VENTURA UNIFIED SCHOOL DISTRICT

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

2050 GRAND AVENUE, VENTURA, CALIFORNIA 93003

GENERAL NOTES

1. ANY DIFFERENCE BETWEEN THE EXISTING CONSTRUCTION AS OBSERVED IN THE FIELD AND AS SHOWN ON THE DRAWINGS SHALL BE REPORTED TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING WORK THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND COORDINATING ALL DIMENSIONS. REVIEW BUILDING LAYOUT WITH ARCHITECT BEFORE STARTING ANY FOOTING EXCAVATION OR FOUNDATION WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACTUAL SITE CONDITIONS REGARDLESS OF INFORMATION SHOWN ON THE DRAWINGS. DISCREPANCIES BETWEEN CONDITIONS SHOWN OR NOT SHOWN ON DRAWINGS AND ACTUAL EXISTING VISIBLE, DISCERNABLE CONDITIONS AT THE JOB SITE, DO NOT RELIEVE THE CONTRACTOR FROM PERFORMING THE WORK OF THIS CONTRACT IN FULL CONFORMANCE WITH THE CONTRACT DOCUMENTS.
4. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO INSURE THAT ALL APPLICABLE SAFETY LAWS ARE STRICTLY ENFORCED AND TO MAINTAIN A SAFE CONSTRUCTION PROJECT.
5. BIDDERS MUST VISIT THE BUILDING SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS TO PROVIDE A PROJECT COMPLETE IN EVERY DETAIL AND READY FOR OCCUPANCY. DISCREPANCIES OR DELETIONS MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE THE BID DATE FOR CORRECTION.
6. ANY DAMAGE DONE TO THE EXISTING SITE, FACILITIES, FINISHES, EQUIPMENTS AND DEVICES DURING THE COURSE OF THE WORK SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE WITH NO ADDITIONAL COST TO THE OWNER.
7. BIDDERS SHALL ASSUME THAT ALL ITEMS INDICATED ON THE DRAWINGS ARE NEW CONSTRUCTION IF NOT INDICATED WITH AN (N) OR "NEW", UNLESS INDICATED AS *(E)* OR "EXISTING".
8. ALL NEW WORK SHALL MATCH EXISTING IN KEEPING WITH GOOD CONSTRUCTION PRACTICE. IT IS THE INTENT OF THESE DOCUMENTS THAT THE PORTION OF THE SURFACE WHICH HAS BEEN INSTALLED, REPAIRED OR REPLACED, SHALL MATCH THE EXISTING ADJACENT SURFACES, AND THAT THE NEW WORK WILL NOT BE DISCERNABLE FROM THE EXISTING.
9. CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY OF ALL OMISSIONS AND CONFLICTS BETWEEN THE ELEMENTS OF THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THE WORK INVOLVED.
10. CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, LANDSCAPE SITE FEATURES TO REMAIN. ALL DAMAGED WORK SHALL BE REPLACED WITH THE SAME MATERIALS, INCLUDING MATCHING THE EXISTING COLORS AND TEXTURES.
11. THE PROVISIONS OF 2022 CBC CHAPTER 33 SHALL BE ENFORCED ON THIS PROJECT.
12. CFC 901.4.1 ; 907.9.5 TITLE 19 DIVISION 1, 1.14 - EXISTING FIRE ALARM SYSTEM SHALL BE MAINTAINED IN OPERABLE CONDITION AT ALL TIMES.
13. CFC 901.5.1 - IT SHALL BE UNLAWFUL TO OCCUPY ANY PORTION OF A BUILDING OR STRUCTURE UNTIL THE REQUIRED FIRE DETECTION, ALARM SYSTEM HAS BEEN TESTED AND APPROVED.
14. FIRE ALARM SCOPE REQUIRES DSA APPROVED DRAWINGS FOR REFERENCE OF AREAS IN SCOPE TO INCLUDE COMPLIANT FIRE ALARM COMPONENTS (SMOKE-HEAT-AUDIBLE-VISUAL-MANUAL). STATEMENT OF COMPLIANCE PER CFC 901.2.1. ROOMS/ AREAS IN SCOPE TO INCLUDE EXISTING FIRE ALARM COMPONENTS.
15. CFC 1030.1 - THE MEANS OF EGRESS FOR BUILDING OR PORTIONS THEREOF SHALL BE MAINTAINED IN ACCORDANCE WITH THIS SECTION.
16. CFC 1030.4 - EXIT SIGNS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 1011.
17. CFC 503.1; TITLE 19 DIVISION 1, 3.05 - MAINTAIN FIRE ACCESS ROUTE(S).
    PUBLIC STREET ACCESS - EXISTING NO PARKING FIRE LANE SIGN TO BE FIELD VERIFIED BY IOR.
18. CFC 506.1 - MAINTAIN KEY BOXES FOR FIRE DEPARTMENT ACCESS, AS APPROPRIATE.
19. THE PROVISIONS OF CBC CHAPTER 35 SHALL BE ENFORCED ON THIS PROJECT.

GENERAL REQUIREMENTS:

1. ALL WORK SHALL CONFORM TO 2022 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).
2. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDUM OR CONSTRUCTION CHANGE DOCUMENT APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
3. A 'DSA CERTIFIED' PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR).
4. A 'DSA CERTIFIED' PROJECT INSPECTOR WITH CLASS 3 CERTIFICATION IS REQUIRED FOR THIS PROJECT PER CAC 4-333.1.
5. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE SCHOOL BOARD SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THIS PROJECT.
6. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHERE-IN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OR REGULATIONS, A CONSTRUCTION CHANGE DOCUMENT, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT BEFORE PROCEEDING WITH THE WORK (SECTION 4-317(C), PART 1 TITLE 24 CCR).

APPLICABLE CODES

CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING:

PART 1	2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 C.C.R.
PART 2	2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
PART 3	2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
PART 4	2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
PART 5	2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
PART 6	2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.
PART 9	2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24, C.C.R.
PART 10	2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24, C.C.R.
PART 11	2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24, C.C.R.
PART 12	2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24, C.C.R.

TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

PARTIAL LIST OF APPLICABLE STANDARDS:

NFPA 72 NATIONAL FIRE ALARM & SIGNALING CODE (CA. AMENDED)	2022 EDITION
UL 521 HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEM	1999 EDITION
UL 1971 SIGNALING DEVICE FOR THE HEARING IMPAIRED	2002 (R2010)

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2022 CBC (SFM) CHAPTER 35 & CALIFORNIA FIRE CODE CHAPTER 80.

SEE CALIFORNIA BUILDING CODE CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS.

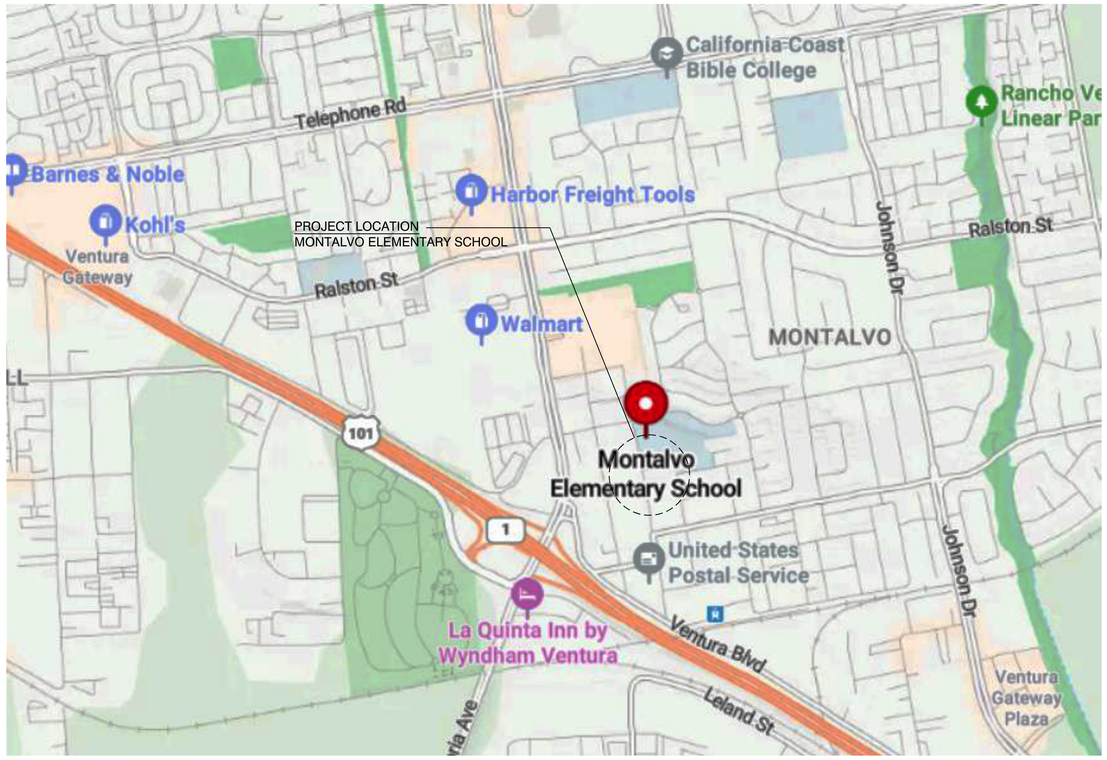
STATE BUILDING CODE

(Part 1, Title 24, C.C.R.)

"The intent of these drawings and specification Is that the work of the alteration, rehabilitation or reconstruction Is to be in accordance with Title 24, California Code of Regulations. Should any existing conditions such as deterioration or noncomplying construction be discovered which is not covered by the contract documents wherein the finished work will not comply with Title 24, California Code of Regulations, a Construction Change Document (CCD), or a separate set of plans and specifications, detailing and specifying the required work shall be submitted to and approved by the Division of the State Architect before proceeding with the work"

Changes to the approved drawings and specifications shall be made by an addenda or a Construction Change Document (CCD) approved by the Division of the State Architect, as required by Section 4-338, Part 1, Title 24, CCR.

Substitutions affecting Items regulated by the Division of the State Architect (DSA) require DSA approval as an Addendum or a Construction Change Document (CCD), DSA approval shall be obtained prior to fabrication and/or installation per Section 4-338, Part 1, Title 24, CCR.



VICINITY MAP

SCALE: N.T.S.

SYMBOLS LEGEND

KEY NOTE SYMBOLS — 1 (NEW); 1 (DEMO)

ROOM NUMBER (SEE ROOM LEGEND) — 101

DOOR NUMBER- SEE DOOR AND FRAME SCHEDULE — 1

WINDOW NUMBER- SEE WINDOW SCHEDULE — X

WALL TYPE — X

WALL TYPE NOTE (MODIFIES WALL TYPE) — X

DETAIL SYMBOL — 7 / A8.1 — DETAIL NO. / SHEET NO.

DETAIL CUT SYMBOL — 7 / A8.1

SECTION/ ELEVATION KEY — 1 / A1.0 — SECTION/ ELEVATION NO. / SHEET NO.

PROJECT REFERENCE NORTH — N

DIMENSION LINES — 6'-6" — 8'-0"

ACCESSIBLE WHEELCHAIR SPACE. 30"W x 48"D CLEAR FLOOR SPACE. 27"H CLEAR KNEE SPACE MIN. 34"H MAX. TO TOP OF TABLE/COUNTER. — 30" — 48"

60" DIAMETER CLEAR WHEELCHAIR TURNING CIRCLE

INDICATES REQUIRED CLR. FLR SPACE AT DOOR OPENINGS.

WORK CONTROL/DATUM

BREAK LINE

CENTER LINE

GRID LINE SYMBOL — 1

MATCHLINE SYMBOL

REVISION MARK — REVISION NO. / AREA OF REVISION

PROJECT TEAM

ARCHITECT
KRUGER BENSEN ZIEMER ARCHITECTS, INC.
199 FIGUEROA STREET SUITE 100A
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PROJECT TEAM:
PATRICK B. PANLAQUI
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PROJECT OWNER

VENTURA UNIFIED SCHOOL DISTRICT
OFFICE: (805) 641-5000

CONTACT PERSON: RYAN HUGHES
BOND FACILITIES PLANNER
EMAIL ADDRESS: Ryan.Hughes@venturausd.org

PROJECT DATA

PROJECT LOCATION: 2050 GRAND AVENUE,
VENTURA, CA 93003
ASSESSOR'S PARCEL NUMBER (APN) :
EXISTING USE : MONTALVO ELEMENTARY SCHOOL

FIRE DISTRICT : COUNTY OF VENTURA
LAND USE ZONE : E-3 / SD-3
BUILDING CONSTRUCTION : TYPE V-B
BUILDING OCCUPANCY : E-1

MODERNIZATION DSA A# 03-102799 (CERTIFIED)

PROJECT SCOPE

THE SCOPE OF WORK INCLUDES, BUT NOT LIMITED TO:

REMOVE EXISTING HVAC SYSTEMS AND RELATED COMPONENTS AND REPLACE WITH NEW. SCOPE INCLUDES ASSOCIATED STRUCTURAL, MECHANICAL AND ELECTRICAL SYSTEMS.

- BLDGS A, B, C, D, E & F - NEW HVAC SYSTEM

PROTECT EXISTING FIRE ALARM SYSTEM AND FIRE SPRINKLER SYSTEM (IF ANY) IN PLACE. NO NEW DEVICES WILL BE ADDED.

SHEET INDEX

1.	G-001	TITLE SHEET
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3.	CG-2	CALGREEN NOTES
4.	CG-3	CALGREEN NOTES
5.	CG-4	CALGREEN NOTES
		ARCHITECTURAL
6.	A-100	CAMPUS MAP / OVERALL SITE PLAN
7.	A-101	SITE DETAILS
8.	A-700	DETAILS
9.	A-701	ROOF DETAILS
		STRUCTURAL
10.	S-001	STRUCTURAL GENERAL NOTES
11.	S-101	TYPICAL DETAILS
12.	S-111	TYPICAL DETAILS
13.	S-201	BLDG. 'A' STRUCTURAL PLANS
14.	S-202	BLDG. 'B' STRUCTURAL PLANS
15.	S-203	BLDG. 'C' STRUCTURAL PLANS
16.	S-204	BLDG. 'D' STRUCTURAL PLANS
17.	S-205	BLDG. 'E' STRUCTURAL PLANS
18.	S-206	BLDG. 'F' STRUCTURAL PLANS
19.	S-213	BLDG. 'C' STRUCTURAL ROOF PLAN
20.	S-215	BLDG. 'E' STRUCTURAL ROOF PLAN
21.	S-217	BLDG. 'G' STRUCTURAL ROOF PLAN
22.	S-301	STRUCTURAL DETAILS
23.	S-311	STRUCTURAL DETAILS
24.	S-312	STRUCTURAL DETAILS
25.	S-313	STRUCTURAL DETAILS
		MECHANICAL
26.	M-001	MECHANICAL NOTES
27.	M-002	MECHANICAL SCHEDULES
28.	M-100	MECHANICAL SITE PLAN
29.	M-101	BLDG. 'A' MECHANICAL DEMO FLOOR & ROOF PLANS
30.	M-102	BLDG. 'B' MECHANICAL DEMO FLOOR & ROOF PLANS
31.	M-103	BLDG. 'C' MECHANICAL DEMO FLOOR PLAN
32.	M-104	BLDG. 'D' MECHANICAL DEMO FLOOR PLAN
33.	M-105	BLDG. 'E' MECHANICAL DEMO FLOOR PLAN
34.	M-106	BLDG. 'F' MECHANICAL DEMO FLOOR PLAN
35.	M-107	BLDG. 'G' MECHANICAL DEMO FLOOR PLAN
36.	M-201	BLDG. 'A' MECHANICAL FLOOR & ROOF PLANS
37.	M-202	BLDG. 'B' MECHANICAL FLOOR PLANS
38.	M-203	BLDG. 'C' MECHANICAL FLOOR PLAN
39.	M-204	BLDG. 'D' MECHANICAL FLOOR PLAN
40.	M-205	BLDG. 'E' MECHANICAL FLOOR PLAN
41.	M-206	BLDG. 'F' MECHANICAL FLOOR PLAN
42.	M-207	BLDG. 'G' MECHANICAL FLOOR PLAN
43.	M-213	BLDG. 'C' MECHANICAL ROOF PLAN
44.	M-214	BLDG. 'D' MECHANICAL ROOF PLAN
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52.	M-504	MECHANICAL DETAILS
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56.	EN-003	ENERGY NOTES
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		ELECTRICAL
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59.	E101	GENERAL ELECTRICAL SPECIFICATIONS SHEET
60.	E200	SITE POWER PLAN
61.	E201	ELECTRICAL SINGLE LINE DIAGRAM
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63.	E301	BLDG. 'A' HVAC DEMO POWER PLAN
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65.	E401	BLDG. 'B' HVAC DEMO POWER PLAN
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72.	E701	BLDG. 'E' HVAC DEMO POWER PLANS
73.	E702	BLDG. 'E' HVAC POWER PLANS
74.	E801	BLDG. 'F' HVAC DEMO POWER PLANS
75.	E802	BLDG. 'F' HVAC POWER PLANS
76.	E901	BLDG. 'G' HVAC DEMO POWER PLAN
77.	E902	BLDG. 'G' HVAC POWER PLAN & HVAC ROOF POWER PLAN
78.	E910	ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT
79.	E911	ELECTRICAL DETAILS
80.	E913	NEW FIRE ALARM SYSTEM RISER
81.	E914	FIRE ALARM SYSTEM INFORMATION SHEET

TOTAL SHEETS :81 SHEETS

ENERGY CODE NOTES

THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.

ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR, ENGINEER/ ARCHITECT OF RECORD OR THE OWNER'S AGENT.

A LISTING OF CERTIFIED ATT CAN BE FOUND AT: HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/ PROGRAMS/ ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE.

THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/ INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.

PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.

FIRE WATCH NOTE

EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND MUST BE OPERATIONAL AT ALL TIMES UNTIL NEW SYSTEM IS IN PLACE. FIRE WATCH MUST BE PROVIDED (CFC 901.7), WHERE SYSTEM IS DISCONNECTED DUE TO RENOVATION AND MUST REMAIN UNTIL SYSTEM IS RECONNECTED AND COMPLETELY FUNCTIONAL, IN ORDER TO MINIMIZE DOWN TIME, CONTRACTOR MUST COMPLETE WORK DURING BUSINESS HOURS AND MAINTAIN FIRE SYSTEM IN FULL OPERATION AFTER HOURS.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

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TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S STAMP & SIGNATURE — ENGINEER'S STAMP & SIGNATURE

REGISTERED ARCHITECT TODD A. JESPERSEN No. C-25839 Exp. 08/30/2025 STATE OF CALIFORNIA

REVISION	DESCRIPTION	DATE	BY
5	-	-/-/-	XX
4	-	-/-/-	XX
3	-	-/-/-	XX
2	-	-/-/-	XX
1	-	-/-/-	XX

DRAWN PP
CHECKED TJ
DATE 10/11/2024
JOB. NO. 23053
DSA AO3-124514 FILE:56-40 PTN:72652-125
SHEET TITLE TITLE SHEET
SHEET G-001

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (July 2024 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y	N/A	RESPON. PARTY

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.

301.3 NONRESIDENTIAL ADDITIONS AND ALTERATIONS. [BSC-CG] The provisions of individual sections of Chapter 5 apply to newly constructed buildings, building additions of 1,000 square feet or greater, and/or building alterations with a permit valuation of $200,000 or above (for occupancies within the authority of California Building Standards Commission). Code sections relevant to additions and alterations shall only apply to the portions of the building being added or altered within the scope of the permitted work.

A code section will be designated by a banner to indicate where the code section only applies to newly constructed buildings [N] or to additions and/or alterations [A]. When the code section applies to both, no banner will be used.

301.3.1 Nonresidential additions and alterations that cause updates to plumbing fixtures only:

Note: On and after January 1, 2014, certain commercial real property, as defined in Civil Code Section 1101.3, shall have its noncompliant plumbing fixtures replaced with appropriate water-conserving plumbing fixtures under specific circumstances. See Civil Code Section 1101.1 *et seq.* for definitions, types of commercial real property affected, effective dates, circumstances necessitating replacement of noncompliant plumbing fixtures, and duties and responsibilities for ensuring compliance.

301.3.2 Waste Diversion. The requirements of Section 5.408 shall be required for additions and alterations whenever a permit is required for work.

301.4 PUBLIC SCHOOLS AND COMMUNITY COLLEGES. (see GBSC)
301.5 HEALTH FACILITIES. (see GBSC)

SECTION 302 MIXED OCCUPANCY BUILDINGS

302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.

SECTION 303 PHASED PROJECTS

303.1 PHASED PROJECTS. For shell buildings and others constructed for future tenant improvements, only those code measures relevant to the building components and systems considered to be new construction (or newly constructed) shall apply.

303.1.1 Initial Tenant Improvements. The provisions of this code shall apply only to the initial tenant improvements to a project. Subsequent tenant improvements shall comply with the scoping provisions in Section 301.3 non-residential additions and alterations.

ABBREVIATION DEFINITIONS:

HCD	Department of Housing and Community Development
BSC	California Building Standards Commission
DSA-SS	Division of the State Architect, Structural Safety
OSHPD	Office of Statewide Health Planning and Development
LR	Low Rise
HR	High Rise
AA	Additions and Alterations
N	New

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

DIVISION 5.1 PLANNING AND DESIGN
SECTION 5.101 GENERAL
5.101.1 SCOPE
The provisions of this chapter outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties.

SECTION 5.102 DEFINITIONS
5.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

CUTOFF LUMINAIRES. Luminaires whose light distribution is such that the candela per 1000 lamp lumens does not numerically exceed 25 (2.5 percent) at an angle of 90 degrees above nadir, and 100 (10 percent) at a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.

ELECTRIC VEHICLE (EV). [BSC-CG, HCD] An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the California Electrical Code, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats and the like, are not included.

ELECTRIC VEHICLE (EV) CAPABLE SPACE. [BSC-CG, DSA-SS and HCD] A vehicle space with electrical panel space and load capacity to support a branch circuit and necessary raceways, both underground and/or surface mounted, to support EV charging.

ELECTRIC VEHICLE (EV) CHARGER. [BSC-CG, HCD] Off-board charging equipment used to charge an electric vehicle.

ELECTRIC VEHICLE CHARGING SPACE (EV SPACE). [HCD] A space intended for future installation of EV charging equipment and charging of electric vehicles.

ELECTRIC VEHICLE CHARGING STATION (EVCS). [BSC-CG, DSA-SS, HCD] One or more electric vehicle charging spaces served by EVSE or receptacle(s).

ELECTRIC VEHICLE (EV) READY SPACE. [HCD] A vehicle space which is provided with a branch circuit; any necessary raceways, both underground and/or surface mounted; to accommodate EV charging, terminating in a receptacle or a charger.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE).[BSC-CG, DSA-SS and HCD] The conductors, including the ungrounded, grounded and equipment grounding conductors and the electric vehicle connectors, attachment plugs, personnel protection system, and all other fittings, devices, power outlets or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

SECTION 5.105 DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES
5.105.1 Scope. [BSC-CG] Effective July 1, 2024, alteration(s) to existing building(s) where the combined altered floor area is 100,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 100,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3. Effective January 1, 2026, the combined floor area shall be 50,000 square feet or greater.

[DSA-SS] Alteration(s) to existing building(s) where the combined altered floor area is 50,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 50,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3.

Exception [BSC-CG, DSA-SS]: Combined addition(s) to existing building(s) of two times the area or more of the existing building(s) is not eligible to meet compliance with Section 5.105.2.

☐ ☒ **5.105.2 Reuse of existing building.** An alteration or addition to an existing building shall maintain at a minimum 45 percent combined of the existing building's primary structural elements (foundations; columns, beams, walls, and floors; and lateral elements) and existing building enclosure (roof framing, wall framing and exterior finishes). Window assemblies, insulation, portions of buildings deemed structurally unsound or hazardous, and hazardous materials that are remediated as part of the project shall not be included in the calculation.

5.105.2.1 Verification of compliance. Documentation shall be provided in the construction documents to demonstrate compliance with Section 5.105.2.

Note: Sample Worksheet WS-3 in Chapter 8 may be used to assist in documenting compliance with this section.

5.105.3 Deconstruction (Reserved).

Y	N/A	RESPON. PARTY
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SECTION 5.106 SITE DEVELOPMENT
5.106.1 STORM WATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB LESS THAN ONE ACRE OF LAND. Newly constructed projects and additions which disturb less than one acre of land, and are not part of a larger common plan of development or sale, shall prevent the pollution of storm water runoff from the construction activities through one or more of the following measures:

5.106.1.1 Local ordinance. Comply with a lawfully enacted storm water management and/or erosion control ordinance.

5.106.1.2 Best Management Practices (BMPs). Prevent the loss of soil through wind or water erosion by implementing an effective combination of erosion and sediment control and good housekeeping BMPs.

1. Soil loss BMPs that should be considered for implementation as appropriate for each project include, but are not limited to, the following:
   a. Scheduling construction activity during dry weather, when possible.
   b. Preservation of natural features, vegetation, soil, and buffers around surface waters.
   c. Drainage swales or lined ditches to control stormwater flow.
   d. Mulching or hydroseeding to stabilize disturbed soils.
   e. Erosion control to protect slopes.
   f. Protection of storm drain inlets (gravel bags or catch basin inserts).
   g. Perimeter sediment control (perimeter silt fence, fiber rolls).
   h. Sediment trap or sediment basin to retain sediment on site.
   i. Stabilized construction exits.
   j. Wind erosion control.
   k. Other soil loss BMPs acceptable to the enforcing agency.
2. Good housekeeping BMPs to manage construction equipment, materials, non-stormwater discharges and wastes that should be considered for implementation as appropriate for each project include, but are not limited to, the following:
   a. Dewatering activities.
   b. Material handling and waste management.
   c. Building materials stockpile management.
   d. Management of washout areas (concrete, paints, stucco, etc.).
   e. Control of vehicle/equipment fueling to contractor's staging area.
   f. Vehicle and equipment cleaning performed off site.
   g. Spill prevention and control.
   h. Other housekeeping BMPs acceptable to the enforcing agency.

Y	N/A	RESPON. PARTY
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5.106.2 STORMWATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB ONE OR MORE ACRES OF LAND. Comply with all lawfully enacted stormwater discharge regulations for projects that (1) disturb one acre or more of land, or (2) disturb less than one acre of land but are part of a larger common plan of development sale.

Note: Projects that (1) disturb one acre or more of land, or (2) disturb less than one acre of land but are part of the larger common plan of development or sale must comply with the post-construction requirements detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board or the Lahontan Regional Water Quality Control Board (for projects in the Lake Tahoe Hydrologic Unit).

The NPDES permits require postconstruction runoff (post-project hydrology) to match the preconstruction runoff (pre-project hydrology) with the installation of postconstruction stormwater management measures. The NPDES permits emphasize runoff reduction through on-site stormwater use, interception, evapotranspiration, and infiltration through nonstructural controls, such as Low Impact Development (LID) practices, and conversation design measures. Stormwater volume that cannot be addressed using nonstructural practices is required to be captured in structural practices and be approved by the enforcing agency.

Refer to the current applicable permits on the State Water Resources Control Board website at: www.waterboards.ca.gov/constructionstormwater. Consideration to the stormwater runoff management measures should be given during the initial design process for appropriate integration into site development.

5.106.4 BICYCLE PARKING. For buildings within the authority of California Building Standards Commission as specified in Section 103, comply with Section 5.106.4.1. For buildings within the authority of the Division of the State Architect pursuant to Section 105, comply with Section 5.106.4.2

Y	N/A	RESPON. PARTY
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5.106.4.1 Bicycle parking. [BSC-CG] Comply with Sections 5.106.4.1.1 and 5.106.4.1.2; or meet the applicable local ordinance, whichever is stricter.

5.106.4.1.1 Short-term bicycle parking. If the new project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack.
Exception: Additions or alterations which add nine or less visitor vehicular parking spaces.

5.106.4.1.2 Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.

5.106.4.1.3 For additions or alterations that add 10 or more tenant-occupant vehicular parking spaces, provide secure bicycle parking for 5 percent of the tenant vehicular parking spaces being added, with a minimum of one bicycle parking facility.

5.106.4.1.4 For new shell buildings in phased projects provide secure bicycle parking for 5 percent of the anticipated tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.

5.106.4.1.5 Acceptable bicycle parking facility for Sections 5.106.4.1.2, 5.106.4.1.3, and 5.106.4.1.4 shall be convenient from the street and shall meet one of the following:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; or
3. Lockable, permanently anchored bicycle lockers.

Note: Additional information on recommended bicycle accommodations may be obtained from Sacramento Area Bicycle Advocates.

Y	N/A	RESPON. PARTY
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5.106.4.2 Bicycle parking. [DSA-SS] For public schools and community colleges, comply with Sections 5.106.4.2.1 and 5.106.4.2.2

5.106.4.2.1 Student bicycle parking. Provide permanently anchored bicycle racks conveniently accessed with a minimum of four two-bike capacity racks per new building.
5.106.4.2.2 Staff bicycle parking. Provide permanent, secure bicycle parking conveniently accessed with a minimum of two staff bicycle parking spaces per new building. Acceptable bicycle parking facilities shall be convenient from the street or staff parking area and shall meet one of the following:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; or
3. Lockable, permanently anchored bicycle lockers.

Y	N/A	RESPON. PARTY
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5.106.5.3 Electric vehicle (EV) charging. [N] [BSC-CG] Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with Section 5.106.5.3.1 EV capable spaces, Section 5.106.5.3.2 Electric vehicle charging stations and associated Table 5.106.5.3.1, or Section 5.106.5.3.6 Electric vehicle charging stations (EVCS)—Power allocation method and associated Table 5.106.5.3.6 and shall be provided in accordance with regulations in the *California Building Code* and the *California Electrical Code*.

Exceptions:
1. On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:
   a. Where there is no local utility power supply
   b. Where the local utility is unable to supply adequate power.
   c. Where there is evidence suitable to the local enforcement agency substantiating the local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.
2. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with this code section.

5.106.5.3.1 EV capable spaces. [N] EV capable spaces shall be provided in accordance with Table 5.106.5.3.1 and the following requirements:
1. Raceways complying with the California Electrical Code and no less than 1-inch (25 mm) diameter shall be provided and shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the EV capable and into a suitable cabinet, box,enclosure or equivalent. A common raceway may be used to serve multiple EV charging spaces.
2. A service panel or subpanel (s) shall be provided with panel space and electrical load capacity for a dedicated 208/240 volt, 40-ampere minimum branch circuit for each EVCS. capable space, with delivery of 30-ampere minimum to an installed EVSE at each EV capable space.
3. The electrical system and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each EV capable space.
4. The service panel or subpanel circuit directory shall identify the reserved overcurrent protective devices space(s) as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE."

Note: A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by an enforcement agency. See vehicle Code Section 22511.2 for further details.

TABLE 5.106.5.3.1		
TOTAL NUMBER OF ACTUAL PARKING SPACES	**NUMBER OF REQUIRED EV CAPABLE SPACES**	**NUMBER OF EVCS (EV CAPABLE SPACES PROVIDED WITH EVSE)[A,2]**
0-9	0	0
10-25	2	0
26-50	8	2
51-75	13	3
76-100	17	4
101-150	25	6
151-200	35	9
201 AND OVER	20 percent of actual parking spaces[1]	25 percent of EV capable spaces[1]

1. Calculation for spaces shall be rounded up to the nearest whole number.
2. The number of required EVCS (EV capable spaces provided with EVSE) in column 3 count toward the total number of required EV capable spaces shown in column 2.
3. At least one Level 2 EVSE shall be provided.

5.106.5.3.2 Electric vehicle charging stations (EVCS) EV capable spaces shall be provided with electric vehicle supply equipment (EVSE) to create EVCS in the number indicated in Table 5.106.5.3.1. The EVCS required by Table 5.106.5.3.1 shall be provided with Level 2 EVSE or DCFC as permitted in Section 5.106.5.3.2.1. At least one Level 2 EVSE shall be provided.

One EV charger with multiple connectors capable of charging multiple EVs simultaneously shall be permitted if the electrical load capacity required by Section 5.106.5.3.1 for each EV capable space is accumulatively supplied to the EV charger.

The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces without EVSE by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.

5.106.5.3.2.1 The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces without EVSE or EVCS with Level 2 EVSE by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.

5.106.5.3.2.2 The installation of two low power Level 2 EV charging receptacles shall be permitted to reduce the minimum number of required EV capable spaces without EVSE in Table 5.106.5.3.1 by one.

5.106.5.3.3 Use of automatic load management systems (ALMS).
ALMS shall be permitted for EVCS. When ALMS is installed, the required electrical load capacity specified in Section 5.106.5.3.1 for each EVCS may be reduced when serviced by an EVSE controlled by an ALMS. Each EVSE controlled by an ALMS shall deliver a minimum 30 amperes to an EV when charging one vehicle and shall deliver a minimum 3.3 kW while simultaneously charging multiple EVs.

5.106.5.3.4 Accessible EVCS.
When EVSE is installed, accessible EVSC shall be provided in accordance with the *California Building Code*, Chapter 11B, Section 11B-228.3.

Note: For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

5.106.5.3.4 Accessible electric vehicle charging station (EVCS). When EVSE is installed, accessible EVCS shall be provided in accordance with the *California Building Code*, Chapter 11B, Section 11B-228.3.

5.106.5.3.5 Electric vehicle charging station signage. Electric vehicle charging stations shall be identified by signage or pavement markings in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

Power allocation method shall include the following:
1. Use any kVA combination of EV capable spaces, low power Level 2, Level 2 or DCFC EVSEs.
2. At least one Level 2 EVSE shall be provided.

5.106.5.3.6 Electric vehicle charging stations (EVCS)—power allocation method. The power allocation method may be used as an alternative to the requirements in Section 5.106.5.3.1, Section 5.106.5.3.2 and associated Table 5.106.5.3.1. Use Table 5.106.5.3.6 to determine the total power in kVA required based on the total number of actual parking spaces.

TABLE 5.106.5.3.6		
TOTAL NUMBER OF ACTUAL PARKING SPACES	**MINIMUM TOTAL kVA @ 6.6 kVA**	**TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE,3,4 LOW POWER LEVEL 2, LEVEL 2, 1, 2 OR DCFC**
0-9	0	0
10-25	26.4	26.4
26-50	52.8	52.8
51-75	85.8	85.8
76-100	112.2	112.2
101-150	165	165
151-200	231	231
201 AND OVER	20 percent of actual parking spaces x 6.6	Total required kVA = P × 20 × 6.6 Where P = Parking spaces in facility

1. Level 2 EVSE @ 6.6 kVA minimum.
2. At least one Level 2 EVSE shall be provided.
3. Maximum allowed kVA to be utilized for EV capable spaces is 75 percent.
4. If EV capable spaces are utilized, they shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.

Y	N/A	RESPON. PARTY
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5.106.5.4 Additions or alterations to existing buildings or parking facilities [A]. [BSC-CG] Existing buildings or parking facilities being modified by one of the following shall comply with Section 5.106.5.4.1 or 5.106.5.4.2. When EVSE is installed, accessible EVCS shall be provided in accordance with the *California Building Code*, Chapter 11B, Section 11B-228.3.

1. When the scope of construction work includes an increase in power supply to an electric service panel as part of a parking facility addition or alteration.
2. When a new photovoltaic system is installed covering existing parking spaces.
3. When additions or alterations to existing buildings are triggered pursuant to code Section 301.3 and the scope of work includes an increase in power supply to an electric service panel.

Exceptions:
1. On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:
   a. Where there is no local utility power supply.
   b. Where the local utility is unable to supply adequate power.
   c. Where there is evidence suitable to the local enforcement agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.
   d. Where demonstrated as impracticable excluding local utility service or utility infrastructure issues.
2. Remote parking facilities that do not have access to the building service panel.
3. Parking area lighting upgrades where no trenching is part of the scope of work.
4. Emergency repairs, including but not limited to water line break in parking facilities, natural disaster repairs, etc.

5.106.5.4.1 Existing buildings or parking areas without previously installed EV capable infrastructure [A]. When EV capable infrastructure does not exist at an existing parking facility or building, and the parking facility or building undergoes an addition or alteration listed in Section 5.106.5.4, construction shall include electric vehicle charging in compliance with either Section 5.106.5.3 and associated Table 5.106.5.3.1, or Section 5.106.5.3.6 and associated Table 5.106.5.3.6 for the total number of actual parking spaces being added or altered.

5.106.5.4.2 Existing buildings or parking areas with previously installed EV capable infrastructure [A]. When EV capable infrastructure is available at an existing parking facility or building, and the parking facility or building is undergoing an addition or alteration listed in Section 5.106.5.4, construction shall include electric vehicle charging in compliance with either Section 5.106.5.3 and associated Table 5.106.5.3.1, or Section 5.106.5.3.6 and associated Table 5.106.5.3.6 utilizing the existing EV capable allocated power and infrastructure for the total number of actual parking spaces being added or altered. If the area being added or altered exceeds the existing EV capable capacity, allocated power and infrastructure, provide additional EV charging as needed to comply with this section.

Y	N/A	RESPON. PARTY
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5.106.5.5 Electric vehicle (EV) charging: medium-duty and heavy-duty. [N] [BSC-CG] Construction shall comply with Section 5.106.5.5.1 to facilitate future installation of electric vehicle supply equipment (EVSE). Construction for warehouses, grocery stores and retail stores, office buildings, and manufacturing facilities with planned off-street loading spaces shall also comply with Section 5.106.5.5.1 for future installation of medium- and heavy-duty EVSE.

Exceptions:
1. On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:
   a. Where there is no local utility power supply.
   b. Where the local utility is unable to supply adequate power.
   c. Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.

When EVSE(s) is/are installed, it shall be in accordance with the *California Building Code*, the *California Electrical Code* and as follows:

5.106.5.5.1 Electric vehicle charging readiness requirements for warehouses, grocery stores, office buildings, and manufacturing facilities and retail stores with planned off-street loading spaces. [N]

In order to avoid future demolition when adding EV supply and distribution equipment, spare raceway(s) or busway(s) and adequate capacity for transformer(s), service panel(s) or subpanel(s) shall be installed at the time of construction in accordance with the *California Electrical Code*. Construction plans and specifications shall include, but are not limited to, the following:

1. The transformer, main service equipment and subpanels shall meet the minimum power requirement in Table 5.106.5.5.1 to accommodate the dedicated branch circuits for the future installation of EVSE.

2. The construction documents shall indicate one or more location(s) convenient to the planned off-street loading space(s) reserved for medium- and heavy-duty ZEV charging cabinets and charging dispensers, and a pathway reserved for routing of conduit from the termination of the raceway(s) or busway(s) to the charging cabinet(s) and dispenser(s), as shown in Table 5.106.5.5.1.

3. Raceway(s) or busway(s) originating at a main service panel or a subpanel(s) serving the area where potential future medium- and heavy-duty EVSE will be located and shall terminate in close proximity to the potential future location of the charging equipment for medium- and heavy-duty vehicles.

4. The raceway(s) or busway(s) shall be of sufficient size to carry the minimum additional system load to the future location of the charging for medium- and heavy-duty ZEVs as shown in Table 5.106.5.5.1.

TABLE 5.106.5.5.1 RACEWAY CONDUIT AND PANEL POWER REQUIREMENTS FOR MEDIUM- AND HEAVY-DUTY EVSE [N]

BUILDING TYPE	BUILDING SIZE (SQ. FT.)	NUMBER OF OFF-STREET LOADING SPACES	ADDITIONAL CAPACITY REQUIRED (KVA) FOR RACEWAY & BUSWAY AND TRANSFORMER & PANEL
Grocery	10,000 to 90,000	1 or 2	200
		3 or Greater	400
	Greater than 90,000	1 or Greater	400
Manufacturing Facilities	10,000 to 50,000	1 or 2	200
	10,000 to 50,000	3 or Greater	400
	Greater than 50,000	1 or Greater	400
Office Buildings	10,000 to 135,000	1 or 2	200
	10,000 to 135,000	3 or Greater	400
	Greater than 135,000	1 or Greater	400
Retail	10,000 to 135,000	1 or 2	200
		3 or Greater	400
	Greater than 135,000	1 or Greater	400
Warehouse	20,000 to 256,000	1 or 2	200
		3 or Greater	400
	Greater than 256,000	1 or Greater	400

Y	N/A	RESPON. PARTY
☐	☒	

5.106.5.6 Electric vehicle (EV) charging at public schools and community colleges. [DSA-SS] Electric vehicle infrastructure and electric vehicle charging stations shall comply with Section 5.106.5.6 and shall be provided in accordance with regulations in the California Building Code and the California Electrical Code.

Exceptions:
1. On a case-by-case basis where compliance with this section has been demonstrated to be not feasible based upon one of the following conditions,and with concurrence by the Division of the State Architect (DSA), compliance with Section 5.106.5.6 shall not be required.
   a. Where there is no local utility power supply.
   b. Where the local utility is unable to supply adequate power.
   c. The installation of EVCS is impracticable.
2. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with Section 5.106.5.6.

5.106.5.6.1 EV capable spaces. EV capable spaces shall be provided in accordance with Table 5.106.5.6.1 and the following requirements:

1. Raceways complying with the California Electrical Code and no less than 1-inch (25 mm) diameter shall be provided and shall originate at a service panel or a subpanel(s) serving the area and shall terminate in close proximity to the proposed location of the EV capable space and into a suitable listed cabinet, box, enclosure or equivalent. A common raceway may be used to serve multiple EV capable spaces.

2. A service panel or subpanel(s) shall be provided with panel space and electrical load capacity for a dedicated 208/240 volt, 40-ampere minimum branch circuit for each EV capable space, with delivery of 30-ampere minimum to an installed EVSE at each EVCS.

3. The electrical system and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each EV capable space.

4. The service panel or subpanel circuit directory shall identify the reserved overcurrent protective device space(s) as "EV CAPABLE." The raceway termination location shall be permanently and visibly marked as "EV CAPABLE."

TABLE 5.106.5.6.1

TOTAL NUMBER OF ACTUAL PARKING SPACES	NUMBER OF REQUIRED EV CAPABLE SPACES	NUMBER OF REQUIRED EVCS[2]
0-9	0	0
10-25	4	1
26-50	8	2
51-75	13	3
76-100	17	4
101-150	25	6
151-200	35	9
201 AND OVER	20 percent of total spaces[1]	25 percent of EV capable spaces[1]

1. Calculation for spaces shall be rounded up to the nearest whole number.
2. Each EVCS shall reduce the number of required EV capable spaces by the same number.

5.106.5.6.2 Electric vehicle charging stations (EVCS). EV capable spaces shall be provided with EVSE to create EVCS in the number indicated in Table 5.106.5.6.1 and shall comply with Section 5.106.5.6.2. EVCS shall be serviced by Level 2 or Direct Current Fast Charging (DCFC) EVSE, or with EVSE in any combination of Level 2 and DCFC. Accessible EVCS shall be provided in accordance with *California Building Code* Chapter 11B.

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DIV. OF THE STATE ARCHITECT
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DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2200 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

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TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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SHEET TITLE CALGREEN NOTES

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CG-1

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2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 2 (July 2024 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y	N/A	RESPON. PARTY	
			5.106.5.6.2.1 Reduced number of EV capable spaces. The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces indicated in Table 5.106.5.6.1 by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.
			5.106.5.6.2.2 Multiple connectors. EVSE with multiple vehicle connectors capable of charging multiple EVs simultaneously shall be permitted if the electrical load capacity required by Section 5.106.5.6.1 for each EV capable space is accumulatively supplied to the EVSE.
			5.106.5.6.2.3 Use of automatic load management systems (ALMS). ALMS shall be permitted for EVCS installed in accordance with Section 5.105.5.6.2. When ALMS is installed, the required electrical load capacity specified in Section 5.106.5.6.1 for each EVCS may be reduced when serviced by an EVSE controlled by an ALMS. Each EVSE controlled by an ALMS shall deliver a minimum 30 amperes to an EV when charging one vehicle and shall deliver a minimum 3.3 kW while simultaneously charging multiple EVs.
			5.106.5.6.3 EVCS alternative compliance. In lieu of compliance with Section 5.106.5.6.2, EVCS shall be provided with Level 1, low power Level 2, or Level 2, or any combination of Level 1, low power Level 2 or Level 2 EVSE such that the total power supplied by the combination of EVSE meets the minimum power indicated in Table 5.106.5.6.3, based on the total number of actual parking spaces in each parking facility.

TABLE 5.106.5.6.3

NUMBER OF PARKING SPACES IN A PARKING FACILITY	MINIMUM TOTAL POWER (KVA) REQUIRED FOR EVCS
0-9	0
10-25	7
26-50	14
51-75	20
76-100	27
101-150	40
151-200	60
201 AND OVER	Total required KVA = P × .05 × 6.6 Where P = Parking spaces in facility

			5.106.5.6.4 EVCS for alterations of or additions to parking facilities. Alterations of or additions to parking facilities shall provide EVCS in compliance with Section 5.106.5.6.4. The installation of infrastructure for EV capable spaces required to be provided without EVSE shall not be required.
			5.106.5.6.4.1 Alterations of and additions to parking facilities. EVCS shall be provided in accordance with the number indicated in Table 5.106.5.6.1 or minimum power indicated in Table 5.106.5.6.3 when the scope of work includes an increase in power supply to an electric panel serving light fixtures illuminating the parking area or when area containing parking spaces is added to a parking facility. The number of required EVCS shall be based on the total number of existing and new parking spaces in the parking facility.
			5.106.5.6.4.2 Alterations consisting of the installation of photovoltaic systems. EVCS shall be provided in accordance with the number indicated in Table 5.106.5.6.1 or maximum power indicated in Table 5.106.5.6.3 when a new photovoltaic system is installed in an existing parking facility.
			5.106.5.6.5 Requirement to install EVSE. Level 2 EVSE shall be provided in all existing EV capable spaces to create EVCS when a project is required by California Administrative Code Section 4-309 to be submitted for plan approval to the Division of the State Architect. When EVSE is installed in existing EV capable spaces, accessible EVCS shall be provided in accordance with *California Building Code* Chapter 11B.
			Exception: Projects in which improvements in parking areas consist only of accessibility improvements are not required to comply with Section 5.106.5.6.5.
☐	☒		**5.106.8 LIGHT POLLUTION REDUCTION. [N].** I Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the California Energy Code for Lighting Zones 0-4 as defined in Chapter 10, Section 10-114 of the California Administrative Code; and
2. Backlight (B) ratings as defined in IES TM-15-11 (shown in Table A-1 in Chapter 8);
3. Uplight and Glare ratings as defined in California Energy Code (shown in Tables 130.2-A and 130.2-B in Chapter 8) and
4. Allowable BUG ratings not exceeding those shown in Table 5.106.8, [N] or Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

Exceptions: [N]

1. Luminaires that qualify as exceptions in Sections 130.2 (b) and 140.7 of the California Energy Code.
2. Emergency lighting.
3. Building facade meeting the requirements in Table 140.7-B of the California Energy Code, Part 6.
4. Custom lighting features as allowed by the local enforcing agency, as permitted by Section 101.8 Alternate materials, designs and methods of construction.
5. Luminaires with less than 6,200 initial luminaire lumens.

TABLE 5.106.8 [N] MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS 1,2

ALLOWABLE RATING	LIGHTING ZONE LZ0	LIGHTING ZONE LZ1	LIGHTING ZONE LZ2	LIGHTING ZONE LZ3	LIGHTING ZONE LZ4
MAXIMUM ALLOWABLE BACKLIGHT RATING					
Luminaire greater than 2 mounting heights (MH) from property line	N/A	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1-2 MH from property line	N/A	B2	B3	B4	B4
Luminaire back hemisphere is 0.5-1 MH from property line	N/A	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	N/A	B0	B0	B1	B2
MAXIMUM ALLOWABLE UPLIGHT RATING (U)					
For area lighting 3	N/A	U0	U0	U0	U0
For all other outdoor lighting,including decorative luminaires	N/A	U1	U2	U3	UR
MAXIMUM ALLOWABLE GLARE RATING 3 (G)					
MAXIMUM ALLOWABLE GLARE RATING 3 (G)	N/A	G1	G2	G3	G4
MAXIMUM ALLOWABLE GLARE RATING 3 (G)	N/A	G0	G1	G1	G2
MAXIMUM ALLOWABLE GLARE RATING 3 (G)	N/A	G0	G0	G1	G1
MAXIMUM ALLOWABLE GLARE RATING 3 (G)	N/A	G0	G0	G0	G1

1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code*.

2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.

3. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaries located in these areas shall meet *U*-value limits for "all other outdoor lighting"

Y	N/A	RESPON. PARTY	
	☒		**5.106.8.1 Facing- Backlight** Luminaries within 2MH of a property line shall be oriented so that the nearest property line is behind the fixture, and shall comply with the backlight rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point of that property line. **Exception: Corners.** If two property lines (or two segments of the same property line) have equidistant point to the luminaire, then the luminaire may be oriented so that the intersection of the two lines (the corner) is directly behind the luminaire. The luminaire shall still use the distance to the nearest points(s) on the property lines to determine the required backlight rating.
			5.106.8.2 Facing-Glare. For luminaires covered by 5.106.8.1, if a property line also exists within or extends into the front hemisphere within 2MH of the luminaire then the luminaire shall comply with the more stringent glare rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point on the nearest property line within the front hemisphere. **Note: [N]** 1.See also *California Building Code*, Chapter 12, Section 1205.6 for college campus lighting requirements for parking facilities and walkways. 2.Refer to Chapter 8 (Compliance Forms, Worksheets and Reference Material) for IES TM-15-11 Table A-1, *California Energy Code* Tables 130.2-A and 130.2-B. 3. Refer to the *California Building Code* for requirements for additions and alterations.
			5.106.10 GRADING AND PAVING. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following: 1. Swales. 2. Water collection and disposal systems. 3. French drains. 4. Water retention gardens. 5. Other water measures which keep surface water away from buildings and aid in groundwater recharge. **Exception:** Additions and alterations not altering the drainage path.
	☒		**5.106.12 SHADE TREES [DSA-SS].** Shade Trees shall be planted to comply with Sections 5.106.12.1, 5.106.12.2, and 5.106.12.3. Percentages shown shall be measured at noon on the summer solstice. Landscape irrigation necessary to establish and maintain tree health shall comply with Section 5.304.6. **5.106.12.1 Surface parking areas.** Shade tree plantings, minimum #10 container size or equal, shall be installed to provide shade over 50 percent of the parking area within 15 years. **Exceptions:** Surface parking area covered by solar photovoltaic shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5 shall be permitted in whole or in part in lieu of shade tree planting. **5.106.12.2 Landscape areas.** Shade tress plantings, minimum #10 container size or equal shall be installed to provide shade of 20% of the landscape area within 15 years. **Exceptions:** Playfields for organized sport activity are not included in the total area calculation. **5.106.12.3. Hardscape areas.** Shade tree plantings, minimum #10 container size or equal shall be installed to provide shade over 20 percent of the hardscape area within 15 years. **Exceptions:** 1. Walks, hardscape areas covered by solar photovoltaic shade structures or shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5 shall be permitted in whole or in part in lieu of shade tree planting. 2. Designated and marked play areas of organized sport activity are not included in the total area calculation.

DIVISION 5.2 ENERGY EFFICIENCY

SECTION 5.201 GENERAL

5.201.1 Scope [BSC-CG]. *California Energy Code [DSA-SS].* For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.

DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION

SECTION 5.301 GENERAL

5.301.1 Scope. The provisions of this chapter shall establish the means of conserving water use indoors, outdoors and in wastewater conveyance.

SECTION 5.302 DEFINITIONS

5.302.1 Definitions. The following terms are defined in Chapter 2 *(and are included here for reference)*

EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF) [DSA-SS]. An adjustment factor when applied to reference evapotranspiration that adjusts for plant factors and irrigation efficiency, which ae two major influences on the amount of water that needs to be applied to the landscape.

FOOTPRINT AREA [DSA-SS]. The total area of the furthest exterior wall of the structure projected to natural grade, not including exterior areas such as stairs, covered walkways, patios and decks.

METERING FAUCET. A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The volume or cycle duration can be fixed or adjustable.

GRAYWATER. Pursuant to Health and Safety Code Section 17922.12, "graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines and laundry tubs, but does not include waste water from kitchen sinks or dishwashers.

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). The California ordinance regulating landscape design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed landscapes greater than 2500 square feet meet an irrigation water budget developed based on landscaped area and climatological parameters.

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). [HCD] The California model ordinance (California Code of Regulations, Title 23, Division 2, Chapter 2.7), regulating landscape design, installation and maintenance practices. Local agencies are required to adopt the updated MWELO, or adopt a local ordinance at least as effective as the MWELO.

POTABLE WATER. Water that is drinkable and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards. See definition in the California Plumbing Code, Part 5.

POTABLE WATER. [HCD] Water that is satisfactory for drinking, culinary, and domestic purposes, and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards and the requirements of the Health Authority Having Jurisdiction.

RECYCLED WATER. Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur [Water Code Section 13050 (n)]. Simply put, recycled water is water treated to remove waste matter attaining a quality that is suitable to use the water again.

SUBMETER. [HCD 1] A secondary device beyond a meter that measures water consumption of an individual rental unit within a multiunit residential structure or mixed-use residential and commercial structure. (See Civic Code Section 1954.202 (g) and Water code Section 517 for additional details.)

WATER BUDGET. Is the estimated total landscape irrigation water use which shall not exceed the maximum applied water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape Ordinance (MWELO).

SECTION 5.303 INDOOR WATER USE

5.303.1 METERS. Separate submeters or metering devices shall be installed for the uses described in Sections 503.1.1 and 503.1.2.

5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows:

1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gal/day (380 L/day), including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.
2. Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems:
   a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s).
   b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s).
   c. Steam and hot water boilers with energy input more than 500,000 Btu/h (147 kW).

5.303.1.2 Excess consumption. A separate submeter or metering device shall be provided for any tenant within a new building or within an addition that is projected to consume more than 1,000 gal/day.

5.303.3 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

5.303.3.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

5.303.3.2 Urinals.
5.303.3.2.1 Wall-mounted Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush.

5.303.3.2.2 Floor-mounted Urinals. The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush.

5.303.3.3 Showerheads. [BSC-CG]
5.303.3.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

5.303.3.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.
Note: A hand-held shower shall be considered a showerhead.

5.303.3.3 Showerheads. [BSC-CG]
5.303.3.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

5.303.3.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.
Note: A hand-held shower shall be considered a showerhead.

5.303.3.4 Faucets and fountains.
5.303.3.4.1 Nonresidential Lavatory faucets. Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.

5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

5.303.3.4.3 Wash fountains. Wash fountains shall have a maximum flow rate of not more than1.8 gallons per minute/20 [rim space (inches) at 60 psi].

5.303.3.4.4 Metering faucets. Metering faucets shall not deliver more than 0.20 gallons per cycle.

5.303.3.4.5 Metering faucets for wash fountains. Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches) at 60 psi].

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

5.303.3.4.6 Pre-rinse spray value
When installed, shall meet the requirements in the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations). Section 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 (d)(7), and shall be equipped with an integral automatic shutoff.

FOR REFERENCE ONLY: The following table and code section have been reprinted from the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations), Section 1605.1 (h)(4) and Section 1605.3 (h)(4)(A).

TABLE H-2

STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALUES MANUFACTURED ON OR AFTER JANUARY 28, 2019

PRODUCT CLASS [spray force in ounce force (ozf)]	MAXIMUM FLOW RATE (gpm)
Product Class 1 (≤ 5.0 ozf)	1.00
Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)	1.20
Product Class 3 (> 8.0 ozf)	1.28

5.303.4 COMMERCIAL KITCHEN EQUIPMENT.

5.303.4.1 Food Waste Disposers. Disposers shall either modulate the use of water to no more than 1 gpm when the disposer is not in use (not actively grinding food waste/no-load) or shall automatically shut off after no more than 10 minutes of inactivity. Disposers shall use no more than 8 gpm of water.
Note: This code section does not affect local jurisdiction authority to prohibit or require disposer installation.

5.303.5 AREAS OF ADDITION OR ALTERATION. For those occupancies within the authority of the California Building Standards Commission as specified in Section 103, the provisions of Section 5.303.3 and 5.303.4 shall apply to new fixtures in additions or areas of alteration to the building.

5.303.6 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code* and in Chapter 6 of this code.

SECTION 5.304 OUTDOOR WATER USE

5.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

Notes:
1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code of Regulations, Title 23, Chapter 2.7, Division 2.
2. MWELO and supporting documents, including a water budget calculator, are available at: https://www.water.ca.gov/.

5.304.6 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. For public schools and community colleges, landscape projects as described in Sections 5.304.6.1 and 5.304.6.2 shall comply with the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) commencing with Section 490 of Chapter 2.7, Division 2, Title 23, *California Code of Regulations*, except that the evapotranspiration adjustment factor (ETAF) shall be 0.65 with an additional water allowance for special landscape areas (SLA) of of 0.35.

Exception: Any project with an aggregate landscape area of 2,500 square feet or less may comply with the prescriptive measures contained in Appendix D of the MWELO.

5.304.6.1 Newly constructed landscapes. New construction projects with an aggregate landscape area equal to or greater than 500 square feet.

5.304.6.2 Rehabilitated landscapes. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 1,200 square feet.

DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 5.401 GENERAL

5.401.1 SCOPE. The provisions of this chapter specify the requirements of achieving material conservation, resource efficiency, and greenhouse gas (GHG) emission reduction through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, the installation of products with lower GHG emissions and building commissioning or testing and adjusting.

SECTION 5.402 DEFINITIONS

5.402.1 DEFINITIONS. The following terms are defined in Chapter 2 *(and are included here for reference)*

ADJUST. To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.

BALANCE. To proportion flows within the distribution system, including sub-mains, branches and terminals, according to design quantities.

BUILDING COMMISSIONING. A systematic quality assurance process that spans the entire design and construction process, including verifying and documenting that building systems and components are planned, designed, installed, tested, operated and maintained to meet the owner's project requirements.

BUY CLEAN CALIFORNIA ACT (BCCA). The Buy Clean California Act (BCCA) (Public Contract Code Sections 3500-3505) targets carbon emissions associated with the production of structural steel (hot-rolled sections, hollow structural sections, and plate), concrete reinforcing steel, flat glass, and mineral wool board insulation. The maximum acceptable global warming potential (GWP) limits are established by the Department of General Services (DGS), in consultation with the California Air Resources Board (CARB).

CRADLE-TO-GRAVE. Activities associated with a product or building's life cycle from the extraction stage through disposal stage, and covering modules A1 through C4 in accordance with ISO Standards 14025 and 21930.

ORGANIC WASTE. Food waste, green waste, landscape and pruning wste, nonhazardous wood waste, and food soiled paper waste that is mixed in with food waste.

REFERENCE STUDY PERIOD. The period of use for the building, in years, that will be assumed for life cycle assessment.

TEST. A procedure to determine quantitative performance of a system or equipment

TYPE III ENVIRONMENTAL PRODUCT DECLARATION (EPD). A third-party verified report that summarizes how a product impacts the environment. Type III EPDs can be either product-specific, factory-specific, or industry-wide EPDs. See "Cradle-to-Gate."

FACTORY-SPECIFIC EPD. A product-specific Type III EPD in which the environmental impacts can be attributed to a single manufacturer and manufacturing facility.

INDUSTRY-WIDE EPD (IW-EPD). A Type III EPD in which the environmental impacts are an average of the typical manufacturing impacts for a range of products within the same product category for a group of manufacturers.

PRODUCT-SPECIFIC EPD. A Type III EPD in which the environmental impacts can be attributed to a product design and manufacturer across multiple facilities.

SECTION 5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT

5.407.1 WEATHER PROTECTION. Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1402.2 (Weather Protection), manufacturer's installation instructions or local ordinance, whichever is more stringent.

5.407.2 MOISTURE CONTROL. Employ moisture control measures by the following methods.

5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.

5.407.2.2 Entries and openings. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings as follows:

5.407.2.2.1 Exterior door protection. Primary exterior entries shall be covered to prevent water intrusion by using nonabsorbent floor and wall finishes within at least 2 feet around and perpendicular to such openings plus at least one of the following:

1. An installed awning at least 4 feet in depth.
2. The door is protected by a roof overhang at least 4 feet in depth.
3. The door is recessed at least 4 feet.
4. Other methods which provide equivalent protection.

5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane.

SECTION 5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

5.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65% of the non-hazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.

5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan that:

1. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.
2. Determines if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
3. Identifies diversion facilities where construction and demolition waste material collected will be taken.
4. Specifies that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

5.408.1.2 Waste Management Company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.

Note: The owner or contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company.

Exceptions to Sections 5.408.1.1 and 5.408.1.2:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.
3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets.

5.408.1.3 Waste stream reduction alternative. The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65% minimum requirement as approved by the enforcing agency.

5.408.1.4 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Sections 5.408.1.1, through 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

5.408.2 UNIVERSAL WASTE. [A] Additions and alterations to a building or tenant space that meet the scoping provisions in Section 301.3 for nonresidential additions and alterations, shall require verification that Universal Waste items such as fluorescent lamps and ballast and mercury containing thermostats as well as other California prohibited Universal Waste materials are disposed of properly and are diverted from landfills. A list of prohibited Universal Waste materials shall be included in the construction documents.

Note: Refer to the Universal Waste Rule link at: http://www.dtsc.ca.gov/universalwaste/

5.408.3 EXCAVATED SOIL AND LAND CLEARING DEBRIS. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

Exception: Reuse, either on or off-site, of vegetation or soil contaminated by disease or pest infestation.

Notes:

1. If contamination by disease or pest infestation is suspected, contact the County Agricultural Commissioner and follow its direction for recycling or disposal of the material.
2. For a map of know pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. (www.cdfa.ca.gov)

SECTION 5.409 LIFE CYCLE ASSESSMENT

5.409.1 SCOPE. [BSC-CG] Effective July 1, 2024, projects consisting of newly constructed building(s) with a combined floor area of 100,000 square feet or greater shall comply with either Section 5.409.2 or Section 5.409.3. Alteration(s) to existing building(s) where the combined altered floor area is 100,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 100,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3. Effective January 1, 2026, the combined floor area shall be 50,000 square feet or greater.

[DSA-SS] Projects consisting of newly constructed building(s) with a combined floor area of 50,000 square feet or greater shall comply with either Section 5.409.2 or Section 5.409.3. Alteration(s) to existing building(s) where the combined altered floor area is 50,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 50,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3.

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.*

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PRINCIPAL-IN-CHARGE

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PROJECT MANAGER

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5	-	-/-/-	XX
4	-	-/-/-	XX
3	-	-/-/-	XX
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AIA California

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 3 (July 2024 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y	N/A	RESPON. PARTY
☐	☒	

5.409.2 Whole building life cycle assessment. Projects shall conduct a cradle-to-grave whole building life cycle assessment performed in accordance with ISO 14040 and ISO 14044, excluding operating energy, and demonstrating a minimum 10-percent reduction in global warming potential (GWP) as compared to a reference baseline building of similar size, function, complexity, type of construction, material specification, and location that meets the requirements of the California Energy Code currently in effect. Software used to conduct the whole building life cycle assessment, including reference baseline building, shall have a data set compliant with ISO 14044, and ISO 21930 or EN 15804, and the software shall conform to ISO 21931 and/or EN 15978. The software tools and data sets shall be the same for evaluation of both the baseline building and the proposed building.

Notes:
1. Software for calculating whole building life cycle assessment is available for free at Athena Sustainable Materials Institute (https://calculatelca.com/software/impact-estimator/) and OneClick LCA-Planetary (www.oneclicklca.com/planetary). Paid versions include, but are not limited to, Sphera GaBi Solutions (gabi.sphera.com), SimaPro (simapro.com), One-Click LCA (www.oneclicklca.com) and Tally for Revit (apps.autodesk.com).

2. ASTM E2921-22 "Standard Practice for Minimum Criteria for Comparing Whole Building Life Cycle Assessments for Use with Building Codes, Standards, and Rating Systems" may be consulted for the assessment.

3. In addition to the required documentation specified in Section 5.409.2.3, Worksheet WS-9 may be required by the enforcing entity to demonstrate compliance with the requirements.

5.409.2.1 Building components. Building enclosure components included in the assessment shall be limited to glazing assemblies, insulation, and exterior finishes. Primary and secondary structural members included in the assessment shall be limited to footings and foundations, and structural columns, beams, walls, roofs, and floors.

5.409.2.2 Reference study period. The reference study period of the proposed building shall be equal to the reference baseline building and shall be 60 years.

5.409.2.3 Verification of compliance. A summary of the GWP analysis produced by the software and Worksheet WS-4 signed by the design professional of record shall be provided in the construction documents as documentation of compliance. A copy of the whole building life cycle assessment which includes the GWP analysis produced by the software, in addition to maintenance and training information, shall be included in the operation and maintenance manual and shall be provided to the owner at the close of construction. The enforcing agency may require inspection and inspection reports in accordance with Sections 702.2 and 703.1 during and at completion of construction to demonstrate substantial conformance. Inspection shall be performed by the design professional of record or third party acceptable to the enforcing agency.

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5.409.3 Product GWP compliance—prescriptive path. Each product that is permanently installed and listed in Table 5.409.3 shall have a Type III environmental product declaration (EPD), either product-specific or factory-specific.

TABLE 5.409.3
PRODUCT GWP LIMITS

BUY CLEAN CALIFORNIA MATERIALS PRODUCT CATEGORY[1]	MAXIMUM ACCEPTABLE GWP VALUE (unfabricated) ($GWP_{allowed}$)	UNIT OF MEASUREMENT
Hot-rolled structural steel sections	1.77	MT CO_2e/MT
Hollow structural sections	3.00	MT CO_2e/MT
Steel plate	2.61	MT CO_2e/MT
Concrete reinforcing steel	1.56	MT CO_2e/MT
Flat glass	2.50	MT CO_2e/MT [4]
Light-density mineral wool board insulation	5.83	kg CO_2e/MT
Heavy-density mineral wool board insulation	14.28	kg CO_2e/MT
Concrete, Ready-Mixed[2], [3]		
CONCRETE PRODUCT CATEGORY	**MAXIMUM GWP ALLOWED VALUE ($GWP_{allowed}$)**	**UNIT OF MEASUREMENT**
up to 2499 psi	450	kg CO_2e/m^3
2500~3499 psi	489	kg CO_2e/m^3
3500~4499 psi	566	kg CO_2e/m^3
4500~5499 psi	661	kg CO_2e/m^3
5500~6499 psi	701	kg CO_2e/m^3
6500 psi and greater	799	kg CO_2e/m^3
Concrete, Lightweight Ready-Mixed[2]		
CONCRETE PRODUCT CATEGORY	**MAXIMUM GWP ALLOWED VALUE ($GWP_{allowed}$)**	**UNIT OF MEASUREMENT**
up to 2499 psi	875	kg CO_2e/m^3
2500~3499 psi	956	kg CO_2e/m^3
3500~4499 psi	1039	kg CO_2e/m^3

1. The GWP values of the products listed in Table 5.409.3 are based on 175 percent of Buy Clean California Act (BCCA) GWP values, except for concrete products which are not included in the BCCA.
2. For concrete, 175 percent of the National Ready Mixed Concrete Association (NRMCA) 2022 version 3 Pacific Southwest regional benchmark values are used for the GWP allowed, except for High Early Strength.
3. Concrete High Early Strength ready-mixed shall be calculated at 130 percent of the ready-mixed concrete GWP allowed values for each product category.
4. The GWP unit for flat glass has been adjusted to correct an error in the express terms. With the revised unit (MT CO2e/MT), reported GWP values will align with industry data as published in the CLF North American Material Baselines (2023).

5.409.3.1 Products shall not exceed the maximum GWP value specified in Table 5.409.3.

Exception: Concrete may be considered one product category to meet compliance with this section. A weighted average of the maximum GWP for all concrete mixes installed in the project shall be less than the weighted average maximum GWP allowed per Table 5.409.3 using Exception Equation 5.409.3.1. Calculations shall be performed with consistent units of measurement for the material quantity and the GWP value.

For the purposes of this exception, industry-wide EPDs are acceptable.

Exception EQUATION 5.409.3.1

$GWP_x < GWP_{allowed}$
where
$GWP_x = \Sigma\ (GWP_n)(v_n)$
and
$GWP_{allowed} = \Sigma\ (GWP_{allowed})(v_n)$
and
$_n$ = each concrete mix installed in the project
GWP_n = the GWP for concrete mix $_n$ per concrete mix EPD, in kg CO2e/m3
$GWP_{allowed}$ = the GWP potential allowed for concrete mix $_n$ per Table 5.409.3
v_n = the volume of concrete mix $_n$ installed in the project, in m3

Y	N/A	RESPON. PARTY
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5.409.3.2 Verification of compliance. Calculations to demonstrate compliance, Type III EPDs for products required to comply, if included in the project, and Worksheet WS-5 signed by the design professional of record shall be provided on the construction documents. Updated EPDs for products used in construction shall be provided to the owner at the close of construction and to the enforcement entity upon request. The enforcing agency may require inspection and inspection reports in accordance with Sections 702.2 and 703.1 during and at completion of construction to demonstrate substantial conformance. Inspection shall be performed by the design professional of record or third party acceptable to the enforcing agency.

SECTION 5.410 BUILDING MAINTENANCE AND OPERATIONS

5.410.1 RECYCLING BY OCCUPANTS. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive.

Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code 42649.82 (a)(2)(A) et seq. shall also be exempt from the organic waste portion of this section.

5.410.1.1 Additions. All additions conducted within a 12-month period under single or multiple permits, resulting in an increase of 30% or more in floor area, shall provide recycling areas on site.

Exception: Additions within a tenant space resulting in less than a 30% increase in the tenant space floor area.

5.410.1.2 Sample ordinance. Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the *Public Resources Code*. Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act).

Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the CalRecycle's web site.

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5.410.2 COMMISSIONING. [N] New buildings 10,000 square feet and over. For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. For I-occupancies that are not regulated by OSHPD or for I-occupancies and L-occupancies that are not regulated y the California Energy Code Section 100.0 Scope, all requirements in Sections 5.410.2 through 5.410.2.6 shall apply.

Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting systems and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements

Commissioning requirements shall include:

1. Owner's or Owner representative's project requirements.
2. Basis of design.
3. Commissioning measures shown in the construction documents.
4. Commissioning plan.
5. Functional performance testing.
6. Documentation and training.
7. Commissioning report.

Exceptions:

1. Unconditioned warehouses of any size.
2. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses.
3. Tenant improvements less than 10,000 square feet as described in Section 303.1.1.
4. Open parking garages of any size, or open parking garage areas, of any size, within a structure.

Note: For the purposes of this section, unconditioned shall mean a building, area or room which does not provide heating and/or air conditioning.

Informational Notes:

1. . Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the *California Energy Code*.

5.410.2.1 Owner's or Owner Representative's Project Requirements (OPR). [N] The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. This documentation shall include the following:
1. Environmental and sustainability goals.
2. Building sustainable goals.
3. Indoor environmental quality requirements.
4. Project program, including facility functions and hours of operation, and need for after hours operation.
5. Equipment, and systems expectations.
6. Building occupant and operation and maintenance (O&M) personnel expectations.

5.410.2.2 Basis of Design (BOD). [N] A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project. The Basis of Design document shall cover the following systems:

1. Renewable energy systems.
2. Landscape irrigation systems.
3. Water reuse system.

5.410.2.3 Commissioning plan. [N] Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned. The commissioning plan shall include the following:
1. General project information.
2. Commissioning goals.
3. Systems to be commissioned. Plans to test systems and components shall include:
   a. An explanation of the original design intent.
   b. Equipment and systems to be tested, including the extent of tests.
   c. Functions to be tested.
   d. Conditions under which the test shall be performed.
   e. Measurable criteria for acceptable performance.
4. Commissioning team information.
5. Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning shall be included.

5.410.2.4 Functional performance testing. [N] Functional performance tests shall demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.

5.410.2.5 Documentation and training. [N] A Systems Manual and Systems Operations Training are required, including Occupational Safety and Health Act (OSHA) requirements in *California Code of Regulations* (CCR), Title 8, Section 5142, and other related regulations.

5.410.2.5.1 Systems manual. [N] Documentation of the operational aspects of the building shall be completed within the systems manual and delivered to the building owner or representative. The systems manual shall include the following:
1. Site information, including facility description, history and current requirements.
2. Site contact information.
3. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log.
4. Major systems.
5. Site equipment inventory and maintenance notes.
6. A copy of verifications required by the enforcing agency or this code.
7. Other resources and documentation, if applicable.

5.410.2.5.2 Systems operations training. [N] A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and documented in the commissioning report and shall include the following:
1. System/equipment overview (what it is, what it does and with what other systems and/or equipment it interfaces).
2. Review and demonstration of servicing/preventive maintenance.
3. Review of the information in the Systems Manual.
4. Review of the record drawings on the system/equipment.

5.410.2.6 Commissioning report. [N] A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative.

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5.410.4 TESTING AND ADJUSTING. New buildings less than 10,000 square feet. Testing and adjusting of systems shall be required for new buildings less than 10,000 square feet or new systems to serve an addition or alteration subject to Section 303.1.

Y	N/A	RESPON. PARTY

5.410.4.2 (Reserved)

Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting system and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements and Sections 120.5, 120.6, 130.4, and 140.9(b)3 for additional testing requirements of specific systems.

5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project:

1. Renewable energy systems.
2. Landscape irrigation systems.
3. Water reuse systems.

5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable standards on each system.

5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, the system shall be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards; the National Environmental Balancing Bureau Procedural Standards; Associated Air Balance Council National Standards or as approved by the enforcing agency.

5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.

5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.

5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.

DIVISION 5.5 ENVIRONMENTAL QUALITY

SECTION 5.501 GENERAL

5.501.1 SCOPE. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors.

SECTION 5.502 DEFINITIONS

5.502.1 DEFINITIONS. The following terms are defined in Chapter 2 *(and are included here for reference)*

ARTERIAL HIGHWAY. A general term denoting a highway primarily for through traffic usually on a continuous route.

A-WEIGHTED SOUND LEVEL (dBA). The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made.

1 BTU/HOUR. British thermal units per hour, also referred to as Btu. The amount of heat required to raise one pound of water one degree Fahrenheit per hour, a common measure of heat transfer rate. A ton of refrigeration is 12,000 Btu, the amount of heat required to melt a ton (2,000 pounds) of ice at 32^0 Fahrenheit.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). A metric similar to the day-night average sound level (Ldn), except that a 5 decibel adjustment is added to the equivalent continuous sound exposure level for evening hours (7pm to 10pm) in addition to the 10 dB nighttime adjustment used in the Ldn.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, timber, prefabricated wood I–joists or finger–jointed lumber, all as specified in California Code of Regulations (CCR), Title 17, Section 93120.1(a).

Note: See CCR, Title 17, Section 93120.1.

DAY-NIGHT AVERAGE SOUND LEVEL (Ldn). The A-weighted equivalent continuous sound exposure level for a 24-hour period with a 10 dB adjustment added to sound levels occurring during nighttime hours (10p.m. to 7 a.m.).

DECIBEL (db). A measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.

ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the *California Electrical Code*, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.

ELECTRIC VEHICLE CHARGING STATION(S) (EVCS)). One or more spaces intended for charging electric vehicles.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

ENERGY EQUIVALENT (NOISE) LEVEL (Leq). The level of a steady noise which would have the same energy as the fluctuating noise level integrated over the time of period of interest.

EXPRESSWAY. An arterial highway for through traffic which may have partial control of access, but which may or may not be divided or have grade separations at intersections.

FREEWAY. A divided arterial highway with full control of access and with grade separations at intersections.

GLOBAL WARMING POTENTIAL (GWP). The radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time. Carbon dioxide is the reference compound with a GWP of one.

GLOBAL WARMING POTENTIAL VALUE (GWP VALUE). A 100-year GWP value published by the Intergovernmental Panel on Climate Change (IPCC) in either its Second Assessment Report (SAR) (IPCC, 1995); or its Fourth Assessment A-3 Report (AR4) (IPCC, 2007). The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14.; the AR4 GWP values are found in column "100 yr" of Table 2.14.

HIGH-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that is: (a) a chlorofluorocarbon, a hdrochlorofluorocarbon, a hydrofluorocarbon, a perfluorocarbon, or any compound or blend of compounds, with a GWP value equal to or greater than 150, or (B) any ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009)**.**

LONG RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.5 times the pipe diameter.

LOW-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that: (A) has a GWP value less than 150, and (B) is not an ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009).

MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2–1999.

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base REactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundreths of a gram (g O^3/g ROC).

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

PSIG. Pounds per square inch, guage.

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

SCHRADER ACCESS VALVES. Access fittings with a valve core installed.

SHORT RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.0 times the pipe diameter.

SUPERMARKET. For the purposes of Section 5.508.2, a supermarket is any retail food facility with 8,000 square feet or more conditioned area, and that utilizes either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units.

VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

Y	N/A	RESPON. PARTY
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☐	☒	
☐	☒	
☒	☐	ARCH

SECTION 5.503 FIREPLACES

5.503.1 FIREPLACES. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove or pellet stove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances.

5.503.1.1 Woodstoves. Woodstoves and pellet stoves shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits.

SECTION 5.504 POLLUTANT CONTROL

5.504.1 TEMPORARY VENTILATION. The permanent HVAC system shall only be used during construction if necessary to condition the building or areas of addition or alteration within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992 Replace all filters immediately prior to occupancy, or, if the building is occupied during alteration, at the conclusion of construction.

5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation and during storage on the construction site until final startup of the heating, cooling and ventilation equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.

5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6.

5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:
1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified in subsection 2, below.

2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with Section 94507.

TABLE 5.504.4.1 - ADHESIVE VOC LIMIT[1,2]
Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVES	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT SPECIFICALLY LISTED	50
SPECIALTY APPLICATIONS	
PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP & TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.

2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168, www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF

TABLE 5.504.4.2 - SEALANT VOC LIMIT
Less Water and Less Exempt Compounds in Grams per Liter

SEALANTS	CURRENT VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
NONPOROUS	250
POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

NOTE: FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THESE TABLES, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.*

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2255 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUERDA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-in-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECTS STAMP & SIGNATURE

REGISTERED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Exp. 06/30/2025
STATE OF CALIFORNIA

ENGINEERS STAMP & SIGNATURE

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REVISION DESCRIPTION DATE BY
DRAWN PP
CHECKED TJ
DATE 10/11/2024
JOB. NO. 23052
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE CALGREEN NOTES

SHEET
CG-3

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 4 (July 2024 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

5.504.4.3.1 Aerosol Paints and coatings. Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

TABLE 5.504.4.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3]

GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS

COATING CATEGORY	CURRENT VOC LIMIT
FLAT COATINGS	50
NONFLAT COATINGS	100
NONFLAT HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH-TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS[1]	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS:	
CLEAR	730
OPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS
2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.
3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

5.504.4.3.2 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:
1. Manufacturer's product specification
2. Field verification of on-site product containers

5.504.4.4 Carpet Systems.
All carpet installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers." Version 1.2, January 2017 (Emission testing method for California Specifications 01350).

See California Department of Public Health's website for certification programs and testing labs.
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the California Department of Public Health,"Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers,"Version 1.2, January 2017 (Emission testing method for California Specifications 01350).

See California Department of Public Health's website for certification programs and testing labs.
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 5.504.4.1.

5.504.4.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure (ATCM) for Composite Wood (17 CCR 93120 et seq.). Those materials not exempted under the ATCM must meet the specified emission limits, as shown in Table 5.504.4.5.

5.504.4.5.3 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:
1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269 or European 636 3S standards.
5. Other methods acceptable to the enforcing agency.

TABLE 5.504.4.5 - FORMALDEHYDE LIMITS[1]

MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD[2]	0.13

1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIFORNIA CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.
2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16 INCHES (8 MM).

5.504.4.6 Resilient flooring systems. Where resilient flooring is installed, at least 80 percent of floor area receiving resilient flooring shall meet the requirements of the California Department of Public Health,"Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specifications 01350)

See California Department of Public Health's website for certification programs and testing labs.
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.

5.504.4.7 Thermal insulation
Comply with the requirements of the California Department of Public Health, "Standard Method of the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, "Version 1.2, January 1.2, January 2017 (Emission testing method for California Specification 01350).
See California Department of Public Health's website for certification programs and testing labs.
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.7.1 Verification of compliance.
Documentation shall be provided verifying that thermal insulation materials meet the pollutant emission limits.

5.504.4.8 Acoustical ceiling and wall panels.
Comply with the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, " Version 1.2, January 2017 (Emission testing method for California Specification 01350).
See California Department of Public Health's website for certification programs and testing labs.

5.504.4.8.1 Verification of compliance. Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits.

5.504.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air that provides at least a Minimum Efficiency Reporting Value (MERV) of 13. MERV 13 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.

Exceptions: Existing mechanical equipment.

5.504.5.3.1 Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.

Y	N/A	RESPON. PARTY	
☐	☒		**5.504.7 ENVIRONMENTAL TOBACCO SMOKE (ETS) CONTROL.** Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and within the building as already prohibited by other laws or regulations; or as enforced by ordinances, regulations or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations or policies are not in place, post signage to inform building occupants of the prohibitions.

SECTION 5.505 INDOOR MOISTURE CONTROL

5.505.1 INDOOR MOISTURE CONTROL. Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1202 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures, see Section 5.407.2 of this code.

SECTION 5.506 INDOOR AIR QUALITY

Y	N/A	RESPON. PARTY	
☒	☐	M.E.	**5.506.1 OUTSIDE AIR DELIVERY.** For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 (Requirements For Ventilation) of the *California Energy Code*, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.
☒	☐	M.E.	**5.506.2 CARBON DIOXIDE (CO_2) MONITORING.** For buildings or additions equipped with demand control ventilation, CO_2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the California Energy Code, Section 120(c)(4).
☒	☐	M.E.	**5.506.3 Carbon dioxide (CO2) monitoring in classrooms.** **(DSA-SS)** Each public K-12 school classroom, as listed in Table 120.1-A of the *California Energy Code*, shall be equipped with a carbon dioxide monitor or sensor that meets the following requirements: 1. The monitor or sensor shall be permanently affixed in a tamper-proof manner in each classroom between 3 and 6 feet (914 mm and 1829 mm) above the floor and at least 5 feet (1524 mm) away from door and operable windows. 2. When the monitor or sensor is not integral to an Energy Management Control System (EMCS), the monitor or sensor shall display the carbon dioxide readings on the device. When the sensor is integral to an EMCS, the carbon dioxide readings shall be available to and regularly monitored by facility personnel. 3. A monitor shall provide notification though a visual indicator on the monitor when the carbon dioxide levels in the classroom have exceeded 1,100ppm. A sensor integral to an EMCS shall provide notification to facility personnel through a visual and/or audible indicator when the carbon dioxide levels in the classroom have exceeded 1,100ppm. 4. The monitor or sensor shall measure carbon dioxide levels at minimum 15- minute intervals and shall maintain a record of previous carbon dioxide measurements of not less than 30 days duration. 5. The monitor or sensor used to measure carbon dioxide levels shall have the capacity to measure carbon dioxide levels with a range of 400ppm to 2000ppm or greater. 6. The monitor or sensor shall be certified by the manufacturer to be accurate within 75ppm at 1,000ppm carbon dioxide concentration and shall be certified by the manufacturer to require calibration no more frequently than once every 5 years.

SECTION 5.507 ENVIRONMENTAL COMFORT

5.507.4 ACOUSTICAL CONTROL. Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E 90 and ASTM E 413, or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E 1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

Exception: Buildings with few or no occupants or where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

Exception: [DSA-SS] For public schools and community colleges, the requirements of this section and all subsections apply only to new construction.

5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. Within the 65 CNEL noise contour of an airport.

   Exceptions:

   1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
   2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.

2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.

5.507.4.1.1. Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB L_{eq}-1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.507.4.2 Performance Method. For buildings located as defined in Section 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (Leq-1Hr) of 50 dBA in occupied areas during any hour of operation.

5.507.4.2.1 Site Features. Exterior features such as sound walls or earth berms may be utilized as appropriate to the building, addition or alteration project to mitigate sound migration to the interior.

5.507.4.2.2 Documentation of Compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

Note: Examples of assemblies and their various STC ratings may be found at the California Office of Noise Control: www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf.

SECTION 5.508 OUTDOOR AIR QUALITY

Y	N/A	RESPON. PARTY	
☒	☐	M.E.	**5.508.1 Ozone depletion and greenhouse gas reductions.** Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.

5.508.1.1 Chlorofluorocarbons (CFCs). Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.

5.508.1.2 Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain Halons.

Y	N/A	RESPON. PARTY	
☐	☒		**5.508.2 Supermarket refrigerant leak reduction.** New commercial refrigeration systems shall comply with the provisions of this section when installed in retail food stores 8,000 square feet or more conditioned area, and that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units. The leak reduction measures apply to refrigeration systems containing high-global-warming potential (high-GWP) refrigerants with a GWP of 150 or greater. New refrigeration systems include both new facilities and the replacement of existing refrigeration systems in existing facilities.

Exception: Refrigeration systems containing low-global warming potential (low-GWP) refrigerant with a GWP value less than 150 are not subject to this section. Low-GWP refrigerants are nonozone-depleting refrigerants that include ammonia, carbon dioxide (CO_2), and potentially other refrigerants.

5.508.2.1 Refrigerant piping. Piping compliant with the California Mechanical Code shall be installed to be accessible for leak protection and repairs. Piping runs using threaded pipe, copper tubing with an outside diameter (OD) less than 1/4 inch, flared tubing connections and short radius elbows shall not be used in refrigerant systems except as noted below.

5.508.2.1.1 Threaded pipe. Threaded connections are permitted at the compressor rack.

5.508.2.1.2 Copper pipe. Copper tubing with an OD less than 1/4 inch may be used in systems with a refrigerant charge of 5 pounds or less.

5.508.2.1.2.1 Anchorage. One-fouth-inch OD tubing shall be securely clamped to a rigid base to keep vibration levels below 8 mils.

5.508.2.1.3 Flared tubing connections. Double-flared tubing connections may be used for pressure controls, valve pilot lines and oil.

Exception: Single-flared tubing connections may be used with a multiring seal coated with industrial sealant suitable for use with refrigerants and tightened in accordance with manufacturer's recommendations.

5.508.2.1.4 Elbows. Short radius elbows are only permitted where space limitations prohibit use of long radius elbows.

5.508.2.2 Valves. Valves Valves and fittings shall comply with the *California Mechanical Code* and as follows.

5.508.2.2.1 Pressure relief valves. For vessels containing high-GWP refrigerant, a rupture disc shall be installed between the outlet of the vessel and the inlet of the pressure relief valve.

5.508.2.2.1.1 Pressure detection. A pressure gauge, pressure transducer or other device shall be installed in the space between the rupture disc and the relief valve inlet to indicate a disc rupture or discharge of the relief valve.

5.508.2.2.2 Access valves. Only Schrader access valves with a brass or steel body are permitted for use.

5.508.2.2.2.1 Valve caps. For systems with a refrigerant charge of 5 pounds or more, valve caps shall be brass or steel and not plastic.

5.508.2.2.2.2 Seal caps. If designed for it, the cap shall have a neoprene O-ring in place.

5.508.2.2.2.2.1 Chain tethers. Chain tethers to fit ovr the stem are required for valves designed to have seal caps.

Exception: Valves with seal caps that are not removed from the valve during stem operation.

5.508.2.3 Refrigerated service cases. Refrigerated service cases holding food products containing vinegar and salt shall have evaporator coils of corrosion-resistant material, such as stainless steel; or be coated to prevent corrosion from these substances.

5.508.2.3.1 Coil coating. Consideration shall be given to the heat transfer efficiency of coil coating to maximize energy efficiency.

5.508.2.4 Refrigerant receivers. Refrigerant receivers with capacities greater than 200 pounds shall be fitted with a device tha indicates the level of refrigerant in the receiver.

5.508.2.5 Pressure testing. The system shall be pressure tested during installation prior to evacuation and charging.

5.508.2.5.1 Minimum pressure. The system shall be charged with regulated dry nitrogen and appropriate tracer gas to bring system pressure up to 300 psig minimum.

5.508.2.5.2 Leaks. Check the system for leaks, repair any leaks, and retest for pressure using the same gauge.

5.508.2.5.3 Allowable pressure change. The system shall stand, unaltered, for 24 hours with no more than a +/- one pound pressure change from 300 psig, measured with the same gauge.

5.508.2.6 Evacuation. The system shall be evacuated after pressure testing and prior to charging.

5.508.2.6.1 First vacuum. Pull a system vacuum down to at least 1000 microns (+/- 50 microns), and hold for 30 minutes.

5.508.2.6.2 Second vacuum. Pull a second system vacuum to a minimum of 500 microns and hold for 30 minutes.

5.508.2.6.3 Third vacuum. Pull a third vacuum down to a minimum of 300 microns, and hold for 24 hours with a maximum drift of 100 microns over a 24-hour period.

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

1. State certified apprenticeship programs.
2. Public utility training programs.
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
4. Programs sponsored by manufacturing organizations.
5. Other programs acceptable to the enforcing agency.

702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:

1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the enforcing agency.

Notes:

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC-CG] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS

703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.*

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2255 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

KBZ
KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
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TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECTS STAMP & SIGNATURE

LICENSED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Ren. 08/30/2025
STATE OF CALIFORNIA

ENGINEERS STAMP & SIGNATURE

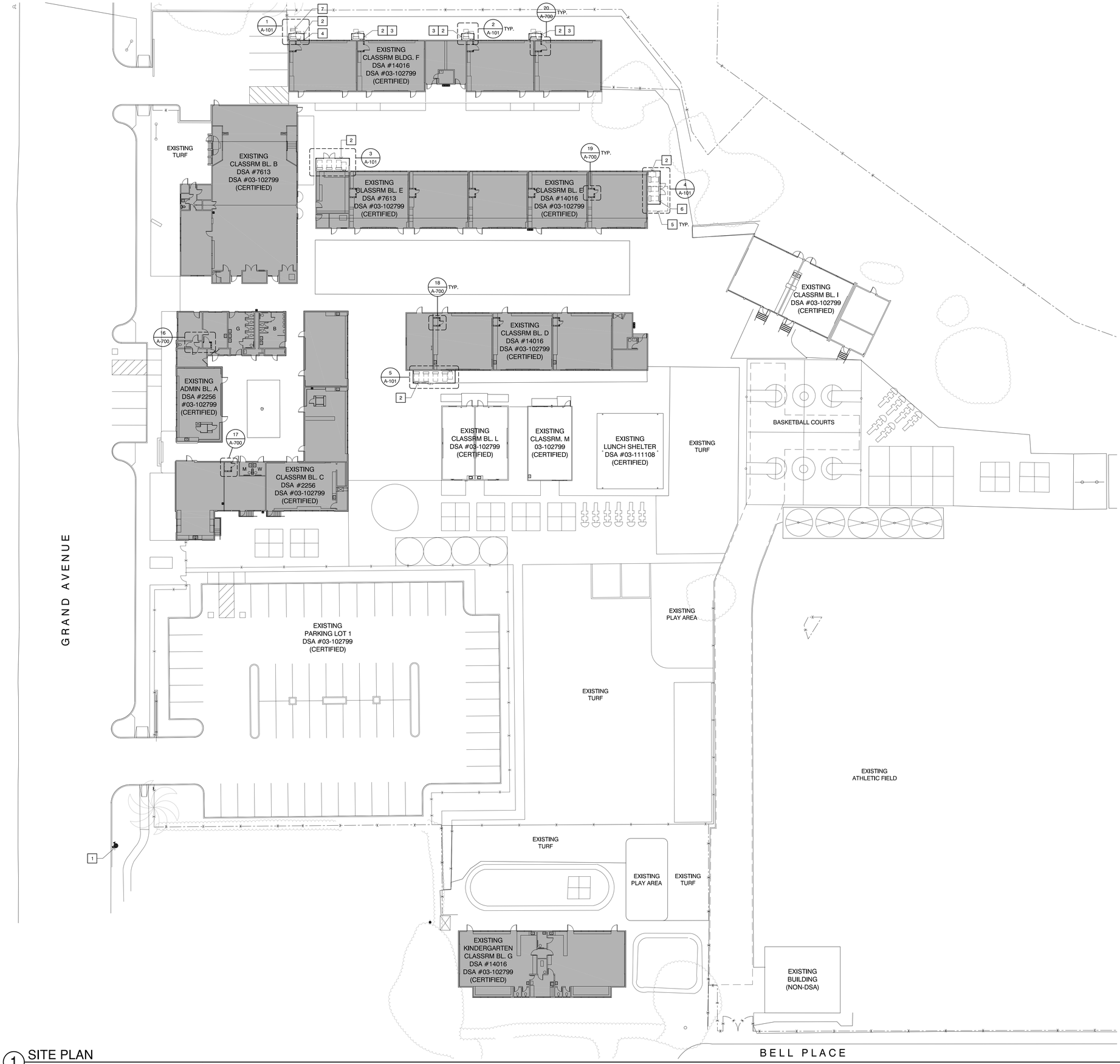
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REVISION	DESCRIPTION	DATE	BY
DRAWN	PP		
CHECKED	TJ		
DATE	10/11/2024		
JOB. NO.	23053		

DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: CALGREEN NOTES

SHEET
CG-4



1 SITE PLAN
SCALE : 1" = 20'-0"

NORTH

SITE PLAN KEYNOTES

1. (E) FIRE HYDRANT
2. (N) GROUND-MOUNTED EQUIPMENT PAD w/ FENCE & GATE
3. CENTER EQUIPMENT PAD & FENCE ALONG (E) SOLID WALL
4. CENTER (N) FENCE ALONG CENTERLINE OF (E) WINDOW MULLION
5. SCHOOL DISTRICT SHALL REMOVE & RELOCATE (E) STORAGE SHEDS
6. (N) TRENCH DRAIN
7. (N) ELECTRICAL UNDERGROUND BOX - LOCATE MECH. PAD AWAY FROMTHIS U.G. BOX

SITE PLAN LEGEND

- EXISTING BUILDINGS NOT PART OF SCOPE OF WORK
- EXISTING BUILDINGS IN THE SCOPE OF WORK
- EXISTING RELOCATABLES TO RECEIVE NEW T-STATS

FIRE DEPARTMENT ACCESS

EXISTING FIRE TRUCK ACCESS ROUTE
(PER DSA A#03-111108 CERTIFIED)
20'-0" WIDE ; 13'-6" CLEAR HEIGHT
FIRE DEPARTMENT: COUNTY OF VENTURA FIRE DEPARTMENT

CALGREEN CODE COMPLIANCE

THERE IS NO NEW SQUARE FOOTAGE OR REMODEL IN THE SCOPE OF WORK HENCE THIS PROJECT IS EXEMPT FROM CALGREEN CODE REQUIREMENTS.

