCTOR IS SIZED ACCORDING TO NEC 250.66 TABLE.

FEEDER NUMBER	AMPS	WIRE QTY PER CONDUIT	SETS IN PARALLEL	75 DEG COPPER			
				CONDUIT	PHASE QTY AND AWG	NEUTRAL AWG	GROUND AWG
1N	100	4W	1	1-1/2"	3#2	1#2	1#8
1NS	100	3W	1	1-1/2"	2#2	1#2	1#8
1.25N	125	4W	1	2"	3#1	1#1	1#6
2N	200	4W	1	2-1/2"	3#3/0	1#3/0	1#4
2.25N	225	4W	1	2-1/2"	3#4/0	1#4/0	1#4

KEY NOTES:

1. PROVIDE NEW PANEL 2G IN HALL 107 NEAR EXISTING PANEL F AND PANEL G. FEED FROM EXISTING NEW BREAKER IN MDP2.
2. REMOVE BUSSING AND BREAKERS FROM PANEL F AND PANEL G AND USE ENCLOSURES AS JUNCTION BOXES TO REFEED EXISTING BRANCH CIRCUITS FROM NEW PANEL 2G.
3. COORDINATE WITH PACIFIC POWER TO DISCONNECT AND REMOVE EXISTING SINGLE-PHASE SERVICE.
4. PROVIDE NEW 3-POLE BREAKER IN EXISTING MDP2.
5. REPLACE EXISTING MDP1 WITH A 225A, 208Y/120V, 3-PHASE, 4-WIRE PANEL AND REFEED FROM NEW BREAKER IN MDP2.
6. REFEED PANEL E BRANCH CIRCUITS FROM THIS PANEL MDP2.
7. REPLACE EXISTING BRANCH PANEL D WITH NEW 120/208V, 1-PHASE, 3-WIRE PANEL D.
8. REPLACE EXISTING BRANCH PANELS (A/B, 2A2 & 2B5) WITH (1) NEW 208Y/120V, 3-PHASE, 4-WIRE PANEL A. PROVIDE GUTTERS AS REQUIRED TO RECIRCUIT EXISTING CIRCUITS TO THIS NEW PANEL.
9. REPLACE EXISTING BRANCH PANELS (2C1 & 2A1) WITH (1) NEW 208Y/120V, 3-PHASE, 4-WIRE PANEL C. PROVIDE GUTTERS AS REQUIRED TO RECIRCUIT EXISTING CIRCUITS TO THIS NEW PANEL.
10. DURING ON-SITE INVESTIGATION, PANEL P COULD NOT BE LOCATED. EITHER REPLACE AND RE-FEED THIS PANEL FROM SPARE 100A, 3-POLE BREAKER IN NEW MDP2, OR REFEED ITS LOADS FROM THE NEAREST NEW PANEL.



NOTES:
- ALL FIRE ALARM SYSTEM CONDUCTORS SHALL BE RUN IN CONDUIT.
- PAINT ALL FIRE ALARM BOX COVERS RED.
- PROVIDE POWER SUPPLIES AS REQUIRED FOR SIGNALING DEVICES. PROVIDE A SMOKE DETECTOR WITHIN 5 FEET OF EACH POWER SUPPLY LOCATION.

4 FIRE ALARM RISER DIAGRAM
N.T.S.

Utility Information: PacifiCorp
Utility Contact: Tami Hoffman

Original Single-Phase Service

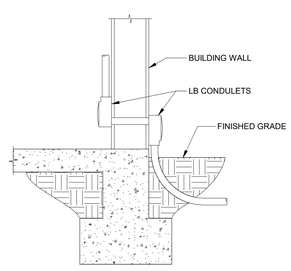
120/240V, 1-phase, 3-wire

Peak Load:	24 kW	May & June
Assuming 0.8 pf:	30.0 kVA	
With 1.25 Multiplier:	37.5 kVA	Per OESC 220.87
Current:	156 A	at 120/240V, 1-phase
	104 A	equiv. at 208Y/120V, 3-phase

Newer Three-Phase Service

800A, 208Y/120V, 3-phase, 4-wire

Peak Load:	49 kW	May & June
Assuming 0.8 pf:	61.3 kVA	
With 1.25 Multiplier:	76.6 kVA	Per OESC 220.87
Current:	213 A	at 208Y/120V, 3-phase
Added load:	104 A	From single-phase service
Total new load:	**317 A**	



5 CONDUIT PENETRATION DETAIL - LB
N.T.S.

Branch Panel: 2G

Location: HALL 107
Supply From: EXISTING MDP2
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 22,000 A
Mains Type: MLO
Mains Rating: 225 A

Notes:

CKT	Circuit Description	Load Classification	Trip	Poles	A	B	C	Poles	Trip	Load Classification	Circuit Description	CKT
1	(EX) [G-1,3] A/C UNITS - ROOM 8	--	40 A	2	0 0			1	15 A	--	<1> (EX) [G-2] UH - ROOM 9	2
3						0 0		1	15 A	--	<1> (EX) [G-4] UH - ROOM 8	4
5	<1> (EX) [G-5] RCPT - OUTSIDE	--	15 A	1			0 0	1	15 A	--	<1> (EX) [G-6] UH - ROOM 7	6
7	<1> (EX) [G-7] UH - HALL	--	15 A	1	0 0			1	15 A	--	<1> (EX) [G-8] RCPTS - TEACHER'S RM	8
9	<1> (EX) [G-9,11] UH - OFFICE	--	15 A	2		0 0		1	15 A	--	<1> (EX) [G-10] RCPTS - TEACHER'S RM	10
11							0 0	1	15 A	--	<1> (EX) [G-12] UH - ROOM 5 A&B	12
13	SPARE	--	20 A	1	0 0			1	20 A	--	SPARE	14
15	SPARE	--	20 A	1		0 0		1	20 A	--	SPARE	16
17	<1> (EX) [F-1] LIGHTS - ROOM 9 E ROW	--	15 A	1			0 0	1	20 A	--	(EX) [F-2] LIGHTS - ROOM 8 E ROW	18
19	(EX) [F-3,5] RCPT	--	20 A	2	0 0			1	15 A	--	<1> (EX) [F-4] LIGHTS - ROOM 8 S ROW	20
21						0 0		1	15 A	--	<1> (EX) [F-6] LIGHTS - ROOM 8 C ROW	22
23	<1> (EX) [F-7] LIGHTS - ROOM 9 N ROW	--	15 A	1			0 0	1	15 A	--	<1> (EX) [F-8] LIGHTS - ROOM 8 N ROW	24
25	<1> (EX) [F-9] LIGHTS - LIB & OFFICE	--	15 A	1	0 0			1	15 A	--	<1> (EX) [F-10] LIGHTS - OFFICE E ROW	26
27	(EX) [F-11] LIGHTS - LIB LAST ROW	--	20 A	1		0 0		1	20 A	--	(EX) [F-12] LIGHTS - OFFICE W ROW	28
29	<1> (EX) [F-13] LIGHTS - LIB CNTR ROW	--	15 A	1			0 0	1	15 A	--	<1> (EX) [F-14] LIGHTS - HEALTH	30
31	<1> (EX) [F-15] LIGHTS - LIB 2ND ROW	--	15 A	1	0 0			1	15 A	--	<1> (EX) [F-16] LIGHTS RESTROOMS	32
33	<1> (EX) [F-17] LIGHTS - HALL & PORCH	--	15 A	1		0 0		1	15 A	--	<1> (EX) [F-18] LIGHTS - STORAGE	34
35	<1> (EX) [F-19] RCPTS/LIGHTS - ATTIC	--	15 A	1			0 0	1	15 A	--	<1> (EX) [F-20] CLOCK	36
37	<1> (EX) [F-21] RCPTS - ROOM 8	--	15 A	1	0 0			1	15 A	--	<1> (EX) [F-22] RCPTS	38
39	<1> (EX) [F-23] RCPTS - OFFICE	--	15 A	1		0 0		1	15 A	--	<1> (EX) [F-24] RCPT - OFFICE	40
41	<1> (EX) [F-25] RCPTS - LIB	--	15 A	1			0 0	1	15 A	--	<1> (EX) [F-26] CLOCK	42
43	<1> (EX) [F-27] RCPTS & EMER LIGHT	--	15 A	1	0 0			1	15 A	--	<1> (EX) [F-28] SPARE?	44
45	<1> (EX) [F-29] HEAT CABLE & YARD LIGHT	--	15 A	1		0 0		1	20 A	--	(EX) [F-30] EXISTING LOAD	46
47	(EX) [F-31] EXISTING LOAD	--	20 A	1			0 0	2	15 A	--	<1> (EX) [F-32,34] WATER HEATER	48
49	(EX) [F-33] EXISTING LOAD	--	20 A	1	0 0							50
51	<1> (EX) [F-35] EF - OFFICE	--	15 A	1		0 0		1	15 A	--	<1> (EX) [F-36] RCPTS	52
53	RCPT - TEACHER RM	Receptacle	20 A	1			180 0	1	20 A	--	SPARE	54
55	RCPT - TEACHER RM	Receptacle	20 A	1	180 0			1	20 A	--	SPARE	56
57	RCPT - TEACHER RM	Receptacle	20 A	1		180 0		1	20 A	--	SPARE	58
59	RCPT - TEACHER RM	Receptacle	20 A	1			180 0	1	20 A	--	SPARE	60
61	RCPT - COPIER	Receptacle	20 A	1	180 0			1	20 A	--	SPARE	62
63	SPARE	--	20 A	1		0 0		1	20 A	--	SPARE	64
65	SPARE	--	20 A	1			0 0	1	20 A	--	SPARE	66
67	SPARE	--	20 A	1	0 0			1	20 A	--	SPARE	68
69	SPARE	--	20 A	1		0 0		1	20 A	--	SPARE	70
71	SPARE	--	20 A	1			0 0	1	20 A	--	SPARE	72
			Total Load:		360 VA	180 VA	360 VA					
			Total Amps:		3 A	2 A	3 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Receptacle	900 VA	100.00%	900 VA	
				Total Conn. Load: 900 VA
				Total Est. Demand: 900 VA
				Total Conn.: 2 A
				Total Est. Demand: 2 A

Notes:
<1> EXISTING BREAKER HANDLE IS NOT MARKED. CONTRACTOR SHALL VERIFY RATING AND PROVIDE EQUIVALENT BREAKER RATING.

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No.	Description	Date
1	Addendum #1	6/30/23

Project Number 2304
Date 6/01/2023

Bid / Permit

ELECTRICAL DETAILS

E0.02

1 ELECTRICAL SITE PLAN
1" = 20'-0"

GENERAL SITE 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 CONTRACTOR PLACED EQUIPMENT AND ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.
B. PRIOR TO PROCEEDING WITH ANY WORK, REVIEW A FULL SET OF PLANS, WITH EMPHASIS ON CIVIL FOR LOCATIONS OF ALL UNDERGROUND UTILITIES AND SLEEVES.
C. UNLESS NOTED OTHERWISE, PROVIDE A CIRCUIT CONSISTING OF #10'S THROUGHOUT IN 1" PVC FOR ALL SITE BASED POWER CONSUMING DEVICES: LIGHTS, SIGNS, ETC.
D. ALL BUILDING EXTERIOR RECEPTACLES SHALL BE: GFI STYLE, TAMPERPROOF, WEATHER RESISTIVE CONSTRUCTION AND FEATURE A LOCKABLE, WEATHERPROOF-IN-USE COVER.
E. ALL ELECTRICAL RACEWAYS ROUTED ON SITE SHALL HAVE A MINIMUM OF 24" OF CLEAN, PROPERLY COMPACTED COVER.
F. LINES SHOWN ON THE PLAN FROM ELECTRICAL BASED DEVICES TO THE BUILDING REPRESENT THE PROPOSED ROUTING PATH FOR RACEWAYS. CONTRACTOR SHALL SELECT BEST PATH WHEN ROUTING FOR THE LEAST IMPACT ON SITE OR BUILDING.
G. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING OF SIDEWALKS, PAVEMENT, FLOORS, WALLS, CEILINGS, ROOFS, ETC. TO PERFORM THE REQUIRED WORK DEPICTED IN THESE DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR ALL PATCHING OF HOLES TO MATCH ADJACENT SURFACES AND TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.

KEY NOTES:

1. PROVIDE POWER (1" BURIED CONDUIT AND #8 CU WIRES) TO LOCATION OF DUAL EV CHARGING STATION (FURNISHED BY OTHERS, INSTALLED BY EC). ~~SEE CIVIL DRAWINGS AND LOCATE BETWEEN TWO PARKING SPOTS.~~
2. CONTINUE CONDUIT AND WIRES FOR EV CHARGING STATIONS BACK TO NEW PANEL A.