AFSS ANALYSIS
CALIFORNIA EXISTING BLDG CODE

THE SCOPE OF WORK IS LIMITED TO HVAC REPLACEMENT WHEREIN MOST OF THE NEW MECHANICAL UNITS ARE TO BE LOCATED OUTSIDE THE BUILDINGS ON CONCRETE PADS AS SHOWN ON THE PLANS. THERE ARE SOME WALL AND CEILING PATCH WORK AS REQUIRED TO INSTALL THE NEW MECHANICAL UNITS BUT IT IS VERY MINIMAL. THE FRAMING WORK IS LIMITED TO SUPPORT THE NEW ROOFTOP UNITS BUT THIS WILL NOT COMPROMISE THE EXISTING STRUCTURAL FRAMING AS SHOWN ON THE STRUCTURAL PLANS AND CALCULATIONS. ALL EXISTING BUILDINGS ARE WOOD FRAMING, AND NO MASONRY CONSTRUCTION.

PER CALIFORNIA EXISTING BUILDING CODE, THERE IS NO AUTOMATIC FIRE SPRINKLER SYSTEM REQUIRED DUE TO THE LIMITED SCOPE ABOVE, AND THE FOLLOWING:

1. NO NEW SQUARE FOOTAGE IN THE SCOPE OF WORK.
2. NO CHANGE TO THE EXISTING BUILDING USE, HEIGHTS, CLASSIFICATIONS AND OCCUPANCY.
3. NO CHANGES TO THE EXISTING STRUCTURAL SHEAR WALLS.

DEMOLITION NOTE

NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY THE DIVISION OF THE STATE ARCHITECT.

FIRE ALARM & FIRE SPRINKLER NOTE

ALL AREAS UNDERGOING THE DEMOLITION AND CONSTRUCTION OF THE HVAC REPLACEMENT IF AFFECTS THE DESIGN OF THE EXISTING FIRE ALARM SYSTEM AND FIRE SPRINKLER SYSTEMS SHALL BE REQUIRED TO REINSTALL/ REPLACE TO MEET CURRENT CODE REQUIREMENTS. IF ADDITIONAL DEVICES ARE ADDED TO THOSE AREAS AS NEEDED SHALL MAINTAIN THE COMPLIANCE WITH ADOPTED STANDARDS.

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MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUERA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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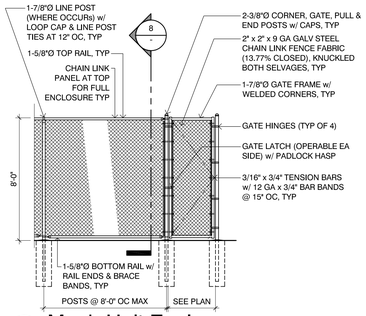
TODD A. JESPERSEN
No. C-25839
Ren. 06/30/2025
STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE

REVISION	DESCRIPTION	DATE	BY
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4	-	-/-/-	XX
3	-	-/-/-	XX
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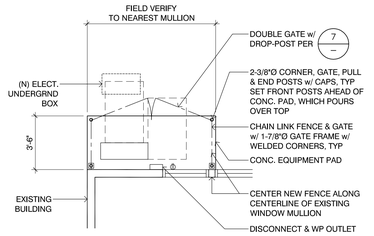
DRAWN PP
CHECKED JW
DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE OVERALL SITE PLAN

SHEET
A-100



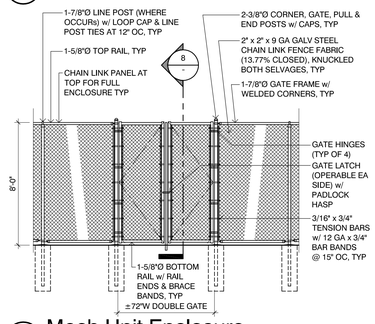
6 Mech Unit Enclosure

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



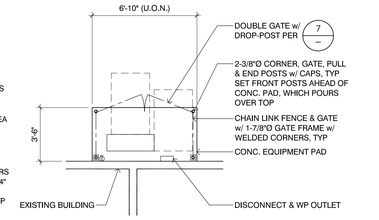
1 HVAC Pad/Encl-Single Unit (Wdw)

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



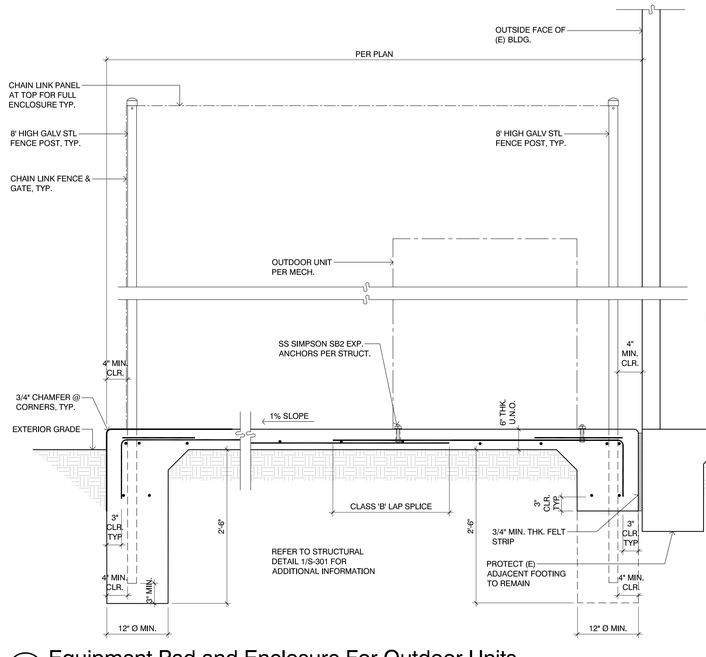
7 Mech Unit Enclosure

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



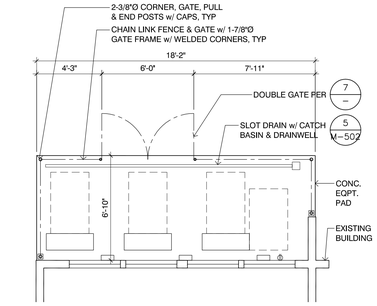
2 HVAC Pad/Encl-Single Unit (Wall)

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



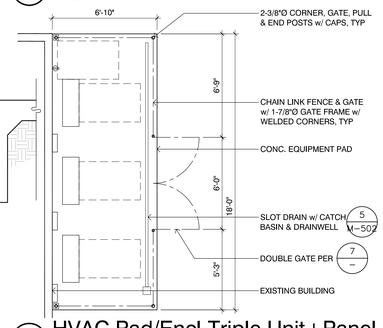
8 Equipment Pad and Enclosure For Outdoor Units

SCALE: 1" = 1'-0"



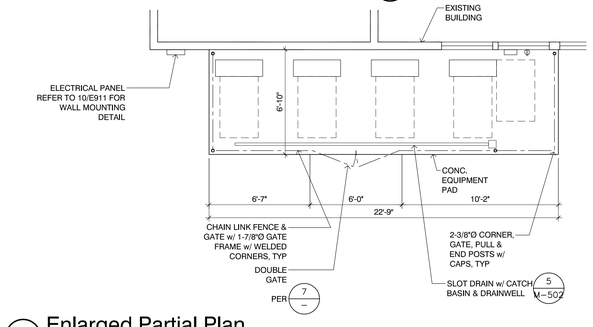
3 HVAC Pad/Encl-Triple Unit

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



4 HVAC Pad/Encl-Triple Unit+Panel

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



5 Enlarged Partial Plan

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

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

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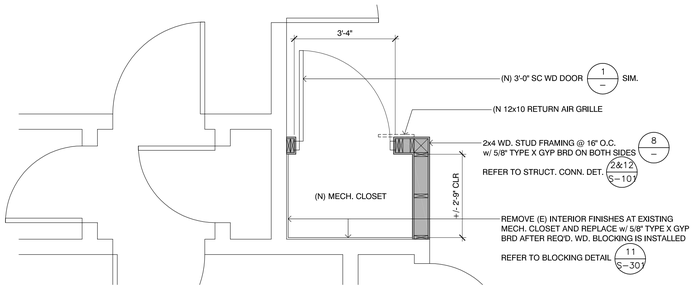
ENGINEERS STAMP & SIGNATURE

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4	-	-/-/-	XX
3	-	-/-/-	XX
2	-	-/-/-	XX
1	-	-/-/-	XX

REVISION	DESCRIPTION	DATE	BY
DRAWN	PP		
CHECKED	TJ		
DATE	10/11/2024		
JOB. NO.	23053		
DSA A03-124514 FILE:56-40 PTN:72652-125			
SHEET TITLE	SITE DETAILS		

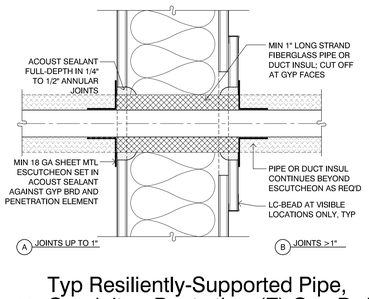
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A-101



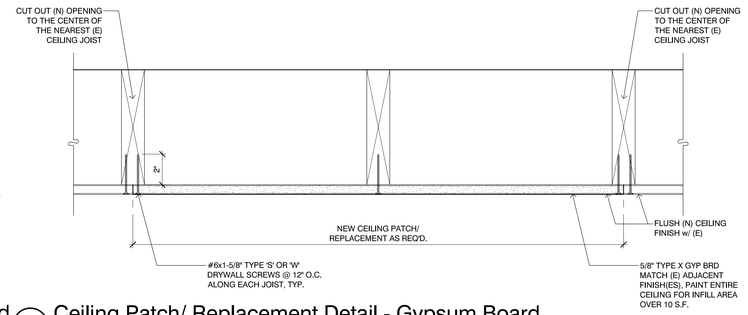
16 New Mechanical Closet at Bldg. A

SCALE: 1/2"= 1'-0"



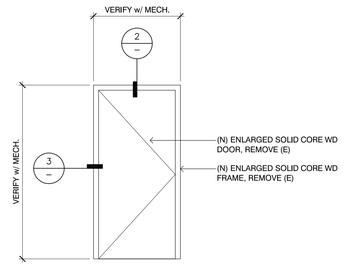
11 Typ Resiliently-Supported Pipe, Conduit or Ducts thru (E) Gyp Brd

SCALE: 3" = 1'-0"



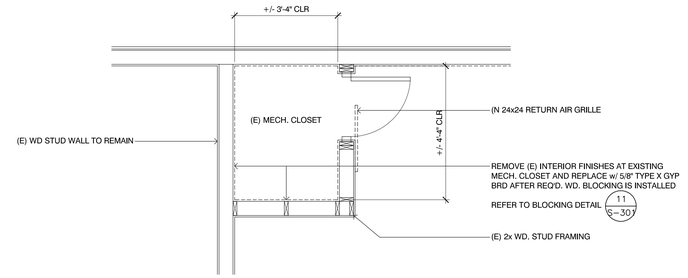
6a Ceiling Patch/ Replacement Detail - Gypsum Board

SCALE: 3" = 1'-0"



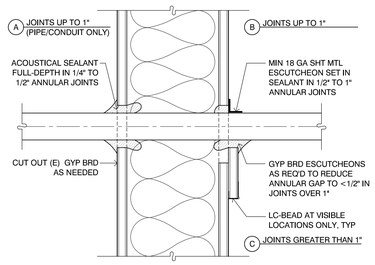
1 Enlarged Door @ Mech Closets

SCALE: 1/2"= 1'-0"



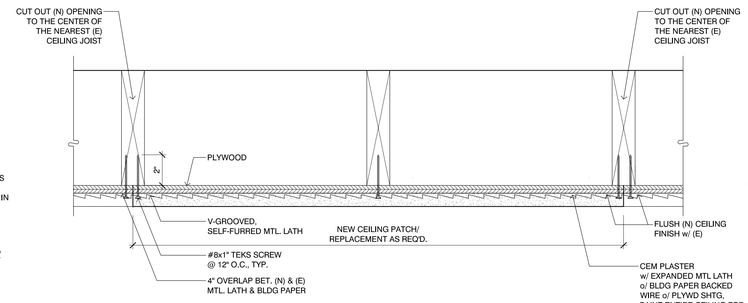
17 Mech Closet Modification at Bldg. C

SCALE: 1/2"= 1'-0"



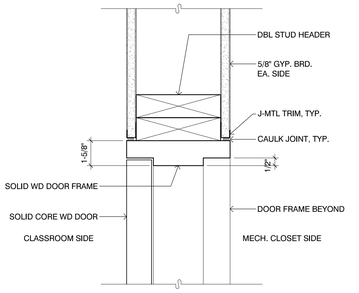
12 Typ Rigidly-Supported Pipe, Conduits/Ducts thru (E) Gyp Brd

SCALE: 3" = 1'-0"



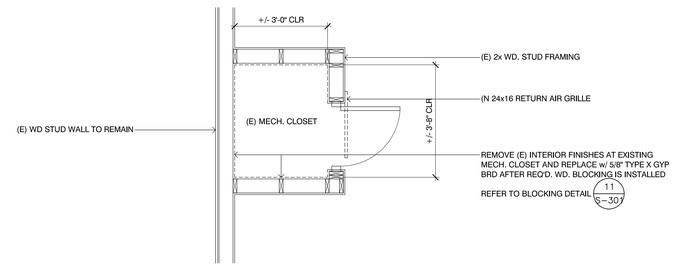
6b Ceiling Patch/ Replacement Detail - Cement Plaster

SCALE: 3" = 1'-0"



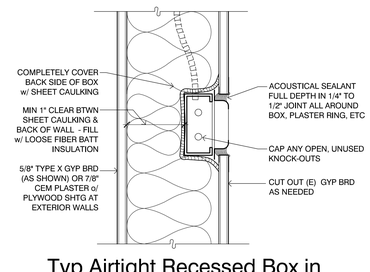
2 Door Head @ Mech Closet

SCALE: 3"= 1'-0"



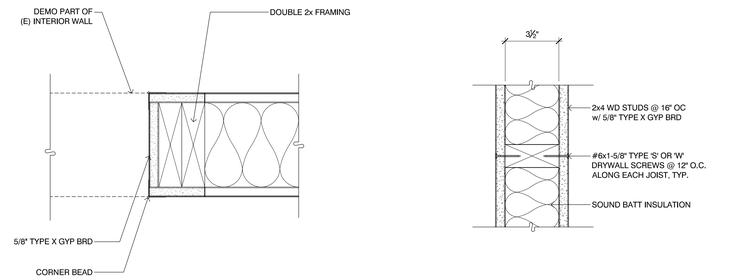
18 Typ. Mech Closet Modification at Bldg. D

SCALE: 1/2"= 1'-0"



13 Typ Airtight Recessed Box in (E) Gyp Brd (Box 4" x 8" or Under)

SCALE: 3" = 1'-0"

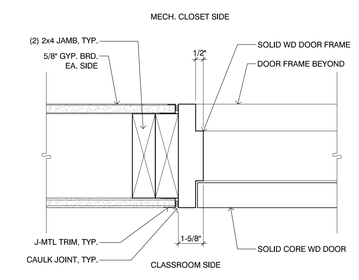


7 Wall Detail @ Enlarged Opening

SCALE: 3" = 1'-0"

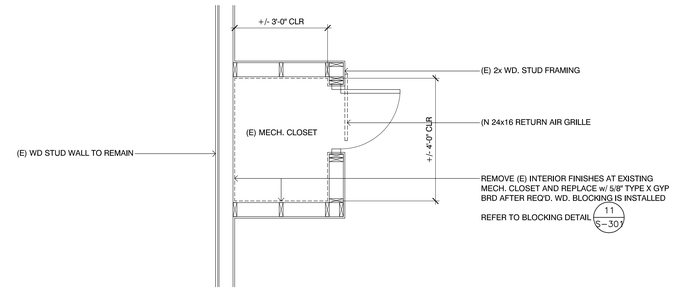
8 New Interior Wall Detail

SCALE: 3"= 1'-0"



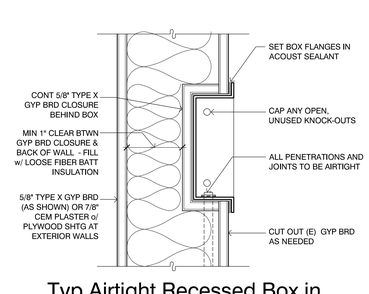
3 Jamb Detail @ Mech Closet

SCALE: 3"= 1'-0"



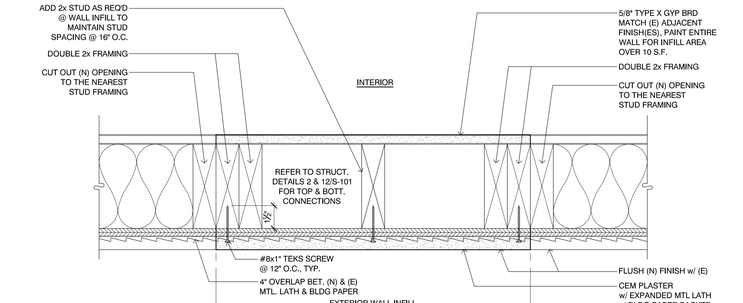
19 Typ. Mech Closet Modification at Bldg. E

SCALE: 1/2"= 1'-0"



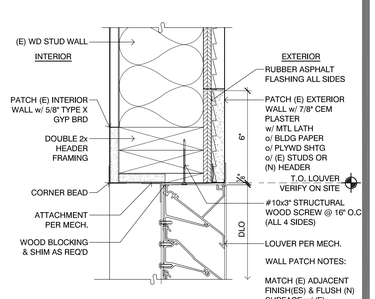
14 Typ Airtight Recessed Box in (E) Gyp Brd (Box Over 4" x 8")

SCALE: 3" = 1'-0"



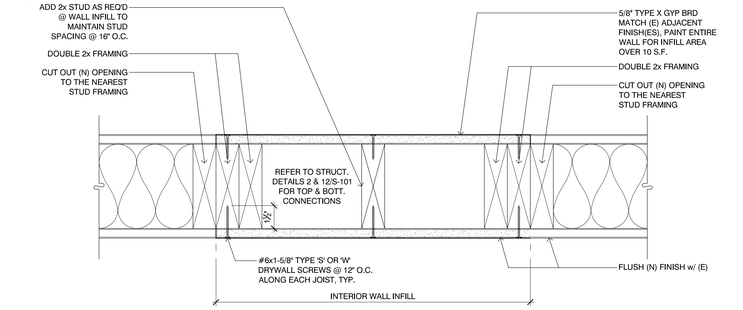
9 Typ. Exterior Wall Patch/ Infill Detail

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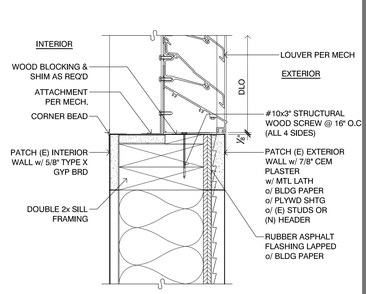
4 Mech Louver Head

SCALE: 3" = 1'-0"



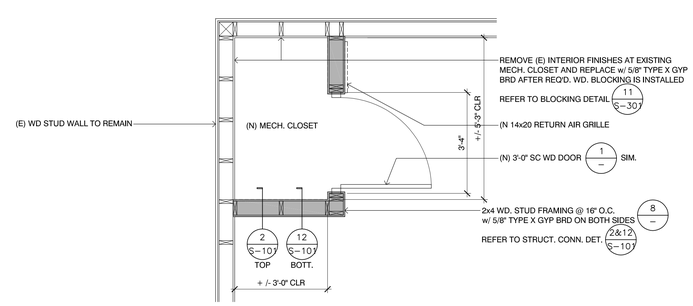
10 Typ. Interior Wall Patch/ Infill Detail

SCALE: 3" = 1'-0"



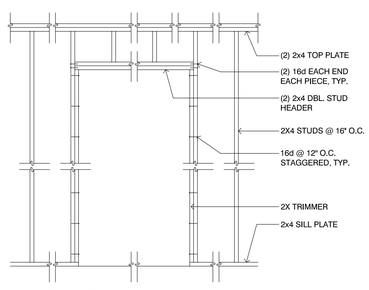
5 Mech Louver Sill / Jamb Sim

SCALE: 3" = 1'-0"



20 New Mech Closets at Bldg. F

SCALE: 1/2"= 1'-0"



15 Typ Door Jamb and Header Connection Detail

SCALE: 3" = 1'-0"

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SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

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LICENSED ARCHITECT
No. C-25839
Ren. 06/30/2025
STATE OF CALIFORNIA

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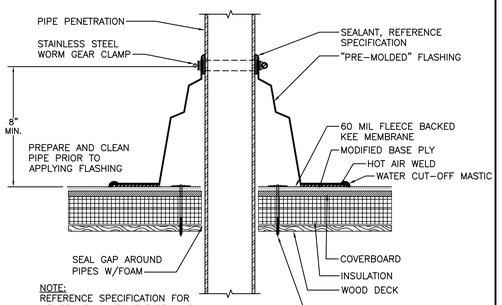
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DRAWN	PP		
CHECKED	TJ		
DATE	10/11/2024		
JOB. NO.	23053		

DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: DETAILS

SHEET
A-700

FILENAME: LSR_KEEH_W_PipeTubePenetrationPreMoldFlashing.dwg.dwg KEE HYBRID



NOTE:
REFERENCE SPECIFICATION FOR MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

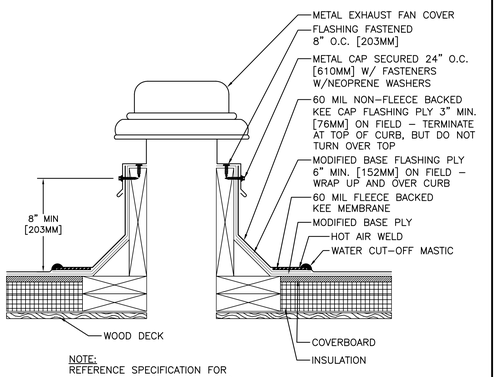
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PIPE/TUBE PENETRATION - PRE-MOLDED FLASHING

THE GARLAND COMPANY, INC.
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PROJECT:	
CUSTOMER:	
ARCHITECT:	
REPRESENTATIVE:	
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FILENAME: LSR_KEEH_W_ExhaustFan.dwg.dwg KEE HYBRID



NOTE:
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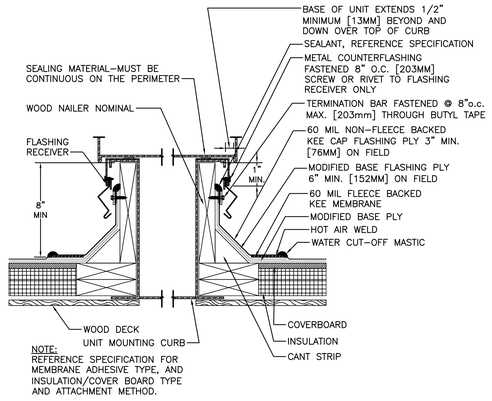
DRAWINGS ON 8½"x11 TITLE BLOCKS ARE NOT TO SCALE.

EXHAUST FAN

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CUSTOMER:	
ARCHITECT:	
REPRESENTATIVE:	
DATE:	SHT: OF

FILENAME: LSR_KEEH_W_CurbDtlAirStation.dwg.dwg KEE HYBRID



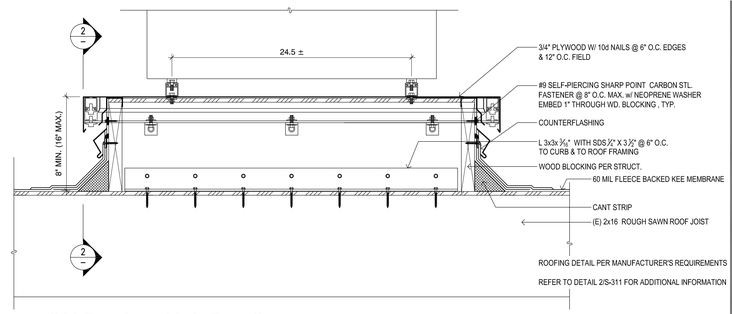
NOTE:
REFERENCE SPECIFICATION FOR MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

DRAWINGS ON 8½"x11 TITLE BLOCKS ARE NOT TO SCALE.

CURB DETAIL / AIR HANDLING STATION

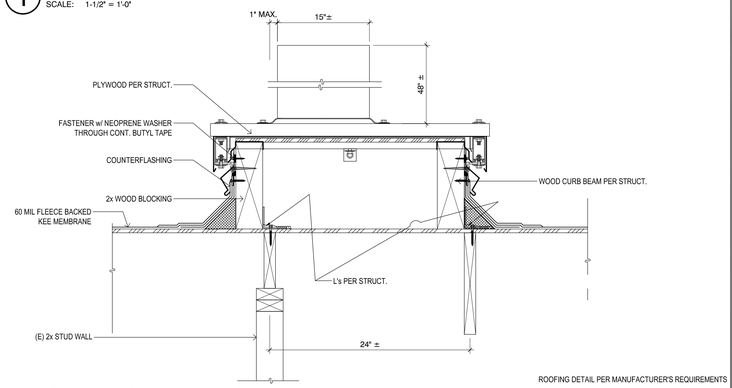
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PROJECT:	
CUSTOMER:	
ARCHITECT:	
REPRESENTATIVE:	
DATE:	SHT: OF



1 OU Rooftop Unit Detail

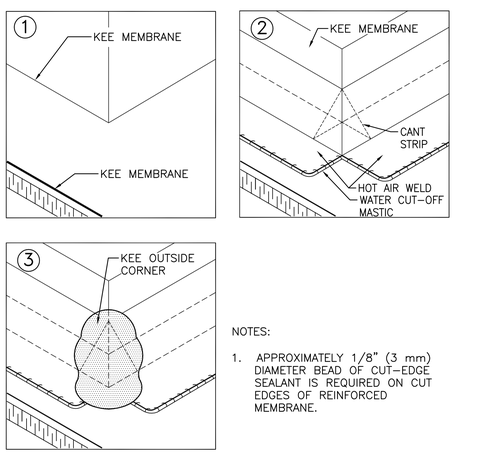
SCALE: 1-1/2" = 1'-0"



2 OU Rooftop Unit Detail

SCALE: 1-1/2" = 1'-0"

FILENAME: LSR_KEEH_W_PreMoldedOutsideCornerFlashing.dwg.dwg KEE HYBRID



NOTES:

1. APPROXIMATELY 1/8" (3 mm) DIAMETER BEAD OF CUT–EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED MEMBRANE.

PRE-MOLDED OUTSIDE CORNER FLASHING

SCALE: NTS

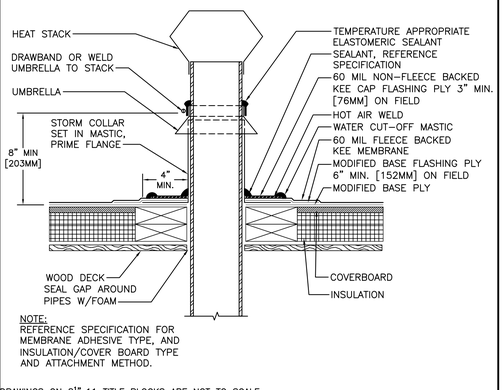
DRAWINGS ON 8½"x11 TITLE BLOCKS ARE NOT TO SCALE.

PRE-MOLDED OUTSIDE CORNER FLASHING

THE GARLAND COMPANY, INC.
GARLAND CANADA, INC.
THE GARLAND COMPANY UK, LTD

PROJECT:	
CUSTOMER:	
ARCHITECT:	
REPRESENTATIVE:	
DATE:	SHT: OF

FILENAME: LSR_KEEH_W_HeatStack.dwg.dwg KEE HYBRID



NOTE:
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DRAWINGS ON 8½"x11 TITLE BLOCKS ARE NOT TO SCALE.

HEAT STACK

THE GARLAND COMPANY, INC.
GARLAND CANADA, INC.
THE GARLAND COMPANY UK, LTD

PROJECT:	
CUSTOMER:	
ARCHITECT:	
REPRESENTATIVE:	
DATE:	SHT: OF

BASIS OF DESIGN FOR EQUIPMENT CURB FLASHING, ROOF PATCH & ROOF REPAIR : GARLAND ROOFING COLD-APPLIED KEE-STONE THERMOPLASTIC HYBRID ROOF SYSTEM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Exp. 06/30/2025 STATE OF CALIFORNIA

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4	-	-/-/-	XX
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2	-	-/-/-	XX
1	-	-/-/-	XX

REVISION	DESCRIPTION	DATE	BY
DRAWN	PP		
CHECKED	TJ		
DATE	10/11/2024		
JOB. NO.	23053		
DSA A03-124514 FILE:56-40 PTN:72652-125			
SHEET TITLE	ROOF DETAILS		

SHEET

A-701

REINFORCEMENT

1. ALL TYPICAL REINFORCING BARS SHALL CONFORM TO ASTM A-615, GRADE 60, UNLESS NOTED OTHERWISE ON THE DRAWINGS (#3 BARS MAY BE GRADE 40 FOR AVAILABILITY)

   A. SPIRALS SHALL BE COLD DRAWN BARS CONFORMING TO ASTM A-82. REINFORCING FOR DIAPHRAGMS AND FOUNDATIONS MAY BE GRADE 75 IN LIEU OF GRADE 60, AT THE CONTRACTOR'S OPTION. MAINTAIN OVERALL CAPACITY OF ELEMENTS WHERE GRADE 75 REINFORCING IS PROPOSED FOR USE. IN GENERAL, REDUCE REQUIRED STEEL AREA IN PROPORTION TO RATIO OF YIELD STRENGTH. MAINTAIN BAR SPACING SHOWN ON PLANS, DETAILS, AND SCHEDULES.

2. WELDED WIRE FABRIC SHALL BE MADE OF COLD DRAWN WIRE AND SHALL CONFORM TO ASTM A-185 [Fy=65 KSI], MINIMUM LAP AT SPLICES OF 12 INCHES. PROVIDE MESH IN FLAT SHEETS ONLY. ROLLED MESH IS NOT ACCEPTABLE. OFFSET END-LAPS IN ADJACENT SHEETS TO PREVENT CONTINUOUS LAPS.

3. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER. SEE ACI FOR TOLERANCES:

   B. CONCRETE POURED AGAINST EARTH: 3"
   C. FORMED CONCRETE IN CONTACT WITH EARTH: 2"
   D. CONCRETE EXPOSED TO WEATHER (#6 AND LARGER): 2"
   E. CONCRETE EXPOSED TO WEATHER (#5 AND SMALLER): 1½"
   F. SLABS (INCLUDING SLAB SUPPORTING EARTH), WALLS, AND JOISTS NOT EXPOSED TO WEATHER (#11 AND SMALLER): 1"
   G. OTHER CONCRETE NOT EXPOSED TO WEATHER: 1½"

5. #5 AND LARGER REINFORCING BARS SHALL NOT BE SPLICED EXCEPT AS LOCATED AND DETAILED ON THE DRAWINGS. #4 AND SMALLER BARS WITH LENGTHS NOT SHOWN SHALL BE CONTINUOUS. PROVIDE CLASS 'B' SPLICE UNLESS NOTED OTHERWISE. ALL BARS IN MASONRY SHALL BE CONTINUOUS, LAPPING 48 BAR DIAMETERS, 2'-0" MINIMUM. HORIZONTAL WALL SPLICES SHALL BE STAGGERED. VERTICAL BARS SHALL NOT BE SPLICED EXCEPT AT HORIZONTAL SUPPORTS, SUCH AS FLOOR OR ROOF, UNLESS DETAILED OTHERWISE. ALL BARS ENDING AT THE FACE OF A WALL, COLUMN, OR BEAM SHALL EXTEND TO WITHIN 2" OF THE FAR FACE AND HAVE A 90 DEGREE HOOK, UNLESS OTHERWISE SHOWN.

6. BARS SHALL BE FIRMLY SUPPORTED AND ACCURATELY PLACED AS REQUIRED BY THE ACI STANDARDS, USING TIE AND SUPPORT BARS IN ADDITION TO REINFORCEMENT SHOWN WHERE NECESSARY FOR FIRM AND ACCURATE PLACING. PROVIDE DOWELS TO MATCH ALL REINFORCEMENT AT POUR JOINTS, UNLESS SHOWN OR NOTED OTHERWISE. ALL DOWELS AND BOLTS SHALL BE ACCURATELY SET IN PLACE BEFORE PLACING CONCRETE. NO WELDING OF REINFORCEMENT (INCLUDING TACK WELDING) SHALL BE DONE UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. ALL SLAB AND BEAM REINFORCEMENT SHALL BE CHAIRED UP.

7. DRAWINGS SHOW TYPICAL REINFORCING CONDITIONS. CONTRACTOR SHALL PREPARE DETAILED PLACEMENT DRAWINGS OF ALL CONDITIONS SHOWING QUANTITY, SPACING, SIZES, CLEARANCES, LAPS, INTERSECTIONS, AND COVERAGE REQUIRED BY THE STRUCTURAL DETAILS, APPLICABLE CODE, AND TRADE STANDARDS. CONTRACTOR SHALL NOTIFY REINFORCING INSPECTOR OF ANY ADJUSTMENTS FROM TYPICAL CONDITIONS WHICH ARE PROPOSED IN PLACEMENT DRAWINGS TO FACILITATE FIELD PLACEMENT OF REINFORCING STEEL AND CONCRETE.

8. ALL PRINCIPAL REBAR SHALL TERMINATE WITH A STANDARD HOOK MINIMUM UNLESS SPECIFICALLY DETAILED OTHERWISE. REBAR BENDS SHALL BE MADE COLD. REBAR SHALL NOT BE BENT AFTER ANY PORTION OF THE BAR IS ENCASED IN CONCRETE.

9. ALL LAP SPLICES ARE CLASS 'B' LAP SPLICES UNLESS NOTED OTHERWISE.

10. ALL WALL FOOTING REINFORCEMENT SHALL BEND AROUND ALL CORNERS AND EXTEND 36 BAR DIAMETERS OR 18 INCHES WHICHEVER IS LARGER. UNLESS NOTED OTHERWISE.

11. ALL SLABS ON GRADE LESS THAN 6" IN THICKNESS SHALL BE REINFORCED WITH #4 REBARS AT 16 INCHES ON CENTERS EACH WAY, UNLESS NOTED OTHERWISE. PROVIDE ONE (1) LAYER OF 6X6/W2.9XW2.9 WELDED WIRE FABRIC CONTINUOUS FOR EVERY 3" ARCHITECTURAL CONCRETE FILLS ABOVE THE STRUCTURAL SLAB.

12. ALL MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT PADS LESS THAN 4" THICK SHALL BE REINFORCED WITH AT LEAST ONE (1) LAYER OF 6X6/W2.9XW2.9 WELDED WIRE FABRIC AND HAVE HOOKED DOWELS (#3 AT 12' ON CENTERS) INTO THE STRUCTURAL SLAB. UNLESS NOTED OTHERWISE. FOR PADS GREATER THAN 4 INCHES THICK, USE REINFORCING AS SHOWN IN THE TYPICAL DETAILS.

13. ADDITIONAL REINFORCEMENT SHALL BE PROVIDED AROUND ALL SLAB AND WALL OPENINGS INCLUDING DIAGONAL BARS WITHOUT EXCEPTION.

14. ALL STRUCTURAL CONCRETE ELEMENTS REQUIRE REINFORCEMENT SINCE NO PLAIN CONCRETE ELEMENTS ARE USED. ALL CONCRETE SLABS SHALL HAVE A MINIMUM REINFORCEMENT PERCENTAGE OF 0.0018 EACH WAY CONTINUOUS.

FOUNDATIONS

1. THE DESIGN OF THE FOUNDATION SYSTEM IS BASED UPON THE BUILDING CODE MINIMUM RECOMMENDATIONS AND DEFAULT VALUES. THE OWNER MAY ELECT TO HAVE A GEOTECHNICAL ENGINEER REVIEW THE SPECIFIC SOILS ON THE SITE TO VERIFY THE DEFAULT DESIGN VALUES ARE ADEQUATE FOR BEARING, DIFFERENTIAL SETTLEMENT, PROTECTION FROM CORROSIVE SOILS, ETC. IF ANY POTENTIALLY UNFAVORABLE SOILS CONDITIONS ARE ENCOUNTERED DURING CONSTRUCTION, THE SERVICES OF A GEOTECHNICAL ENGINEER WILL BE REQUIRED.

2. THE ALLOWABLE SOIL BEARING PRESSURE IS 1,500 PSF (IN COMPETENT NATIVE SOILS OR 90% COMPACTED FILL)

3. REMOVE LOOSE SOIL AND STANDING WATER FROM FOUNDATION EXCAVATIONS PRIOR TO PLACING CONCRETE. THE GEOTECHNICAL ENGINEER SHALL INSPECT AND APPROVE ALL EXCAVATIONS, SOIL COMPACTION WORK PRIOR TO PLACEMENT OF ANY REBAR OR CONCRETE, SHORING INSTALLATIONS, BACKFILL MATERIALS AND BACK FILLING PROCEDURES.

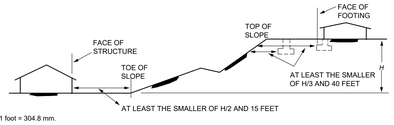
4. LOCATE AND PROTECT EXISTING UTILITIES TO REMAIN DURING AND/OR AFTER CONSTRUCTION.

5. REMOVE ABANDONED FOOTINGS, UTILITIES, ETC. WHICH INTERFERE WITH NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED.

6. NOTIFY THE OWNER'S REPRESENTATIVE IF ANY BURIED STRUCTURES NOT INDICATED, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC., ARE FOUND.

7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, UNDERPINNING AND PROTECTION OF EXISTING CONSTRUCTION.

8. FOUNDATION SETBACKS AND CLEARANCES FROM SLOPED SURFACES SHALL BE PER CBC 2022 FIGURE 1808.7.1 (SHOWN BELOW)



For SI: 1 foot = 304.8 mm.

CONCRETE

1. CONCRETE IS REINFORCED AND CAST-IN-PLACE UNLESS NOTED OTHERWISE. WHERE REINFORCING IS NOT SPECIFICALLY SHOWN OR WHERE DETAILS ARE NOT GIVEN, PROVIDE REINFORCING SIMILAR TO THAT SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.

2. ALL STRUCTURAL CONCRETE SHALL BE DESIGNED BY THE CONCRETE MIX ENGINEER FOR THE PROJECT WITH CRITERIA :

   A. ALL CONCRETE U.N.O.: 3000 PSI NORMAL WEIGHT
   B. REQUIRED SLUMP = 4" +/- 1"
   C. MAXIMUM WATER TO CEMENT RATIO= W / C = 0.50
   D. MAXIMUM AGGREGATE SIZE = ½"

3. ALL STRUCTURAL CONCRETE MIXES SHALL BE DESIGNED BY AN APPROVED LABORATORY AND SHALL BE STAMPED AND SIGNED BY A CIVIL ENGINEER LICENSED IN CALIFORNIA.

4. CONCRETE MIXES SHALL BE PREPARED WITH TYPE II/V PORTLAND CEMENT CONFORMING TO ASTM C150. CONCRETE MIX DESIGNS CONTAINING FLY ASH MAY BE USED WHERE CONCRETE IS NOT VISUALLY EXPOSED. FLY ASH SHALL CONFORM WITH ASTM C618 AND MAY REPLACE UP TO 20% PORTLAND CEMENT BY VOLUME.

5. NORMAL WEIGHT CONCRETE AGGREGATES SHALL CONFORM TO ASTM C33. LIGHT WEIGHT CONCRETE AGGREGATES SHALL CONFORM TO ASTM C330.

6. NO MORE THAN ONE GRADE OF CONCRETE SHALL BE ON THE JOB SITE AT ANY ONE TIME.

7. THOROUGHLY CLEAN AND ROUGHEN ALL HARDENED CONCRETE AND MASONRY SURFACES TO RECEIVE NEW CONCRETE. INTERFACE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" UNLESS NOTED OTHERWISE.

8. KEY AND DOWEL POUR JOINTS AS SHOWN ON THE PLANS. ANY DEVIATION FROM POUR JOINTS SHOWN ON THE PLANS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE.

9. NON-SHRINK CEMENT GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI.

10. DEFECTIVE CONCRETE (VOIDS, ROCK POCKETS, HONEYCOMBS, CRACKING, ETC.) SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

MECHANICAL & ADHESIVE ANCHORS

1. EPOXY ANCHORS AND DOWELS INSTALLED INTO CONCRETE:
   A. "HIT-RE 500-V3" BY HILTI, INC. (ESR#3814)

2. EXPANSION ANCHORS INSTALLED INTO CONCRETE:
   A. "STRONG BOLT2" BY SIMPSON STRONG-TIE (ESR#3037)

3. ADHESIVE ANCHORS: GRADE 36 THREADED ROD (F1554 GRADE 36, OR A36, OR A307-S1) WITH ASTM A 563 GRADE A NUTS AND ANSI B18.22.1 TYPE A WASHERS, UNLESS NOTED OTHERWISE.

4. ADHESIVE DOWELS: ASTM A615 (OR ASTM A706) GRADE 60 REINFORCING STEEL.

5. ALL ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ICC-ES REPORT AND MANUFACTURERS RECOMMENDATIONS.

6. UNLESS NOTED OTHERWISE, PROVIDE MINIMUM EMBEDMENT OF ANCHORS PER ICC-ES REPORT AND MANUFACTURERS RECOMMENDATIONS.

7. CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL OR ADHESIVE ANCHORS. AT CONTRACTOR OPTION, OVERSIZED HOLES AND WELDED PLATE WASHERS CAN BE USED IN LIEU OF STANDARD DIAMETER HOLES, 3"X3"X1/4" PLATE WASHER W/ 3/16" FILLET WELD ALL AORUND.

8. PRIOR TO ALL DRILLING OR CORING, THE CONTRACTOR SHALL (1) VERIFY THE EXISTING CONCRETE OR MASONRY THICKNESS TO PREVENT DAMAGE TO THE OPPOSITE FACE OF CONCRETE AND MAINTAIN 1-1/2" CLEAR COVER U.N.O., AND (2) IDENTIFY EXISTING REINFORCING LOCATIONS BY PACHHOMETER, PROBING, CHIPPING, ETC. TO AVOID DAMAGE EXISTING REINFORCING.

9. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.

10. TEST ANCHORS NO SOONER THAN 24 HOURS AFTER INSTALLATION.

11. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE OR GROUT HAVING A MINIMUM AGE OF 21 DAYS AT THE TIME OF ANCHOR INSTALLATION.

12. FOR EXTERIOR AND FOR EXPOSED APPLICATIONS MECHANICAL ANCHORS SHALL BE STAINLESS STEEL.

FRAMING LUMBER

1. PROVIDE GRADE-MARKED DOUGLAS FIR STRUCTURAL LUMBER COMPLYING WITH STANDARD GRADING RULE NUMBER 16 OF THE WEST COAST LUMBER INSPECTION BUREAU. PROVIDE 'S' DRY LUMBER WITH A 19% MAX. MOISTURE CONTENT. WOOD JOISTS AND BEAMS WITH MORE THAN 2 FRAMED LEVELS ABOVE THEM SHALL BE MC15 (15% MOISTURE MAX. LUMBER).

2. ALL LUMBER SHALL BE STRESS GRADED DOUGLAS FIR NO. 2, UNLESS NOTED OTHERWISE. ALL 4x10 BEAMS OR LARGER AND 6x8 BEAMS OR LARGER SHALL BE DOUGLAS FIR NO. 1.

3. ALL LUMBER IN DIRECT CONTACT WITH CONCRETE OR MASONRY, INCLUDING BUT NOT LIMITED TO FOUNDATION SILLS, SHALL BE NATURALLY DURABLE OR PRESERVATIVE-TREATED DOUGLAS FIR.

4. WOOD STRUCTURAL PANELS SHALL COMPLY WITH U.S. PRODUCT STANDARDS FOR ITS TYPE IN PS 1-09 OR PS 2-10 AND BE CLASSIFIED AS EXPOSURE 1. AS A MINIMUM ALL WOOD STRUCTURAL PANELS SHALL BE APA RATED SHEATHING UNLESS NOTED OTHERWISE ON PLANS AND DETAILS. PANEL CONSTRUCTION FOR ALL WOOD STRUCTURAL PANELS SHALL BE 5 PLY PLYWOOD, EXCEPT THAT OSB IS PERMITTED FOR WALL SHEATHING. ALL WOOD STRUCTURAL PANELS SHALL BE BLOCKED AT UNSUPPORTED EDGES. WALL PANELS SHALL BE 15/32 INCH, PANEL INDEX (P.I.) 32/16 U.N.O. ALL WOOD STRUCTURAL PANELS MUST BE INSTALLED WITH FACE GRAIN PERPENDICULAR TO SUPPORTS.

5. ALL NAILS SHALL BE COMMON WIRE NAILS. NAILING TO BE IN ACCORDANCE WITH CBC 2022 NAILING SCHEDULE UNLESS NOTED OTHERWISE. 1 1/2" OF PENETRATION FOR 10d AND 16d IS REQUIRED. PENETRATION IS MEASURED INTO THE PIECE RECEIVING THE NAIL POINT. ALL NAILS SHALL BE GALVANIZED WHEN EXPOSED TO WEATHER. PRE-DRILL ALL NAILS 20d OR LARGER.

6. LAG SCREWS SHALL BE TURNED, NOT DRIVEN, INTO PRE DRILLED HOLES. PROVIDE LEAD HOLE 40% TO 70% OF THREADED SHANK DIAMETER AND FULL DIAMETER FOR SMOOTH SHANK PORTION.

7. ALL FRAMING HARDWARE SHALL BE STRONG-TIE CONNECTORS AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, UNLESS NOTED OTHERWISE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND ICC REQUIREMENTS. ALL BOLTS IN HOLD-DOWN ANCHORS SHALL BE TORQUE PER MANUFACTURERS REQUIREMENTS.

8. ALL BOLTS IN WOOD SHALL BE A307 STANDARD BOLTS. HOLES SHALL NOT BE MORE THAN 1/16" LARGER THAN THE BOLT DIAMETER.

9. DO NOT CUT, BORE, COUNTERSINK OR NOTCH WOOD MEMBERS EXCEPT WHERE SHOWN IN THE DETAILS.

10. JOISTS OR RAFTERS FRAMING FROM OPPOSITE SIDES OF BEAMS OR WALLS SHALL HAVE A LAP OF 4" OR MORE AND BE SPLICED WITH 4-16D NAILS, UNLESS NOTED OTHERWISE.

11. ENGINEERED LUMBER SHALL BE LVL (LAMINATED VENEER LUMBER BY REDBUILT ICC ESR 2993 OR ROSEBURG ICC ESR 1210 or BOISE CASCADE ICC ESR 1040) OR PSL (PARALLEL STRAND LUMBER BY WEYERHAEUSER ICC ESR 1387) U.N.O.
    A. E = 2,000 KSI MIN. (GRADE 2.0E MIN)
    B. Fb = 2,900 PSI MIN.
    C. Fv = 285 PSI MIN.

15. HOT DIP GALVANIZED FASTENERS SUCH AS - BUT NOT LIMITED TO - NAILS, SCREWS, BOLTS, THREADED ROD, ETC., SHALL BE USED WHEN IN CONTACT WITH PRESERVATIVE OR FIRE RETARDANT TREATED LUMBER. EXCEPTION: NON-HOT-DIP-GALVANIZED STEEL FASTENERS IN SBX/DOT AND ZINC BORATE PRESERVATIVE-TREATED WOOD IN AN INTERIOR, DRY ENVIRONMENT SHALL BE PERMITTED.

16. FRAMING CLIPS TO COMPLY WITH (ICC-ESR 3096) TO COMPLY WITH (ICC-ESR 2105, L.A. RR 25713).

17. GLUE BETWEEN WOOD STRUCTURAL PANELS AND WOOD FRAMING MEMBERS SHALL BE APPLIED TO REDUCE SQUEAKINESS OF OCCUPIABLE SPACES. GLUE SHALL CONFORM TO APA PERFORMANCE SPECIFICATION AFG-01 OR ASTM D3498. INSTALL AS DIRECTED PER APA FORM NO. Q300P.

18. ANCHOR BOLTS SHALL BE 5/8" DIAMETER, MINIMUM. ANCHOR BOLTS SHALL BE EMBEDDED A MINIMUM OF 7 INCHES, MINIMUM INTO THE CONCRETE, FOOTING OR MASONRY AND SHALL BE SPACED AT 36 INCHED ON CENTER, MAXIMUM UNLESS OTHERWISE INDICATED ON THE DRAWINGS. FOR ANCHOR BOLT SIZE AND SPACING AT SHEAR WALL LOCATIONS REFER TO THE SHEAR WALL SCHEDULE. EACH SILL PLATE SHALL HAVE A MINIMUM OF TWO (2) ANCHOR BOLTS. ANCHOR BOLTS SHALL BE LOCATED NOT MORE THAN 12 INCHES OR LESS THAN SEVEN (8) BOLT DIAMETERS FROM THE END OF EACH SILL PLATE. ALL ANCHOR BOLTS SHALL HAVE A MINIMUM OF A THREE (3) INCH SQUARE BY 5/16 INCH THICK STEEL PLATE WASHER. SEE ALSO TYPICAL DETAILS.

GENERAL

1. ALL NEW CONSTRUCTION SHALL COMPLY WITH THE CONTRACT DOCUMENTS AND THE 2022 CALIFORNIA BUILDING CODE.

2. REFERENCE TO CODES, RULES, REGULATIONS, STANDARDS, MANUFACTURER'S INSTRUCTIONS OR REQUIREMENTS OF REGULATORY AGENCIES IS TO THE LATEST PRINTED EDITION OF EACH IN EFFECT AT THE DATE OF SUBMISSION OF BID UNLESS THE DOCUMENT DATE IS SHOWN.

3. TYPICAL DETAILS AND GENERAL NOTES APPLY TO ALL PARTS OF THE WORK EXCEPT WHERE SPECIFICALLY DETAILED OR UNLESS NOTED OTHERWISE (U.N.O.)

4. THE STRUCTURAL DRAWINGS ILLUSTRATE THE NEW STRUCTURAL MEMBERS. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR NON-STRUCTURAL ITEMS WHICH REQUIRE SPECIAL PROVISIONS DURING THE CONSTRUCTION OF THE STRUCTURAL MEMBERS.

5. REFER TO ARCHITECTURAL DRAWINGS FOR FLOOR DEPRESSIONS, EDGE OF SLAB, OPENINGS, SLOPES, DRAINS, CURBS, PADS, EMBEDDED ITEMS, NON-BEARING PARTITIONS, ETC. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR SLEEVES, OPENINGS, AND HANGERS FOR PIPES, DUCTS AND EQUIPMENT.

6. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL VERIFY ALL DIMENSIONS AND CONDITIONS WHICH IMPACT THE WORK. FIELD VERIFY SIZES, ELEVATIONS, HOLE LOCATIONS, ETC. PRIOR TO FABRICATION.

7. DRAWING DIMENSIONS ARE TO FACE OF STRUCTURE, JOINT CENTERLINE OR COLUMN GRID CENTERLINE UNLESS NOTED OTHERWISE. DO NOT SCALE THE DRAWINGS.

8. CONTRACTOR SHALL CAREFULLY REVIEW THE DRAWINGS TO IDENTIFY THE SCOPE OF WORK REQUIRED. VISIT THE SITE TO RELATE THE SCOPE OF WORK TO EXISTING CONDITIONS AND DETERMINE THE EXTENT TO WHICH THOSE CONDITIONS AND PHYSICAL SURROUNDINGS WILL IMPACT THE WORK.

9. EXISTING CONDITIONS AS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY. CONTRACTOR IS REQUIRED TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPORT CONDITIONS THAT CONFLICT WITH THE CONTRACT DOCUMENTS TO THE OWNER'S REPRESENTATIVE. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE OWNER'S REPRESENTATIVE.

10. THE CONTRACTOR SHALL RESOLVE ANY CONFLICTS ON THE DRAWINGS OR IN THE SPECIFICATIONS WITH THE OWNER'S REPRESENTATIVE BEFORE PROCEEDING WITH THE WORK.

11. ANY DEVIATION, MODIFICATION & SUBSTITUTION FROM THE APPROVED SET OF STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW/APPROVAL PRIOR TO ITS USE OR INCLUSION ON THE SHOP DRAWINGS & PRIOR TO PROCEEDING WITH THE WORK.

12. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORES, BRACES, GUYS, HOIST BEAM, REQUIRED TO SUPPORT ALL LOADS TO WHICH THE BUILDING STRUCTURE AND COMPONENTS, SOILS, OTHER STRUCTURES AND UTILITIES MAY BE SUBJECTED DURING CONSTRUCTION. SHORING SYSTEMS SHALL BE DESIGNED AND STAMPED BY A CIVIL ENGINEER LICENSED IN THE STATE OF CALIFORNIA. VISITS TO THE SITE BY THE OWNER'S REPRESENTATIVE WILL NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.

13. THE CONTRACTOR SHALL PROVIDE MEANS, METHOD, TECHNIQUES, SEQUENCE AND PROCEDURE OF CONSTRUCTION AS REQUIRED. SITE VISITS PERFORMED BY THE OWNER'S REPRESENTATIVE DO NOT INCLUDE INSPECTIONS OF MEANS AND METHODS OF CONSTRUCTION PERFORMED BY CONTRACTOR.

14. THE CONTRACTOR SHALL PROTECT ALL WORK, MATERIALS AND EQUIPMENT FROM DAMAGE AND SHALL PROVIDE PROPER STORAGE FACILITIES FOR MATERIALS AND EQUIPMENT DURING CONSTRUCTION.

15. A COPY OF ANY REQUIRED ICC-ESR REPORT AND/OR CONDITIONS OF LISTING SHALL BE MADE AVAILABLE AT THE JOB SITE.

16. ATTACHMENT OF NON-STRUCTURAL COMPONENTS SPECIFIED BY OTHERS TO STRUCTURAL ELEMENTS SHALL BE SPECIFIED BY THE NON-STRUCTURAL COMPONENT DESIGNER/SPECIFIER/INSTALLER. DESIGNER OF NON-STRUCTURAL ELEMENTS SHALL AT A MINIMUM SPECIFY THE CONNECTION TO THE STRUCTURE INCLUDING BUT NOT LIMITED TO: ANY TYPE OF CONNECTING HARDWARE, WIRE, HANGERS, FASTENERS, CLIPS, UNISTRUT MEMBERS. NON STRUCTURAL ELEMENTS SHALL INCLUDE, BUT NOT LIMITED TO: MEP AND HVAC EQUIPMENT & THEIR SUPPORTING PADS, PLATFORMS, FRAMES, ETC,; DUCTWORK, PIPES, CONDUITS, ARTWORK, GRILLES, GRATING, METAL SCREENS, ELEVATOR RAILS, STONE FINISH TILES, STONE CAPS, BRICK VENEER.

DESIGN CRITERIA

1. NEW WORK SHALL COMPLY WITH THE 2022 CALIFORNIA BUILDING CODE.

2. VERTICAL LIVE LOADS:
   A. ROOF 20 PSF

3. LATERAL LOADS:
   A. WIND:
      BASIC WIND SPEED: 100 MPH
      WIND IMPORTANCE FACTOR, Iw: 1.0
      EXPOSURE TYPE: C

   B. SEISMIC:
      SITE CLASS: D-DEFAULT
      SEISMIC DESIGN CATEGORY: D
      RISK CATEGORY: III
      COMPONENT SEISMIC IMPORTANCE FACTOR, Ip: 1.0
      S_S = 2.0
      F_A = 1.2
      S_{DS}= 1.60

      LATERAL SYSTEM: EQUIPMENT ANCHORAGE

      F_P = 0.48 Wp
      (UNIT ANCHORED AT SLAB ON GRADE W/ Ap/Rp = 0.417)

      F_P = 0.80 Wp
      (UNIT ANCHORED AT ROOF W/ Ap/Rp = 0.80)

      F_P = 1.95 Wp
      (UNIT ANCHORED AT MEZZANINE W/VIBRATION ISOLATORS Ap/Rp = 2.6/2.0=1.3)

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2500 GRAND AVENUE, VENTURA, CA 93003

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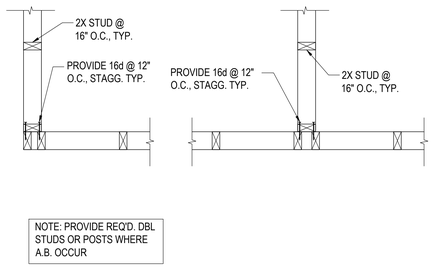
V3
SUBMITTAL

REVISION	DESCRIPTION	DATE	BY
DRAWN	MG		
CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE
GENERAL NOTES

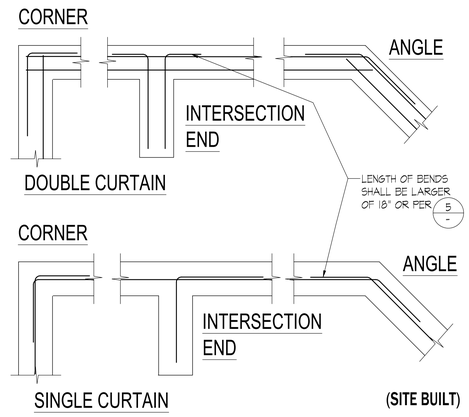
SHEET
S-001



NOTE: PROVIDE REQ'D. DBL STUDS OR POSTS WHERE A.B. OCCUR

TYP STUD WALL INTERSECTIONS

SCALE: 1" = 1'-0" | 10

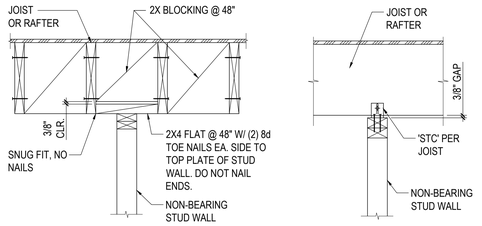


REBAR AT CONT. FTG. INTERSECTION

SCALE: 1" = 1'-0" | 7

SCALE: 1" = 1'-0" | 4

SCALE: 1" = 1'-0" | 1



PERPENDICULAR TO JOIST (B)

PARALLEL TO JOIST (A)

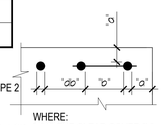
TYP. NON-BEARING STUD WALL TOP CONNECTION

SCALE: 1" = 1'-0" | 11

	TENSION LAP SPLICE LENGTH (CLASS B)						DEVELOPMENT LENGTH (1d) (CLASS A)					
	3000 PSI CONC f'c		4000 PSI CONC f'c		5000 PSI CONC f'c		3000 PSI CONC f'c		4000 PSI CONC f'c		5000 PSI CONC f'c	
BAR SIZE	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	29	22	28	20	28	20	23	17	21	15	21	15
#4	39	29	34	25	30	23	30	22	26	19	23	17
#5	48	36	42	31	38	28	37	28	32	24	29	22
#6	58	43	50	37	45	34	45	33	39	29	35	26
#7	81	63	71	54	63	49	63	48	54	42	49	38
#8	93	72	81	62	72	56	72	55	62	48	56	43
#9	105	81	91	70	81	63	81	62	70	54	63	48
#10	118	91	102	79	92	70	91	70	79	61	70	54
#11	131	101	113	87	102	78	101	78	87	67	78	60

NOTES:

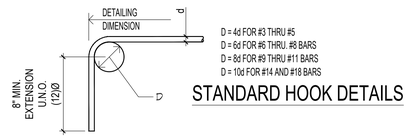
1. ALL SPLICES SHALL BE TENSION LAP SPLICES (CLASS 'B') U.N.O.
2. ALL DEVELOPMENT LENGTH WITH STANDARD HOOKS "Ldh" SHALL BE TYPE 1 UNLESS TYPE 2 CAN BE USED AS SHOWN IN ILLUSTRATION BELOW
3. LENGTHS SHOWN ARE FOR GRADE 60 UNCOATED BARS
4. LENGTHS SHOWN ARE FOR NORMAL WEIGHT CONCRETE (N.W.). INCREASE LENGTHS 30% FOR LIGHT WEIGHT CONCRETE AND AT FOUR BAR BUNDLES (WHERE 2 BARS LAP WITH 2 OTHER BARS) INDIVIDUAL BARS WITHIN A BUNDLE SHALL NOT OVERLAP
5. TOP BARS - HORIZONTAL BARS PLACED WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW THEM.
6. INCREASE LENGTHS 50% WHERE a < db OR WHERE b < db FOR BEAMS AND COLUMNS OR WHERE b < 2db FOR OTHER ELEMENTS
7. FOR #14 AND #18 BARS, USE MECHANICAL SPLICE IN ACCORDANCE WITH IBC REQUIREMENTS.
8. WHEN SPLICING TWO DIFFERENT SIZE BARS, PROVIDE LENGTH EQUAL TO GREATER OF CLASS 'B' OF SMALLER BAR & CLASS 'A' OF LARGER BAR (UNLESS SPECIFICALLY NOTED)



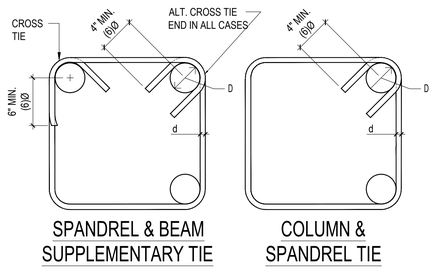
WHERE:
"a" IS THE CLEAR COVER "b"
IS THE CLEAR SPACING "db"
IS THE BAR DIA

TYP. CONC. REINF. DEVEL. LENGTH / LAP SPLICE SCHED.

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



STANDARD HOOK DETAILS



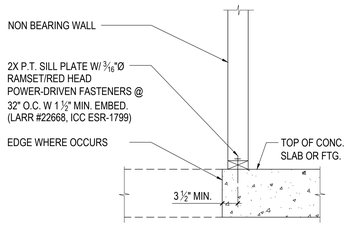
SPANDREL & BEAM SUPPLEMENTARY TIE

COLUMN & SPANDREL TIE

TYP. CONC. REINF. STANDARD HOOK DETAIL

SCALE: 1" = 1'-0" | 5

SCALE: 1" = 1'-0" | 2



TYP. NON-BEARING WALL TO CONCRETE SLAB

12

NTS | 9

SCALE: 1" = 1'-0" | 3

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CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

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SHEET TITLE
TYPICAL DETAILS

SHEET
S-101

FASTENING SCHEDULE
2022 CBC, TABLE 2304.9.1

CONNECTION	FASTENING (a,m)	LOCATION
1. JOIST TO SILL OR GIRDER	(3) 8d COMMON (2 ½" X 0.131") (3) 3" X 0.131" NAILS	TOE NAIL
2. BRIDGING TO JOIST	(2) 8d COMMON (2 ½" X 0.131") (2) 3" X 0.131" NAILS	TOE NAIL EACH END
3. 1"X6" SUBFLOOR OR LESS TO EACH JOIST	(2) 8d COMMON (2 ½" X 0.131")	FACE NAIL
4. WIDER THAN 1"X6" SUBFLOOR TO EACH JOIST	(3) 8d COMMON (2 ½" X 0.131")	FACE NAIL
5. 2" SUBFLOOR TO JOIST OR GIRDER	(2) 16d COMMON (3 ½" X 0.162")	BLIND AND FACE NAIL
6. SOLE PLATE TO JOIST OR BLOCKING SOLE PLATE TO JOIST OR BLOCKING AT BRACED WALL PANEL	16d (3 ½" X 0.135") AT 16" O.C. 3" X 0.131" NAIL AT 8" O.C. (3) 16d (3 ½" X 0.135") AT 16" (4) 3" X 0.131" NAILS AT 16" O.C.	TYPICAL FACE NAIL BRACED WALL PANELS
7. TOP PLATE TO STUD	(2) 8d COMMON (2 ½" X 0.131") (2) 3" X 0.131" NAILS	END NAIL
8. STUD TO SOLE PLATE	(4) 8d COMMON (2 ½" X 0.131") (4) 3" X 0.131" NAILS (2) 16d COMMON (3 ½" X 0.162") (3) 3" X 0.131" NAILS	TOE NAIL END NAIL
9. DOUBLE STUDS	16d (3 ½" X 0.135") AT 24" O.C. (3) 3" X 0.131" NAILS AT 8" O.C.	FACE NAIL
10. DOUBLE TOP PLATES DOUBLE TOP PLATES	16d (3 ½" X 0.131") AT 16" O.C. (3) 3" X 0.131" NAILS AT 12" O.C. (8) 16d COMMON (3 ½" X 0.162") (12) 3" X 0.131" NAILS	TYPICAL FACE NAIL LAP SPLICE
11. BLOCKING BETWEEN JOIST OR RAFTERS TO TOP PLATE	(3) 8d COMMON (2 ½" X 0.131") (3) 3" X 0.131" NAILS	TOE NAIL
12. RIM JOIST TO TOP PLATE	8d COMMON (2 ½" X 0.131") AT 6" O.C. (3) 3" X 0.131" NAIL AT 6" O.C.	TOE NAIL
13. TOP PLATES, LAPS AND INTERSECTIONS	(2) 16d COMMON (3 ½" X 0.162") (3) 3" X 0.131" NAILS	FACE NAIL
14. CONTINUOUS HEADER, TWO PIECES	16d COMMON (3 ½" X 0.162")	16" O.C. ALONG EDGE
15. CEILING JOIST TO PLATE	(3) 8d COMMON (2 ½" X 0.131") (5) 3" X 0.131" NAILS	TOE NAIL
16. CONTINUOUS HEADER TO STUD	(4) 8d COMMON (2 ½" X 0.131")	TOE NAIL
17. CEILING JOISTS, LAPS OVER PARTITIONS (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	(3) 16d COMMON (3 ½" X 0.162") MINIMUM, TABLE 2308.10.4.1 (4) 3" X 0.131" NAILS	FACE NAIL
18. CEILING JOISTS TO PARALLEL RAFTER (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	(3) 16d COMMON (3 ½" X 0.162") MINIMUM, TABLE 2308.10.4.1 (4) 3" X 0.131" NAILS	FACE NAIL
19. RAFTER TO PLATE (SEE SECTION 2308.10.1, TABLE 2308.10.1)	(3) 8d COMMON (2 ½" X 0.131") (3) 3" X 0.131" NAILS	TOE NAIL
20. 1" DIAGONAL BRACE TO EACH STUD AND PLATE.	(2) 8d COMMON (2 ½"X 0.131") (2) 3" X 0.131" NAILS	FACE NAIL
21. 1" X 8" SHEATHING TO EACH BEARING	(3) 8d COMMON (2 ½" X 0.131")	FACE NAIL
22. WIDER THAN 1" X 8" SHEATHING TO EACH BEARING	(3) 8d COMMON (2 ½" X 0.131")	FACE NAIL
23. BUILT UP CORNER STUDS	16d COMMON (3 ½" X 0.162") 3" X 0.131" NAILS	24" O.C. 16" O.C.

FASTENING SCHEDULE (CONT.)
2022 CBC, TABLE 2304.9.1

CONNECTION	FASTENING (a,m)	LOCATION
24. BUILT UP GIRDER AND BEAMS	20d COMMON (4" X 0.192") 32" O.C. 3" X 0.131" NAILS AT 24" O.C. (2) 20d COMMON (4" X 0.192") (3) 3" X 0.131" NAILS	FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES FACE NAIL AT ENDS AND AT EACH SPLICE
25. 2" PLANKS	16d COMMON (3 ½" X 0.162")	AT EACH BEARING
26. COLLAR TIE TO RAFTER	(3) 10d COMMON (3" X 0.148") (4) 3" X 0.131" NAILS	FACE NAIL
27. JACK RAFTER TO HIP	(3) 10d COMMON (3" X 0.148") (4) 3" X 0.131" NAILS (2) 16d COMMON (3 ½" X 0.162") (3) 3" X 0.131" NAILS	TOE NAIL FACE NAIL
28. ROOF RAFTER TO 2X RIDGE BEAM	(2) 16d COMMON (3" X 0.148") (4) 3" X 0.131" NAILS (2) 16d COMMON (3 ½" X 0.162") (3) 3" X 0.131" NAILS	TOE NAIL FACE NAIL
29. JOIST TO BAND JOIST	16d COMMON (3 ½" X 0.162") (4) 3" X 0.131" NAILS	FACE NAIL
30. LEDGER STRIP	(3) 16d COMMON (3 ½" X 0.162") (4) 3" X 0.131" NAILS	FACE NAIL
31. WOOD STRUCTURE PANELS AND PARTICLE-BOARD (b) SUBFLOOR, ROOF AND WALL SHEATHING (TO FRAMING)	½" AND LESS — 6d (c.l.) (2 3/8" X 0.13" NAIL (n) 19/32" TO ¾" — 8d (d) OR 6d (e) (2 3/8" X 0.113" NAIL (p) ⅞" TO 1" — 8d (c) 1 ⅛" TO 1 ¼" — 10d (d) OR 8d (d) ¾" AND LESS — 6d (e) ⅞" TO 1" — 8d (e) 1 ⅛" TO 1 ¼" — 10d (d) OR 8d (e)	
32. PANEL SIDING (TO FRAMING)	½" AND LESS — 6d (f) ⅝" — 8d (f)	
33. FIBERBOARD SHEATHING (g)	½" — NO. 11 GAGE ROOFING NAIL (h) 6d COMMON NAIL (2" X 0.113") 25/32" — NO. 11 GAGE ROOFING NAIL (h) 8d COMMON NAIL (2-1/2" X 0.131")	
34. INTERIOR PANELING	¼" — 4d (j) ⅜" — 6d (k)	

FOR SI: 1 INCH = 25.4 mm

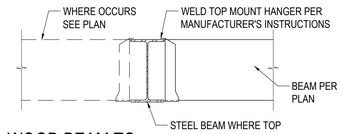
(a) COMMON OR BOX NAILS ARE PERMITTED TO BE USED EXCEPT WHERE OTHERWISE STATED.
(b) NAILS SPACED AT 6 INCHES ON CENTER AT EDGES, 12" INCHES AT INTERMEDIATE SUPPORTS EXCEPT 6 INCHES AT SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANELS AND PARTICLEBOARD DIAGRAMS AND SHEAR WALLS REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.
(c) COMMON OR DEFORMED SHANK (6d - 2"X0.113"; 8d - 2 3/8"X0.131"; 10d - 3"X0.148")
(d) COMMON (6d - 2"X0.113"; 8d - 2 1/2"X0.131"; 10d - 3"X0.148")
(e) DEFORMED SHANK (6d - 2"X0.113"; 8d-2 3/8"X0.131"; 10d - 3"X0.148").
(f) CORROSION-RESISTANT SIDING (6d - 1 7/8"X0.106"; 8d - 2 3/8"X0.128") OR CASING (6d - 2" X 0.099"; 8d - 2 1/2"X0.113") NAIL.
(g) FASTENERS SPACED 3 INCHES ON CENTER AT EXTERIOR EDGES AND 6 INCHES ON CENTER AT INTERMEDIATE SUPPORTS, WHEN USED AS STRUCTURAL SHEATHING. SPACING SHALL BE 6 INCHES ON CENTER ON THE EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR NON-STRUCTURAL APPLICATIONS.
(h) CORROSION-RESISTANT ROOFING NAILS WITH 7/16 INCH DIAMETER HEAD AND 1-1/2 INCH LENGTH FOR ½" SHEATHING AND 1-3/4 INCH LENGTH FOR 5/8 INCH SHEATHING.
(i) CORROSION RESISTANT STAPLES WITH NORMAL 7/16 INCH CROWN AND 1 -1/8 INCH LENGTH FOR 1/2 INCH SHEATHING AND . 1-1/2 INCH LENGTH FOR 5/8 INCH SHEATHING. PANEL SUPPORTS AT 16 INCHES (20 INCHES IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).
(j) CASING (1-1/2" X 0.080") OR FINISH (1-1/2" X 0.072") NAILS SPACED 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS.
(k) PANEL SUPPORTS AT 24 INCHES. CASING OF FINISH NAILS SPACED 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS.
(l) FOR ROOF SHEATHING APPLICATIONS, 8d NAILS (2-1/2" X 0.113") ARE THE MINIMUM REQUIRED FOR WOOD STRUCTURAL PANELS.
(m) STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF 7/16 INCH.
(n) FOR ROOF SHEATHING APPLICATIONS, FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS.
(o) FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS FOR SUBFLOOR AND WALL SHEATHING AND 3 INCHES ON CENTER AT EDGES, 6 INCHES AT INTERMEDIATE SUPPORTS FOR ROOF SHEATHING.
(p) FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS.

HANGER SCHEDULE - MANUFACTURER: SIMPSON STRONGTIE

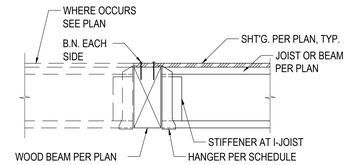
TOP MOUNT HANGER (SEE NOTE 1)			FACE MOUNT HANGER (SEE NOTE 1)		
JOIST/BEAM SIZE	HANGER TYPE		JOIST/BEAM SIZE	HANGER TYPE	
ALL SAWN LUMBER U.N.O.	SIMPSON 'HUTF'	ESR-2553	ALL SAWN LUMBER U.N.O.	SIMPSON 'HU'	ESR-2552
2X6 THRU 2X16	SIMPSON 'LB'	ESR-2553	2X6 THRU 2X14	SIMPSON 'LUS'	ESR-2552
(2) 2X6 THRU (2) 2X14	SIMPSON 'HUTF'	ESR-2553	(2) 2X6 THRU (2) 2X14	SIMPSON 'LUS'	ESR-2552
4X6 THRU 4X14	SIMPSON 'HUTF'	ESR-2553	4X6 THRU 4X14	SIMPSON 'HHUS'	ESR-2552
ALL I-JOIST U.N.O.	SIMPSON 'LBV'	ESR-2615	ALL I-JOIST U.N.O.	SIMPSON 'MIU'	ESR-2552
SINGLE I-JOIST TO WOOD BEAM 9 ¼ THRU 16 DEEP	SIMPSON 'ITS'	ESR-2615	SINGLE I-JOIST TO WOOD BEAM 9 ½ THRU 16 DEEP	SIMPSON 'IUS'	ESR-2552
ALL PSL/LVL/LSL BEAM U.N.O.	SIMPSON 'HGLTV'	ESR-2615	ALL PSL/LVL/LSL BEAM U.N.O.	SIMPSON 'HGU'	ESR-2552
3 ½" AND 5 ¼" PSL/LVL/LSL UP TO 11 ⅞" DEEP	SIMPSON 'HGLTV'	ESR-2615	3 ½" AND 5 ¼" PSL/LVL/LSL UP TO 11 ⅞" DEEP	SIMPSON 'MGU'	ESR-2552
ALL GLULAM BEAMS U.N.O.	SIMPSON 'EG'	ESR-2615	ALL GLULAM BEAMS U.N.O.	SIMPSON 'HHGU'	ESR-2552

NOTES:
1. PROVIDE TOP MOUNT HANGERS. FACE MOUNT HANGERS SHALL BE ALLOWED ONLY WHERE SPECIFICALLY INDICATED ON THE PLANS OR DETAILS
2. PROVIDE SKEWED, SLOPED HANGERS AS REQ'D.

HANGER SCHEDULE — A



WOOD BEAM TO STEEL BEAM W/OUT TOP NAILER — B



WOOD BEAM TO JOIST OR WOOD BEAM CONN. — C

TYPICAL BEAM / JOIST CONNECTIONS SCALE: 1" = 1'-0" 2

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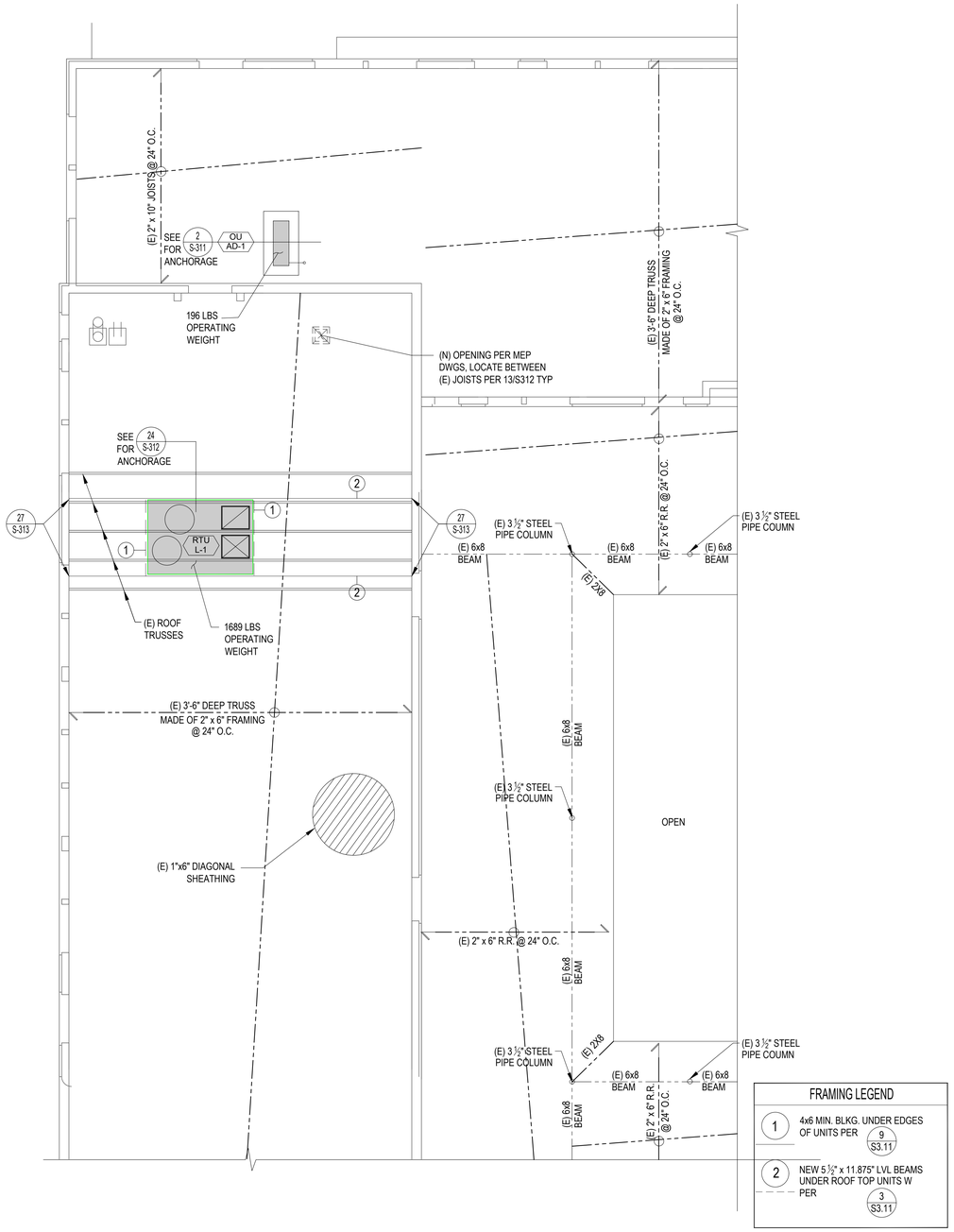
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SHEET TITLE: TYPICAL DETAILS

SHEET
S-111

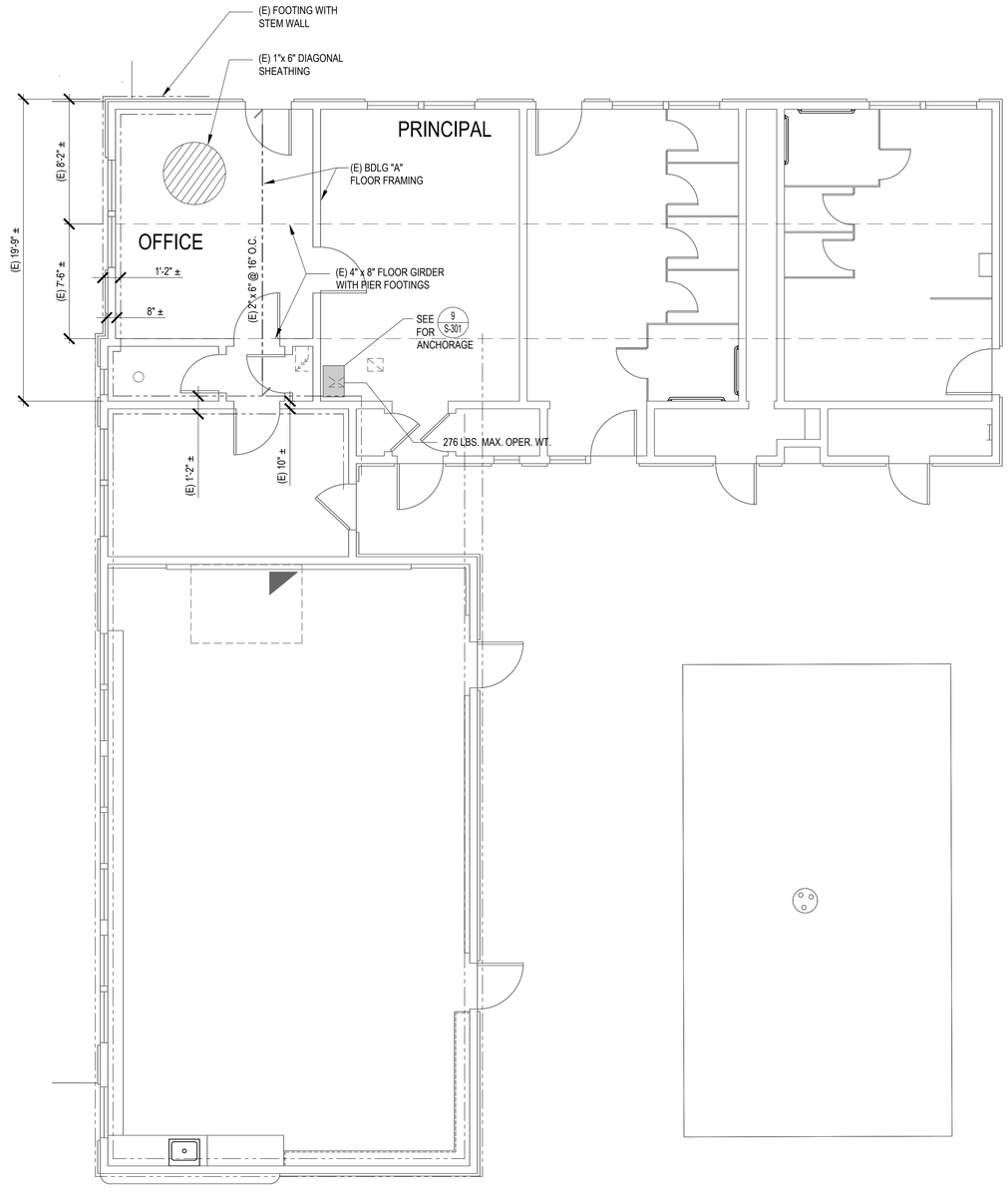


FRAMING LEGEND

1. 4x6 MIN. BLKG. UNDER EDGES OF UNITS PER 9 S3.11
2. NEW 5 ½" x 11.875" LVL BEAMS UNDER ROOF TOP UNITS W PER 3 S3.11

NOTE: INSTALLATION OF BEAMS MAY REQUIRE REMOVAL OF A FULL LENGTH STRIP OF EXISTING SHTG (24" MIN WIDE) TO LIFT & SLIDE BEAM IN TO PLACE. PROVIDE NEW 15/32" MIN. THICK PLYWOOD, FRMG, AND NAILING PER 16/S312 TO CLOSE OPENING. PROVIDE NEW FASTENERS TO (E) DIAG. SLAT SHTG PER 16/S312 AT EDGES OF OPENING.