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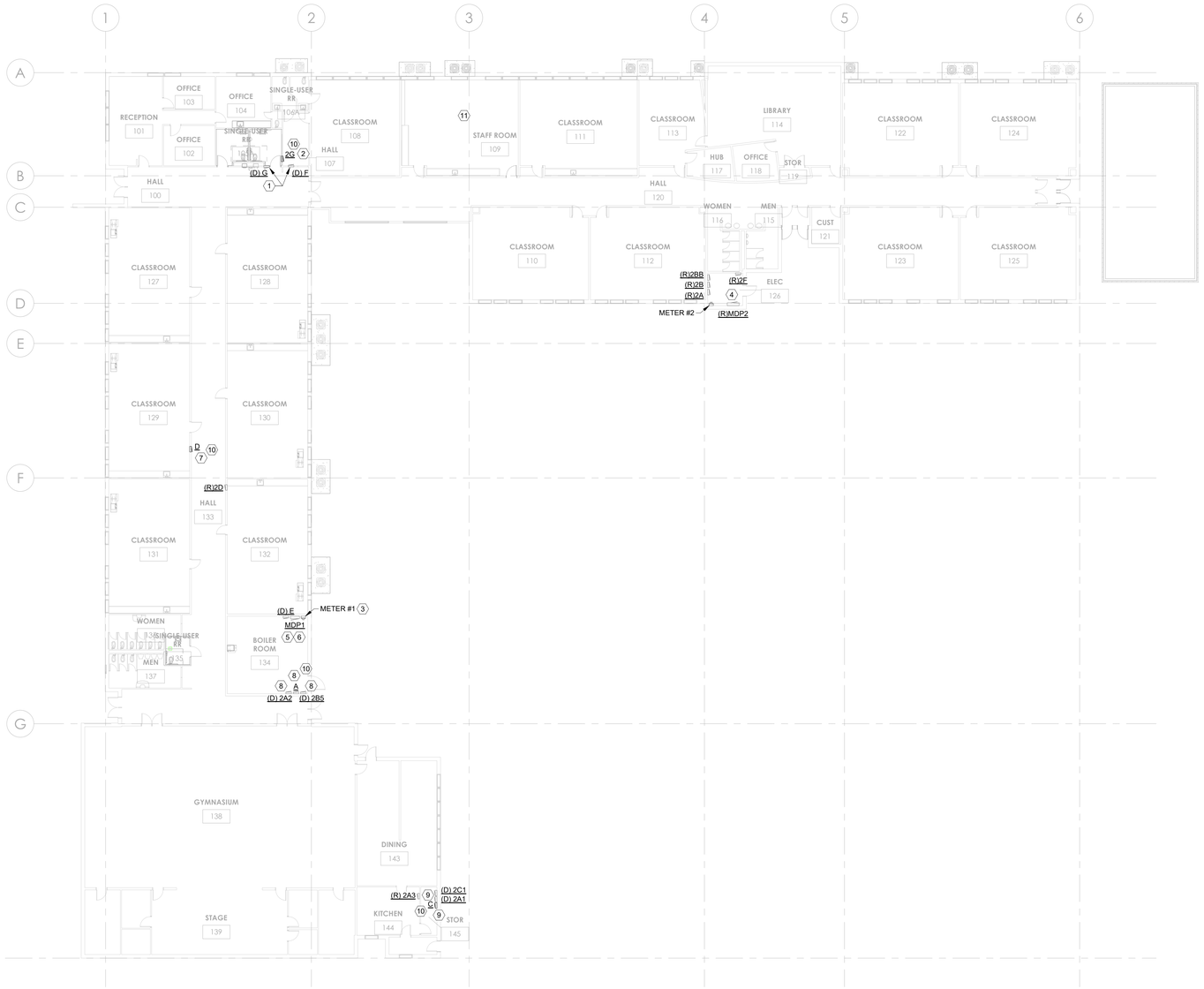
E1.01



GENERAL ELECTRICAL 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. 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.
H. ANY MECHANICAL EQUIPMENT THAT DOES NOT HAVE A DISCONNECT SHOWN AT DEVICE ON PLAN IS PROVIDED W/ A FACTORY DISCONNECT. EC TO CONNECT TO DISCONNECT ELECTRICALLY COMPLETE, VIA THE CIRCUIT SHOWN ON PLAN. SEE MEP COORDINATION SCHEDULE FOR ADDITIONAL DETAILS.
I. ALL BUILDING EXTERIOR RECEPTACLES SHALL BE: GFI STYLE, WEATHER RESISTIVE CONSTRUCTION AND FEATURE A METALLIC WEATHERPROOF-IN-USE COVER THAT IS CAPABLE OF ACCEPTING A STANDARD HASP STYLE PADLOCK, AS WELL AS ANY ADDITIONAL FEATURES WHEN CALLED FOR ON PLANS.
J. ALL 120V RECEPTACLES UTILIZED IN THE PROJECT SHALL BE OF TAMPER RESISTIVE CONSTRUCTION REGARDLESS OF LOCATION.
K. EC SHALL PULL A NEUTRAL CONDUCTOR WITH ALL 3-PHASE AND 208/240V SINGLE-PHASE ELECTRICAL CIRCUITS SERVING EQUIPMENT ON PLAN. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V BRANCH CIRCUIT.
L. SEE T-SHEETS FOR ADDITIONAL WORK. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL WORK ON T-SHEETS AS WELL AS E-SHEETS.

KEY NOTES:

1. REMOVE BUSSING AND BREAKERS FROM EXISTING ENCLOSURES FOR PANEL F AND PANEL G. MAINTAIN THE BRANCH CIRCUITS FOR RE-CIRCUITING.
2. COORDINATE WITH GENERAL CONTRACTOR TO OPEN WALL AND PROVIDE NEW PANEL 2G(LOAD CENTER). CIRCUIT TO EXISTING 200A SPARE 3-POLE BREAKER IN MDP2. REFEED THE EXISTING BRANCH CIRCUITS THAT WERE FED FROM EXISTING PANEL F AND PANEL G USING THEIR ENCLOSURES AS JUNCTION BOXES TO TIE INTO THE EXISTING CIRCUITS.
3. SEE KEY NOTE 3 ON SHEET E0.02.
4. SEE KEY NOTE 4 ON SHEET E0.02.
5. SEE KEY NOTE 5 ON SHEET E0.02.
6. SEE KEY NOTE 6 ON SHEET E0.02.
7. SEE KEY NOTE 7 ON SHEET E0.02.
8. SEE KEY NOTE 8 ON SHEET E0.02.
9. SEE KEY NOTE 9 ON SHEET E0.02.
10. MAKE NOTE OF ANY EXISTING MOTORS OR HEATING ELEMENTS FED FROM THESE PANELS THAT MAY BE AFFECTED BY GOING FROM 240V TO 208V, AND COORDINATE REQUIRED CHANGES WITH ENGINEER, PRIOR TO CIRCUITING.
11. SEE SHEET E2.11 FOR ADDITIONAL WORK IN THIS AREA.

1 OVERALL ELECTRICAL FLOOR PLAN - LEVEL 1
E2.01 SCALE: 1/16" = 1'-0"

N

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Jefferson County School District
Metolius Elementary School Upgrades

420 Butte Ave
Metolius, OR 97741

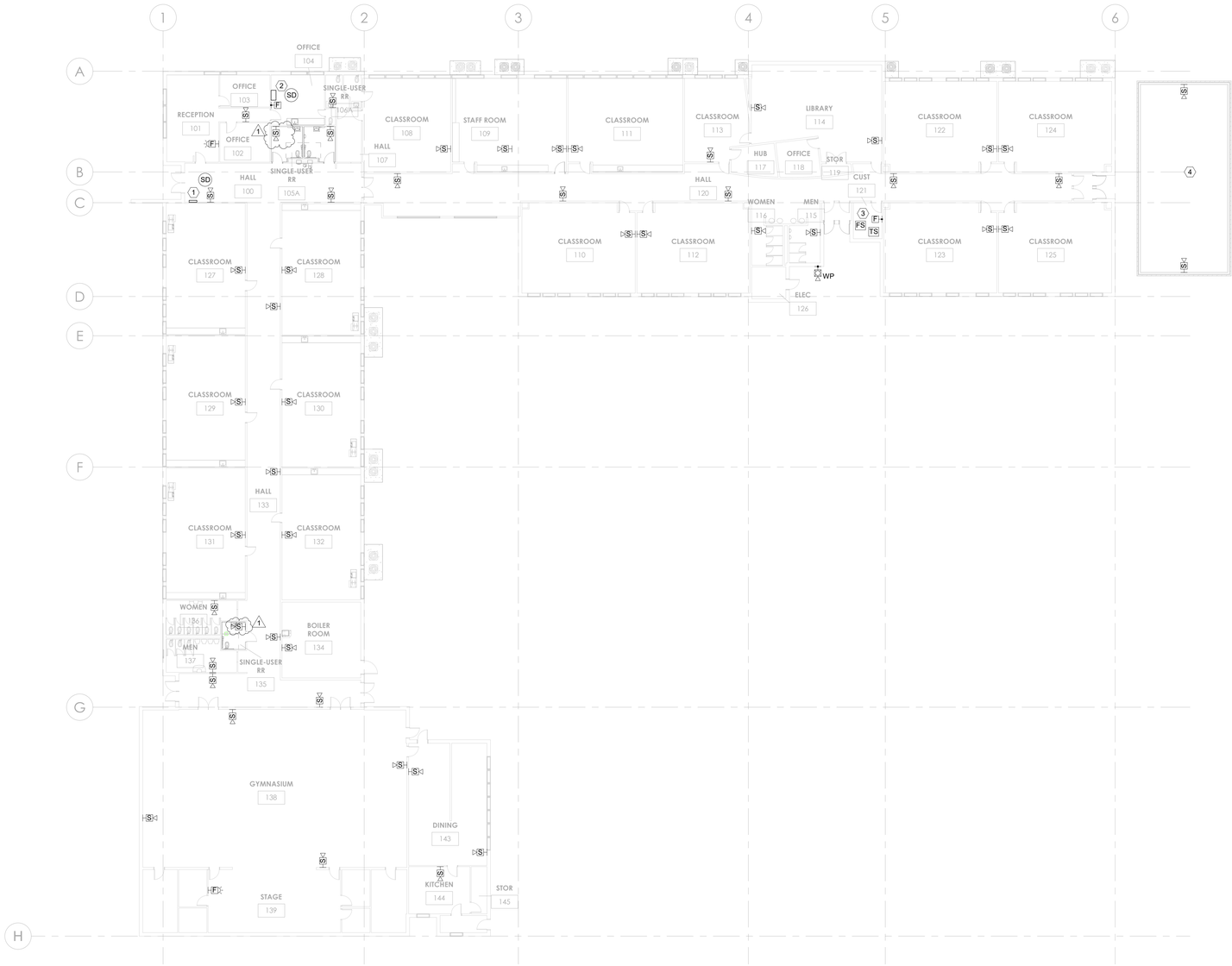
No.	Description	Date
1	Addendum #1	6/30/23

Project Number 2304
Date 6/01/2023

Bid / Permit

OVERALL ELECTRICAL FLOOR PLAN

E2.01



1 OVERALL FIRE ALARM FLOOR PLAN - LEVEL 1
1/16" = 1'-0"

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. 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.SEE T-SHEETS FOR ADDITIONAL WORK. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL WORK ON T-SHEETS AS WELL AS E-SHEETS.

(#) KEY NOTES:

1. 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.
2. COORDINATE WITH OWNER TO DETERMINE BEST LOCATION FOR VOICE EVAC SYSTEM AMPLIFIERS, ETC. REUSE POWER CIRCUIT.
3. APPROXIMATE LOCATION OF FIRE SPRINKLER RISER. VERIFY FINAL QUANTITY AND LOCATIONS OF MONITORING SWITCHES WITH INSTALLER PRIOR TO ROUGH-IN.
4. EXTEND FIRE ALARM ANNUNCIATION SYSTEM TO MODULAR CLASSROOM VIA BURIED CONDUIT. COORDINATE LOCATION FOR SPEAKER/STROBES TO BEST COVER THE AREA.

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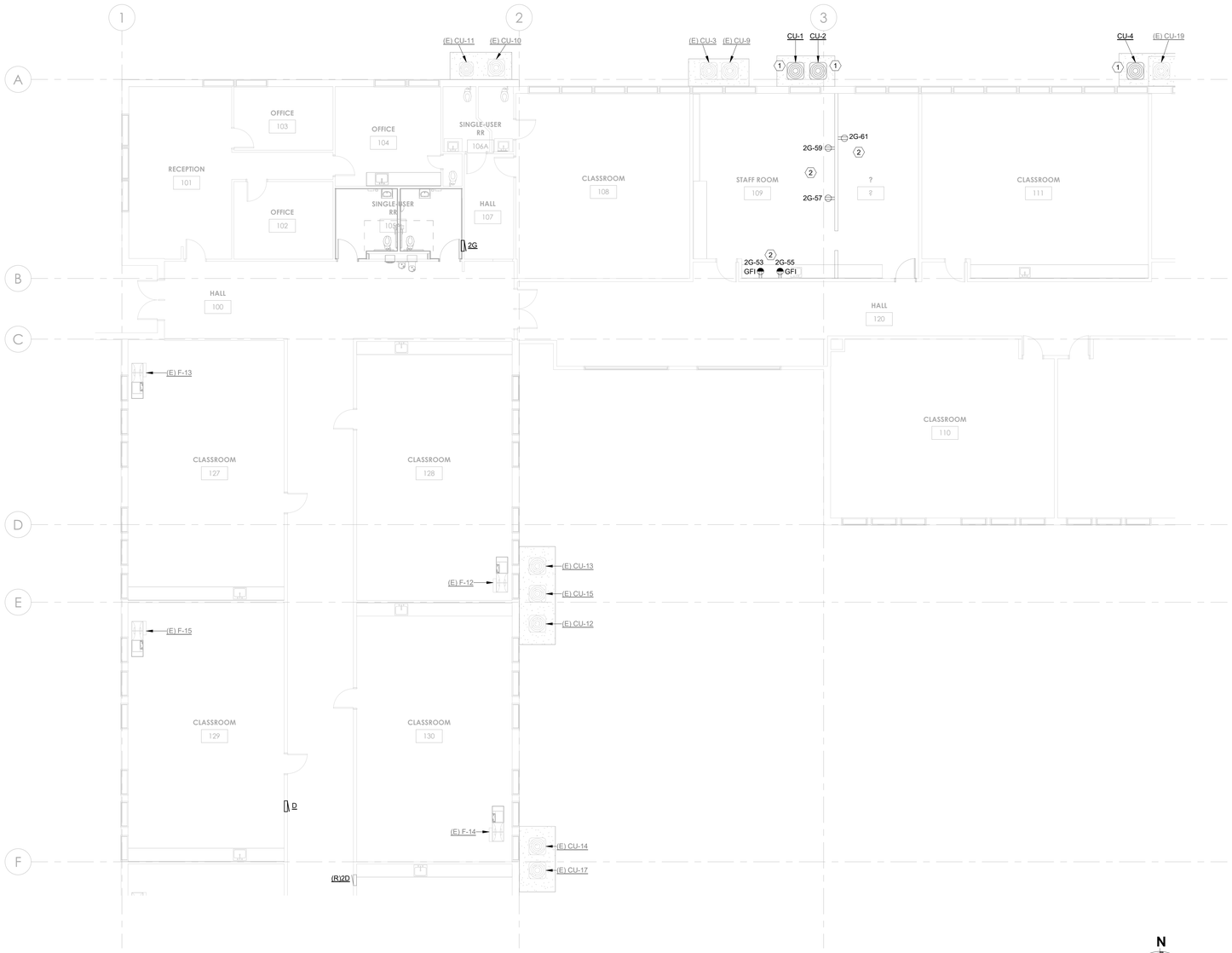
OVERALL FIRE ALARM FLOOR PLAN

E2.02



1 E2.11 **ELECTRICAL FLOOR PLAN - LEVEL 1 SECTOR B**

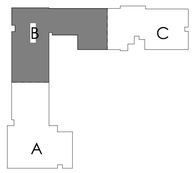
SCALE: 1/8" = 1'-0"