2 BUILDING "A" STRUCTURAL ROOF PLAN
SCALE: 1/4" = 1'-0"



1 BUILDING "A" STRUCTURAL FLOOR PLANS
SCALE: 1/4" = 1'-0"

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PATRICK B. PANLAQUI
PROJECT MANAGER

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O.S.G. #24709.03

LICENSED ARCHITECT JOHN A. JESPERSEN No. C-25839 Rev. 06/30/2025 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER DANIEL A. LAING No. 5430 Exp. 06/30/2026 STRUCTURAL STATE OF CALIFORNIA

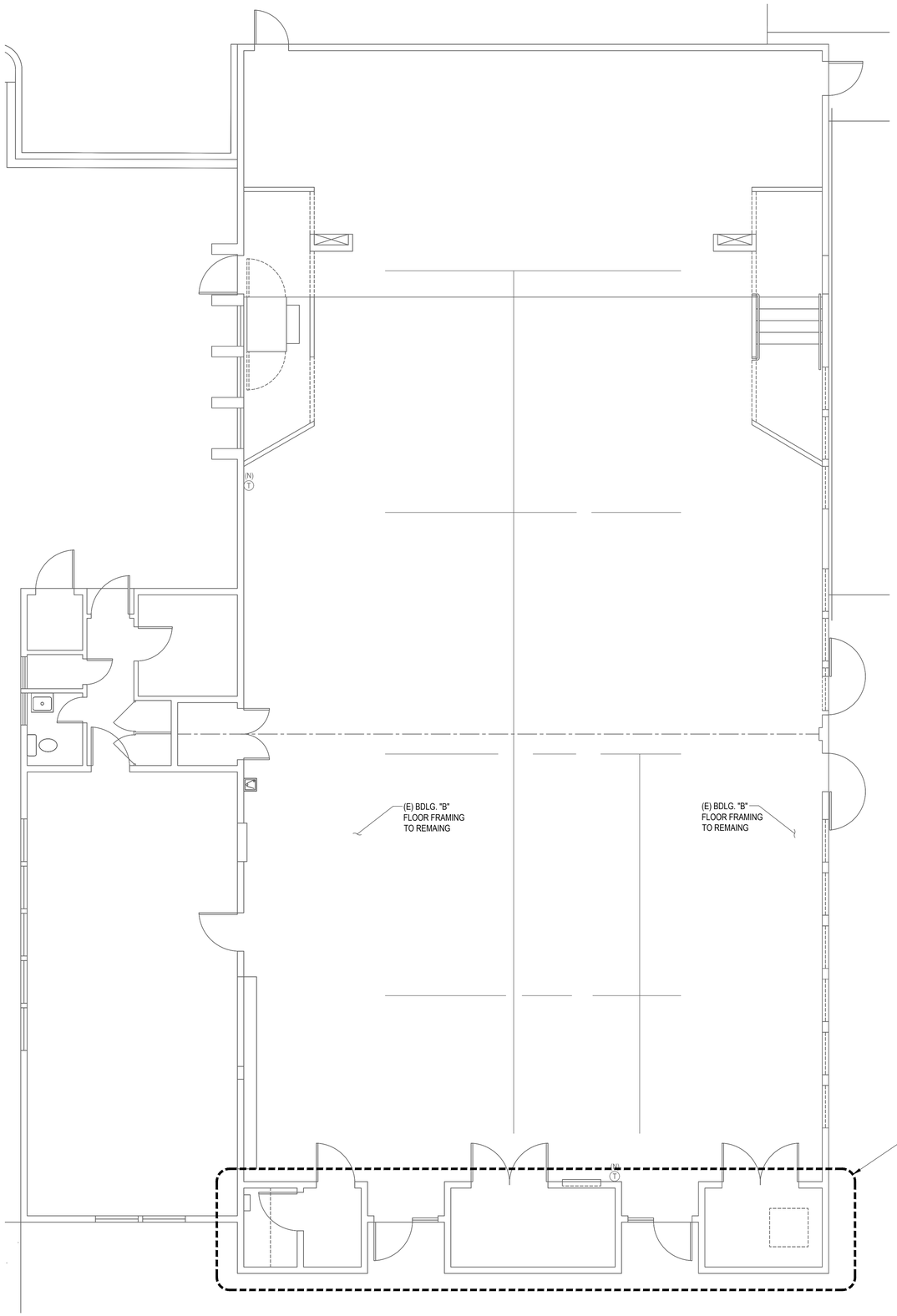
V3
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CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

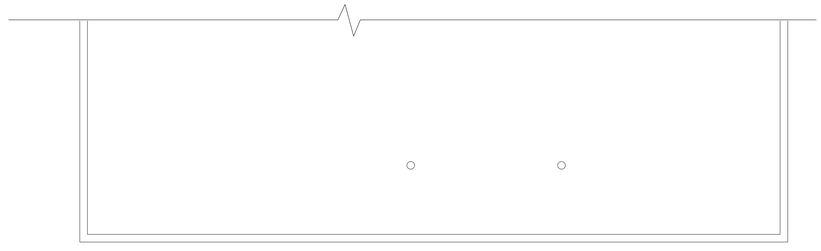
DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: BUILDING "A" STRUCTURAL PLANS

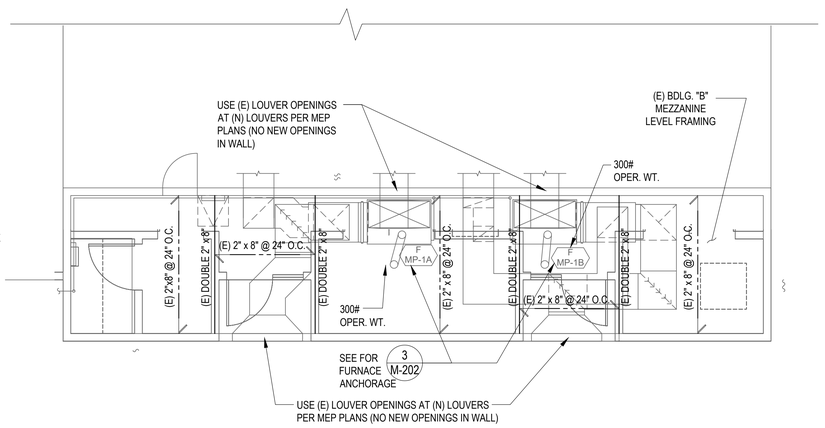
SHEET
S-201



1 BUILDING "B"
STRUCTURAL FLOOR PLAN
SCALE: 1/4" = 1'-0"



3 BUILDING "B"
STRUCTURAL PARTIAL ROOF PLAN
SCALE: 1/4" = 1'-0"



2 BUILDING "B"
STRUCTURAL MEZZANINE PLAN
SCALE: 1/4" = 1'-0"

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KRUGER BENSEN ZIEMER
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TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAGUI
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REGISTERED PROFESSIONAL ENGINEER WILLIAM S. LEUNG No. 5430 Exp. 08/30/2026 STRUCTURAL STATE OF CALIFORNIA

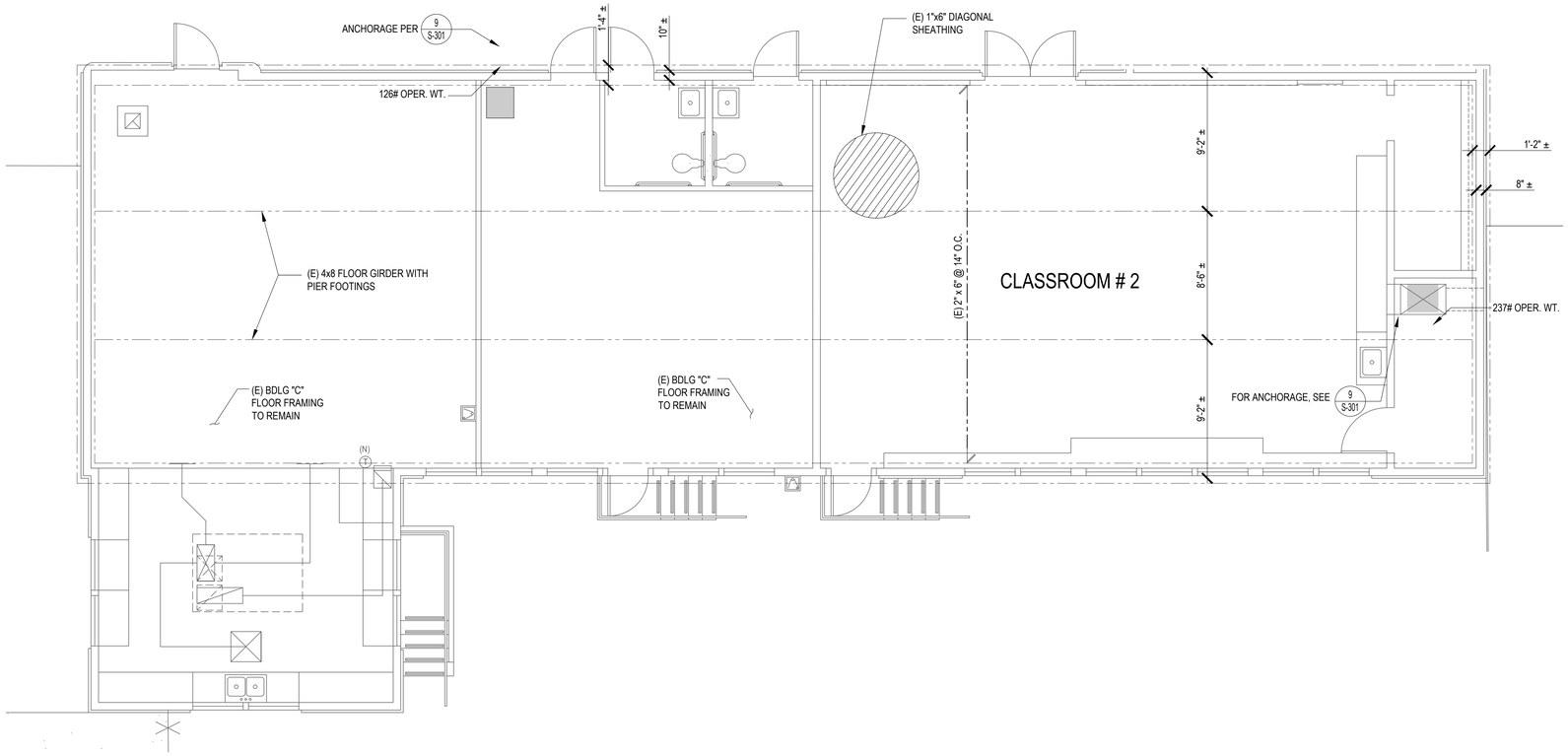
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CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.90		

DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: BUILDING "B" STRUCTURAL FLOOR PLANS

SHEET
S-202



1 BUILDING "C" STRUCTURAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

2 BUILDING "C" STRUCTURAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

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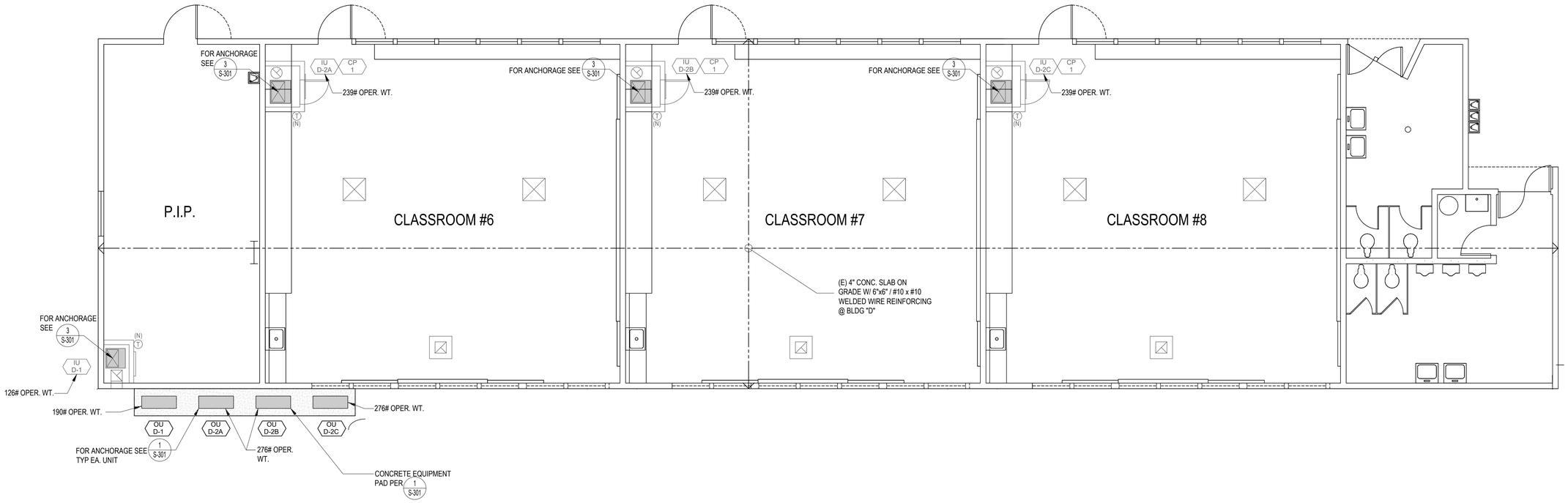
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CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: BUILDING "C" STRUCTURAL FLOOR PLANS

SHEET
S-203



1 BUILDING "D"
STRUCTURAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

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REGISTERED PROFESSIONAL ENGINEER TODD A. JESPERSEN No. C-25839 Ren. 06/30/2026 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER No. 5430 Exp. 06/30/2026 STRUCTURAL STATE OF CALIFORNIA

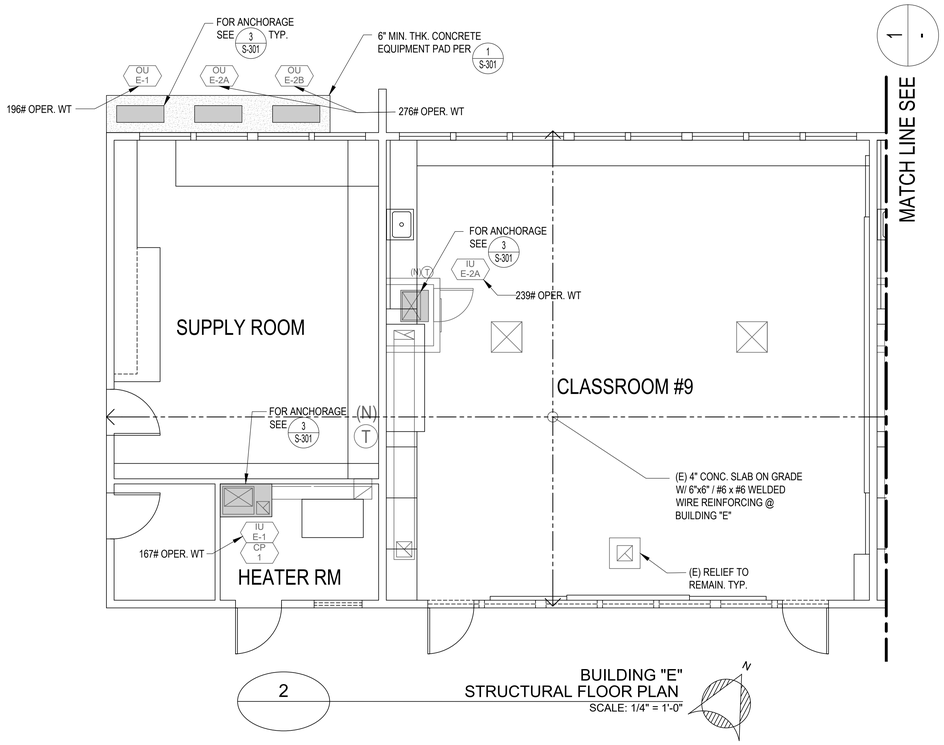
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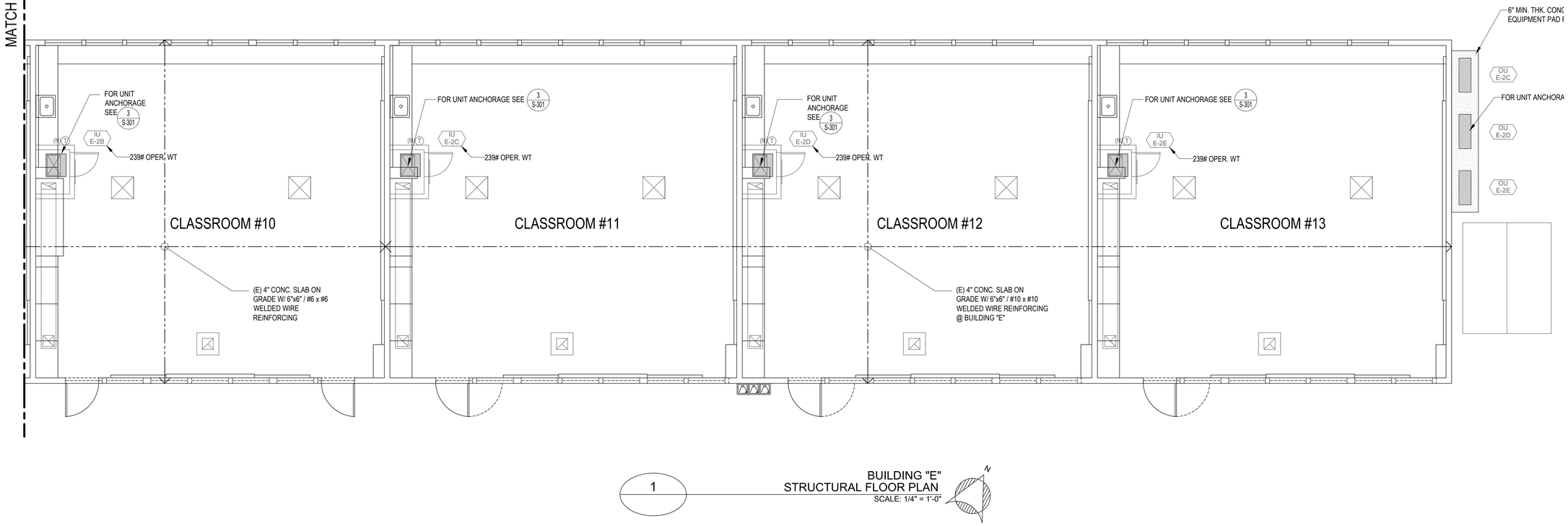
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DATE	11/12/2024		
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DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: BUILDING "D" STRUCTURAL FLOOR PLAN

SHEET
S-204





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REGISTERED PROFESSIONAL ENGINEER — Mark A. Lamb — No. 5430 — Exp. 06/30/2026 — STRUCTURAL — STATE OF CALIFORNIA

V3
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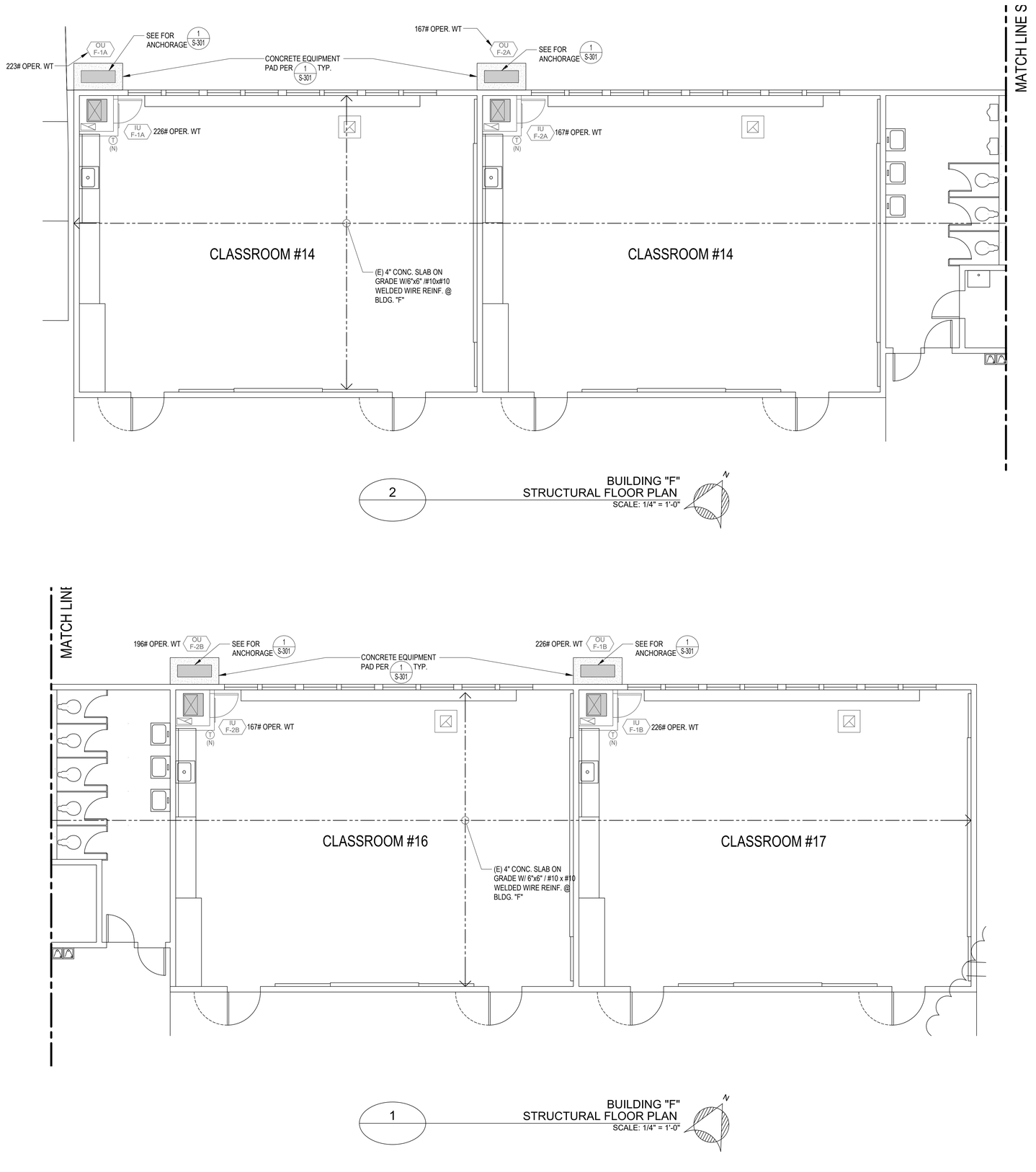
REVISION	DESCRIPTION	DATE	BY
DRAWN	MG		
CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: BUILDING "E" STRUCTURAL FLOOR PLAN

SHEET

S-205



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TODD A. JESPERSEN — No. C-25839 — Ren. 06/30/2026 — STATE OF CALIFORNIA

No. 5430 — Exp. 06/30/2026 — STRUCTURAL — STATE OF CALIFORNIA

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REVISION	DESCRIPTION	DATE	BY
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CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

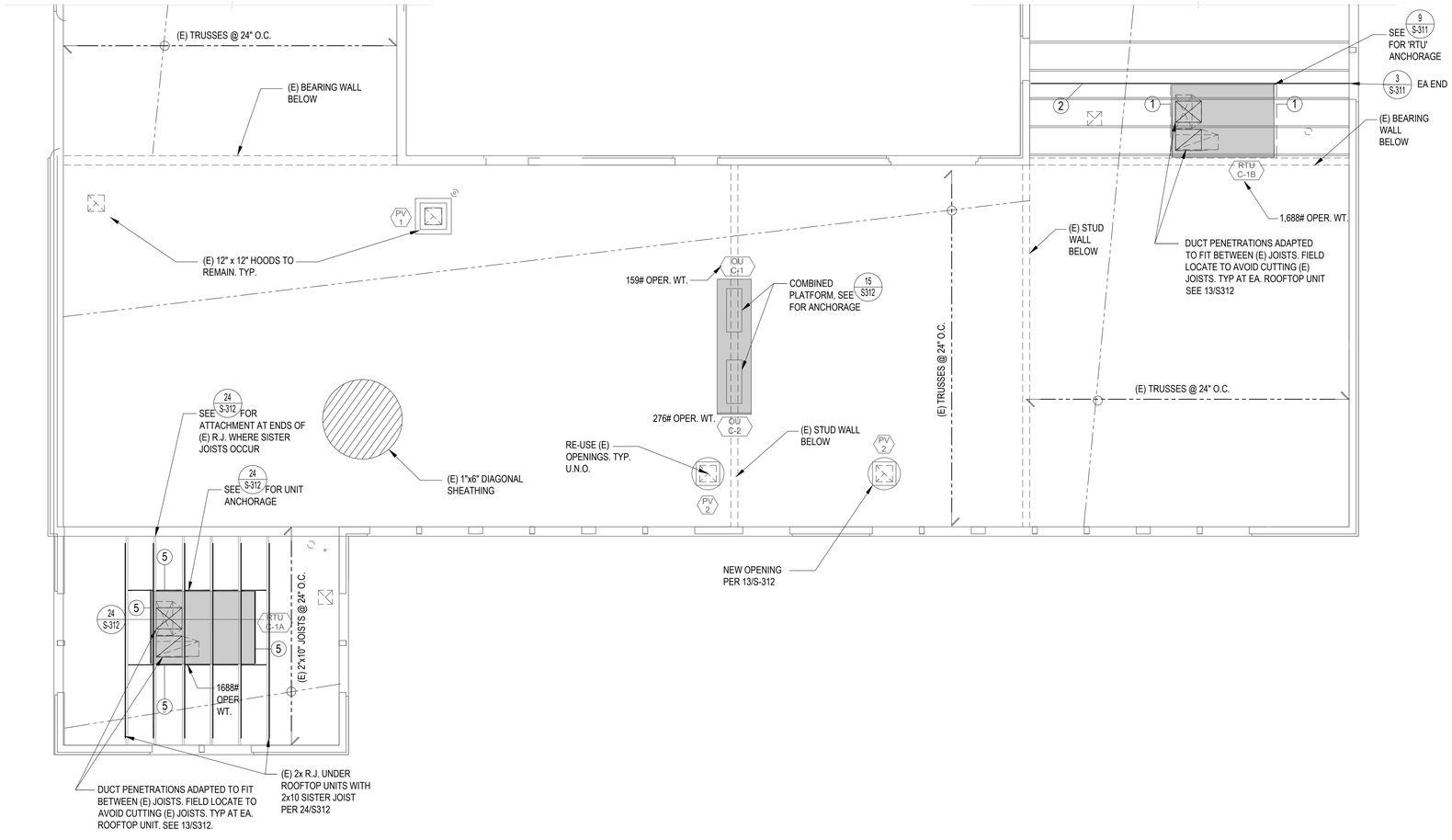
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SHEET TITLE: BUILDING "F" STRUCTURAL FLOOR PLAN

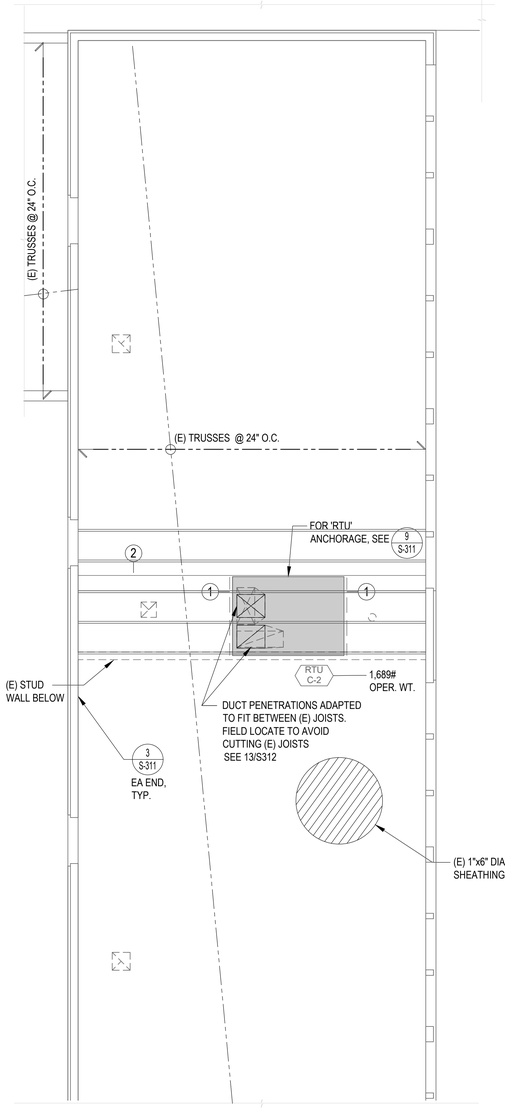
SHEET
S-206

FRAMING LEGEND	
1	4x6 MIN. BLKG. UNDER EDGES OF UNITS
2	NEW 5 ½" x 11.875" LVL BEAMS UNDER ROOF TOP UNITS W
3	NEW 3 ½" x 11.25" LVL BEAM UNDER ROOF TOP UNITS
4	NEW 5 ½" x 14.0" LVL BEAMS UNDER ROOF TOP UNITS
5	4x10 MIN. BLKG. UNDER EDGES OF UNITS

NOTE: INSTALLATION OF BEAMS MAY REQUIRE REMOVAL OF A FULL LENGTH STRIP OF EXISTING SHTG (24" MIN WIDE) TO LIFT & SLIDE BEAM IN TO PLACE. PROVIDE NEW $^{15}/_{32}$" MIN. THICK PLYWOOD, FRMG, AND NAILING PER 16/S312 TO CLOSE OPENING. PROVIDE NEW FASTENERS TO (E) DIAG. SLAT SHTG PER 16/S312 AT EDGES OF OPENING.



1 BUILDING "C" STRUCTURAL ROOF PLAN
SCALE: 1/4" = 1'-0"



2 BUILDING "C" STRUCTURAL ROOF PLAN
SCALE: 1/4" = 1'-0"

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TODD A. JESPERSEN, AIA
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JONATHAN D. LEE
ARCHITECTURAL ASSISTANT

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REGISTERED PROFESSIONAL ENGINEER No. 5430 Exp. 06/30/2026 STRUCTURAL STATE OF CALIFORNIA

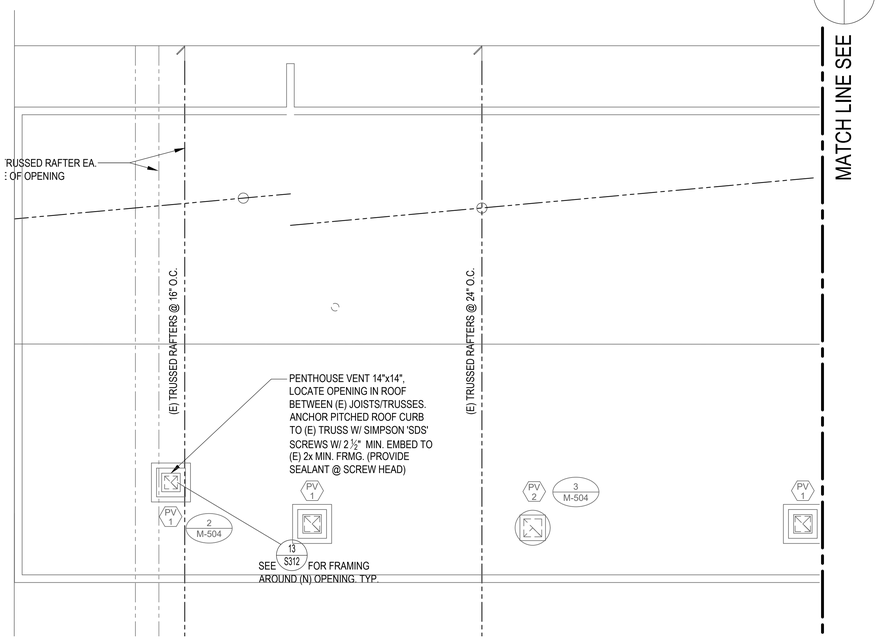
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REVISION	DESCRIPTION	DATE	BY
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4	-	-/-/-	XX
3	-	-/-/-	XX
2	-	-/-/-	XX
1	-	-/-/-	XX

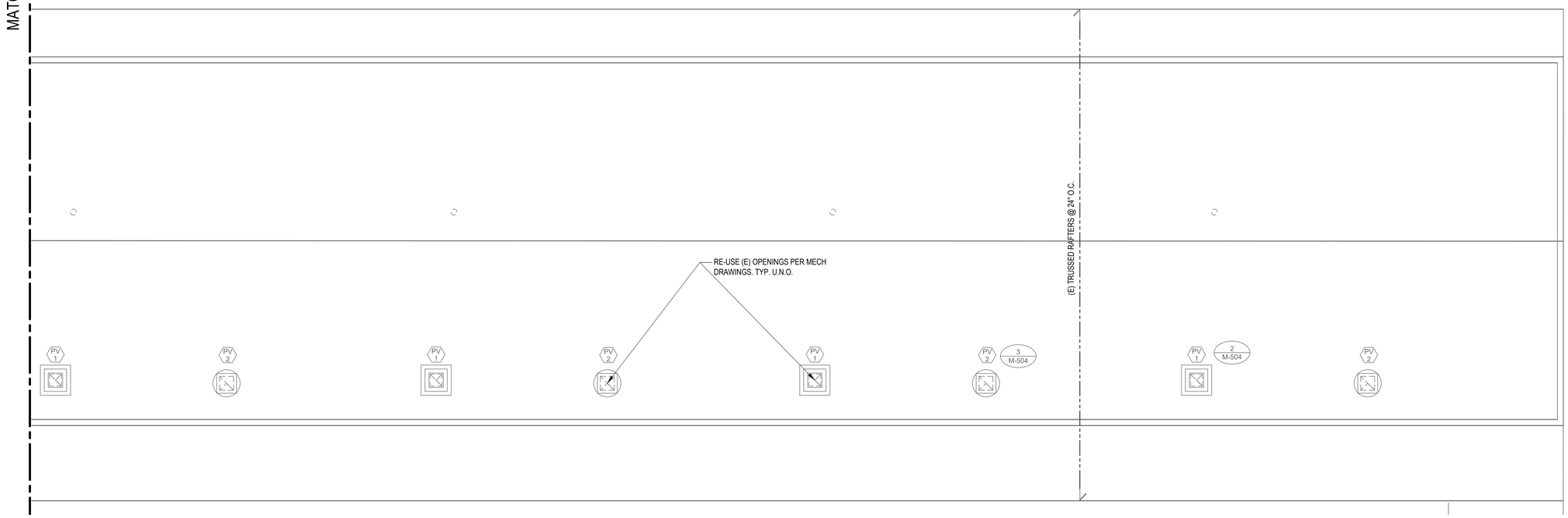
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CHECKED WL
DATE 11/12/2024
JOB. NO.

SHEET TITLE BUILDING "C" STRUCTURAL ROOF PLAN

SHEET S-213



2 BUILDING "E" STRUCTURAL ROOF PLAN
SCALE: 1/4" = 1'-0"



1 BUILDING "E" STRUCTURAL ROOF PLAN
SCALE: 1/4" = 1'-0"

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PATRICK B. PANLAQUI
PROJECT MANAGER

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LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Ren. 08/30/2025 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER Patrick B. Lagui No. 54310 Exp. 06/30/2026 STRUCTURAL STATE OF CALIFORNIA

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REVISION	DESCRIPTION	DATE	BY
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DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

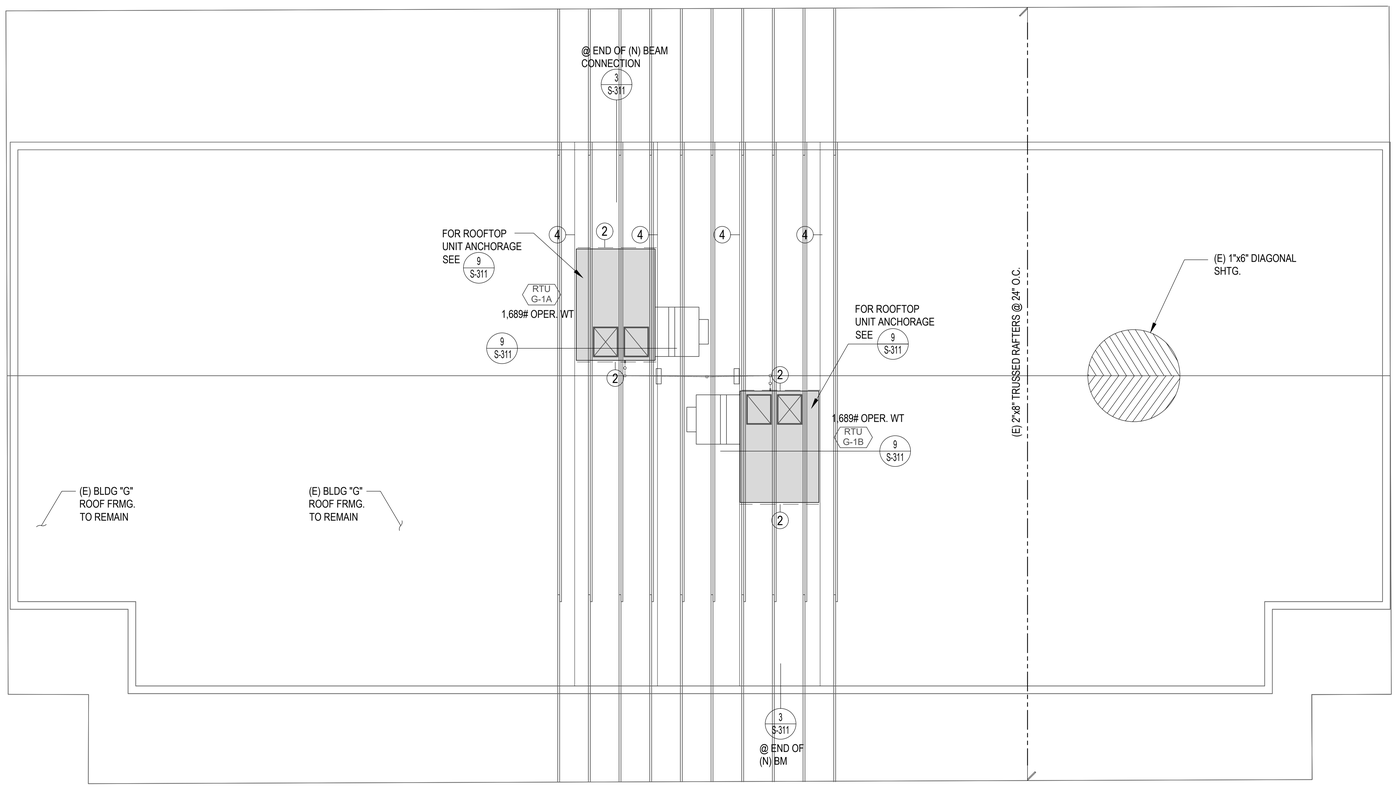
DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: BUILDING "E" STRUCTURAL ROOF PLAN

SHEET
S-215

FRAMING LEGEND	
2	4x6 MIN. BLKG. UNDER EDGES OF UNITS PER 9/S3.11
4	NEW 5 ½" x 14.0" LVL BEAMS UNDER ROOF TOP UNITS PER 3/S3.11

NOTE: INSTALLATION OF BEAMS MAY REQUIRE REMOVAL OF A FULL LENGTH STRIP OF EXISTING SHTG (24" MIN WIDE) TO LIFT & SLIDE BEAM IN TO PLACE. PROVIDE NEW 15/32" MIN. THICK PLYWOOD, FRMG, AND NAILING PER 16/S312 TO CLOSE OPENING. PROVIDE NEW FASTENERS TO (E) DIAG. SLAT SHTG PER 16/S312 AT EDGES OF OPENING.



1 BUILDING "G" STRUCTURAL ROOF PLAN
SCALE: 1/4" = 1'-0"

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PATRICK B. PANLAQUI
PROJECT MANAGER

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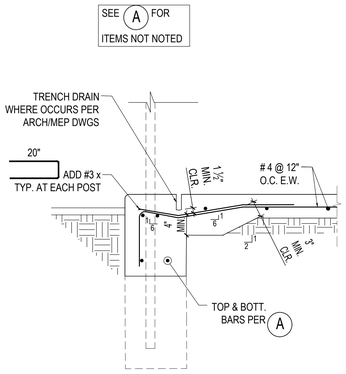
Orion Structural Group, Inc.
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REGISTERED PROFESSIONAL ENGINEER — TODD A. JESPERSEN — No. C-25839 — Exp. 06/30/2025 — STRUCTURAL — STATE OF CALIFORNIA

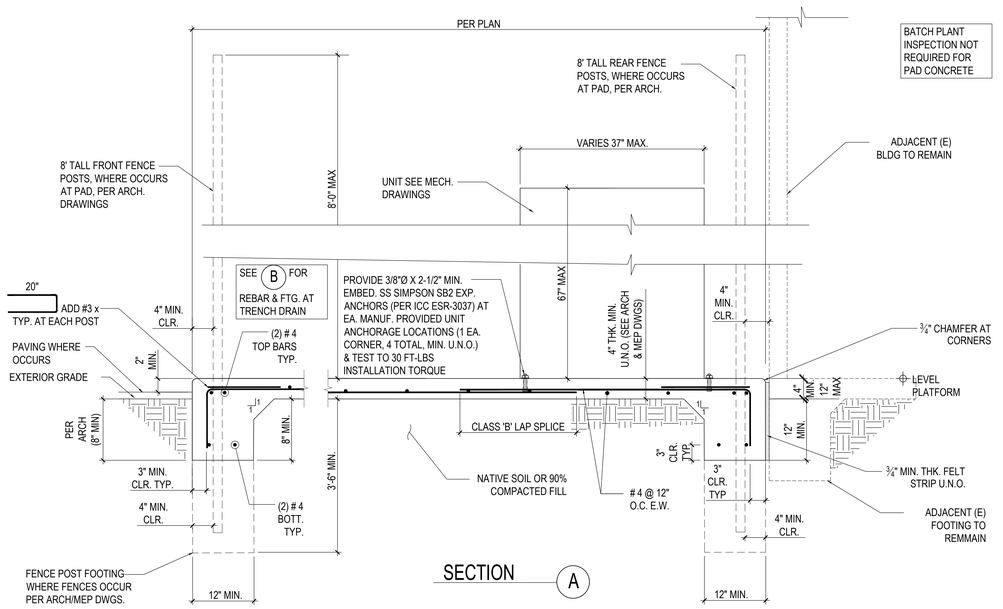
REGISTERED PROFESSIONAL ENGINEER — G. M. Tsai — No. 5430 — Exp. 06/30/2024 — STRUCTURAL — STATE OF CALIFORNIA

V3
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REVISION	DESCRIPTION	DATE	BY
DRAWN	MG		
CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.30		
DSA A03-124514 FILE:56-40 PTN:72652-125			
SHEET TITLE	BUILDING "G" STRUCTURAL ROOF PLAN		
SHEET	S-217		

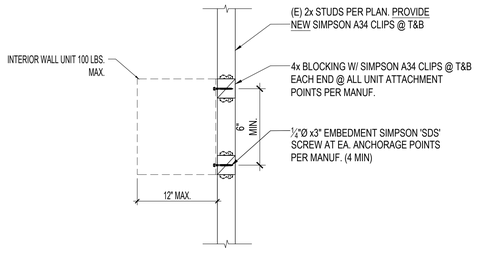


REBAR AT DRAIN WHERE OCCURS AT BUILDING 'E' B

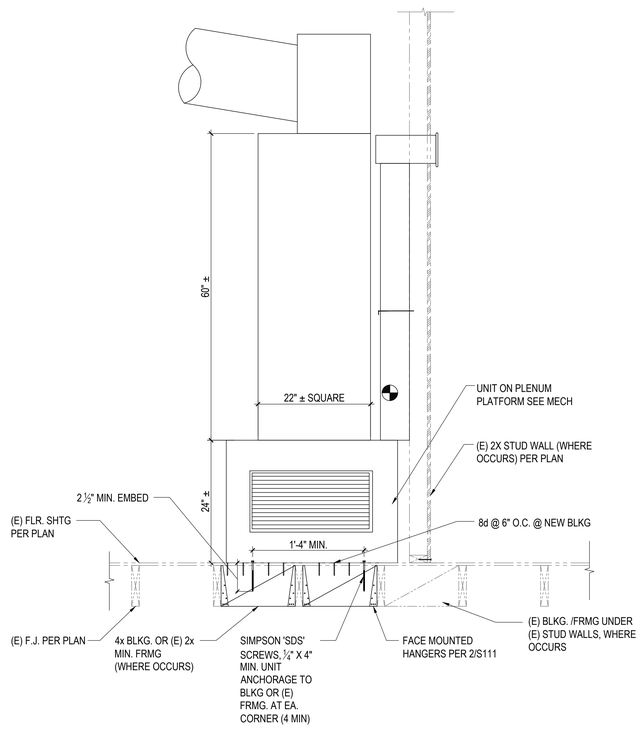


SECTION A

SCALE: 1" = 1'-0" | 7 | OUTDOOR UNIT ANCHORAGE (350 LBS MAX.) | SCALE: 1" = 1'-0" | 1

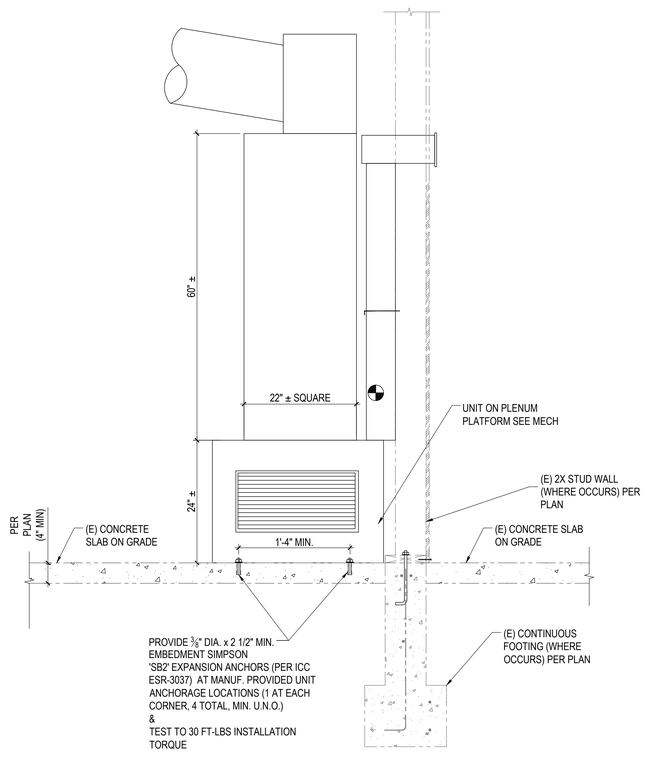


WALL MOUNTED UNIT ANCHORAGE | SCALE: 1" = 1'-0" | 11



-

12 | IU ANCHORAGE TO RAISED WOOD FLOOR FRAMING (300 LBS MAX.) | NTS



IU ANCHORAGE TO SLAB (300 LBS MAX.) | SCALE: 1" = 1'-0" | 3

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ENGINEER'S STAMP & SIGNATURE

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O.S.G. #24709-03

REGISTERED PROFESSIONAL ENGINEER — RICHARD A. JESPERSEN — No. C-25839 — Ren. 06/30/2025 — STATE OF CALIFORNIA — STRUCTURAL

REGISTERED PROFESSIONAL ENGINEER — W. M. LAM — No. 5430 — Exp. 06/30/2026 — STRUCTURAL — STATE OF CALIFORNIA

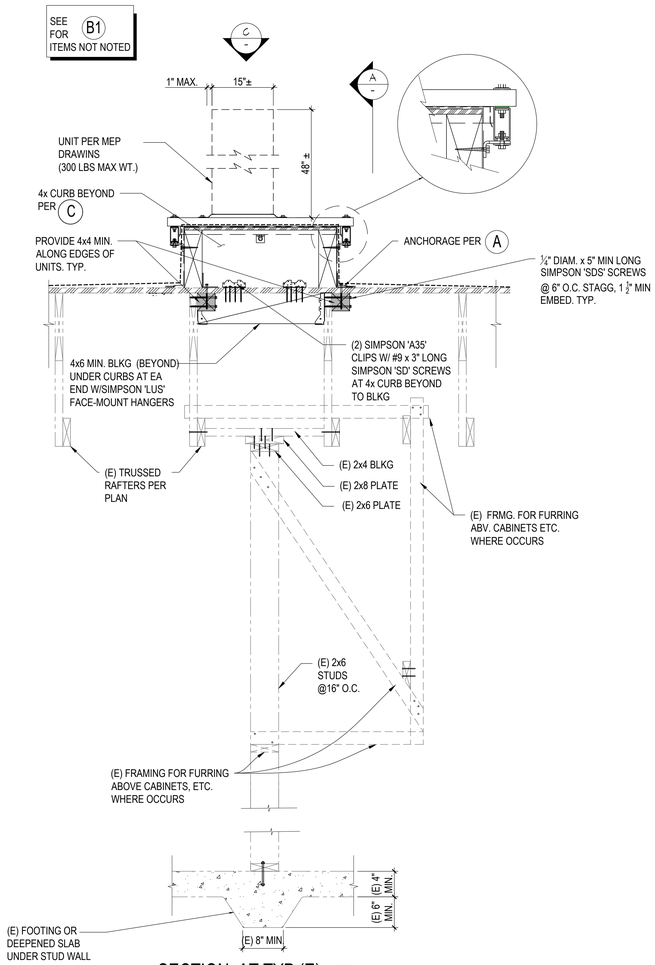
V3
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REVISION	DESCRIPTION	DATE	BY
DRAWN	MG		
CHECKED	WL		
DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

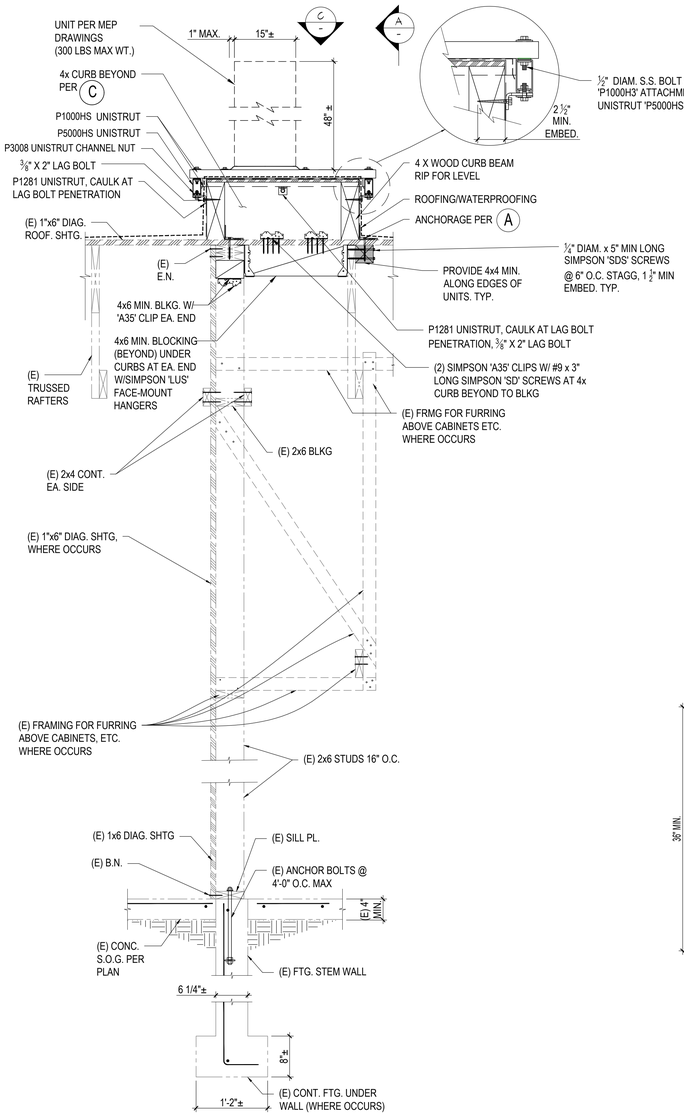
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SHEET TITLE: STRUCTURAL DETAILS

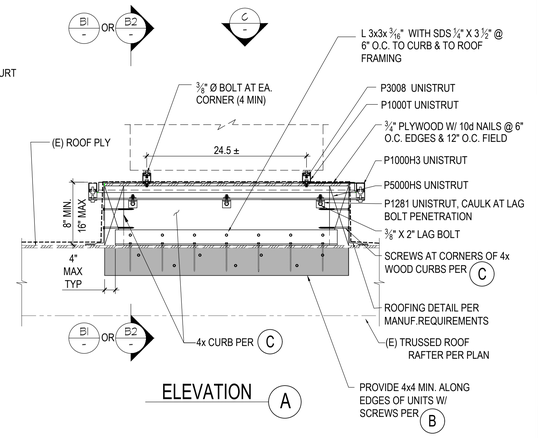
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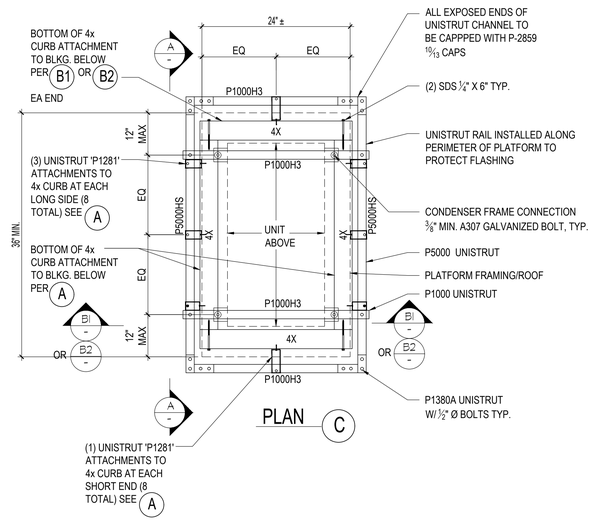
SECTION AT TYP (E) INTERIOR WALL B2



SECTION @ (E) INTERIOR SHEATHED WALL B1

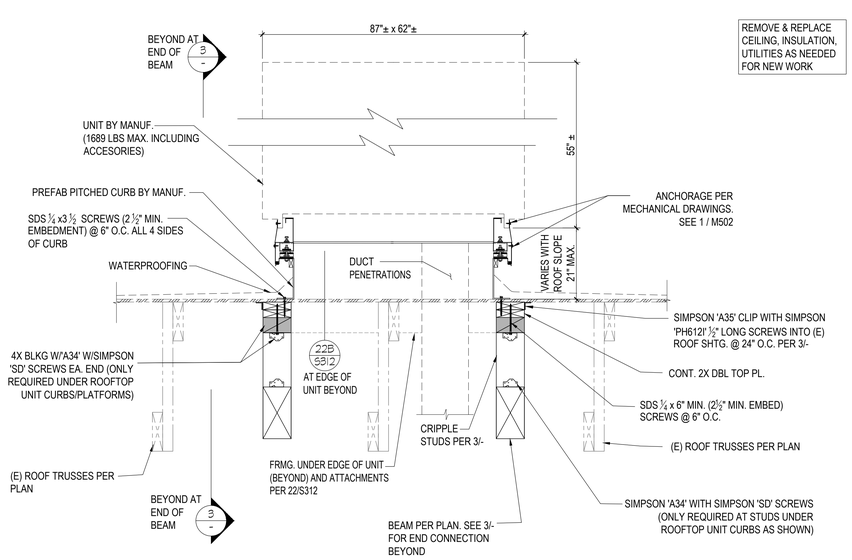


ELEVATION A

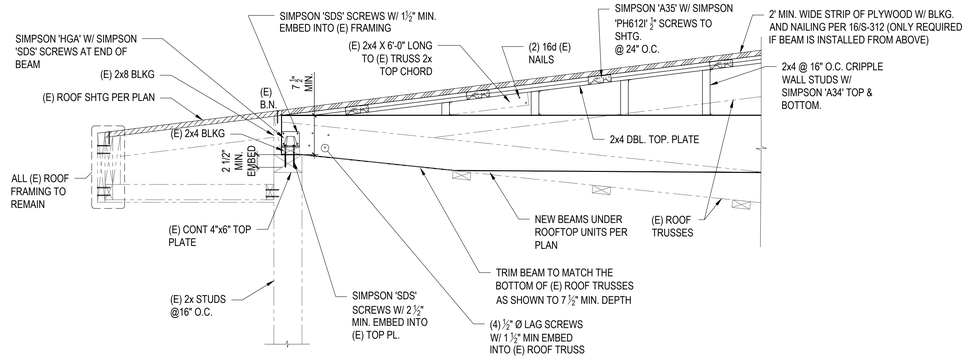


PLAN C

OU ROOFTOP UNIT SUPPORTS AND ANCHORAGE SCALE: N.T.S. 2



ROOF TOP UNIT ANCHORAGE DETAIL NTS 9



NEW BEAM FRAMING CONNECTIONS N.T.S. 3

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ENGINEER'S STAMP & SIGNATURE

Orion Structural

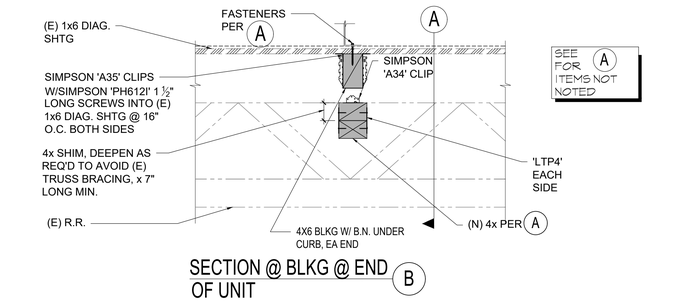
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LICENSED ARCHITECT — JILL A. LAWRENCE — No. C-25839 — Exp. 06/30/2025 — STATE OF CALIFORNIA

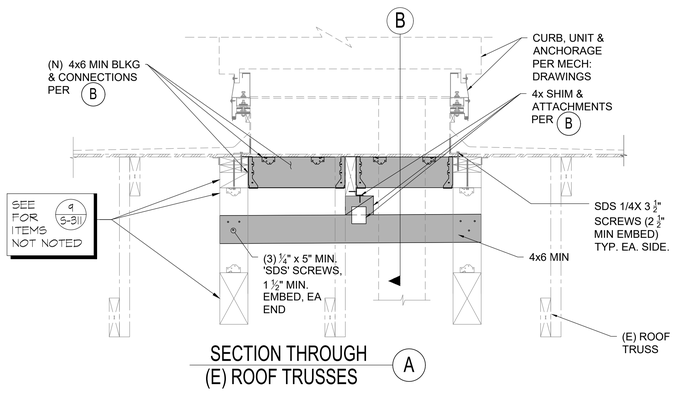
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SHEET TITLE	STRUCTURAL DETAILS		
SHEET	S-311		

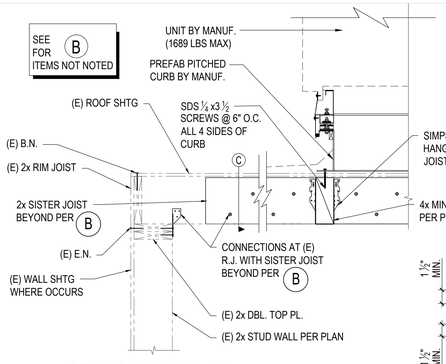


SECTION @ BLKG @ END OF UNIT B

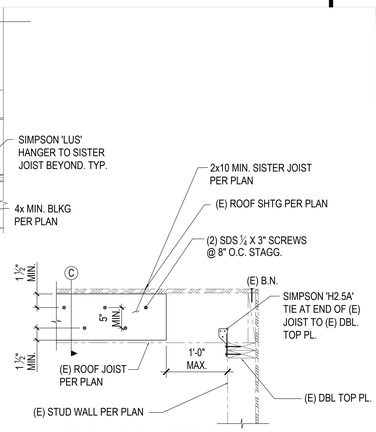


SECTION THROUGH (E) ROOF TRUSSES A

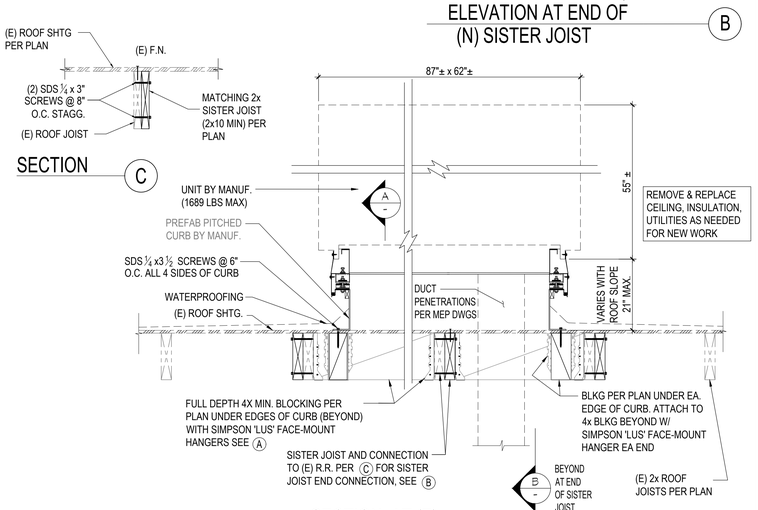
ENDS OF UNIT SUPPORTED BY BLOCKING FRAMING CONNECTIONS SCALE: 1" = 1'-0" 22



SECTION AT END OF CURB CONNECTION A

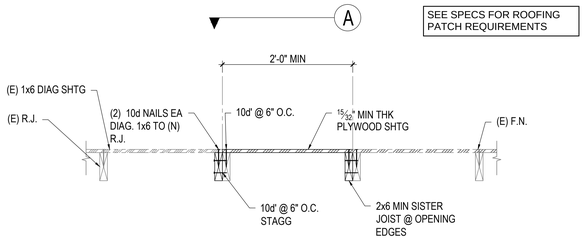


ELEVATION AT END OF (N) SISTER JOIST B

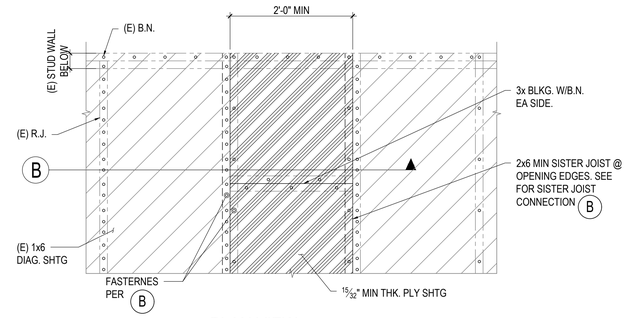


SECTION AT (E) ROOF JOISTS D

RTU (1689 LBS MAX. INCLUDING ACCESORIES) ANCHORAGE DETAIL - FRMG INSTALLED FROM ABV. NTS 24

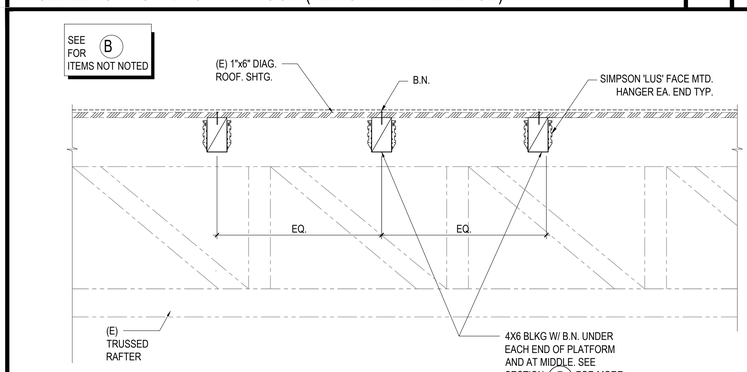


SECTION B

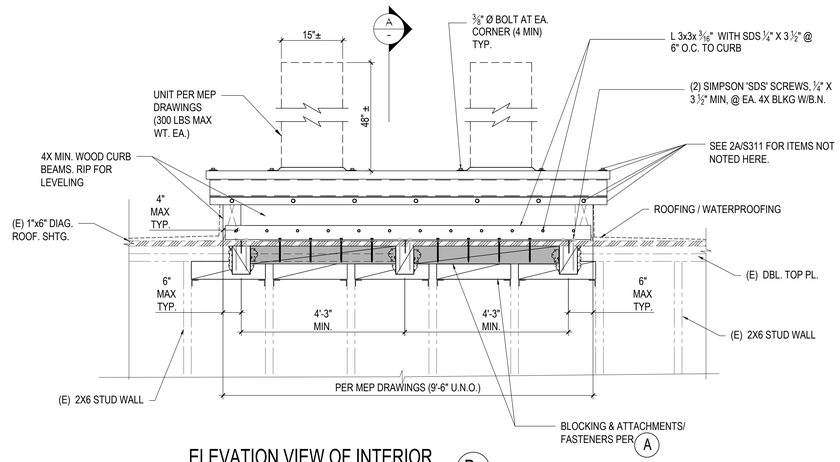


PLAN VIEW A

FULL LENGTH STRIP OF PLYWOOD (REMOVE AND REPLACE) SCALE: 1" = 1'-0" 16

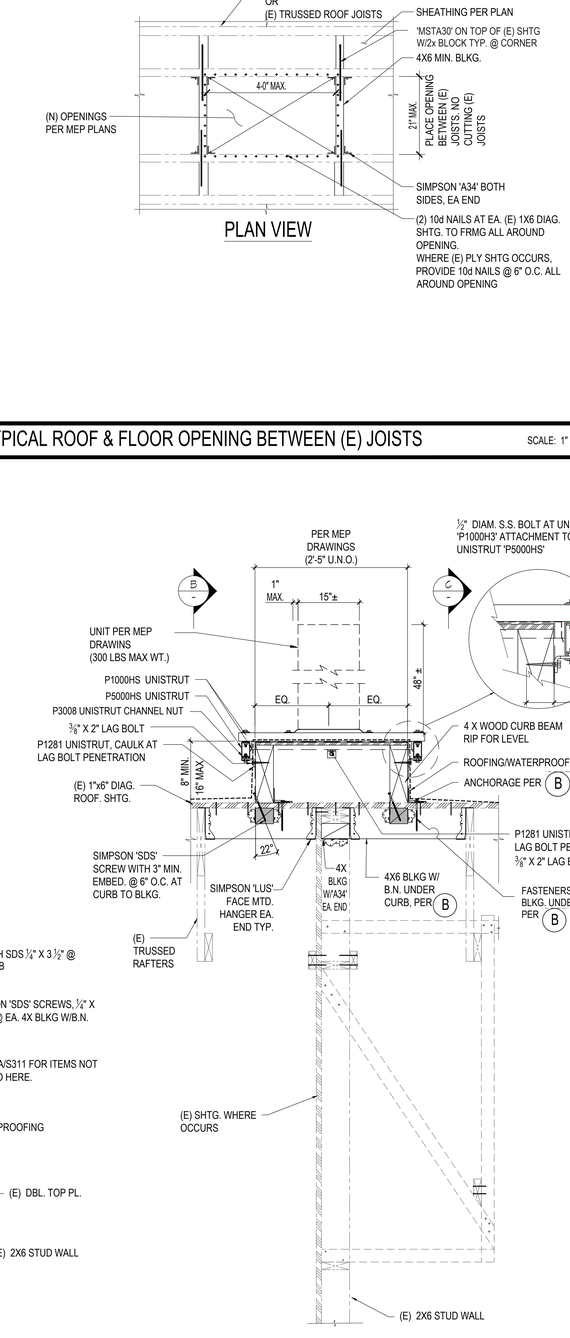


SECTION AT NEW BLKG UNDER PLATFORM C



ELEVATION VIEW OF INTERIOR WALL FRAMING CONNECITONS B

COMBINED PLATFORM WITH (2) ROOFTOP UNITS SCALE: 1" = 1'-0" 15



SECTION AT (E) INTERIOR WALL A

TYPICAL ROOF & FLOOR OPENING BETWEEN (E) JOISTS SCALE: 1" = 1'-0" 13

PLAN VIEW

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STRUCTURAL ENGINEER No. S-4350 Exp. 06/30/2026 STATE OF CALIFORNIA

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DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

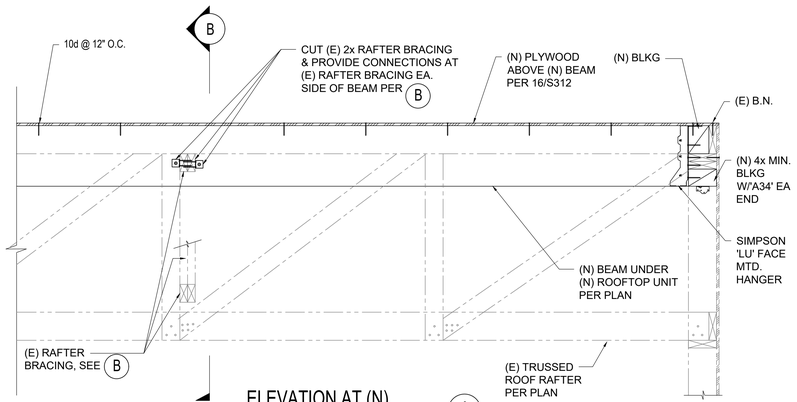
DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE
STRUCTURAL DETAILS

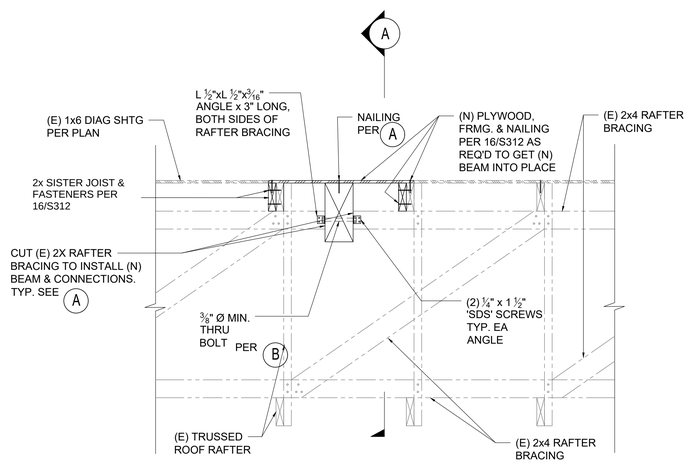
SHEET
S-312

SCALE: 1" = 1'-0" 34

SCALE: 1" = 1'-0" 25



ELEVATION AT (N) BEAM END CONNECTION A



SECTION AT (N) BEAM B

NTS 36 NEW ROOF BEAM FRAMING CONNECTIONS SCALE: 1" = 1'-0" 27

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T. A. LANDIS — No. 3430 — Exp. 06/30/2026 — REGISTERED PROFESSIONAL ENGINEER — STRUCTURAL — STATE OF CALIFORNIA

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DATE	11/12/2024		
JOB. NO.	OSG 24709.30		

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SHEET TITLE
STRUCTURAL DETAILS

SHEET
S–313

MECHANICAL NOTES

1. SCOPE OF WORK: WORK INCLUDES THE FOLLOWING: FURNISH AND INSTALL ALL EQUIPMENT AND CONTROLS SHOWN ON THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND DESCRIBED IN THESE NOTES, AND THE CONTRACT DOCUMENTS. WORK INCLUDES BUT IS NOT LIMITED TO: DEMOLITION OF EXISTING MECHANICAL SYSTEMS; INSTALLATION OF NEW FAN COILS, HEAT PUMPS, HEAT VENT, EXHAUST FANS, NEW DUCTING, REFRIGERANT PIPING, & CONTROLS; AND STARTUP AND COMMISSIONING OF NEW COMPLETE MECHANICAL AND CONTROL SYSTEMS AS DESCRIBED IN THE CONTRACT DOCUMENTS. INCLUDED ARE ALL DEVICES NEEDED TO MAKE COMPLETE AND FUNCTIONAL SPACE CONDITIONING SYSTEMS AND CONTROLS. CONTRACTOR SHALL FURNISH AND INSTALL, MAKE OPERABLE, AND TEST ALL SYSTEMS AND MECHANICAL EQUIPMENT SHOWN ON THE PLANS AND DESCRIBED IN THE SPECIFICATIONS AND CONTRACT DOCUMENTS. IN CONNECTION THEREWITH, CONTRACTOR SHALL ALSO FURNISH AND INSTALL ALL NECESSARY DEVICES, HARDWARE, AND SYSTEMS REQUIRED TO MAKE SAID EQUIPMENT PROPERLY AND SAFELY OPERABLE, INCLUDING BUT NOT LIMITED TO, MOUNTING HARDWARE, INSULATION, FILTERS, REFRIGERANT PIPING, VIBRATION CONTROL DEVICES, DUCT SYSTEMS, CONTROL SYSTEMS, AND PATCHING & PAINTING. ANYTHING OF ANY KIND RELATED TO THE BUILDING AND IT'S STRUCTURE, IF REMOVED TO DEMO OR INSTALL NEW HVAC, NEEDS TO BE REPLACED AND PUT BACK TO A BETTER CONDITION PER LATEST BUILDING CODE THAN WHAT WAS PRIOR TO WORK TAKING PLACE.

2. THIS IS A REMODELING CONTRACT AND INCLUDES THE REMOVAL OF EXISTING EQUIPMENT, INCLUDING BUT NOT LIMITED TO FLUES, FURNACES, DUCTWORK, AND PIPING. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL OFFER TO THE DISTRICT ANY OF THE REMOVED EQUIPMENT FOR SPARES. THE REMAINING EQUIPMENT SHALL BE RECYCLED OR DISPOSED OF IN A LEGAL MANNER. CONTRACTOR SHALL INSTALL ALL EQUIPMENT, PIPING, AND DUCTWORK IN A MANNER THAT SHALL RESIST VERTICAL AND HORIZONTAL MOVEMENT CAUSED BY SEISMIC ACTIVITY.

3. EXAMINATION OF SITE AND CONTRACT DOCUMENTS. EACH BIDDER SHALL, AT ITS SOLE COST AND EXPENSE, INSPECT THE SITE OF THE PROPOSED WORK TO BECOME FULLY ACQUAINTED WITH CONDITIONS RELATING TO THE WORK AND TO FULLY UNDERSTAND THE FACILITIES, DIFFICULTIES AND RESTRICTIONS ATTENDING THE EXECUTION OF THE WORK UNDER THE CONTRACT DOCUMENTS AND COST THEREOF. BIDDERS SHALL THOROUGHLY REVIEW AND BE FAMILIAR WITH THE CONTRACT DOCUMENTS, INCLUDING WITHOUT LIMITATION, THE SPECIFICATIONS AND THE DRAWINGS. THE FAILURE OR OMISSION OF ANY BIDDER TO RECEIVE OR EXAMINE ANY OF THE CONTRACT DOCUMENTS, FORMS, INSTRUMENTS, ADDENDA, OR OTHER DOCUMENTS OR TO INSPECT THE SITE SHALL NOT RELIEVE SUCH BIDDER FROM ANY OBLIGATIONS WITH RESPECT TO THE BID PROPOSAL, THE CONTRACT OR THE WORK REQUIRED UNDER THE CONTRACT DOCUMENTS. THE OWNER ASSUMES NO RESPONSIBILITY OR LIABILITY TO ANY BIDDER FOR, NOR SHALL THE OWNER BE BOUND BY, ANY UNDERSTANDINGS, REPRESENTATIONS OR AGREEMENTS OF THE OWNER'S AGENTS, EMPLOYEES OR OFFICERS CONCERNING THE CONTRACT DOCUMENTS OR THE WORK MADE PRIOR TO EXECUTION OF THE CONTRACT. THE SUBMISSION OF A BID PROPOSAL SHALL BE DEEMED PRIMA FACIE EVIDENCE OF THE BIDDER'S FULL COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION.

4. INTERPRETATION OF DRAWINGS, SPECIFICATIONS OR CONTRACT DOCUMENTS. IF ANY BIDDER IS IN DOUBT AS TO THE TRUE MEANING OF ANY PART OF THE DRAWINGS, THE SPECIFICATIONS OR OTHER PORTIONS OF THE CONTRACT DOCUMENTS; FINDS DISCREPANCIES, ERRORS OR OMISSIONS THEREIN; OR FINDS VARIANCES IN ANY OF THE CONTRACT DOCUMENTS WITH APPLICABLE RULES, REGULATIONS, ORDINANCES AND/OR LAWS, A WRITTEN REQUEST FOR AN INTERPRETATION OR CORRECTION THEREOF MAY BE SUBMITTED TO THE ENGINEER. IT IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE BIDDER TO SUBMIT SUCH REQUEST IN SUFFICIENT TIME FOR THE PREPARATION OF A RESPONSE THERETO AND DELIVERY OF SUCH RESPONSE TO ALL BIDDERS PRIOR TO THE SCHEDULED CLOSING FOR RECEIPT OF BID PROPOSALS. ANY REQUEST OF ANY BIDDER, PURSUANT TO THE FOREGOING SENTENCE THAT IS MADE LESS THAN SEVEN DAYS PRIOR TO THE SCHEDULED CLOSING DATE FOR THE RECEIPT OF BID PROPOSALS SHALL BE DEEMED UNTIMELY. ANY INTERPRETATION OR CORRECTION OF THE CONTRACT DOCUMENTS WILL BE MADE ONLY BY WRITTEN ADDENDUM DULY ISSUED BY THE OWNER OR THE ENGINEER. A COPY OF ANY SUCH ADDENDUM WILL BE MAILED OR OTHERWISE DELIVERED TO EACH BIDDER RECEIVING A SET OF THE CONTRACT DOCUMENTS. NO PERSON IS AUTHORIZED TO RENDER AN ORAL INTERPRETATION OR CORRECTION OF ANY PORTION OF THE CONTRACT DOCUMENTS TO ANY BIDDER, AND NO BIDDER IS AUTHORIZED TO RELY ON ANY SUCH ORAL INTERPRETATION OR CORRECTION. FAILURE TO REQUEST INTERPRETATION OR CLARIFICATION OF THE DRAWINGS, THE SPECIFICATIONS OR OTHER PORTIONS OF THE CONTRACT DOCUMENTS PURSUANT TO THE FOREGOING SHALL BE DEEMED TO BE A WAIVER OF ANY DISCREPANCY, DEFECT, OR CONFLICT THEREIN.

5. DIMENSIONS. ALL DIMENSIONS SHALL HAVE PREFERENCE OVER SCALE. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD. ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN ARCHITECTURAL AND ENGINEERING DRAWINGS BEFORE PROCEEDING WITH WORK. IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON WORKING DRAWINGS. ALL SIZES OF EQUIPMENT AND MATERIALS SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER.

6. CODES AND STANDARDS: ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE 2022 CALIFORNIA PLUMBING CODE, THE 2022 CALIFORNIA MECHANICAL CODE, THE 2022 CALIFORNIA BUILDING CODE, THE STATE OF CALIFORNIA, THE LOCAL JURISDICTION, AND STANDARD CONSTRUCTION PRACTICES. ALL MECHANICAL EQUIPMENT SHALL BE IN STRICT ACCORDANCE WITH THE EQUIPMENT SCHEDULE, AND SHALL BE NEW AND FREE FROM DEFECTS. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND FEES, AND SHALL OBTAIN APPROVED INSPECTIONS FOR ALL WORK AS REQUIRED BY OWNER, DSA, AND LOCAL JURISDICTION. CONTRACTOR SHALL MAINTAIN IN EFFECT ALL INSURANCE REQUIRED BY STATE LAWS, LOCAL JURISDICTION, AND THE SCHOOL DISTRICT. WHERE CONFLICT OR VARIATION EXISTS AMONGST CODES, SPECIFICATIONS, OR DRAWINGS, THE MOST STRINGENT SHALL GOVERN. NOTHING IN THESE PLANS AND SPECIFICATIONS SHALL BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO APPLICABLE CODES.

7. SUBMITTALS REQUIRED: PRIOR TO ORDERING EQUIPMENT AND MATERIALS, CONTRACTOR SHALL FURNISH TO ENGINEER / OWNER SUBMITTALS AND SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE IN THIS PROJECT. ORDERING OF EQUIPMENT AND MATERIALS SHALL ONLY PROCEED AFTER SATISFACTORY REVIEW OF ALL SUBMITTALS BY CONTRACTOR / ENGINEER / OWNER. COPIES OF ALL OWNER'S MANUALS, WARRANTIES AND OTHER WRITTEN INFORMATION REGARDING SYSTEMS SHALL BE PRESENTED TO OWNER PRIOR TO THE COMPLETION OF THE PROJECT.

8. CONSTRUCTION OBSERVATION: IN ADDITION TO THE REQUIREMENT FOR OBTAINING INSPECTIONS BY THE LOCAL JURISDICTION, CONTRACTOR SHALL NOTIFY ENGINEER AT APPROPRIATE TIMES DURING THE CONSTRUCTION PROCESS SO THAT ENGINEER CAN VISIT SITE TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF CONTRACTOR'S WORK AND TO DETERMINE IF THE WORK IS PROCEEDING IN GENERAL ACCORDANCE WITH THE CONTRACT DOCUMENTS.

9. UNIT LOCATIONS: EQUIPMENT AND SYSTEM LOCATIONS SHOWN ARE APPROXIMATE ONLY. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL STRUCTURAL MEMBERS AND EXISTING CONDITIONS IN THE FIELD, AND LOCATE UNITS AND DUCTWORK TO AVOID INTERFERENCE. ANY SIGNIFICANT DEVIATIONS FROM THE PLANS SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER. ALLOW CLEARANCE FOR DUCTWORK AND PIPING. ALL CLEARANCES REQUIRED BY UNIT MANUFACTURER SHALL BE MAINTAINED. ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH CODES AND THE RECOMMENDED INSTALLATION PROCEDURES PUBLISHED BY THE MANUFACTURER.

10. DUCTWORK: CONTRACTOR SHALL INSTALL NEW DUCTWORK IN THE APPROXIMATE LOCATIONS SHOWN ON THE DRAWINGS. ALL DUCTWORK SHALL BE SECURELY ANCHORED TO THE BUILDING IN AN APPROVED MANNER THAT WILL RENDER IT ABSOLUTELY FREE FROM VIBRATION AND LATERAL MOVEMENT. DO NOT CUT, ALTER OR NOTCH ANY STRUCTURAL ELEMENT UNLESS DETAILED ON APPROVED PLANS.

11. MATERIALS - DUCTWORK: ALL NEW DUCTWORK FOR HVAC SYSTEMS SHALL BE GALVANIZED STEEL CONFORMING TO ASTM SPEC A653/A653M.

ALL CONCEALED ROUND DUCTWORK SHALL BE GALVANIZED CONSTRUCTION WITH GAUGES AND CONNECTIONS AS FOLLOWS: UP TO 12" DIAMETER (INCLUDING FITTINGS) - 26 GAUGE WITH 2" CRIMP JOINT. 13"-24" DIAMETER (INCLUDING FITTINGS) - 24 GAUGE WITH 2" CRIMP JOINT. WHERE NECESSARY TO MAKE FIELD CONNECTIONS BETWEEN PLAIN END DUCT, SLIP JOINT CONNECTORS SHALL BE PROVIDED. JOINT CONNECTION AND SEALING: SHEET METAL SCREW ALL FIELD MADE JOINTS WITH A MINIMUM OF THREE SCREWS. SPACING OF SCREWS NOT TO EXCEED TWELVE INCHES ON CENTER. SEAL ALL DUCTWORK JOINTS WITH HARDCAST "IRON-GRIP 601" PREMIUM FLEXIBLE WATER BASED DUCT SEALANT.

FITTINGS AT RECTANGULAR DUCT TAKEOFF SHALL BE SPIN-IN TYPE, COMPLETE WITH LOCKING TYPE VOLUME DAMPERS IF INDICATED ON PLANS. RECTANGULAR DUCTWORK SHALL BE MADE FROM GALVANIZED STEEL SHEETS. DUCT CONSTRUCTION, AND REINFORCING SHALL BE PER TABLES 6-A, 6-B, AND 6-C OF THE 2022 CALIFORNIA MECHANICAL CODE. DUCTWORK SHALL BE OF THE FOLLOWING GAUGES: UP TO 12"- 26 GAUGE; 13"-30"- 24 GAUGE.
CURVED ELBOWS SHALL HAVE CENTRALIZE RADIUS NOT LESS THAN THE WIDTH OF THE DUCT. WHERE ABRUPT TURNS AND ELBOWS ARE USED, TURNING VANES SHALL BE PROVIDED. TAKEOFFS FROM MAIN DUCTS SHALL BE MADE WITH 45 DEGREE ANGLES WITH VOLUME DAMPERS WHERE SHOWN. ALL PANELS SHALL BE CROSS BROKEN TO ENSURE RIGIDITY.

12. DUCT SUPPORTS AND HANGERS: DUCT SUPPORTS SHALL BE PER THE 2022 CALIFORNIA MECHANICAL CODE. RECTANGULAR DUCTS WITH A MAXIMUM SIZE NOT EXCEEDING 30" AND ALL ROUND DUCTS SHALL BE SUPPORTED WITH ONE INCH WIDE 18 GAUGE HANGER STRAPS. SUPPORTS SHALL BE LOCATED ON TWO OPPOSITE SIDES OF THE DUCT, SHALL BE METAL SCREWED TO THE SIDES AND BOTTOM OF THE DUCT, SHALL BE SPACED AT NOT MORE THAN 7'-8" ON CENTERS AND SHALL BE LATERALLY BRACED. SECURE STRAPS TO STRUCTURAL FRAMING PER APPROVED DETAILS ON PLANS.

13. VOLUME DAMPERS: LOCKING SHEET METAL VOLUME DAMPERS SHALL BE INSTALLED AT THE POINT OF TAKEOFF FROM MAIN DUCTING AT ALL LOCATIONS SHOWN ON PLANS AND ELSEWHERE AS NECESSARY FOR PROPER BALANCING OF THE SYSTEM. BALANCING AT DIFFUSERS OR RETURN AIR GRILLES ONLY WILL NOT BE PERMITTED. INSTALL ACCESS DOORS OR REMOTE CONTROLLED DAMPERS FOR CONCEALED LOCATIONS.

14. ALL REFRIGERANT PIPING AND CONTROL WIRING SHALL BE SIZED AND INSTALLED PER MANUFACTURER'S REQUIREMENTS. CONFIRM BEFORE ORDERING MATERIALS AND BEGINNING INSTALLATION. PIPE SHALL BE US MANUFACTURED TYPE ACR WITH BRAZED FITTINGS. KEEP PIPING CLEAN AND FREE FROM DEBRIS AND CORROSION PRIOR TO INSTALLATION. ALL BRAZING SHALL BE PERFORMED WITH A NITROGEN (OR INERT GAS) SHIELD, PER ASHRAE STANDARDS BY QUALIFIED CRAFTSMEN. TEST PIPING PER MANUFACTURER'S REQUIREMENTS. REFRIGERANT PIPING AT EXTERIOR AND INSIDE MECHANICAL ROOMS SHALL BE HARD COPPER WITH BRAZED FITTINGS. PIPING SHALL BE INSTALLED STRAIGHT, PLUMB, & LEVEL IN A NEAT AND ORGANIZED FASHION. REFRIGERANT PIPE WEIGHT MUST NOT BEAR ON COIL NIPPLES. PIPE INSULATION MUST BE INSTALLED STRICTLY IN ACCORDANCE WITH INSULATION MANUFACTURES INSTALLATION INSTRUCTIONS. INSULATION THICKNESS SHALL BE PER THE 2022 BUILDING ENERGY EFFICIENCY STANDARDS, REQUIREMENTS FOR PIPE INSULATION AND TABLE 120.3-A. REFRIGERANT LIQUID PIPE SHALL HAVE MINIMUM OF (R-7.7 OR 1") INSULATION AND REFRIGERANT GAS (SUCTION) PIPE SHALL HAVE A MINIMUM OF (R-11.5 OR 1-1/2") INSULATION. (NOTE: AT FAN COIL & OUTDOOR UNIT INSULATION THICKNESS MAY BE REDUCED TO 1/2" WALL TO ALLOW FOR UNIT ACCESS. LAST 5 FEET ONLY FOR FAN COIL AND ONLY 30" FROM OUTDOOR UNIT.) ALL EXTERIOR INSULATION SHALL BE COVERED WITH ALUMINUM WITH 3/16" CORRUGATED 0.016 JACKETING WITH FORMED ALUMINUM FITTINGS. INSTALL FLEXIBLE CONNECTIONS AT OUTDOOR UNITS.

15. DUCT INSULATION: EXTERIOR SUPPLY AND RETURN DUCTS SHALL BE LINED WITH FIBER-FREE ARMACELL AP ARMAFLEX CLOSED-CELL INSULATION WITH A MINIMUM INSULATION OF (R-8 OR 2"). CONCEALED SUPPLY AND RETURN PLENUMS SPACE SHALL BE LINED WITH FIBER-FREE ARMACELL AP ARMAFLEX CLOSED-CELL INSULATION WITH A MINIMUM INSULATION OF (R-6 OR 1-1/2"). EXPOSED SPIRAL DUCT SHALL BE LINED WITH FIBER-FREE ARMACELL ARMAFLEX CLOSED-CELL INSULATION WITH A MINIMUM INSULATION OF (R-4.2 OR 1"). CONCEALED SUPPLY AND RETURN DUCTWORK SHALL BE INSULATED WITH REFLECTIX BUBBLE WRAP INSULATION WITH REFLECTIX FOIL TAPE OR A UL181 TAPE WITH ACRYLIC ADHESIVE. ALL INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. BUBBLE WRAP INSULATION SHALL HAVE A MINIMUM INSULATION OF R-8. FIBROUS INSULATION SHALL NOT BE USED.

16. COORDINATION: MECHANICAL CONTRACTOR SHALL COORDINATE WORK WITH DISTRICT'S PROJECT MANAGER AND ALL RELATED TRADES.

17. VIBRATION ISOLATION. INSTALL FLEXIBLE CONNECTIONS BETWEEN MECHANICAL EQUIPMENT AND DUCTWORK. ISOLATE PIPING & DUCTWORK FROM STRUCTURE TO PREVENT EXCESSIVE VIBRATION ISOLATION. AFTER START-UP VERIFY THAT NO VIBRATION IS TRANSMITTED. CORRECT ANY DEFICIENCIES.

18. SYSTEM COMMISSIONING AND BALANCING: FOLLOWING INSTALLATION, CONTRACTOR SHALL START UP AND BALANCE ALL HVAC SYSTEMS TO CONFORM TO AIR VOLUMES INDICATED ON PLANS. ADJUST SUPPLY & RETURN AIR GRILLES / REGISTERS FOR OPTIMAL AIR DISTRIBUTION. COPIES OF BALANCING RECORDS SHALL BE FURNISHED TO PROJECT MANAGER AND ENGINEER. THE CONTRACTOR SHALL TEST ALL FUNCTIONS AND MODES OF THE HVAC SYSTEMS AND ANY NON-OPERATIONAL COMPONENT OR FUNCTION SHALL BE PROMPTLY CORRECTED. ALL SAFETY DEVICES INCLUDING SMOKE DETECTORS SHALL BE TESTED. THE CONTRACTOR SHALL PROVIDE COPIES OF ALL TESTING RESULTS TO THE DISTRICT'S PROJECT MANAGER AND ENGINEER. THE CONTRACTOR SHALL PROVIDE TO THE DISTRICT'S PROJECT MANAGER TWO COPIES OF ALL RELEVANT MANUALS AND AS-BUILT DRAWINGS. THE CONTRACTOR SHALL PROVIDE FOUR HOURS OF TRAINING ON THE OPERATION OF THE NEW SYSTEMS.

19. ALL MECHANICAL SYSTEMS SHALL BE CLEARLY & PERMANENTLY LABELED. LABEL SHALL DETAIL THE AREA SERVED & UNIT TAG.

20. ALL DUCT DIMENSIONS ARE INTERNAL CLEAR. ENLARGE DUCTING TO ALLOW FOR LINER WHERE SPECIFIED.

21. INSTALL DUCTMATE PRORAIL (OR EQUAL) TURNING VANES AT ALL RECTANGULAR ELBOWS. INSTALL PER SMACNA REQUIREMENTS.

22. CLEANUP: EVERY DAY, AND AFTER ALL WORK HAS BEEN COMPLETED, CONTRACTOR SHALL CLEAN ENTIRE JOB-SITE OF ALL DEBRIS ASSOCIATED WITH MECHANICAL SYSTEMS. EXPOSED PARTS WHICH ARE TO BE PAINTED SHALL BE THOROUGHLY CLEANED READY FOR PAINTING.

23. WIRING: ALL WIRING SHALL BE PERFORMED IN ACCORDANCE WITH CEC REQTS. ALL WIRING SHALL BE IN CONDUIT. ALL INTERIOR LOW VOLTAGE AND CONTROL WIRING SHALL BE IN WIREMOLD. EXPOSED CONDUIT SHALL BE INSTALLED IN A SQUARE, PLUMB, AND LEVEL MANNER WITH THOUGHT GIVEN TO THE FINAL APPEARANCES. PROVIDE TO ENGINEER SHOP DRAWING FOR CONTROL TRANSFORMER CONFIGURATIONS DETAILING CIRCUITS TO BE USED, LOAD CALCULATIONS, WIRE SIZES, AND LOCATIONS. WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CALIFORNIA ELECTRICAL CODE AND ELECTRICAL SPECIFICATIONS. ALL TRANSFORMERS SHALL BE PROTECTED BY PROPERLY SIZED CIRCUIT BREAKER OR FUSE(S). ALL TRANSFORMERS SHALL HAVE RESETABLE BREAKER ON THE LOAD SIDE. ALL LOW VOLTAGE CONTROL & COMMUNICATIONS WIRING SHALL BE DONE ACCORDING TO MANUFACTURERS INSTALLATION MANUAL. PROVIDE SUBMITTALS ON WIRE AND ENCLOSURES.

24. ALL EXISTING TO REMAIN, SUPPLY & RETURN AIR DUCTS SHALL BE CLEANED PER N.A.D.C.A. STANDARDS.

25. EXISTING CONDITIONS: THE CONTRACTOR SHALL PROMPTLY INFORM THE PROJECT MANAGER IN WRITING OF ANY EXISTING CONDITION THAT COMPROMISES SAFETY INCLUDED BUT NOT LIMITED TO; ELECTRICAL, DUCT, PIPE OR EQUIPMENT SUPPORT, OR STRUCTURAL. IF ANY DEVICE, ELECTRICAL OR MECHANICAL, DOES NOT FUNCTION PROPERLY, THE CONTRACTOR SHALL PROMPTLY INFORM THE PROJECT MANAGER IN WRITING OF THE NATURE OF THE FAILURE, ANY PROPOSED REMEDY, AND THE COST OF REPAIR OR REPLACEMENT. CONTRACTOR SHALL INSPECT ALL VISIBLE EQUIPMENT AND PROVIDE A WRITTEN REPORT ON ANY DEFICIENCY.

26. EXTRA WORK: NO EXTRA WORK WILL BE PAID FOR WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE DISTRICT'S PROJECT MANAGER. WITHIN THE GENERAL SCOPE OF THE CONTRACT, THE SCHOOL DISTRICT, WITHOUT VALIDATING THE CONTRACT MAY ORDER CHANGES IN THE WORK CONSISTING OF ADDITIONS, DELETIONS, OR OTHER REVISIONS, THE CONTRACT SUM AND THE CONTRACT TIME BEING ADJUSTED ACCORDINGLY. ALL SUCH CHANGES IN THE WORK SHALL BE AUTHORIZED BY WRITTEN CHANGE ORDER, AND SHALL BE EXECUTED UNDER THE APPLICABLE CONDITIONS OF THE CONTRACT DOCUMENTS.

27. WARRANTY: THE CONTRACTOR SHALL WARRANT THAT ALL SYSTEMS, SUBSYSTEMS, COMPONENT PARTS, AND DATABASE SOFTWARE ARE FULLY FREE FROM DEFECTIVE DESIGN, MATERIALS, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE SCHOOL DISTRICT.

28. COORDINATION DURING CONSTRUCTION: THE CONTRACTOR SHALL COORDINATE ANY NECESSARY CHANGES IN WORK SCHEDULING WITH SCHOOL DISTRICT TO MINIMIZE THE DISRUPTION. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY HIS WORK TO BUILDING(S) AND EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.

29. CORRECTION OF WORK: THE CONTRACTOR SHALL PROMPTLY CORRECT ALL WORK THE SCHOOL DISTRICT OR ARCHITECT FINDS DEFECTIVE OR FAILING TO CONFORM TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BEAR ALL COSTS REQUIRED BY THE CONTRACT DOCUMENTS, IF ANY OF THE WORK IS FOUND TO BE DEFECTIVE OR NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL CORRECT IT PROMPTLY AFTER RECEIPT OF A WRITTEN NOTICE FROM THE SCHOOL DISTRICT TO DO SO.

30. AS-BUILT DRAWINGS SHALL BE GIVEN TO THE DISTRICT PRIOR TO ACCEPTANCE OF THE PROJECT. INCLUDED IN THE AS-BUILTS SHALL BE DOCUMENTATION AND TWO COPIES OF THE ANNOTATED PROGRAMMING ON MAGNETIC MEDIA AND PRINTED SHEETS.

31. UPON SITE PLACEMENT OR SITE CO0NSTRUCTION, THE OPERATION AND MAINTENANCE DOCUMENTATION FOR ALL MECHANICAL AND LIGHTING SYSTEMS AND CONTROLS SHALL BE PROVIDED BY THE BUILDING MANUFACTURER, OR THE GENERAL CONTRACTOR FOR THE PERMANENT BUILDING AND DELIVERED TO THE OWNER.

32. PIPE AND DUCT PATHS ARE DIAGRAMMATIC. PRIOR TO BEGINNING PIPING REVIEW PROPOSED PATHS AND ALTERNATES TO DETERMINE THE MOST JUDICIOUS ROUTE.