GENERAL ELECTRICAL 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. 1 NOT USED NTERRUPTIONS 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.
H. ANY MECHANICAL EQUIPMENT THAT DOES NOT HAVE A DISCONNECT SHOWN AT DEVICE ON PLAN IS PROVIDED W/ A FACTORY DISCONNECT. EC TO CONNECT TO DISCONNECT ELECTRICALLY COMPLETE, VIA THE CIRCUIT SHOWN ON PLAN. SEE MEP COORDINATION SCHEDULE FOR ADDITIONAL DETAILS.
I. ALL BUILDING EXTERIOR RECEPTACLES SHALL BE: GFI STYLE, WEATHER RESISTIVE CONSTRUCTION AND FEATURE A METALLIC WEATHERPROOF-IN-USE COVER THAT IS CAPABLE OF ACCEPTING A STANDARD HASP STYLE PADLOCK, AS WELL AS ANY ADDITIONAL FEATURES WHEN CALLED FOR ON PLANS.
J. ALL 120V RECEPTACLES UTILIZED IN THE PROJECT SHALL BE OF TAMPER RESISTIVE CONSTRUCTION REGARDLESS OF LOCATION.
K. EC SHALL PULL A NEUTRAL CONDUCTOR WITH ALL 3-PHASE AND 208/240V SINGLE-PHASE ELECTRICAL CIRCUITS SERVING EQUIPMENT ON PLAN. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V BRANCH CIRCUIT.
L. SEE T-SHEETS FOR ADDITIONAL WORK. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL WORK ON T-SHEETS AS WELL AS E-SHEETS.

KEY NOTES:

1 1. DISCONNECT POWER FROM EXISTING CONDENSING UNIT AND RETAIN THE CIRCUIT FOR REUSE. REUSE THE EXISTING CONDUIT AND WIRES MODIFYING/EXTENDING CONDUIT AND WIRES AS REQUIRED TO ACCOMMODATE NEW EQUIPMENT. PROVIDE ANY/ALL JUNCTION BOXES, RACEWAYS, ELBOWS, WIRES, ETC. REQUIRED. COORDINATE WITH MC AND PROVIDE ALL RACEWAYS, PULL BOXES, WIRING, ETC. AS REQUIRED TO EXTEND THE ASSOCIATED CONTROL WIRING FOR EACH UNIT. WHERE A DISCONNECT OR MOTOR STARTER IS CALLED OUT, MOUNT IT IN A CONVENIENT LOCATION NEAR THE EQUIPMENT.
2. PROVIDE ADDITIONAL RECEPTACLES IN STAFF ROOM AND CIRCUIT TO NEW PANEL AS SHOWN.



KEY PLAN

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FLOOR PLAN - LEVEL 1 - SECTOR B

E2.11

MEP COORDINATION SCHEDULE

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 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. 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

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.

MARK	DESCRIPTION	ELECTRICAL DATA		CONTROL		NOTES	DISCONNECT / STARTER		DISCONNECT				FEEDER	
		LOAD	VOLT-PHASE	TYPE	DIV		TYPE	DIV	SIZE (NEMA)	SWITCH (AMPS)	FUSE (AMPS)	ENCLOSURE (NEMA)	COPPER WIRE (AWG)	CONDUIT (INCHES)
CC-4														
CU-1	CONDENSING UNIT	16.7 MCA	208-1	BAS	23/23	6	FD	26/26	--	30	NOTE 6	3R	#12	3/4
CU-2	CONDENSING UNIT	15.2 MCA	208-1	BAS	23/23	6	FD	26/26	--	30	NOTE 6	3R	#12	3/4
CU-4	CONDENSING UNIT	33.4 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
CU-6	CONDENSING UNIT	32.8 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
CU-8	CONDENSING UNIT	32.8 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
CU-20	CONDENSING UNIT	33.4 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
CU-21	CONDENSING UNIT	32.8 MCA	208-1	BAS	23/23	6	FD	26/26	--	60	NOTE 6	3R	#8	3/4
DF-1	DRINKING FOUNTAIN	370 W	120-1	INT	23/23	4	RCPT	26/26	--	--	--	--	#12	3/4
EF-3	EXHAUST FAN	26 W	120-1	BAS	23/23	1	FW	23/26	--	--	--	--	#12	3/4
F-1	GAS-FIRED SPLIT SYSTEM FURNACE	10.9 MCA 15 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-2	GAS-FIRED SPLIT SYSTEM FURNACE	7.2 MCA 15 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-3	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-4	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-5	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-6	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-7	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-8	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-20	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4
F-21	GAS-FIRED SPLIT SYSTEM FURNACE	14.7 MCA 20 MOCP	120-1	BAS	23/23	6	FST	26/26	--	20	NOTE 6	1	#12	3/4

Branch Panel: A

Location: BOILER ROOM 134
Supply From: NEW MDP1
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 14,000 A
Mains Type: MLO
Mains Rating: 125 A

Notes:

CKT	Circuit Description	Load Classification	Trip	Poles	A	B	C	Poles	Trip	Load Classification	Circuit Description	CKT
1					0 0			2	50 A	--	(EX) [2A2-2]	2
3	(EX) [2A2-1]	--	20 A	2		0 0						4
5	(EX) [2A2-3]	--	20 A	1			0 0	1	20 A	--	(EX) [2A2-4]	6
7	(EX) [2A2-5	--	20 A	1	0 0			1	20 A	--	(EX) [2A2-6]	8
9	(EX) [2A2-7]	--	20 A	1		0 0		1	20 A	--	(EX) [2A2-8]	10
11	(EX) [2A2-9]	--	20 A	1			0 0	1	20 A	--	(EX) [2A2-10]	12
13	(EX) [2A2-11]	--	20 A	1	0 0			1	20 A	--	(EX) [2A2-12]	14
15	(EX) [2A2-13]	--	20 A	1		0 0		1	20 A	--	(EX) [2A2-14]	16
17	(EX) [2A2-15]	--	15 A	1			0 0	1	15 A	--	(EX) [2A2-16]	18
19	(EX) [2A2-17]	--	20 A	1	0 0			1	15 A	--	(EX) [2A2-18]	20
21	SPARE	--	20 A	1		0 0		1	20 A	--	SPARE	22
23							0 0	1	20 A	--	(EX) [2B5-2]	24
25	(EX) [2B5-1]	--	30 A	2	0 0			1	20 A	--	(EX) [2B5-2]	26
27	(EX) [2B5-3]	--	20 A	1		0 0						28
29	(EX) [2B5-3]	--	20 A	1			0 0	2	20 A	--	(EX) [2B5-4]	30
31					0 0							32
33	(EX) [2B5-5]	--	20 A	2		0 0		2	20 A	--	(EX) [2B5-6]	34
35	(EX) [2B5-7]	--	20 A	1			0 0	1	20 A	--	(EX) [2B5-8]	36
37	(EX) [2B5-7]	--	20 A	1	0 0			1	20 A	--	(EX) [2B5-10]	38
39	(EX) [2B5-9]	--	20 A	1		0 0		1	20 A	--	(EX) [2B5-12]	40
41	(EX) [2B5-11]	--	20 A	1			0 0	1	20 A	--	(EX) [2B5-14]	42
43	(EX) [2B5-13]	--	20 A	1	0 0			1	20 A	--	(EX) [2B5-16]	44
45	(EX) [2B5-15]	--	20 A	1		0 0		1	20 A	--	(EX) [2B5-17]	46
47	SPARE	--	20 A	1			0 0					48
49	SPARE	--	20 A	1	0 0			2	40 A	--	LEVEL 2 DUAL EV CHARGER	50
51	SPARE	--	20 A	1		0 0						52
53	SPARE	--	20 A	1			0 0	2	40 A	--	LEVEL 2 DUAL EV CHARGER	54
55	SPARE	--	20 A	1	0 0			1	20 A	--	SPARE	56
57	SPARE	--	20 A	1		0 0		1	20 A	--	SPARE	58
59	SPARE	--	20 A	1			0 0	1	20 A	--	SPARE	60
			Total Load:		0 VA	0 VA	0 VA					
			Total Amps:		0 A	0 A	0 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
				Total Conn. Load: 0 VA
				Total Est. Demand: 0 VA
				Total Conn.: 0 A
				Total Est. Demand: 0 A

Notes:

Branch Panel: D

Location: HALL 133
Supply From: NEW MDP1
Mounting: Recessed
Enclosure: Type 1

Volts: 120/240 Single
Phases: 1
Wires: 3

A.I.C. Rating: 10,000 A
Mains Type: MLO
Mains Rating: 100 A

Notes:

CKT	Circuit Description	Load Classification	Trip	Poles	A	B	Poles	Trip	Load Classification	Circuit Description	CKT
1	(EX) [D-1]	--	20 A	1	0 0		1	20 A	--	(EX) [D-2]	2
3	(EX) [D-3]	--	20 A	1		0 0	1	20 A	--	(EX) [D-4]	4
5	(EX) [D-5]	--	20 A	1	0 0		1	20 A	--	(EX) [D-6]	6
7	(EX) [D-7]	--	20 A	1		0 0	1	20 A	--	(EX) [D-8]	8
9	(EX) [D-9]	--	20 A	1	0 0		1	20 A	--	(EX) [D-10]	10
11	(EX) [D-11]	--	20 A	1		0 0	1	20 A	--	(EX) [D-12]	12
13	(EX) [D-13]	--	20 A	1	0 0		1	20 A	--	(EX) [D-14]	14
15	(EX) [D-15]	--	20 A	1		0 0	1	20 A	--	(EX) [D-16]	16
17	(EX) [D-17]	--	20 A	1	0 0		1	20 A	--	(EX) [D-18]	18
19	(EX) [D-19]	--	20 A	1		0 0	1	20 A	--	(EX) [D-20]	20
21	SPARE	--	20 A	1	0 0		1	20 A	--	(EX) [D-22]	22
23	SPARE	--	20 A	1		0 0	1	20 A	--	(EX) [D-24]	24
			Total Load:		0 VA	0 VA					
			Total Amps:		0 A	0 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
				Total Conn. Load: 0 VA
				Total Est. Demand: 0 VA
				Total Conn.: 0 A
				Total Est. Demand: 0 A

Notes:

Branch Panel: C

Location: STOR 145
Supply From: NEW MDP1
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10,000 A
Mains Type: MLO
Mains Rating: 125 A

Notes:

CKT	Circuit Description	Load Classification	Trip	Poles	A	B	C	Poles	Trip	Load Classification	Circuit Description	CKT
1	(EX) [2C1-1] GYM LIGHT	--	20 A	1	0 0			1	20 A	--	(EX) [2C1-2] STAGE RCPTS	2
3	(EX) [2C1-3] GYM LIGHT	--	20 A	1		0 0		1	20 A	--	(EX) [2C1-4] IT RCPT	4
5	(EX) [2C1-5] STAGE LIGHT	--	20 A	1			0 0	1	20 A	--	(EX) [2C1-6]	6
7	(EX) [2C1-7,9] HEATER	--	20 A	2	0 0			2	20 A	--	(EX) [2C1-8,10] HEATER	8
9						0 0						10
11	SPARE	--	20 A	1			0 0	1	20 A	--	SPARE	12
13	(EX) [2A1-1,3] A/C-1	--	15 A	2	0 0			2	30 A	--	(EX) [2A1-2,4] HEAT PUMP	14
15						0 0						16
17	(EX) [2A1-5,7] DRYER	--	30 A	2			0 0	1	20 A	--	(EX) [2A1-6] OUTSIDE GFCI RCPT	18
19					0 0			1	20 A	--	(EX) [2A1-8] CIRC PUMP	20
21	(EX) [2A1-9] MILK COOLER	--	20 A	1		0 0		1	20 A	--	(EX) [2A1-10] WATER HEATER	22
23	(EX) [2A1-11] SE LIGHT	--	20 A	1			0 0	1	20 A	--	(EX) [2A1-12] WASHER	24
25	(EX) [2A1-13]	--	20 A	1	0 0			1	20 A	--	(EX) [2A1-14]	26
27	(EX) [2A1-15]	--	20 A	1		0 0		1	15 A	--	(EX) [2A1-16]	28
29	(EX) [2A1-17]	--	20 A	1			0 0	1	15 A	--	(EX) [2A1-18]	30
31	(EX) [2A1-19]	--	15 A	1	0 0			1	15 A	--	(EX) [2A1-20]	32
33	SPARE	--	20 A	1		0 0		1	20 A	--	SPARE	34
35	SPARE	--	20 A	1			0 0	1	20 A	--	SPARE	36
37	SPARE	--	20 A	1	0 0			1	20 A	--	SPARE	38
39	SPARE	--	20 A	1		0 0		1	20 A	--	SPARE	40
41	SPARE	--	20 A	1			0 0	1	20 A	--	SPARE	42
			Total Load:		0 VA	0 VA	0 VA					
			Total Amps:		0 A	0 A	0 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
				Total Conn. Load: 0 VA
				Total Est. Demand: 0 VA
				Total Conn.: 0 A
				Total Est. Demand: 0 A

Notes:

BBT ARCHITECTS
1140 sw Simpson Ave. - Suite 200
Bend, Oregon 97702
t 541.382.5535 | f 541.389.8033

REGISTERED PROFESSIONAL ENGINEER
9399PE
OREGON
NOV. 19, 2019
GARTH L. STEVENS
EXPIRES: JUNE 30, 2024

Morrison Maierle
engineers - surveyors - planners - scientists
1001 SW Disk Dr, Suite 110
Bend, OR 97702
541.699.5432
www.m-m.net