33. ALL MECHANICAL EQUIPMENT AND SERVICEABLE DEVICES SHALL BE INSTALLED PER MANUFACTURER'S INSTALLATION MANUAL. ALL EQUIPMENT AND DEVICES SHALL BE INSTALLED WITH ACCESS AND CLEARANCE FOR MAINTENANCE, REPLACEMENT AND/OR USE. AIR FILTER ACCESS SHALL NOT REQUIRE ANY TOOLS. COORDINATE WITH THE GENERAL CONTRACTOR AND OTHERS TO PROVIDE ACCESS AND CLEARANCE.

34. DEMOLITION OF MECHANICAL: CONTRACTOR TO REMOVE EXISTING FURNACES AND DUCTWORK. CONTRACTOR SHALL FIRST OFFER ALL REMOVED EQUIPMENT TO THE DISTRICT. IF NOT WANTED BY THE DISTRICT, CONTRACTOR SHALL PROPERLY DISPOSE / RECYCLE.

35. EXISTING THERMOSTATS THROUGHOUT CAMPUS SHALL BE CAREFULLY REMOVED, LABELED, AND PROTECTED FOR REINSTALLATION. THERMOSTATS THAT ARE LOST OR DAMAGED SHALL BE REPLACED AT NO ADDITIONAL COST TO THE SCHOOL DISTRICT.

36. ALL WORK SHALL BE PERFORMED BY TRAINED AND QUALIFIED WORKERS. THE INSTALLATION SHALL BE EQUAL OR BETTER TO THE STANDARD OF CARE FOR THE RESPECTIVE TRADE. WORK SHALL BE NEAT AND CLEAN.

37. EXPOSED DUCTWORK SHALL BE BE FREE FROM DEFECTS AND THOROUGHLY CLEANED READY FOR PAINTING. PRIME AND PAINT PER PAINT MANUFACTURER'S WRITTEN INSTRUCTIONS. (COLOR BY ARCHITECT).

PLUMBING NOTES

1. CONDENSATE PIPE SHALL BE U.S. MANUFACTURED COPPER TYPE "L" WITH SOLDERED WROT COPPER FITTINGS. PROVIDE TEE WITH BRASS PLUG AT CHANGES OF DIRECTION. INSTALL CLEANOUTS PER CODE, SLOPE CONDENSATE MINIMUM 1/8"/FT TO DRAIN. WHERE PIPES PIERCE FINISHED SURFACES, PROVIDE CHROME PLATED CAST BRASS ESCUTCHEONS WITH SET SCREW.

2. INSULATION: INSULATE INTERIOR COPPER CONDENSATE PIPE W/ 1" THICK FIBER-FREE ARMACELL AP ARMAFLEX WHITE TUBE INSULATION WITH FITTING COVERS W/ NO GAPS.

3. PIPING LOCATIONS: PIPING LOCATIONS SHOWN ARE DIAGRAMMATIC ONLY. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL LATERAL STUBS, OFFSETS, OBSTRUCTIONS, ETC. REQUIRED IN THE FIELD. THE ACTUAL LOCATIONS OF LINES, CLEANOUTS AND CONNECTIONS MAY VARY PROVIDED THAT COMPLETE SYSTEMS ARE SIZED AND INSTALLED IN COMPLIANCE WITH CODES. ANY SIGNIFICANT DEVIATIONS FROM THE PLANS SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER PRIOR TO INSTALLATION.

4. PIPING SUPPORT: ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2022 CALIFORNIA PLUMBING CODE. HORIZONTAL CONDENSATE DRAINS SHALL BE HUNG WITH SUPERSTRUT C-727-F ADJUSTABLE FELT-LINED PIPE HANGERS, THREADED ROD, AND BEAM ATTACHMENT BRACKETS, LOCATED AT SIX FOOT MAXIMUM INTERVALS. VERTICAL CONDENSATE DRAINS SHALL BE SUPPORTED AT THEIR BASES AND AT EACH STORY OR AT TEN FOOT MAXIMUM INTERVALS. TO PREVENT SWAYING, PROVIDE LATERAL BRACING AT SIX FOOT INTERVALS ANCHORED TO OVERHEAD FRAMING.

5. FOR BUILDINGS WHERE NO NATURAL GAS TO BE USED, DEMO EXISTING GAS SHUT VALVE. CAP OR PLUG EXISTING GAS PIPING FROM SITE AND CAP OR PLUG ABANDONED GAS THAT LEADS INTO BUILDING. (VERIFY LOCATIONS).

ENERGY NOTES

1. DUCT SEALING AND LEAKAGE TESTING: JOINTS AND SEAMS FOR DUCT SYSTEMS SHALL COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE. DUCT SYSTEMS SHALL BE SEALED PER CMC SECTION 603.10.1.
DUCTWORK SHALL BE LEAK-TESTED IN ACCORDANCE WITH THE SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. REPRESENTATIVE SECTIONS TOTALING NOT LESS THAN 10 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED. WHERE THE TESTED 10 PERCENT FAIL TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THEN 40 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED. WHERE THE TESTED 40 PERCENT FAIL TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THEN 100 PERCENT OF THE TOTAL INSTALLED DUCT AREA SHALL BE TESTED. SECTIONS SHALL BE SELECTED BY THE BUILDING OWNER OR DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER. POSITIVE PRESSURE LEAKAGE TESTING SHALL BE PERMITTED FOR NEGATIVE PRESSURE DUCTWORK. THE PERMITTED DUCT LEAKAGE SHALL BE NOT MORE THAN THE FOLLOWING:

Lmax = C_L P0.65 (Equation 603.10.1)

WHERE:

Lmax	=	MAXIMUM PERMITTED LEAKAGE, (ft3/min)/100 SQUARE FEET [0.0001 (m3/s)/m2] DUCT SURFACE AREA.
C_L	=	SIX, DUCT LEAKAGE CLASS, (ft3/min)/100 SQUARE FEET [0.0001 (m3/s)/m2] DUCT SURFACE AREA AT 1 INCH WATER COLUMN (0.2 kPa).
P	=	TEST PRESSURE, WHICH SHALL BE EQUAL TO THE DESIGN DUCT PRESSURE CLASS RATING, INCH WATER COLUMN (kPa).

2. THE CALIFORNIA CEnC SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, SOLAR, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH CEnC.
MECHANICAL SYSTEMS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL (ATT) FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER, 1, 2021.
A LISTING OF CERTIFIED ATT'S CAN BE FOUND ON THE CALIFORNIA ENERGY COMMISSION'S ACCEPTANCE TEST TECHNICIAN CERTIFICATION PROVIDERS WEBPAGE.
THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.
PROJECT INSPECTORS WILL BE COLLECTING THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.
THE LIST OF REQUIRED ACCEPTANCE TEST IS FOUND UNDER *DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE* IN THE LAST PAGES OF THE ENERGY COMPLIANCE REPORT.

3. SEE ENERGY NOTES FOR REQUIRED FORMS TO BE COMPLETED AT THE END OF THE PROJECT. THIRD PARTY TESTING IS REQUIRED.

GREEN BUILDING NOTES

1. CONTRACTOR SHALL ESTABLISH A CONSTRUCTION WASTE MANAGEMENT PLAN FOR THE DIVERTED MATERIALS, OR MEET LOCAL CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT ORDINANCE, WHICHEVER IS MORE STRINGENT. WASTE MANAGEMENT PLAN SHALL:
A.) IDENTIFY THE MATERIALS TO BE DIVERTED FROM DISPOSAL BY EFFICIENT USAGE, RECYCLING, REUSE ON THE PROJECT OR SALVAGE FOR FUTURE USE OR SALE.
B.) DETERMINE IF MATERIAL WILL BE SORTED ON-SITE OR MIXED
C.) IDENTIFY DIVERSION FACILITIES WHERE MATERIALS COLLECTED WILL BE TAKEN.
D.) SPECIFY THE AMOUNT OF MATERIALS DIVERTED WHICH SHALL BE CALCULATED BY WEIGHT OR VOLUME, BUT NOT BOTH.

2. RECYCLE WASTE MATERIAL BEING REMOVED FROM SITE TO THE GREATEST EXTENT POSSIBLE. RECORD ALL AMOUNTS DISPOSED AND ALL AMOUNTS RECYCLED.

3. COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION: AT THE TIME OF ROUGH INSTALLATION, OR DURING STORAGE ON THE CONSTRUCTION SITE AND UNTIL FINAL STARTUP OF THE HEATING AND COOLING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST OR DEBRIS WHICH MAY COLLECT IN THE SYSTEM. PER THE 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, C.G.B.S.C., SECTION 5.504.3

4. ADHESIVE, SEALANTS AND CAULKS COMPLY WITH VOC LIMITS IN TABLE 5.504.4.1 AND 5.504.4.2.

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR ALTERING, PATCHING, AND REPAIRING OF EXISTING ADJACENT MATERIALS DISTURBED BY MECHANICAL EQUIPMENT REPLACEMENT, INCLUDING BUT NOT LIMITED TO INTERIOR PLASTER AND/OR GYP BOARD & TRIM, FLOOR & CEILING FINISHES. ALL DISTURBED AREAS SHALL BE FINISHED TO MATCH THE EXISTING CONDITION.

2. CUTTING, BORING SAWCUTTING OR DRILLING THROUGH THE NEW OR EXISTING STRUCTURAL ELEMENTS TO BE DONE ONLY WHEN SO DETAILED ON THE DRAWINGS OR ACCEPTED BY THE ARCHITECT WITH THE APPROVAL OF THE ENGINEER.

3. ALL WELDING SHALL BE SPECIALLY INSPECTED BY AN AWS-CWI QUALIFIED INSPECTOR APPROVED BY THE ENGINEER.

4. PATCHING MATERIALS, GENERAL: AS REQUIRED FOR ORIGINAL INSTALLATION AND TO MATCH SURROUNDING CONSTRUCTION.
A.) CONTRACTOR SHALL PROVIDE SAME PRODUCTS OR TYPES OF CONSTRUCTION AS THAT IN EXISTING STRUCTURE, AS NEEDED TO PATCH, EXTEND OR MATCH EXISTING.
B.) GENERALLY, THE CONTRACT DOCUMENTS WILL NOT DEFINE PRODUCTS OR STANDARDS OF WORKMANSHIP PRESENT IN EXISTING CONSTRUCTION. CONTRACTOR SHALL DETERMINE PRODUCTS BY INSPECTION AND NECESSARY TESTING AND DETERMINE QUALITY OF WORKMANSHIP BY USING EXISTING AS A SAMPLE FOR COMPARISON.
C.) THE PRESENCE OF A PRODUCT, FINISH, OR TYPE OF CONSTRUCTION REQUIRES THAT PATCHING, EXTENDING OR MATCHING SHALL BE PERFORMED AS NECESSARY TO MAKE WORK COMPLETE AND CONSISTENT WITH IDENTICAL STANDARDS OF QUALITY.

5. PATCHING OF BUILDING FINISH MATERIALS: CONTRACTOR SHALL MATCH EXISTING PRODUCTS AND FINISHES. CONTRACTOR SHALL CONFIRM COLORS, PATTERNS, AND TEXTURES WITH ARCHITECT/OWNER. CONTRACTOR SHALL CUSTOM CUT NEW MATERIALS TO FIT AND TO MATCH JOINT PATTERNS WITH EXISTING MATERIALS. CONTRACTOR SHALL CUSTOM CUT NEW MATERIALS TO SIZE TO MATCH EXISTING CONSTRUCTIONS.

6. PATCHING OF ROOF: CONTRACTOR SHALL PATCH AND MATCH EXISTING ADJACENT SURFACE. WHERE PENETRATIONS HAVE OCCURRED TO FINISH SURFACE TO REMAIN, CONTRACTOR SHALL PATCH PENETRATIONS AND REPAIR TO WATERTIGHT CONDITION. ROOF PATCHING SHALL BE PERFORMED BY LICENSED ROOFING CONTRACTOR WITH EXPERIENCE WITH THE ROOF TYPE TO BE PATCHED. RESTORE EXPOSED FINISHES OF PATCH AREAS AND EXTEND RESTORATION INTO ADJOINING CONSTRUCTION IN A MANNER THAT ELIMINATES EVIDENCE OF PATCHING AND REFINISHING.

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M-002	MECHANICAL SCHEDULES
M-100	MECHANICAL SITE PLAN
M-101	BUILDING "A" MECHANICAL DEMOLITION FLOOR & ROOF PLANS
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M-103	BUILDING "C" MECHANICAL DEMOLITION FLOOR PLAN
M-104	BUILDING "D" MECHANICAL DEMOLITION FLOOR PLAN
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SEE M-100 FOR CAMPUS MAP

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVEABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

APPLICABLE CODE: 2022 CBC

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTION 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAi OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☒ MD☒ PP☐ E☐ - OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.
MP☐ MD☐ PP☐ E☐ - OPTION 2: SHALL COMPLY WITH HCAi (OSHPD) PRE-APPROVAL (OPM #) #________________, AS INCLUDED IN THESE DRAWINGS WITH PROJECT-SPECIFIC NOTES AND DETAILS.

SYMBOL LEGEND

SEE MECH. SCHEDULE FOR DESCRIPTIONS

⧄	RETURN AIR REGISTER
⊠	CEILING DIFFUSER
⊡	EXHAUST FAN
⌈	VOLUME DAMPER
T 1	THERMOSTAT
X 1	EQUIPMENT TAG SEE MECH. SCHEDULE
1 MX.X	DETAIL TAG
◐ P.O.C.	POINT OF CONNECTION

ABBREVIATIONS

ABBRV	ABBREVIATIONS
ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
APPROX	APPROXIMATELY
BLDG	BUILDING
BLW	BELOW
BTM	BOTTOM
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CLNG	CEILING
COND	CONDENSATE
CONT	CONTINUED
DIA	DIAMETER
DWN	DOWN
DWG	DRAWING
(E)	EXISTING
EA	EACH
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATION
EQ	EQUIPMENT
EQUIP	EQUIPMENT
EXH	EXHAUST
FIN	FINISHED
FO	FLAT OVAL
FRM	FROM
FLR	FLOOR
G	GAS
GPM	GALLONS PER MINUTE
MAX	MAXIMUM
MIN	MINIMUM
(N)	NEW
OC	ON CENTER
OSA	OUTSIDE AIR
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RAG	RETURN AIR GRILLE
RAR	RETURN AIR REGISTER
REFRIG.	REFRIGERATION
SA	SUPPLY AIR
SD	SMOKE DETECTOR
SHT	SHEET
SOV	SHUT-OFF VALVE
SPEC	SPECIFICATIONS
SR	SIDEWALL REGISTER
(TYP)	TYPICAL
UGND	UNDERGROUND
VD	VOLUME DAMPER
VTR	VENT TO ROOF
WCO	WALL CLEAN-OUT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

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DATE 10/11/2024
JOB. NO. 23053
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SHEET TITLE MECHANICAL NOTES

SHEET
M-001

BUILDING "A" - ADMINISTRATION
SPLIT SYSTEM SCHEDULE

TAG	TYPE	SERVING ROOM	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 32°F	SEER2	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS)	ELECTRICAL DATA			ACCESSORIES	UVC
											POWER	MCA	MOCP		
OU AD - 1	OUTDOOR UNIT	ADMIN.	SAMSUNG AC042BXADCH/AA	42,000	44,700	17.5	-	-	3/M-502	196	208-1-60	32.2	40	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU AD - 1	INDOOR UNIT	ADMIN.	SAMSUNG AC042BNZDCH/AA (VERTICAL)	42,000	44,700	-	1,310	445	1/M-500	167	THE OUTDOOR UNIT SHALL SUPPLY POWER TO INDOOR UNIT VIA 14 AWG X 3 POWER WIRE			PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER	

BUILDING "C"
SPLIT SYSTEM SCHEDULE

TAG	TYPE	SERVING ROOM	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 35°F	SEER2	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS)	ELECTRICAL DATA			ACCESSORIES	UVC
											POWER	MCA	MOCP		
OU C - 1	OUTDOOR UNIT	LOUNGE	SAMSUNG AC030BXADCH/AA	30,000	35,200	16.6	-	-	4/M-502	159	208-1-60	24	30	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU C - 1	INDOOR UNIT	LOUNGE	SAMSUNG AC030BNZDCH/AA (VERTICAL)	30,000	35,200	-	1,000	75	2/M-500	126	THE OUTDOOR UNIT SHALL SUPPLY POWER TO INDOOR UNIT VIA 14 AWG X 3 POWER WIRE			PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER	
OU C - 2	OUTDOOR UNIT	CLASSROOM 2	SAMSUNG AM060MXMDCH	60,000	63,700	16.5	-	-	4/M-502	276	208-1-60	32	50	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU C - 2	INDOOR UNIT	CLASSROOM 2	SAMSUNG AM060TNZDCH (VERTICAL)	60,000	63,700	-	1,755	450	3/M-500	237	208-1-60	2.6	15	PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER	

BUILDING "D"
SPLIT SYSTEM SCHEDULE

TAG	TYPE	SERVING ROOM	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 32°F	SEER2	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS)	ELECTRICAL DATA			ACCESSORIES	UVC
											POWER	MCA	MOCP		
OU D - 1	OUTDOOR UNIT	PIP	SAMSUNG AC036BXADCH/AA	36,000	38,000	16.6	-	-	2/M-502	190	208-1-60	24.5	35	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU D - 1	INDOOR UNIT	PIP	SAMSUNG AC036BNZDCH/AA (VERTICAL)	36,000	38,000	-	1,220	60	1/M-501	126	THE OUTDOOR UNIT SHALL SUPPLY POWER TO INDOOR UNIT VIA 14 AWG X 3 POWER WIRE			PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER	
OU D - 2 A THRU C	OUTDOOR UNIT	CLASSROOM 6 -8	SAMSUNG AM060MXMDCH	60,000	63,700	16.5	-	-	2/M-502	276	208-1-60	32	50	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU D - 2 A THRU C	INDOOR UNIT	CLASSROOM 6 -8	SAMSUNG AM072TNZDCH (VERTICAL)	72,000	79,700	-	2,110*	450	2/M-501	239	208-1-60	7.2	15	PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER. PROVIDE RELAY FOR FIRE ALARM SHUT DOWN, SEE ELECTRICAL.	

* HVAC UNIT SHUT DOWN VIA CAMPUS FIRE ALARM SYSTEM, SEE ELECTRICAL.

BUILDING "E"
SPLIT SYSTEM SCHEDULE

TAG	TYPE	SERVING ROOM	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 32°F	SEER2	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS)	ELECTRICAL DATA			ACCESSORIES	UVC
											POWER	MCA	MOCP		
OU E - 1	OUTDOOR UNIT	SUPPLY ROOM	SAMSUNG AC030BXADCH/AA	30,000	35,200	16.6	-	-	2/M-502	159	208-1-60	24	30	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU E - 1	INDOOR UNIT	SUPPLY ROOM	SAMSUNG AC030BNZDCH/AA (VERTICAL)	30,000	35,200	-	1,000	60	4/M-501	126	THE OUTDOOR UNIT SHALL SUPPLY POWER TO INDOOR UNIT VIA 14 AWG X 3 POWER WIRE			PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER	
OU E - 2 A THRU E	OUTDOOR UNIT	CLASSROOM 9 - 13	SAMSUNG AM060MXMDCH	60,000	63,700	16.5	-	-	2/M-502	276	208-1-60	32	50	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU E - 2 A THRU E	INDOOR UNIT	CLASSROOM 9 - 13	SAMSUNG AM072TNZDCH (VERTICAL)	72,000	79,700	-	2,110*	450	3/M-501	239	208-1-60	7.2	15	PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER. PROVIDE RELAY FOR FIRE ALARM SHUT DOWN, SEE ELECTRICAL.	

* HVAC UNIT SHUT DOWN VIA CAMPUS FIRE ALARM SYSTEM, SEE ELECTRICAL.

BUILDING "F"
SPLIT SYSTEM SCHEDULE

TAG	TYPE	SERVING ROOM	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 35°F	SEER2	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS)	ELECTRICAL DATA			ACCESSORIES	UVC
											POWER	MCA	MOCP		
OU F - 1 A&B	OUTDOOR UNIT	CLASSROOM 14 & 17	SAMSUNG AM053TXMDCH	53,000	52,500	17.2	-	-	2/M-502	223	208-1-60	34	50	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU F - 1 A&B	INDOOR UNIT	CLASSROOM 14 & 17	SAMSUNG AM054TNZDCH (VERTICAL)	53,000	52,500	-	1,590	450	4/M-500	226	208-1-60	2.6	15	PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER	
OU F - 2 A&B	OUTDOOR UNIT	CLASSROOM 15 & 16	SAMSUNG AC048BXADCH/AA	48,000	50,400	16.7	-	-	2/M-502	196	208-1-60	32.8	40	SEACOAST COATING	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).
IU F - 2 A&B	INDOOR UNIT	CLASSROOM 15 & 16	SAMSUNG AC048BNZDCH/AA (VERTICAL)	48,000	50,400	-	1,490	450	4/M-500	167	THE OUTDOOR UNIT SHALL SUPPLY POWER TO INDOOR UNIT VIA 14 AWG X 3 POWER WIRE			PROVENT 8" HIGH FILTER RACK W/ 2" MERV 13 FILTERS. (N) WIRELESS THERMOSTAT W/ SAMSUNG MIM-A60UN THERMOSTAT ADAPTER	

EXHAUST FAN SCHEDULE

TAG	MANUFACTURER AND MODEL NO.	CFM @ WC ESP	WEIGHT (LBS)	ELECTRICAL DATA			NOTES:	ANCHORAGE DETAIL
				VOLT	PHASE	POWER		
EF 1	PANASONIC FV-40VQ4	365 CFM @ .25" WC	27.1	120	1	110 WATTS	BACKDRAFT DAMPER & PELICAN PM5 POWER CONTROL MODULE	4/M-504
EF 2	PANASONIC FV-0511VK2	80 CFM @ .25" WC	12	120	1	9.6 WATTS	PROVIDE BACKDRAFT DAMPER OCCUPANCY SENSOR & TIME DELAY PLUG IN PLAY ACCESSORY OPTION	4/M-504

PUMP SCHEDULE

TAG	TYPE	MAKE & MODEL	ELECTRICAL DATA				WEIGHT (LBS)	NOTES
			VOLTAGE	HZ	FLA	KW		
CP 1	CONDENSATE PUMP	LITTLE GIANT VCMX-20ULST	208	60	0.6	75	5.5	3/8" TUBING TO 3/4" COPPER CONNECTION. CONNECT "HIGH-WATER LEVEL" SWITCH TO FAN COIL FOR SHUT-DOWN.

BUILDING "B" - MULTIPURPOSE ROOM
FURNACE SCHEDULE

TAG	TYPE	SERVING ROOM	MAKE & MODEL	HEATING INPUT (BTUH)	HEATING OUTPUT (BTUH)	AFUE	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS)	ELECTRICAL DATA		
											POWER	MCA	MOCP
F MP - 1 A & B	FURNACE	MPR	REZNOR CAUA-275	275,000	222,750	81%	3,800* @2.0" W.C.	3,255 MAX. 305 MIN.	3/M-202	394	208-1-60	33.42	50

ACCESSORIES	UVC
2-STAGE COMBINATION GAS VALVE, STAINLESS STEEL BURNER, POWER VENTED, TYPE 'B' FLUE, AND 2" MERV 13 FILTERS. CUSTOM MIXING BOX (TOP O.S.A. OPENING W/ CONTROL DAMPER / REAR R.A. OPENING W/ CONTROL DAMPER), PELICAN WIRELESS SYSTEMS PEARL ECONOMIZER CONTROLLERS W/ FEEDBACK PER TITLE 24, (DAMPER ACTUATOR'S SHALL BE COMPATIBLE WITH PELICAN WIRELESS SYSTEMS). PROVIDE RELAY FOR FIRE ALARM SHUT DOWN, SEE ELECTRICAL.	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER EGTS SERIES (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).

* HVAC UNIT SHUT DOWN VIA CAMPUS FIRE ALARM SYSTEM, SEE ELECTRICAL.

BUILDING "A" - LIBRARY
8.5 TON PACKAGED ROOFTOP UNIT SCHEDULE

TAG	SERVING	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 30°F	ELEC. RES. HEATING 16.0 KW (BTUH)	EER	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS) INCL. CURB	ELECTRICAL DATA			
											UNIT W/ ELEC. RES. HTG. POWER	MCA	MOCP	PWR EXH / ECONOMIZER MAKE / MODEL
RTU L - 1	LIBRARY	YORK XYE09-2A3D	103,300	97,400	54,600	12.0	3,000*	450	1/M-502	1,689	208-3-60	86.2	90	PROVENT / PEDCPRLEN25C (208V, 3PH, 3.2 FLA, 2 HP),

ACCESSORIES	UVC
R-410A REFRIG., E-COAT COND. COILS, PROVENT POWER EXHAUST / ECONOMIZER MODEL PEDCPRLEN25C, ECONOMIZER FAULT DETECTION, ECONOMIZER SHALL BE COMPABILE W/ PELICAN PEARL ECONOMIZER, 16.0 KW ELEC. HEAT, AND MERV 13 FILTERS. PROVIDE RELAY FOR FIRE ALARM SHUT DOWN, SEE ELECTRICAL. PROVENT STRUCTURALLY CALCULATED VIBRATION ISOLATION (OPM-0401-13) ROOF CURB MODEL CBISCPRL18, VERIFY PITCH.	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).

* HVAC UNIT SHUT DOWN VIA CAMPUS FIRE ALARM SYSTEM, SEE ELECTRICAL.

BUILDING "C"
7.5 TON PACKAGED ROOFTOP UNIT SCHEDULE

TAG	SERVING	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 30°F	ELEC. RES. HEATING 16.0 KW (BTUH)	EER	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS) INCL. CURB	ELECTRICAL DATA			
											UNIT W/ ELEC. RES. HTG. POWER	MCA	MOCP	PWR EXH / ECONOMIZER MAKE / MODEL
RTU C - 1 A&B	CLSRM 1 & 3	YORK XYE08-2A3D	88,300	61,600	54,600	12.1	2,400*	450	(RTU/C-1A) 3/M-203 1/M-502 (RTU/C-1B) 1/M-502	1,688	208-3-60	85.3	90	PROVENT / PEDCPRLEN25C (208V, 3PH, 3.2 FLA, 2 HP),

ACCESSORIES	UVC
R-410A REFRIG., E-COAT COND. COILS, PROVENT POWER EXHAUST / ECONOMIZER MODEL PEDCPRLEN25C, ECONOMIZER FAULT DETECTION, ECONOMIZER SHALL BE COMPABILE W/ PELICAN PEARL ECONOMIZER, 16.0 KW ELEC. HEAT, AND MERV 13 FILTERS. PROVIDE RELAY FOR FIRE ALARM SHUT DOWN, SEE ELECTRICAL. PROVENT STRUCTURALLY CALCULATED VIBRATION ISOLATION (OPM-0401-13) ROOF CURB MODEL CBISCPRL18, VERIFY PITCH.	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).

* HVAC UNIT SHUT DOWN VIA CAMPUS FIRE ALARM SYSTEM, SEE ELECTRICAL.

8.5 TON PACKAGED ROOFTOP UNIT SCHEDULE

TAG	SERVING	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 30°F	ELEC. RES. HEATING 16.0 KW (BTUH)	EER	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS) INCL. CURB	ELECTRICAL DATA			
											UNIT W/ ELEC. RES. HTG. POWER	MCA	MOCP	PWR EXH / ECONOMIZER MAKE / MODEL
RTU C - 2	CLSRM 5	YORK XYE09-2A3D	103,300	97,400	54,600	12.0	3,000*	450	1/M-502	1,689	208-3-60	86.2	90	PROVENT / PEDCPRLEN25C (208V, 3PH, 3.2 FLA, 2 HP),

ACCESSORIES	UVC
R-410A REFRIG., E-COAT COND. COILS, PROVENT POWER EXHAUST / ECONOMIZER MODEL PEDCPRLEN25C, ECONOMIZER FAULT DETECTION, ECONOMIZER SHALL BE COMPABILE W/ PELICAN PEARL ECONOMIZER, 16.0 KW ELEC. HEAT, AND MERV 13 FILTERS. PROVIDE RELAY FOR FIRE ALARM SHUT DOWN, SEE ELECTRICAL. PROVENT STRUCTURALLY CALCULATED VIBRATION ISOLATION (OPM-0401-13) ROOF CURB MODEL CBISCPRL18, VERIFY PITCH.	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).

* HVAC UNIT SHUT DOWN VIA CAMPUS FIRE ALARM SYSTEM, SEE ELECTRICAL.

BUILDING "G"
8.5 TON PACKAGED ROOFTOP UNIT SCHEDULE

TAG	SERVING	MAKE & MODEL	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH) @ 30°F	ELEC. RES. HEATING 16.0 KW (BTUH)	EER	CFM	CFM OSA	ANCHORAGE DETAIL	OPERATING WEIGHT (LBS) INCL. CURB	ELECTRICAL DATA			
											UNIT W/ ELEC. RES. HTG. POWER	MCA	MOCP	PWR EXH / ECONOMIZER MAKE / MODEL
RTU G - 1 A&B	KINDER 1&2	YORK XYE09-2A3D	103,300	97,400	54,600	12.0	3,000*	450	2/M-217 1/M-502	1,689	208-3-60	86.2	90	PROVENT / PEDCPRLEN25C (208V, 3PH, 3.2 FLA, 2 HP),

ACCESSORIES	UVC
R-410A REFRIG., E-COAT COND. COILS, PROVENT POWER EXHAUST / ECONOMIZER MODEL PEDCPRLEN25C, ECONOMIZER FAULT DETECTION, ECONOMIZER SHALL BE COMPABILE W/ PELICAN PEARL ECONOMIZER, 16.0 KW ELEC. HEAT, AND MERV 13 FILTERS. PROVIDE RELAY FOR FIRE ALARM SHUT DOWN, SEE ELECTRICAL. PROVENT STRUCTURALLY CALCULATED VIBRATION ISOLATION (OPM-0401-13) ROOF CURB MODEL CBISCPRL18, VERIFY PITCH.	FIELD INSTALLED - STERIL-AIRE ENHANCED UVC EMITTER (INSTALL PER MANUFACTURER'S RECOMMENDATIONS).

* HVAC UNIT SHUT DOWN VIA CAMPUS FIRE ALARM SYSTEM, SEE ELECTRICAL.

AIR DISTRIBUTION SCHEDULE

CDR	CEILING DIFFUSER ROUND. KRUEGER MODEL RM1. ADJUSTABLE DISCHARGE PATTERNS, STEEL, WHITE DUCT MOUNT. SEE SIZE ON PLANS.
CDS	CEILING DIFFUSER. KRUEGER MODEL SH. SQUARE NECK, 4-WAY DISCHARGE, STEEL, WHITE. SURFACE MOUNT SEE NECK SIZE ON PLANS.
RAG	RETURN AIR GRILLE. KRUEGER MODEL S80. 3/4" BLADE SPACING, 35 DEG. DEFLECTION,STEEL WHITE SURFACE MOUNT. SEE SIZE ON PLANS.
RAG2	RETURN AIR GRILLE. KRUEGER MODEL S480HZ. 3/8" BLADE SPACING, 0 DEG. DEFLECTION, STEEL HEAVY-DUTY, WHITE, SURFACE MOUNT. SEE SIZE ON PLANS.
RAT2	RELIEF AIR REGISTER. KRUEGER MODEL 6690. PERFORATED FACE, WHITE. 24"x24", T-BAR MOUNT OR SURFACE MOUNT (VERIFY), W/ RUSKIN BACKDRAFT DAMPER MODEL NMS2.
RAS	RETURN AIR GRILLE SPIRAL. KRUEGER MODEL 5DMGPR. PERFORATED, ALUMINUM WHITE SURFACE MOUNT. SEE SIZE ON PLANS.
SR	PLASTER MOUNT REGISTER. KRUEGER MODEL 5880. WHITE, SURFACE MOUNT. SEE SIZE ON PLANS.
SRS	SUPPLY REGISTER SPIRAL TYPE. KRUEGER MODEL 5DMGDR. ALUMINUM. ASD-AIR SCOOP DEVICE. SIZE ON PLANS.
RSR	ROUND SUPPLY REGISTER SPIRAL KRUEGER MODEL R580RD. ALUMINUM, WHITE, SINGLE DEFLECTION WITH MOUNTING BRACKET & BUTTERFLY DAMPER.
L 1	LOUVER. RUSKIN MODEL L375D. GALV. STEEL CONSTRUCTION. FLANGE FRAME, INSECT SCREEN. PRIME COAT, SEE ARCHITECT FOR PAINTING REQUIREMENTS.
PV 1	PENTHOUSE VENTILATOR, (INTAKE / RELIEF). RUSKIN MODEL PHM, WITH ELF375X LOUVER MODEL. CUSTOM KYNAR COLOR, PITCH ROOF CURB, & INSECT SCREEN. OBTAIN COLOR FROM ARCHITECT. SEE MECHANICAL PLAN FOR SIZES.
PV 2	INTAKE/RELIEF VENTILATOR. ROOF MOUNTED, COOK MODEL 8PR. INCLUDE BIRD SCREEN, BACKDRAFT DAMPER, 12" ROOF CURB, AND EPOXY COATING.
CD 1	CONTROL DAMPER. RUSKIN MODEL CD60 W/ BELIMO FULL FEEDBACK ACTUATOR 0-10vdc. SIZE ON PLANS.
CD 2	CONTROL DAMPER. RUSKIN MODEL CD60 W/ BELIMO FULL FEEDBACK ACTUATOR 0-10vdc. SIZE ON PLANS.

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VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
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PATRICK B. PANLAQUI
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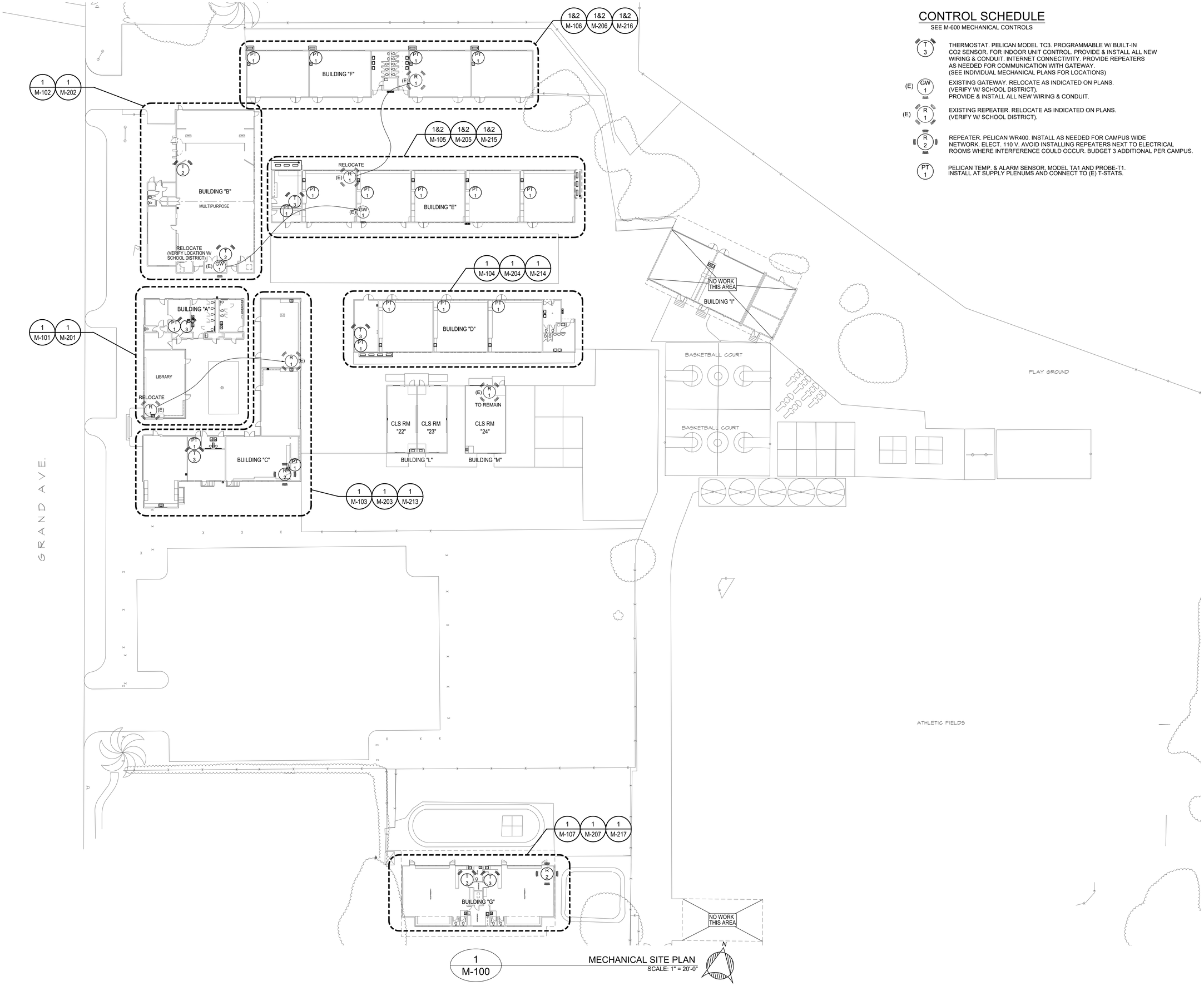
TODD K. GUTEKUNST
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SHEET MECHANICAL
TITLE SCHEDULES

SHEET
M-002



1 M-100 MECHANICAL SITE PLAN
SCALE: 1" = 20'-0"

CONTROL SCHEDULE

SEE M-600 MECHANICAL CONTROLS

T 3	THERMOSTAT. PELICAN MODEL TC3. PROGRAMMABLE W/ BUILT-IN CO2 SENSOR. FOR INDOOR UNIT CONTROL. PROVIDE & INSTALL ALL NEW WIRING & CONDUIT. INTERNET CONNECTIVITY. PROVIDE REPEATERS AS NEEDED FOR COMMUNICATION WITH GATEWAY. (SEE INDIVIDUAL MECHANICAL PLANS FOR LOCATIONS)
(E) GW 1	EXISTING GATEWAY. RELOCATE AS INDICATED ON PLANS. (VERIFY W/ SCHOOL DISTRICT). PROVIDE & INSTALL ALL NEW WIRING & CONDUIT.
(E) R 1	EXISTING REPEATER. RELOCATE AS INDICATED ON PLANS. (VERIFY W/ SCHOOL DISTRICT).
R 2	REPEATER. PELICAN WR400. INSTALL AS NEEDED FOR CAMPUS WIDE NETWORK. ELECT. 110 V. AVOID INSTALLING REPEATERS NEXT TO ELECTRICAL ROOMS WHERE INTERFERENCE COULD OCCUR. BUDGET 3 ADDITIONAL PER CAMPUS.
PT 1	PELICAN TEMP. & ALARM SENSOR, MODEL TA1 AND PROBE-T1. INSTALL AT SUPPLY PLENUMS AND CONNECT TO (E) T-STATS.

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ENGINEER'S STAMP & SIGNATURE

REGISTERED PROFESSIONAL ENGINEER HUGH X. METENDO M030626 Ren. 6/30/26 MECHANICAL STATE OF CALIFORNIA

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DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE MECHANICAL SITE PLAN

SHEET
M-100

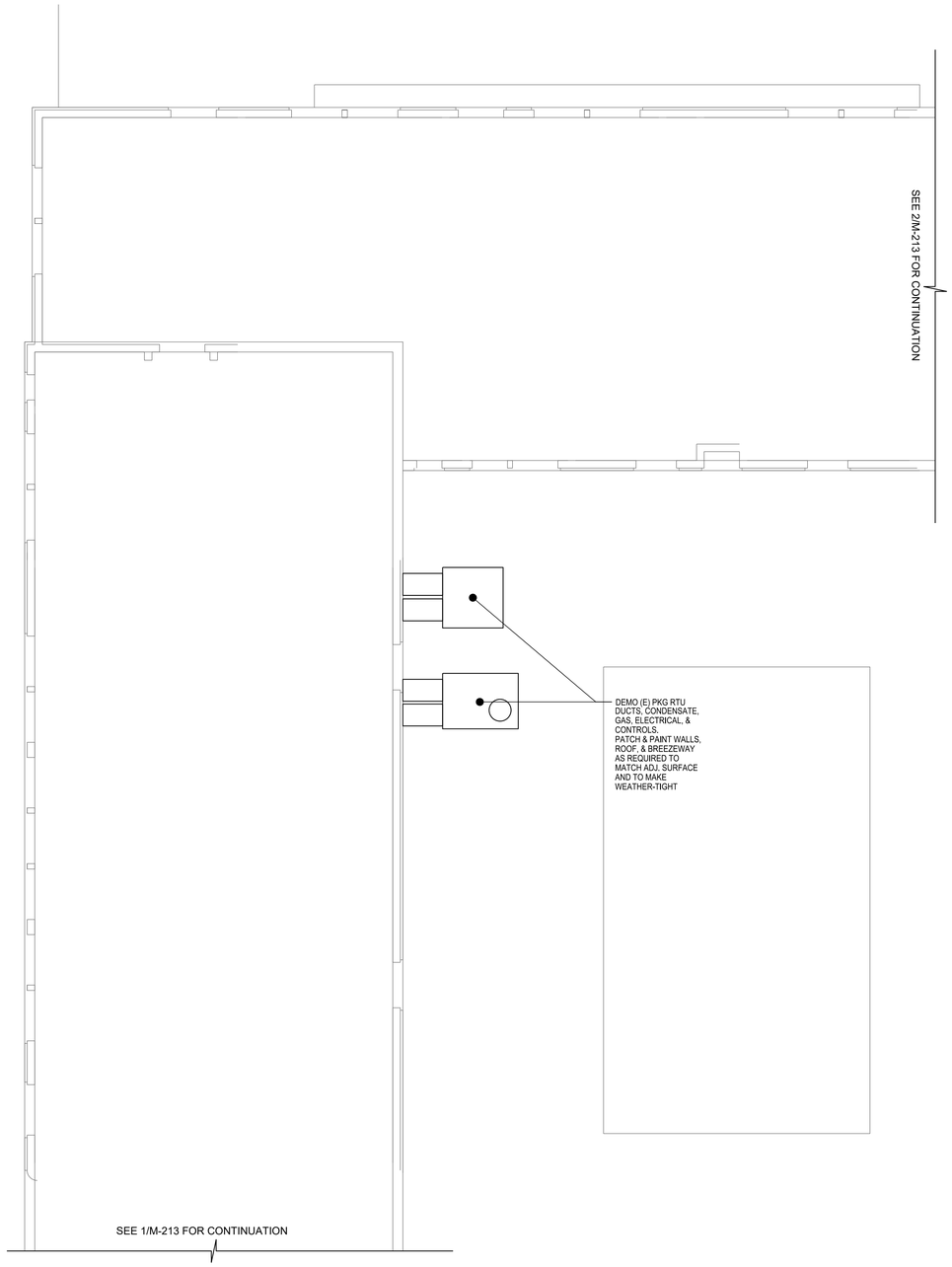
NOTES:
1. REPAIR / PATCH ANY AND ALL WALL OR CEILING PENETRATIONS OF DRYWALL, PLASTER, OR STUCCO. PAINT ANY SURFACE TO MATCH ADJACENT WALLS / CEILINGS DUE TO EXISTING MECHANICAL EQUIPMENT & ASSOCIATED COMPONENT REMOVAL AND NEW MECHANICAL EQUIPMENT INSTALLATION. (TYP)

2. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

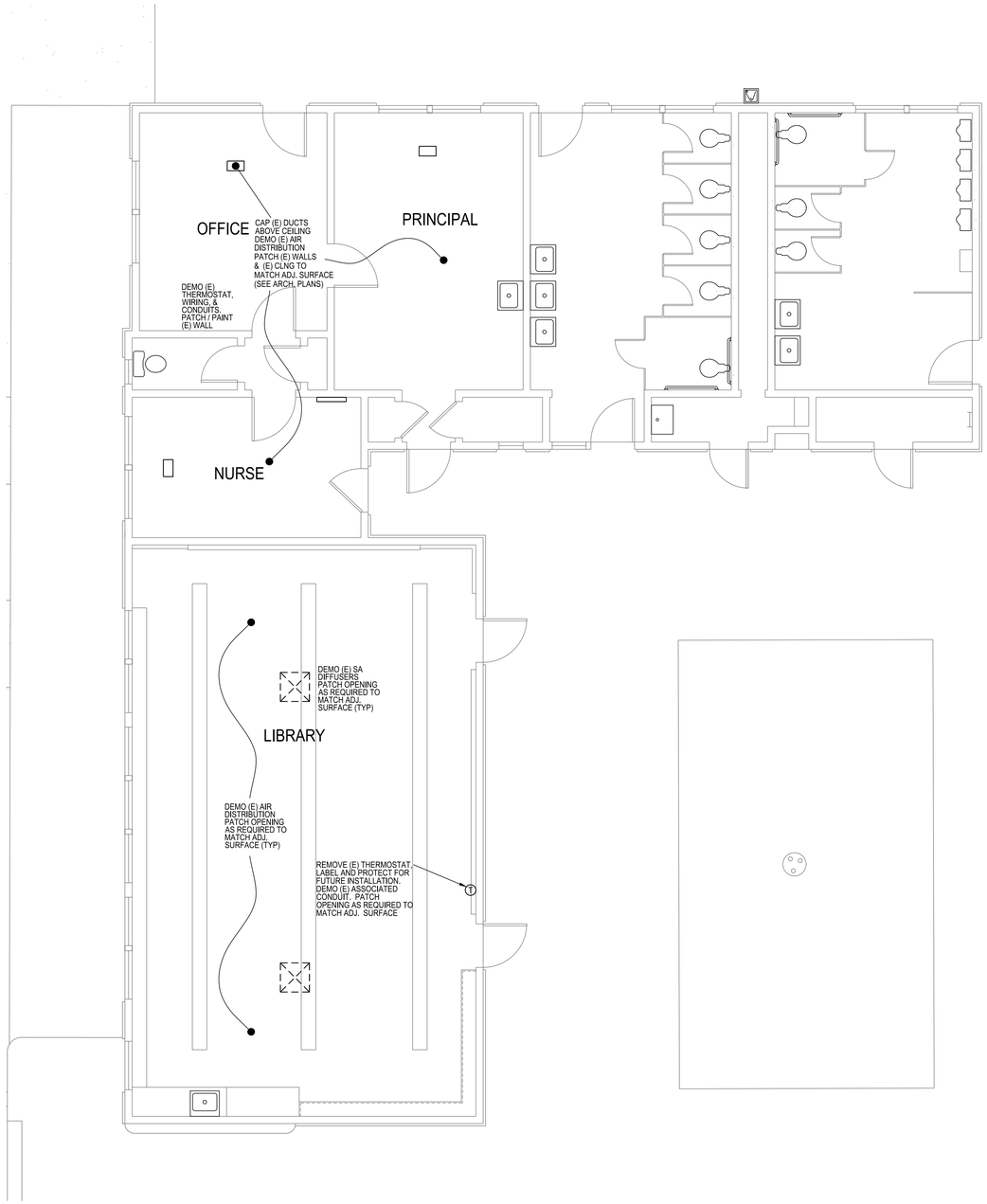
3. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

4. CONTRACTOR SHALL FIRST OFFER REMOVED EQUIPMENT AND THERMOSTATS TO THE DISTRICT. IF NOT WANTED BY THE DISTRICT, CONTRACTOR SHALL PROPERLY DISPOSE/RECYCLE.

5. CAP GAS LINE AT EXTERIOR OF BUILDING. REMOVE EXISTING GAS VALVE AND CAP (VERIFY LOCATION).



2 M-101 BUILDING "A": MECHANICAL DEMOLITION ROOF PLAN
SCALE: 1/4" = 1'-0"



1 M-101 BUILDING "A": MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"

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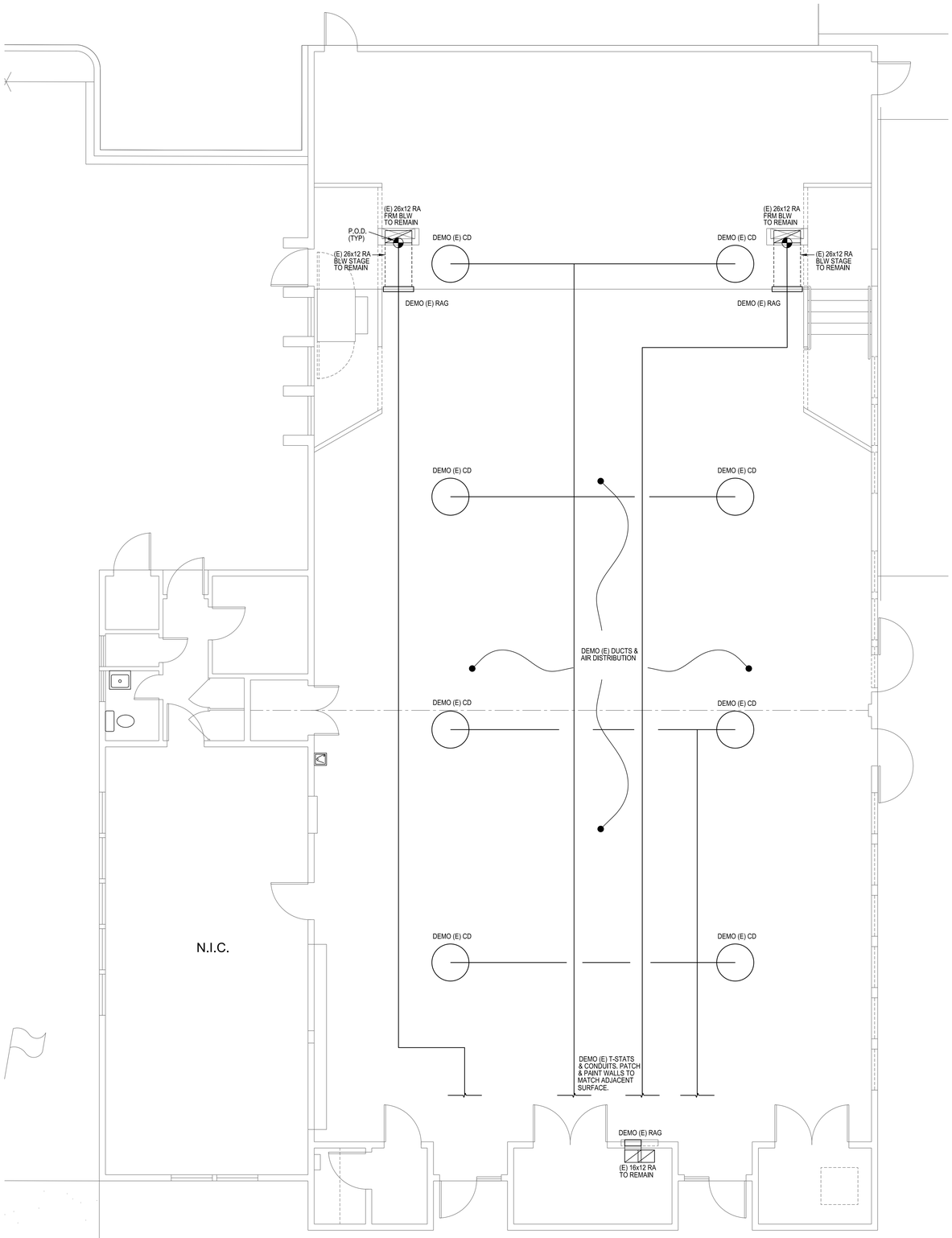
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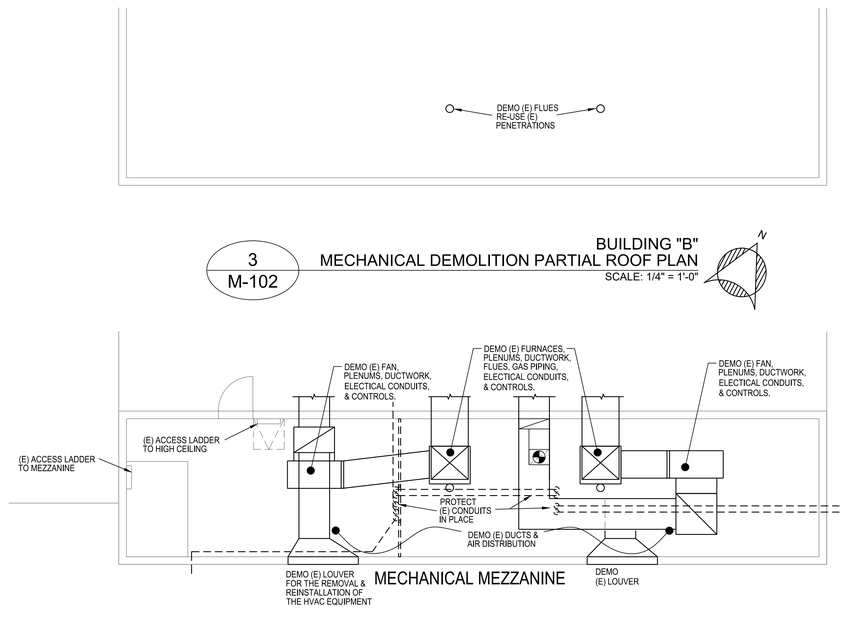
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DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE BUILDING "A" MECHANICAL DEMOLITION FLOOR & ROOF PLANS

SHEET
M-101



1 M-102 BUILDING "B" MECHANICAL DEMOLITION FLOOR PLAN SCALE: 1/4" = 1'-0"



3 M-102 BUILDING "B" MECHANICAL DEMOLITION PARTIAL ROOF PLAN SCALE: 1/4" = 1'-0"

2 M-102 BUILDING "B" MECHANICAL DEMOLITION MEZZANINE PLAN SCALE: 1/4" = 1'-0"

NOTES:
1. REPAIR / PATCH ANY AND ALL WALL OR CEILING PENETRATIONS OF DRYWALL, PLASTER, OR STUCCO. PAINT ANY SURFACE TO MATCH ADJACENT WALLS / CEILINGS DUE TO EXISTING MECHANICAL EQUIPMENT & ASSOCIATED COMPONENT REMOVAL AND NEW MECHANICAL EQUIPMENT INSTALLATION. (TYP)

2. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

3. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

4. CONTRACTOR SHALL FIRST OFFER REMOVED EQUIPMENT AND THERMOSTATS TO THE DISTRICT. IF NOT WANTED BY THE DISTRICT, CONTRACTOR SHALL PROPERLY DISPOSE/RECYCLE.

5. CAP GAS LINE AT EXTERIOR OF BUILDING. REMOVE EXISTING GAS VALVE AND CAP (VERIFY LOCATION).

6. DISPOSE OF HAZARDOUS MATERIALS, PER VCAPCD PROCEDURES. (SEE ARCH. PLANS FOR MORE ABATEMENT INFORMATION).

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SHEET TITLE BUILDING "B" MECHANICAL DEMOLITION FLOOR & ROOF PLANS

SHEET
M-102

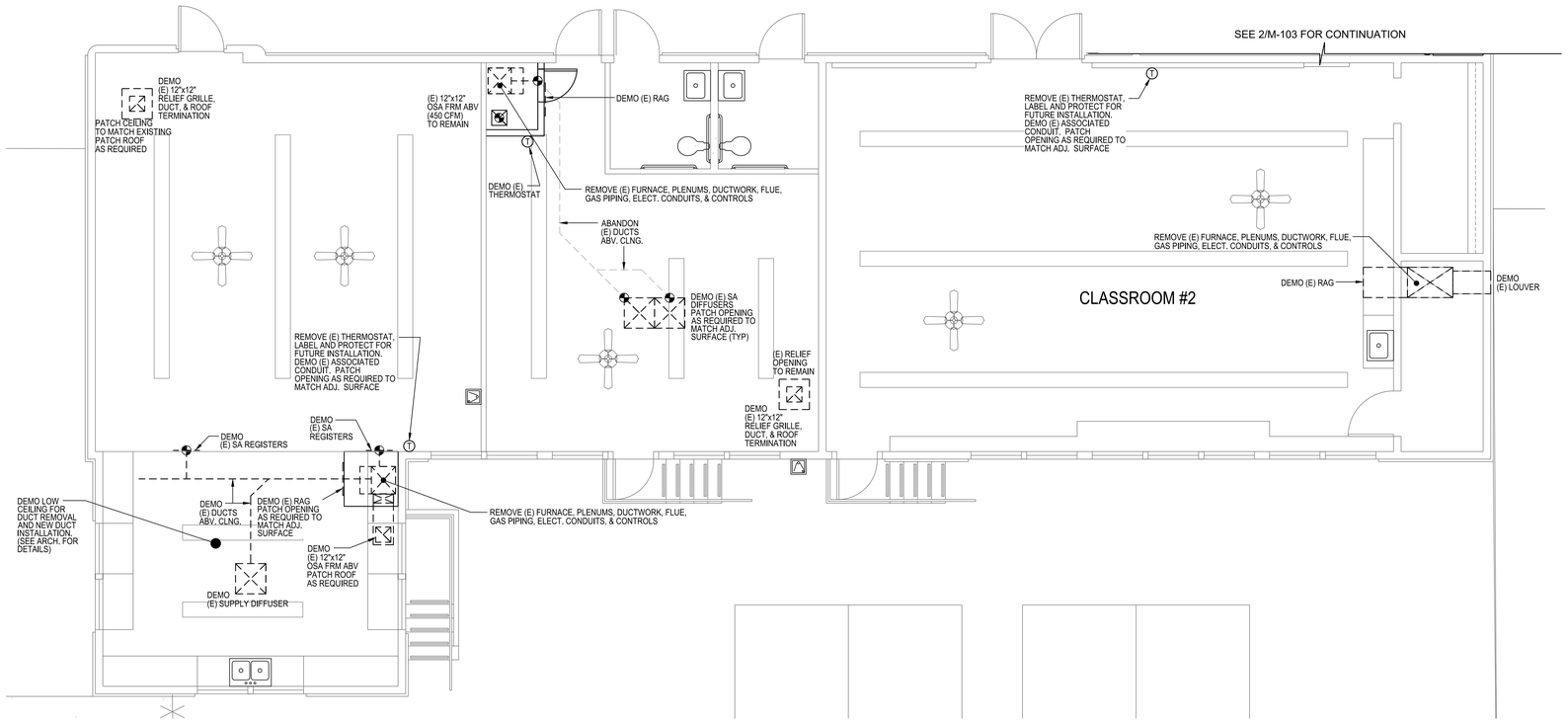
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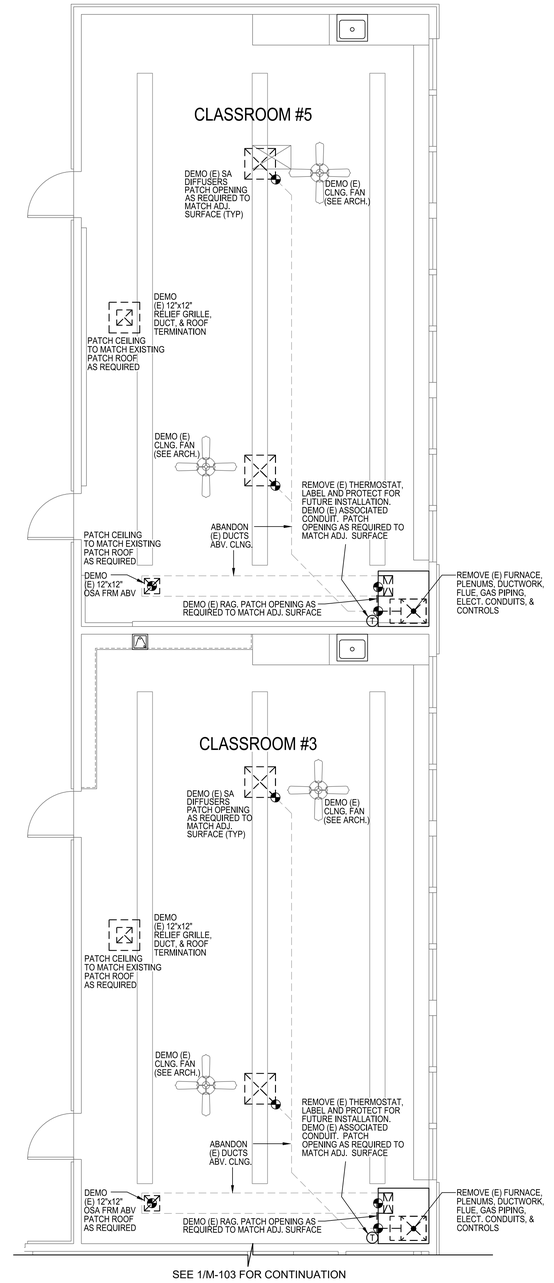
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5. CAP GAS LINE AT EXTERIOR OF BUILDING. REMOVE EXISTING GAS VALVE AND CAP (VERIFY LOCATION).



1 M-103 BUILDING "C" MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"



2 M-103 BUILDING "C" MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"

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SHEET BUILDING "C"
TITLE MECHANICAL DEMOLITION FLOOR PLAN

SHEET
M-103

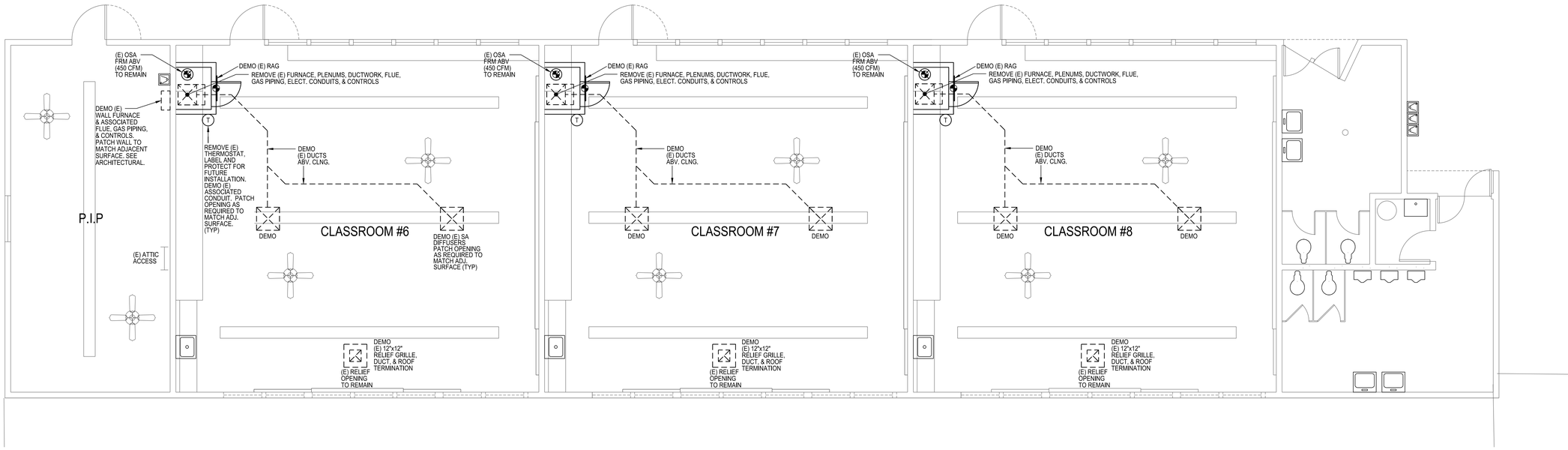
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5. CAP GAS LINE AT EXTERIOR OF BUILDING. REMOVE EXISTING GAS VALVE AND CAP (VERIFY LOCATION).



1
M-104

BUILDING "D"
MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"

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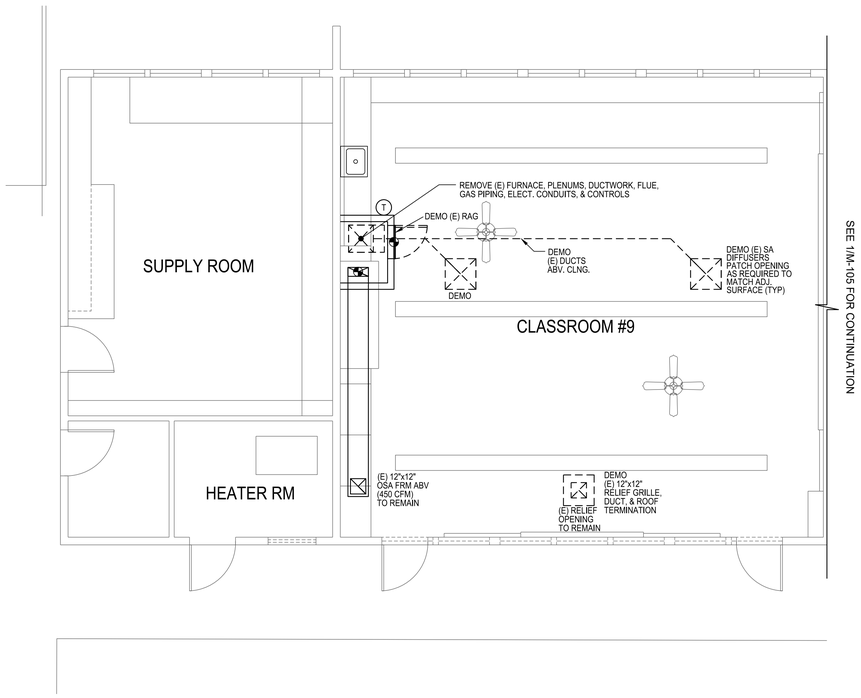
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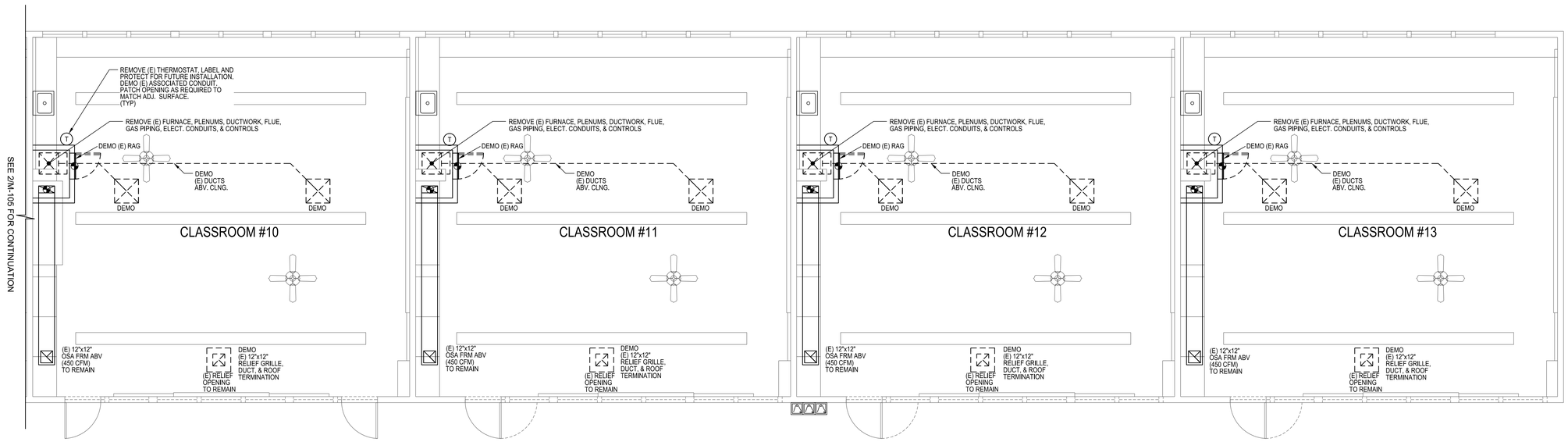
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SHEET TITLE BUILDING "D" MECHANICAL DEMOLITION FLOOR PLAN

SHEET
M-104



2 M-105

BUILDING "E"
MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"



1 M-105

BUILDING "E"
MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"

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MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

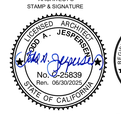
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TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ENGINEER'S STAMP & SIGNATURE



AE Group
Mechanical Engineers
838 East Front Street
Ventura, California 93001-2925
(805) 653-1722
hugh@aegroupme.com

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DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE BUILDING "E" MECHANICAL DEMOLITION FLOOR PLAN

SHEET
M-105

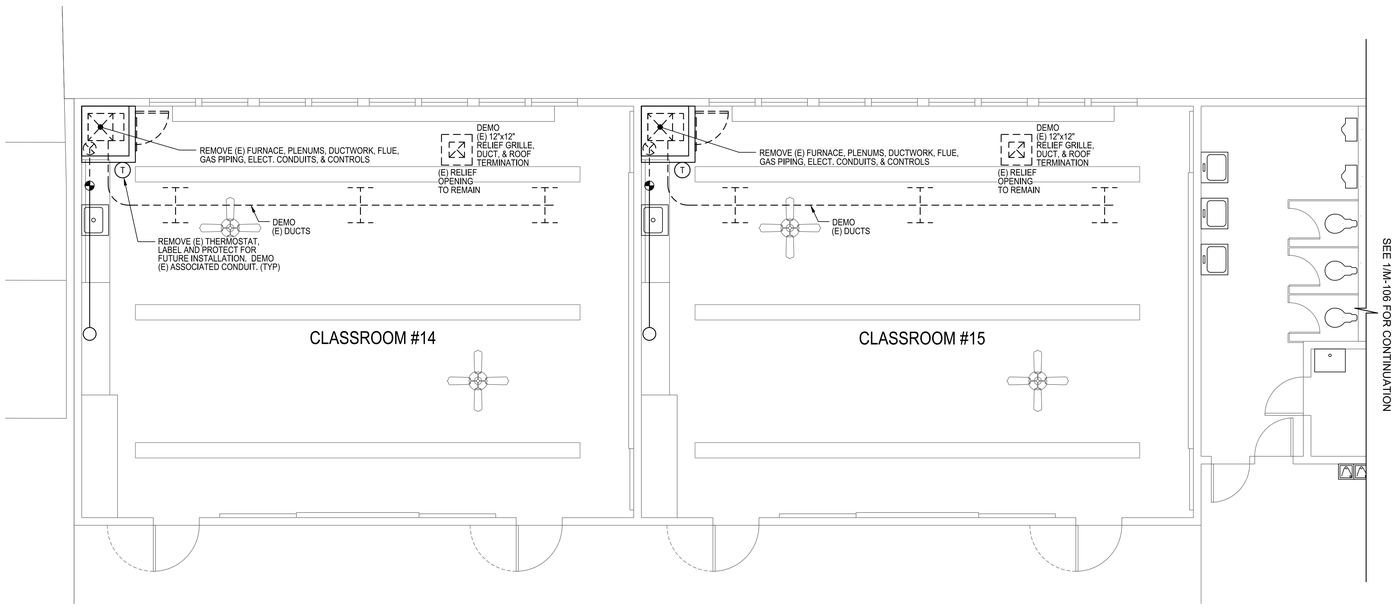
NOTES:
1. REPAIR / PATCH ANY AND ALL CLOSETS, WALL, OR CEILING OF DRYWALL, PLASTER, OR STUCCO. PAINT ANY SURFACE TO MATCH ADJACENT WALLS / CEILINGS DUE TO EXISTING MECHANICAL EQUIPMENT & ASSOCIATED COMPONENT REMOVAL AND NEW MECHANICAL EQUIPMENT INSTALLATION. (TYP)

2. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

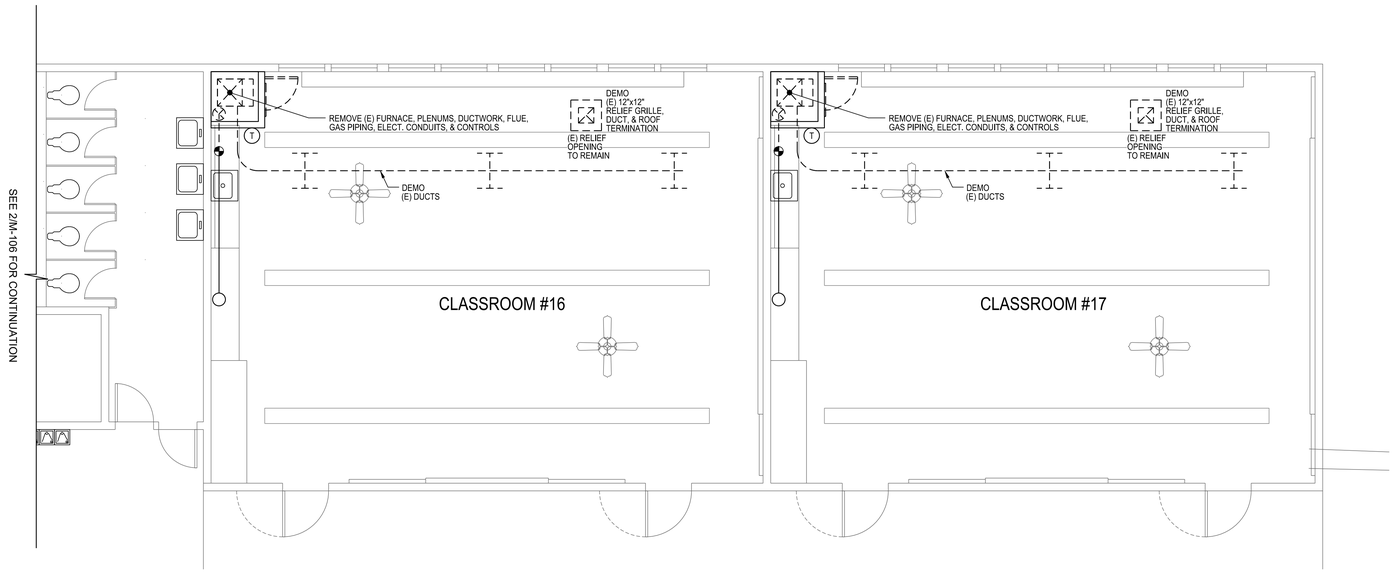
3. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

4. CONTRACTOR SHALL FIRST OFFER REMOVED EQUIPMENT AND THERMOSTATS TO THE DISTRICT. IF NOT WANTED BY THE DISTRICT, CONTRACTOR SHALL PROPERLY DISPOSE/RECYCLE.

5. CAP GAS LINE AT EXTERIOR OF BUILDING. REMOVE EXISTING GAS VALVE AND CAP (VERIFY LOCATION).



2 / M-106 BUILDING "F" MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"



1 / M-106 BUILDING "F" MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"

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VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

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LICENSED ARCHITECT TODD A. JESPERSEN No. C25839 Ren. 06/30/2025 STATE OF CALIFORNIA

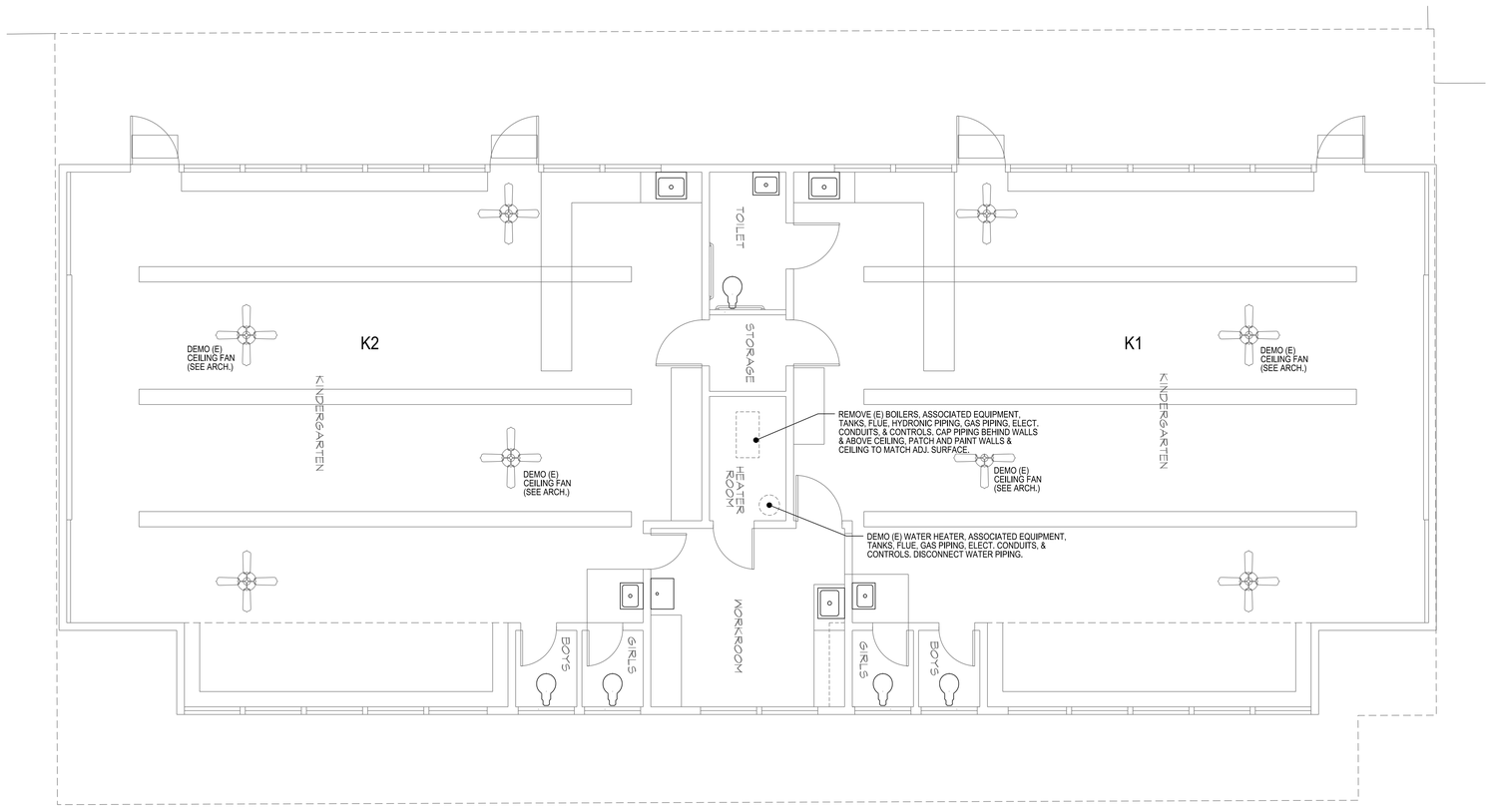
ENGINEER'S STAMP & SIGNATURE
REGISTERED PROFESSIONAL ENGINEER HUGH K. MCTERNAN M030626 Ren. 6/30/26 MECHANICAL STATE OF CALIFORNIA

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838 East Front Street
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SHEET TITLE BUILDING "F" MECHANICAL DEMOLITION FLOOR PLAN

SHEET
M-106



1
M-107

BUILDING "G"
MECHANICAL DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"

N

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REGISTERED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Ren. 06/30/2025
STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE

REGISTERED PROFESSIONAL ENGINEER
PATRICK B. MOTHERSHEAD
M030626
Ren. 6/30/26
MECHANICAL
STATE OF CALIFORNIA

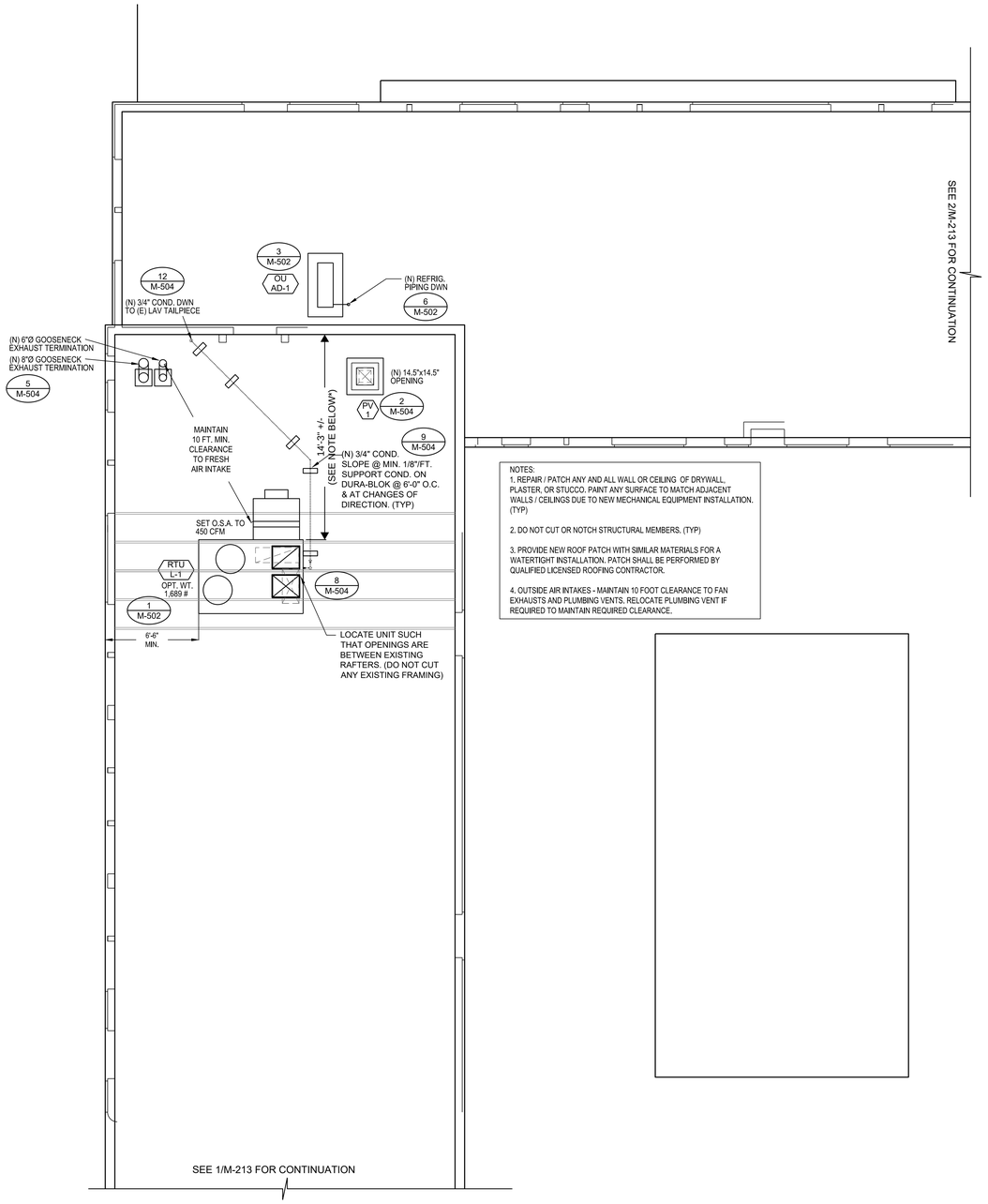
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SHEET TITLE BUILDING "G" MECHANICAL DEMOLITION FLOOR PLAN

SHEET
M-107



NOTES:
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2. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

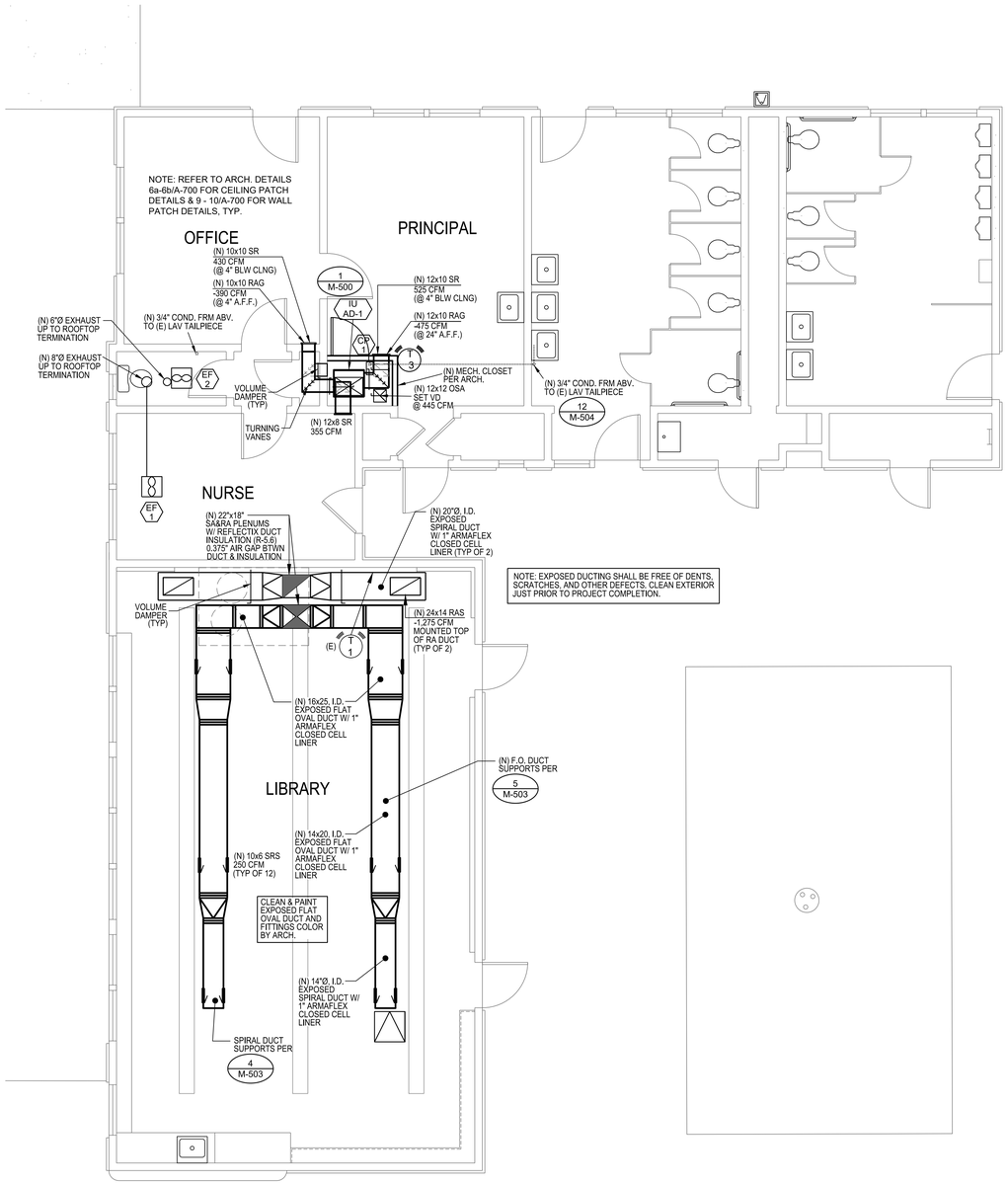
3. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

4. OUTSIDE AIR INTAKES - MAINTAIN 10 FOOT CLEARANCE TO FAN EXHAUSTS AND PLUMBING VENTS. RELOCATE PLUMBING VENT IF REQUIRED TO MAINTAIN REQUIRED CLEARANCE.

2 M-201

BUILDING "A": MECHANICAL ROOF PLAN

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



NOTE: EXPOSED DUCTING SHALL BE FREE OF DENTS, SCRATCHES, AND OTHER DEFECTS. CLEAN EXTERIOR JUST PRIOR TO PROJECT COMPLETION.