Jefferson County School District
Metolius Elementary School Upgrades

420 Butte Ave
Metolius, OR 97741

No.	Description	Date
1	Addendum #1	6/30/23

Project Number 2304
Date 6/01/2023

Bid / Permit

ELECTRICAL SCHEDULES

E8.01

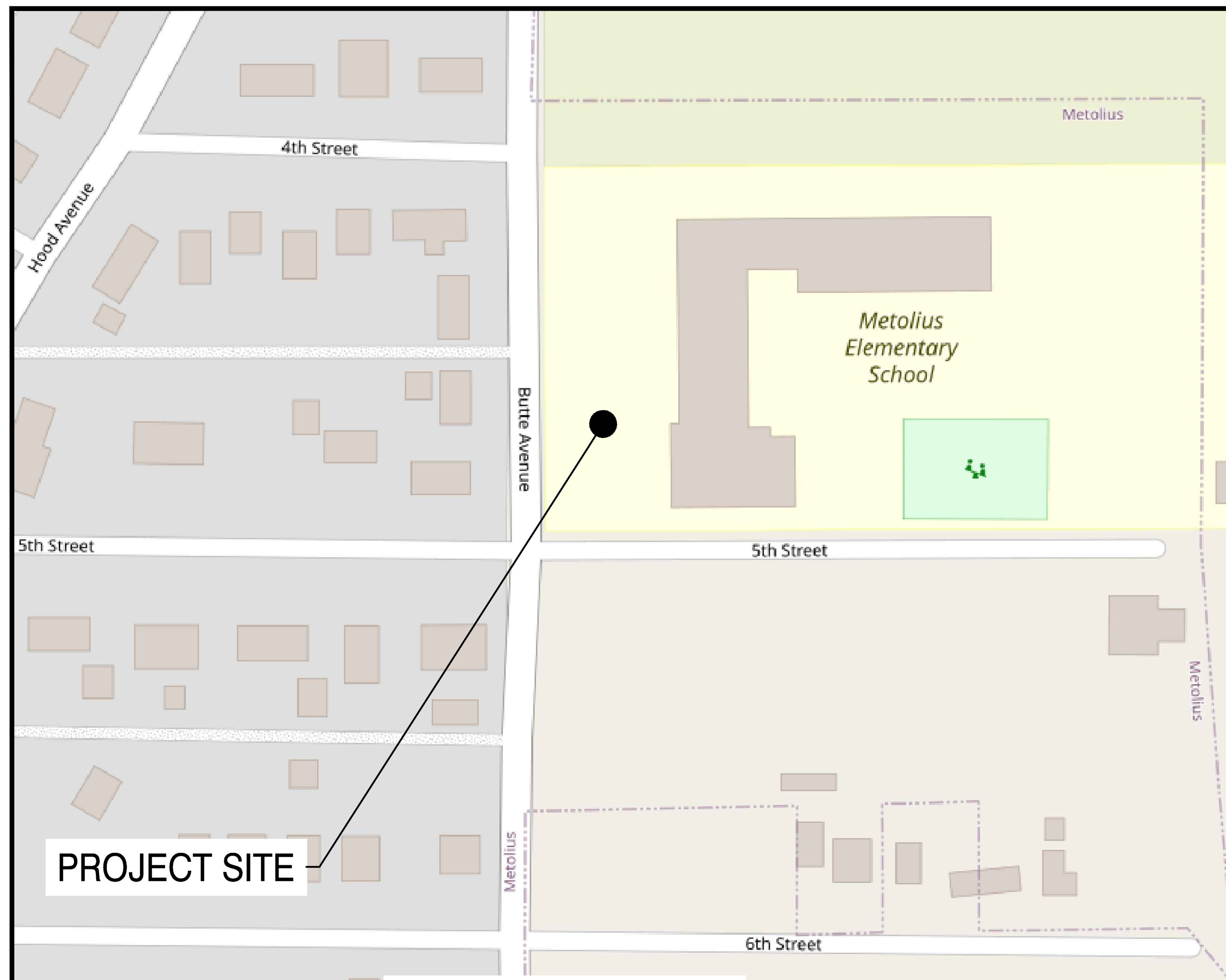
SUPPLEMENTARY ATTACHMENTS

METOLIUS ELEMENTARY SURVEY

420 BUTTE AVE, METOLIUS, OR, 97741

TAX LOT 800/1000, MAP 111328AD

MARCH, 2023



VICINITY MAP

NTS

SITE INFORMATION

ADDRESS: 420 BUTTE AVE, METOLIUS, OR, 97741
TAX ASSESSORS MAP: LOT 800/1000, MAP 111328AD
ZONING: OS

OWNER

JEFFERSON COUNTY SCHOOL DIST 509 J
445 SE BUFF ST MADRAS OR , 97741

LAND SURVEYOR / CIVIL ENGINEER

H.A. M^C^COY ENGINEERING & SURVEYING
CONTACT: HAYES M^C^COY
1180 SW LAKE ROAD SUITE 201
REDMOND, OR 97756
PH: 541-923-7554

SHEET INDEX

P1.0 COVER SHEET AND EXISTING CONDITIONS

UTILITY STATEMENT

UNDERGROUND UTILITIES WERE MARKED BY ONE CALL OREGON UNDER TICKET NO. 23054033 AND 23054034.

THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

EXISTING UNDERGROUND UTILITY LOCATIONS SHOULD BE VERIFIED PRIOR TO ANY CONSTRUCTION ACTIVITIES.

VERTICAL DATUM

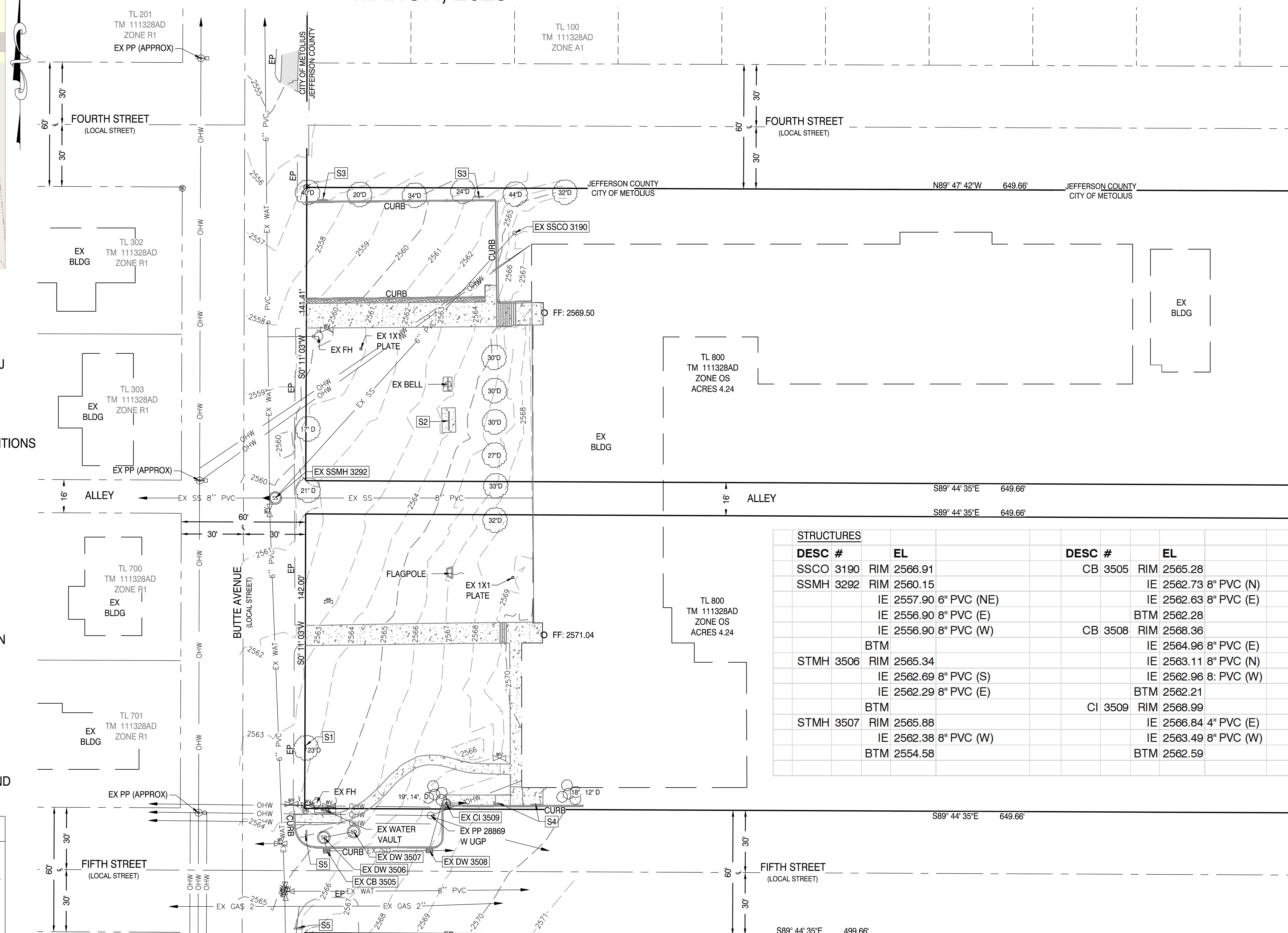
ELEVATIONS ARE BASED OFF A LOCAL BENCHMARK BEING A 2' BRASS CAP LOCATED IN THE CENTER OF SW DOVER LANE APPROX 766.32' EAST OF THE INTERSECTION OF HIGHWAY 361 AND DOVER LANE. ELEVATION = 2525.34'

LEGEND

LINE	DESCRIPTION
ECABL	EXISTING CABLE
EGAS	EXISTING GAS
EIRRG	EXISTING IRRIGATION
OHW	EXISTING OVERHEAD LINES
EPOWR	EXISTING POWER
EX SS	EXISTING SANITARY SEWER
EX SD	EXISTING STORM DRAIN
ECOMM	EXISTING TELECOMMUNICATIONS
EWAT	EXISTING WATER
CABL	NEW CABLE
GAS	NEW GAS
IRRG	NEW IRRIGATION
POWR	NEW POWER
SSWR	NEW SANITARY SEWER
SD	NEW STORM DRAIN
COMM	NEW TELECOMMUNICATIONS
WAT	NEW WATER
	FENCE
	EXISTING RIGHT-OF-WAY
	EXISTING EDGE OF GRAVEL
	EXISTING EDGE OF PAVEMENT
	EXISTING CURB
	NEW RIGHT-OF-WAY
	NEW EDGE OF GRAVEL
	NEW EDGE OF PAVEMENT
	NEW CURB

EXISTING / PROPOSED

SANITARY SEWER MANHOLE
STORM DRAIN MANHOLE, DRYWELL
WATER VALVE, GAS VALVE
AIR RELEASE VALVE
BACKFLOW PREVENTER
WATER METER, GAS METER
FIRE HYDRANT
CATCH BASIN/CURB INLET
CLEAN OUT
RAIN DRAIN
STREET LIGHT, PARKING LOT LIGHT
UTILITY POLE, GUY ANCHOR
UTILITY VAULT
ELECTRICAL PEDESTAL
CABLE PEDESTAL
TELECOMMUNICATIONS PEDESTAL
IRON ROD, IRON PIPE
TREES
SIGN
MAILBOX



	STRUCTURES				DESC	#		EL	
DESC	#		EL						
SSCO	3190	RIM	2566.91		CB	3505	RIM	2565.28	
SSMH	3292	RIM	2560.15				IE	2562.73	8" PVC (N)
		IE	2557.90	6" PVC (NE)			IE	2562.63	8" PVC (E)
		IE	2556.90	8" PVC (E)			BTM	2562.28	
		IE	2556.90	8" PVC (W)	CB	3508	RIM	2568.36	
		BTM					IE	2564.96	8" PVC (E)
STMH	3506	RIM	2565.34				IE	2563.11	8" PVC (N)
		IE	2562.69	8" PVC (S)			IE	2562.96	8: PVC (W)
		IE	2562.29	8" PVC (E)			BTM	2562.21	
		BTM			CI	3509	RIM	2568.99	
STMH	3507	RIM	2565.88				IE	2566.84	4" PVC (E)
		IE	2562.38	8" PVC (W)			IE	2563.49	8" PVC (W)
		BTM	2554.58				BTM	2562.59	

SIGNS

S1 NO DOGS ALLOWED
S2 METOLIUS ELEMENTART SCHOOL SIGN
S3 NO PARKING
S4 HANDICAP PARKING
S5 STOP

LEGEND

CURB	STANDARD CURB
CG	CURB AND GUTTER
MC	MOUNTABLE CURB
EC	EDGE OF CONCRETE
EG	EDGE OF GRAVEL
EP	EDGE OF PAVEMENT
CONC	CONCRETE PIPE
CI	CAST IRON
DI	DUCTILE IRON
GP	GALVANIZED PIPE
GI	GALVANIZED IRON PIPE
SP	STEEL PIPE
CPP	CORRUGATED PLASTIC PIPE
CMP	CORRUGATED METAL PIPE
PVC	POLYVINYL CHLORIDE PIPE

SCALE: 1" = 30'
FOR 34"x22" SHEETS
0' 15' 30' 60'

EXISTING CONDITIONS

PRELIMINARY
REGISTERED PROFESSIONAL ENGINEER
HAYES A. McCOY
RENEWAL DATE: 12/31/24

No.	REVISION:	DATE:

DRAWING STATUS: EXISTING COND DATE: 3/2/23

H.A. M^C^COY ENGINEERING & SURVEYING, LLC
1180 SW Lake Road, Suite 201 Redmond, OR 97756
Hayes McCoy PE, PLS, CWRE
541-923-7554
hayes@ham-engr.com

PROJECT: METOLIUS ELEMENTARY SURVEY

PROJECT LOCATION: METOLIUS, OR

CLIENT: JEFFERSON COUNTY SCHOOL DIST 509 J

SHEET TITLE: COVER SHEET AND EXISTING CONDITIONS

JOB NO. 23-030
DRAWN BY: GWM
DRAWING:

FILE: \\Fresnos\NAS\HAM Engr\23-030 Metolius Elementary Survey\Survey\Topo\230302-23030 Topo.dwg 3/2/2023 1:05 PM - Owner

Set #1

Doors: 105A, 105B, ~~135A~~ – ***Edited via Addendum no. 1, June 30th, 2023.***

3	Hinge	ECBB1100 4 1/2 x 4 1/2	US26D	HA
1	Privacy Set	3896 SECT WTN ADA Turn	US26D	HA
1	Wall Stop	WS406/407CCV	US32D	IV
1	Kickplate	8400 10 x 2LDW	US32D	IV
3	Door Silencer	SR66	BRN	IV

Set #2

Doors: 120A, 120B, 120E, 120F

1	Electric Strike Body	9600	630	HS
1	Power Controller	2005M3		HS

NOTE: CONTROLLED ACCESS AND CARD READER BY DIVISION 28. WIRING TO BE PROVIDED TO STRIKE SIDE OF DOOR FRAME. FIELD VERIFY ELECTRIC STRIKE COMPATIBILITY WITH EXISTING PANIC HARDWARE.

Set #3

Doors: 127A

1	Threshold	272 A 36"	PE

NOTE: FIELD VERIFY THRESHOLD SIZE.

PRODUCT	MANUFACTURER SPECIFIED	APPROVED SUBSTITUTION
BUTTS	HAGER	STANLEY
LOCKSETS	HAGER	NONE
KICKPLATE	IVES	TRIMCO
WALL STOP/HOLDER	IVES	TRIMCO
THRESHOLDS	PEMKO	NGP
SILENCERS	IVES	TRIMCO
ELECT STRIKES	HES	VON DUPRIN