1 M-201

BUILDING "A": MECHANICAL FLOOR PLAN

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

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VENTURA UNIFIED SCHOOL DISTRICT
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MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Ren. 06/30/2025 STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE

REGISTERED PROFESSIONAL ENGINEER HUGH A. McTEAGUE M030626 Ren. 6/30/26 MECHANICAL STATE OF CALIFORNIA

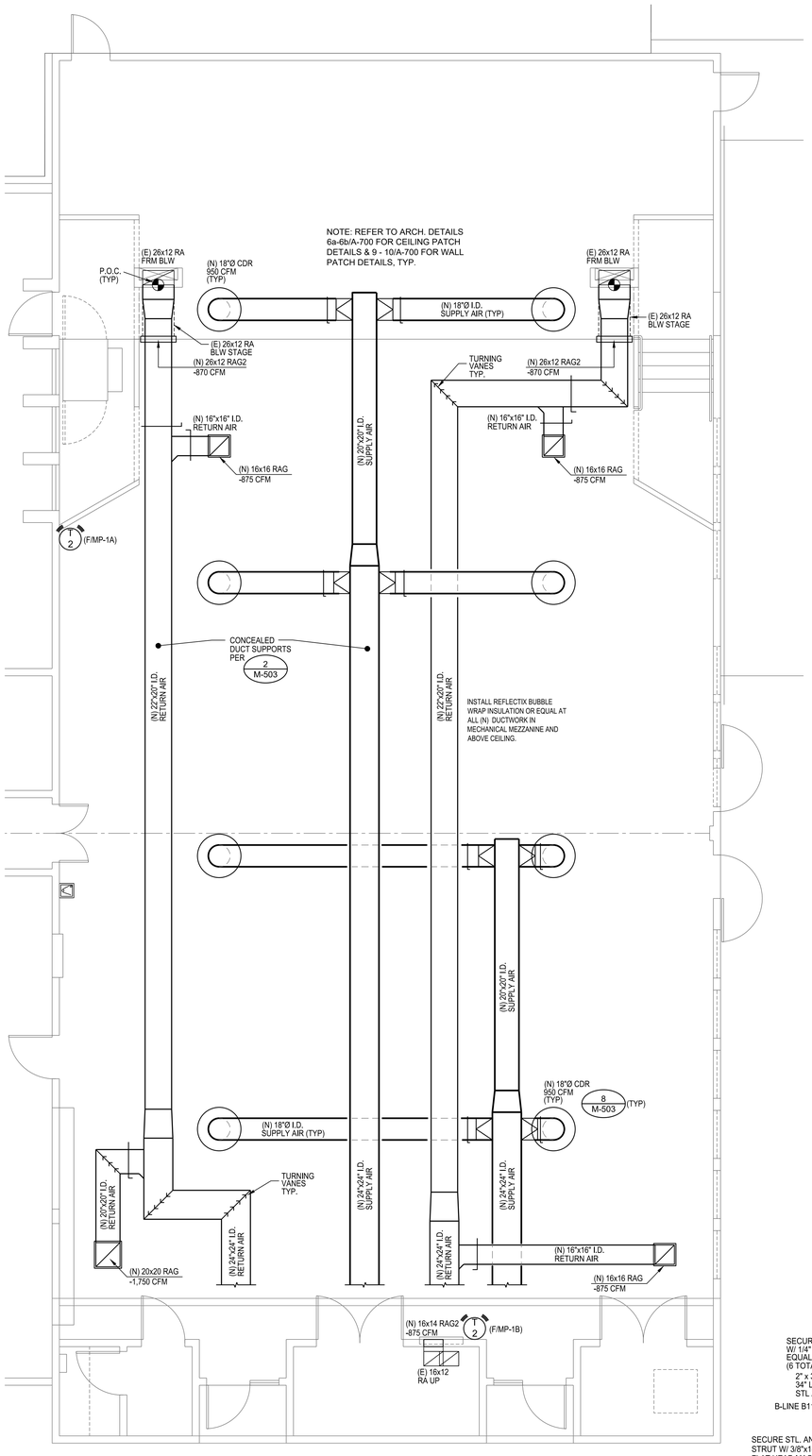
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(805) 653-1722
hugh@aegroupme.com

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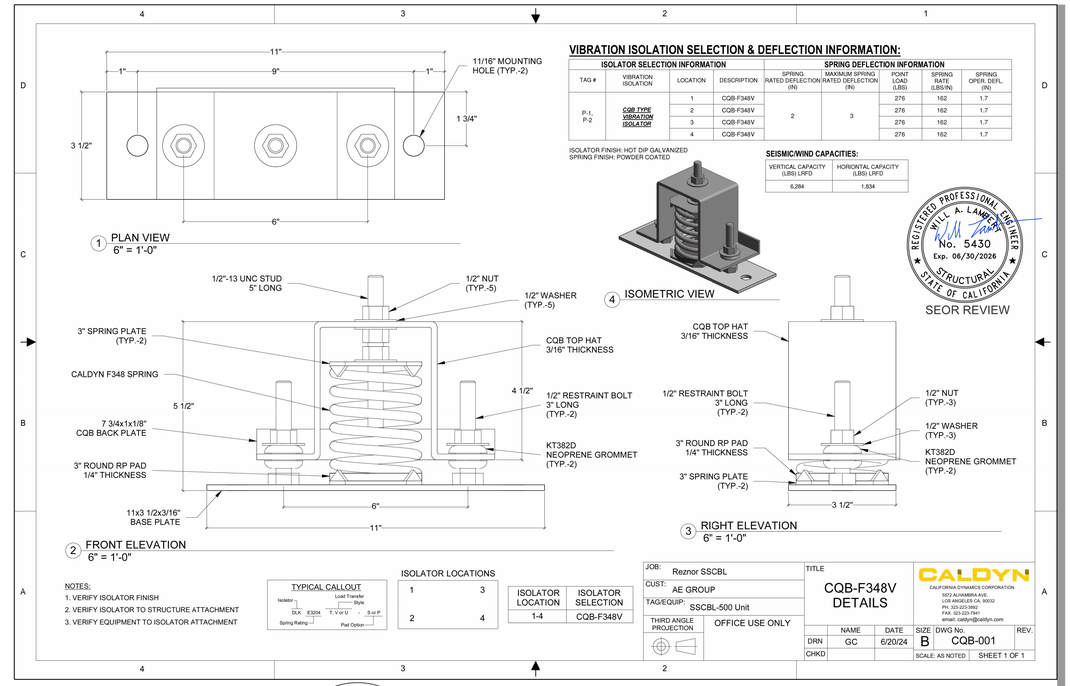
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DATE 10/11/2024
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SHEET TITLE BUILDING "A" MECHANICAL FLOOR & ROOF PLANS

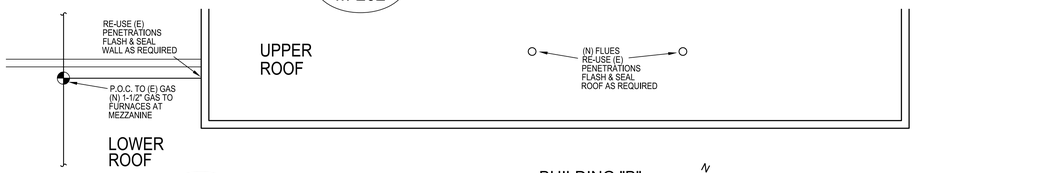
SHEET
M-201



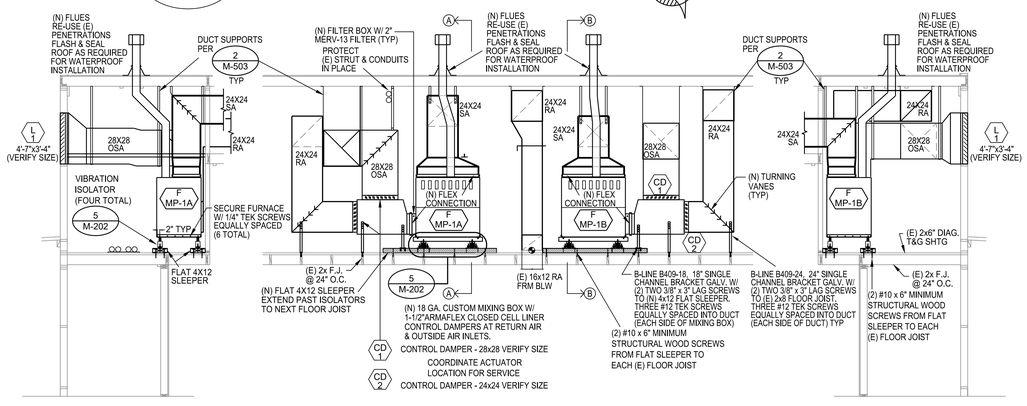
1 M-202 — BUILDING "B" MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"



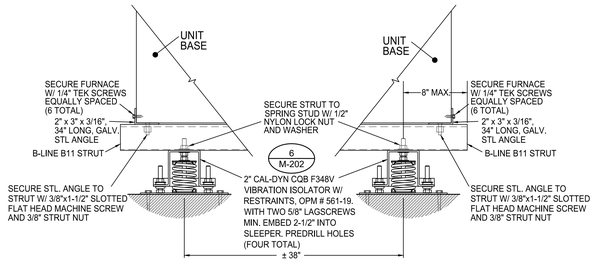
6 M-202 — VIBRATION ISOLATOR DETAIL
NTS



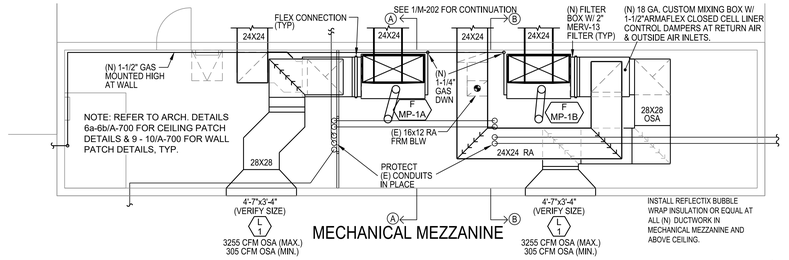
4 M-202 — BUILDING "B" MECHANICAL PARTIAL ROOF PLAN
SCALE: 1/4" = 1'-0"



3 M-202 — BUILDING "B" MECHANICAL MEZZANINE SECTIONS
SCALE: 1/4" = 1'-0"



5 M-202 — FURNACE ANCHORAGE DETAIL
NTS



2 M-202 — BUILDING "B" MECHANICAL MEZZANINE PLAN
SCALE: 1/4" = 1'-0"

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VENTURA UNIFIED SCHOOL DISTRICT
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MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

SEOR REVIEW

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PATRICK B. PANLAQUI
PROJECT MANAGER

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ENGINEER'S STAMP & SIGNATURE — M030626 Ren. 6/30/26

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hugh@aegroupme.com

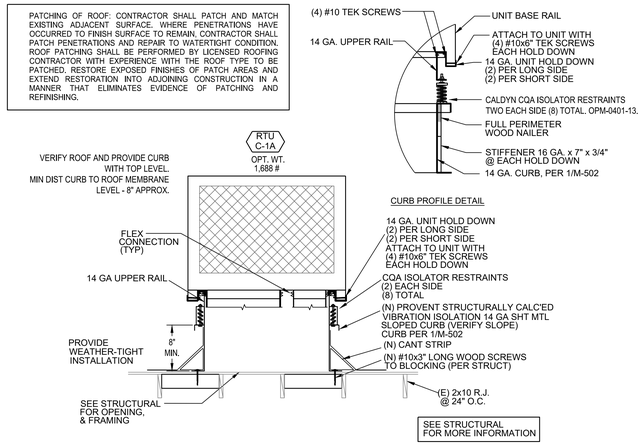
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SHEET TITLE BUILDING "B" MECHANICAL FLOOR PLAN

SHEET
M-202

PATCHING OF ROOF: CONTRACTOR SHALL PATCH AND MATCH EXISTING ADJACENT SURFACE. WHERE PENETRATIONS HAVE OCCURRED TO FINISH SURFACE TO REMAIN, CONTRACTOR SHALL PATCH PENETRATIONS AND REPAIR TO WATERTIGHT CONDITION. ROOF PATCHING SHALL BE PERFORMED BY LICENSED ROOFING CONTRACTOR WITH EXPERIENCE WITH THE ROOF TYPE TO BE PATCHED. RESTORE EXPOSED FINISHES OF PATCH AREAS AND EXTEND RESTORATION INTO ADJOINING CONSTRUCTION IN A MANNER THAT ELIMINATES EVIDENCE OF PATCHING AND REFINISHING.



PACKAGED ROOFTOP UNIT (RTU/C-1A) ANCHORAGE DETAIL 3

NTS

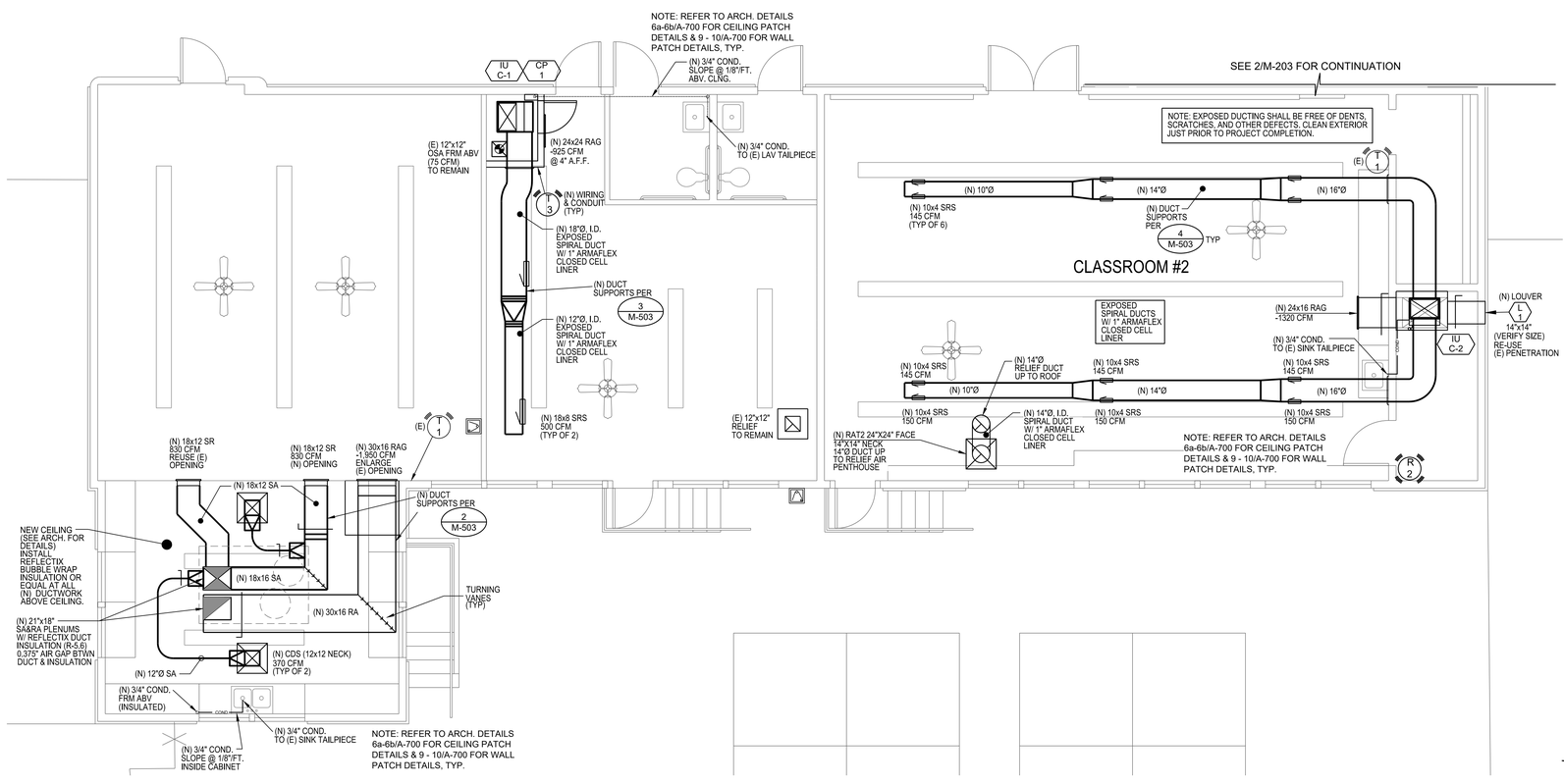
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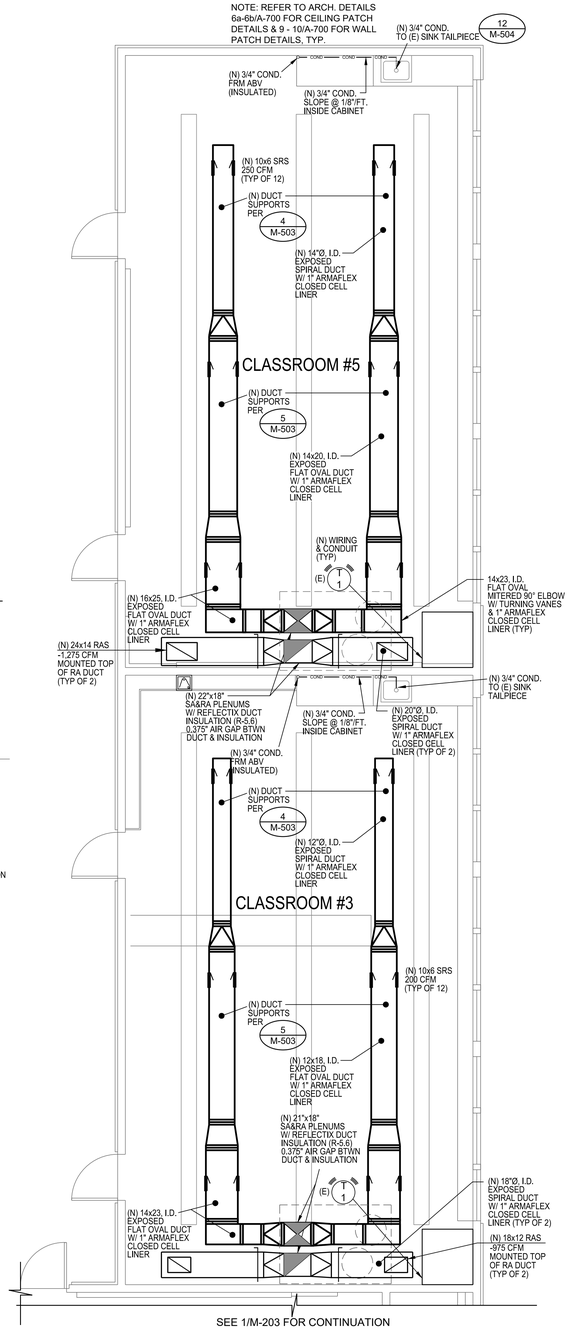
4. CONTRACTOR SHALL FIRST OFFER REMOVED EQUIPMENT AND THERMOSTATS TO THE DISTRICT. IF NOT WANTED BY THE DISTRICT, CONTRACTOR SHALL PROPERLY DISPOSE/RECYCLE.

5. CAP GAS LINE AT EXTERIOR OF BUILDING. REMOVE EXISTING GAS VALVE AND CAP (VERIFY LOCATION).



BUILDING "C" MECHANICAL FLOOR PLAN 1/M-203

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



BUILDING "C" MECHANICAL FLOOR PLAN 2/M-203

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

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TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

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ARCHITECT'S STAMP & SIGNATURE



ENGINEER'S STAMP & SIGNATURE



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SHEET TITLE BUILDING "C" MECHANICAL FLOOR PLAN

SHEET
M-203

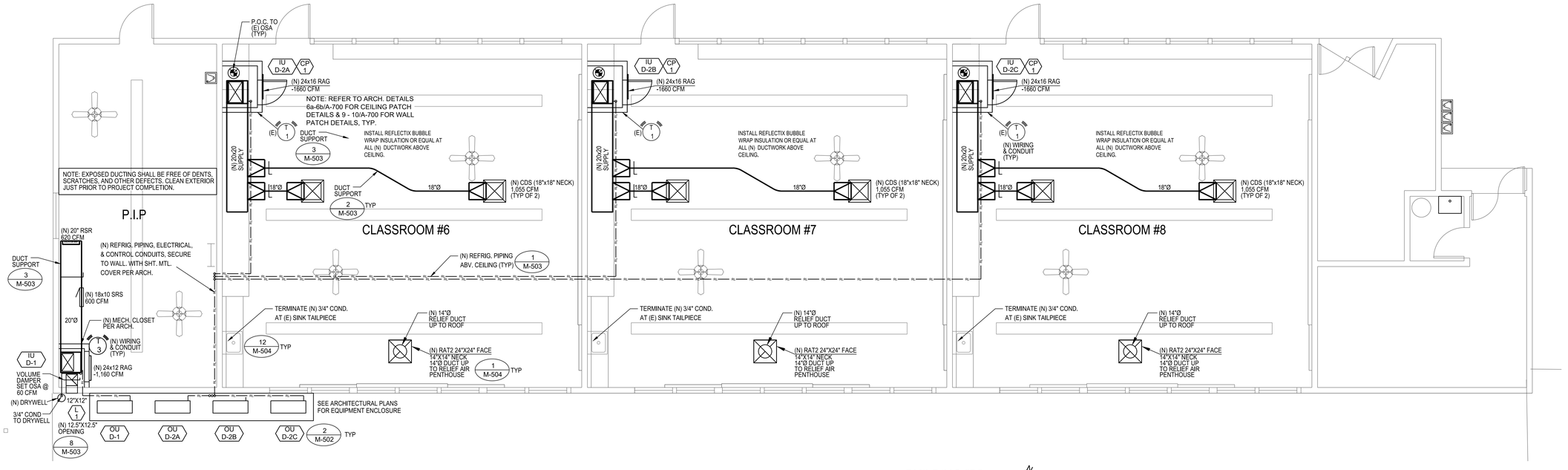
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1 M-204

BUILDING "D"
MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

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ARCHITECT'S STAMP & SIGNATURE

TODD A. JESPERSEN — LICENSED ARCHITECT — No. C-25839 — Ren. 06/30/2025 — STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE

REGISTERED PROFESSIONAL ENGINEER — PATRICK B. PANLAQUI — M030626 — Ren. 6/30/26 — MECHANICAL — STATE OF CALIFORNIA

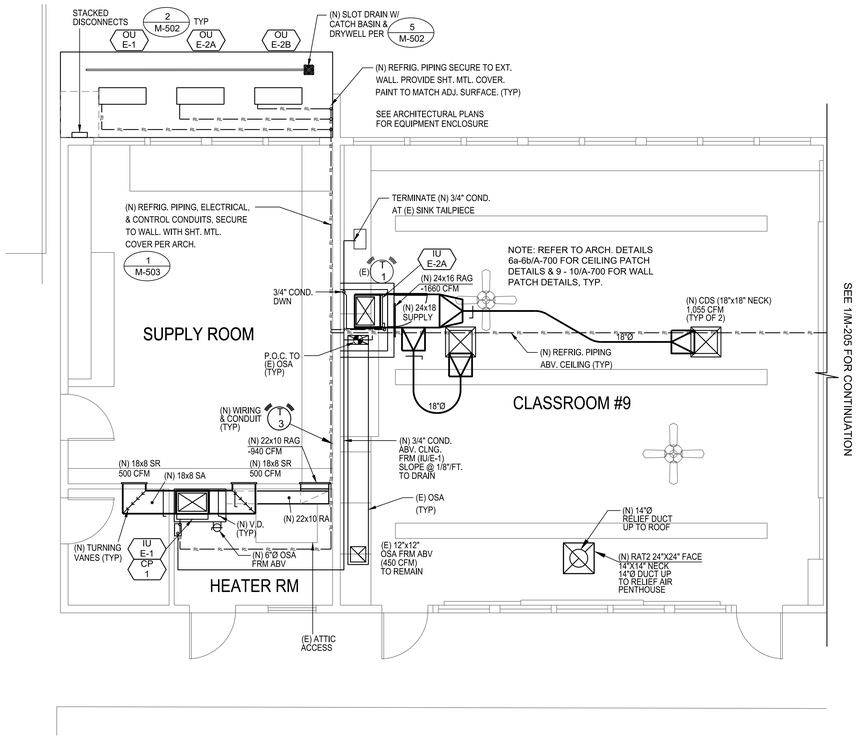
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DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE BUILDING "D" MECHANICAL FLOOR PLAN

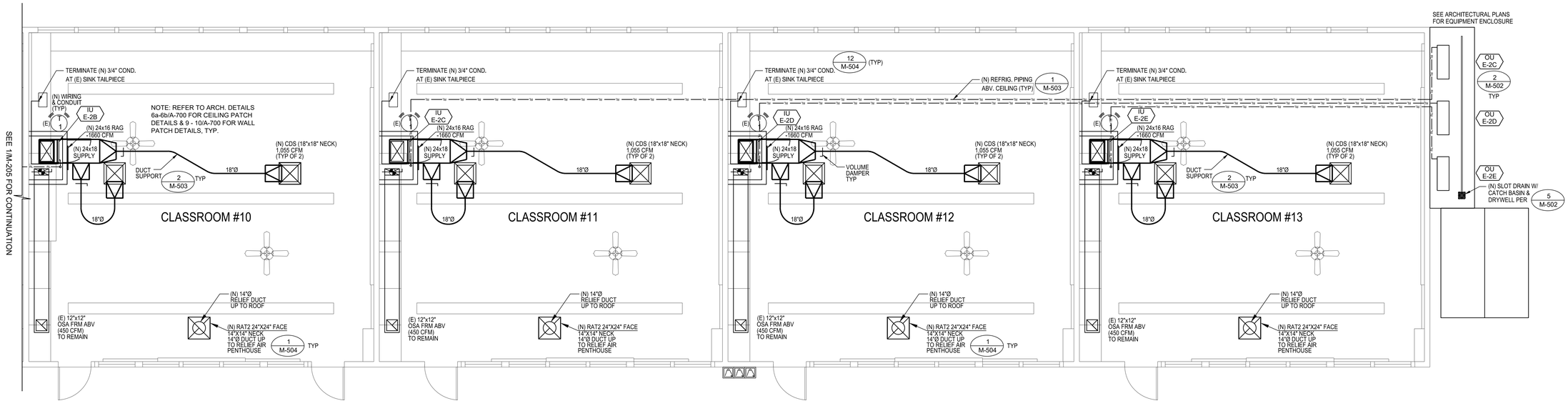
SHEET
M-204



2 M-205

BUILDING "E" MECHANICAL FLOOR PLAN

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



1 M-205

BUILDING "E" MECHANICAL FLOOR PLAN

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

NOTES:
1. REPAIR / PATCH ANY AND ALL CLOSETS, WALL, OR CEILING OF DRYWALL, PLASTER, OR STUCCO. PAINT ANY SURFACE TO MATCH ADJACENT WALLS / CEILINGS DUE TO NEW MECHANICAL EQUIPMENT INSTALLATION. (TYP)

2. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

3. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

4. CONTRACTOR SHALL FIRST OFFER REMOVED EQUIPMENT AND THERMOSTATS TO THE DISTRICT. IF NOT WANTED BY THE DISTRICT, CONTRACTOR SHALL PROPERLY DISPOSE/RECYCLE.

5. CAP GAS LINE AT EXTERIOR OF BUILDING. REMOVE EXISTING GAS VALVE AND CAP (VERIFY LOCATION).

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S STAMP & SIGNATURE
LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Renewal 06/30/2025 STATE OF CALIFORNIA

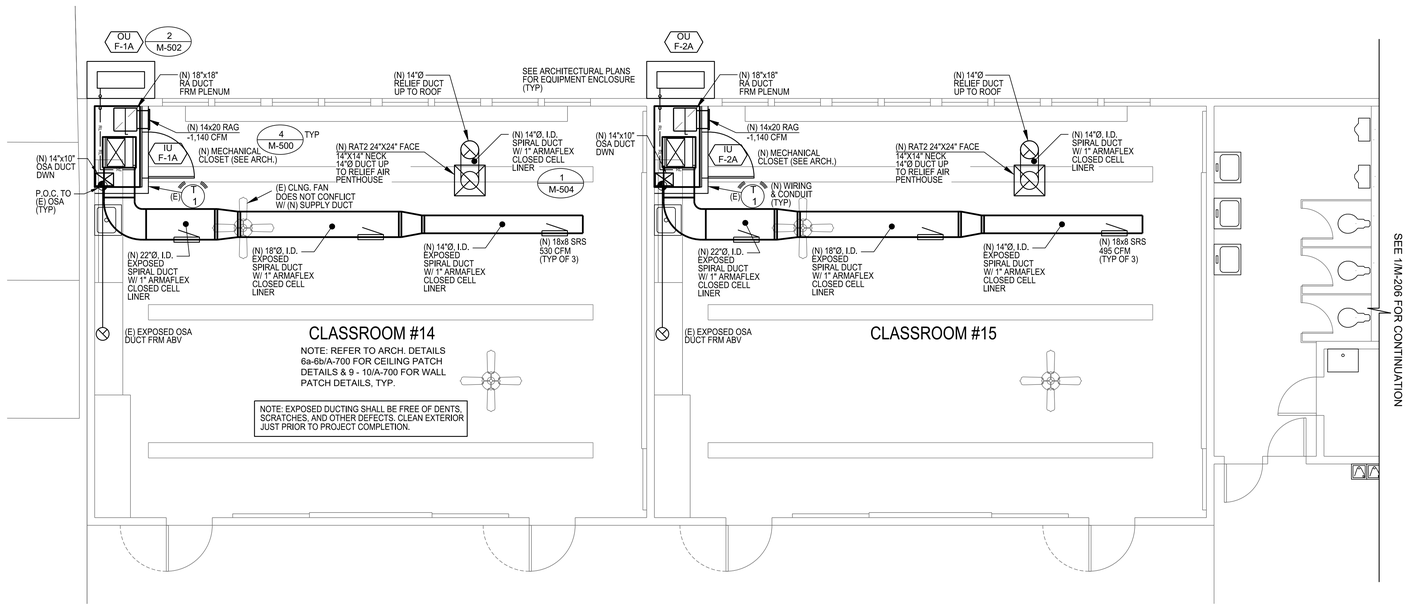
ENGINEER'S STAMP & SIGNATURE
REGISTERED PROFESSIONAL ENGINEER HUGH K. MCTERNAN M030626 Ren. 6/30/26 MECHANICAL STATE OF CALIFORNIA

AE Group
Mechanical Engineers
838 East Front Street
Ventura, California 93001-2925
(805) 653-1722
hugh@aegroupme.com

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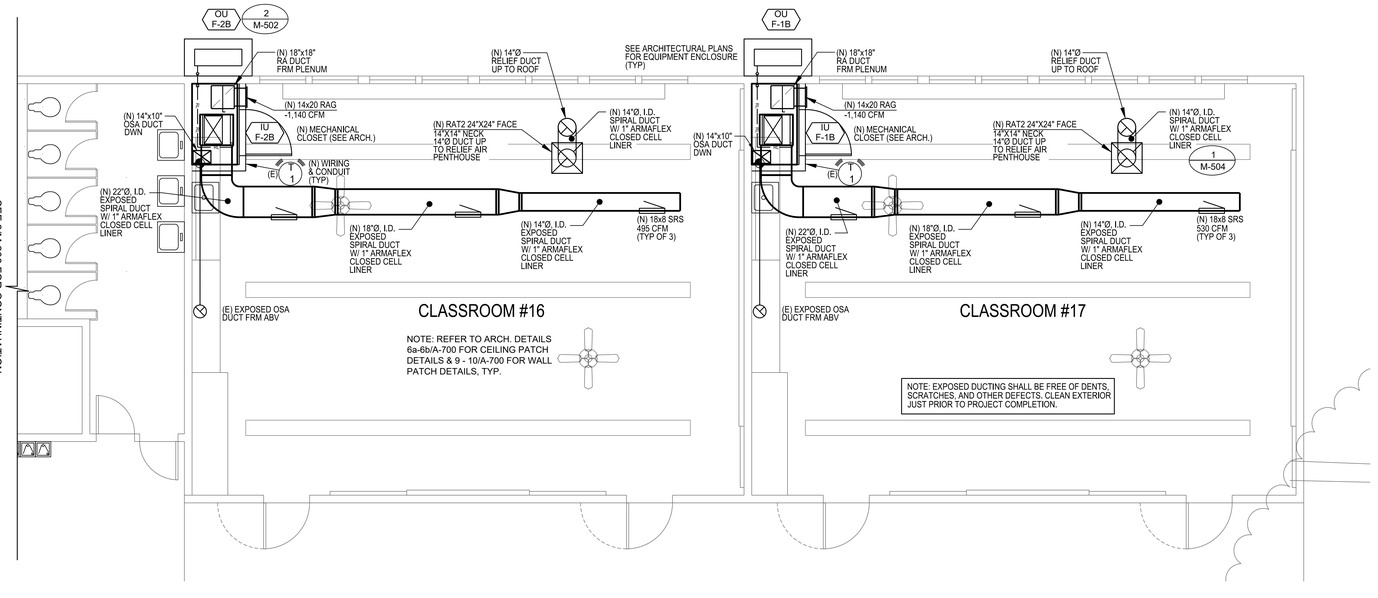
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CHECKED HM/PW		
DATE 10/11/2024		
JOB. NO. 23053		
DSA A03-124514 FILE:56-40 PTN:72652-125		
SHEET TITLE BUILDING "E" MECHANICAL FLOOR PLAN		

SHEET
M-205



2
M-206

BUILDING "F"
MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"



1
M-206

BUILDING "F"
MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

NOTES:
1. REPAIR / PATCH ANY AND ALL CLOSETS, WALL, OR CEILING OF DRYWALL, PLASTER, OR STUCCO. PAINT ANY SURFACE TO MATCH ADJACENT WALLS / CEILINGS DUE TO NEW MECHANICAL EQUIPMENT INSTALLATION. (TYP)

2. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

3. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

4. CAP GAS LINE AT EXTERIOR OF BUILDING. REMOVE EXISTING GAS VALVE AND CAP (VERIFY LOCATION).

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DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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TODD A. JESPERSEN, A.I.A.
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PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S STAMP & SIGNATURE
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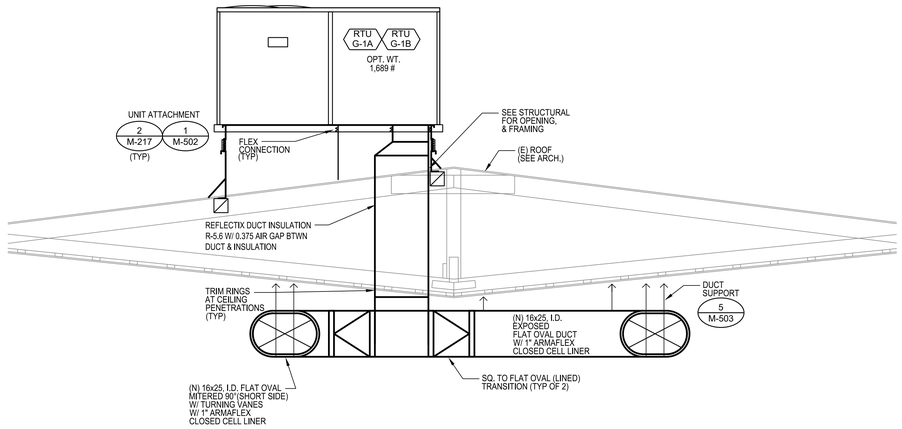
ENGINEER'S STAMP & SIGNATURE
REGISTERED PROFESSIONAL ENGINEER HUGH K. MUTERSPAW M030626 Ren. 6/30/26 MECHANICAL STATE OF CALIFORNIA

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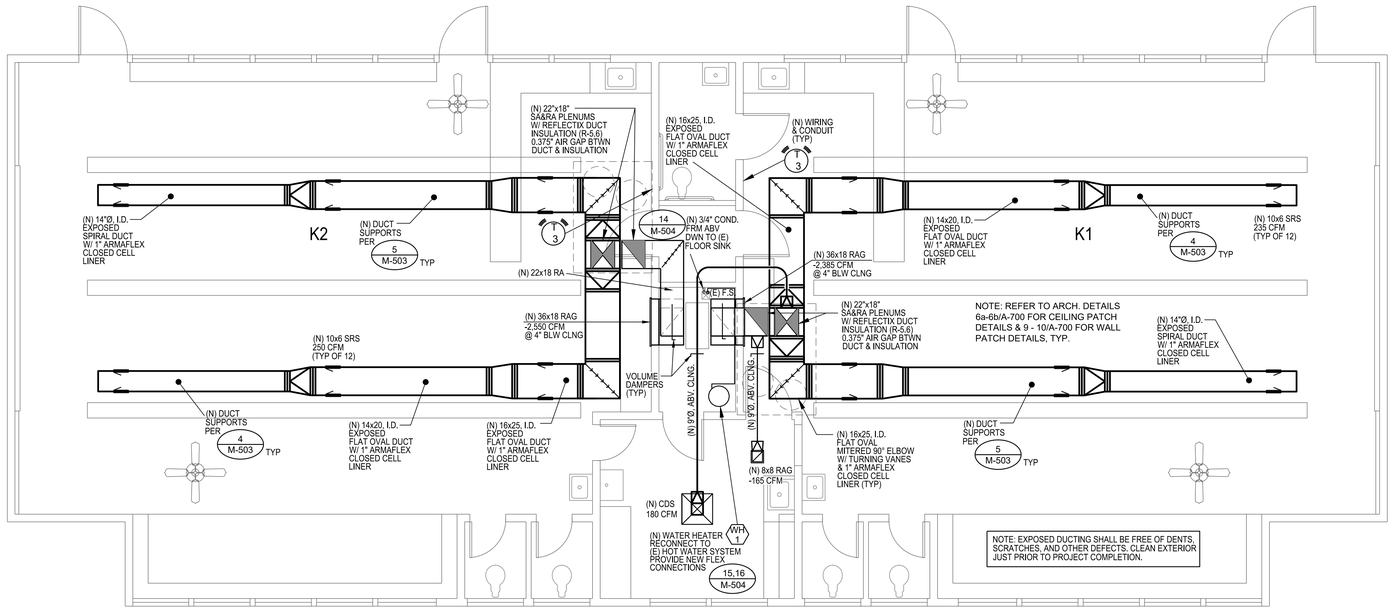
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SHEET TITLE BUILDING "F" MECHANICAL FLOOR PLAN

SHEET
M-206



2 / M-207 MECHANICAL SECTION
SCALE: 1/4" = 1'-0"



1 / M-207 BUILDING "G" MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

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VENTURA UNIFIED SCHOOL DISTRICT
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MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE

HUGH E. DEVEREUX
M030626
Ren. 6/30/26
MECHANICAL
STATE OF CALIFORNIA

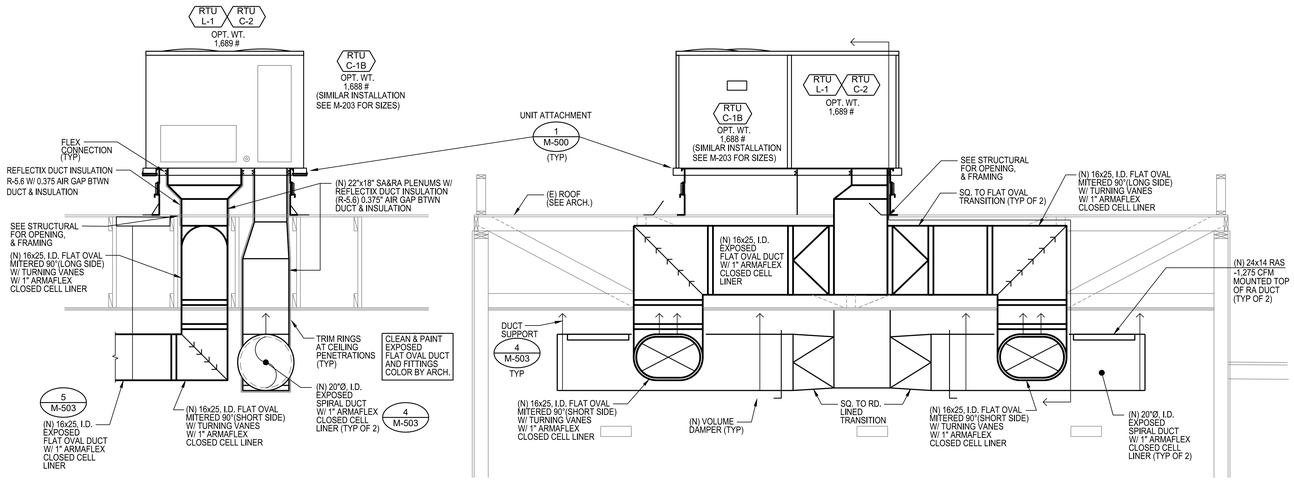
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hugh@aegroupme.com

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SHEET TITLE BUILDING "G" MECHANICAL FLOOR PLAN

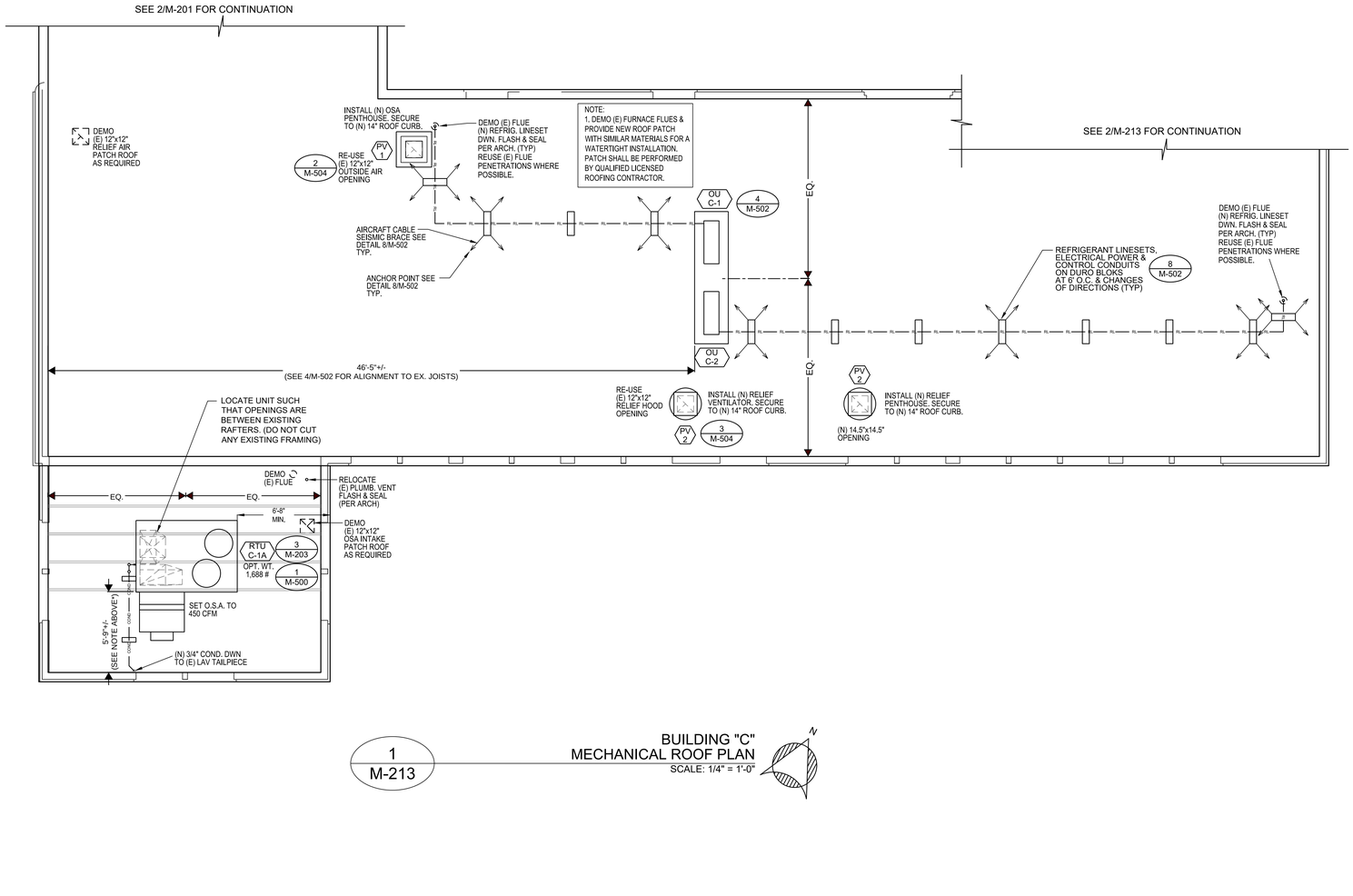
SHEET
M-207



3 / M-213

MECHANICAL SECTION

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



1 / M-213

BUILDING "C" MECHANICAL ROOF PLAN

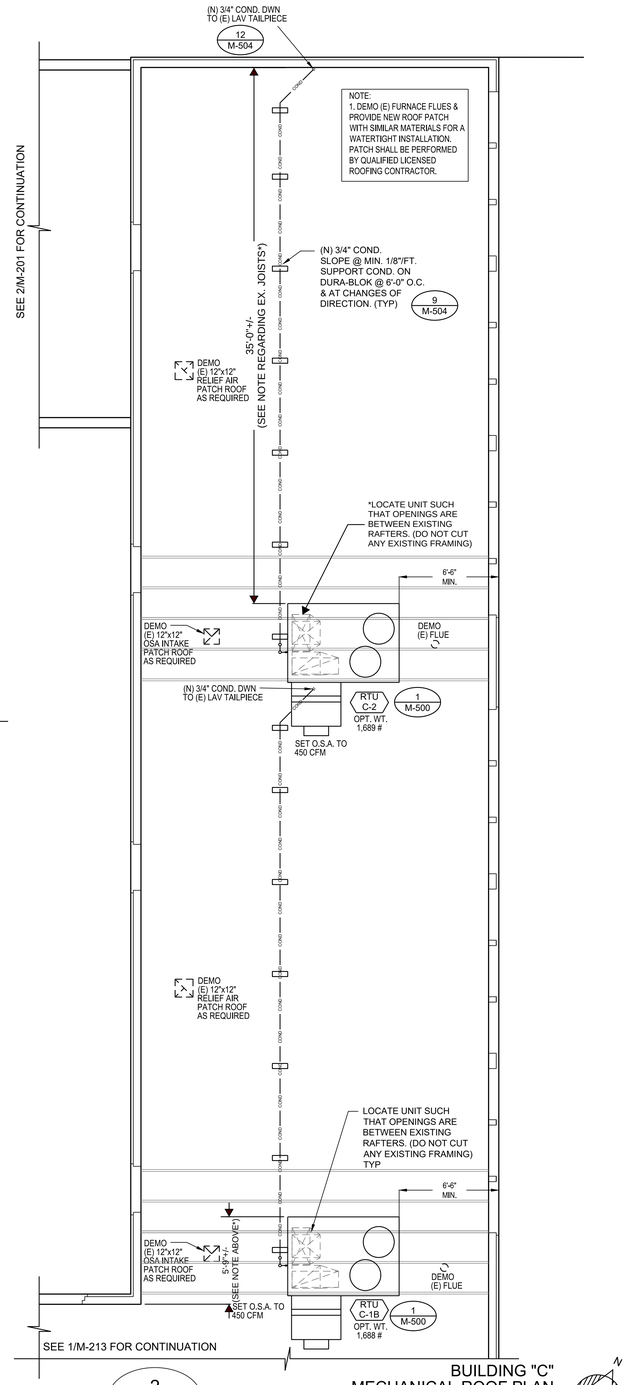
SCALE: 1/4" = 1'-0"

NOTES:
1. REPAIR / PATCH ANY AND ALL WALL OR CEILING PENETRATIONS OF DRYWALL, PLASTER, OR STUCCO. PAINT ANY SURFACE TO MATCH ADJACENT WALLS / CEILINGS DUE TO NEW MECHANICAL EQUIPMENT INSTALLATION. (TYP)

2. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

3. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

4. OUTSIDE AIR INTAKES - MAINTAIN 10 FOOT CLEARANCE TO FAN EXHAUSTS AND PLUMBING VENTS. RELOCATE PLUMBING VENT IF REQUIRED TO MAINTAIN REQUIRED CLEARANCE.



2 / M-213

BUILDING "C" MECHANICAL ROOF PLAN

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

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VENTURA UNIFIED SCHOOL DISTRICT
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MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
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ARCHITECT'S STAMP & SIGNATURE

LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Ren. 06/30/2025 STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE

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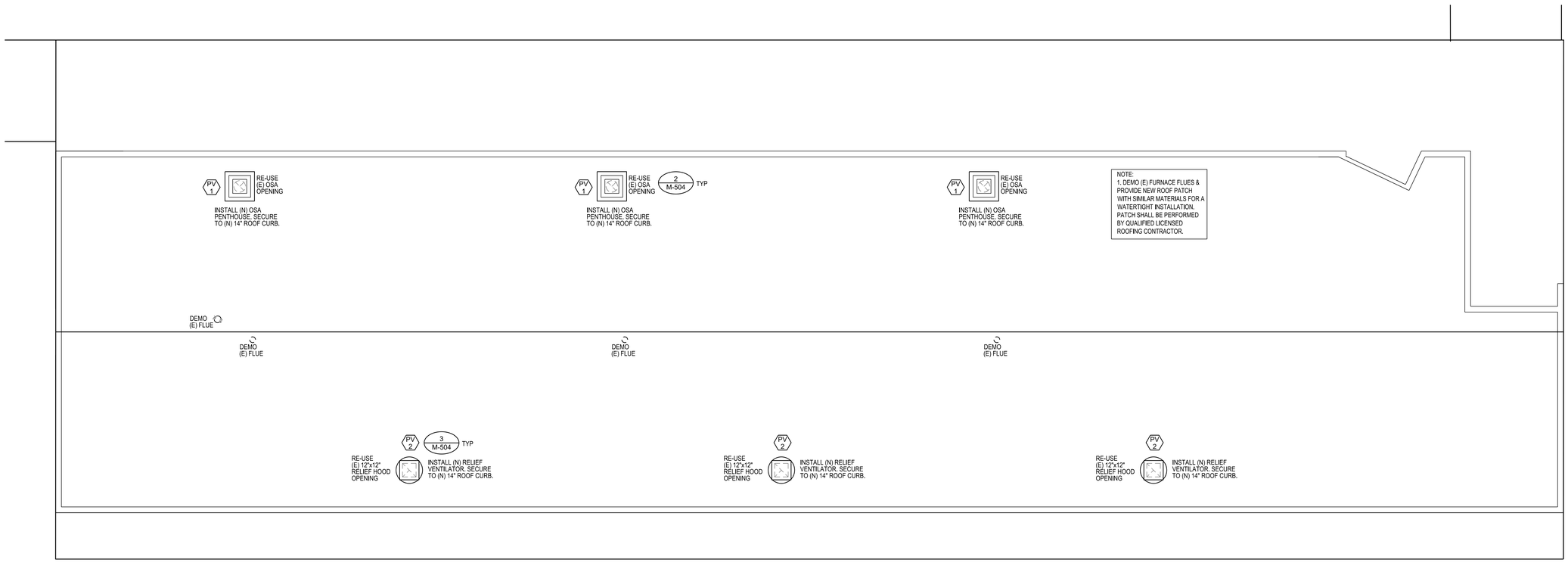
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DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE BUILDING "C" MECHANICAL ROOF PLAN

SHEET
M-213

NOTES:
1. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

2. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.



1
M-214

BUILDING "D" MECHANICAL ROOF PLAN

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

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DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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ARCHITECT'S STAMP & SIGNATURE

LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Ren. 06/30/2025 STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE

REGISTERED PROFESSIONAL ENGINEER HUGH A. McTERNAN M030626 Ren. 6/30/26 MECHANICAL CALIFORNIA

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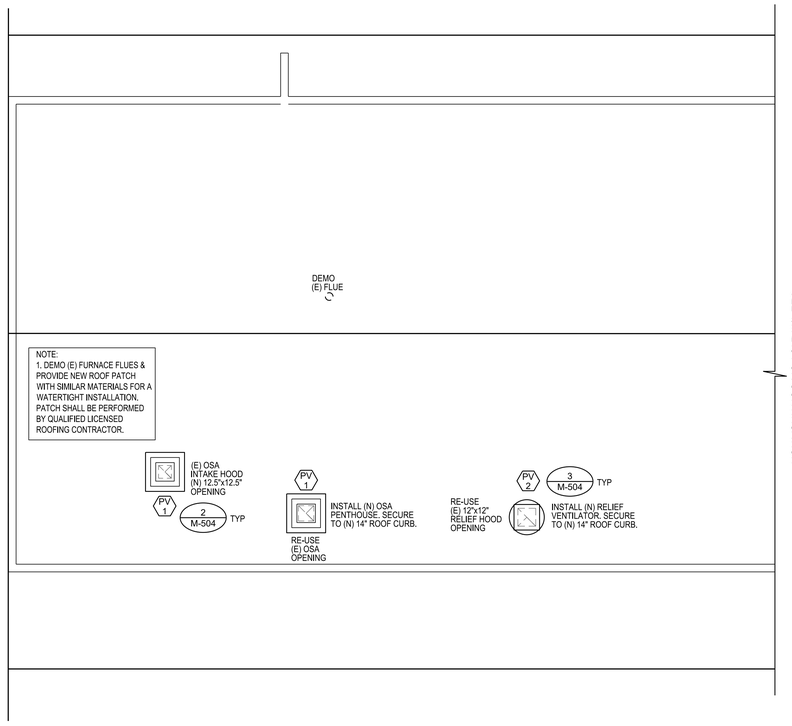
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JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE BUILDING "D" MECHANICAL ROOF PLAN

SHEET
M-214

NOTES:
1. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

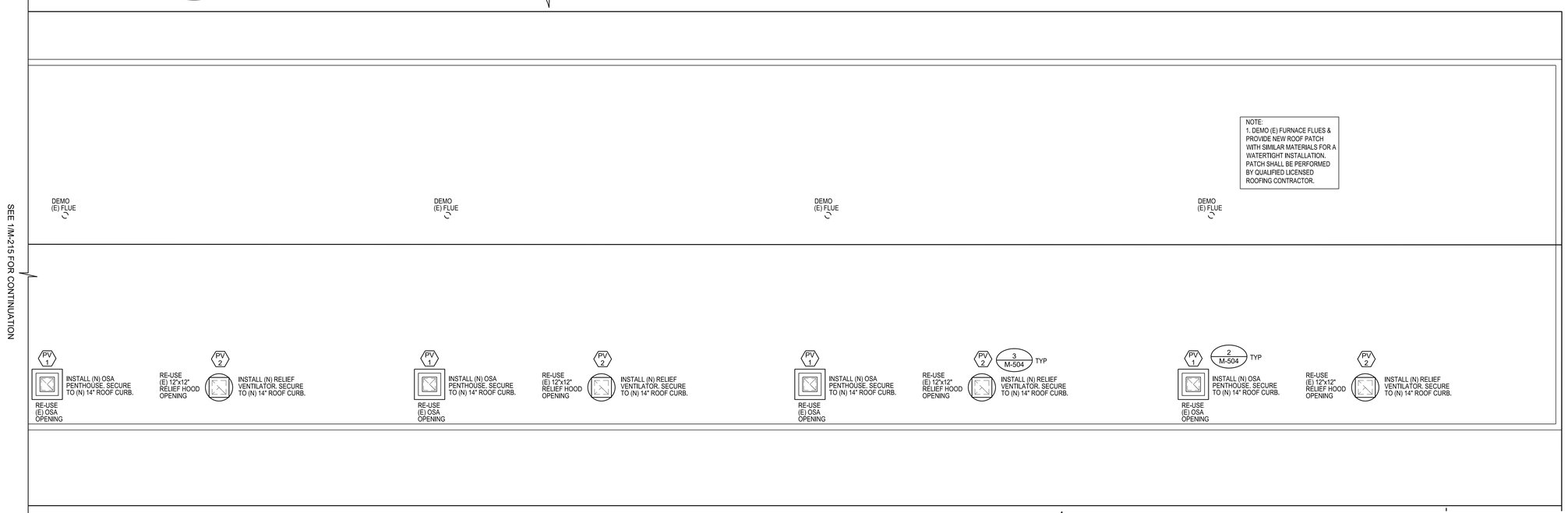
2. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.



2 M-215

BUILDING "E" MECHANICAL ROOF PLAN

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



1 M-215

BUILDING "E" MECHANICAL ROOF PLAN

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

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2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S STAMP & SIGNATURE

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No. C-25839
Ren. 06/30/2025
STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE

PATRICK B. PANLAQUI
M030626
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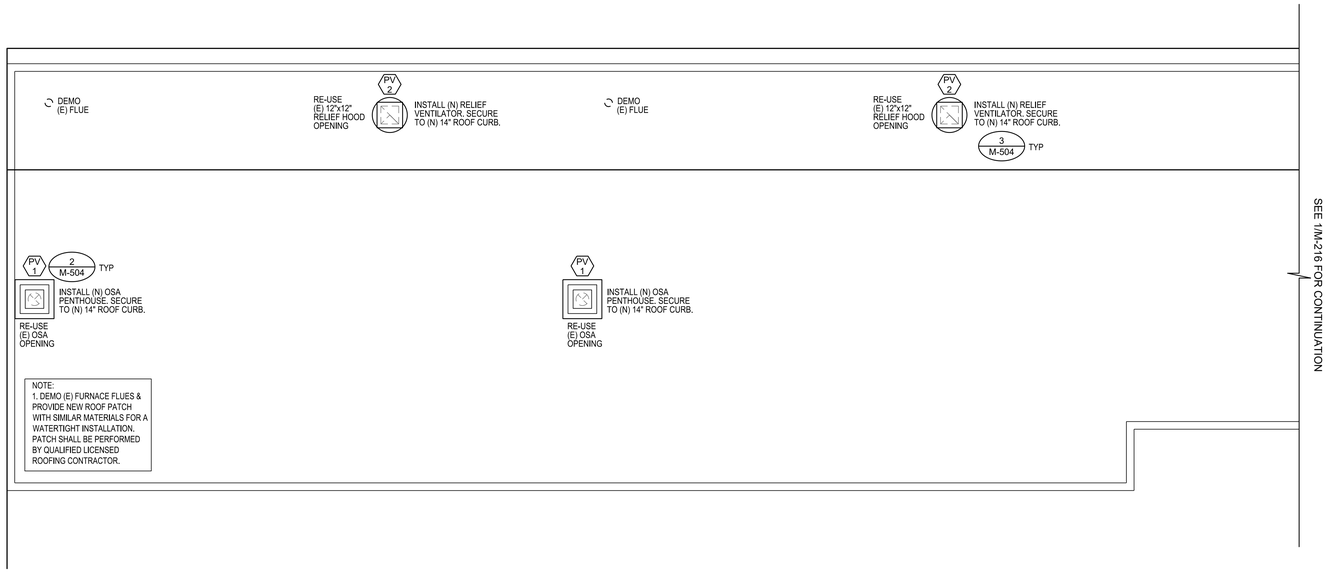
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DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE BUILDING "E" MECHANICAL ROOF PLAN

SHEET

M-215

NOTES:
1. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

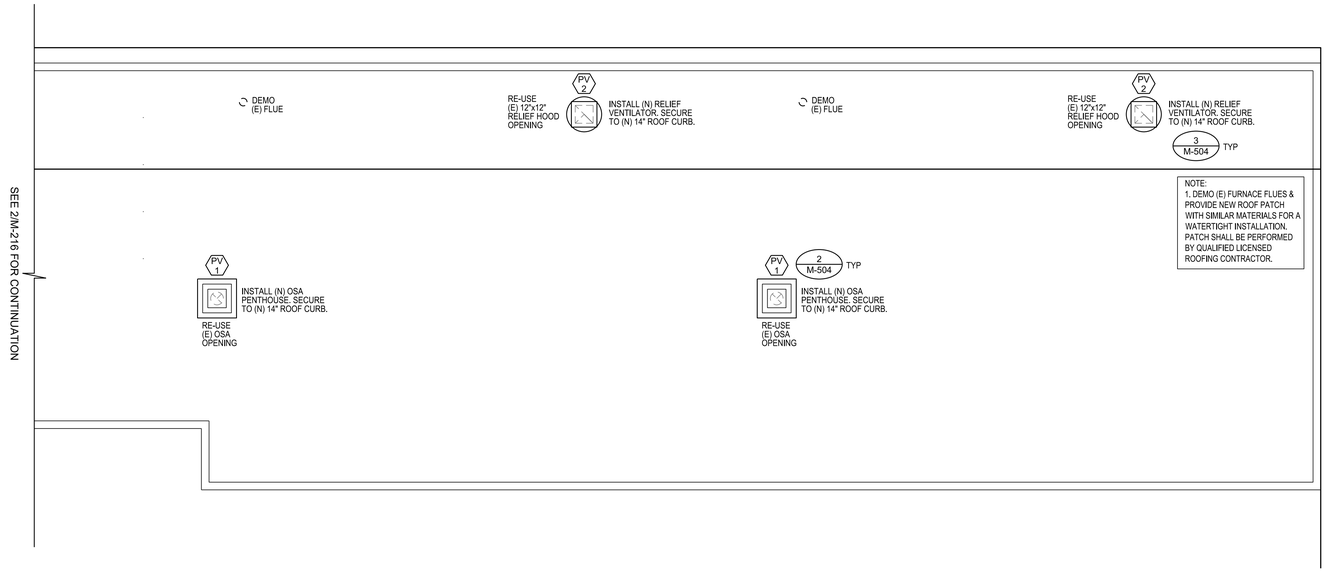
2. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.



NOTE:
1. DEMO (E) FURNACE FLUES & PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

2
M-216

BUILDING "F"
MECHANICAL ROOF PLAN
SCALE: 1/4" = 1'-0"



NOTE:
1. DEMO (E) FURNACE FLUES & PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

1
M-216

BUILDING "F"
MECHANICAL ROOF PLAN
SCALE: 1/4" = 1'-0"

IDENTIFICATION STAMP
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VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

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ARCHITECT'S STAMP & SIGNATURE

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ENGINEER'S STAMP & SIGNATURE

REGISTERED PROFESSIONAL ENGINEER
HUGH K. MITTEN
M030626
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MECHANICAL
STATE OF CALIFORNIA

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hugh@aegroupme.com

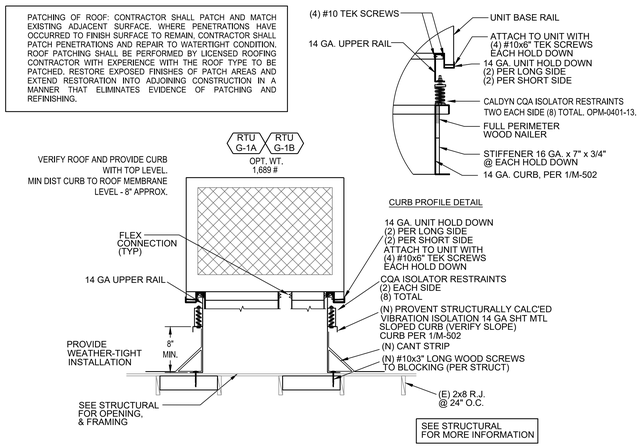
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SHEET TITLE BUILDING "F" MECHANICAL ROOF PLAN

SHEET
M-216

PATCHING OF ROOF: CONTRACTOR SHALL PATCH AND MATCH EXISTING ADJACENT SURFACE. WHERE PENETRATIONS HAVE OCCURRED TO FINISH SURFACE TO REMAIN, CONTRACTOR SHALL PATCH PENETRATIONS AND REPAIR TO WATERTIGHT CONDITION. ROOF PATCHING SHALL BE PERFORMED BY LICENSED ROOFING CONTRACTOR WITH EXPERIENCE WITH THE ROOF TYPE TO BE PATCHED. RESTORE EXPOSED FINISHES OF PATCH AREAS AND EXTEND RESTORATION INTO ADJOINING CONSTRUCTION IN A MANNER THAT ELIMINATES EVIDENCE OF PATCHING AND REFINISHING.



PACKAGED ROOFTOP UNIT ANCHORAGE DETAIL

2

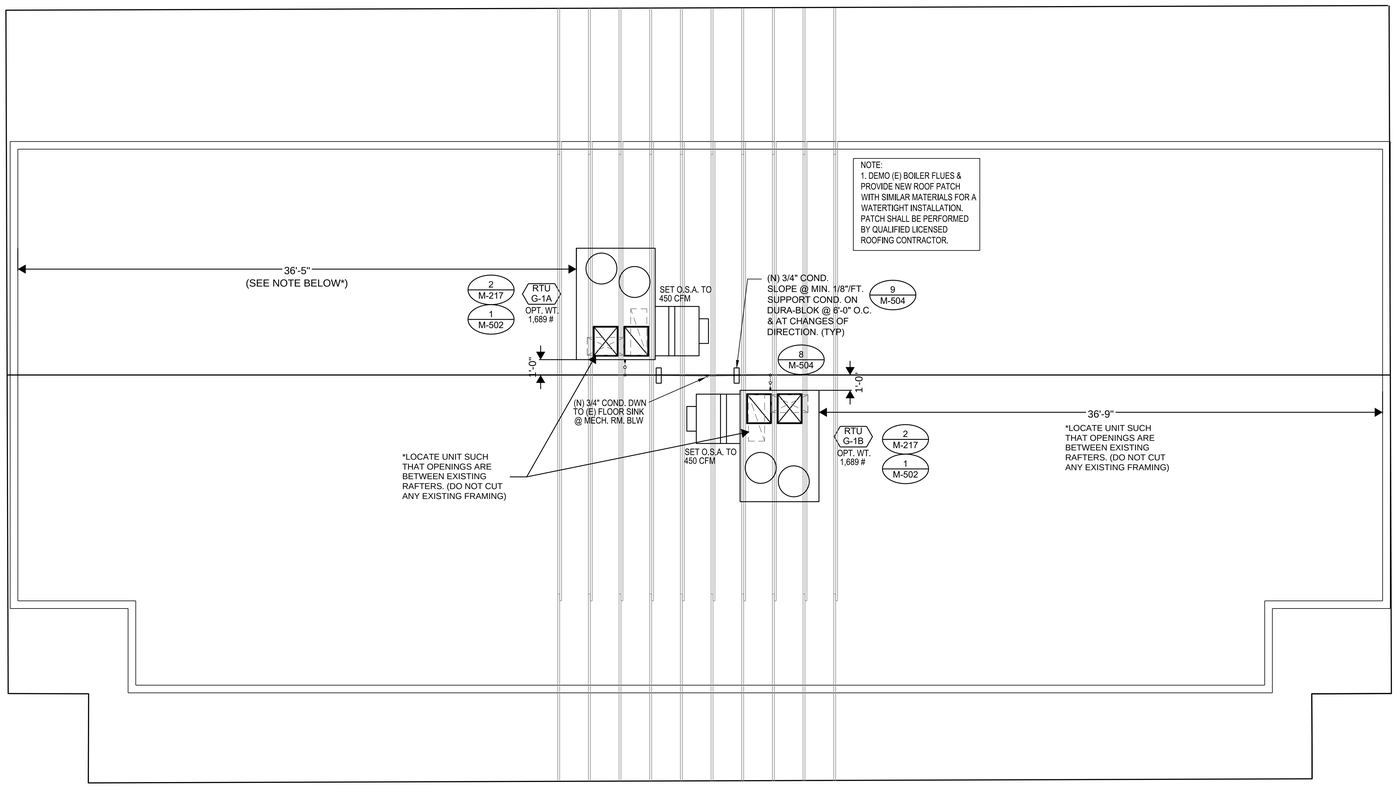
NTS

NOTES:
1. REPAIR / PATCH ANY AND ALL WALL OR CEILING PENETRATIONS OF DRYWALL, PLASTER, OR STUCCO. PAINT ANY SURFACE TO MATCH ADJACENT WALLS / CEILINGS DUE TO NEW MECHANICAL EQUIPMENT INSTALLATION. (TYP)

2. DO NOT CUT OR NOTCH STRUCTURAL MEMBERS. (TYP)

3. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

4. OUTSIDE AIR INTAKES - MAINTAIN 10 FOOT CLEARANCE TO FAN EXHAUSTS AND PLUMBING VENTS. RELOCATE PLUMBING VENT IF REQUIRED TO MAINTAIN REQUIRED CLEARANCE.



1
M-217

BUILDING "G" MECHANICAL ROOF PLAN

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

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DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
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TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

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PATRICK B. PANLAQUI
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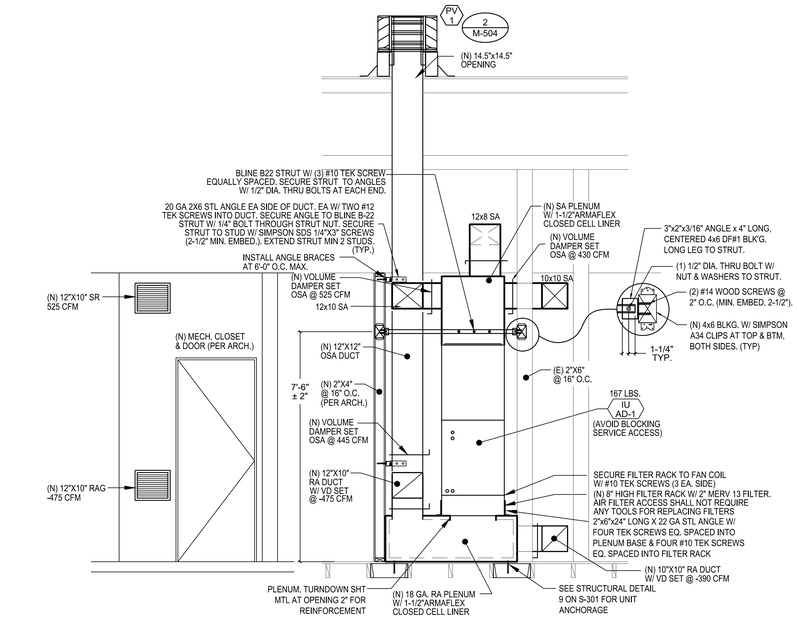
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Mechanical Engineers
838 East Front Street
Ventura, California 93001-2925
(805) 653-1722
hugh@aegroupme.com

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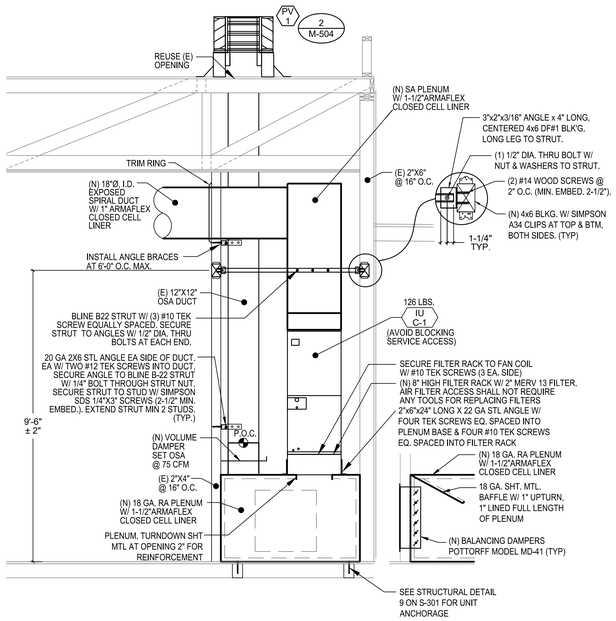
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DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
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SHEET
M-217



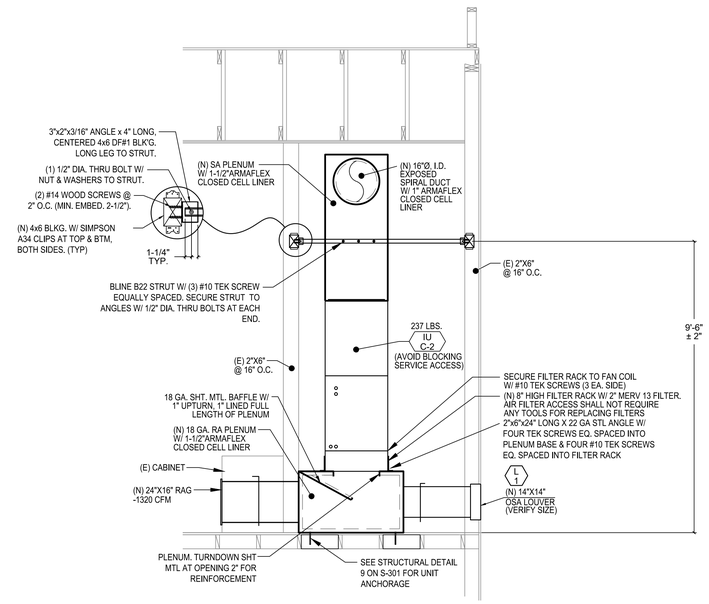
ADMINISTRATION
MECHANICAL CLOSET SECTION 1

NTS



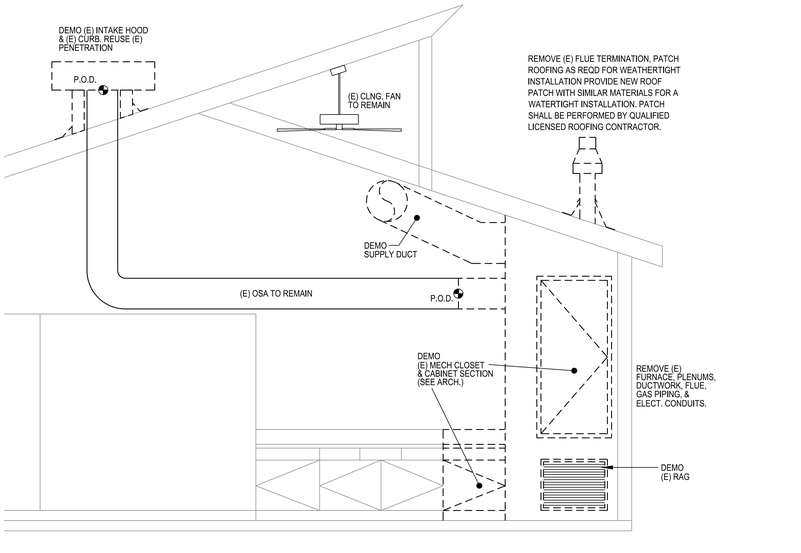
STAFF LOUNGE
MECHANICAL CLOSET SECTION 2

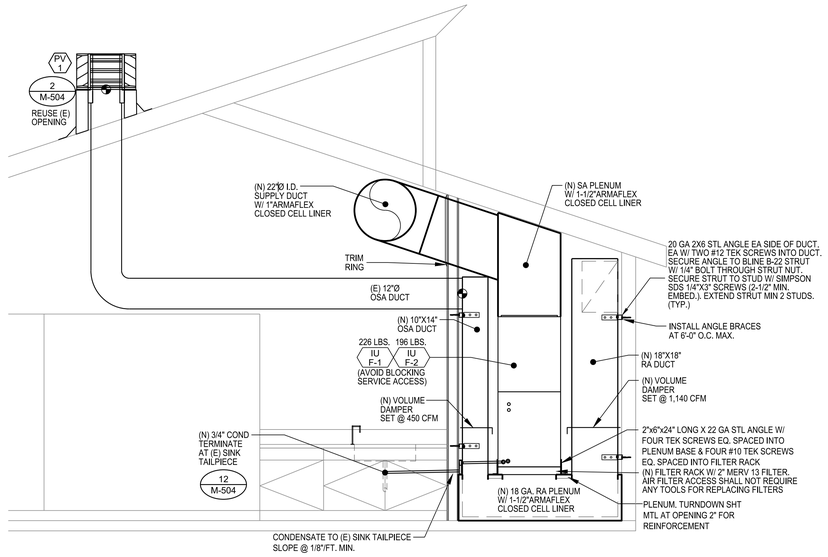
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BUILDING "C" CLASSROOM 2
MECHANICAL CLOSET SECTION 3

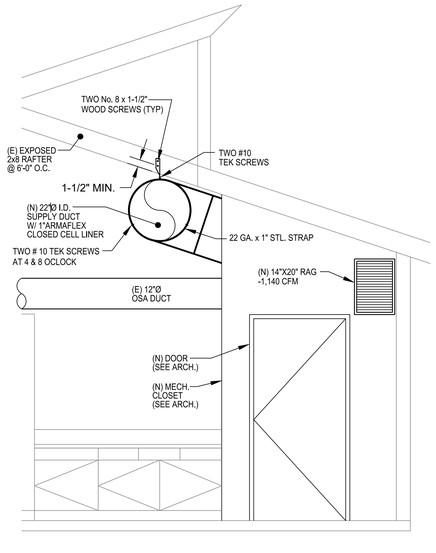
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BUILDING "F" TYPICAL CLASSROOM
MECHANICAL CLOSET SECTION 4

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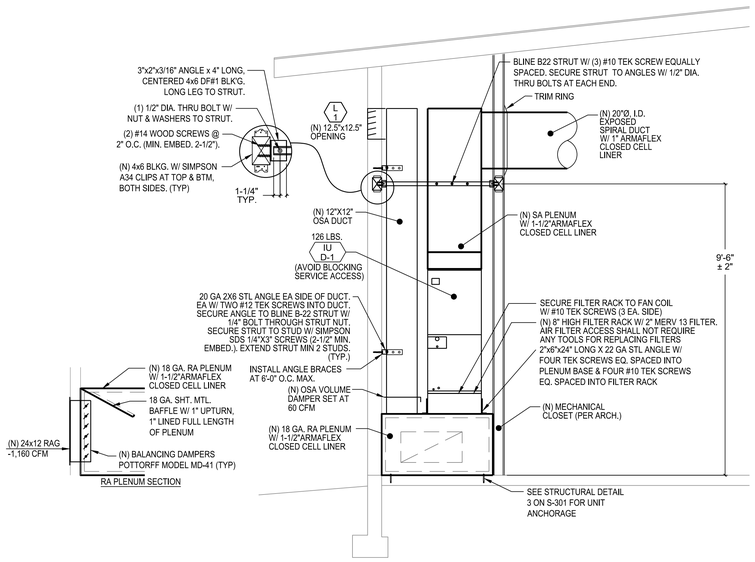
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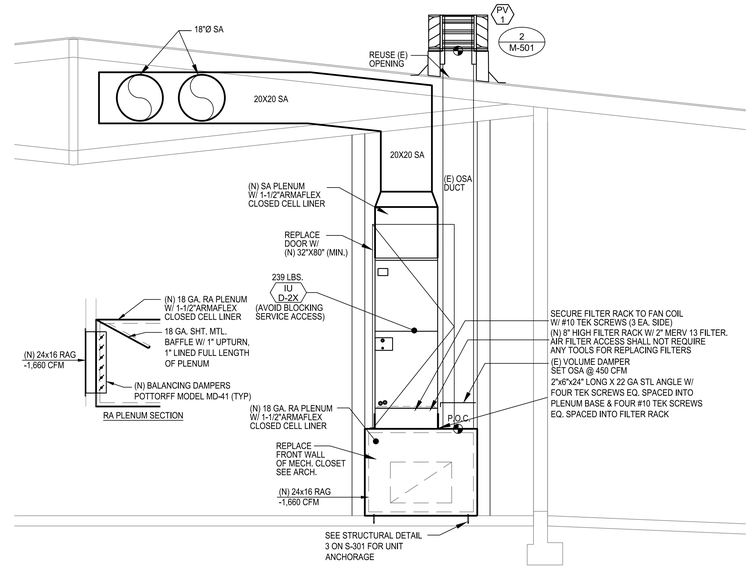
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M-500



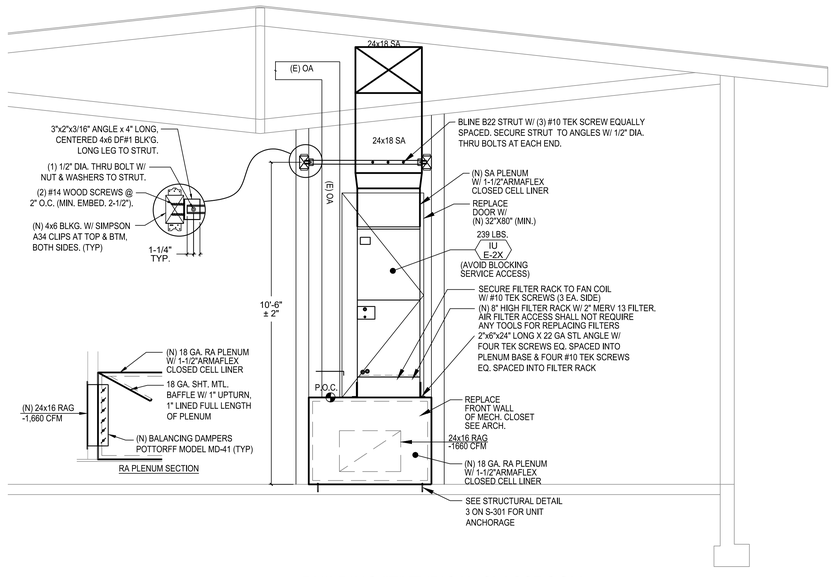
BUILDING "D" PIP ROOM MECHANICAL CLOSET SECTION 1

NTS



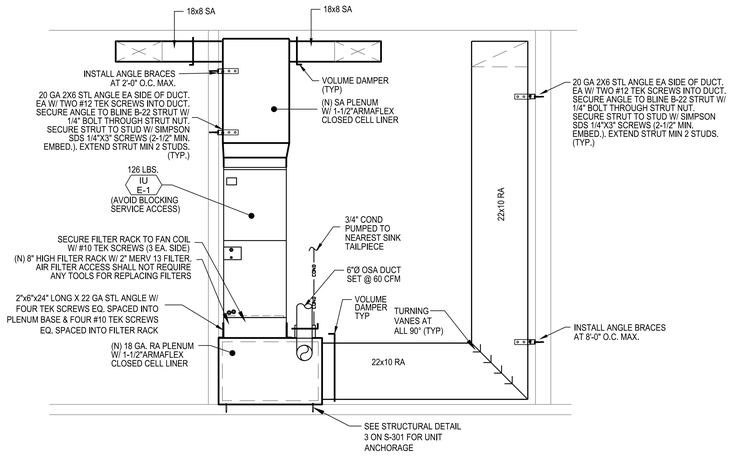
BUILDING "D" TYPICAL CLASSROOM MECHANICAL CLOSET SECTION 2

NTS



BUILDING "E" TYPICAL CLASSROOM MECHANICAL CLOSET SECTION 3

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BUILDING "E" SUPPLY ROOM MECHANICAL CLOSET SECTION 4

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ENGINEER'S STAMP & SIGNATURE

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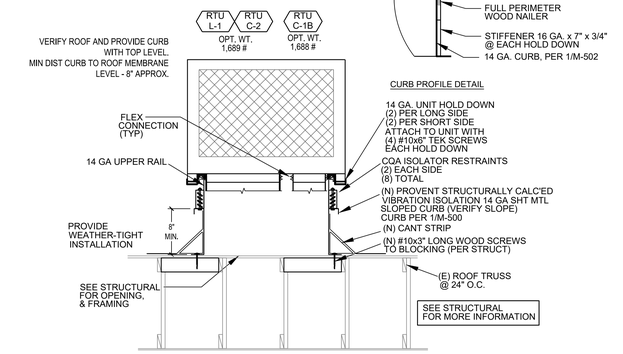
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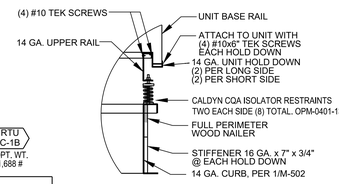
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M-501

PATCHING OF ROOF: CONTRACTOR SHALL PATCH AND MATCH EXISTING ADJACENT SURFACE. WHERE PENETRATIONS HAVE OCCURRED TO FINISH SURFACE TO REMAIN, CONTRACTOR SHALL PATCH PENETRATIONS AND REPAIR TO WATERTIGHT CONDITION. ROOF PATCHING SHALL BE PERFORMED BY LICENSED ROOFING CONTRACTOR WITH EXPERIENCE WITH THE ROOF TYPE TO BE PATCHED. RESTORE EXPOSED FINISHES OF PATCH AREAS AND EXTEND RESTORATION INTO ADJOINING CONSTRUCTION IN A MANNER THAT ELIMINATES EVIDENCE OF PATCHING AND REFINISHING.





For wood, concrete and steel attachment see Roof Anchorage Detail, Form No. CB-62.
Welded isolation springs housingare standard. For bolted spring housing, neoprene pads and spring cups see Weldment and Bolting Detail, Form No. CB-61

STRUCTURALY CALCULATED VIBRATION ISOLATION ROOF CURB FOR DIRECT FIT (SUN CORE) LARGE CABINET UNITS

ZX08-14; XX08-12; XYA7, ZYA7
ZY07-12; XY07-09; ZL08-14

PROVENT P/N	A	B	EST. WEIGHT
CBISCPRL18**	8"	18"	380 Lbs.
CBISCPRL24**	11"	24"	405 Lbs.
CBISCPRL24**	14"	24"	425 Lbs.

**Note: Spring configuration must be added to part number at time of order

Weight of upper portion supported by spring isolators= 221 Lbs.

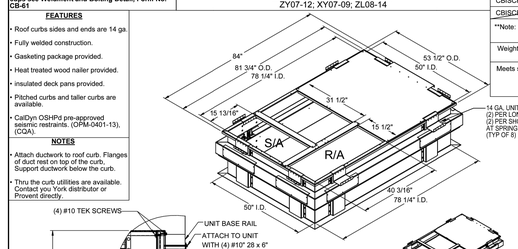
Meets seismic requirements for the following codes: CBC 2022 IBC 2021

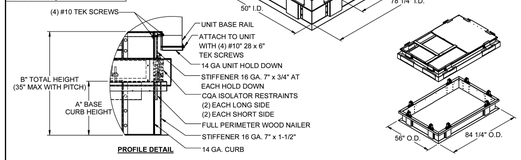
FEATURES

- Roof curbs sides and ends are 14 ga.
- Fully welded construction.
- Gasketing package provided.
- Heat treated wood nailer provided.
- insulated deck pans provided.
- Pitched curbs and taller curbs are available.
- CalDyn OSHPd pre-approved seismic restraints. (OPM-0401-13), (CQA).

NOTES

- Attach ductwork to roof curb. Flanges of duct rest on top of the curb. Support ductwork below the curb.
- Thru the curb utilities are available. Contact you York distributor or Provent directly.

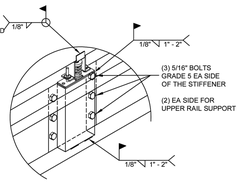




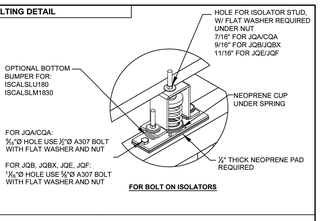
REGISTERED PROFESSIONAL ENGINEER — MARK A. MORTON — No. 25578 — Exp. 6/30/25 — STRUCTURAL — STATE OF CALIFORNIA

ProVent	3847 WABASH DRIVE MIRA LOMA, CA 91752 PHONE (951) 685-1101 FAX (619) 872-9799	SUBMITTED TO: COMPANY: JOB NAME: EQUIPMENT: NOTES:	FORM NO: CBISC-06	PART NUMBER: -
			DATE: 7/28/2023	REV: 5
				DRAWN BY: JG

WELDMENT AND BOLTING DETAIL



BASE CURB SUPPORT



FOR BOLT ON ISOLATORS

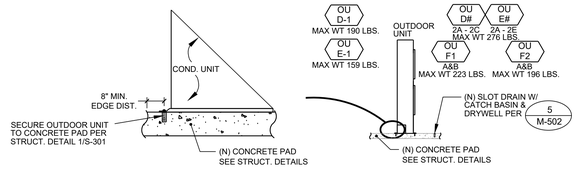
Note: * - INDICATES WELD REQUIRED I.L.O. BOLTED STUD FOR THE FOLLOWING CURBS:
-LXL (CBISC-02)
-PRD3715 (CBISC-04)
-SAV1518 (CBISC-12)
-SAV2025 (CBISC-13)
-SAV28 (CBISC-14)

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			DATE: 08/14/23	REV: 2
				DRAWN BY: FMM

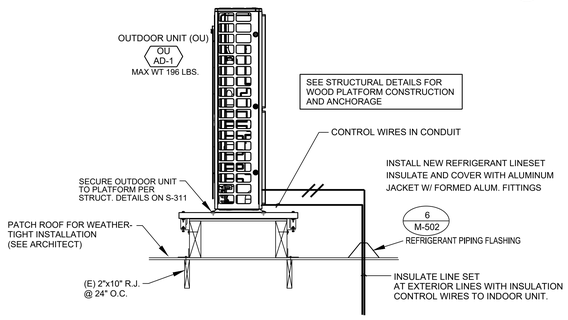
PACKAGED ROOFTOP UNIT ANCHORAGE DETAIL 1

NTS



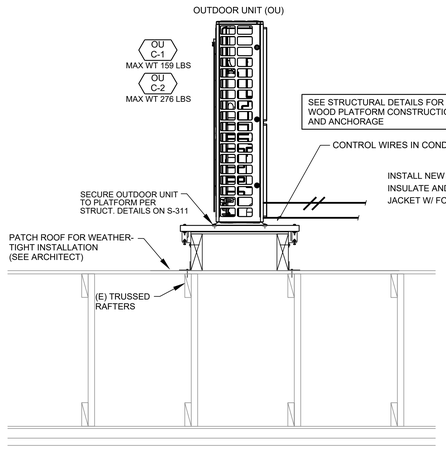
TYPICAL GROUND MOUNTED OUTDOOR UNIT ANCHORAGE DETAIL 2

SCALE: NONE



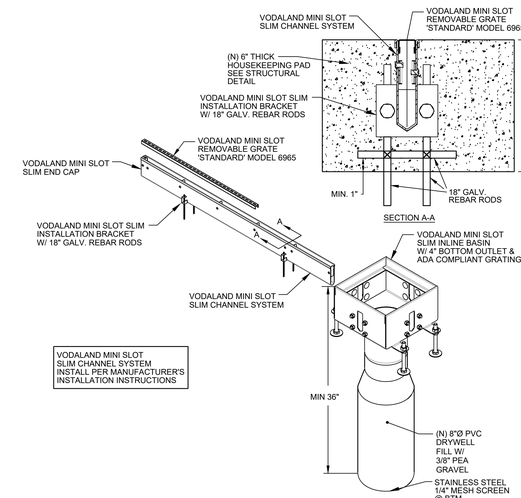
(OU/AD-1) CONDENSING UNIT MOUNTING DETAIL 3

SCALE: NONE



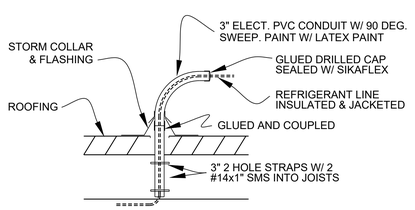
(OU/C-1) & (OU/C-2) CONDENSING UNIT MOUNTING DETAIL 4

SCALE: NONE



OUTDOOR UNIT CONCRETE PAD DRAINAGE 5

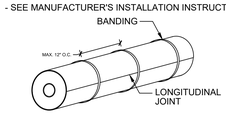
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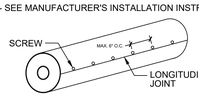
REFRIGERANT PIPING FLASHING DETAIL 6

SCALE: NONE

BANDING ON STRAIGHT PIPE JACKETING
- BUTT/ END JOINTS SHALL BE SECURED WITH BANDS AND SEALS CENTERED DIRECTLY OVER JOINT. THIS INCLUDES JOINTS BETWEEN TWO STRAIGHT SECTIONS OF JACKETING, WHERE STRAIGHT MEETS AN ELBOW, AND OR OTHER CIRCUMFERENTIAL JOINTS.
- STRAIGHT SECTIONS OF JACKETING SHALL BE NEATLY SECURED WITH BANDS AND SEALS WITH A MAXIMUM SPACING OF 12" ON CENTER. FOR A 36" JACKET SECTION, TWO BANDS SHALL BE INSTALLED EVENLY SPACED BETWEEN THE BANDS OVER THE TWO END JOINTS.
- SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR MORE INFORMATION.

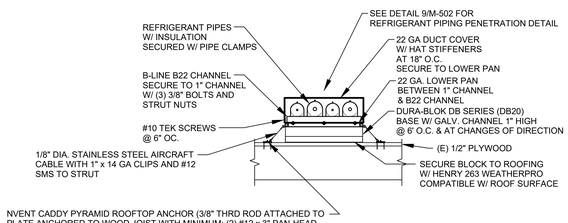


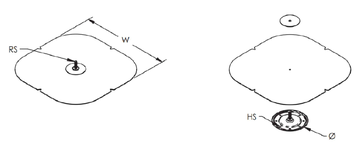
SCREWS/ FASTENERS ON STRAIGHT PIPE JACKETING
- #8x1/2" ALUMINUM TEK SCREWS SHALL BE USED.
- SCREWS SHALL BE INSTALLED ALONG THE LONGITUDINAL JOINTS AT A MAXIMUM SPACING OF 6" O.C. FOR STRAIGHT PIPE JACKETING SECTIONS.
- SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR MORE INFORMATION.



REFRIGERANT PIPING JACKETING INSTALLATION 7

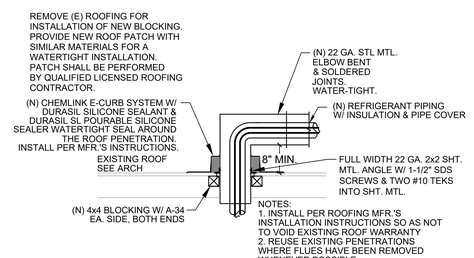
SCALE: NONE





REFRIGERANT PIPE SUPPORT 8

SCALE: NONE



REFRIGERANT PIPING PENETRATION DETAILS 9

SCALE: NONE

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ARCHITECT'S STAMP & SIGNATURE

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ENGINEER'S STAMP & SIGNATURE

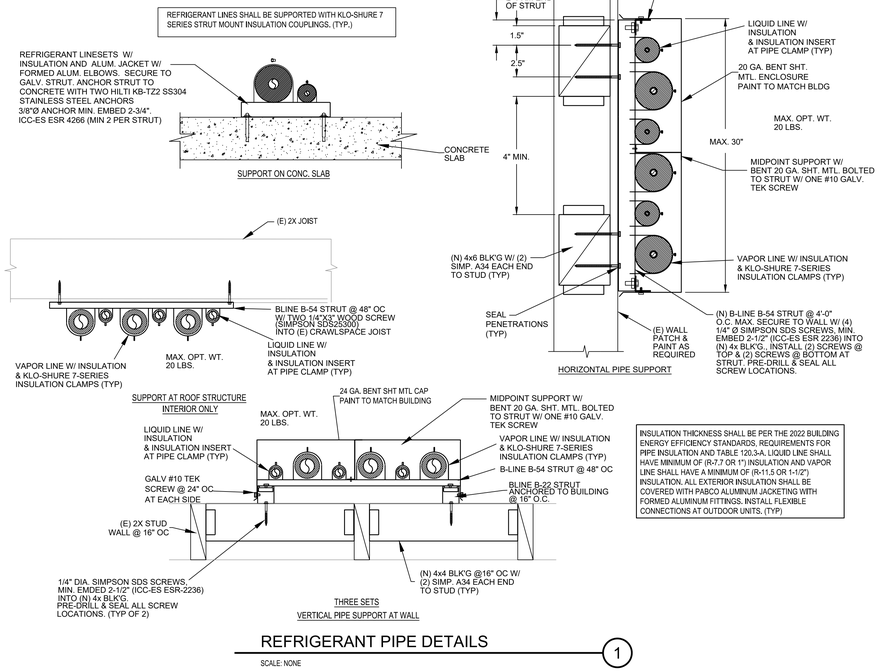
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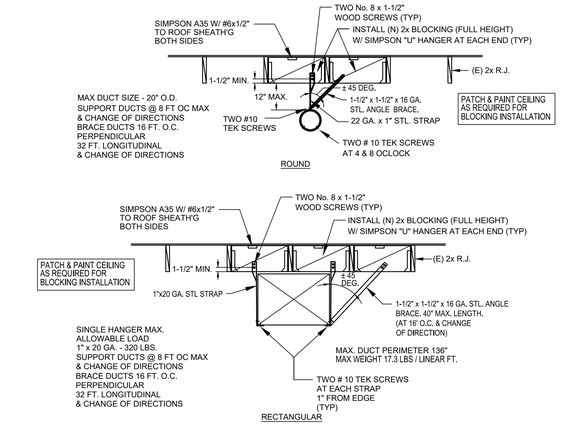
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DRAWN TP		
CHECKED PW/HM		
DATE 10/11/2024		
JOB. NO. 23053		
DSA A03-124514 FILE:56-40 PTN:72652-125		
SHEET MECHANICAL		
TITLE DETAILS		

SHEET
M-502



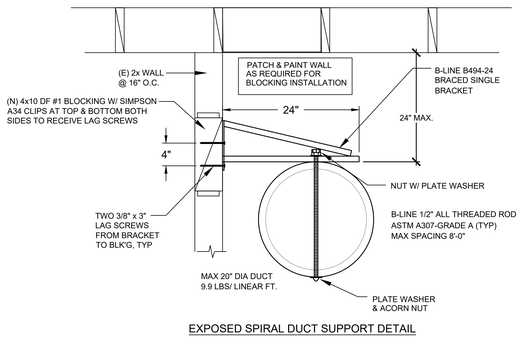
REFRIGERANT PIPE DETAILS 1

SCALE: NONE



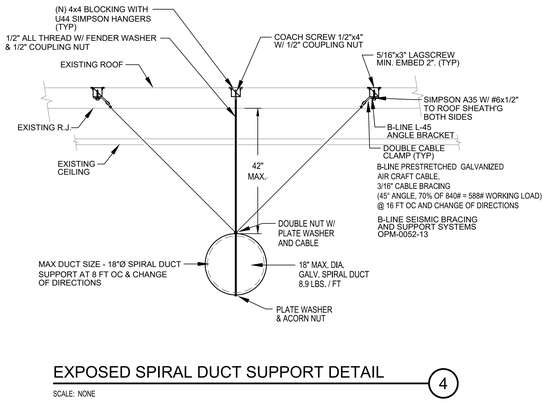
CONCEALED DUCT SUPPORT DETAILS 2

SCALE: NONE



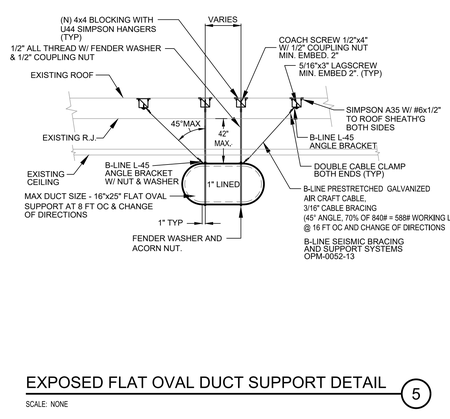
EXPOSED SPIRAL DUCT (AT WALL) SUPPORT DETAIL 3

SCALE: NONE



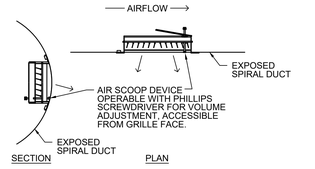
EXPOSED SPIRAL DUCT SUPPORT DETAIL 4

SCALE: NONE



EXPOSED FLAT OVAL DUCT SUPPORT DETAIL 5

SCALE: NONE

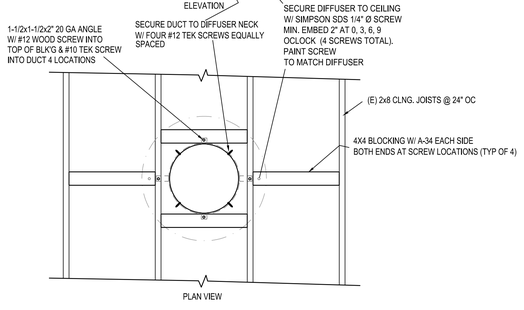


SUPPLY GRILLE W/ AIR SCOOP DEVICE 6

SCALE: NONE

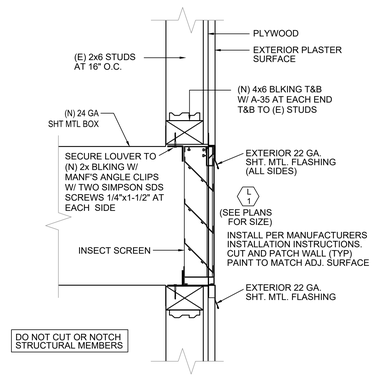
NOT USED 7

SCALE: NONE



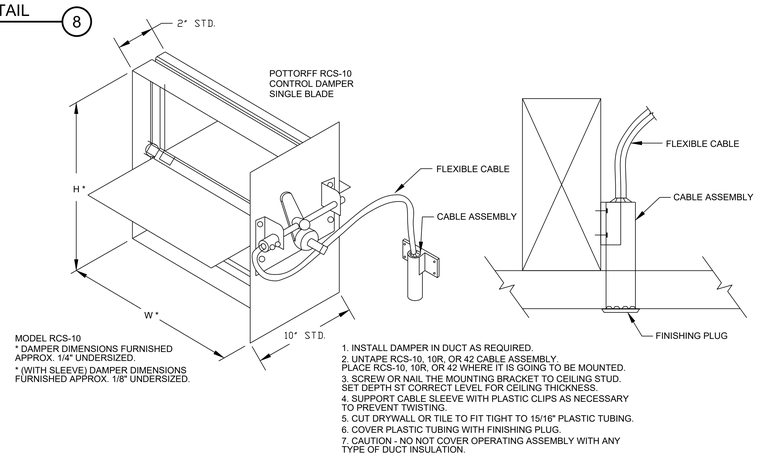
MPR DIFFUSER SUPPORT DETAIL 8

SCALE: NONE



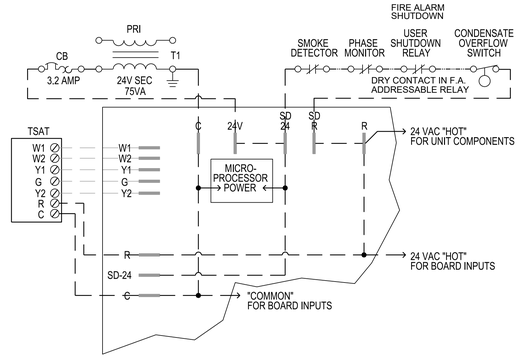
LOUVER DETAIL 9

SCALE: NONE



REMOTE MANUAL CONTROL DAMPER 10

SCALE: NONE



RTU SHUTDOWN WIRING DIAGRAM 11

SCALE: NONE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
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PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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REGISTERED PROFESSIONAL ENGINEER PATRICK B. MITTEN M030626 Ren. 6/30/26 MECHANICAL STATE OF CALIFORNIA

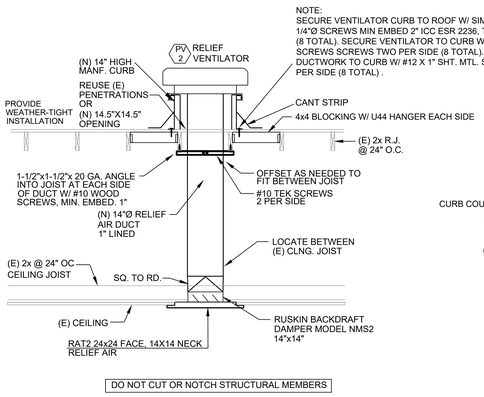
AE Group
Mechanical Engineers
838 East Front Street
Ventura, California 93001-2925
(805) 653-1722
hugh@aegroupme.com

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2	-	--/--/--	XX
1	-	--/--/--	XX

REVISION DESCRIPTION DATE BY

DRAWN TP
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SHEET TITLE MECHANICAL DETAILS

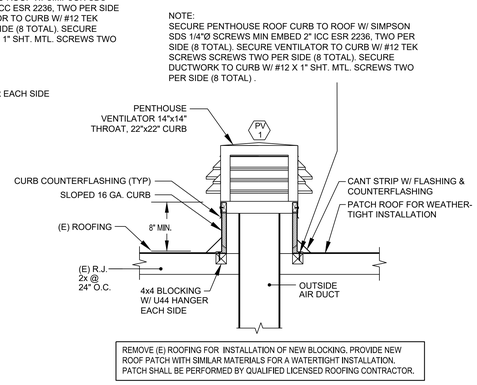
SHEET
M-503



DO NOT CUT OR NOTCH STRUCTURAL MEMBERS

TYPICAL RELIEF AIR DETAIL 1

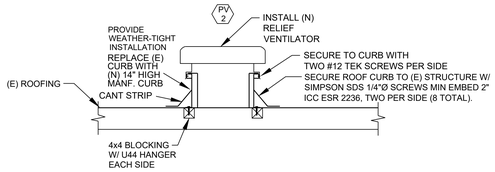
SCALE: NONE



REMOVE (E) ROOFING FOR INSTALLATION OF NEW BLOCKING. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

PENTHOUSE MOUNTING DETAIL 2

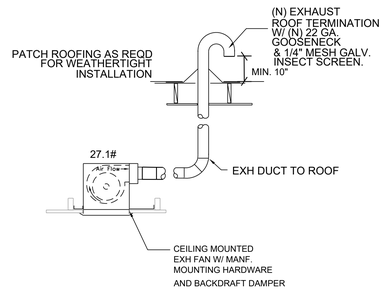
SCALE: NONE



REMOVE (E) ROOFING FOR INSTALLATION OF NEW BLOCKING. PROVIDE NEW ROOF PATCH WITH SIMILAR MATERIALS FOR A WATERTIGHT INSTALLATION. PATCH SHALL BE PERFORMED BY QUALIFIED LICENSED ROOFING CONTRACTOR.

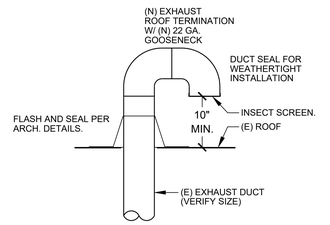
RELIEF VENTILATOR DETAIL 3

SCALE: NONE



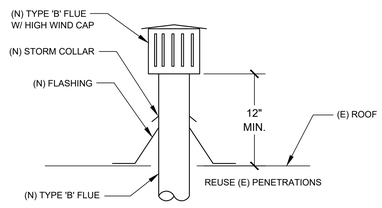
EXHAUST FAN MOUNTING DETAIL 4

SCALE: NONE



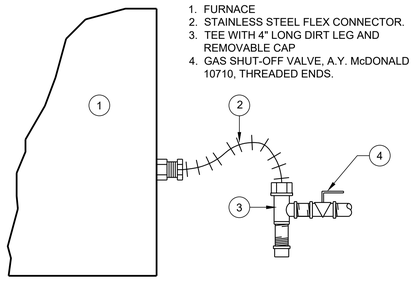
EXHAUST TERMINATION 5

SCALE: NONE



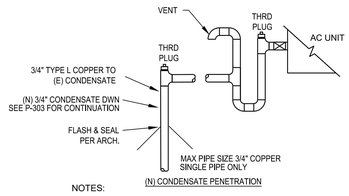
TYPE 'B' FLUE VENT DETAIL 6

SCALE: NONE



FURNACE GAS CONNECTION DETAIL 7

SCALE: NONE



NOTES:

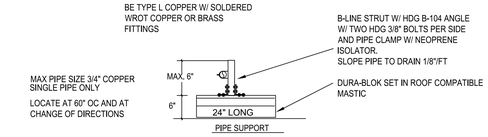
1. SLOPE 1/8" PER FOOT TO INDIRECT RECEIVER
2. ALL CONDENSATE PIPING SHALL BE TYPE L COPPER W/ SOLDERED WROT COPPER OR BRASS FITTINGS
3. INSTALL CLEANOUTS PER CODE.
4. ROOFTOP PIPING SHALL BE INSTALLED ON DURA-BLOKS

RTU CONDENSATE P-TRAP DETAIL (TYP.) 8

SCALE: NONE

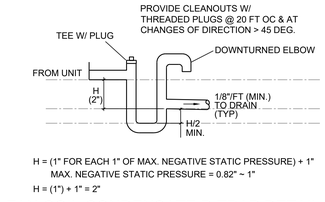
NOTES:

1. SLOPE 1/8" PER FOOT TO INDIRECT RECEIVER
2. INSULATE ALL INTERIOR CONDENSATE PIPING
3. ALL CONDENSATE PIPING SHALL BE TYPE L COPPER W/ SOLDERED WROT COPPER OR BRASS FITTINGS



ROOF CONDENSATE PIPE SUPPORT DETAIL 9

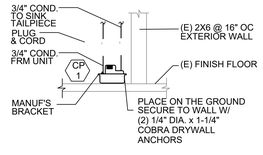
SCALE: NONE



H = (1" FOR EACH 1" OF MAX. NEGATIVE STATIC PRESSURE) + 1"
MAX. NEGATIVE STATIC PRESSURE = 0.82" ~ 1"
H = (1") + 1" = 2"

FAN COIL CONDENSATE P-TRAP DETAIL 10

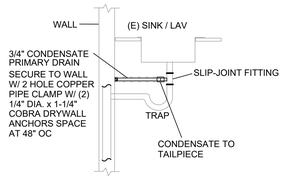
SCALE: NONE



CONDENSATE PUMP DETAIL 11

SCALE: NONE

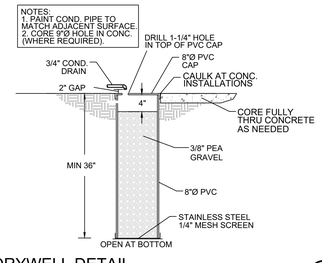
NOTES:
1. INSTALL AS CLOSE AS POSSIBLE TO WALL & CABINET.
2. PAINT TO MATCH (E) WALL COLOR.
3. COORDINATE W/ SCHOOL DISTRICT TO RELOCATE ITEMS ON WALLS THAT MAY INTERFERE WITH NEW CONDENSATE.



CONDENSATE TO TAILPIECE 12

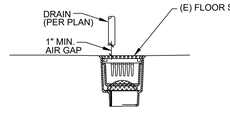
SCALE: NONE

NOTES:
1. PAINT COND. PIPE TO MATCH ADJACENT SURFACE.
2. CORE ⌀ HOLE IN CONC. (WHERE REQUIRED).



DRYWELL DETAIL 13

SCALE: NONE

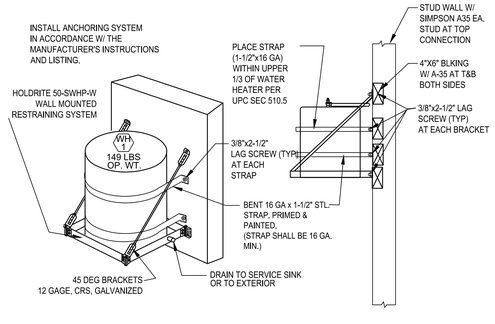


DRAIN TERMINATION @ FLOOR SINK DETAIL 14

SCALE: NONE

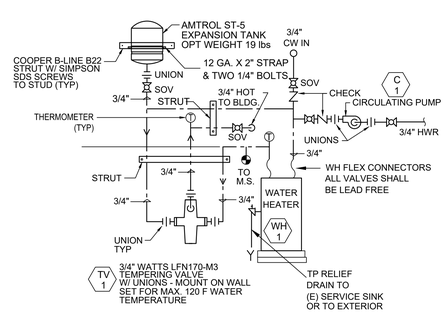
PLUMBING EQUIPMENT SCHEDULE

SYMBOL	WASTE	VENT	CW	HW	DESCRIPTION
WH 1	-	-	3/4	3/4	WATER HEATER, AMERICAN WATER HEATER MODEL E61-12U-015SV, 12 GALLON, W/ SMITTY PAN DRAIN & T/P DRAIN TO EXTERIOR. INSTALL NEW HOLD-RITE SEISMIC RESTRAINT, DIELECTRIC FITTINGS, SUPPLY TUBES, EXPANSION TANK, THERMOMETERS AND WATTS TEMPERING VALVE. ELECTRICAL: 240 V, 4500 WATTS. WEIGHT: 149 LBS
TV 1	-	-	3/4	3/4	TEMPERING VALVE WATTS MODEL LFN170-M3 W/ UNIONS AND MOUNT ON WALL. SEE WATER HEATER PIPING DIAGRAM DETAIL 6/M-504
C 1	-	-	-	-	CIRCULATING PUMP. GRUNDFOS PUMP MODEL ALPHA 2 15-55SF WITH OPEN ON RISE AQUASTAT & INTERMATIC TIMER. ELECTRICAL DATA 110V 0.65 AMPS. 12 LBS



WATER HEATER SUPPORT DETAIL 15

SCALE: NONE



WATER HEATER PIPING DETAIL 16

SCALE: NONE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 963-1726 WWW.KBZARCH.COM
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PATRICK B. PANLAQUI
PROJECT MANAGER

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LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Ren. 06/30/2025 STATE OF CALIFORNIA

ENGINEER'S STAMP & SIGNATURE
REGISTERED PROFESSIONAL ENGINEER JOHN K. METTENBRINK M030626 Ren. 6/30/26 MECHANICAL STATE OF CALIFORNIA

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838 East Front Street
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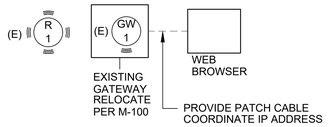
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2	-	--/--/--	XX
1	-	--/--/--	XX

REVISION DESCRIPTION DATE BY

DRAWN TP
CHECKED PW/HM
DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE MECHANICAL DETAILS

SHEET
M-504

CONTROLS



-PROVIDE REPEATERS AS NEEDED FOR COMMUNICATION TO GATEWAY.

CONTROL NOTES

1. THERMOSTATS SHALL BE PELICAN WIRELESS SYSTEM, INTERNET-ENABLED WITH INTEGRATED CO2 SENSOR.

2. ALL WIRE BETWEEN UNIT AND THERMOSTAT SHALL BE IN CONDUIT.

3. INSTALL ROUTER IN IT ROOM (VERIFY LOCATION W/ SCHOOL DISTRICT) AND PROVIDE PATCH CABLE TO CONNECT INTO SCHOOL DISTRICT'S NETWORK. REQUEST IP ADDRESS FROM DISTRICT. PROVIDE PROGRAMMING AND ANY SOFTWARE ON OWNER'S COMPUTER FOR INTERFACE WITH THERMOSTATS AT DISTRICT HEADQUARTERS AND ON CAMPUS.

4. PROVIDE ALL REPEATERS FOR CONSISTENT CONNECTIVITY.

5. VERIFY ALL SYSTEM FUNCTIONS AND PROVIDE REPORT DETAILING DATE OF TESTING, METHODOLOGY, AND RESULTS.

6. COORDINATE W/ PELICAN WIRELESS SYSTEMS AT THE COMPLETION OF THE PROJECT TO PROVIDE THE SCHOOL DISTRICT W/ 2 HOURS OF OWNER'S TRAINING ON SYSTEM.

7. FOR EXISTING THERMOSTATS, DELETE THE EXISTING THERMOSTAT / FURNACE FROM THE WEB-APP.

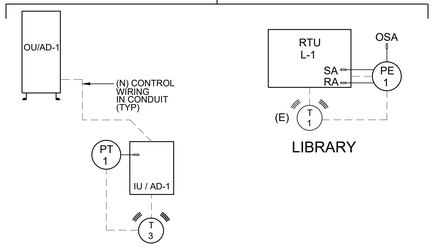
SEQUENCE OF OPERATION

1) SYSTEM SHALL OPERATE BASED ON SCHEDULE PROVIDED BY OWNER. ISSUE RFI FOR SCHEDULE REQUEST & TEMP. SETPOINTS.
2) FAN SHALL OPERATE WHEN BUILDING IS OCCUPIED AT FULL SPEED (BASED ON AIR BALANCE)
3) HEAT PUMP SHALL OPERATE IN COOLING OR HEATING MODE BASED ON THERMOSTAT VOTE.
4) SETPOINTS HEATING 68F (ADJ) COOLING 75F (ADJ)
5) THERMOSTATS SHALL BE PROGRAMMED TO PROVIDE A PRE-OCCUPANCY PURGE ONE HOUR PRIOR TO THE BUILDING BEING NORMALLY OCCUPIED, PER 120.1(d)1.

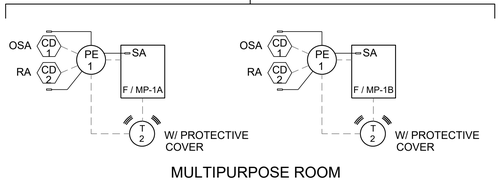
CONTROL SCHEDULE

(E) T 1	EXISTING THERMOSTAT, REMOVE & REINSTALL (SEE INDIVIDUAL MECHANICAL PLANS FOR LOCATIONS). PELICAN MODEL TC3. PROGRAMMABLE W/ BUILT-IN CO2 SENSOR. PROVIDE & INSTALL ALL NEW WIRING & CONDUIT. UPDATE SCHOOL WEB-APP SITE AS REQUIRED (DELETE OLD T-STAT).
T 2	THERMOSTAT. PELICAN MODEL TC3. PROGRAMMABLE W/ BUILT-IN CO2 SENSOR. FOR INDOOR UNIT CONTROL. PROVIDE & INSTALL ALL NEW WIRING & CONDUIT. INTERNET CONNECTIVITY. PROVIDE REPEATERS AS NEEDED FOR COMMUNICATION WITH GATEWAY. PROVIDE PROTECTIVE COVER. (SEE INDIVIDUAL MECHANICAL PLANS FOR LOCATIONS)
T 3	THERMOSTAT. PELICAN MODEL TC3. PROGRAMMABLE W/ BUILT-IN CO2 SENSOR. FOR INDOOR UNIT CONTROL. PROVIDE & INSTALL ALL NEW WIRING & CONDUIT. INTERNET CONNECTIVITY. PROVIDE REPEATERS AS NEEDED FOR COMMUNICATION WITH GATEWAY. (SEE INDIVIDUAL MECHANICAL PLANS FOR LOCATIONS)
PT 1	PELICAN TEMP. & ALARM SENSOR, MODEL TA1 AND PROBE-T1. INSTALL AT SUPPLY PLENUMS AND CONNECT TO (N) / (E) T-STATS.
PE 1	PELICAN PEARL ECONOMIZER CONTROLLER. PROVIDE & INSTALL ALL NEW PROBES, WIRING, & CONDUITS. ACTUATORS SHALL BE COMPATIBLE WITH PELICAN CONTROLS.
PM 1	PELICAN POWER CONTROL MODULE [PM5]
(E) GW 1	EXISTING GATEWAY. RELOCATE PER M-100. (VERIFY W/ SCHOOL DISTRICT). PROVIDE & INSTALL ALL NEW WIRING & CONDUIT.
(E) R 1	EXISTING REPEATER. (VERIFY W/ SCHOOL DISTRICT).
R 2	REPEATER. PELICAN WR400. INSTALL AS NEEDED FOR CAMPUS WIDE NETWORK. ELECT. 110 V. AVOID INSTALLING REPEATERS NEXT TO ELECTRICAL ROOMS WHERE INTERFERENCE COULD OCCUR. BUDGET 3 ADDITIONAL PER CAMPUS.

BUILDING "A"

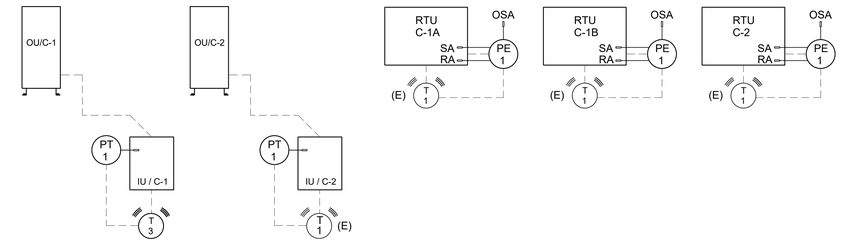


BUILDING "B"



BUILDING "C"

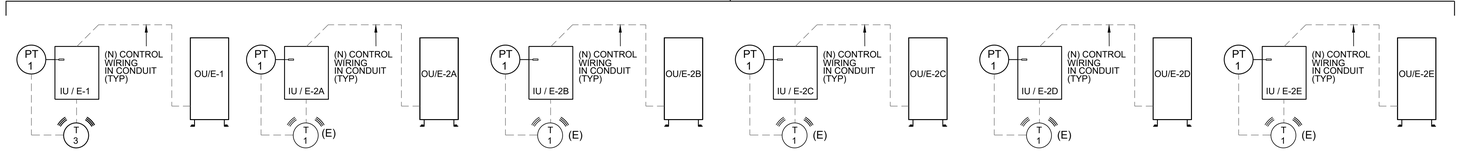
(FROM LIBRARY) (E) R 1 110V — R 2 110V



BUILDING "D"

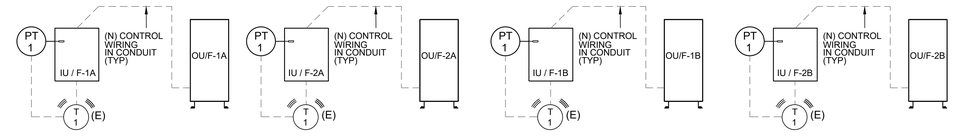
BUILDING "E"

EXISTING GATEWAY RELOCATE PER M-100 (E) GW 1 110V



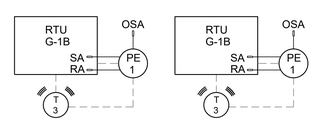
BUILDING "F"

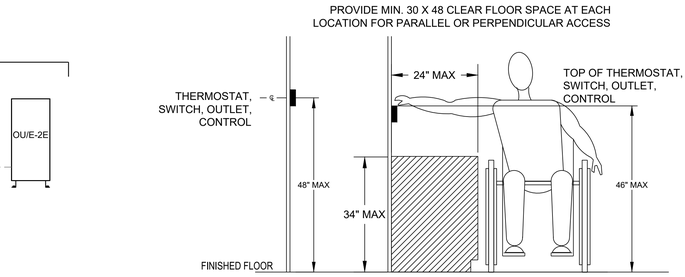
(E) R 1 (FROM BLDG. E) 110V



BUILDING "G"

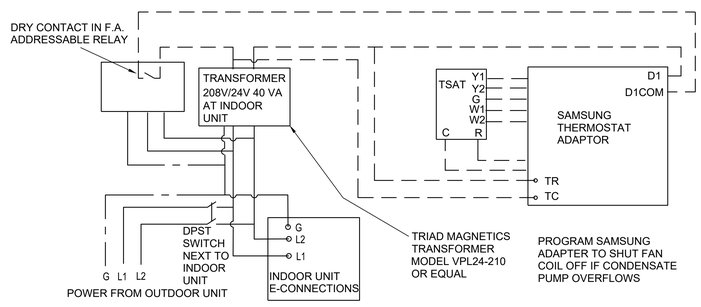
R 2 110V





ADA SWITCH & THERMOSTAT HEIGHTS & CLEARANCES (1)

SCALE: NONE



FAN COIL TYPICAL UNIT WIRING DIAGRAM (2)

SCALE: NONE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S STAMP & SIGNATURE

ENGINEER'S STAMP & SIGNATURE



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5	-	--/--/--	XX
4	-	--/--/--	XX
3	-	--/--/--	XX
2	-	--/--/--	XX
1	ADDENDUM 1	4/26/22	TP

REVISION	DESCRIPTION	DATE	BY

DRAWN TP
CHECKED HM/PW
DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE MECHANICAL CONTROLS

SHEET
M-600

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	**NRCC-MCH-E**
This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)2 for alterations.	
Project Name: Montalvo ES HVAC Replacment	**Report Page:** **(Page 1 of 52)**
Project Address: 2050 Grand Ave,	**Date Prepared:** 7/23/2024

A. GENERAL INFORMATION

01	Project Location (city)	Ventura	04	Total Conditioned Floor Area	15647
02	Climate Zone	6	05	Total Unconditioned Floor Area	0
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1

● Classroom ● Office ● All Other Occupancies

B. PROJECT SCOPE

This table Includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations.

01	02	03
Air System(s)	Wet System Components	Dry System Components
☒ Heating Air System	☐ Water Economizer	☒ Air Economizer
☒ Cooling Air System	☐ Pumps	☐ Electric Resistance Heat
Mechanical Controls	☐ System Piping	☒ Fan Systems
☒ Mechanical Controls (existing to remain, altered or new)	☐ Cooling Towers	☒ Ductwork (existing to remain, altered or new)
	☐ Chillers	☒ Ventilation
	☐ Boilers	☐ Zonal Systems/ Terminal Boxes

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.

01		02		03		04		05		06		07		08	09
System Summary 110.1, 110.2, 140.4, 170.2(c)	AND	Pumps 140.4(k), 170.2(c)4I	AND	Fans/ Economizers 140.4(c), 140.4(e), 170.2(c)	AND	System Controls 110.2, 120.2, 140.4(f), 170.2(c)	AND	Ventilation 120.1, 160.2	AND	Terminal Box Controls 140.4(d), 170.2(c)4B	AND	Distribution 120.3, 140.4(l), 160.2, 160.3	AND	Cooling Towers 110.2(e)2	Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND		AND	Yes	AND	Yes	AND	Yes	AND		AND	Yes	AND		COMPLIES
Mandatory Measures Compliance (See Table Q for Details)															COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
OU/AD-1	1	Single zone	Alteration		☐
RTU/L-1	1	Single zone	Alteration		☐
RTU/C-1A	1	Single zone	Alteration		☐
OU/C-1A	1	Single zone	Alteration		☐

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
OU/C-2	1	Single zone	Alteration		☐
RTU/C-1B	1	Single zone	Alteration		☐
RTU/C-2	1	Single zone	Alteration		☐
OU/D-1	1	Single zone	Alteration		☐
OU/D2(A - C)	1	Single zone	Alteration		☐
OU/E-1	1	Single zone	Alteration		☐
OU/E-2(A - E)	1	Single zone	Alteration		☐
OU/F-1A (B)	1	Single zone	Alteration		☐
OU/F-2A (B)	1	Single zone	Alteration		☐
RTU/G-1A (B)	1	Single zone	Alteration		☐
F/MP-1A (B)	1	Single zone	Alteration		☐

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)2 and 170.2(c)3aii	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available[1] 140.4(a) and 170.2(c)1	Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a&b), 170.2(c)1 & 170.2(c)2						
				Heating Output[2,3]			Cooling Output[2,3]		Load Calculations[3,4]	
				Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
OU/AD-1	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	49.14	60	0	30.35	28.5	30.34	38.76
RTU/L-1	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	79.03	96.5	0	94.34	84.5	73.85	88.33
RTU/C-1A	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	68.8	84	0	82.1	71.8	67.8	73.07
OU/C-1A	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	30.3	37	0	22.33	20.4	21.38	30.89
OU/C-2	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	54.05	66	0	51.28	44.2	55.9	58.51
RTU/C-1B	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	68.8	84	0	82.23	71.8	66.33	79.54
RTU/C-2	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	79.03	96.5	0	94.06	84.5	73.47	85.06

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
OU/D-1	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	40.95	50	0	26.17	24.4	29.25	30.71
OU/D2(A - C)	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	65.28	79.7	0	57.39	50.5	57.65	64.97
OU/E-1	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	49.14	60	0	30.66	28.5	20.66	20.75
OU/E-2(A - E)	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	65.28	79.7	0	57.37	50.5	56.91	63.85
OU/F-1A (B)	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	54.05	66	0	50.74	44.2	63.27	55.4
OU/F-2A (B)	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	54.05	66	0	50.58	44.2	53.18	46.12
RTU/G-1A (B)	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Altered per 141.0(b)2E and 180.2(b)2	79.03	96.5	0	94.64	84.5	75.51	86.89
F/MP-1A (B)	Furnace/ Unit Heater	Warm-air central furnace, gas-fired	NA: Altered per 141.0(b)2E and 180.2(b)2	240	240	0	0	0	437.09	381.07

[1] *FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(a) and 170.2(c)1. Healthcare facilities are excepted.*

[2] *It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.*

[3] *If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.*

[4] *Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).*

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
		Heating Mode				Cooling Mode		
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
OU/AD-1	<65,000		HSPF2	7.5	8.4	SEER2	14.3	17.5
RTU/L-1	>=65,000 and <135,000		COP	3.4	3.4	EER IEER	11 14.1	12 15.8
RTU/C-1A	>=65,000 and <135,000		COP	3.4	3.5	EER IEER	11 14.1	12.1 16
OU/C-1A	<65,000		HSPF2	7.5	7.5	SEER2	14.3	16.6
OU/C-2	>=65,000 and <135,000		COP	3.4	9.5	EER IEER	11 14.1	9.9 12.5
RTU/C-1B	>=65,000 and <135,000		COP	3.4	3.5	EER IEER	11 14.1	12.1 16
RTU/C-2	>=65,000 and <135,000		COP	3.4	3.4	EER IEER	11 14.1	12 15.8
OU/D-1	<65,000		HSPF2	7.5	8.4	SEER2	14.3	16.6
OU/D2(A - C)	>=65,000 and <135,000		COP	3.4	6	EER IEER	11 14.1	11.5 24.2
OU/E-1	<65,000		HSPF2	7.5	8.4	SEER2	14.3	17.5
OU/E-2(A - E)	>=65,000 and <135,000		COP	3.4	6	EER IEER	11 14.1	11.5 24.2
OU/F-1A (B)	>=65,000 and <135,000		COP	3.4	9.5	EER IEER	11 14.1	9.9 12.5
OU/F-2A (B)	>=65,000 and <135,000		COP	3.4	9.5	EER IEER	11 14.1	9.9 12.5

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
		Heating Mode				Cooling Mode		
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
RTU/G-1A (B)	>=65,000 and <135,000		COP	3.4	3.4	EER IEER	11 14.1	12 15.8
F/MP-1A (B)	<65,000		Combustion Efficiency	0.8	0.81	SEER2	14.3	15

G. PUMPS

This section does not apply to this project.

H. FAN SYSTEMS & AIR ECONOMIZERS

This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	OU/AD-1	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,310	Site Elevation	341	Economizer	NA: Altered packaged AC or HP <54 kBtu/h

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		304		Manufacturer provided		0.44
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		182				
			Hydronic/DX cooling coil or heat pump coil	100		182				
			Supply Fan System	100		182				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1	Fan System Electrical Output (kW)	0.44

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	RTU/L-1	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	3,000	Site Elevation	341	Economizer	Differential Temperature

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		696		Manufacturer provided		1.33
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		417				
			Hydronic/DX cooling coil or heat pump coil	100		417				
			Economizer Return Damper	100		138				
			Supply Fan System	100		417				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		2.08	Fan System Electrical Output (kW)	1.33

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	RTU/C-1A	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,400	Site Elevation	341	Economizer	Differential Temperature

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		557		Manufacturer provided		0.99
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		554				
			Hydronic/DX cooling coil or heat pump coil	100		334				
			Economizer Return Damper	100		110				
			Supply Fan System	100		334				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.89	Fan System Electrical Output (kW)	0.99

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	OU/C-1A	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,000	Site Elevation	341	Economizer	NA: Altered packaged AC or HP <54 kBtu/h

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		232		Manufacturer provided		0.44
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		231				
			Hydronic/DX cooling coil or heat pump coil	100		139				
			Supply Fan System	100		139				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1	Fan System Electrical Output (kW)	0.44

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	OU/C-2	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,760	Site Elevation	341	Economizer	NA: Special OA filtration

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		408		Manufacturer provided		0.66
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		407				
			Hydronic/DX cooling coil or heat pump coil	100		245				
			Supply Fan System	100		245				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.3	Fan System Electrical Output (kW)	0.66

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	RTU/C-1B	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,400	Site Elevation	341	Economizer	Differential Temperature

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		557		Manufacturer provided		0.99
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		554				
			Hydronic/DX cooling coil or heat pump coil	100		334				
			Economizer Return Damper	100		110				
			Supply Fan System	100		334				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.89	Fan System Electrical Output (kW)	0.99

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	RTU/C-2	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	3,000	Site Elevation	341	Economizer	Differential Temperature

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		696		Manufacturer provided		1.33
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		693				
			Hydronic/DX cooling coil or heat pump coil	100		417				
			Economizer Return Damper	100		138				
			Supply Fan System	100		417				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		2.36	Fan System Electrical Output (kW)	1.33

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	OU/D-1	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,220	Site Elevation	341	Economizer	NA: Altered packaged AC or HP <54 kBtu/h

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		283		Manufacturer provided		0.44
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		282				
			Hydronic/DX cooling coil or heat pump coil	100		170				
			Supply Fan System	100		170				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1	Fan System Electrical Output (kW)	0.44

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	OU/D2(A - C)	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,110	Site Elevation	341	Economizer	NA: Special OA filtration

01	02	03	04	05	06	07	08	09	10	11
						Allowance		Design		
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		490		Manufacturer provided		0.66
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		487				
			Hydronic/DX cooling coil or heat pump coil	100		293				
			Supply Fan System	100		293				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.56	Fan System Electrical Output (kW)	0.66

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

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TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

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ARCHITECT'S STAMP & SIGNATURE | ENGINEER'S STAMP & SIGNATURE

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5	-	--/--/--	XX
4	-	--/--/--	XX
3	-	--/--/--	XX
2	-	--/--/--	XX
1	-	--/--/--	XX
REVISION	DESCRIPTION	DATE	BY

DRAWN TP
CHECKED HM/PW
DATE 10/11/2024
JOB. NO. 23053
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SHEET TITLE ENERGY NOTES

SHEET
EN-001

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

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Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 17 of 52)**
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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	OU/E-1	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,310	Site Elevation	341	Economizer	NA: Altered packaged AC or HP <54 kBtu/h
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance		Design		
						Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		304		Manufacturer provided		0.44
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		303				
			Hydronic/DX cooling coil or heat pump coil	100		182				
			Supply Fan System	100		182				
Supply Fan Base Allowance (kW)			Exhuast/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1	Fan System Electrical Output (kW)	0.44

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	OU/E-2(A - E)	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,110	Site Elevation	341	Economizer	NA: Special OA filtration
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance		Design		
						Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		490		Manufacturer provided		0.66
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		487				
			Hydronic/DX cooling coil or heat pump coil	100		293				
			Supply Fan System	100		293				
Supply Fan Base Allowance (kW)			Exhuast/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.56	Fan System Electrical Output (kW)	0.66

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	OU/F-1A (B)	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,760	Site Elevation	341	Economizer	NA: Special OA filtration
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance		Design		
						Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		408		Manufacturer provided		0.66
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		407				
			Hydronic/DX cooling coil or heat pump coil	100		245				
			Supply Fan System	100		245				
Supply Fan Base Allowance (kW)			Exhuast/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.3	Fan System Electrical Output (kW)	0.66

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	OU/F-2A (B)	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,760	Site Elevation	341	Economizer	NA: Special OA filtration
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance		Design		
						Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		408		Manufacturer provided		0.66
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		407				
			Hydronic/DX cooling coil or heat pump coil	100		245				
			Supply Fan System	100		245				
Supply Fan Base Allowance (kW)			Exhuast/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.3	Fan System Electrical Output (kW)	0.66

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	RTU/G-1A (B)	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	3,000	Site Elevation	341	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance		Design		
						Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		696		Manufacturer provided		1.33
			MERV 13-16 Filter downstream of thermal conditioning equipment	100		693				
			Hydronic/DX cooling coil or heat pump coil	100		417				
			Economizer Return Damper	100		138				
			Supply Fan System	100		417				
Supply Fan Base Allowance (kW)			Exhuast/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		2.36	Fan System Electrical Output (kW)	1.33

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	F/MP-1A (B)	Quantity	1	Fan System Status	Alteration	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	3,800	Site Elevation	341	Economizer	NA: Altered packaged AC or HP <54 kBtu/h
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance		Design		
						Component Allowance	Fan Allowance (watt/cfm)[3]	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		882		Manufacturer provided		2.1
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		528				
			Gas heat	100		220				
			Supply Fan System	100		528				
Supply Fan Base Allowance (kW)			Exhuast/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		2.16	Fan System Electrical Output (kW)	2.1

[1] FOOTNOTES: Fans serving spaces with design background noise goals below NC35

[2] Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.

[3] Fan system allowance includes fan system base allowance.

[4] Filter pressure loss can only be counted once per fan system.

[5] Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.

[6] Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document..

Fan Energy Index (FEI)		
01	02	03

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Fan Energy Index (FEI)

Name or Item Tag	FEI Exception	FEI
OU/AD-1	None Applies	1
RTU/L-1	None Applies	1
RTU/C-1A	Altered Fan System	
OU/C-1A	Altered Fan System	
OU/C-2	Altered Fan System	
RTU/C-1B	Altered Fan System	
RTU/C-2	Altered Fan System	
OU/D-1	Altered Fan System	
OU/D2(A - C)	Altered Fan System	
OU/E-1	Altered Fan System	
OU/E-2(A - E)	Altered Fan System	
OU/F-1A (B)	Altered Fan System	
OU/F-2A (B)	Altered Fan System	
RTU/G-1A (B)	Altered Fan System	
F/MP-1A (B)	None Applies	1

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I. SYSTEM CONTROLS

This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)4D 170.2(c)4L or requirements in 141.0(b)2E 180.2(b)2 for altered space conditioning systems.

01	02	03	04	05	06	07	08	09
System Name	System Zoning	Conditioned Floor Area Being Served (ft^2)	Thermostats 110.2(b) & (c)[1], 120.2(a) 160.3(a)2A or 141.0(b)2E & 180.2(b)2	Shut-Off Controls 120.2(e) & 160.3(a)2D	Isolation Zone Controls 120.2(g) & 160.3(a)2F	Demand Response 110.12 120.2(b) & 160.3(a)2B	Supply Air Temp. Reset 140.4(f) & 170.2(c)4D	Window Interlocks per 140.4(n) & 170.2(c)4D
OU/AD-1	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
RTU/L-1	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
RTU/C-1A	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
OU/C-1A	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
OU/C-2	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
RTU/C-1B	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
RTU/C-2	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
OU/D-1	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
OU/D2(A - C)	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
OU/E-1	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
OU/E-2(A - E)	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project

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I. SYSTEM CONTROLS

OU/F-1A (B)	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
OU/F-2A (B)	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
RTU/G-1A (B)	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project
F/MP-1A (B)	Single zone	<= 25,000 ft^2	EMCS	EMCS	EMCS	EMCS	NA: Alteration	NA: Alteration Project

[1]FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(e)3B 140.4(p) and 140.4(q) for all nonresidential and hotel/motel and d:t24refnolink/]160.2, 160.3(a)3D, 170.2(a)4N, 170.2(a)4O for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.

01	☐	Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
02	☒	Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces
	☐	
03	☐	Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)2.

Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems

04		05			06			07
System Name	OU/AD-1	System Design OA CFM Airflow[1]		90	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]
								Provided
08	09	10	11	12	13	14	15	16

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J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Admin	Office space	607			91	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				91	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	RTU/L-1	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Library	Library - reading room/ stacks	930		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	RTU/C-1A	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	

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J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Kinder cls rm	Classroom (ages 5-18)	963		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	OU/C-1A	System Design OA CFM Airflow[1]		75	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Staff Lounge	Break room	460			230	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				230	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	OU/C-2	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	

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J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Cls Rm#2	Classroom (ages 5-18)	962		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	RTU/C-1B	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Cls Rm#3	Classroom (ages 5-18)	905		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	RTU/C-2	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	

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		Date Prepared:	7/23/2024

J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Cls Rm#5	Classroom (ages 5-18)	905		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	OU/D-1	System Design OA CFM Airflow[1]		63	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
PIP	Classroom (ages 5-18)	419			159.2	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				159	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	OU/D2(A - C)	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	

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J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Typ Cls Rm_6-8	Classroom (ages 5-18)	905		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	OU/E-1	System Design OA CFM Airflow[1]		60	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Supply RM	Classroom (ages 5-18)	380		4	60	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				60	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	OU/E-2(A - E)	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	

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J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Typ Cls Rm(#10-#12)	Classroom (ages 5-18)	945		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	OU/F-1A (B)	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Cls Rm#14	Classroom (ages 5-18)	966		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	OU/F-2A (B)	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	

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J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Typ Cls Rm (#15-#16)	Classroom (ages 5-18)	966		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	RTU/G-1A (B)	System Design OA CFM Airflow[1]		450	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Kinder-west	Classroom (ages 5-18)	1313		30	450	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				450	18	Ventilation for this System Complies?		Yes
04		05			06			07	
System Name	F/MP-1A (B)	System Design OA CFM Airflow[1]		6510	System Design Transfer Air CFM		0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]	
								Provided	
08	09	10	11	12	13	14	15	16	

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER
ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S
STAMP & SIGNATURE

ENGINEER'S
STAMP & SIGNATURE

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1	-	--/--/--	XX
REVISION	DESCRIPTION	DATE	BY

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DATE 10/11/2024
JOB. NO. 23053
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SHEET TITLE ENERGY NOTES

SHEET
EN-002

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

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J. VENTILATION AND INDOOR AIR QUALITY

Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3^3 & 160.2(c)3					Exh. Vent per 120.1(c)4 & 160.2(c)4		DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3^6 160.2(c)5D 160.2(c)5E 160.2(c)5D	
	Occupancy Type^4	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people^5	Required Min OA CFM	Required Min CFM	Provided per Design CFM		
Cafeteria	Assembly- multiuse	4021		434	6510	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				6510	18	Ventilation for this System Complies?		Yes

[1] *FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system*

[2] *Air filtration requirements apply to the following three system types per 120.1(c)1A: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.*

[3] *Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.*

[4] *See Standards Tables 120.1-A and 120.1-B.*

[5] *For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.*

[6] *120.2(e)3 requires systems serving rooms that are required by 130.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft^2 or smaller, multipurpose rooms less than 1,000 ft^2, classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(c).*

K. TERMINAL BOX CONTROLS

This section does not apply to this project.

L. DISTRIBUTION (DUCTWORK and PIPING)

This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.

01	☐	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.

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L. DISTRIBUTION (DUCTWORK and PIPING)

Duct Leakage Testing

The answers to the questions below apply to the following duct systems:	OU/AD-1	***NR/ Common Use:*** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No
		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
14	No	The <u>combined</u> surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	RTU/L-1	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
14	No	The <u>combined</u> surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	RTU/C-1A	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
14	No	The <u>combined</u> surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	OU/C-1A	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
14	No	The <u>combined</u> surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	OU/C-2	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
14	No	The <u>combined</u> surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	RTU/C-1B	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
14	No	The <u>combined</u> surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	RTU/C-2	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
14	No	The <u>combined</u> surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	OU/D-1	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

---

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 41 of 52)**
		Date Prepared:	7/23/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
14	No	The <u>combined</u> surface area of the ducts is more than 25% of the total surface area of the entire duct system:	
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	OU/D2(A - C)	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

---

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 42 of 52)**
		Date Prepared:	7/23/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
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16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	OU/E-1	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

---

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 43 of 52)**
		Date Prepared:	7/23/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
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12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
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17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	OU/E-2(A - E)	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 44 of 52)**
		Date Prepared:	7/23/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
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18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	OU/F-1A (B)	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 45 of 52)**
		Date Prepared:	7/23/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
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12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
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18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	OU/F-2A (B)	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 46 of 52)**
		Date Prepared:	7/23/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
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17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	RTU/G-1A (B)	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 47 of 52)**
		Date Prepared:	7/23/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
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17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			
The answers to the questions below apply to the following duct systems:	F/MP-1A (B)	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:	Montalvo ES HVAC Replacment	**Report Page:**	**(Page 48 of 52)**
		Date Prepared:	7/23/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.	
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18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			

M. COOLING TOWERS

This section does not apply to this project.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER
ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S STAMP & SIGNATURE

ENGINEER'S STAMP & SIGNATURE

TODD A. JESPERSEN No. C-25839 Ren. 06/30/2025

HUGH A. McTERNAN M030626 Ren. 6/30/26

AE Group
Mechanical Engineers

838 East Front Street
Ventura, California 93001-2925
(805) 653-1722
hugh@aegroupme.com

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REVISION	DESCRIPTION	DATE	BY

DRAWN TP
CHECKED HM/PW
DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE ENERGY NOTES

SHEET

EN-003

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Form/Title
NRCI-MCH-01-E - Must be submitted for all buildings

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Montalvo ES HVAC Replacment	**Report Page:**	(Page 50 of 52)
	Date Prepared:	7/23/2024

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

Form/Title	Systems/Spaces To Be Field Verified
NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.	Samsung 3.5 Ton; York XYE09; York XYE08; Samsung 2.5 Ton; Samsung 5 Ton; York XYE08; York XYE09; Samsung 3 Ton; Samsung 6 Ton; Samsung 3.5 Ton; Samsung 6 Ton; Samsung 5 Ton; Samsung 5 Ton; York XYE09; Reznor 275;
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes'. If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".	Samsung 3.5 Ton; York XYE09; York XYE08; Samsung 2.5 Ton; Samsung 5 Ton; York XYE08; York XYE09; Samsung 3 Ton; Samsung 6 Ton; Samsung 3.5 Ton; Samsung 6 Ton; Samsung 5 Ton; Samsung 5 Ton; York XYE09; Reznor 275;
NRCA-MCH-05-A - Air Economizer Controls	York XYE09; York XYE08; York XYE08; York XYE09; York XYE09;
NRCA-MCH-11-A Automatic Demand Shed Controls	Samsung 3.5 Ton; York XYE09; York XYE08; Samsung 2.5 Ton; Samsung 5 Ton; York XYE08; York XYE09; Samsung 3 Ton; Samsung 6 Ton; Samsung 3.5 Ton; Samsung 6 Ton; Samsung 5 Ton; Samsung 5 Ton; York XYE09; Reznor 275;

Generated Date/Time:
Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Report Version: 2022.0.000
Schema Version: rev 20220101
Compliance ID: EnergyPro-20275-0724-0132
Report Generated: 2024-07-23 13:47:02

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Montalvo ES HVAC Replacment	**Report Page:**	(Page 51 of 52)
	Date Prepared:	7/23/2024

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

NRCA-MCH-12-A FDD for Packaged Direct Expansion Units	York XYE09; York XYE08; York XYE08; York XYE09; York XYE09;
NRCA-MCH-18-A Energy Management Control Systems	Samsung 3.5 Ton; York XYE09; York XYE08; Samsung 2.5 Ton; Samsung 5 Ton; York XYE08; York XYE09; Samsung 3 Ton; Samsung 6 Ton; Samsung 3.5 Ton; Samsung 6 Ton; Samsung 5 Ton; Samsung 5 Ton; York XYE09; Reznor 275;

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no NRCV forms required for this project.

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01		02
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block	Yes	Plan sheet or construction document location: M-Sheets

Generated Date/Time:
Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Report Version: 2022.0.000
Schema Version: rev 20220101
Compliance ID: EnergyPro-20275-0724-0132
Report Generated: 2024-07-23 13:47:02

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Montalvo ES HVAC Replacment	**Report Page:**	(Page 52 of 52)
Project Address: 2050 Grand Ave,	**Date Prepared:**	7/23/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Jose Sanchez	Documentation Author Signature:
Company: AE Group Mechanical Engineers, Inc.	Signature Date: 2024-07-23
Address: 838 E Front St	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Ventura Ca 93001	Phone: 8056531722

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Hugh McTernan	Responsible Designer Signature:
Company: AE Group Mechanical Engineers, Inc.	Date Signed: 2024-07-23
Address: 838 E Front St	License: M030626
City/State/Zip: Ventura Ca 93001	Phone: 805-653-1722

Generated Date/Time:
Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Report Version: 2022.0.000
Schema Version: rev 20220101
Compliance ID: EnergyPro-20275-0724-0132
Report Generated: 2024-07-23 13:47:02

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
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TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S STAMP & SIGNATURE



ENGINEER'S STAMP & SIGNATURE

AE Group
Mechanical Engineers
838 East Front Street
Ventura, California 93001-2925
(805) 653-1722
hugh@aegroupme.com

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1	-	--/--/--	XX

REVISION DESCRIPTION DATE BY
DRAWN TP
CHECKED HM/PW
DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE ENERGY NOTES

SHEET
EN-004

ABBREVIATIONS

A	AMPERES	IDF	INTERMEDIATE DISTRIBUTION FRAME
AC	ALTERNATING CURRENT	I.G.	ISOLATED GROUND
AF	AMP FRAME/AMP FUSE	JB	JUNCTION BOX
AFC	AVAILABLE FAULT CURRENT	KV	KILO VOLT
AFF	ABOVE FINISHED FLOOR	KVA	KILO VOLT AMPS=1000VA
AFG	ABOVE FINISHED GRADE	KW	KILOWATT
AIC	AMPERES INTERRUPTING CAPACITY	KCMIL	THOUSAND CIRCULAR MILS
AL	ALUMINUM	LTG	LIGHTING
ARCH	ARCHITECT	LC	LIGHTING CONTACTOR
AS	AMP SWITCH RATING	LCL	LONG CONTINUOUS LOAD
AT	AMP TRIP	LV	LOW VOLTAGE
ATS	AUTOMATIC TRANSFER SWITCH	MDF	MAIN DISTRIBUTION FRAME
AV	AUDIO VISUAL	MTD	MOUNTED
AWG	AMERICAN WIRE GAGE	MTB	MAIN TELEPHONE BACKBOARD
BKBD	BACKBOARD	MTG	MOUNTING
BLDG.	BUILDING	MV	MERCURY VAPOR
BIL	BASIC IMPULSE LEVEL	MH	METAL HALIDE
C	CONDUIT	MFG	MANUFACTURER
CB	CIRCUIT BREAKER	MPOE	MAIN POINT OF ENTRY
CBC	CALIFORNIA BUILDING CODE	(N)	NEW
CEC	CALIFORNIA ELECTRICAL CODE	NC	NORMALLY CLOSED
CF	COMPACT FLUORESCENT	NEC	NATIONAL ELECTRICAL CODE
CFC	CALIFORNIA FIRE CODE	NIC	NOT IN CONTRACT
CONT.	CONTINUATION	NL	NIGHT LIGHT
CKT	CIRCUIT	NO	NORMALLY OPEN
CLG	CEILING	NTS	NOT TO SCALE
CO	CONDUIT ONLY	P	POWER OR POLE
CSFM	CA. STATE FIRE MARSHALL	PBO	PROVIDED BY OTHERS
CTV	CABLE TELEVISION	PNL	PANEL
(CU)	COPPER	(R)	REMOVED
CW	COLD WATER PIPE	RGS	RIGID GALVANIZED STEEL CONDUIT
COMM	COMMUNICATION	RM	ROOM
DIS	DISCONNECT	SN	SYSTEM NEUTRAL
DS	DISCONNECT SWITCH	TC	TIME CLOCK
DWG	DRAWING	TTB	TELEPHONE TERMINAL BOARD
EC	ELECTRICAL CONTRACTOR	TTC	TELEPHONE TERMINAL CABINET
(F)	FRONT	TR	TRANSFORMER
FAU	FORCED AIR UNIT	TYP	TYPICAL
FS	SHALLOW FLOOR BOX	UON	UNLESS OTHERWISE NOTED
GC	GENERAL CONTRACTOR	UNSW	UNSWITCHED
GFI	GROUND FAULT INTERRUPTER	VA	VOLT AMPS
GND	GROUND	V	VOLTS/VOLTAGE
HID	HIGH INTENSITY DISCHARGE	W	WATTS/WATTAGE
HP	HORSEPOWER	WP	WEATHERPROOF
HV	HIGH VOLTAGE	W/	WITH
HZ	HERTZ	(X)	EXISTING

U.L. STANDARD 486B TORQUING RECOMMENDATIONS

TIGHTENING TORQUE FOR SCREWS (a)

TORQUE, POUND – INCHES

WIRE SIZE	SLOTTED HEAD NO. 10 AND LARGER (b)				HEXAGONAL HEAD/EXTERNAL DRIVE SOCKET WRENCH	
	SLOT WIDTH (IN.)		SLOT LENGTH (IN.)		SPLIT–BOLT	OTHER
	TO 3/64	OVER 3/64	TO 1/4	OVER 1/4	CONNECTORS	CONNECTORS
18–10 AWG	20	35	20	35	80	75
8	25	40	25	40	80	75
6	35	45	35	45	165	110
4	–	45	–	45	165	110
3	–	50	–	50	275	150
2	–	50	–	50	275	150
1	–	50	–	50	275	150
1/0	–	50	–	50	385	180
2/0	–	50	–	50	385	180
3/0	–	50	–	50	500	250
4/0	–	50	–	50	500	250
250 kcmil	–	50	–	50	650	325
300	–	50	–	50	650	325
350	–	50	–	50	650	325
400	–	50	–	50	825	325
500	–	50	–	50	825	375
600	–	50	–	50	1000	375
700	–	50	–	50	1000	375
750	–	50	–	50	1000	375
800	–	50	–	50	1100	500
900	–	50	–	50	1100	500
1000	–	50	–	50	1100	500
1250	–	–	–	–	1100	600
1500	–	–	–	–	1100	600
1750	–	–	–	–	1100	600
2000	–	–	–	–	1100	600

THIS TABLE GIVES RECOMMENDED CONNECTOR INSTALLING TORQUE'S FOR COPPER AND ALUMINUM CONDUCTORS. THEY ARE FOR GUIDANCE ONLY WHERE NO TIGHTENING INFORMATION IS AVAILABLE AND
SHOULD NOT BE USED TO REPLACE MANUFACTURERS' INSTRUCTIONS WHICH SHOULD ALWAYS BE FOLLOWED.

(a) CLAMPING SCREWS WITH MULTIPLE TIGHTENING MEANS; FOR EXAMPLE, FOR A SLOTTED HEXAGONAL HEAD SCREW, USE THE HIGHEST TORQUE VALUE ASSOCIATED WITH THE DIFFERENT TIGHTENING MEANS.

(b) FOR VALUES OF SLOT WIDTH OR LENGTH OTHER THAN THOSE SPECIFIED, SELECT THE LARGEST TORQUE VALUE ASSOCIATED WITH CONDUCTOR SIZE.

CEC ART. 310 CONDUCTOR DERATING

NEC #310.15 (B)(3)(a) ADJUSTMENT FACTORS

(a) MORE THAN THREE CURRENT–CARRYING CONDUCTORS IN A RACEWAY OR CABLE. WHERE THE NUMBER OF CURRENT–CARRYING CONDUCTORS IN A RACEWAY OR CABLE EXCEEDS THREE, THE ALLOWABLE AMPACITIES SHALL BE REDUCED AS SHOWN IN THE FOLLOWING TABLE:

NUMBER OF CURRENT–CARRYING CONDUCTORS	PERCENT OF VALUES IN TABLES AS ADJUSTED FOR AMBIENT TEMPERATURE IF NECESSARY
4 THROUGH 6	80
7 THROUGH 9	70
10 THROUGH 20	50
21 THROUGH 30	45
31 THROUGH 40	40
41 AND ABOVE	35

WHERE SINGLE CONDUCTORS OR MULTICONDUCTOR CABLES ARE STACKED OR BUNDLED LONGER THAN 24 INCHES (610 mm) WITHOUT MAINTAINING SPACING AND ARE NOT INSTALLED IN RACEWAYS, THE ALLOWABLE AMPACITY OF EACH CONDUCTOR SHALL BE REDUCED AS SHOWN IN THE ABOVE TABLE.

EXCEPTION NO. 1: WHERE CONDUCTORS OF DIFFERENT SYSTEMS, AS PROVIDED IN SECTION 300–3, ARE INSTALLED IN A COMMON RACEWAY OR CABLE, THE DERATING FACTORS SHOWN ABOVE SHALL APPLY TO THE NUMBER OF POWER AND LIGHTING (ARTICLES 210, 215, 220, AND 230) CONDUCTORS ONLY.

EXCEPTION NO. 2: FOR CONDUCTORS INSTALLED IN CABLE TRAYS, THE PROVISIONS OF SECTION 392.11 SHALL APPLY.

EXCEPTION NO. 3: DERATING FACTORS SHALL NOT APPLY TO CONDUCTORS IN NIPPLES HAVING A LENGTH NOT EXCEEDING 24 INCHES (600mm).

EXCEPTION NO. 4: DERATING FACTORS SHALL NOT APPLY TO UNDERGROUND CONDUCTORS ENTERING OR LEAVING AN OUTDOOR TRENCH IF THOSE CONDUCTORS HAVE PHYSICAL PROTECTION IN THE FORM OF RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT, OR RIGID NONMETALLIC CONDUIT HAVING A LENGTH NOT EXCEEDING 10 FEET (3.05m) ABOVE GRADE AND THE NUMBER OF CONDUCTORS DOES NOT EXCEED FOUR.

CEC WIRE FILL TABLE 314.16(a)

JUNCTION BOX DIMENSION, INCHES TRADE SIZE OR TYPE	MIN. CU. IN. CAP.	MAXIMUM NUMBER OF CONDUCTORS				
		NO.14	NO.12	NO.10	NO.8	NO.6
4 x1–1/4 ROUND OR OCTAGONAL	12.5	6	5	5	5	2
4 x1–1/2 ROUND OR OCTAGONAL	15.5	7	6	6	5	3
4 x2–1/8 ROUND OR OCTAGONAL	21.5	10	9	8	7	4
4 x1–1/4 SQUARE	18.0	9	8	7	6	3
4 x1–1/2 SQUARE	21.0	10	9	8	7	4
4 x2–1/8 SQUARE	30.3	15	13	12	10	6
4–11/16 x1–1/4 SQUARE	25.5	12	11	10	8	5
4–11/16 x1–1/2 SQUARE	29.5	14	13	11	9	5
4–11/16 x2–1/8 SQUARE	42.0	21	18	16	14	8
3 x2 x1–1/2 DEVICE	7.5	3	3	3	2	1
3 x2 x2 DEVICE	10.0	5	4	4	3	2
3 x2 x2–1/4 DEVICE	10.5	5	4	4	3	2
3 x2 x2–1/2 DEVICE	12.5	6	5	5	4	2
3 x2 x2–3/4 DEVICE	14.0	7	6	5	4	2
3 x2 x3–1/2 DEVICE	18.0	9	8	7	6	3
4 x2–1/8 x1–1/2 DEVICE	10.3	5	4	4	3	2
4 x2–1/8 x1–7/8 DEVICE	13.0	6	5	5	4	2
4 x2–1/8 x2–1/8 DEVICE	14.5	7	6	5	4	2
3–3/4 x2 x2–1/2 MASONRY BOX / GANG	14.0	7	6	5	4	2
3–3/4 x2 x3–1/2 MASONRY BOX / GANG	21.0	10	9	8	7	4
FS – MINIMUM INTERNAL DEPTH 1–3/4 SINGLE COVER / GANG	13.5	6	6	5	4	2
FD – MINIMUM INTERNAL DEPTH 2–3/8 SINGLE COVER / GANG	18.0	9	8	7	6	3
FS – MINIMUM INTERNAL DEPTH 1–3/4 MULTIPLE COVER / GANG	18.0	9	8	7	6	3
FD – MINIMUM INTERNAL DEPTH 2–3/8 MULTIPLE COVER / GANG	24.0	12	10	9	8	4

GENERAL ELECTRICAL NOTES

A. GENERAL

1. SCOPE
THE DRAWINGS AND THESE GENERAL NOTES DESCRIBE THE SCOPE OF WORK AND SYSTEMS. THE MATERIAL REQUIRED FOR THE WORK SHALL BE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED, UNLESS SPECIFICALLY NOTED OTHERWISE. THE WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING PRINCIPAL SYSTEMS AND EQUIPMENT.

2. PERMITS AND CHARGES
OBTAIN AND PAY FOR ALL NECESSARY CONSTRUCTION PERMITS, INSPECTION FEES, AND OTHER CHARGES BY AGENCIES HAVING JURISDICTION.

3. REGULATIONS AND CODES
PROVIDE AND INSTALL ALL MATERIALS IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE, CALIFORNIA ADMINISTRATIVE CODE TITLE 8, AND OTHER CODES AND REGULATIONS HAVING JURISDICTION. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE INSPECTING AUTHORITY AND THE MANUFACTURERS RECOMMENDATIONS.

CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING:

APPLICABLE CODES

2022 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.;
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.;
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.;
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.;
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.;
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24, C.C.R.
2022 TITLE 19 C.C.R. PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING:

NFPA 13–AUTOMATIC SPRINKLER SYSTEMS, 2016 EDITION
NFPA 14–STANDPIPES SYSTEMS, 2019 EDITION
NFPA 17A–WET CHEMICAL SYSTEMS, 2017 EDITION
NFPA 24–PRIVATE FIRE MAINS, 2019 EDITION– PART OF NFPA 13 CHAPTER 5
NFPA 72 (CALIFORNIA AMENDED)– NATIONAL FIRE ALARM CODES, 2019 EDITION
NFPA 101 LIFE SAFETY CODE, 2018 EDITION
NFPA 253–CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS, 2019 EDITION
NFPA 2001–CLEAN AGENT FIRE EXTINGUISHING SYSTEMS, 2018 EDITION

4. VERIFYING EXISTING CONDITIONS
BEFORE SUBMITTING BID, BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING SITE. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER. BY THE ACT OF SUBMITTING A BID PROPOSAL FOR THE WORK, THE CONTRACTOR SHALL BE DEEMED TO HAVE MADE SUCH STUDY AND EXAMINATION AND TO ACCEPT ALL CONDITIONS PRESENT AT THE SITE. NO REQUEST FOR ADDITIONAL PAYMENT WILL BE CONSIDERED AS VALID, DUE TO FAILURE TO ALLOW FOR CONDITIONS WHICH MAY EXIST.

5. COORDINATION
COORDINATE ALL WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTION, DEVICES, RACEWAYS, WIRING, LIGHT FIXTURES, CONTROLS, HVAC SYSTEM CONTROLS/WIRING/DEVICES/CONDUITS, ETC. REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.

ELECTRICAL EQUIPMENT LOCATIONS INDICATED ARE SHOWN DIAGRAMMATICALLY, EXACT LOCATION SHALL BE VERIFIED.

6. SERVICE CONTINUITY
UNINTERRUPTED EXISTING ELECTRICAL POWER SHALL BE MAINTAINED TO OTHER TRADES FOR TEMPORARY POWER AREAS OF THE SITE DURING CONSTRUCTION. PROVIDE ANY TEMPORARY SERVICES AS MAY BE REQUIRED. IDENTIFY AT BID TIME, ALL WORK TO BE DONE ON PREMIUM TIME AND THE TOTAL OVERTIME MAN–HOURS REQUIRED FOR COMPLETION.

7. AS BUILT
PROVIDE RECORD DRAWINGS TO THE OWNER WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT. RECORD DRAWINGS SHALL BE SIGNED AND DATED BY CONTRACTOR PRIOR TO RELEASE OF FINAL RETENTION OF ALL MONIES.

MARK PROJECT RECORD DOCUMENTS DAILY TO INDICATE ALL CHANGES MADE IN THE FIELD.
A.) IN ADDITION TO GENERAL REQUIREMENTS OF PROJECT RECORD DRAWINGS, INDICATE ON DRAWINGS, CHANGES OF EQUIPMENT LOCATIONS AND RATINGS, TRIP SIZES, AND SETTINGS ON CIRCUIT BREAKERS, ALTERATIONS IN RACEWAY RUNS AND SIZES, CHANGES IN WIRE SIZES, CIRCUIT DESIGNATIONS, INSTALLATION DETAILS, ONE–LINE DIAGRAMS, CONTROL DIAGRAMS AND SCHEDULES.

USE GREEN TO INDICATE DELETIONS AND RED TO INDICATE ADDITIONS.
A.) USE THE SAME SYMBOLS AND FOLLOW THE SAME DRAFTING PROCEDURES USED ON THE CONTRACT DRAWINGS.

LOCATE UNDERGROUND CONDUIT STUBBED–OUT FOR FUTURE USE, UNDERGROUND FEEDER CONDUITS, AND FEEDER PULL BOX LOCATIONS USING BUILDING LINES BY INDICATING ON THE PROJECT RECORD DRAWINGS.

AT THE COMPLETION OF UNDERGROUND CONDUIT INSTALLATION PROVIDE UNDERGROUND CONDUIT RECORD DOCUMENTS TO OWNER'S REPRESENTATIVE.

TWO COPIES, IN BINDER FORM, OF ALL TEST RESULTS AS REQUIRED BY THESE DOCUMENTS.

TWO COPIES OF LOCAL AND/OR STATE CODE ENFORCING AUTHORITIES FINAL INSPECTION CERTIFICATES.

FIRE ALARM SYSTEM RECORDS AND TESTING REPORTS AS OUTLINED IN NFPA 72, CHAPTER 10.

TWO COPIES, IN BINDER FORM, OF ELECTRICAL EQUIPMENT CUT SHEETS, MANUFACTURER'S INSTALLATION INSTRUCTIONS, WARRANTY CERTIFICATES, AND PRODUCT LITERATURE FOR ALL PRODUCTS UTILIZED ON PROJECT.

8. GUARANTEE
CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL LABOR AND MATERIALS ON ALL WORK AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR.

9. SHOP DRAWINGS
SUBMIT SHOP DRAWINGS AND MATERIAL LIST FOR REVIEW PRIOR TO COMMENCING ANY WORK. ALL EQUIPMENT TO BEAR U.L. LABEL OR THAT OF ANOTHER ACCEPTABLE TESTING LABORATORY. SHOP DRAWINGS MUST BE STAMPED BY THE CONTRACTOR FOR CONFORMANCE PRIOR TO SUBMITTAL.

SUBMIT SIX SETS OF SHOP DRAWINGS FOR REVIEW PRIOR TO PURCHASING ALL BREAKER MOUNTING HARDWARE, DISCONNECT SWITCHES, FUSES, CONTROLLERS, LIGHTING FIXTURES, LIGHT SWITCHES, RECEPTACLES, ETC.

10. CONTRACTOR BID
CONTRACTOR'S BID SHALL BE BASED ON ALL WORK SHOWN ON THE PLANS AND AS SPECIFIED. IF CONTRACTOR PROPOSES TO SUBSTITUTE FOR EQUIPMENT SPECIFIED, HE SHALL SUBMIT HIS REQUEST FOR CONSIDERATION OF THE OWNER AND ENGINEER PRIOR TO BID IN WRITING. ALL SUBSTITUTIONS MUST BE REVIEWED BY THE ENGINEER IN WRITING. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, AND THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ANY CHARGES RESULTING FROM HIS PROPOSED SUBSTITUTIONS WHICH AFFECT OTHER PARTS OF HIS OWN WORK, THE OWNER, ENGINEER OF RECORD OR THE WORK OF OTHER CONTRACTORS.

B. MATERIAL AND INSTALLATION
ALL WORK AND MATERIAL SHALL CONFORM TO THE LATEST RULES OF THE GOVERNING ELECTRICAL CODE AND INSTALLATION SHALL BE OF THE LATEST INDUSTRY STANDARDS OF WORKMANSHIP.

ALL MATERIALS SHALL BE NEW AND LISTED BY UNDERWRITERS LABORATORY (U.L.).

1. CONDUITS
CONDUIT SHALL BE EMT, PVC, IMC, RIGID OR FLEXIBLE STEEL TYPE. CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH UL–1. A GROUND WIRE IS REQUIRED IN ALL FLEXIBLE CONDUIT AND UNDERGROUND CONDUIT. BUSHINGS SHALL BE INSTALLED ON ALL COMMUNICATION, TELEPHONE & SPEAKER CONDUITS. PROVIDE 3/16" NYLON PULL STRING IN ALL EMPTY CONDUITS. NO MC, BX OR AC90 SHALL BE PERMITTED.

2. SWITCHES AND RECEPTACLES
PROVIDE 20AMP NEMA RATED SWITCHES AND RECEPTACLES OF SPECIFICATION GRADE. ALL SWITCHES SHALL BE RATED FOR 120 AND/OR 277 VOLT AND RECEPTACLES SHALL BE NEMA 5–20R.

3. FEEDERS AND BRANCH CIRCUITS IDENTIFICATION
IDENTIFY FEEDERS WITH THE CORRESPONDING CIRCUIT DESIGNATION AT THE OVER–CURRENT DEVICE, LOAD END, AND IN PULL BOXES WITH E–Z CODE OR OTHER APPROVED WIRE MARKER.

IDENTIFY BRANCH CIRCUITS WITH I.D. MARKERS, THE CORRESPONDING CIRCUIT DESIGNATION AT THE OVER–CURRENT DEVICE, AT ALL SPLICES, IN JUNCTION BOXES, AND IN OUTLETS. USE PLASTIC COATED SELF–STICKING MARKERS SUCH AS THOMAS & BETTS E–Z CODE FOR IDENTIFICATION OF CONDUCTORS.

IDENTIFY SIGNAL & COMMUNICATION CABLES AT TERMINAL AND OUTLET.

4. CONDUCTORS
DELIVER ALL CONDUCTORS TO THE JOB SITE IN ORIGINAL UNBROKEN CARTON OR REEL, PROPERLY TAGGED WITH U.L. LABEL, SIZE, TYPE, MANUFACTURER, TRADE NAME AND THE DATE OF MANUFACTURE. (MUST BE MANUFACTURED WITHIN 6 MONTHS)

PROVIDE COPPER CONDUCTORS #12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. PROVIDE STRANDED COPPER CONDUCTORS FOR ALL WIRING. USE CONDUCTORS WITH THHN/THWN 600 VOLTS INSULATION, UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRE TERMINATORS, STRESS CONES, COMPRESSION PIN ADAPTERS, LUGS, WIRE NUTS, ETC. AS REQUIRED TO TERMINATE ANY AND ALL CONDUCTORS.

5. PANELBOARDS (BID SQUARE D)
DISTRIBUTION AND LIGHTING PANELBOARDS WITHIN PROJECT AREA SHALL BE OF THE COPPER BUS THREE PHASE, FOUR WIRE DISTRIBUTED PHASING TYPE. CIRCUITING SHALL BE ARRANGED TO PROVIDE, AS NEARLY AS POSSIBLE, AN EVENLY BALANCED LOAD ON ALL PHASES. PANELBOARDS SHALL BE BOLT–ON CIRCUIT BREAKER TYPE. AVAILABLE FAULT CURRENT IS STATED ON PANELBOARD SCHEDULE. PROVIDE PANEL IDENTIFICATION NAMEPLATE (ENGRAVED ON–ADHESIVE 1/2" MINIMUM LETTERS) AND TYPEWRITTEN LIST OF CIRCUITS IN THE DIRECTORY FRAME.

CEC 110.34(C)

CONTRACTOR SHALL PROVIDE PERMANENT SIGNAGE AT ALL HIGH VOLTAGE ENCLOSURES, FENCING, ROOMS, VAULTS, ETC. PER CEC 110.34(C). SIGNAGE SHALL READ "DANGER–HIGH VOLTAGE–KEEP OUT"

CEC 110.16

ALL SWITCHBOARDS & PANELBOARDS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS, PER CEC 110.16 THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.

C. DEMOLITION
NOTIFY THE OWNER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, AND WHICH IS NOT INDICATED ON THE PLANS.

1. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGEABLE SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER, AND NEATLY PILE OR STORE THEM AND PROTECT FROM DAMAGE. REMOVE FROM PREMISES AND DISPOSE OF ALL MATERIALS CONSIDERED BY THE OWNER TO BE SCRAP.

2. ALL DEVICES, CIRCUITS CONDUCTORS, FEEDERS ETC., WHEN NOTED TO BE REMOVED, SHALL BE REMOVED TO THE LAST ACTIVE DEVICE. ALL OVER–CURRENT PROTECTION AND DISCONNECT DEVICES NO LONGER UTILIZED BUT REMAINING AS LAST ACTIVE DEVICE SHALL BE LABELED AS 'SPARE'. COORDINATE ALL OUTAGES WITH OWNERS REPRESENTATIVE.

D. EXECUTION
CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT UTILITY LINES AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE CONFINES AS MUCH AS POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.

1. EQUIPMENT, MATERIALS AND SUPPLIES REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.

2. DO ALL DRILLING, CUTTING, CHANNELING AND PATCHING REQUIRED TO INSTALL ELECTRICAL WORK AS INDICATED OR HEREIN SPECIFIED. ALL HOLES, CURBS, ETC., IN FLOORS, CEILINGS AND WALLS SHALL BE PATCHED, UNLESS INDICATED OTHERWISE. PAINT ALL NEW ELECTRICAL RACEWAYS, CABINETS, ENCLOSURES AND FITTINGS PENETRATING INTO FIRE RATED ENVELOPES, SPACES, ETC.

3. ALL CONDUIT RUNS SHALL BE CONCEALED, UNLESS SHOWN OTHERWISE. PROVIDE A PULL WIRE IN ALL EMPTY CONDUITS.

4. EXISTING CONDITION SHOWN IS FROM AVAILABLE RECORD DRAWINGS AND VISUAL FIELD SURVEY AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITION AT SITE.

5. ALL WORK SHOWN IS NEW UNLESS SPECIALLY INDICATED AS EXISTING (X). ALL ELECTRICAL EQUIPMENT MOUNTING AND ANCHORAGE MUST CONFORM WITH LOCAL AND STATE SEISMIC CODES.

E. GROUNDING & BONDING
FURNISH AND INSTALL COMPLETE BONDING AND GROUNDING SYSTEM AS REQUIRED BY CODES. CONTINUITY OF GROUNDING SHALL BE MAINTAINED MECHANICALLY AND ELECTRICALLY THROUGHOUT THE SYSTEM. A GREEN GROUNDING CODE SIZED CONDUCTOR SHALL BE CARRIED IN ALL CONDUITS.

F. INSTALLATION
IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR ALL THE EQUIPMENT DESCRIBED OR SHOWN AS BEING IN THIS CONTRACT. TOWARD THIS END FURNISH ALL LABOR AND TOOLS NECESSARY AND FURNISH AND INSTALL ALL APPARATUS, MATERIALS AND EQUIPMENT IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, COUPLINGS, HANGERS, BRACKETS, CLAMPS, BOXES, CONNECTORS AND HARDWARE. REFER ALSO TO WRITTEN SPECIFICATIONS FOR GENERAL, MECHANICAL AND ELECTRICAL SECTIONS.

1. PROCURE ALL PERMITS FROM LEGALLY CONSTITUTED AUTHORITIES, ARRANGE FOR ALL INSPECTIONS AND PAY ALL COSTS FOR FEES AND TESTS IN CONNECTION THEREWITH. COMPLY WITH CODES: NOTHING IN THESE PLANS AUTHORIZES DEVIATION FROM APPLICABLE CODES.

2. DETERMINE EXACT ROUTING OF CONCEALED FEEDERS AND BRANCH HOMERUNS IN COOPERATION WITH OTHER TRADES TO SIMPLIFY INSTALLATION WHEREVER POSSIBLE BUT SUBJECT TO APPROVAL OF ARCHITECT FOR VISUAL AND STRUCTURAL REASONS.

3. PROVIDE A CODE APPROVED DISCONNECT SWITCH OR BREAKER WITHIN SIGHT OF EVERY HVAC UNIT, MOTOR, AND FEED MOTORS NOT EQUIPPED WITH "BUILT IN" PROTECTION THROUGH A MAGNETIC OR MANUAL STARTER WITH OVERLOAD HEATERS SIZED TO COMPLY WITH MOTOR MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE CODES.

4. FOR CONNECTIONS TO EXHAUST FANS, PUMPS, COMPRESSORS, SPACE HEATERS, WATER HEATERS, AQUASTATS, SOLENOID VALVES AND OTHER MECHANICAL EQUIPMENT AND FOR CONDUITS AND WIRE REQUIRED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS REFER TO MECHANICAL PLANS AND DETERMINE EXACT LOCATIONS UNDER DIRECTION OF HEATING AND VENTILATING CONTRACTOR.

5. DO NOT RUN ANY CONDUIT IN SLAB IF ITS OUTSIDE DIAMETER EXCEEDS 1/3 THE THICKNESS OF THE SLAB. LOCATE CONDUITS WITHIN THE MIDDLE OF THE SLAB. WHERE CONDUITS ARE GROUPED IN PARALLEL RUNS, SPACE THEM 3" OR MORE APART. WHERE CONDUITS CROSS EACH OTHER, THICKEN SLAB PROPORTIONATELY OVER A HORIZONTAL AREA EQUAL TO TEN TIMES THE DIAMETER OF THE LARGEST CONDUIT. REFER ALSO TO DETAILS SHOWN.

6. SIZE OUTLET BOXES IN CONFORMITY WITH CODE FOR NUMBER AND GAUGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER. MINIMUM BOX SIZE SHALL BE 4" SQUARE BY 1–1/2" DEEP.

7. EXAMINE PLANS TO DISCERN CEILINGS WITH A FIRE RATING OF ONE HOUR OR MORE, PROVIDE A ONE HOUR FIRE–RATED ENCLOSURE OVER EACH LIGHT FIXTURE RECESSED THEREIN.

8. ALL ELECTRICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING AND REPAIRING. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. EXPOSED CONDUIT SHALL BE IN STRAIGHT LINES PARALLEL WITH, OR AT RIGHT ANGLES TO, COLUMN LINES OR BEAMS AND SEPARATED BY AT LEAST THREE (3) INCHES FROM WATER LINES WHENEVER THEY RUN LONG SIDE OR ACROSS SUCH LINES. CONDUIT SHALL NOT BE RUN BELOW CABLE TRAYS OR LIGHT FIXTURES WITHOUT SPECIFIC APPROVAL OF THE OWNERS REPRESENTATIVE. HANGERS SHALL BE FASTENED TO STEEL, CONCRETE OR MASONRY, BUT NOT TO PIPING. HANGERS AND SUPPORT SYSTEMS ARE AN INTEGRAL PART OF THE VISUAL ENVIRONMENT. ALL HANGERS AND SUPPORTS EXPOSED TO PUBLIC VIEW MUST BE SHOWN IN DETAIL ON PLANS SUBMITTED TO LANDLORD FOR APPROVAL OF APPEARANCE. ALL HANGERS MUST BE UNIFORMLY SPACED AND NEATLY INSTALLED WITH NO EXCESS MATERIAL BEYOND WHAT IS REQUIRED FOR THE SUPPORT FUNCTION. CONTRACTOR SHALL SELECT ACCESSORIES AND HARDWARE WITH A SMOOTH, NEAT FINISHED APPEARANCE AND PAINT ALL EXPOSED CONDUIT HANGERS TO MATCH THE ADJACENT FINISHES.

9. ALL WALL SWITCHES AND RECEPTACLES SHALL BE MOUNTED BETWEEN 18" AND 48" TO TOP OF OUTLET BOX PER ADA REQUIREMENTS UNLESS NOTED OTHERWISE.

10. ELECTRICAL SWITCHES. CONTROLS AND SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF THE ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES OR COOLING, HEATING AND VENTILATING EQUIPMENT, SHALL BE LOCATED NO MORE THAN 48 INCHES MEASURED FROM THE TOP OF OUTLET BOX NOR LESS THAN 15 INCHES MEASURED FROM THE BOTTOM OF THE OUTLET BOX TO THE LEVEL OF THE FINISH FLOOR OR WORKING PLATFORM.

11. ELECTRICAL RECEPTACLE OUTLETS. ELECTRICAL RECEPTACLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES OR LESS AND COMMUNICATION SYSTEM RECEPTACLES SHALL BE LOCATED NO MORE THAN 48 INCHES MEASURED FROM THE TOP OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING NOR LESS THAN 15 INCHES MEASURED FROM THE BOTTOM OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING TO THE LEVEL OF THE FINISH FLOOR OR WORKING PLATFORM.

12. CONTRACTOR SHALL EXAMINE PLANS AND VERIFY IN FIELD LOCATIONS OF ALL FIRE RATED WALLS, CEILINGS AND FLOORS. CONTRACTOR SHALL SEAL ALL ELECTRICAL SYSTEM PENETRATIONS THROUGH FIRE RATED WALLS, CEILINGS AND FLOORS WITH U.L. LISTED MATERIAL APPROVED BY THE AUTHORITY HAVING JURISDICTION.

13. SURFACE MOUNTED RACEWAY COMPLETENESS; CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. PRIOR TO INSTALLATION CONTRACTOR SHALL PERFORM A PREINSTALLATION SURFACE MOUNTED RACEWAY JOB WALK WITH OWNER & ARCHITECT FOR CONTRACTOR TO FIELD VERIFY EXACT ROUTING OF ANY & ALL SURFACE MOUNTED RACEWAYS.

G. FULLY AUTOMATIC HVAC UNIT FIRE ALARM SYSTEM
CONTRACTOR SHALL PROVIDE AND INSTALL A HVAC SHUT DOWN ADDRESSABLE FIRE ALARM RELAY SYSTEM.

A) PROVIDE ADDRESSABLE FIRE ALARM RELAYS FOR HVAC SHUT DOWN IN ALL REQUIRED AREAS

1. CONTRACTOR SHALL BE BASE BID SILENT KNIGHT, FIRE CONTROL INSTRUMENTS, ETC. AS REQUIRED TO INTERFACE WITH EXISTING CAMPUS FIRE ALARM SYSTEM. NEW FIRE ALARM DEVICE TIE–IN AND PROGRAMMING SHALL BE CAMPUS STANDARD CERTIFIED AND APPROVED CONTRACTOR. CONTRACTOR SHALL PROVIDE VENTURA SCHOOL DISTRICT REPRESENTATIVE A DISK WITH THE UPDATED PROGRAM INFORMATION.

2. ALL DEVICES AND EQUIPMENT SHALL BE CALIFORNIA STATE FIRE MARSHALL APPROVED.

3. CONTRACTOR SHALL WARRANTY ALL DEVICES AND SYSTEMS FOR A PERIOD OF TWO YEARS.

4. CONTRACTOR SHALL PROVIDE A SATISFACTORY SYSTEM TEST IN THE PRESENCE OF IOR.

5. CONTRACTOR SHALL PROVIDE ALL CONNECTION TO POWER PANELS, CONDUIT AND WIRE AND CONNECTIONS REQUIRED TO PROVIDE AN OPERATIONAL FIRE ALARM HVAC UNIT SHUT DOWN SYSTEM.

ELECTRICAL DRAWING SHEET INDEX

E100	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS, ETC.	E601	BUILDING D HVAC DEMO POWER PLAN
E101	GENERAL ELECTRICAL SPECIFICATIONS SHEET	E602	BUILDING D HVAC POWER PLAN
E200	SITE POWER PLAN	E701	BUILDING E HVAC DEMO POWER PLANS
E201	ELECTRICAL SINGLE LINE DIAGRAM	E702	BUILDING E HVAC POWER PLANS
E202	ELECTRICAL PANEL SCHEDULES		
		E801	BUILDING F HVAC DEMO POWER PLANS
E301	BUILDING A HVAC DEMO POWER PLAN	E802	BUILDING F HVAC POWER PLANS
E302	BUILDING A HVAC POWER PLANS		
		E901	BUILDING G HVAC DEMO POWER PLAN
E401	BUILDING B HVAC DEMO POWER PLAN	E902	BUILDING G HVAC POWER PLANS
E402	BUILDING B HVAC POWER PLANS		
		E910	ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT
E501	BUILDING C HVAC DEMO POWER PLANS	E911	ELECTRICAL DETAILS
E502	BUILDING C HVAC POWER PLANS	RECORD DWG	E7.03 FIRE ALARM DIAGRAMS AND CALCULATIONS
E503	BUILDING C HVAC ROOF POWER PLAN	E913	NEW FIRE ALARM SYSTEM RISER
		E914	FIRE ALARM SYSTEM INFORMATION SHEET

ELECTRICAL SYMBOLS

POWER

- SINGLE RECEPTACLE, WALL MOUNTED @ +18"AFF, NEMA 5–20R U.O.N.
- DUPLEX RECEPTACLE, WALL MOUNTED @ +18"AFF, NEMA 5–20R U.O.N. (GFI DENOTES GROUND FAULT RECEPTACLE)
- DOUBLE DUPLEX RECEPTACLE, NEMA 5–20R, WALL MOUNTED @ +18"AFF
- DOUBLE DUPLEX RECEPTACLE, NEMA 5–20R, WALL MOUNTED @ +18"AFF QUAD RECEPTACLE WITH ONE DUPLEX RECEPTACLE CONTROLLED BY TITLE 24 REQUIRED OCCUPANCY SENSOR.
- DUPLEX RECEPTACLE, WALL MOUNTED @ +18" NEMA 5–20R U.O.N. TOP RECEPTACLE SWITCHED
- CEILING MOUNTED DUPLEX RECEPTACLE, 5–20R
- SPECIAL OUTLET, TYPE AS REQUIRED BY EQUIPMENT.
- JUNCTION BOX (CEILING MTD.) SIZE PER TABLE AND CEC ARTICLE 314
- JUNCTION BOX (WALL MTD.) SIZE PER TABLE AND CEC ARTICLE 314
- PB PULLBOX SIZE AND RATING PER CEC
- THERMOSTAT
- BRANCH CIRCUIT PANELBOARD – 240/120V, 1ø, 3W OR 3ø, 3W, 240VAC OR 120/208VAC, 3ø, 4W. OR 277/480 VAC 3ø, 4W.

SWITCHES

- $ SINGLE–POLE SWITCH MOUNTED @ +42" AFF
- $2 DOUBLE–POLE SWITCH MOUNTED @ +42" AFF
- $3 3–WAY SWITCH @ +42" AFF
- $a,b,c,d CIRCUIT SWITCH LEGS / WALL SWITCHES
- $M MOTOR RATED SWITCH
- $K SINGLE–POLE SWITCH KEYED SWITCH
- $O OCCUPANCY SENSOR SWITCH

CIRCUIT BREAKERS & FUSES

- 60AS 35AF 3P DISCONNECT SWITCH, 60AMP SWITCH, 35 AMP FUSE, 3 POLE W/ OVERCURRENT PROTECTION U.O.N. – HEAVY DUTY WITH LOCK–ON HARDWARE
- COMBINATION STARTER/VFD DISCONNECT SWITCH SIZED PER PLAN
- M 100A UTILITY METER (OR AS NOTED)
- 3P 100AS 60AF FUSED DISCONNECT SWITCH 100AMP SWITCH RATING WITH 60 AMP FUSES, 3 POLE
- 200AF 150AT 3P MOLDED CASE CIRCUIT BREAKER 200 AMP FRAME, 150 AMP TRIP RATING, 3 POLE
- SEL751A SCHWEITZER RELAY MODEL #751A
- STRESS CONE OR MODULAR ELBOW HIGH VOLTAGE CABLE CONNECTION
- 52M MEDIUM VOLTAGE DRAWOUT VACUUM CIRCUIT BREAKER

ANNOTATIONS & CALLOUTS

- ① OR 1 SEE KEY NOTE #1 AS INDICATED ON DRAWING
- REVISION CLOUD WITH DELTA
- 1 / E4.0 INDICATES DETAIL NUMBER / SHEET NUMBER TO FIND DETAIL
- INDICATES LIGHTING FIXTURE TAG NUMBER (FOUND ON LIGHTING FIXTURE SCHEDULE) / NUMBER OF LIGHTING FIXTURES IN AREA
- INDICATES MECHANICAL/PLUMBING EQUIPMENT OR DEVICE (FOUND ON ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT OR ON MECHANICAL PLANS) / MECHANICAL/PLUMBING TAG NUMBER. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT.
- BREAK LINE INDICATES WORK EXTENDED BEYOND LIMITS SHOWN ON DRAWING

CONDUIT & WIRING SYMBOLS

- CONDUIT RUN CONCEALED ABOVE CEILING OR IN WALLS,
- T 1"C.O. TELEPHONE CONDUIT. ARROW DENOTES HOME RUN TO TELEPHONE BACKBOARD.
- CONDUIT RUN CONCEALED BELOW FLOOR OR UNDERGROUND
- FLEXIBLE CONDUIT (WITH GROUND CONDUCTOR, PROVIDE LIQUID TIGHT CONDUIT IN ALL EXPOSED AREAS)
- CONDUIT STUB UP, CAP AND IDENTIFY
- CONDUIT TURNS UP
- CONDUIT TURNS DOWN
- CONDUIT FITTING SEALED WITH APPROVED COMPOUND FOR ENVIRONMENT SEPARATION.
- #10 HASH MARKS INDICATE QUANTITY OF #12 CONDUCTORS. NO HASH MARKS INDICATE (2)#12AWG. (PROVIDE GROUND CONDUCTOR IN ALL CONDUITS.) WHERE NO NUMBER IS INDICATED, THE CONDUCTORS ARE 2#12AWG & 1#12 EQUIPMENT GROUND CONDUCTOR. CONDUIT SIZE IS AS REQUIRED BY ELECTRICAL CODE. (3/4" CONDUIT MINIMUM) (1" CONDUIT MINIMUM UNDERGROUND)
- 2LA 1–3–5,7 INDICATES A HOMERUN TO PNL 2LA, CKTS 1–3–5 WITH SHARED NEUTRAL & CKT 7 WITH DEDICATED NEUTRAL.
- 3/4"C–2#12 & 1#12 GND
- 3/4"C–3#12 & 1#12 GND
- 3/4"C–4#12 & 1#12 GND
- 3/4"C–5#12 & 1#12 GND
- 3/4"C–6#12 & 1#12 GND
- #10 3/4"C–2#10 & 1#10 GND
- #10 3/4"C–3#10 & 1#10 GND
- #10 3/4"C–4#10 & 1#10 GND
- #10 3/4"C–5#10 & 1#10 GND
- #10 3/4"C–6#10 & 1#10 GND

HOMERUNS WITH A SHARED NEUTRAL REQUIRE A MULTIPOLE CIRCUIT BREAKER

1" CONDUIT MINIMUM UNDERGROUND

HOMERUNS WITH A SHARED NEUTRAL REQUIRE A MULTIPOLE CIRCUIT BREAKER

FIRE ALARM

- A ADDRESSABLE HVAC SHUT DOWN RELAY
- CO MULTI–CRETERIA FIRE \ CO DETECTOR

CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR ALL HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC. AS REQUIRED WHERE SHOWN ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M–002 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.

CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK–ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN–USE LOCKABLE #MX3200 OR EQUAL.

CONTRACTOR SHALL PROVIDE 2 STRAP CONDUIT SUPPORTS FOR EXTERIOR SURFACE MOUNTED APPLICATIONS AND PAINT CONDUIT TO MATCH SURROUNDING AREAS. INTERIOR AREAS CONTRACTOR SHALL RUN ALL BRANCH CIRCUIT WIRING ABOVE T–BAR CEILING, PROVIDE ALL SUPPORTS, NEW CEILING WIRES, CADDY CLIPS, ETC. AS REQUIRED FOR A COMPLETE RACEWAY SUPPORT SYSTEM. PROVIDE WIREMOLD 2300 RACEWAY IN INTERIOR AREAS WHERE RACEWAY IS EXPOSED.

CONTRACTOR SHALL JOB WALK PRIOR TO BID AND FIELD VERIFY EXISTING BRANCH CIRCUIT WIRING SYSTEMS, HVAC CONTROLS SYSTEMS, COMMUNICATION SYSTEMS, FIRE ALARM SYSTEMS, SWITCHES, RECEPTACLES, MISCELLANEOUS DEVICES, RACEWAYS, SUPPORTS, ETC. IN PROJECT AREAS THAT ARE TO BE PROTECTED IN PLACE.

CONTRACTOR SHALL UPON REVIEWING COMPLETE SET OF CONSTRUCTION DOCUMENTS AND A JOB WALK FIELD VERIFICATION SHALL INCORPORATE COSTS FOR RELOCATION AND REROUTING OF EXISTING ELECTRICAL SYSTEMS, COMMUNICATION SYSTEMS, FIRE ALARM SYSTEMS, CLOCK\BELL SYSTEMS, AND MISCELLANEOUS SYSTEMS, ETC. NOT REQUIRED TO BE DEMOLISHED AND SHALL ACCOUNT FOR RELOCATION & REROUTING COSTS IN BID PROPOSAL.

EXISTING ELECTRICAL SERVICES HAS BEEN INVESTIGATED AND FOUND TO HAVE ADEQUATE CAPACITY FOR THE PROPOSED LOAD ADDITION SHOW ON THESE PLANS.

ELECTRICAL SYSTEM ANCHORAGE

ALL ELECTRICAL EQUIPMENT SHALL BE BRACED OR SEISMIC ANCHORED BY THE CONTRACTOR TO RESIST SEISMIC FORCES ACTING IN ANY DIRECTION. PROVIDE COMPLETE SEISMIC ANCHORAGE AND BRACING FOR SUPPORT OF ELECTRICAL RACEWAYS, CONDUITS, CABLE TRAYS, ELECTRICAL EQUIPMENT ETC. IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE WITH CALIFORNIA AMENDMENTS.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
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MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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SHEET TITLE GENERAL NOTES, ABBREVIATIONS, & SYMBOLS, ETC.

SHEET
E100

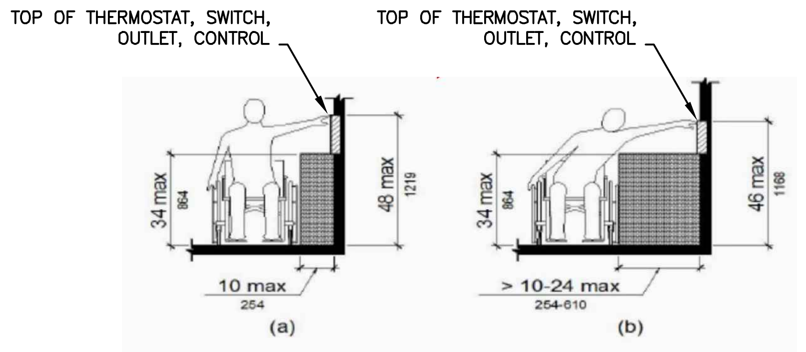


FIGURE 11B-308.3.2
OBSTRUCTED HIGH SIDE REACH

MOUNTING HEIGHT OVER OBSTRUCTION

SCALE: NONE

CALIFORNIA BUILDING CODE NOTES:

CBC 11B–308.1.2 – ALL WORK FOR THIS PERMIT SHALL COMPLY WITH CBC ACCESSIBILITY STANDARDS.

CBC 11B–308.2 – FORWARD REACH OBSTRUCTED – ELECTRICAL RECEPTACLE OUTLETS SHALL BE LOCATED NO MORE THAN 44 INCHES MEASURED FROM THE TOP OF THE RECEPTACLE OUTLET BOX WHEN OBSTRUCTION IS OVER 20" AND DOES NOT EXCEED 25". WHEN THE DEPTH IS LESS THAN 20" HEIGHT CAN INCREASED TO 48". (DESK COUNTERS)

CBC 11B–308.3 – SIDE REACH OBSTRUCTED – ELECTRICAL RECEPTACLE OUTLETS SHALL BE LOCATED NO MORE THAN 46 INCHES MEASURED FROM THE TOP OF THE RECEPTACLE OUTLET BOX WHEN THE OBSTRUCTION IS OVER 10" AND DOES NOT EXCEED 24". WHEN THE DEPTH IS LESS THAN 10" HIEGHT CAN BE INCREASED TO 48"

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7–16 CHAPTERS 13,26,30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS, OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.

B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FOR A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENT PRESCRIBED IN ASCE 7–16 SECTION 13.3 AS DEFINED IN ASCE 7–16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENT TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAi OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP ☐ MD ☐ PP ☐ E ☒ – OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP ☐ MD ☐ PP ☐ E ☐ – OPTION 2: SHALL COMPLY WITH HCAi PREAPPROVAL (OPM#) #__________________.

ALL ELECTRICAL EQUIPMENT ON THIS PROJECT IS DISCRETE. ELECTRICAL COMPONENTS AND EQUIPMENT THAT ARE ATTACHED TO THE BUILDING AND ANCHORAGE IS DETAILED ON THE PLANS. ALL ELECTRICAL EQUIPMENT AND IT'S COMPONENT WEIGHTS ARE 400LB. OR LESS. FURTHERMORE, THE CENTER OF MASS IS LOCATED 4FT. OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS THE COMPONENT. FLEXIBLE CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENT CONDUIT WHERE REQUIRED.

GENERAL ELECTRICAL SPECIFICATIONS SHEET

1.0 GENERAL

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A COMPLETE AND OPERABLE ELECTRICAL SYSTEM AS SHOWN ON THE DRAWING(S). THE COMPLETE INSTALLATION SHALL MEET REQUIREMENTS OF THE LATEST NATIONAL ELECTRICAL CODE AND ALL LOCALLY ADOPTED AMENDMENTS, INCLUDING BUT NOT NECESSARILY LIMITED TO THE FOLLOWING:

CALIFORNIA ELECTRICAL CODE – LATEST EDITION

1. CALIFORNIA ADMINISTRATIVE CODE, TITLE 24
2. CALIFORNIA ADMINISTRATIVE CODE, TITLE 19, FIRE CODE
3. UNDERWRITERS LABORATORY
4. AMERICAN NATIONAL STANDARD INSTITUTE
5. NEMA (NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION)
6. ALL OTHER APPLICABLE STATE, LOCAL LAWS AND REGULATIONS 7.

WHERE THESE SPECIFICATIONS CALL FOR A HIGHER STANDARD THAN THE ABOVE–MENTIONED RULES, THE SPECIFICATIONS SHALL GOVERN.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ALL WORK IN ACCORDANCE WITH STAMPED PLANS APPROVED BY THE ELECTRICAL DIVISION OF THE DEPARTMENT OF BUILDING AND SAFETY.

PRIOR TO CONTRACTOR SUBMITTING HIS BID, HE SHALL VISIT THE JOB SITE TO BECOME COMPLETELY FAMILIAR WITH ALL ASPECTS OF THE NEW CONSTRUCTION AND ALL REQUIREMENTS THAT MAY BE IMPOSED BY THE OWNER. FAILURE TO DO THIS WILL RELIEVE OWNER FROM ANY FINANCIAL OBLIGATION FOR EXTRA WORK OR COST INCURRED BY THE CONTRACTOR. CONTRACTOR TO TAKE NOTE OF ALLOWABLE WORK HOURS, ON–SITE STORAGE FACILITIES, AND AVAILABLE PARKING AND INCLUDE THIS IN HIS BID.

ALL PERMITS SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.

ACCURATE RECORD DRAWINGS SHALL BE MAINTAINED AND PRESENTED TO THE OWNER AND THE ELECTRICAL ENGINEER AT THE TIME OF OCCUPANCY PERMIT.

THE CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL HIS WORK FOR ONE YEAR AFTER ACCEPTANCE AND FURNISH ALL MANUFACTURER WARRANTIES FOR THE EQUIPMENT HE FURNISHES.

THE CONTRACTOR SHALL INSTALL ALL ELECTRIC EQUIPMENT IN A NEAT AND WORKMANLIKE MANNER. ELECTRICAL EQUIPMENT SHALL BE FIRMLY SECURED TO THE SURFACE ON WHICH IT IS MOUNTED.

THE ELECTRICAL CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF THE SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL WITHIN THIRTY (30) DAYS AFTER THE AWARD OF THE GENERAL CONTRACT. IF SUCH A SCHEDULE CANNOT BE MET, THE ELECTRICAL CONTRACTOR MAY REQUEST IN WRITING FOR AN EXTENSION OF TIME TO THE ARCHITECT. IF THE ELECTRICAL CONTRACTOR DOES NOT SUBMIT SHOP DRAWINGS IN THE PRESCRIBED TIME, THE ARCHITECT HAS THE RIGHT TO SELECT THE EQUIPMENT.

SHOP DRAWINGS SHALL BE SUBMITTED ON ALL MAJOR PIECES OF ELECTRICAL EQUIPMENT, INCLUDING SERVICE–ENTRANCE EQUIPMENT. LIGHTING FIXTURES, PANELBOARDS, SWITCHES, WIRING DEVICES AND PLATES, AND EQUIPMENT FOR MISCELLANEOUS SYSTEMS. EACH ITEM OF EQUIPMENT PROPOSED SHALL BE A STANDARD CATALOG PRODUCT OF AN ESTABLISHED MANUFACTURER. THE SHOP DRAWING SHALL GIVE COMPLETE INFORMATION ON THE PROPOSED EQUIPMENT. EACH ITEM OF THE SHOP DRAWINGS SHALL BE PROPERLY LABELED, INDICATING THE INTENDED SERVICE OF THE MATERIAL, THE JOB NAME AND ELECTRICAL CONTRACTOR'S NAME.

WHERE EQUIPMENT IS IDENTIFIED BY MANUFACTURER AND CATALOG NUMBER, IT SHALL BE CONSTRUED AS THE BASE OF REQUIREMENTS FOR QUALITY AND PERFORMANCE. WHERE MANUFACTURERS FOR EQUIPMENT ARE IDENTIFIED BY NAME, THE ELECTRICAL SUBCONTRACTOR MAY SUBMIT FOR APPROVAL, SIMILAR EQUIPMENT OF OTHER MANUFACTURERS AS SUBSTITUTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SUFFICIENT SUPPORTING DATA TO PERMIT EVALUATION OF THE PROPOSED SUBSTITUTE WITH RESPECT TO QUALITY, PERFORMANCE, SERVICEABILITY, AND WARRANTY. THE ENGINEER'S DECISION AS TO WHETHER THE SUBMITTED EQUIPMENT IS ACCEPTABLE SHALL BE FINAL AND BINDING.

ALL CHANGES NECESSARY TO ACCOMMODATE THE SUBSTITUTED EQUIPMENT SHALL BE MADE AT THE CONTRACTOR'S EXPENSE, AND SHALL BE AS APPROVED BY THE ENGINEER. DETAILED DRAWINGS INDICATING THE REQUIRED CHANGES SHALL BE SUBMITTED FOR APPROVAL AT THE TIME THE SUBSTITUTION IS REQUESTED.

AT COMPLETION OF WORK, THIS CONTRACTOR SHALL CLEAN UP AND REMOVE ALL DEBRIS AND MATERIALS NOT INSTALLED IN WORK, DISPOSE IN AN ENVIRONMENTALLY APPROVED MANNER, LEAVING PREMISES CLEAN.

ELECTRICAL CONTRACTOR SHALL PROVIDE A TEMPORARY CONSTRUCTION SERVICE IF REQUIRED FOR THIS PROJECT TO MAINTAIN ESSENTIAL SERVICES DURING CIRCUIT CUT–OVER PERIODS.

SECURE PERMISSION FROM THE OWNER BEFORE PERFORMING ANY CUTTING OR PATCHING WORK WHICH IS LIKELY TO AFFECT THE STRENGTH OF A STRUCTURAL MEMBER. ALL PENETRATIONS THROUGH CONCRETE CONSTRUCTION SHALL BE DONE BY THE MEANS DENOTED BY ARCHITECT.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL EQUIPMENT AND WIRING AS REQUIRED AND AS INDICATED ON THE ELECTRICAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS. SEE MECHANICAL DRAWINGS FOR EXACT EQUIPMENT LAYOUTS AND REQUIREMENTS INCLUDING SIZES, VOLTAGES, CONTROL WIRING, CONTROL DEVICES TO BE FURNISHED AND/OR INSTALLED, LOCATIONS AND OTHER REQUIREMENTS.

CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS AND ROUTING TO BE DETERMINED IN THE FIELD TO SUIT CONDITIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE AND OBTAIN APPROVAL FOR ALL NECESSARY ADJUSTMENTS IN CIRCUITING AS REQUIRED TO ACCOMMODATE THE RELOCATIONS OF EQUIPMENT AND/OR DEVICES WHICH ARE AFFECTED BY ANY APPROVED AUTHORIZED CHANGE. ALL CHANGES SHALL BE CLEARLY INDICATED ON THE RECORD (AS–BUILT) DRAWINGS.

ALL MATERIAL AND EQUIPMENT SHALL BE NEW, UL LISTED, APPROVED BY THE LOCAL JURISDICTION AND, UNLESS OTHERWISE NOTED, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. EQUIPMENT EXPOSED TO WEATHER SHALL BE UL LISTED WEATHERPROOF.

ALL MOTORS OR EQUIPMENT LOCATED OUT OF SIGHT OR MORE THAN 50 FEET FROM THE PANEL SHALL HAVE HORSEPOWER RATED DISCONNECTS INSTALLED AT THE MOTOR EQUIPMENT.

ALL REQUIRED POWER OUTAGES THAT ARE NECESSARY IN ORDER TO COMPLETE ANY PORTION OF THE WORK SHALL BE ENTIRELY AT THE OWNER'S CONVENIENCE AND AT A TIME DESIGNATED BY HIM AND BE FULLY COORDINATED WITH THE OWNER'S REPRESENTATIVE. A MINIMUM OF 48 HOURS OF ADVANCED NOTICE SHALL BE GIVEN TO THE OWNER OF TIME DESIRED. OWNER SHALL APPROVE TIME OF OUTAGE BEFORE THIS CONTRACTOR DISCONNECTS ANY CIRCUITS. CONTRACTOR SHALL FURNISH, INSTALL, AND REMOVE ANY TEMPORARY JUMPERS ETC. TO MAINTAIN ALL LOADS THAT THE OWNER DESIGNATES AS NOT BEING ABLE TO SHUT DOWN DURING CONSTRUCTION.

SHOULD ANY CONDITIONS EXIST THAT DIFFER FROM WHAT IS INDICATED ON THESE DRAWINGS THAT CAUSE DEVIATIONS IN THE WORK SHOWN, THE CONTRACTOR SHALL IN A TIMELY MANNER SO NOT TO IMPAIR THE CONSTRUCTION SCHEDULE OR SEQUENCE OF EVENTS, SUBMIT A WRITTEN REPORT OF THE CONDITIONS FOUND TO THE OWNER'S REPRESENTATIVE FOR APPROPRIATE DIRECTION ON HOW TO COMPLETE THE WORK IN QUESTION.

PRIOR TO START OF INSTALLATION THE CONTRACTOR SHALL COORDINATE THE FINAL LOCATION OF EACH LIGHT FIXTURE, SWITCH, DISCONNECT, RACEWAY, PANELBOARD, OUTLET, OCCUPANCY SENSOR, WIREMOLD, FIRE ALARM DEVICE, DATA PORT, SPEAKER, MISCELLANEOUS PROJECT DEVICE, ETC. WITH THE OWNER'S REPRESENTATIVE. THE OWNER RESERVES THE RIGHT TO RELOCATE ANY OUTLET OR DEVICE UP TO 8 FEET FROM THE LOCATION INDICATED ON THE PLANS AT NO ADDITIONAL COST.

ALL FEEDER LENGTHS INDICATED ON SINGLE LINE DIAGRAMS OR FEEDER SCHEDULE ARE FOR VOLTAGE DROP PURPOSES ONLY AND ARE NOT TO BE USED FOR MATERIAL TAKE–OFF OR BIDDING PURPOSES.

WHERE ACCESS PANELS FOR ACCOMMODATING ELECTRICAL WORK ARE LOCATED AND/OR SIZED ON THESE DRAWINGS, OR DRAWINGS PREPARED UNDER SEPARATE DIVISIONS OF THE WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RE–SIZE AND/OR PROVIDE SUITABLE ACCESS PANELS FOR THE CONDITIONS. WHERE INSUFFICIENT SPACE EXISTS TO ACCOMMODATE LARGER ACCESS PANELS, A SUITABLE ALTERNATIVE IS TO MOUNT THE ELECTRICAL COMPONENTS TO THE BACKSIDE OF THE HINGED DOOR WITH AN APPROPRIATELY SIZED AND CODE APPROVED FLEXIBLE FITTING, THUS ALLOWING ACCESS TO ELECTRICAL COMPONENTS FROM THE OCCUPIED SPACE IN LIEU OF THE ATTIC.

WHERE ELECTRICAL RACEWAYS ARE INSTALLED THROUGH 2 TO 4–HOUR RATED FLOORS OR WALLS, THE CONTRACTOR SHALL PROVIDE APPROPRIATE FITTINGS APPROVED BY ALL LOCAL AUTHORITIES FOR THE INTENDED PURPOSE AND APPLICATION. FITTINGS SHALL SEAL TIGHT THE INTERIOR AND EXTERIOR OF EACH RACEWAY PENETRATION TO PROHIBIT FIRE PASSING FROM ONE AREA TO ANOTHER. WHERE EMPTY CONDUITS ARE INSTALLED FOR FUTURE USE, THE CONTRACTOR SHALL PROPERLY SEAL THE RACEWAY TO COMPLY WITH THE PROVISIONS INDICATED ABOVE. THE ELECTRICAL CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW THE PROPOSED FITTINGS TO BE USED AND DETAILS REGARDING THE INSTALLATION METHODS PRIOR TO THEIR INSTALLATION. THE INSTALLATION SHALL NOT BE COMPLETED UNTIL FINAL APPROVAL HAS BEEN RECEIVED FROM THE ARCHITECT TO PROCEED.

AS A CONDITION FOR FURNISHING MATERIAL TO THIS PROJECT, THE MANUFACTURERS AND SUPPLIERS AGREE TO DEFEND, HOLD HARMLESS, AND TO INDEMNIFY OWNER, ARCHITECT, ELECTRICAL ENGINEER, AND ALL RELATED SUBSIDIARIES AGAINST ANY LIABILITY ARISING OUT OF PRODUCT FAILURE OR MANUFACTURING DEFECT OF THE EQUIPMENT THEY FURNISH.

2.0 DEMOLITION

THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OF THE NECESSARY DEMOLITION WORK REQUIRED TO ACCOMMODATE THE REMODELING WITHIN THE VARIOUS AREAS. RESTORE CONTINUITY OF ALL EXISTING CIRCUITING THAT IS TO REMAIN THAT BECOMES DISTURBED AS A RESULT OF THE NEW WORK. FURNISH ALL LABOR AND MATERIAL TO REROUTE CIRCUITRY TO REMAIN, CONCEAL FROM VIEW IN PUBLIC AREAS AND MAINTAIN ALL CODE REQUIRED CLEARANCES AND ACCESSIBILITY. FIELD VERIFY ALL CONDITIONS AND REQUIREMENTS PRIOR TO STARTING WORK. WHERE EXISTING CONDUITS BECOME EXPOSED AS A RESULT OF THE NEW WORK, CONTRACTOR SHALL REWORK AS REQUIRED TO SUIT CONDITIONS TO CONCEAL SUCH CONDUIT FROM VIEW IN ALL PUBLIC AND BACK OF HOUSE AREAS.

ALL WIRING WITHIN EXISTING OUTLETS ARE TO BE RE–IDENTIFIED WITH EASY–MARKERS TO REFLECT THE NEW CIRCUIT DESIGNATIONS WHERE REWORK OR EXISTING IS REQUIRED TO COMPLETE NEW WORK.

ALL EXISTING ELECTRICAL EQUIPMENT AND MATERIAL THAT IS REMOVED AS A PART OF THIS WORK SHALL BE DELIVERED TO OWNER AT A LOCATION ON THE PROPERTY THAT HE DESIGNATES.

WHERE EXISTING OUTLETS, AFFECTED BY THE NEW WORK ARE TO BE ABANDONED, REMOVE EXISTING OUTLET AND WIRING, CUT OFF AND PLUG EXISTING CONDUIT. WHERE THERE IS A POSSIBILITY TO REUSE A PORTION OF THE EXISTING CONDUIT SYSTEM, EXTEND EXISTING CONDUIT TO NEAREST ACCESSIBLE LOCATION AND PROVIDE JUNCTION BOX WITH SUITABLE COVER. COORDINATE EXTENT OF THIS WORK WITH OWNER'S REPRESENTATIVE.

3.0 WIRE AND CABLES

ALL WIRING SHALL BE COPPER, MINIMUM SIZE #12–AWG. USE THHN IN DRY LOCATIONS ONLY AND THWN IN WET LOCATIONS.

ALL FIXED ELECTRICAL APPLIANCES SHALL BE WIRED IN APPROVED WIRING ENCLOSURES.

ALL FINAL FLEX CONDUIT CONNECTIONS TO ANY EQUIPMENT SHALL INCLUDE SUFFICIENT SLACK IN FLEX TO MOVE WITH THE EQUIPMENT.

ALL CONDUCTORS SHALL BE IDENTIFIED FOR USE AND SYSTEM PER CEC ARTICLE 200. COLOR CODE SECONDARY SERVICE, FEEDER, AND BRANCH CIRCUIT CONDUCTORS WITH FACTORY APPLIED COLOR AS FOLLOWS:

208Y/120 VOLTS	PHASE	480Y/277 VOLTS
BLACK	A	BROWN
RED	B	ORANGE
BLUE	C	YELLOW
WHITE	NEUTRAL	GRAY
GREEN	GROUND	GREEN W/ YELLOW STRIPE

CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRE TERMINATORS, STRESS CONES, COMPRESSION PIN ADAPTERS, LUGS, WIRE NUTS, ETC. AS REQUIRED TO TERMINATE ANY AND ALL CONDUCTORS.

4.0 CONDUIT

CONDUIT INSTALLED WITHIN CONCEALED AREAS MAY BE EMT OR RIGID STEEL IN EXPOSED AREAS SUBJECT TO CONDUIT DAMAGE, ONLY GALVANIZED RIGID STEEL MAY BE USED. ALL CONDUIT IN FINISHED AREAS TO BE CONCEALED

A MAXIMUM OF 4' OF CONDUIT AND WIRE SHALL BE SOLAR EXPOSED

ALL CONDUITS INSTALLED UNDERGROUND SHALL BE MINIMUM 1". UNDERGROUND CONDUITS SHALL BE PVC, SCHEDULE 40 ELECTRICAL CONDUIT FOR 0–600 VOLT SYSTEMS, SCHEDULE 80 ELECTRICAL CONDUIT FOR 600 TO 25KV SYSTEMS, AS MANUFACTURED BY CARLON OR EQUAL UNLESS NOTED OTHERWISE.

CONDUITS SHOWN ON THE DRAWINGS HAVE BEEN SIZED BASED ON METALLIC RACEWAYS UNLESS NOTED. ELECTRICAL CONTRACTOR MAY OPT TO USE SCHEDULE 40 PVC WHERE PERMITTED BY CODE AND THE OWNER. IF PVC IS USED, ELECTRICAL CONTRACTOR SHALL SIZE ALL SUCH CONDUITS AS REQUIRED TO INCLUDE GROUND CONDUCTOR, AND SHALL SIZE GROUND WIRE PER CODE. PVC RACEWAYS SHALL NOT BE INSTALLED ABOVE GROUND. ALL FLEX CONDUITS SHALL INCLUDE A GROUNDING CONDUCTOR SIZED PER THE NEC.

ALL PVC UNDERGROUND CONDUITS SHALL UTILIZE COATED OR WRAPPED RIGID STEEL ELBOWS AND RISERS WHEN RISING ABOVE GRADE, EXCEPT IN AREAS NOT SUBJECT TO MECHANICAL DAMAGE AND WITH PRIOR APPROVAL FROM THE ELECTRICAL ENGINEER.

MAINTAIN A MINIMUM OF 6" CLEARANCE BETWEEN ALL CONDUIT SLEEVES. VERIFY WITH GENERAL CONTRACTOR.

THE ELECTRICAL CONTRACTOR SHALL PROVIDE EXPANSION/DEFLECTION FITTINGS FOR CONDUITS CROSSING EXPANSION JOINTS. FITTINGS SHALL BE SUITABLE FOR CONDITIONS TO BE ENCOUNTERED. VERIFY WITH OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WORK. SUBMIT SHOP DRAWINGS FOR REVIEW.

UNDERGROUND CONDUITS SHALL HAVE A MINIMUM 24" OF COVER.

5.0 OUTLET, PULL AND JUNCTION BOXES

JUNCTION BOXES AND OUTLET BOXES SHALL BE SIZED PER CODE, BUT IN NO CASE LESS THEN THE FOLLOWING: OUTLETS WITH 9 OR LESS #12 CONDUCTORS SHALL BE 4"/S X 2–1/2"/D AND OUTLETS WITH 10 THROUGH 18 CONDUCTORS SHALL BE 4–11/16"/S X 2–1/8"/D.

ALL JUNCTION BOXES SHALL CLEARLY INDICATE WITH PERMANENT BLACK MARKER, IN 1/2–INCH LETTERING THE CIRCUIT NUMBERS AND THE SOURCE OF POWER OF ALL CONDUCTORS CONTAINED WITHIN THAT JUNCTION BOX.

OUTLETS FOR THE ATTACHMENT OF THE FIXTURES TO BE PROVIDED WITH 3/8" MALLEABLE IRON FIXTURE STUDS AND BOX HANGERS WHERE REQUIRED.

TELEPHONE OUTLETS SHALL BE DOUBLE GANG BOX WITH SINGLE GANG 1–HOLE TELEPHONE COVER PLATE, UNLESS OTHERWISE NOTED ON DRAWINGS.

CABLE TELEVISION OUTLETS SHALL BE DOUBLE GANG BOX WITH SINGLE GANG 1–HOLE CATV COVER PLATE, UNLESS OTHERWISE NOTED ON DRAWINGS.

INTERIOR BOXES SHALL BE GALVANIZED STEEL, MANUFACTURERS: B & C METAL STAMPING, BRYANT, GENERAL ELECTRIC, LEVITON COMPANY, NORRIS STEEL CITY, CROUSE–HINDS, APPLETON, RACO, CARLON.

EXTERIOR BOXES SHALL BE "FS" TYPE BOXES WITH THREADED HUBS AS REQUIRED AND FULLY GASKETED UNLESS OTHERWISE NOTED.

6.0 PANELBOARDS AND SWITCHBOARDS

ALL SWITCHBOARDS AND PANELBOARDS SHALL BE CONSTRUCTED PER THE NATIONAL ELECTRICAL CODE AND ALL LOCALLY ADOPTED AMENDMENTS. WHERE REGULATIONS APPLY, CONSTRUCTION SHALL MEET REQUIREMENTS OF SERVING UTILITY.

ALL SWITCHBOARDS AND MOTOR CONTROL CENTERS SHALL HAVE WITHSTAND RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT WITH 42,000 AMP BEING THE MINIMUM. CONFIRM CONDITIONS WITH SERVING UTILITY. SUBMIT CERTIFICATION OF COMPLIANCE WITH SHOP DRAWINGS.

ALL OVERCURRENT DEVICES IN EQUIPMENT SHALL BE UL LISTED TO INTERRUPT THE AVAILABLE FAULT CURRENT.

ALL PANELBOARD SWITCHBOARDS SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL LOCALLY ADOPTED AMENDMENTS.

WALL–MOUNTED PANELS SHALL BE PROVIDED WITH TRIM AND DOOR CONSTRUCTED OF CODE GAUGE SHEET STEEL AND SHALL HAVE FACTORY FINISH. DOOR SHALL BE FITTED WITH HINGES, SPRING CATCH LATCH AND CYLINDER LOCK. PROVIDE 2 KEYS WITH EACH PANEL. PROVIDE DIRECTORY CARD HOLDER AND TYPEWRITTEN PANEL SCHEDULE. PANELBOARD SHALL BE SO CONSTRUCTED AS TO PROVIDE FOR ADJUSTABLE ALIGNMENT OF TRIM AND INTERIOR PANEL.

PROVIDE ENGRAVED NAMEPLATES IDENTIFYING SWITCHBOARDS AND PANELBOARDS. ALL EQUIPMENT NAMEPLATE IDENTIFICATIONS SHOWN ON THE DRAWINGS ARE FOR REFERENCE ONLY. PRIOR TO FABRICATING THE FINISHED NAMEPLATES, CONSULT WITH THE OWNER'S BUILDING ENGINEER FOR THE ACTUAL NOMENCLATURE TO BE USED.

PROVIDE PANELBOARDS WITH SEPARATE GROUND BAR.

UNLESS OTHERWISE INDICATED ON PLANS, PANEL SHALL BE INSTALLED WITH TOP OF CABINET AT 6'–6" A.F.F.

MANUFACTURERS SHALL BE SQUARE D OR EQUAL APPROVED BY ENGINEER PRIOR TO BID PROPOSAL.

WHERE LOADS ARE ADDED TO EXISTING PANELBOARDS, THE PANEL SCHEDULE SHALL BE UPDATED AND SHALL INDICATE THE LOCATION AND DESCRIPTION OF THE LOAD.

ALL LUG CONNECTIONS TO PANEL BUSSING, SWITCHES, AND BREAKERS TO BE SIZED TO ACCOMMODATE CONDUCTOR SIZES INDICATED ON THESE DRAWINGS. REDUCTION OF CIRCULAR MIL CAPACITY OF CONDUCTORS IS NOT PERMITTED. ALL LUGS SHALL BE RATED FOR 75° C.

ALL SWITCHBOARDS & PANELBOARDS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS, PER CEC 110.16 THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.

CONTRACTOR SHALL PROVIDE PERMANENT SIGNAGE AT ALL HIGH VOLTAGE ENCLOSURES, FENCING, ROOMS, VAULTS, ETC. PER CEC 110.34(C). SIGNAGE SHALL READ "DANGER–HIGH VOLTAGE–KEEP OUT"

7.0 CIRCUIT BREAKERS

ALL CIRCUIT BREAKERS RATED 1200 AMPS OR HIGHER SHALL BE PROVIDED WITH ARC ENERGY REDUCTION PER CEC REQUIREMENTS, BY ENERGY REDUCING MAINTENANCE SWITCHING WITH LOCAL STATUS INDICATOR, OR OTHER CEC APPROVED METHOD.

MOLDED CASE CIRCUIT BREAKERS SHALL BE OF THE QUICK–MAKE, QUICK–BREAK, TRIP–FREE, THERMAL MAGNETIC BOLT–ON TYPE WITH ON–OFF–TRIPPED POSITIONS.

CIRCUIT BREAKERS ABOVE 225 AMPERE TRIP RATING SHALL HAVE INTERCHANGEABLE TRIP ELEMENTS.

ALL BREAKERS SHALL BE CALIBRATED FOR OPERATION IN AN AMBIENT TEMPERATURE OF 40° C.

ALL MULTI–POLE BREAKERS SHALL BE SO DESIGNED THAT AN OVERLOAD IN ONE POLE AUTOMATICALLY CAUSES ALL POLES TO OPEN.

ALL PANELBOARD CIRCUIT BREAKERS USED FOR DIRECT SWITCHING OR LIGHTING CIRCUITS, SHALL BE SWITCH DUTY RATED.

ALL CIRCUIT BREAKERS SHALL HAVE A MINIMUM 10,000 AIC RATING FOR 250V PANELS AND 14,000 AIC RATING FOR 600V PANELS.

ALL MULTIWIRE BRANCH CIRCUIT HOMERUNS & WIRING WITH A SHARED NEUTRAL SHALL BE SUPPLIED WITH A MULTIPOLE CIRCUIT BREAKER PER CEC 210.4(B)

8.0 FUSES

ALL FUSES SHALL BE AS MANUFACTURED BY GOULD SHAMUT, LITTELFUSE, OR BUSSMANN MANUFACTURING CO.

9.0 WIRING DEVICES

SINGLE–POLE SWITCHES SHALL BE 20 AMPERES, 120/277 VOLT, AC, VERIFY FINISH COLOR WITH ARCHITECT, SIDE AND BACK WIRED, HUBBELL CAT. #HBL–1221–W EQUAL BY, G.E., PASS & SEYMOUR, OR LEVITON.

THREE–WAY SWITCHES SHALL BE 20 AMPERES, 120/277 VOLT, AC, VERIFY FINISH WITH ARCHITECT, SIDE AN D BACK WIRED, HUBBELL CAT. #HBL–1223–W OR EQUAL BY , G.E., PASS & SEYMOUR, OR LEVITON.

DIMMER SWITCHES SHALL BE SLIDE CONTROL 800W, 120 VOLT, AC, FOR INCANDESCENT LOADS OR AS INDICATED ON PLANS.

DUPLEX RECEPTACLES FOR 120 VOLT, SINGLE–PHASE SERVICE TO BE RATED 20 AMPERES, 125 VOLT, BACK AND SIDE WIRED, 2–WIRE (NEMA–5–20R) GROUNDING TYPE, VERIFY FINISH COLOR WITH ARCHITECT, HUBBELL CAT. #HBL5362W OR EQUAL BY PASS & SEYMOUR, G.E., OR LEVITON.

DOUBLE DUPLEX RECEPTACLES (4–PLEX): TO BE SAME AS DUPLEX RECEPTACLES. TWO DUPLEX RECEPTACLES IN 4" X 4" OUTLET BOX WITH ONE TWO–GANG FACEPLATE. LEVITON, PASS & SEYMOUR, G.E., OR HUBBELL.

RECEPTACLES THAT ARE LOCATED WITHIN, WAITING ROOMS, EXAM ROOMS, TREATMENT ROOMS, RESTROOMS, OR SPACES WHERE PATIENTS ARE PRESENT, SHALL BE LISTED TAMPER–RESISTANT AND SHALL EMPLOY A LISTED TAMPER–RESISTANT COVER WHICH WILL HAVE A GREEN DOT ON IT'S FACE, AND A "TR" ON THE TOP RIGHT OF THE RECEPTACLE PER CEC 517. HUBBELL #8300TRA OR EQUAL.

ALL DEVICE PLATES SHALL BE OF THE UNBREAKABLE PLASTIC TYPE, MANUFACTURED BY PASS & SEYMOUR, LUTRON, LEVITON G.E., OR HUBBELL AND OF VERIFY FINISH COLOR WITH ARCHITECT. DEVICE PLATES FOR EQUIPMENT, STORAGE, AND KITCHEN AREAS SHALL BE STAINLESS STEEL.

OUTLETS AND DEVICES SHALL BE SET RIGID, PLUMB, FASTENED SECURELY; WHERE CONCEALED, SET FLUSH WITH FINISH SURFACE.

WIRING CONNECTIONS: CURL WIRE AROUND TERMINAL SCREWS AND TIGHTEN SCREWS FIRMLY. SNAP–IN, PRESSURE–TYPE TERMINALS NOT ACCEPTABLE.

EXTERIOR DUPLEX RECEPTACLES FOR 120 VOLT, SINGLE–PHASE SERVICE TO BE RATED 20 AMPERES, 125 VOLT, BACK AND SIDE WIRED, 2–WIRE (NEMA 5–20R) GFCI TYPE, WP, HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN–USE LOCKABLE #MX3200 OR EQUAL.

ALL RECEPTACLE AND SWITCH COVER PLATES SHALL CLEARLY INDICATE, WITH PERMANENT BLACK MARKER ON THE INSIDE OF THE PLATE, THE CIRCUIT NUMBER AND THE SOURCE OF POWER FEEDING THAT SWITCH OR RECEPTACLE.

ALL WALL SWITCHES AND RECEPTACLES SHALL BE MOUNTED BETWEEN 18" AND 48" TO TOP OF OUTLET BOX PER ADA REQUIREMENTS UNLESS NOTED OTHERWISE.

ELECTRICAL SWITCHES. CONTROLS AND SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF THE ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES OR COOLING, HEATING AND VENTILATING EQUIPMENT, SHALL BE LOCATED NO MORE THAN 48 INCHES MEASURED FROM THE TOP OF OUTLET BOX NOR LESS THAN 15 INCHES MEASURED FROM THE BOTTOM OF THE OUTLET BOX TO THE LEVEL OF THE FINISH FLOOR OR WORKING PLATFORM.

ELECTRICAL RECEPTACLE OUTLETS. ELECTRICAL RECEPTACLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES OR LESS AND COMMUNICATION SYSTEM RECEPTACLES SHALL BE LOCATED NO MORE THAN 48 INCHES MEASURED FROM THE TOP OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING NOR LESS THAN 15 INCHES MEASURED FROM THE BOTTOM OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING TO THE LEVEL OF THE FINISH FLOOR OR WORKING PLATFORM.

ALL WALL MOUNTED ELECTRICAL AND COMMUNICATION BOXES SHALL BE COVERED ENTIRELY WITH ONE HOUR FIRE PUTTY.

ALL WALL MOUNTED ELECTRICAL AND COMMUNICATION BOXES SHALL BE SEPARATED BY A MINIMUM OF 24".

13.0 GROUNDING

GENERAL: PROVIDE A COMPLETE GROUNDING SYSTEM AND SAFELY GROUND ALL SERVICE DISTRIBUTION EQUIPMENT AND RELATED METALLIC EQUIPMENT IN AN APPROVED MANNER AND AS REQUIRED BY CEC AND AS SHOWN ON DRAWINGS.

PROVIDE A SEPARATE GREEN EQUIPMENT GROUND CONDUCTOR IN ALL CONDUIT AND RACEWAYS.

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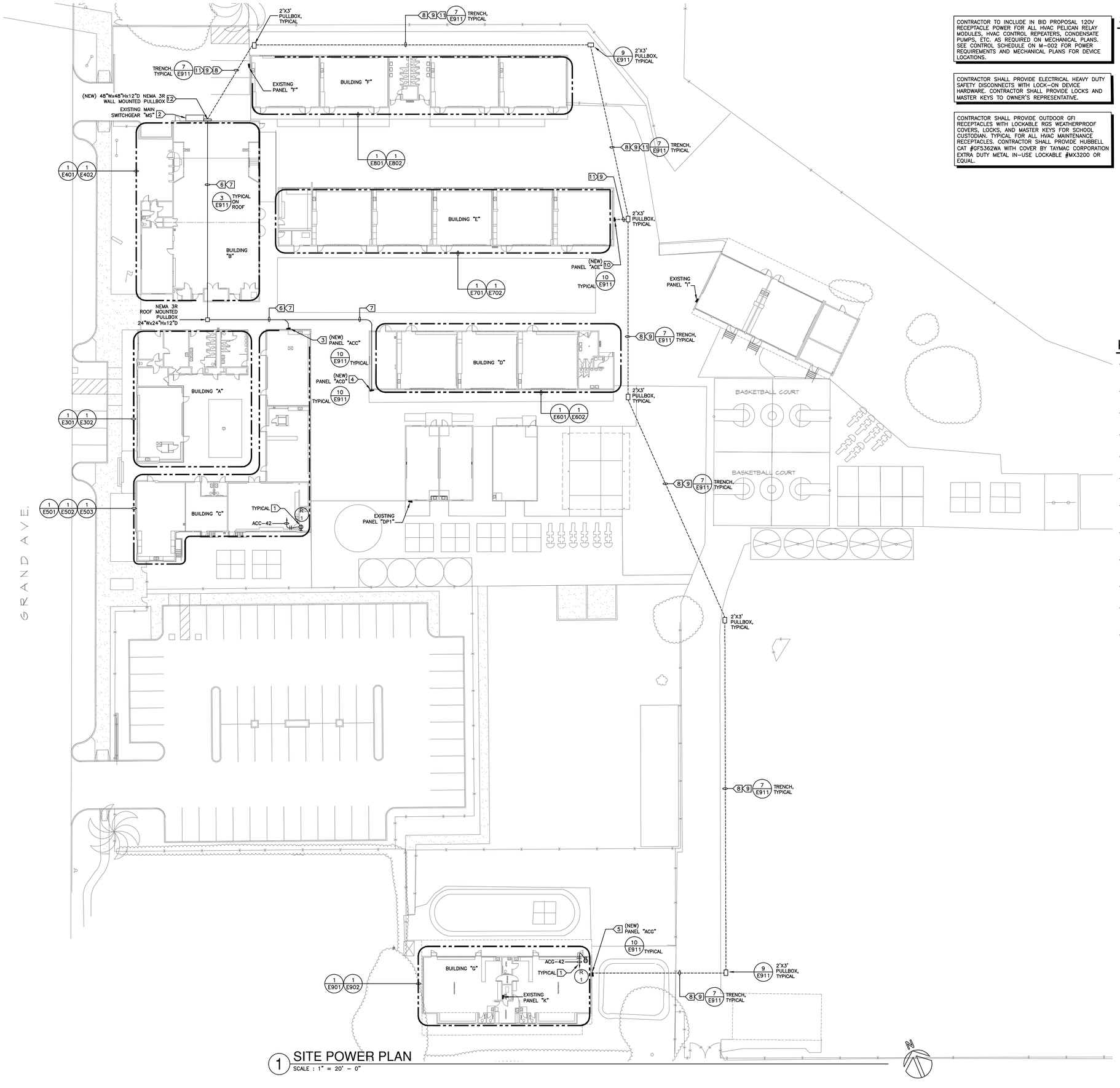
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SHEET TITLE GENERAL ELECTRICAL SPECIFICATIONS SHEET

SHEET
E101



1 SITE POWER PLAN
SCALE : 1" = 20' - 0"

CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR ALL HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC. AS REQUIRED ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M-002 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.

CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS WITH LOCK-ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GFTR3625WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN-USE LOCKABLE #MX3200 OR EQUAL.

SHEET NOTES

1. VERIFY LOCATION OF ALL BUILDINGS AND APPENDITURES ON ARCHITECTURAL AND CIVIL PLANS.
2. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID. ROUGH-IN & INSTALLATION.
3. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
4. FIELD VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO TRENCHING. SCHEDULE AND COORDINATE ALL SITE WORK WITH OWNER PRIOR TO ANY TRENCHING.
5. ALL CONDUIT 90° CONDUIT BENDS AND RISERS SHALL BE PVC COATED RIGID STEEL.
6. VERIFY LOCATION OF ALL EQUIPMENT AND DEVICES ON ARCHITECTURAL AND CIVIL PLANS.
7. MINIMUM CONDUIT BURIAL DEPTH IS 24", 36" MINIMUM BELOW STREETS & PARKING LOTS FOR 0-600 VOLT SYSTEMS. 48" FOR 600V-25KV SYSTEMS.
8. CONTRACTOR TO PROVIDE GROUND CONDUCTORS IN ALL CONDUITS.
9. 1" CONDUIT MINIMUM UNDERGROUND.
10. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
11. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
12. FIELD CONDITIONS GOVERN DEMOLITION AND NEW CONSTRUCTION. CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS PRIOR TO START OF WORK. ARCHITECT / ENGINEER SHALL BE NOTIFIED OF POSSIBLE FIELD PROBLEMS PRIOR TO DEMOLITION. CONTRACTOR SHALL NOTIFY DISTRICT REPRESENTATIVE OF WORK BEING PERFORMED. COORDINATE WITH DISTRICT REPRESENTATIVE.
13. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH DIMENSIONED NYLON PULL STRING.
14. SITE INSPECTOR IS TO WITNESS & VERIFY GROUNDING SYSTEM TEST.
15. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION OF TRENCHING, CONTRACTOR SHALL PROTECT ALL EXISTING / REMAINING UTILITIES IN PLACE. CONTRACTOR AT HIS SOLE EXPENSE, SHALL REPAIR ANY UTILITIES SYSTEM DAMAGED DURING CONSTRUCTION.

KEY NOTES

1. PROVIDE RECEPTACLE POWER SUPPLY FOR HVAC NETWORK GATEWAY/REPEATER. HOMERUN 1/2"C.-2#12 & 1#12 GND TO BUILDING PANELBOARD. SEE MECHANICAL PLANS FOR REPEATER LOCATIONS & HVAC SYSTEM CONTROL REQUIREMENTS.
2. EXISTING ELECTRICAL DISTRIBUTION EQUIPMENT TO BE VACUUMED, CLEANED & TORQUED, ALL MISSING FITTINGS & DEADFRONT REPLACED, ETC. FOR A LIKE NEW CONDITION.
3. NEW PANEL "ACC" TO BE WALL MOUNTED. SEE ELECTRICAL SINGLE LINE DIAGRAM ON SHEET E201 FOR FEEDER INFORMATION AND ADDITIONAL REQUIREMENTS.
4. NEW PANEL "ACD" TO BE WALL MOUNTED. SEE ELECTRICAL SINGLE LINE DIAGRAM ON SHEET E201 FOR FEEDER INFORMATION AND ADDITIONAL REQUIREMENTS.
5. NEW PANEL "ACG" TO BE WALL MOUNTED. SEE ELECTRICAL SINGLE LINE DIAGRAM ON SHEET E201 FOR FEEDER INFORMATION AND ADDITIONAL REQUIREMENTS.
6. CONTRACTOR SHALL ROUTE PANELBOARD "ACC" FEEDER ON ROOFTOP AND COVERED WALKWAYS TO NEW PANELBOARD LOCATION. CONTRACTOR SHALL PROVIDE CONDUIT SUPPORTS PER DETAIL 3/E911 AND PAINT CONDUITS TO MATCH SURROUNDING AREAS.
7. CONTRACTOR SHALL ROUTE PANELBOARD "ACD" FEEDER ON ROOFTOP AND COVERED WALKWAYS TO NEW PANELBOARD LOCATION. CONTRACTOR SHALL PROVIDE CONDUIT SUPPORTS PER DETAIL 3/E911 AND PAINT CONDUITS TO MATCH SURROUNDING AREAS.
8. CONTRACTOR SHALL SAW CUT, TRENCH, & PROVIDE NEW FEEDERS TO NEW PANELBOARD "ACG" FROM EXISTING CAMPUS SWITCHBOARD "MS". SEE SINGLE LINE DIAGRAM ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
9. APPROXIMATE LOCATION OF EXISTING UNDERGROUND POWER SYSTEMS. CONTRACTOR SHALL HIRE DIG ALERT AND FIELD VERIFY EXISTING ELECTRICAL, COMMUNICATION, FIRE ALARM, & OTHER UTILITIES SYSTEMS PRIOR STARTING TRENCH WORK.
10. NEW PANEL "ACE" TO BE WALL MOUNTED, SEE DETAIL 10/E911 ON THIS SHEET. SEE ELECTRICAL SINGLE LINE DIAGRAM ON SHEET E201 FOR FEEDER INFORMATION AND ADDITIONAL REQUIREMENTS.
11. CONTRACTOR SHALL SAW CUT, TRENCH, & PROVIDE NEW FEEDERS TO NEW PANELBOARD "ACE" FROM EXISTING CAMPUS SWITCHBOARD "MS". SEE SINGLE LINE DIAGRAM ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
12. PROVIDE WALL MOUNTED PULLBOX ADJACENT TO MAIN CAMPUS SWITCHBOARD "MS" FOR NEW PANELBOARD FEEDERS ACC, ACD, ACE, & ACG. SEE SINGLE LINE DIAGRAM FOR FEEDER INFORMATION. PAINT TO MATCH SURROUNDING AREA. PROVIDE CHASE NIPPLES INTO SWITCHGEAR ENCLOSURE AS REQUIRED.

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3	-	-/-/-	XX
2	-	-/-/-	XX
1	-	-/-/-	XX

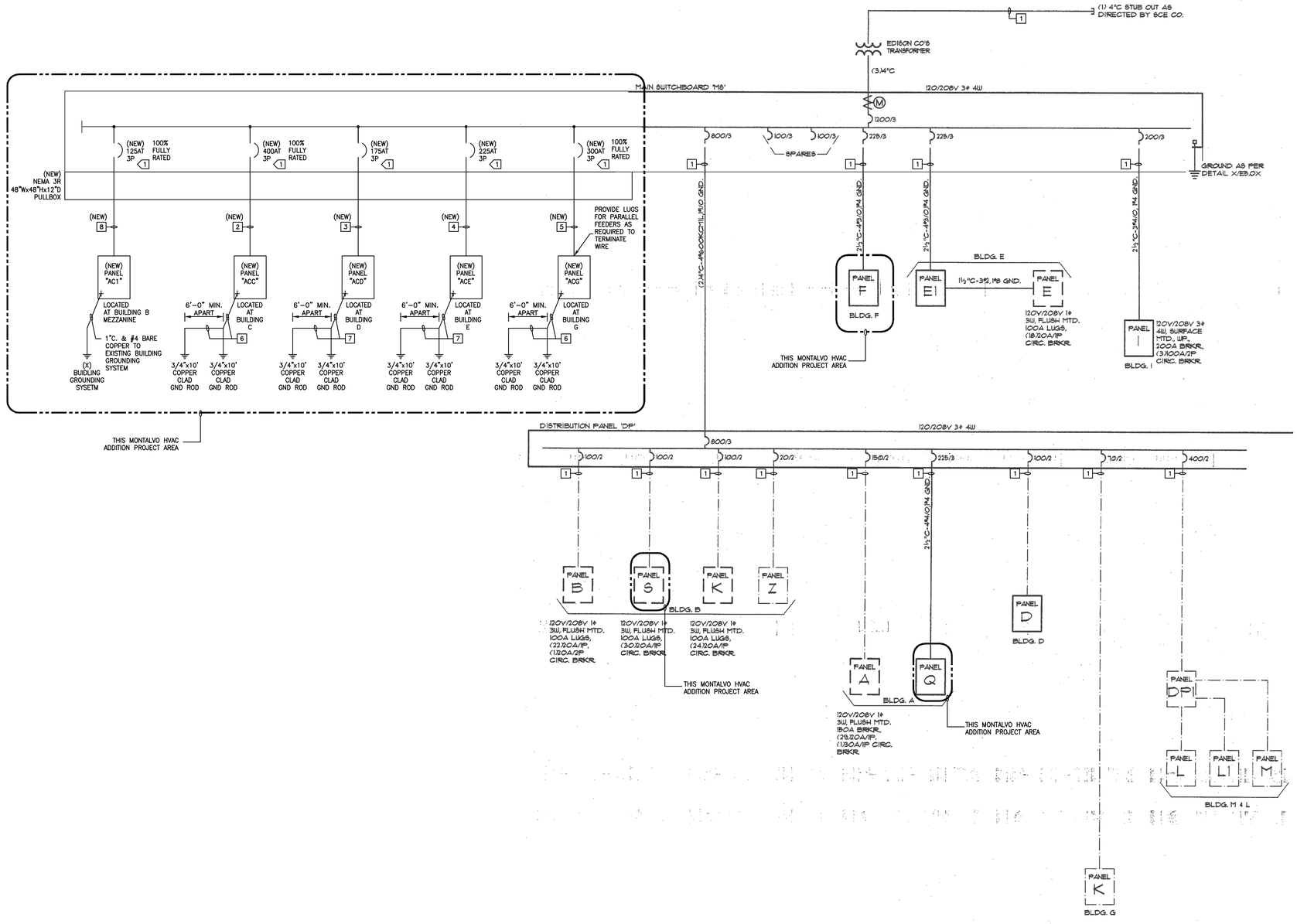
REVISION	DESCRIPTION	DATE	BY
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CHECKED	CH		
DATE	10/11/2024		
JOB. NO.	23053		

DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: SITE POWER PLAN

SHEET
E200

CONTACT 811 BEFORE YOU DIG SAFE DIGGING PARTNER



1 ELECTRICAL SINGLE LINE DIAGRAM
SCALE: NONE

FEEDER SCHEDULE					
TAG	CONDUIT/CONDUCTOR	FROM	TO	APPROX LENGTH VD	PERCENT VOLT.DROP
1	EXISTING. PROTECT IN PLACE.	–	–	–	–
2	4"C.–4#500 KCMIL & 1#3 KCMIL GND	MS	ACC	200'	1.5%
3	3"C.–4#3/0 KCMIL & 1#1 GND	MS	ACD	280'	1.8%
4	3"C.–4#350 KCMIL & 1#1/0 GND	MS	ACE	350'	1.8%
5	(2)4"C.–4#500 KCMIL & 1#2 GND	MS	ACG	800'	2.0%
6	1"C.–3/0 BARE COPPER GROUND	PNL	GND SYSTEM	–	–
7	1"C.–1/0 BARE COPPER GROUND	PNL	GND SYSTEM	–	–
8	2"C.–4#1 & 1#6 GND	MS	AC1	150'	1.2%
9	–	–	–	–	–
10	–	–	–	–	–
11	–	–	–	–	–
12	–	–	–	–	–
13	–	–	–	–	–
14	–	–	–	–	–
15	–	–	–	–	–

SHEET NOTES

1. VERIFY LOCATION OF ALL BUILDINGS AND APPENDITURES ON ARCHITECTURAL AND CIVIL PLANS.
2. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID. ROUGH-IN & INSTALLATION.
3. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
4. FIELD VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO TRENCHING. SCHEDULE AND COORDINATE ALL SITE WORK WITH OWNER PRIOR TO ANY TRENCHING.
5. ALL CONDUIT 90° CONDUIT BENDS AND RISERS SHALL BE PVC COATED RIGID STEEL.
6. CONTRACTOR SHALL COORDINATE AND PROVIDE ALL SITE ELECTRICAL SERVICE REQUIREMENTS WITH SERVING UTILITY.
7. VERIFY LOCATION OF ALL EQUIPMENT AND DEVCES ON ARCHITECTURAL AND CIVIL PLANS.
8. MINIMUM CONDUIT BURIAL DEPTH IS 24", 36" MINIMUM BELOW STREETS & PARKING LOTS FOR 0–600 VOLT SYSTEMS.
9. CONTRACTOR TO PROVIDE GROUND CONDUCTORS IN ALL CONDUITS.
10. 1" CONDUIT MINIMUM UNDERGROUND.
11. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
12. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.

KEY NOTES

1 FIELD VERIFY AND PROVIDE NEW FEEDER BREAKER IN EXISTING SWITCHBOARD TO MATCH EXISTING MANUFACTURER, AIC RATINGS, ETC. PROVIDE NEW DEAD FRONT MODIFICATIONS, BUSSING, BRACKETS, FITTINGS, CONNECTORS, ETC. AS REQUIRED TO INSTALL NEW FEEDER BREAKER IN EXISTING SWITCHBOARD.

LOAD SUMMARY	
DESCRIPTION	LOAD
EXISTING "MS" PEAK DEMAND FROM RECORD DRAWINGS @125% 26KVA PER CEC REQUIREMENTS	33 KVA
(X) PANEL Q WITH NEW HVAC LOAD	47 KVA
(X) PANEL F WITH NEW HVAC LOAD	35 KVA
(X) PANEL DP WITH NEW HVAC LOAD	14 KVA
NEW PANEL ACC HVAC LOAD	111 KVA
NEW PANEL ACD HVAC LOAD	32 KVA
NEW PANEL ACE HVAC LOAD	50 KVA
NEW PANEL ACG HVAC LOAD	71 KVA
TOTAL ON MSB (IN AMPS AT 208V, 3Φ)	393 KVA (1092 AMPS)

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ENGINEERS STAMP & SIGNATURE



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CONSULTING ELECTRICAL ENGINEERS
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DRAWN
CHECKED
DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE ELECTRICAL SINGLE LINE DIAGRAM

SHEET
E201

NEW SQUARE-D NQ PANEL BOARD

PANEL NUMBER AC1 VOLTAGE 208Y/120V PHASE 3 WIRE 4
SOURCE MS A.I.C. 22,000 FULLY RATED
PANEL LOCATION BUILDING B MEZZANINE BUS AMPERE RATING 225

■ COPPER BUSS
■ NEMA 1
■ MAIN CIRCUIT BREAKER 125 100% FULLY RATED
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A	B	C	BRKR POLE	AMP	CKT	PHASE A B C	CKT	BRKR AMP	POLE	LOAD (VA) A	B	C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				F-MP1A	3476				50	1		2	30		0			SPACE				
						3476		2		3		4		2			3476	F-MP1B				
				SPARE			0	1	20	5		6				3476						
					0					7		8	20	1	0			SPARE				
						0				9		10				0						
							0			11		12					0					
					0					13		14			0							
						0				15		16				0						
							0			17		18					0					
					0					19		20			0							
						0				21		22				0						
							0			23		24					0					
					0					25		26			0							
						0				27		28				0						
							0			29		30					0					
					0					31		32			0							
				SPACE		0				33		34				0						
							0			35		36			0							
					0					37		38				0						
							0			39		40					0					
							0			41		42										
				TOTALS	3476	3476	0								0	3476	3476	TOTALS				

L.C.L. VOLT AMPS:	7698	PHASE A 2566	PHASE B 2566	PHASE C 2566
TOTAL VOLT AMPS:	21602	PHASE A 6042	PHASE B 9518	PHASE C 6042
TOTAL AMPS:	60.0	PHASE A 50.4	PHASE B 79.3	PHASE C 50.4

● PROVIDE LOCK-ON DEVICE ☐ PROVIDE HACR RATED CIRCUIT BREAKER TO MATCH PANELBOARD MANUFACTURER AND AIC RATINGS

NEW SQUARE-D I-LINE PANEL BOARD

PANEL NUMBER ACC VOLTAGE 208Y/120V PHASE 3 WIRE 4
SOURCE MS A.I.C. 22,000 FULLY RATED
PANEL LOCATION BUILDING C BUS AMPERE RATING 400

■ NEMA 1 ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER 400 100% FULLY RATED
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A	B	C	BRKR POLE	AMP	CKT	PHASE A B C	CKT	BRKR AMP	POLE	LOAD (VA) A	B	C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
☐				OU-C1\IU-C1	2500				30	1		2	30		0			OU-C2\IU-C2				☐
☐						2500		2		3		4		2			2500					☐
☐				RTU-C1A			10264		90	5		6	90				10264	RTU-C1B				☐
☐					10264			2		7		8		2	10264							☐
☐						10264				9		10					10264					☐
☐				RTU-C2			10372	3	90	11		12	40									☐
L					10372					13		14		2	3350			OU-AD1/IU-AD-1				L
L						10372		3		15		16	20	1		0		SPARE				L
L				SPARE			0	1	20	17		18				0						L
				SPARE	0					19		20			0							
				SPARE		0				21		22				0						
	4			ROOFTOP RECEPTACLE			720			23		24					0					
				SPARE	0					25		26			0							
						0				27		28				0						
							0			29		30					0					
					0					31		32			0							
				SPACE		0				33		34				0						
							0			35		36			0							
					0					37		38				0						
							0			39		40					0					
				SPARE			0	1	20	41		42	20	1			180	HVAC REPEATER/ T-STAT				
				TOTALS	2313	6231	3623								1611	4	1276	1379	4 TOTALS				

L.C.L. VOLT AMPS:	7698	PHASE A 2566	PHASE B 2566	PHASE C 2566
TOTAL VOLT AMPS:	117998	PHASE A 41816	PHASE B 38466	PHASE C 37716
TOTAL AMPS:	327.5	PHASE A 348.5	PHASE B 320.6	PHASE C 314.3

● PROVIDE LOCK-ON DEVICE ☐ PROVIDE HACR RATED CIRCUIT BREAKER TO MATCH PANELBOARD MANUFACTURER AND AIC RATINGS

NEW SQUARE-D NQ PANEL BOARD

PANEL NUMBER ACD VOLTAGE 208Y/120V PHASE 3 WIRE 4
SOURCE MS A.I.C. 22,000 FULLY RATED
PANEL LOCATION BUILDING D BUS AMPERE RATING 225

■ NEMA 1 ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER 175
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A	B	C	BRKR POLE	AMP	CKT	PHASE A B C	CKT	BRKR AMP	POLE	LOAD (VA) A	B	C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
☐				OU-D1\IU-D1	2550				35	1		2	50		3330			OU-D2A				L
☐						2550		2		3		4		2		3330						L
				SPARE			0	1	20	5		6	15		750			IU-D2A				
				SPARE	0					7		8		2		750						
	3			OUTDOOR RECEPTACLES		540				9		10	50		3330			OU-D2B				
				SPARE			0			11		12		2			3330					
					0					13		14	15			750		IU-D2B				
						0				15		16		2			750					
							0			17		18	50			3330		OU-D2C				
					0					19		20		3	3330							
						0				21		22	15			750		IU-D2C				
							0			23		24		2			750					
				SPACE	0					25		26	20	1	0			SPARE				
						0				27		28				0						
							0			29		30					0					
					0					31		32			0							
						0				33		34				0						
							0			35		36			0							
					0					37		38				0						
						0				39		40					0					
				SPARE			0	1	20	41		42	20	1			180	HVAC REPEATER/ T-STAT				
				TOTALS	2550	3090	0								8160	8160	8340	TOTALS				

L.C.L. VOLT AMPS:	1666	PHASE A 833	PHASE B 833	PHASE C 0
TOTAL VOLT AMPS:	31966	PHASE A 11543	PHASE B 12083	PHASE C 8340
TOTAL AMPS:	88.7	PHASE A 96.2	PHASE B 100.7	PHASE C 69.5

● PROVIDE LOCK-ON DEVICE ☐ PROVIDE HACR RATED CIRCUIT BREAKER TO MATCH PANELBOARD MANUFACTURER AND AIC RATINGS

NEW SQUARE-D NQ PANEL BOARD

PANEL NUMBER ACE VOLTAGE 208Y/120V PHASE 3 WIRE 4
SOURCE MS A.I.C. 22,000 FULLY RATED
PANEL LOCATION BUILDING E BUS AMPERE RATING 400

■ NEMA 1 ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER 225
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A	B	C	BRKR POLE	AMP	CKT	PHASE A B C	CKT	BRKR AMP	POLE	LOAD (VA) A	B	C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				SPARE	0			1	20	1		2	20	1	0			SPARE				
		2		OUTDOOR RECEPTACLES		360				3		4				0						
				SPARE			0			5		6					0					
					0					7		8			0							
						0				9		10				0						
							0			11		12					0					
					0					13		14	15			750		IU-E2B				
						0				15		16		2			750					
							0			17		18	20	1				SPARE				
					0					19		20	50			3330		OU-E2C				
				OU-E1\IU-E1		3350			40	21		22		2			3330					
							3350	2		23		24	15				750	IU-E2C				
				OU-E2A	3330				50	25		26		3	750							
						3330		2		27		28	50			3330		OU-E2D				
				IU-E2A			750		15	29		30		2			3330					
					750			2		31		32	15		750			IU-E2D				
				OU-E2B		3330			50	33		34		2		750						
							3330	2		35		36	50				3330	OU-E2E				
				HVAC REPEATER/T-STAT	180			1	20	37		38		2	3330							
				SPACE		0				39		40	15			750		IU-E2E				
				SPARE			0	1	20	41		42		2			750					
				TOTALS	4260	1037	7430								8910	8910	8410	TOTALS				

L.C.L. VOLT AMPS:	1602	PHASE A 0	PHASE B 801	PHASE C 801
TOTAL VOLT AMPS:	49892	PHASE A 13170	PHASE B 20081	PHASE C 16641
TOTAL AMPS:	138.5	PHASE A 109.8	PHASE B 167.3	PHASE C 138.7

● PROVIDE LOCK-ON DEVICE ☐ PROVIDE HACR RATED CIRCUIT BREAKER TO MATCH PANELBOARD MANUFACTURER AND AIC RATINGS

NEW SQUARE-D I LINE TYPE HCP-SU PANEL BOARD

PANEL NUMBER ACG VOLTAGE 208Y/120V PHASE 3 WIRE 4
SOURCE MS A.I.C. 22,000 FULLY RATED
PANEL LOCATION BUILDING G BUS AMPERE RATING 800

■ NEMA 1 ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER 300 TYPE LC I LINE 100% FULLY RATED
■ SURFACE MOUNTING

PROVIDE LUGS\BUSSING\BREAKER AS REQUIRED TO TERMINATE PARALLEL FEEDERS. SEE SINGLE LINE DIAGRAM FOR FEEDER REQUIREMENTS.

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A	B	C	BRKR POLE	AMP	CKT	PHASE A B C	CKT	BRKR AMP	POLE	LOAD (VA) A	B	C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
☐	L			RTU-G1A	10372				90	1		2	90			10372		RTU-G1B				☐
☐	L					10372				3		4					10372					☐
☐	L						10372	3		5		6		3								☐
				ROOFTOP OUTLET	180			1	20	7		8	30			2250		WH-1				
				SPARE		0				9		10		2			2250					
							0			11		12	20	1				SPARE				
					0					13		14			0							
						0				15		16				0						
							0			17		18					0					
					0					19		20			0							
						0				21		22				0						
							0			23		24					0					
					0					25		26			0							
				SPACE		0				27		28				0						
							0			29		30					0					
					0					31		32			0							
						0				33		34				0						
							0			35		36			0							
					0					37		38				0						
						0				39		40					0					
				SPARE			0	1	20	41		42	20	1			180	HVAC REPEATER				
				TOTALS	10552	10372	10372								12622	12622	10552	TOTALS				

L.C.L. VOLT AMPS:	7779	PHASE A 2593	PHASE B 2593	PHASE C 2593
TOTAL VOLT AMPS:	74871	PHASE A 25767	PHASE B 25587	PHASE C 23517
TOTAL AMPS:	207.8	PHASE A 214.7	PHASE B 213.2	PHASE C 196.0

● PROVIDE LOCK-ON DEVICE ☐ PROVIDE HACR RATED CIRCUIT BREAKER TO MATCH PANELBOARD MANUFACTURER AND AIC RATINGS

EXISTING PANEL BOARD

PANEL NUMBER Q VOLTAGE 208Y/120V PHASE 3 WIRE 4
SOURCE DP A.I.C. (EXISTING)
PANEL LOCATION LIBRARY BUILDING BUS AMPERE RATING 225

■ NEMA 1 ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER 225
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A	B	C	BRKR POLE	AMP	CKT	PHASE A B C	CKT	BRKR AMP	POLE	LOAD (VA) A	B	C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				(X) RECEPTACLES	180			1	20	1		2	20	1	180			(X) RECEPTACLES				
						180				3		4				180						
							180			5		6					180					
					180					7		8			180							
						180				9		10				180						
							180			11		12					180					
					180					13		14			180							
						180				15		16				180						
							180			17		18	40				0	(X) SPARE				
					180					19		20			0							
						180				21		22		3		0						
							180			23		24	30				1150	(X) WATER HEATER				
				(X) SPARE	0					25		26		2	1150							
						0				27		28	20	1		900		(X) CEILING FANS				
							0			29		30	20	1			500	(X) IDF-2				
					0					31		32	40			3350		OU-AD1/IU-AD-1				
						0				33		34		2			3350					
							0			35		36	20	1			180	ROOFTOP OUTLET		1		
				RTU L-1	10344					37		38			0			(X) SPARE				
						10344				39		40				0						
							10344	3		41		42					0	SPARE				
				TOTALS	1106	4 1106	4 1106	4							5040	4790	2190	TOTALS				

L.C.L. VOLT AMPS:	1602	PHASE A 0	PHASE B 801	PHASE C 801
TOTAL VOLT AMPS:	46814	PHASE A 16104	PHASE B 16655	PHASE C 14055
TOTAL AMPS:	129.9	PHASE A 134.2	PHASE B 138.8	PHASE C 117.1

● PROVIDE LOCK-ON DEVICE ☐ PROVIDE NEW HACR RATED CIRCUIT BREAKER TO MATCH PANELBOARD MANUFACTURER AND AIC RATINGS

EXISTING PANEL BOARD

PANEL NUMBER F VOLTAGE 208Y/120V PHASE 3 WIRE 4
SOURCE MS A.I.C. (EXISTING)
PANEL LOCATION BUILDING F BUS AMPERE RATING 225

■ NEMA 1 ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER 225
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD (VA) A	B	C	BRKR POLE	AMP	CKT	PHASE A B C	CKT	BRKR AMP	POLE	LOAD (VA) A	B	C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				(X) RECEPTACLES	360			1	20	1		2	20	1	360			(X) RECEPTACLES				
						360				3		4				360						
							360			5		6					360					
					360					7		8			360							
						360				9		10				360						
							360			11		12					360					
				(X) SPARE	0					13		14			0			(X) SPARE				
						0				15		16				0						
				(X) CEILING FANS			0			17		18					0					
				(X) SPARE	0					19		20			0							
						0				21		22				0						
	4			OUTDOOR RECEPTACLE	720					23		24					0					
				OU-F1A		3330				25		26			0							
							3330	2		27		28				0						
				IU-F1A	270					29		30					0					
						270		2		31		32			0							
				OU-F1B			3330			33		34	40				3411	OU-F2A/IU-F2A				
					3330			2		35		36		2			3411					
				IU-F1B		270				37		38	40		3411			OU-F2B/IU-F2B				
							270	2		39		40		2			3411					
				TOTALS	5040	4590	7650					42	20	1				180 HVAC REPEATER/ T-STAT				
															4131	7542	4311	TOTALS				

L.C.L. VOLT AMPS:	1602	PHASE A 0	PHASE B 801	PHASE C 801
TOTAL VOLT AMPS:	34866	PHASE A 9171	PHASE B 12933	PHASE C 12762
TOTAL AMPS:	96.8	PHASE A 76.4	PHASE B 107.8	PHASE C 106.4

● PROVIDE LOCK-ON DEVICE ☐ PROVIDE NEW HACR RATED CIRCUIT BREAKER TO MATCH PANELBOARD MANUFACTURER AND AIC RATINGS

(NEW)AC1	(NEW)ACC	(X) PNL Q
–	(NEW)ACD	(X) PNL F
–	(NEW)ACE	–
–	(NEW)ACG	–

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
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SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

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PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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DRAWN
CHECKED
DATE 10/11/2024
JOB NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE ELECTRICAL PANEL SCHEDULES

SHEET
E202

MINOR ELECTRICAL DEMOLITION FOR REMODELING

1.0 EXAMINATION

A. OBTAIN RECORD DRAWINGS / AS-BUILTS FROM OWNER. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON RECORD DRAWINGS.

B. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.

C. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO OWNER AND ARCHITECT/ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.

D. BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.

2.0 PREPARATION

A. DISCONNECT AND MAKE SAFE ALL ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.

B. COORDINATE ELECTRICAL SERVICE OUTAGES WITH OWNER'S REPRESENTATIVE.

C. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN REQUIRED EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

D. EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER AT LEAST 72 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA WHEN OUTAGE AFFECTS BUSINESS OPERATION.

3.0 DEMOLITION AND EXTENSION OF EXISTING WORK

A. DEMOLISH AND EXTEND EXISTING ELECTRICAL WORK UNDER PROVISIONS OF THIS SECTION.

B. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.

C. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND RE-LABEL DEVICES AS SPARES.

D. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.

E. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.

F. DISCONNECT AND REMOVE ABANDONED DISTRIBUTION EQUIPMENT.

G. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.

H. DISCONNECT AND REMOVE ABANDONED CONDUIT.

I. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK.

J. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.

K. EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, AND IN COMPLIANCE WITH NEW PROJECT SPECIFICATIONS.

L. MODIFY EXISTING AS-BUILT DRAWINGS TO NOTE CHANGES.

4.0 CLEANING AND REPAIR

A. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED.

B. PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING REVISED CIRCUITING ARRANGEMENT.

5.0 INSTALLATION

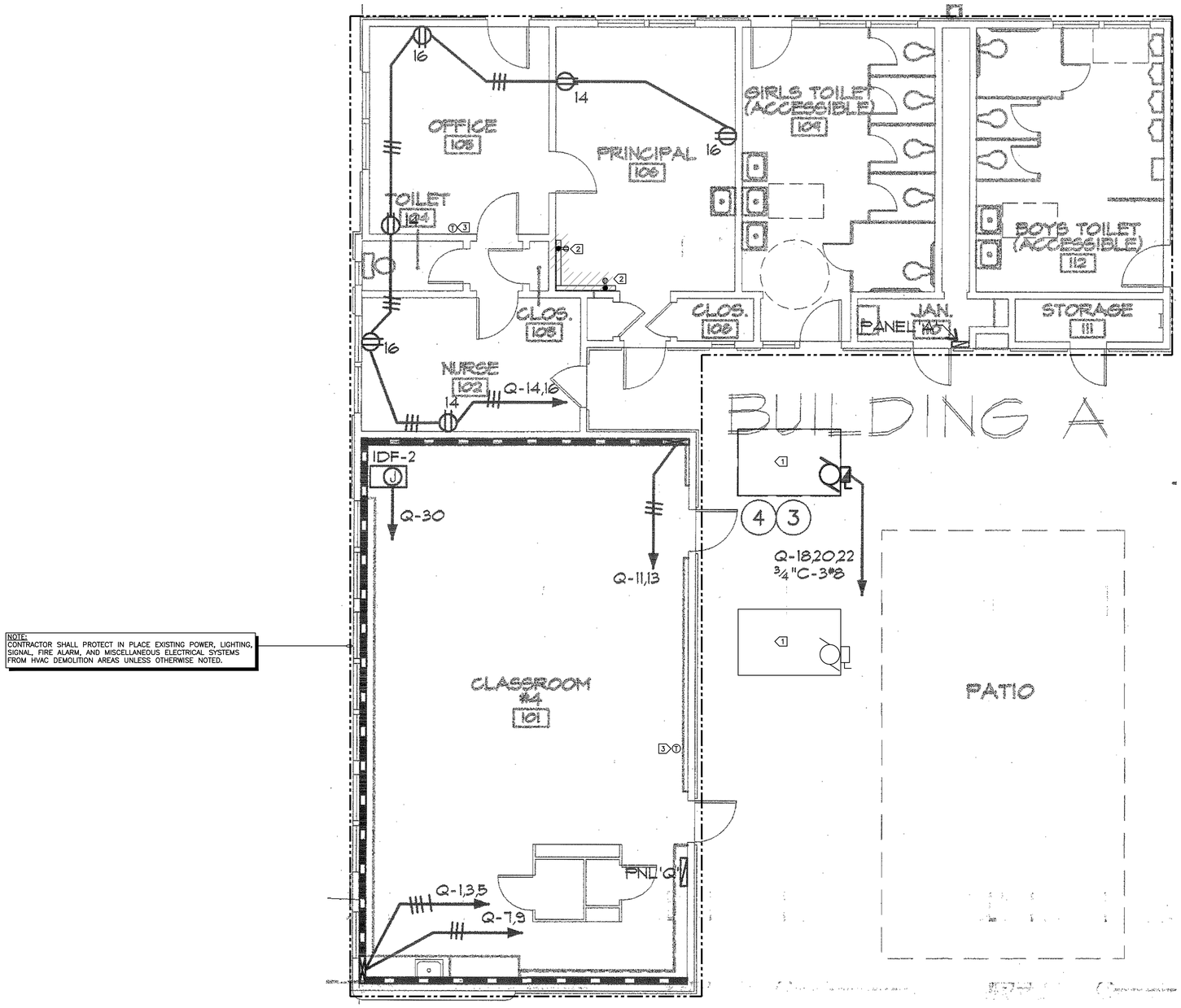
A. INSTALL RELOCATED MATERIALS AND AS REQUIRED BY OWNER'S REPRESENTATIVE.

KEY NOTES

1. CONTRACTOR SHALL REMOVE EXISTING ROOFTOP UNITS\FURNACES, DISCONNECT, & HVAC CONTROLS, ETC. CONTRACTOR SHALL SAFE OFF ELECTRICAL TERMINATIONS AND MARK AND IDENTIFY UNUSED JUNCTION BOXES AND CIRCUITS WHERE CIRCUITS ARE TO BE REUSED IN NEW HVAC POWER PLANS. CONTRACTOR SHALL INTERCEPT AND EXTEND EXISTING BRANCH CIRCUIT WIRING TO REFEED NEW/REPLACED ROOFTOP UNITS.
2. EXISTING SURFACE MOUNTED RECEPTACLES & RACEWAYS TO REMOVED FOR NEW HVAC CLOSET. EXISTING RECEPTACLE AREA BRANCH CIRCUIT WIRING TO BE PROTECTED IN PLACE. CONTRACTOR SHALL SAFE OFF ELECTRICAL DEVICES VIA JUNCTION AND LABEL DEVICE CIRCUIT UNUSED PER CEC REQUIREMENTS.
3. REMOVE EXISTING THERMOSTAT AND CONTROL CABLING AND RACEWAYS PER MECHANICAL DRAWINGS. REPATCH, RESURFACE, AND PAINT DEMOLITION AREAS TO MATCH SURROUNDING AREAS.

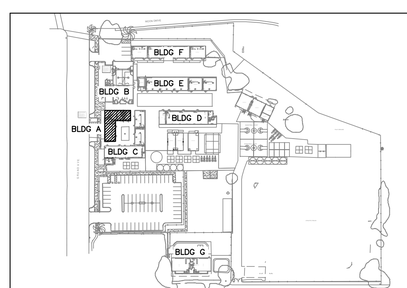
DEMOLITION NOTES

1. SCOPE: PROVIDE AND PERFORM DEMOLITION, PREPARATORY AND MISCELLANEOUS WORK IN AREAS AS INDICATED AND SPECIFIED, COMPLETE.
2. DEMOLITION AND REMOVAL OF EXISTING ELECTRICAL CONDUIT, WIRING AND EQUIPMENT REQUIRED TO COMPLETE THE PROJECT.
3. PREPARATION OF THE EXISTING BUILDING TO RECEIVE OR CONNECT THE NEW WORK.
4. MISCELLANEOUS DEMOLITION, CUTTING, ALTERATION, AND REPAIR WORK ON EXISTING SITE AND IN THE EXISTING BUILDING NECESSARY FOR THE COMPLETION OF THE ENTIRE PROJECT.
5. DISCONNECTING AND RECONNECTION OF ELECTRICAL EQUIPMENT AS REQUIRED BY THE CONSTRUCTION MODIFICATIONS.
6. EXISTING CONDITIONS: PRIOR TO BID MAKE A DETAILED SURVEY OF THE EXISTING CONDITIONS PERTAINING TO THE WORK. CHECK THE LOCATIONS OF ALL EXISTING STRUCTURES, EQUIPMENT AND WIRING (BRANCH CIRCUITING AND CONTROLS). CHECK FOR ANY HAZARDOUS MATERIALS WHICH MAY REQUIRE SPECIAL HANDLING.
7. SALVAGE AND DISPOSAL: ALL REMOVED MATERIAL OTHER THAN ITEMS TO BE REUSED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF IN ACCORDANCE WITH INSTRUCTIONS FROM THE OWNER'S REPRESENTATIVE. DISPOSAL SHALL BE DONE IN ACCORDANCE WITH EPA AND GOVERNING BODY REQUIREMENTS AND REGULATIONS. CONTRACTOR SHALL PAY FEES AND CHARGES FOR DISPOSAL.
8. TWO WEEKS PRIOR TO START OF ANY WORK CONTRACTOR SHALL SCHEDULE ALL WORK AND ELECTRICAL SYSTEM OUTAGES WITH OWNERS WRITTEN APPROVAL.
9. PROTECT ALL EXISTING POWER, MOTORS AND RELATED EQUIPMENT, ALARM SYSTEM, LIGHTING AND CONTROL SYSTEMS, AND TELEPHONE EQUIPMENT, NOT SCHEDULED FOR REMOVAL IN PLACE.
10. CONTRACTOR SHALL LEAVE ALL POWER AND SIGNAL CIRCUITS ENERGIZED, VIA JUNCTION BOX. TO DEVICES IN AREAS OUTSIDE OF DEMOLITION AREA EVEN IF SYSTEMS ARE ROUTED THROUGH DEMOLITION AREA.



NOTE:
CONTRACTOR SHALL PROTECT IN PLACE EXISTING POWER, LIGHTING, SIGNAL, FIRE ALARM, AND MISCELLANEOUS ELECTRICAL SYSTEMS FROM HVAC DEMOLITION AREAS UNLESS OTHERWISE NOTED.

1 BUILDING A HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"



SITE MAP
SCALE: NONE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
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DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

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DATE	10/11/2024		
JOB NO.	23053		

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SHEET TITLE: BUILDING A HVAC DEMO POWER PLAN

SHEET
E301

CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK–ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN–USE LOCKABLE #MX3200 OR EQUAL.

CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC. AS REQUIRED ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M–002 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.

KEY NOTES - CONTINUED

8 INTERCEPT AND EXTEND FIRE ALARM INITIATING CIRCUIT AND PROVIDE ADDRESSABLE RELAY AT HVAC UNITS. CONTRACTOR SHALL PROGRAM HVAC UNIT TO SHUT DOWN HVAC UNIT UPON FIRE ALARM ACTIVATION SIGNAL. VERIFY AND PROVIDE A FULLY OPERATIONAL HVAC UNIT SHUT DOWN RELAY FIRE ALARM SYSTEM AND REPROGRAM EXISTING CAMPUS FATC & FACP TO INCORPORATE NEW ADDRESSABLE HVAC RELAYS.

9 1/2"C & HVAC CONTROL CABLING TO PE–1/PT–1. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

10 1/2"C. & HVAC CONTROL CABLING TO PELICAN PM5 POWER CONTROL MODULE. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS.

11 1/2"C.–2#12 & 1#12 GND (POWER) TO CONDENSATE PUMP FROM INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CONTROL DEVICE & CABLING REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

12 1/2"C.–WITH TYPE S FIRE ALARM SYSTEM CABLING.

SHEET NOTES

1. FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR ELECTRICAL REQUIREMENTS.
3. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
4. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, 3/4" MINIMUM, AND USE THREADED CONDUIT FITTINGS.
5. THE FINAL CONNECTIONS TO EQUIPMENT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT. INSTALL WITH ENOUGH SLACK TO PRECLUDE VIBRATION TRANSMISSION. SUPPORT SHALL BE PER N.E.C.
6. PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
7. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL CONTRACTOR SHOP DRAWINGS AND APPROVED SUBMITTALS.
8. ALL CONDUIT SHALL BE MOUNTED ON UNISTRUT ON SUPPORTS.
9. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID, ROUGH –IN, & INSTALLATION.
10. EACH DISCONNECT OR STARTER AND A SPARE SET OF FUSES SHALL BE CONTRACTOR PROVIDED.
11. ALL MECHANICAL EQUIPMENT CONTROL WIRING SHALL BE RUN IN 1/2" CONDUIT MINIMUM U.O.N.
12. FINAL CONNECTION TO HVAC EQUIPMENT AND ANY VIBRATING MACHINERY SHALL USE LIQUID TIGHT FLEXIBLE CONDUIT.
13. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH–IN AND FINISH.
14. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
15. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
16. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
17. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
18. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
19. VERIFY THE EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION. PAINT EXPOSED CONDUITS TO MATCH SURROUNDING AREAS.
20. SEE DETAILS 5&6 ON SHEET E911 FOR ALL WALL PENETRATION REQUIREMENTS. EXTERIOR POWER AND HVAC CONTROLS CONDUITS CONTRACTOR SHALL PAINT CONDUIT, JUNCTION BOXES, CONDUIT SUPPORTS, ETC. TO MATCH SURROUNDING AREAS.

KEY NOTES

1 1/2"C & HVAC CONTROL CABLING FROM HVAC UNIT TO THERMOSTAT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

2 SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR DISCONNECT, FUSE, FEEDER, ETC. REQUIREMENTS. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL SHOP DRAWINGS AND APPROVED SUBMITTALS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

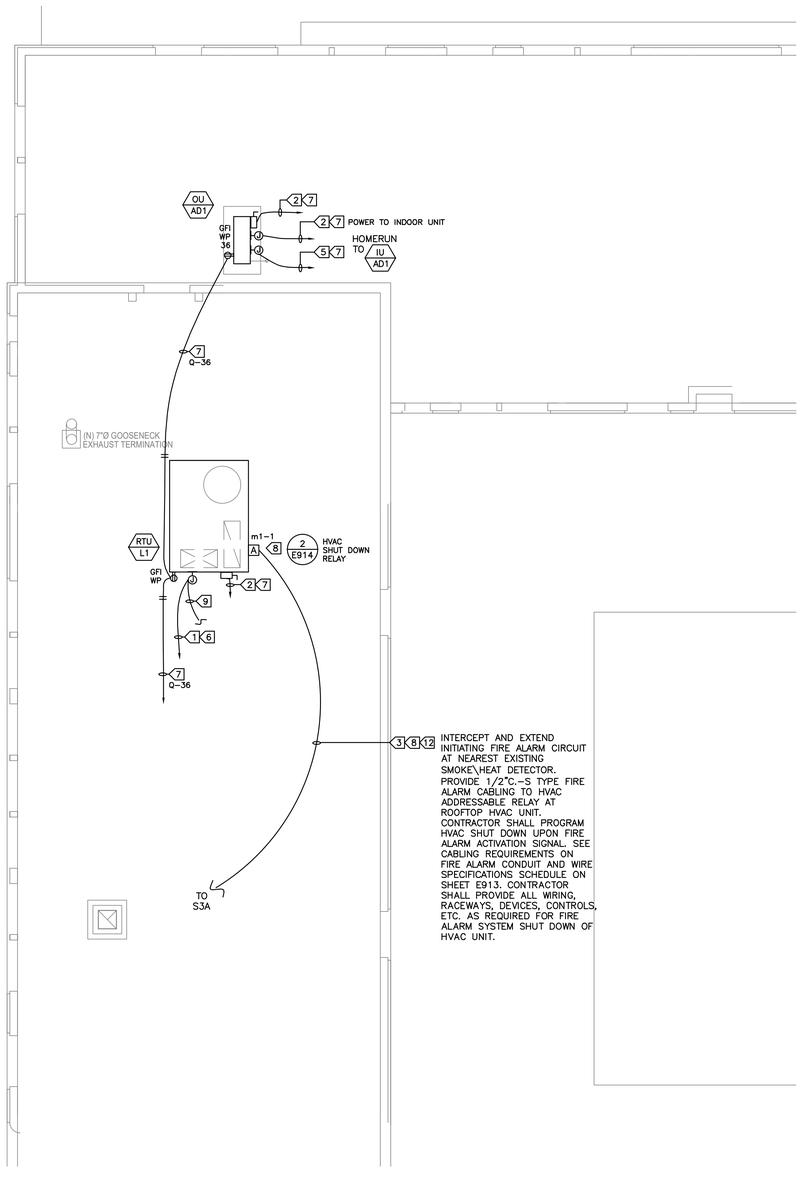
3 CONTRACTOR SHALL RE–PROGRAM, RE–ADDRESS AND RESTORE A FULLY OPERATIONAL AND COMPLETE FIRE ALARM SYSTEM. CONTRACTOR SHALL PERFORM A CAMPUS WIDE FIRE ALARM TEST AND RECORD DOCUMENTS AFTER FIRE ALARM WORK IS COMPLETED.

4 CONTRACTOR SHALL INTERCEPT AND EXTEND AREA LIGHTING CIRCUIT TO FEED NEW EXHAUST FAN.

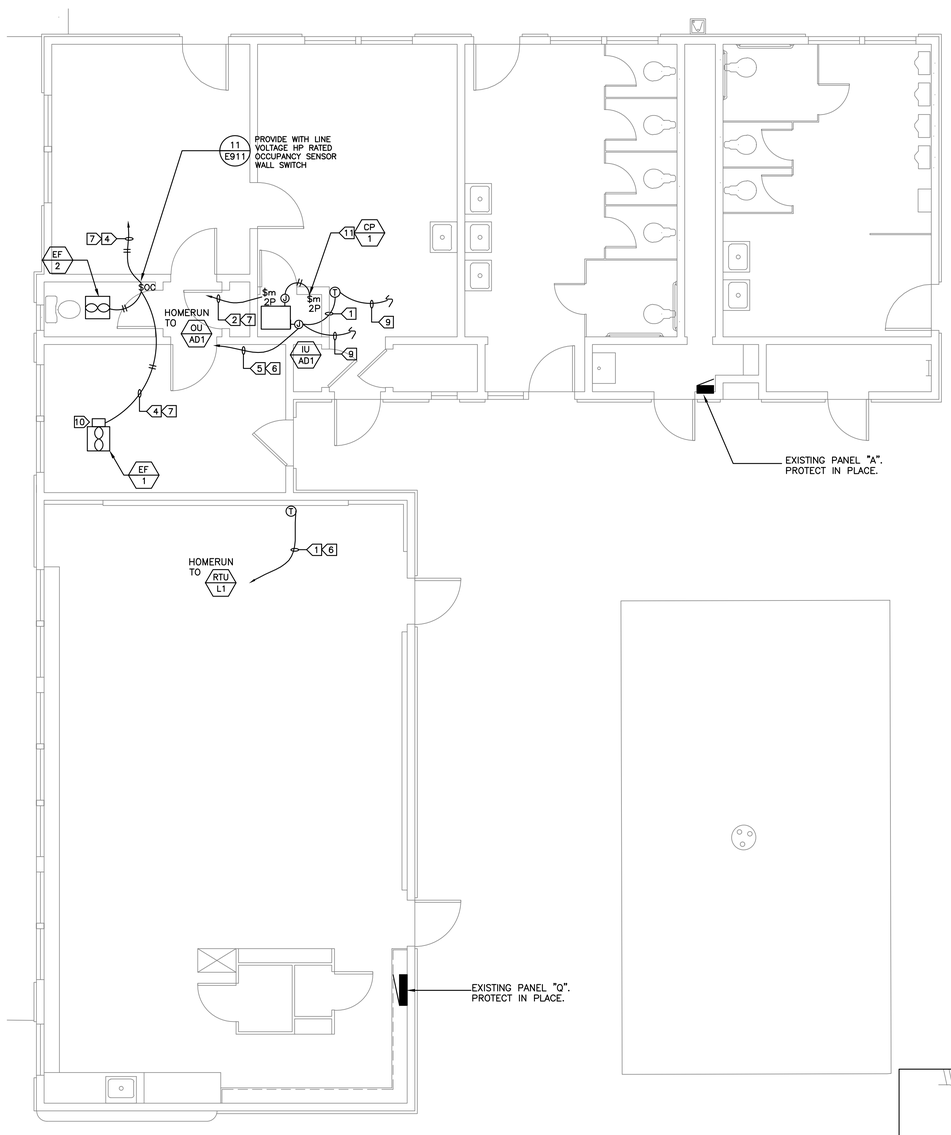
5 3/4"C. & HVAC CONTROL CABLING FROM OUTDOOR UNIT TO INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

6 PROVIDE WIREMOLD 2300 RACEWAY FROM ABOVE CEILING JUNCTION BOX TO NEW DEVICE LOCATION. RUN WIREMOLD 2300 IN EXPOSED AREAS FROM DROPPED CEILING TO DOWN WALL TO DEVICE LOCATION. CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. SEE DETAIL 8\E911.

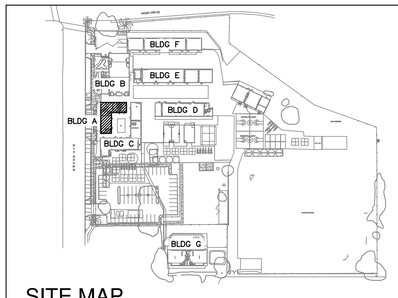
7 RUN ALL BRANCH CIRCUIT WIRING BELOW ROOF STRUCTURE IN ACCESSIBLE CEILING, PROVIDE ALL SUPPORTS, NEW CEILING WIRES, CADDY CLIPS, ETC. AS REQUIRED FOR A COMPLETE RACEWAY SUPPORT SYSTEM. ELECTRICAL CONTRACTOR SHALL RUN ELECTRICAL BRANCH CIRCUITS ADJACENT TO REFRIGERATION LINES.



2 BUILDING A HVAC ROOF POWER PLAN
SCALE : 1/4" = 1' – 0"



1 BUILDING A HVAC POWER PLAN
SCALE : 1/4" = 1' – 0"



SITE MAP
SCALE: NONE

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JOB. NO.	23053		

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SHEET TITLE: BUILDING A HVAC POWER PLANS

SHEET
E302

MINOR ELECTRICAL DEMOLITION FOR REMODELING

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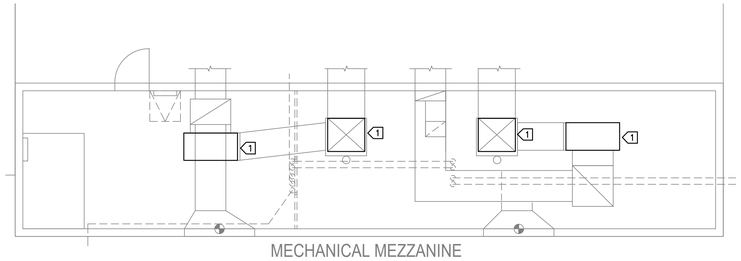
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5.0 INSTALLATION

A. INSTALL RELOCATED MATERIALS AND AS REQUIRED BY OWNER'S REPRESENTATIVE.



MECHANICAL MEZZANINE

1 BUILDING B HVAC DEMO POWER PLAN

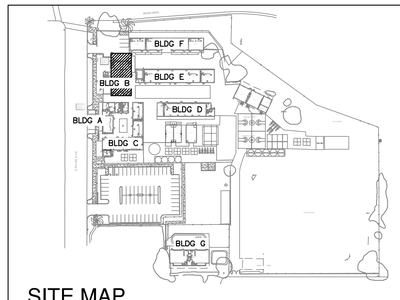
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DEMOLITION NOTES

1. SCOPE: PROVIDE AND PERFORM DEMOLITION, PREPARATORY AND MISCELLANEOUS WORK IN AREAS AS INDICATED AND SPECIFIED, COMPLETE.
2. DEMOLITION AND REMOVAL OF EXISTING ELECTRICAL CONDUIT, WIRING AND EQUIPMENT REQUIRED TO COMPLETE THE PROJECT.
3. PREPARATION OF THE EXISTING BUILDING TO RECEIVE OR CONNECT THE NEW WORK.
4. MISCELLANEOUS DEMOLITION, CUTTING, ALTERATION, AND REPAIR WORK ON EXISTING SITE AND IN THE EXISTING BUILDING NECESSARY FOR THE COMPLETION OF THE ENTIRE PROJECT.
5. DISCONNECTING AND RECONNECTION OF ELECTRICAL EQUIPMENT AS REQUIRED BY THE CONSTRUCTION MODIFICATIONS.
6. EXISTING CONDITIONS: PRIOR TO BID MAKE A DETAILED SURVEY OF THE EXISTING CONDITIONS PERTAINING TO THE WORK. CHECK THE LOCATIONS OF ALL EXISTING STRUCTURES, EQUIPMENT AND WIRING (BRANCH CIRCUITING AND CONTROLS). CHECK FOR ANY HAZARDOUS MATERIALS WHICH MAY REQUIRE SPECIAL HANDLING.
7. SALVAGE AND DISPOSAL: ALL REMOVED MATERIAL OTHER THAN ITEMS TO BE REUSED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF IN ACCORDANCE WITH INSTRUCTIONS FROM THE OWNER'S REPRESENTATIVE. DISPOSAL SHALL BE DONE IN ACCORDANCE WITH EPA AND GOVERNING BODY REQUIREMENTS AND REGULATIONS. CONTRACTOR SHALL PAY FEES AND CHARGES FOR DISPOSAL.
8. TWO WEEKS PRIOR TO START OF ANY WORK CONTRACTOR SHALL SCHEDULE ALL WORK AND ELECTRICAL SYSTEM OUTAGES WITH OWNERS WRITTEN APPROVAL.
9. PROTECT ALL EXISTING POWER, MOTORS AND RELATED EQUIPMENT, ALARM SYSTEM, LIGHTING AND CONTROL SYSTEMS, AND TELEPHONE EQUIPMENT, NOT SCHEDULED FOR REMOVAL IN PLACE.
10. CONTRACTOR SHALL LEAVE ALL POWER AND SIGNAL CIRCUITS ENERGIZED, VIA JUNCTION BOX. TO DEVICES IN AREAS OUTSIDE OF DEMOLITION AREA EVEN IF SYSTEMS ARE ROUTED THROUGH DEMOLITION AREA.

KEY NOTES

<1> CONTRACTOR SHALL REMOVE EXISTING FURNACE, DISCONNECT, & HVAC CONTROLS, ETC. CONTRACTOR SHALL SAFE OFF ELECTRICAL TERMINATIONS AND MARK AND IDENTIFY UNUSED JUNCTION BOXES AND CIRCUITS WHERE CIRCUITS ARE TO BE REUSED IN NEW HVAC POWER PLANS. CONTRACTOR SHALL INTERCEPT AND EXTEND EXISTING BRANCH CIRCUIT WIRING TO REFEED NEW/REPLACED FURNACE.



SITE MAP

SCALE: NONE

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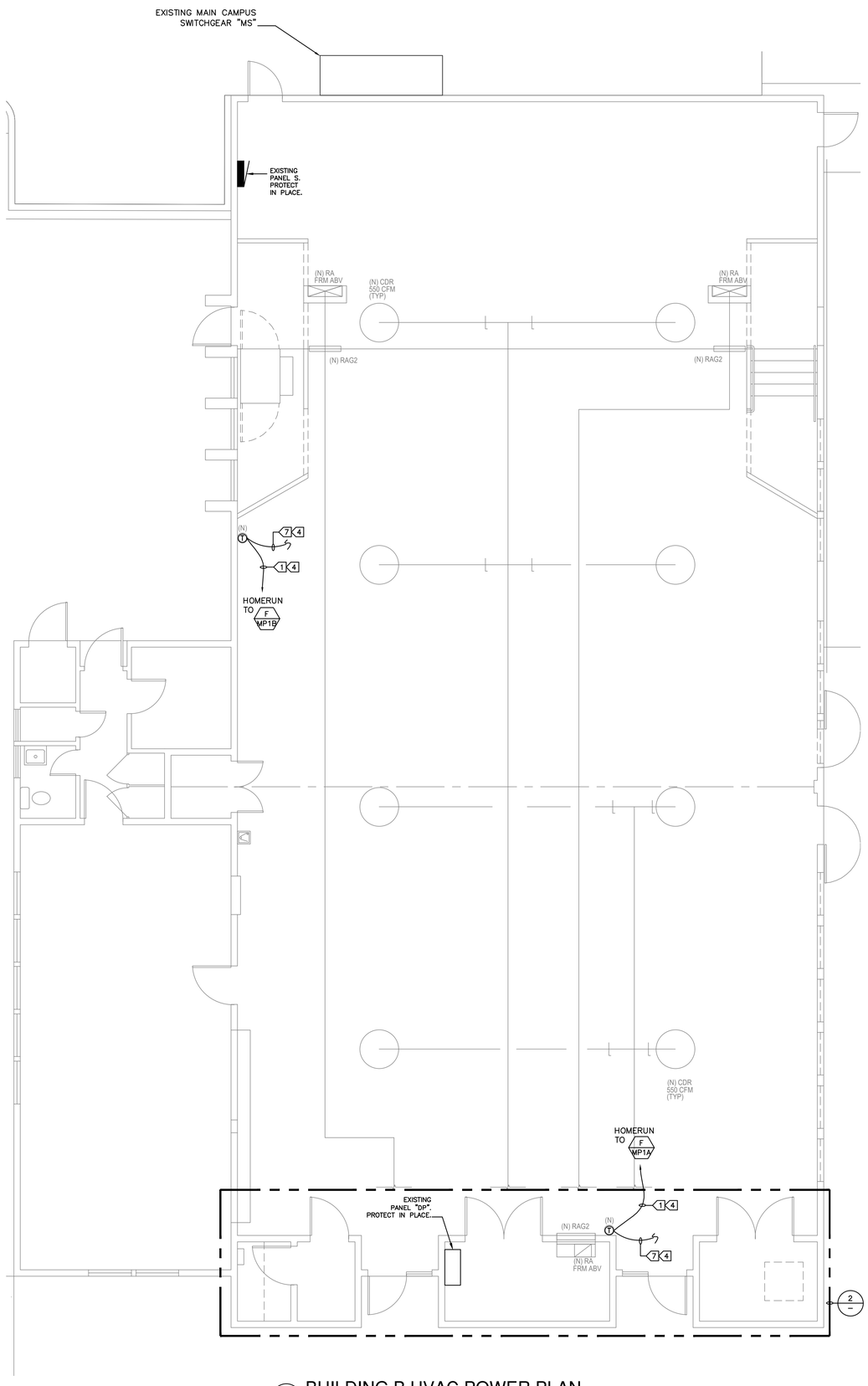
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DATE	10/11/2024		
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SHEET TITLE: BUILDING B HVAC DEMO POWER PLAN

SHEET
E401



1 BUILDING B HVAC POWER PLAN

SCALE : 1/4" = 1' – 0"

CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK–ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN–USE LOCKABLE #MX3200 OR EQUAL.

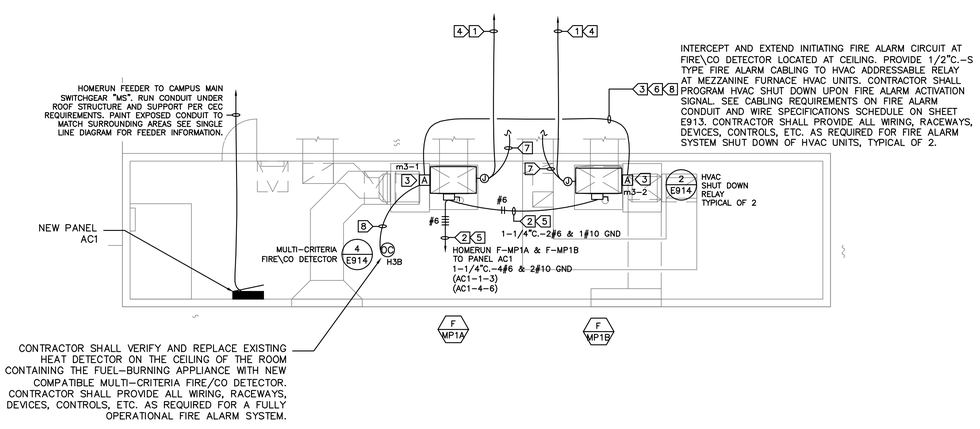
CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC. AS REQUIRED ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M–002 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.

KEY NOTES

1. 1/2"C & HVAC CONTROL CABLING FROM HVAC UNIT TO THERMOSTAT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR DISCONNECT, FUSE, FEEDER, ETC. REQUIREMENTS. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL SHOP DRAWINGS AND APPROVED SUBMITTALS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
3. INTERCEPT AND EXTEND FIRE ALARM INITIATING CIRCUIT AND PROVIDE ADDRESSABLE RELAY AT HVAC UNITS. CONTRACTOR SHALL PROGRAM HVAC UNIT TO SHUT DOWN HVAC UNIT UPON FIRE ALARM ACTIVATION SIGNAL. VERIFY AND PROVIDE A FULLY OPERATIONAL HVAC UNIT SHUT DOWN RELAY FIRE ALARM SYSTEM AND REPROGRAM EXISTING CAMPUS FATC & FACP TO INCORPORATE NEW ADDRESSABLE HVAC RELAYS.
4. PROVIDE WIREMOLD 2300 RACEWAY FROM ABOVE CEILING JUNCTION BOX TO NEW DEVICE LOCATION. RUN WIREMOLD 2300 IN EXPOSED AREAS FROM DROPPED CEILING TO DOWN WALL TO DEVICE LOCATION. CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. SEE DETAIL 8\E911.
5. RUN ALL BRANCH CIRCUIT WIRING BELOW ROOF STRUCTURE IN ACCESSIBLE CEILING. PROVIDE ALL SUPPORTS, NEW CEILING WIRES, CADDY CLIPS, ETC. AS REQUIRED FOR A COMPLETE RACEWAY SUPPORT SYSTEM. ELECTRICAL CONTRACTOR SHALL RUN ELECTRICAL BRANCH CIRCUITS ADJACENT TO REFRIGERATION LINES.
6. CONTRACTOR SHALL RE–PROGRAM, RE–ADDRESS AND RESTORE A FULLY OPERATIONAL AND COMPLETE FIRE ALARM SYSTEM. CONTRACTOR SHALL PERFORM A CAMPUS WIDE FIRE ALARM TEST AND RECORD DOCUMENTS AFTER FIRE ALARM WORK IS COMPLETED.
7. 1/2"C & HVAC CONTROL CABLING TO PE–1/PT–1/CD–1/CD–1. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
8. 1/2"C.– WITH TYPE S FIRE ALARM SYSTEM CABLING.

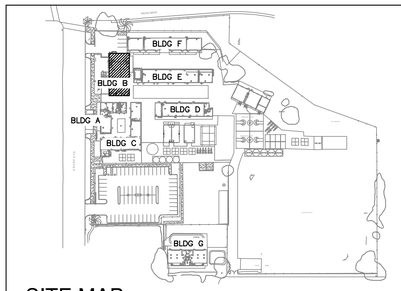
SHEET NOTES

1. FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR ELECTRICAL REQUIREMENTS.
3. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
4. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, 3/4" MINIMUM, AND USE THREADED CONDUIT FITTINGS.
5. THE FINAL CONNECTIONS TO EQUIPMENT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT. INSTALL WITH ENOUGH SLACK TO PRECLUDE VIBRATION TRANSMISSION. SUPPORT SHALL BE PER N.E.C.
6. PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
7. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL CONTRACTOR SHOP DRAWINGS AND APPROVED SUBMITTALS.
8. ALL CONDUIT SHALL BE MOUNTED ON UNISTRUT ON SUPPORTS.
9. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID, ROUGH –IN, & INSTALLATION.
10. EACH DISCONNECT OR STARTER AND A SPARE SET OF FUSES SHALL BE CONTRACTOR PROVIDED.
11. ALL MECHANICAL EQUIPMENT CONTROL WIRING SHALL BE RUN IN 1/2" CONDUIT MINIMUM U.O.N.
12. FINAL CONNECTION TO HVAC EQUIPMENT AND ANY VIBRATING MACHINERY SHALL USE LIQUID TIGHT FLEXIBLE CONDUIT.
13. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH–IN AND FINISH.
14. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
15. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
16. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
17. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
18. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
19. VERIFY THE EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION. PAINT EXPOSED CONDUITS TO MATCH SURROUNDING AREAS.
20. SEE DETAILS 5&6 ON SHEET E911 FOR ALL WALL PENETRATION REQUIREMENTS. EXTERIOR POWER AND HVAC CONTROLS CONDUITS CONTRACTOR SHALL PAINT CONDUIT, JUNCTION BOXES, CONDUIT SUPPORTS, ETC. TO MATCH SURROUNDING AREAS.



2 BUILDING B HVAC MEZZANINE POWER PLAN

SCALE : 1/4" = 1' – 0"



SITE MAP

SCALE: NONE

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SHEET TITLE: BUILDING B HVAC POWER PLANS

SHEET
E402

MINOR ELECTRICAL DEMOLITION FOR REMODELING

1.0 EXAMINATION

A. OBTAIN RECORD DRAWINGS / AS-BUILTS FROM OWNER. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON RECORD DRAWINGS.

B. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.

C. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO OWNER AND ARCHITECT/ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.

D. BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.

2.0 PREPARATION

A. DISCONNECT AND MAKE SAFE ALL ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.

B. COORDINATE ELECTRICAL SERVICE OUTAGES WITH OWNER'S REPRESENTATIVE.

C. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN REQUIRED EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

D. EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER AT LEAST 72 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA WHEN OUTAGE AFFECTS BUSINESS OPERATION.

3.0 DEMOLITION AND EXTENSION OF EXISTING WORK

A. DEMOLISH AND EXTEND EXISTING ELECTRICAL WORK UNDER PROVISIONS OF THIS SECTION.

B. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.

C. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND RE-LABEL DEVICES AS SPARES.

D. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.

E. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.

F. DISCONNECT AND REMOVE ABANDONED DISTRIBUTION EQUIPMENT.

G. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.

H. DISCONNECT AND REMOVE ABANDONED CONDUIT.

I. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK.

J. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.

K. EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, AND IN COMPLIANCE WITH NEW PROJECT SPECIFICATIONS.

L. MODIFY EXISTING AS-BUILT DRAWINGS TO NOTE CHANGES.

4.0 CLEANING AND REPAIR

A. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED.

B. PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING REVISED CIRCUITING ARRANGEMENT.

5.0 INSTALLATION

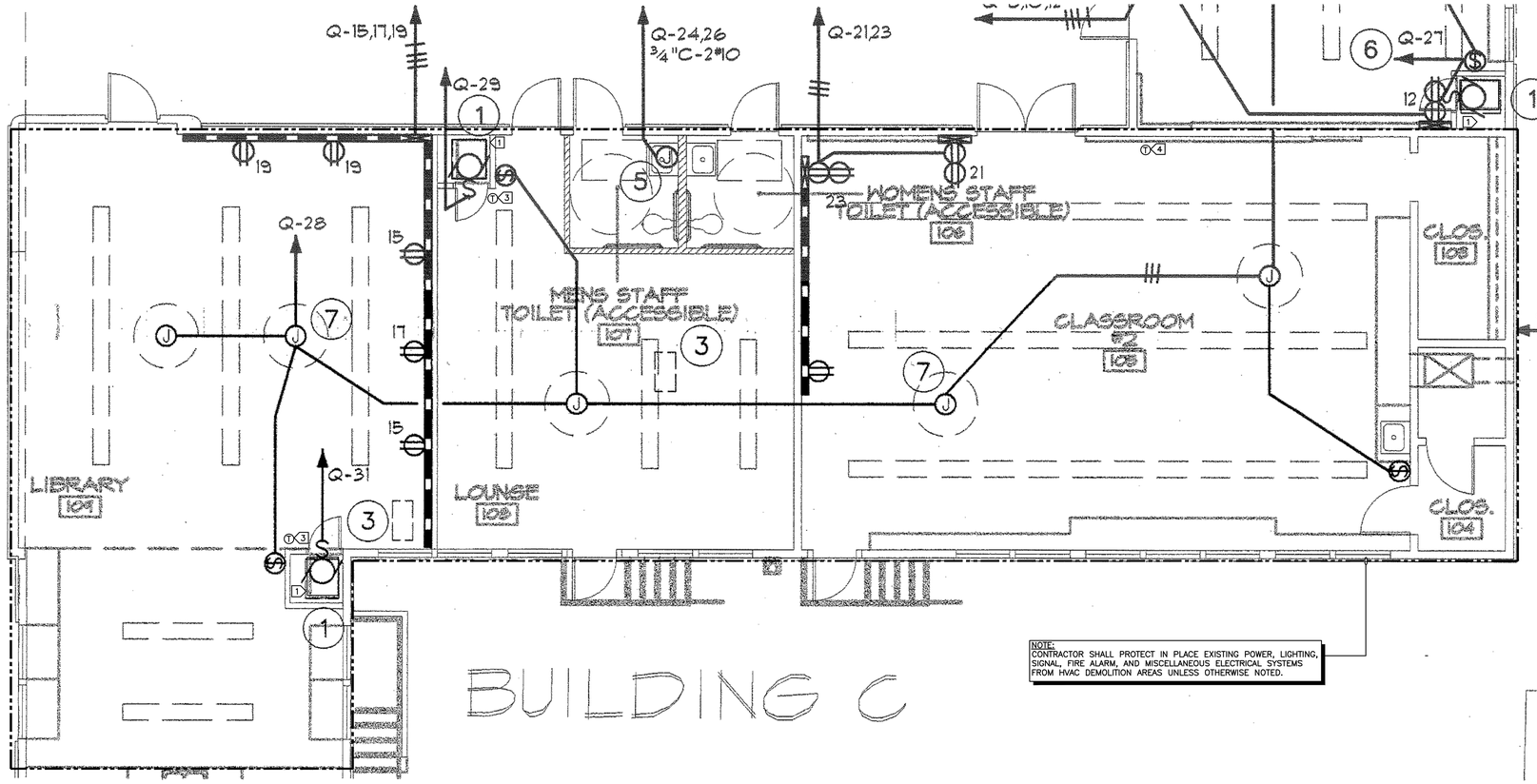
A. INSTALL RELOCATED MATERIALS AND AS REQUIRED BY OWNER'S REPRESENTATIVE.

DEMOLITION NOTES

1. SCOPE: PROVIDE AND PERFORM DEMOLITION, PREPARATORY AND MISCELLANEOUS WORK IN AREAS AS INDICATED AND SPECIFIED, COMPLETE.
2. DEMOLITION AND REMOVAL OF EXISTING ELECTRICAL CONDUIT, WIRING AND EQUIPMENT REQUIRED TO COMPLETE THE PROJECT.
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7. SALVAGE AND DISPOSAL: ALL REMOVED MATERIAL OTHER THAN ITEMS TO BE REUSED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF IN ACCORDANCE WITH INSTRUCTIONS FROM THE OWNER'S REPRESENTATIVE. DISPOSAL SHALL BE DONE IN ACCORDANCE WITH EPA AND GOVERNING BODY REQUIREMENTS AND REGULATIONS. CONTRACTOR SHALL PAY FEES AND CHARGES FOR DISPOSAL.
8. TWO WEEKS PRIOR TO START OF ANY WORK CONTRACTOR SHALL SCHEDULE ALL WORK AND ELECTRICAL SYSTEM OUTAGES WITH OWNERS WRITTEN APPROVAL.
9. PROTECT ALL EXISTING POWER, MOTORS AND RELATED EQUIPMENT, ALARM SYSTEM, LIGHTING AND CONTROL SYSTEMS, AND TELEPHONE EQUIPMENT, NOT SCHEDULED FOR REMOVAL IN PLACE.
10. CONTRACTOR SHALL LEAVE ALL POWER AND SIGNAL CIRCUITS ENERGIZED, VIA JUNCTION BOX. TO DEVICES IN AREAS OUTSIDE OF DEMOLITION AREA EVEN IF SYSTEMS ARE ROUTED THROUGH DEMOLITION AREA.

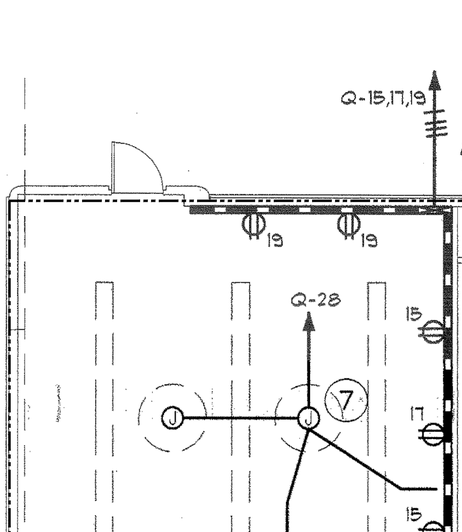
KEY NOTES

1. CONTRACTOR SHALL REMOVE EXISTING FURNACE, DISCONNECT, & HVAC CONTROLS, ETC. CONTRACTOR SHALL SAFE OFF ELECTRICAL TERMINATIONS AND MARK AND IDENTIFY UNUSED JUNCTION BOXES AND CIRCUITS WHERE CIRCUITS ARE TO BE REUSED IN NEW HVAC POWER PLANS. CONTRACTOR SHALL INTERCEPT AND EXTEND EXISTING BRANCH CIRCUIT WIRING TO REFEED NEW/REPLACED FURNACE.
2. EXISTING CEILING FANS TO BE REMOVED. CONTRACTOR SHALL SAFE-OFF EXISTING ELECTRICAL CIRCUITS AT JUNCTION BOXES AND LABEL PER CEC REQUIREMENTS. CONTRACTOR SHALL RESURFACE EXISTING CEILING STRUCTURES AT DEMOLITION AREAS AND PAINT AREA TO MATCH SURROUNDING AREAS. EXISTING CEILING FANS NOT SHOWN TO BE REMOVED SHALL BE RESTORED TO FULL SWITCH CONTROL OPERATION.
3. REMOVE EXISTING THERMOSTAT AND CONTROL CABLING AND RACEWAYS PER MECHANICAL DRAWINGS. REPATCH, RESURFACE, AND PAINT DEMOLITION AREAS TO MATCH SURROUNDING AREAS.
4. REMOVE EXISTING THERMOSTAT AND PROTECT FOR FUTURE INSTALLATION. DEMOLISH CONTROL CABLING AND RACEWAYS PER MECHANICAL DRAWINGS. REPATCH, RESURFACE, AND PAINT DEMOLITION AREAS TO MATCH SURROUNDING AREAS.



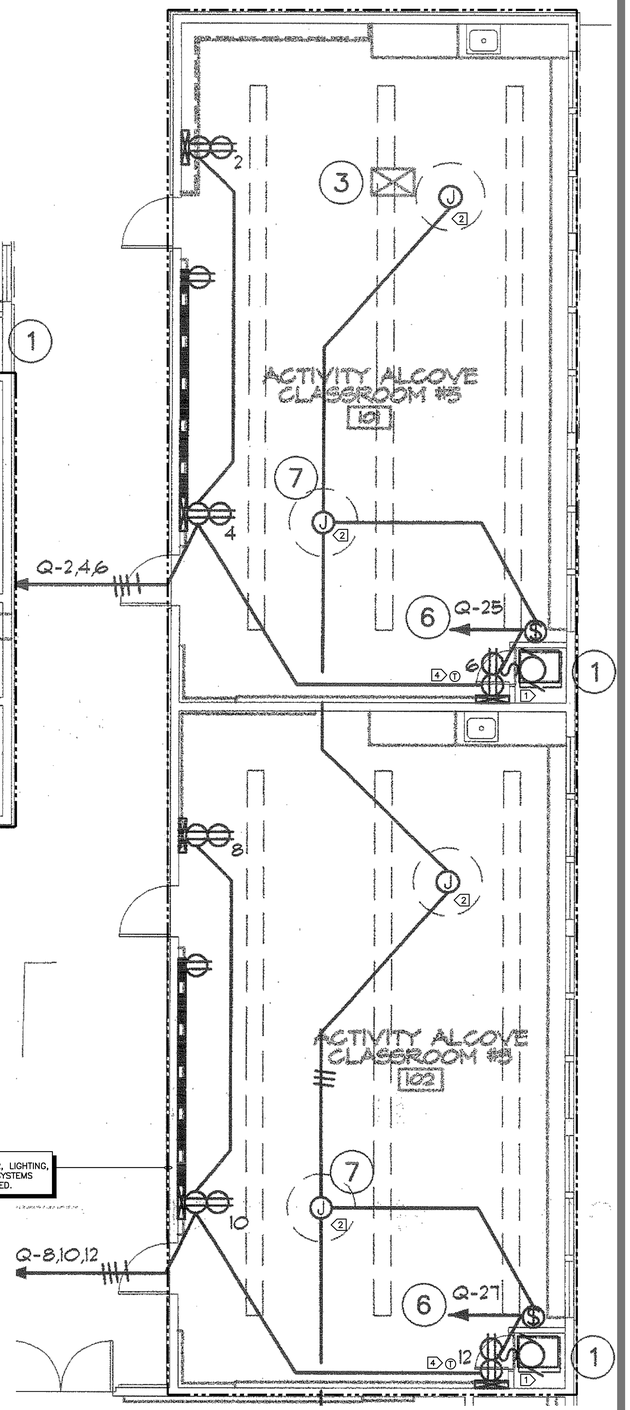
NOTE:
CONTRACTOR SHALL PROTECT IN PLACE EXISTING POWER, LIGHTING, SIGNAL, FIRE ALARM, AND MISCELLANEOUS ELECTRICAL SYSTEMS FROM HVAC DEMOLITION AREAS UNLESS OTHERWISE NOTED.

2 BUILDING C HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"



SITE MAP
SCALE: NONE

NOTE:
CONTRACTOR SHALL PROTECT IN PLACE EXISTING POWER, LIGHTING, SIGNAL, FIRE ALARM, AND MISCELLANEOUS ELECTRICAL SYSTEMS FROM HVAC DEMOLITION AREAS UNLESS OTHERWISE NOTED.



1 BUILDING C HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"

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SHEET TITLE: BUILDING C HVAC DEMO POWER PLANS

SHEET
E501

SHEET NOTES

1. FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR ELECTRICAL REQUIREMENTS.
3. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
4. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, 3/4" MINIMUM, AND USE THREADED CONDUIT FITTINGS.
5. THE FINAL CONNECTIONS TO EQUIPMENT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT. INSTALL WITH ENOUGH SLACK TO PRECLUDE VIBRATION TRANSMISSION. SUPPORT SHALL BE PER N.E.C.
6. PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
7. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL CONTRACTOR SHOP DRAWINGS AND APPROVED SUBMITTALS.
8. ALL CONDUIT SHALL BE MOUNTED ON UNISTRUT ON SUPPORTS.
9. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID, ROUGH –IN, & INSTALLATION.
10. EACH DISCONNECT OR STARTER AND A SPARE SET OF FUSES SHALL BE CONTRACTOR PROVIDED.
11. ALL MECHANICAL EQUIPMENT CONTROL WIRING SHALL BE RUN IN 1/2" CONDUIT MINIMUM U.O.N.
12. FINAL CONNECTION TO HVAC EQUIPMENT AND ANY VIBRATING MACHINERY SHALL USE LIQUID TIGHT FLEXIBLE CONDUIT.
13. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH–IN AND FINISH.
14. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
15. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
16. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
17. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
18. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
19. VERIFY THE EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION. PAINT EXPOSED CONDUITS TO MATCH SURROUNDING AREAS.
20. SEE DETAILS 5&6 ON SHEET E911 FOR ALL WALL PENETRATION REQUIREMENTS. EXTERIOR POWER AND HVAC CONTROLS CONDUITS CONTRACTOR SHALL PAINT CONDUIT, JUNCTION BOXES, CONDUIT SUPPORTS, ETC. TO MATCH SURROUNDING AREAS.

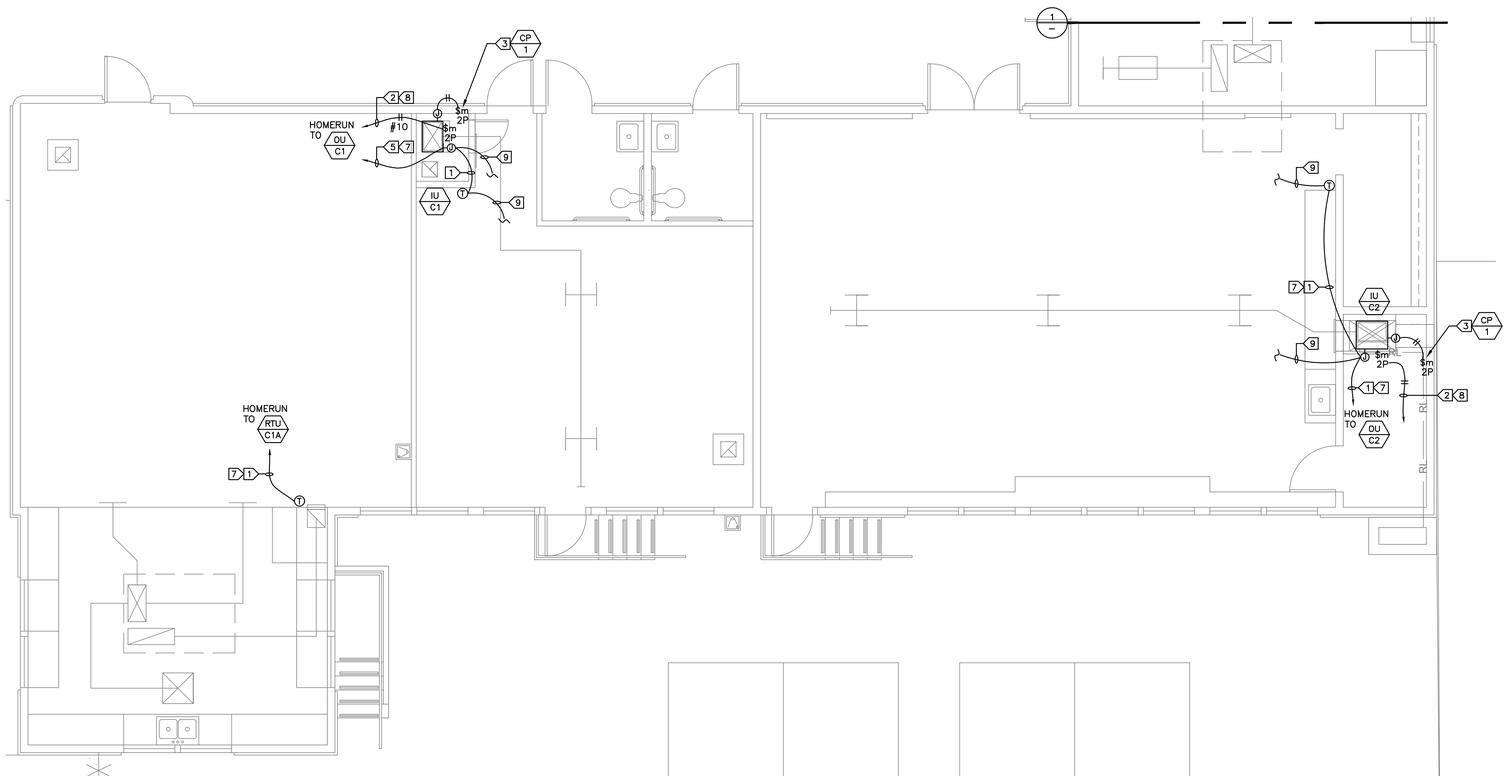
KEY NOTES

1. 1/2"C & HVAC CONTROL CABLING FROM HVAC UNIT TO THERMOSTAT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR DISCONNECT, FUSE, FEEDER, ETC. REQUIREMENTS. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL SHOP DRAWINGS AND APPROVED SUBMITTALS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
3. 1/2"C.–2#12 & 1#12 GND (POWER) TO CONDENSATE PUMP FROM INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CONTROL DEVICE & CABLING REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
4. NEW PANEL "ACC" TO BE WALL MOUNTED. SEE ELECTRICAL SINGLE LINE DIAGRAM ON SHEET E201 FOR FEEDER INFORMATION AND ADDITIONAL REQUIREMENTS.
5. 3/4"C. & HVAC CONTROL CABLING FROM OUTDOOR UNIT TO INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
6. CONTRACTOR SHALL ROUTE PANELBOARD "ACC" FEEDER ON ROOFTOP AND COVERED WALKWAYS TO NEW PANELBOARD LOCATION. CONTRACTOR SHALL PROVIDE CONDUIT SUPPORTS PER DETAIL 3/E911 AND PAINT CONDUITS TO MATCH SURROUNDING AREAS.
7. PROVIDE WIREMOLD 2300 RACEWAY FROM ABOVE CEILING JUNCTION BOX TO NEW DEVICE LOCATION. RUN WIREMOLD 2300 IN EXPOSED AREAS FROM DROPPED CEILING TO DOWN WALL TO DEVICE LOCATION. CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. SEE DETAIL 8\E911.
8. RUN ALL BRANCH CIRCUIT WIRING BELOW ROOF STRUCTURE IN ACCESSIBLE CEILING, PROVIDE ALL SUPPORTS, NEW CEILING WIRES, CADDY CLIPS, ETC. AS REQUIRED FOR A COMPLETE RACEWAY SUPPORT SYSTEM. ELECTRICAL CONTRACTOR SHALL RUN ELECTRICAL BRANCH CIRCUITS ADJACENT TO REFRIGERATION LINES.
9. 1/2"C & HVAC CONTROL CABLING TO PE–1/PT–1. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

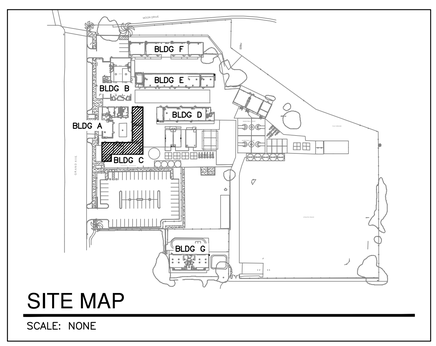
CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK–ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN–USE LOCKABLE #MX3200 OR EQUAL.

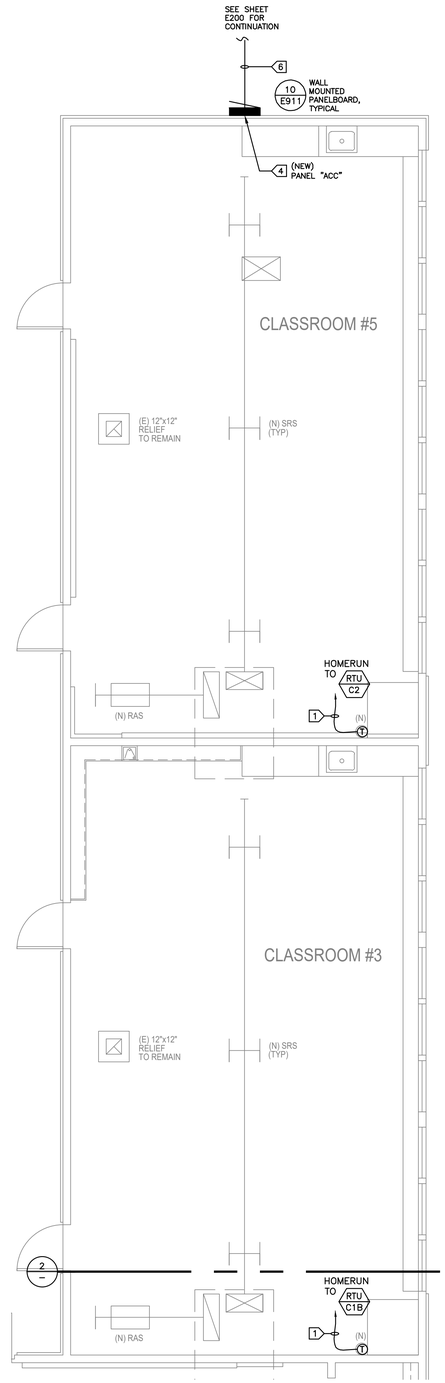
CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC. AS REQUIRED ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M–002 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.



2 BUILDING C HVAC POWER PLAN
SCALE : 1/4" = 1' – 0"



SITE MAP
SCALE: NONE



1 BUILDING C HVAC POWER PLAN
SCALE : 1/4" = 1' – 0"

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REVISION	DESCRIPTION	DATE	BY
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DATE	10/11/2024		
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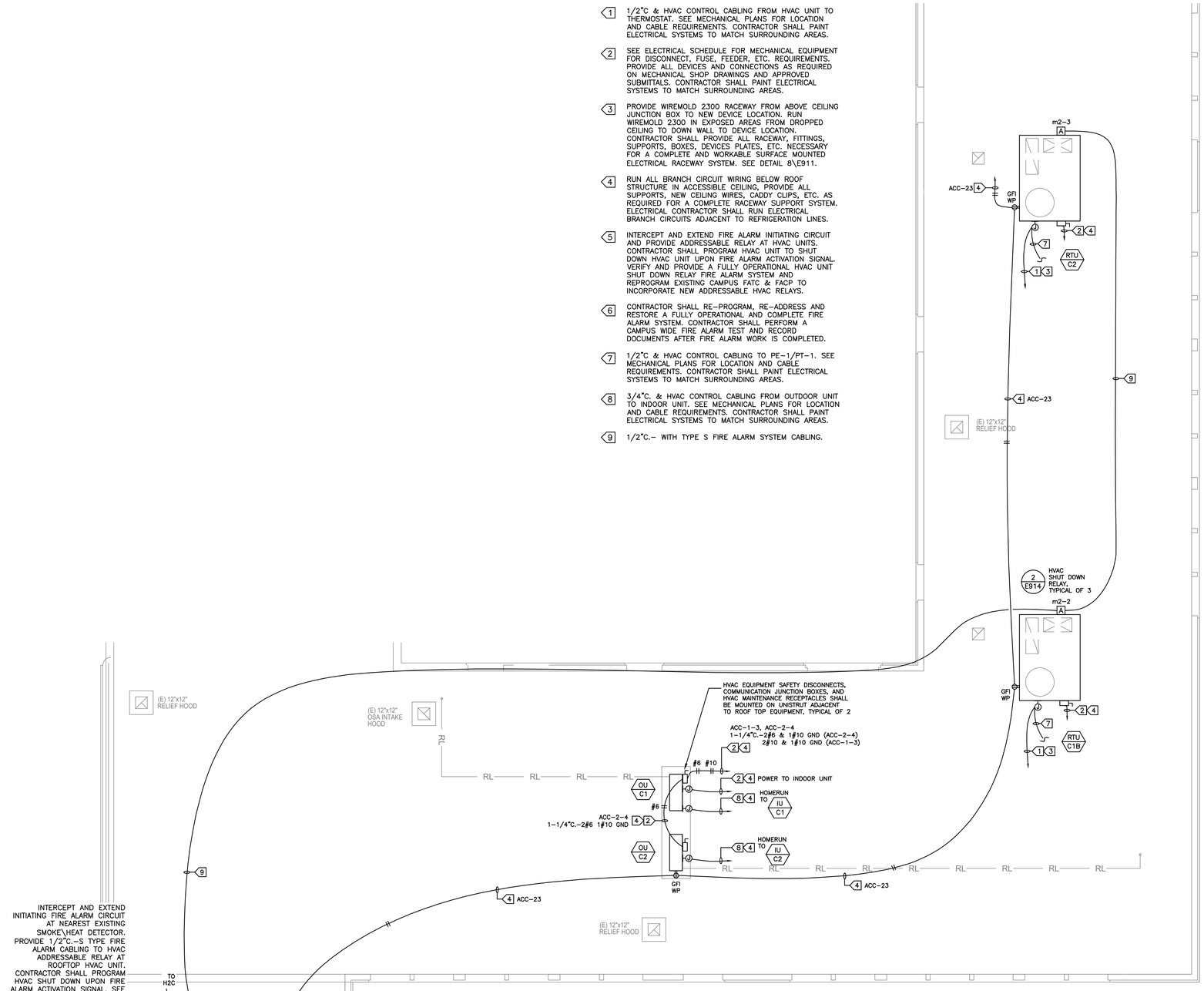
DSA AO3-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: BUILDING C HVAC POWER PLANS

SHEET
E502

KEY NOTES

1. 1/2"C & HVAC CONTROL CABLING FROM HVAC UNIT TO THERMOSTAT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR DISCONNECT, FUSE, FEEDER, ETC. REQUIREMENTS. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL SHOP DRAWINGS AND APPROVED SUBMITTALS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
3. PROVIDE WIREMOLD 2300 RACEWAY FROM ABOVE CEILING JUNCTION BOX TO NEW DEVICE LOCATION. RUN WIREMOLD 2300 IN EXPOSED AREAS FROM DROPPED CEILING TO DOWN WALL TO DEVICE LOCATION. CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. SEE DETAIL 8\E911.
4. RUN ALL BRANCH CIRCUIT WIRING BELOW ROOF STRUCTURE IN ACCESSIBLE CEILING, PROVIDE ALL SUPPORTS, NEW CEILING WIRES, CADDY CLIPS, ETC. AS REQUIRED FOR A COMPLETE RACEWAY SUPPORT SYSTEM. ELECTRICAL CONTRACTOR SHALL RUN ELECTRICAL BRANCH CIRCUITS ADJACENT TO REFRIGERATION LINES.
5. INTERCEPT AND EXTEND FIRE ALARM INITIATING CIRCUIT AND PROVIDE ADDRESSABLE RELAY AT HVAC UNITS. CONTRACTOR SHALL PROGRAM HVAC UNIT TO SHUT DOWN HVAC UNIT UPON FIRE ALARM ACTIVATION SIGNAL. VERIFY AND PROVIDE A FULLY OPERATIONAL HVAC UNIT SHUT DOWN RELAY FIRE ALARM SYSTEM AND REPROGRAM EXISTING CAMPUS FATC & FACP TO INCORPORATE NEW ADDRESSABLE HVAC RELAYS.
6. CONTRACTOR SHALL RE-PROGRAM, RE-ADDRESS AND RESTORE A FULLY OPERATIONAL AND COMPLETE FIRE ALARM SYSTEM. CONTRACTOR SHALL PERFORM A CAMPUS WIDE FIRE ALARM TEST AND RECORD DOCUMENTS AFTER FIRE ALARM WORK IS COMPLETED.
7. 1/2"C & HVAC CONTROL CABLING TO PE-1/PT-1. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
8. 3/4"C. & HVAC CONTROL CABLING FROM OUTDOOR UNIT TO INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
9. 1/2"C.- WITH TYPE S FIRE ALARM SYSTEM CABLING.



1 BUILDING C HVAC ROOF POWER PLAN
SCALE : 1/4" = 1' - 0"

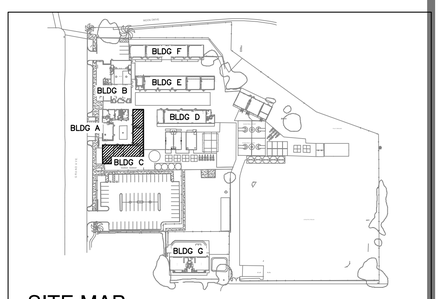
SHEET NOTES

1. FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR ELECTRICAL REQUIREMENTS.
3. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
4. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, 3/4" MINIMUM, AND USE THREADED CONDUIT FITTINGS.
5. THE FINAL CONNECTIONS TO EQUIPMENT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT. INSTALL WITH ENOUGH SLACK TO PRECLUDE VIBRATION TRANSMISSION. SUPPORT SHALL BE PER N.E.C.
6. PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
7. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL CONTRACTOR SHOP DRAWINGS AND APPROVED SUBMITTALS.
8. ALL CONDUIT SHALL BE MOUNTED ON UNISTRUT ON SUPPORTS.
9. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID, ROUGH -IN, & INSTALLATION.
10. EACH DISCONNECT OR STARTER AND A SPARE SET OF FUSES SHALL BE CONTRACTOR PROVIDED.
11. ALL MECHANICAL EQUIPMENT CONTROL WIRING SHALL BE RUN IN 1/2" CONDUIT MINIMUM U.O.N.
12. FINAL CONNECTION TO HVAC EQUIPMENT AND ANY VIBRATING MACHINERY SHALL USE LIQUID TIGHT FLEXIBLE CONDUIT.
13. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
14. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
15. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
16. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
17. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
18. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
19. VERIFY THE EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION. PAINT EXPOSED CONDUITS TO MATCH SURROUNDING AREAS.
20. SEE DETAILS 5&6 ON SHEET E911 FOR ALL WALL PENETRATION REQUIREMENTS. EXTERIOR POWER AND HVAC CONTROLS CONDUITS CONTRACTOR SHALL PAINT CONDUIT, JUNCTION BOXES, CONDUIT SUPPORTS, ETC. TO MATCH SURROUNDING AREAS.

CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK-ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN-USE LOCKABLE #MX3200 OR EQUAL.

CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC. AS REQUIRED ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M-D02 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.



SITE MAP
SCALE: NONE

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REVISION	DESCRIPTION	DATE	BY
DRAWN	AM		
CHECKED	CH		
DATE	10/11/2024		
JOB. NO.	23053		
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SHEET TITLE	BUILDINGS C HVAC ROOF POWER PLAN		

SHEET
E503

MINOR ELECTRICAL DEMOLITION FOR REMODELING

1.0 EXAMINATION

A. OBTAIN RECORD DRAWINGS / AS-BUILTS FROM OWNER. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON RECORD DRAWINGS.

B. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.

C. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO OWNER AND ARCHITECT/ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.

D. BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.

2.0 PREPARATION

A. DISCONNECT AND MAKE SAFE ALL ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.

B. COORDINATE ELECTRICAL SERVICE OUTAGES WITH OWNER'S REPRESENTATIVE.

C. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN REQUIRED EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

D. EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER AT LEAST 72 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA WHEN OUTAGE AFFECTS BUSINESS OPERATION.

3.0 DEMOLITION AND EXTENSION OF EXISTING WORK

A. DEMOLISH AND EXTEND EXISTING ELECTRICAL WORK UNDER PROVISIONS OF THIS SECTION.

B. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.

C. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND RE-LABEL DEVICES AS SPARES.

D. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.

E. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.

F. DISCONNECT AND REMOVE ABANDONED DISTRIBUTION EQUIPMENT.

G. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.

H. DISCONNECT AND REMOVE ABANDONED CONDUIT.

I. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK.

J. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.

K. EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, AND IN COMPLIANCE WITH NEW PROJECT SPECIFICATIONS.

L. MODIFY EXISTING AS-BUILT DRAWINGS TO NOTE CHANGES.

4.0 CLEANING AND REPAIR

A. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED.

B. PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING REVISED CIRCUITING ARRANGEMENT.

5.0 INSTALLATION

A. INSTALL RELOCATED MATERIALS AND AS REQUIRED BY OWNER'S REPRESENTATIVE.

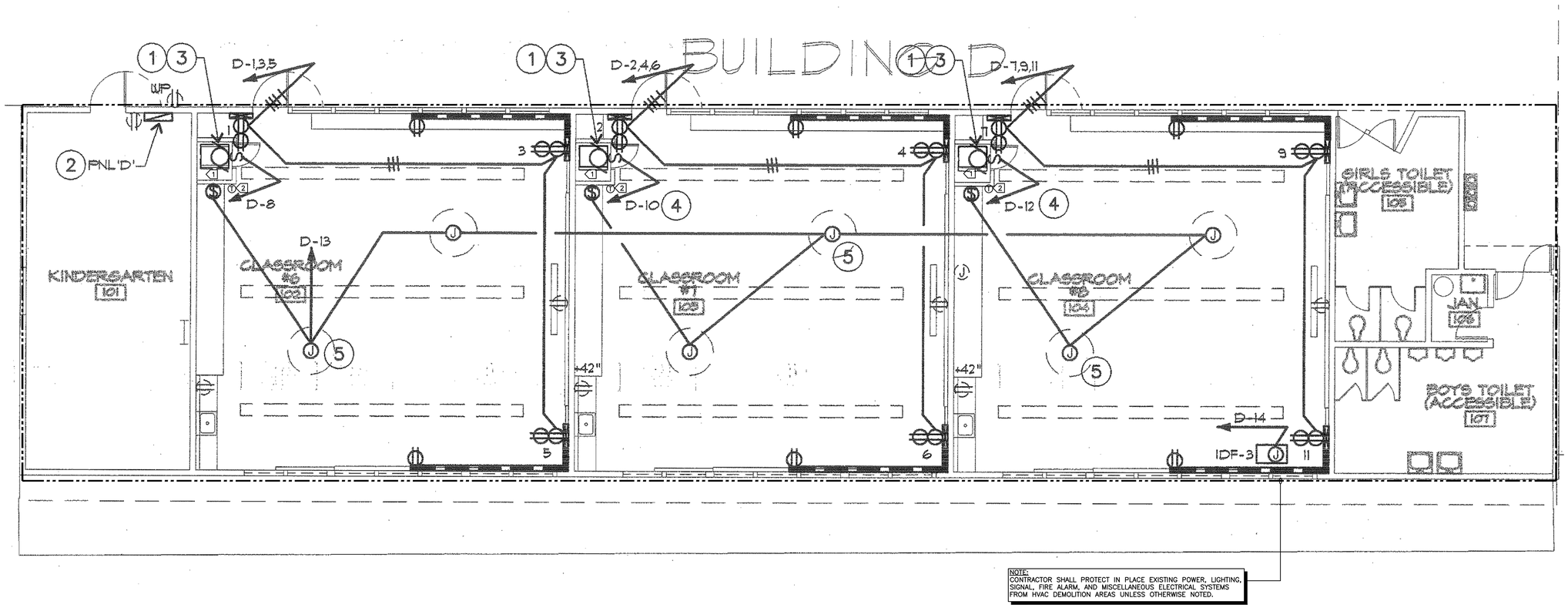
KEY NOTES

1 CONTRACTOR SHALL REMOVE EXISTING FURNACE, DISCONNECT, & HVAC CONTROLS, ETC. CONTRACTOR SHALL SAFE OFF ELECTRICAL TERMINATIONS AND MARK AND IDENTIFY UNUSED JUNCTION BOXES AND CIRCUITS WHERE CIRCUITS ARE TO BE REUSED IN NEW HVAC POWER PLANS. CONTRACTOR SHALL INTERCEPT AND EXTEND EXISTING BRANCH CIRCUIT WIRING TO REFEED NEW/REPLACED FURNACE.

2 REMOVE EXISTING THERMOSTAT AND PROTECT FOR FUTURE INSTALLATION. DEMOLISH CONTROL CABLING AND RACEWAYS PER MECHANICAL DRAWINGS. REPATCH, RESURFACE, AND PAINT DEMOLITION AREAS TO MATCH SURROUNDING AREAS.

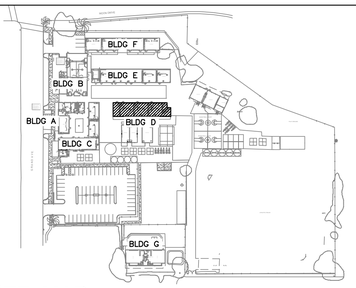
DEMOLITION NOTES

1. SCOPE: PROVIDE AND PERFORM DEMOLITION, PREPARATORY AND MISCELLANEOUS WORK IN AREAS AS INDICATED AND SPECIFIED, COMPLETE.
2. DEMOLITION AND REMOVAL OF EXISTING ELECTRICAL CONDUIT, WIRING AND EQUIPMENT REQUIRED TO COMPLETE THE PROJECT.
3. PREPARATION OF THE EXISTING BUILDING TO RECEIVE OR CONNECT THE NEW WORK.
4. MISCELLANEOUS DEMOLITION, CUTTING, ALTERATION, AND REPAIR WORK ON EXISTING SITE AND IN THE EXISTING BUILDING NECESSARY FOR THE COMPLETION OF THE ENTIRE PROJECT.
5. DISCONNECTING AND RECONNECTION OF ELECTRICAL EQUIPMENT AS REQUIRED BY THE CONSTRUCTION MODIFICATIONS.
6. EXISTING CONDITIONS: PRIOR TO BID MAKE A DETAILED SURVEY OF THE EXISTING CONDITIONS PERTAINING TO THE WORK. CHECK THE LOCATIONS OF ALL EXISTING STRUCTURES, EQUIPMENT AND WIRING (BRANCH CIRCUITING AND CONTROLS). CHECK FOR ANY HAZARDOUS MATERIALS WHICH MAY REQUIRE SPECIAL HANDLING.
7. SALVAGE AND DISPOSAL: ALL REMOVED MATERIAL OTHER THAN ITEMS TO BE REUSED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF IN ACCORDANCE WITH INSTRUCTIONS FROM THE OWNER'S REPRESENTATIVE. DISPOSAL SHALL BE DONE IN ACCORDANCE WITH EPA AND GOVERNING BODY REQUIREMENTS AND REGULATIONS. CONTRACTOR SHALL PAY FEES AND CHARGES FOR DISPOSAL.
8. TWO WEEKS PRIOR TO START OF ANY WORK CONTRACTOR SHALL SCHEDULE ALL WORK AND ELECTRICAL SYSTEM OUTAGES WITH OWNERS WRITTEN APPROVAL.
9. PROTECT ALL EXISTING POWER, MOTORS AND RELATED EQUIPMENT, ALARM SYSTEM, LIGHTING AND CONTROL SYSTEMS, AND TELEPHONE EQUIPMENT, NOT SCHEDULED FOR REMOVAL IN PLACE.
10. CONTRACTOR SHALL LEAVE ALL POWER AND SIGNAL CIRCUITS ENERGIZED, VIA JUNCTION BOX. TO DEVICES IN AREAS OUTSIDE OF DEMOLITION AREA EVEN IF SYSTEMS ARE ROUTED THROUGH DEMOLITION AREA.



NOTE:
CONTRACTOR SHALL PROTECT IN PLACE EXISTING POWER, LIGHTING, SIGNAL, FIRE ALARM, AND MISCELLANEOUS ELECTRICAL SYSTEMS FROM HVAC DEMOLITION AREAS UNLESS OTHERWISE NOTED.

1 BUILDING D HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"



SITE MAP
SCALE: NONE

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REVISION	DESCRIPTION	DATE	BY
DRAWN	AM		
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DATE	10/11/2024		
JOB. NO.	23053		
DSA A03-124514 FILE:56-40 PTN:72652-125			
SHEET TITLE	BUILDING D HVAC DEMO POWER PLAN		

SHEET
E601

SHEET NOTES

1. FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR ELECTRICAL REQUIREMENTS.
3. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
4. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, 3/4" MINIMUM, AND USE THREADED CONDUIT FITTINGS.
5. THE FINAL CONNECTIONS TO EQUIPMENT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT. INSTALL WITH ENOUGH SLACK TO PRECLUDE VIBRATION TRANSMISSION. SUPPORT SHALL BE PER N.E.C.
6. PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
7. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL CONTRACTOR SHOP DRAWINGS AND APPROVED SUBMITTALS.
8. ALL CONDUIT SHALL BE MOUNTED ON UNISTRUT ON SUPPORTS.
9. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID, ROUGH –IN, & INSTALLATION.
10. EACH DISCONNECT OR STARTER AND A SPARE SET OF FUSES SHALL BE CONTRACTOR PROVIDED.
11. ALL MECHANICAL EQUIPMENT CONTROL WIRING SHALL BE RUN IN 1/2" CONDUIT MINIMUM U.O.N.
12. FINAL CONNECTION TO HVAC EQUIPMENT AND ANY VIBRATING MACHINERY SHALL USE LIQUID TIGHT FLEXIBLE CONDUIT.
13. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH–IN AND FINISH.
14. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
15. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
16. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
17. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
18. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
19. VERIFY THE EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION. PAINT EXPOSED CONDUITS TO MATCH SURROUNDING AREAS.
20. SEE DETAILS 5&6 ON SHEET E911 FOR ALL WALL PENETRATION REQUIREMENTS. EXTERIOR POWER AND HVAC CONTROLS CONDUITS CONTRACTOR SHALL PAINT CONDUIT, JUNCTION BOXES, CONDUIT SUPPORTS, ETC. TO MATCH SURROUNDING AREAS.

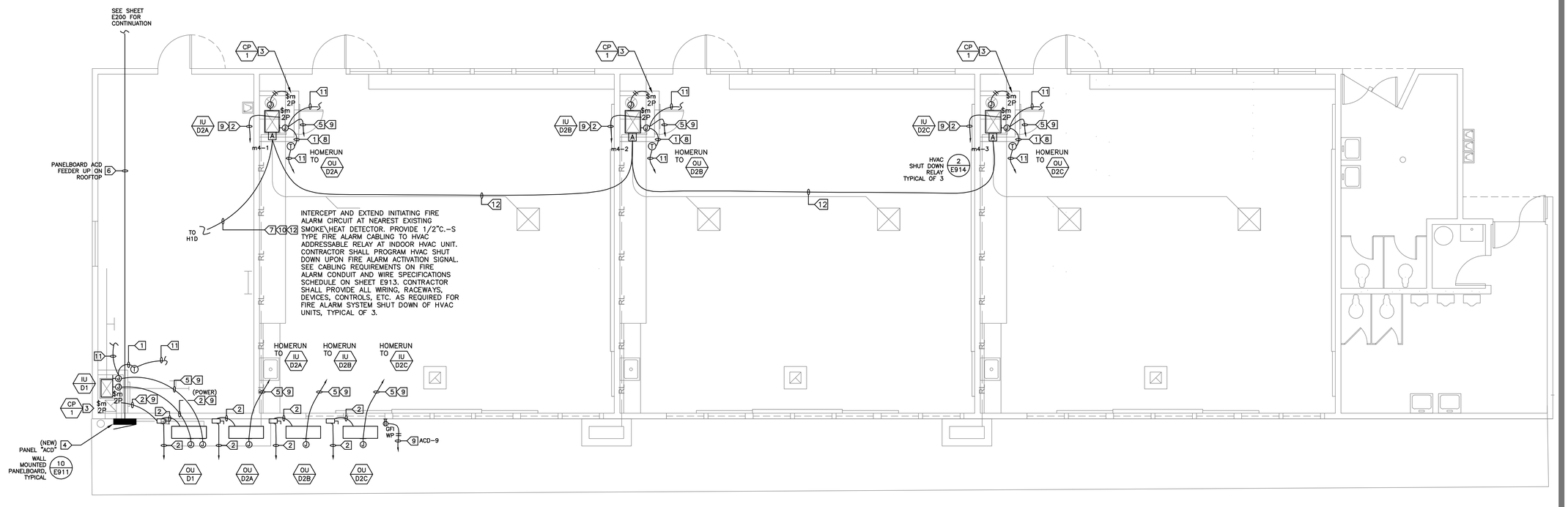
KEY NOTES

1. 1/2"C & HVAC CONTROL CABLING FROM HVAC UNIT TO THERMOSTAT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR DISCONNECT, FUSE, FEEDER, ETC. REQUIREMENTS. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL SHOP DRAWINGS AND APPROVED SUBMITTALS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
3. 1/2"C.–2#12 & 1#12 GND (POWER) TO CONDENSATE PUMP FROM INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CONTROL DEVICE & CABLING REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
4. NEW PANEL "ACD" TO BE WALL MOUNTED. SEE ELECTRICAL SINGLE LINE DIAGRAM ON SHEET E201 FOR FEEDER INFORMATION AND ADDITIONAL REQUIREMENTS.
5. 3/4"C. & HVAC CONTROL CABLING FROM OUTDOOR UNIT TO INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
6. CONTRACTOR SHALL ROUTE PANELBOARD "ACD" FEEDER ON ROOFTOP AND COVERED WALKWAYS TO NEW PANELBOARD LOCATION. CONTRACTOR SHALL PROVIDE CONDUIT SUPPORTS PER DETAIL 3/E911 AND PAINT CONDUITS TO MATCH SURROUNDING AREAS.
7. INTERCEPT AND EXTEND FIRE ALARM INITIATING CIRCUIT AND PROVIDE ADDRESSABLE RELAY AT HVAC UNITS. CONTRACTOR SHALL PROGRAM HVAC UNIT TO SHUT DOWN HVAC UNIT UPON FIRE ALARM ACTIVATION SIGNAL. VERIFY AND PROVIDE A FULLY OPERATIONAL HVAC UNIT SHUT DOWN RELAY FIRE ALARM SYSTEM AND REPROGRAM EXISTING CAMPUS FATC & FACP TO INCORPORATE NEW ADDRESSABLE HVAC RELAYS.
8. PROVIDE WIREMOLD 2300 RACEWAY FROM ABOVE CEILING JUNCTION BOX TO NEW DEVICE LOCATION. RUN WIREMOLD 2300 IN EXPOSED AREAS FROM DROPPED CEILING TO DOWN WALL TO DEVICE LOCATION. CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. SEE DETAIL 8\E911.
9. RUN ALL BRANCH CIRCUIT WIRING BELOW ROOF STRUCTURE IN ACCESSIBLE CEILING, PROVIDE ALL SUPPORTS, NEW CEILING WIRES, CADDY CLIPS, ETC. AS REQUIRED FOR A COMPLETE RACEWAY SUPPORT SYSTEM. ELECTRICAL CONTRACTOR SHALL RUN ELECTRICAL BRANCH CIRCUITS ADJACENT TO REFRIGERATION LINES.
10. CONTRACTOR SHALL RE–PROGRAM, RE–ADDRESS AND RESTORE A FULLY OPERATIONAL AND COMPLETE FIRE ALARM SYSTEM. CONTRACTOR SHALL PERFORM A CAMPUS WIDE FIRE ALARM TEST AND RECORD DOCUMENTS AFTER FIRE ALARM WORK IS COMPLETED.
11. 1/2"C & HVAC CONTROL CABLING TO PT–1. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
12. 1/2"C.– WITH TYPE S FIRE ALARM SYSTEM CABLING.

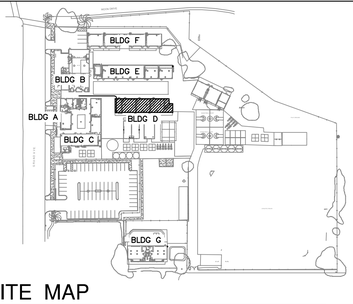
CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK–ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN–USE LOCKABLE #MX3200 OR EQUAL.

CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC, AS REQUIRED ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M–002 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.



1 BUILDING D HVAC POWER PLAN
SCALE : 1/4" = 1' – 0"



SITE MAP
SCALE: NONE

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DATE: 12/06/2024

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REGISTERED PROFESSIONAL ENGINEER CRAIG C. HOOD 15392 EXP. 6-30-25 ELECTRICAL STATE OF CALIFORNIA

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SHEET TITLE: BUILDING D HVAC POWER PLAN

SHEET
E602

MINOR ELECTRICAL DEMOLITION FOR REMODELING

1.0 EXAMINATION

A. OBTAIN RECORD DRAWINGS / AS-BUILTS FROM OWNER. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON RECORD DRAWINGS.

B. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.

C. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO OWNER AND ARCHITECT/ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.

D. BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.

2.0 PREPARATION

A. DISCONNECT AND MAKE SAFE ALL ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.

B. COORDINATE ELECTRICAL SERVICE OUTAGES WITH OWNER'S REPRESENTATIVE.

C. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN REQUIRED EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

D. EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER AT LEAST 72 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA WHEN OUTAGE AFFECTS BUSINESS OPERATION.

3.0 DEMOLITION AND EXTENSION OF EXISTING WORK

A. DEMOLISH AND EXTEND EXISTING ELECTRICAL WORK UNDER PROVISIONS OF THIS SECTION.

B. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.

C. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND RE-LABEL DEVICES AS SPARES.

D. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.

E. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.

F. DISCONNECT AND REMOVE ABANDONED DISTRIBUTION EQUIPMENT.

G. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.

H. DISCONNECT AND REMOVE ABANDONED CONDUIT.

I. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK.

J. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.

K. EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, AND IN COMPLIANCE WITH NEW PROJECT SPECIFICATIONS.

L. MODIFY EXISTING AS-BUILT DRAWINGS TO NOTE CHANGES.

4.0 CLEANING AND REPAIR

A. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED.

B. PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING REVISED CIRCUITING ARRANGEMENT.

5.0 INSTALLATION

A. INSTALL RELOCATED MATERIALS AND AS REQUIRED BY OWNER'S REPRESENTATIVE.

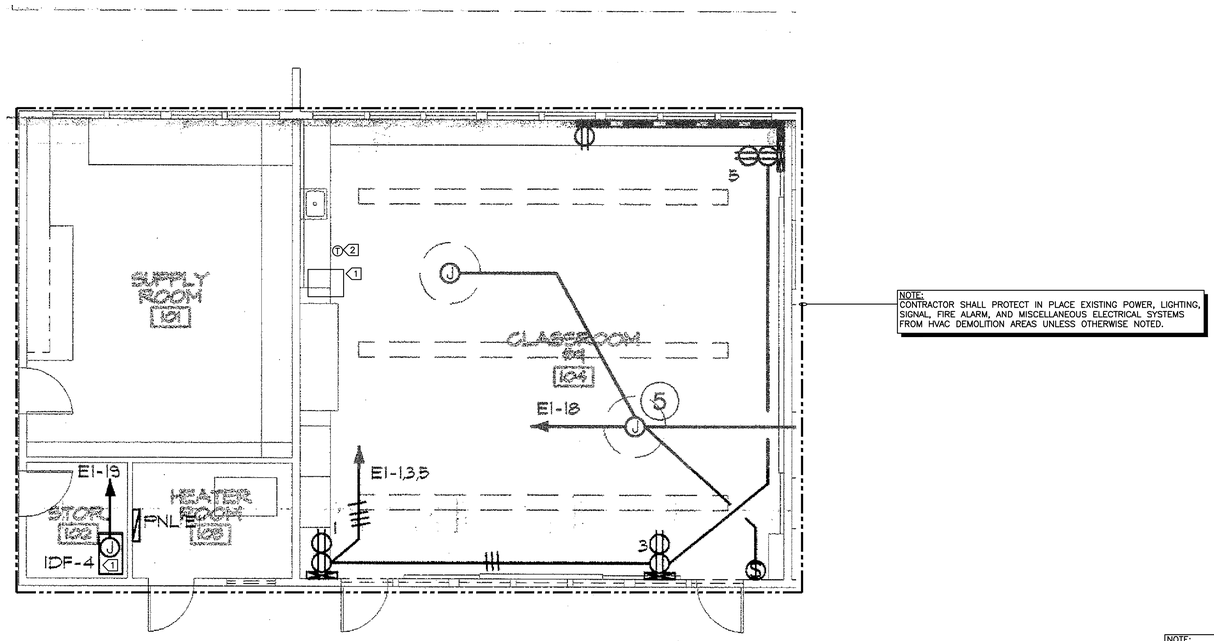
KEY NOTES

1 CONTRACTOR SHALL REMOVE EXISTING FURNACE, DISCONNECT, & HVAC CONTROLS, ETC. CONTRACTOR SHALL SAFE OFF ELECTRICAL TERMINATIONS AND MARK AND IDENTIFY UNUSED JUNCTION BOXES AND CIRCUITS WHERE CIRCUITS ARE TO BE REUSED IN NEW HVAC POWER PLANS. CONTRACTOR SHALL INTERCEPT AND EXTEND EXISTING BRANCH CIRCUIT WIRING TO REFEED NEW/REPLACED FURNACE.

2 REMOVE EXISTING THERMOSTAT AND PROTECT FOR FUTURE INSTALLATION. DEMOLISH CONTROL CABLING AND RACEWAYS PER MECHANICAL DRAWINGS. REPATCH, RESURFACE, AND PAINT DEMOLITION AREAS TO MATCH SURROUNDING AREAS.

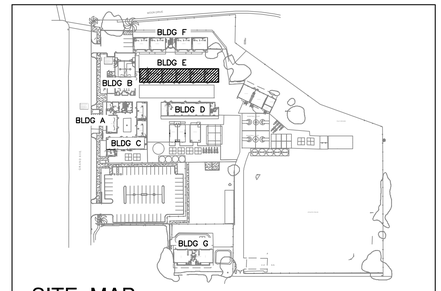
DEMOLITION NOTES

1. SCOPE: PROVIDE AND PERFORM DEMOLITION, PREPARATORY AND MISCELLANEOUS WORK IN AREAS AS INDICATED AND SPECIFIED, COMPLETE.
2. DEMOLITION AND REMOVAL OF EXISTING ELECTRICAL CONDUIT, WIRING AND EQUIPMENT REQUIRED TO COMPLETE THE PROJECT.
3. PREPARATION OF THE EXISTING BUILDING TO RECEIVE OR CONNECT THE NEW WORK.
4. MISCELLANEOUS DEMOLITION, CUTTING, ALTERATION, AND REPAIR WORK ON EXISTING SITE AND IN THE EXISTING BUILDING NECESSARY FOR THE COMPLETION OF THE ENTIRE PROJECT.
5. DISCONNECTING AND RECONNECTION OF ELECTRICAL EQUIPMENT AS REQUIRED BY THE CONSTRUCTION MODIFICATIONS.
6. EXISTING CONDITIONS: PRIOR TO BID MAKE A DETAILED SURVEY OF THE EXISTING CONDITIONS PERTAINING TO THE WORK. CHECK THE LOCATIONS OF ALL EXISTING STRUCTURES, EQUIPMENT AND WIRING (BRANCH CIRCUITING AND CONTROLS). CHECK FOR ANY HAZARDOUS MATERIALS WHICH MAY REQUIRE SPECIAL HANDLING.
7. SALVAGE AND DISPOSAL: ALL REMOVED MATERIAL OTHER THAN ITEMS TO BE REUSED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF IN ACCORDANCE WITH INSTRUCTIONS FROM THE OWNER'S REPRESENTATIVE. DISPOSAL SHALL BE DONE IN ACCORDANCE WITH EPA AND GOVERNING BODY REQUIREMENTS AND REGULATIONS. CONTRACTOR SHALL PAY FEES AND CHARGES FOR DISPOSAL.
8. TWO WEEKS PRIOR TO START OF ANY WORK CONTRACTOR SHALL SCHEDULE ALL WORK AND ELECTRICAL SYSTEM OUTAGES WITH OWNERS WRITTEN APPROVAL.
9. PROTECT ALL EXISTING POWER, MOTORS AND RELATED EQUIPMENT, ALARM SYSTEM, LIGHTING AND CONTROL SYSTEMS, AND TELEPHONE EQUIPMENT, NOT SCHEDULED FOR REMOVAL IN PLACE.
10. CONTRACTOR SHALL LEAVE ALL POWER AND SIGNAL CIRCUITS ENERGIZED, VIA JUNCTION BOX. TO DEVICES IN AREAS OUTSIDE OF DEMOLITION AREA EVEN IF SYSTEMS ARE ROUTED THROUGH DEMOLITION AREA.



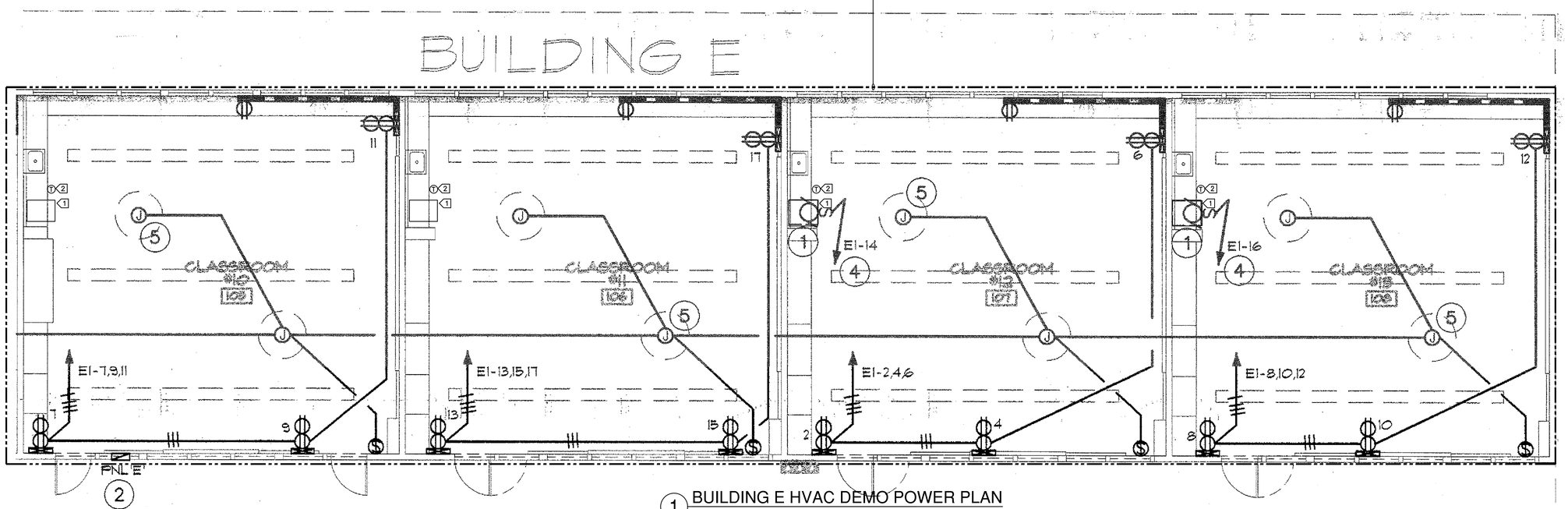
NOTE:
CONTRACTOR SHALL PROTECT IN PLACE EXISTING POWER, LIGHTING, SIGNAL, FIRE ALARM, AND MISCELLANEOUS ELECTRICAL SYSTEMS FROM HVAC DEMOLITION AREAS UNLESS OTHERWISE NOTED.

2 BUILDING E HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"



SITE MAP
SCALE: NONE

NOTE:
CONTRACTOR SHALL PROTECT IN PLACE EXISTING POWER, LIGHTING, SIGNAL, FIRE ALARM, AND MISCELLANEOUS ELECTRICAL SYSTEMS FROM HVAC DEMOLITION AREAS UNLESS OTHERWISE NOTED.



1 BUILDING E HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"

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SHEET TITLE: BUILDING E HVAC DEMO POWER PLANS

SHEET
E701

CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK-ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN-USE LOCKABLE #MX3200 OR EQUAL.

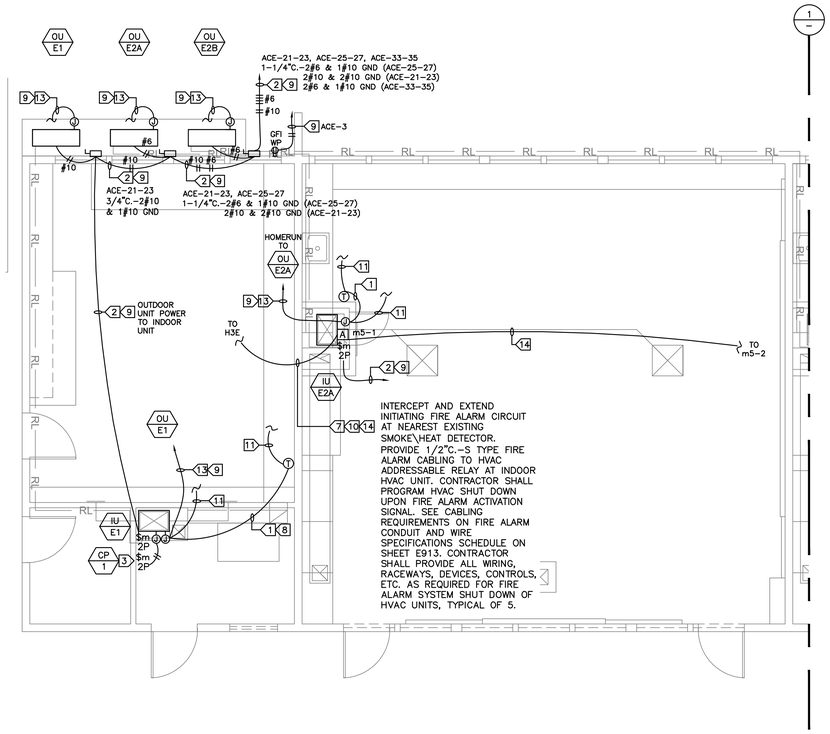
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KEY NOTES

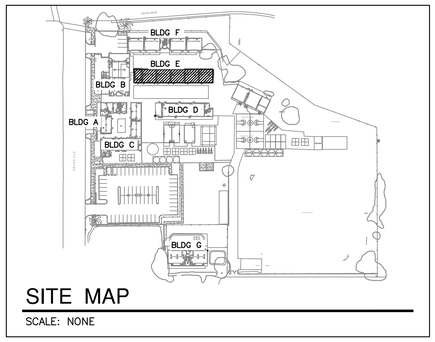
1. 1/2"C & HVAC CONTROL CABLING FROM HVAC UNIT TO THERMOSTAT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR DISCONNECT, FUSE, FEEDER, ETC. REQUIREMENTS. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL SHOP DRAWINGS AND APPROVED SUBMITTALS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
3. 1/2"C.-2#12 & 1#12 GND (POWER) TO CONDENSATE PUMP FROM INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CONTROL DEVICE & CABLING REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
4. NEW PANEL "ACE" TO BE WALL MOUNTED. SEE ELECTRICAL SINGLE LINE DIAGRAM ON SHEET E201 FOR FEEDER INFORMATION AND ADDITIONAL REQUIREMENTS.
5. CONTRACTOR SHALL SAW CUT, TRENCH, & PROVIDE NEW FEEDERS TO NEW PANELBOARD "ACE" FROM EXISTING CAMPUS SWITCHBOARD "MS". SEE SINGLE LINE DIAGRAM ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
6. APPROXIMATE LOCATION OF EXISTING UNDERGROUND POWER SYSTEMS. CONTRACTOR SHALL HIRE DIG ALERT AND FIELD VERIFY EXISTING ELECTRICAL, COMMUNICATION, FIRE ALARM, & OTHER UTILITIES SYSTEMS PRIOR STARTING TRENCH WORK.
7. INTERCEPT AND EXTEND FIRE ALARM INITIATING CIRCUIT AND PROVIDE ADDRESSABLE RELAY AT HVAC UNITS. CONTRACTOR SHALL PROGRAM HVAC UNIT TO SHUT DOWN HVAC UNIT UPON FIRE ALARM ACTIVATION SIGNAL. VERIFY AND PROVIDE A FULLY OPERATIONAL HVAC UNIT SHUT DOWN RELAY FIRE ALARM SYSTEM AND REPROGRAM EXISTING CAMPUS FATC & FACP TO INCORPORATE NEW ADDRESSABLE HVAC RELAYS.
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10. CONTRACTOR SHALL RE-PROGRAM, RE-ADDRESS AND RESTORE A FULLY OPERATIONAL AND COMPLETE FIRE ALARM SYSTEM. CONTRACTOR SHALL PERFORM A CAMPUS WIDE FIRE ALARM TEST AND RECORD DOCUMENTS AFTER FIRE ALARM WORK IS COMPLETED.
11. 1/2"C & HVAC CONTROL CABLING TO PT-1. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
12. CONTRACTOR SHALL SAW CUT, TRENCH, & PROVIDE NEW FEEDERS TO NEW PANELBOARD "ACG" FROM EXISTING CAMPUS SWITCHBOARD "MS". SEE SINGLE LINE DIAGRAM ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
13. 3/4"C. & HVAC CONTROL CABLING FROM OUTDOOR UNIT TO INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
14. 1/2"C.- WITH TYPE S FIRE ALARM SYSTEM CABLING.

SHEET NOTES

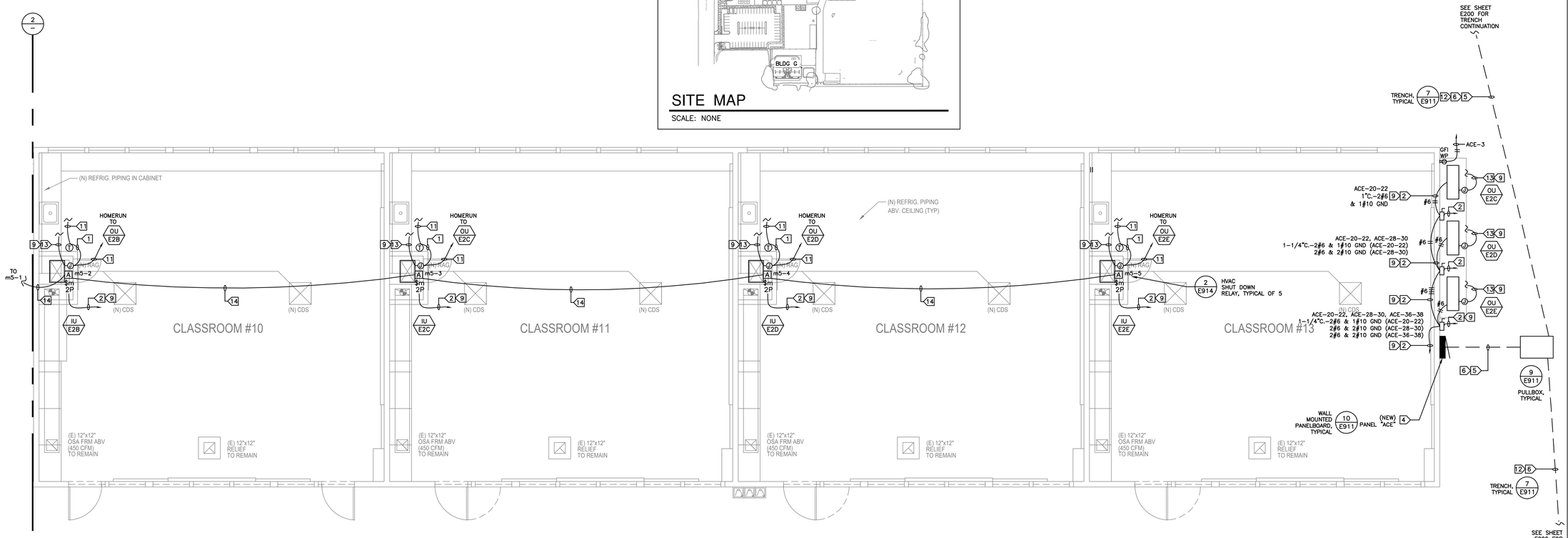
1. FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR ELECTRICAL REQUIREMENTS.
3. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
4. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, 3/4" MINIMUM, AND USE THREADED CONDUIT FITTINGS.
5. THE FINAL CONNECTIONS TO EQUIPMENT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT. INSTALL WITH ENOUGH SLACK TO PRECLUDE VIBRATION TRANSMISSION. SUPPORT SHALL BE PER N.E.C.
6. PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
7. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL CONTRACTOR SHOP DRAWINGS AND APPROVED SUBMITTALS.
8. ALL CONDUIT SHALL BE MOUNTED ON UNISTRUT ON SUPPORTS.
9. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID, ROUGH -IN, & INSTALLATION.
10. EACH DISCONNECT OR STARTER AND A SPARE SET OF FUSES SHALL BE CONTRACTOR PROVIDED.
11. ALL MECHANICAL EQUIPMENT CONTROL WIRING SHALL BE RUN IN 1/2" CONDUIT MINIMUM U.O.N.
12. FINAL CONNECTION TO HVAC EQUIPMENT AND ANY VIBRATING MACHINERY SHALL USE LIQUID TIGHT FLEXIBLE CONDUIT.
13. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
14. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
15. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
16. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
17. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
18. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
19. VERIFY THE EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION. PAINT EXPOSED CONDUITS TO MATCH SURROUNDING AREAS.
20. SEE DETAILS 5&6 ON SHEET E911 FOR ALL WALL PENETRATION REQUIREMENTS. EXTERIOR POWER AND HVAC CONTROLS CONDUITS CONTRACTOR SHALL PAINT CONDUIT, JUNCTION BOXES, CONDUIT SUPPORTS, ETC. TO MATCH SURROUNDING AREAS.



2 BUILDING E HVAC POWER PLAN
SCALE : 1/4" = 1' - 0"



SITE MAP
SCALE: NONE



1 BUILDING E HVAC POWER PLAN
SCALE : 1/4" = 1' - 0"

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DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

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PATRICK B. PANLAQUI
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DATE	10/11/2024		
JOB. NO.	23053		

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SHEET TITLE: BUILDING E HVAC POWER PLANS

SHEET
E702

MINOR ELECTRICAL DEMOLITION FOR REMODELING

1.0 EXAMINATION

A. OBTAIN RECORD DRAWINGS / AS-BUILTS FROM OWNER. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON RECORD DRAWINGS.

B. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.

C. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO OWNER AND ARCHITECT/ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.

D. BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.

2.0 PREPARATION

A. DISCONNECT AND MAKE SAFE ALL ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.

B. COORDINATE ELECTRICAL SERVICE OUTAGES WITH OWNER'S REPRESENTATIVE.

C. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN REQUIRED EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

D. EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER AT LEAST 72 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA WHEN OUTAGE AFFECTS BUSINESS OPERATION.

3.0 DEMOLITION AND EXTENSION OF EXISTING WORK

A. DEMOLISH AND EXTEND EXISTING ELECTRICAL WORK UNDER PROVISIONS OF THIS SECTION.

B. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.

C. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND RE-LABEL DEVICES AS SPARES.

D. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.

E. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.

F. DISCONNECT AND REMOVE ABANDONED DISTRIBUTION EQUIPMENT.

G. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.

H. DISCONNECT AND REMOVE ABANDONED CONDUIT.

I. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK.

J. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.

K. EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, AND IN COMPLIANCE WITH NEW PROJECT SPECIFICATIONS.

L. MODIFY EXISTING AS-BUILT DRAWINGS TO NOTE CHANGES.

4.0 CLEANING AND REPAIR

A. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED.

B. PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING REVISED CIRCUITING ARRANGEMENT.

5.0 INSTALLATION

A. INSTALL RELOCATED MATERIALS AND AS REQUIRED BY OWNER'S REPRESENTATIVE.

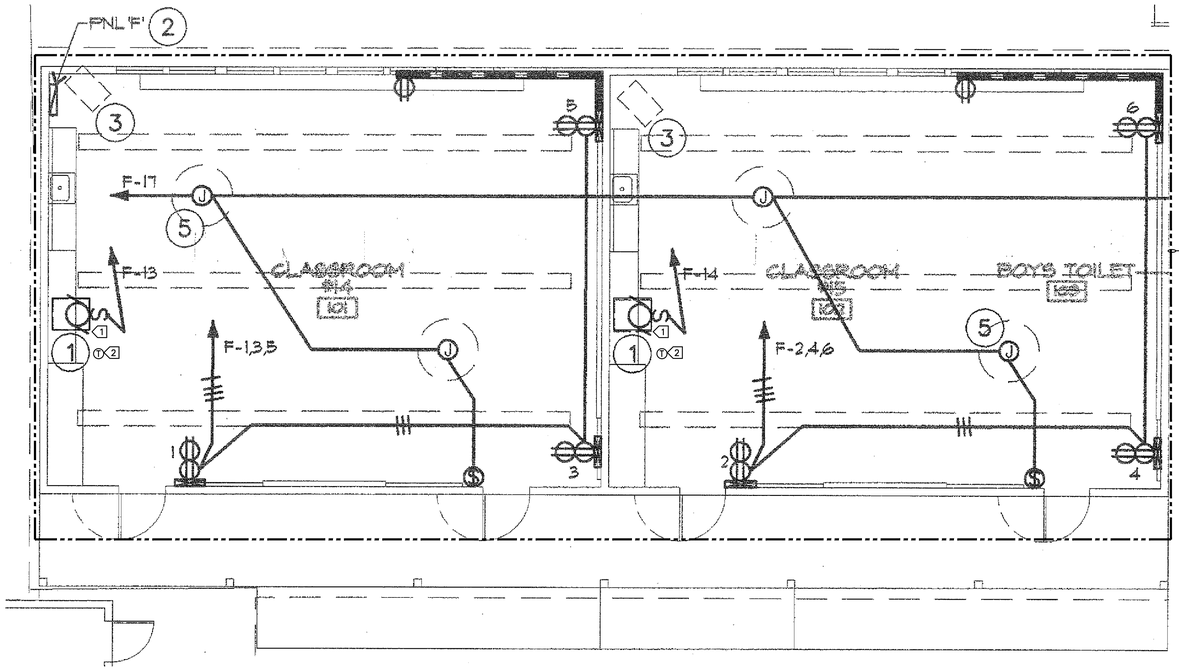
KEY NOTES

1 CONTRACTOR SHALL REMOVE EXISTING FURNACE, DISCONNECT, & HVAC CONTROLS, ETC. CONTRACTOR SHALL SAFE OFF ELECTRICAL TERMINATIONS AND MARK AND IDENTIFY UNUSED JUNCTION BOXES AND CIRCUITS WHERE CIRCUITS ARE TO BE REUSED IN NEW HVAC POWER PLANS. CONTRACTOR SHALL INTERCEPT AND EXTEND EXISTING BRANCH CIRCUIT WIRING TO REFEED NEW/REPLACED FURNACE.

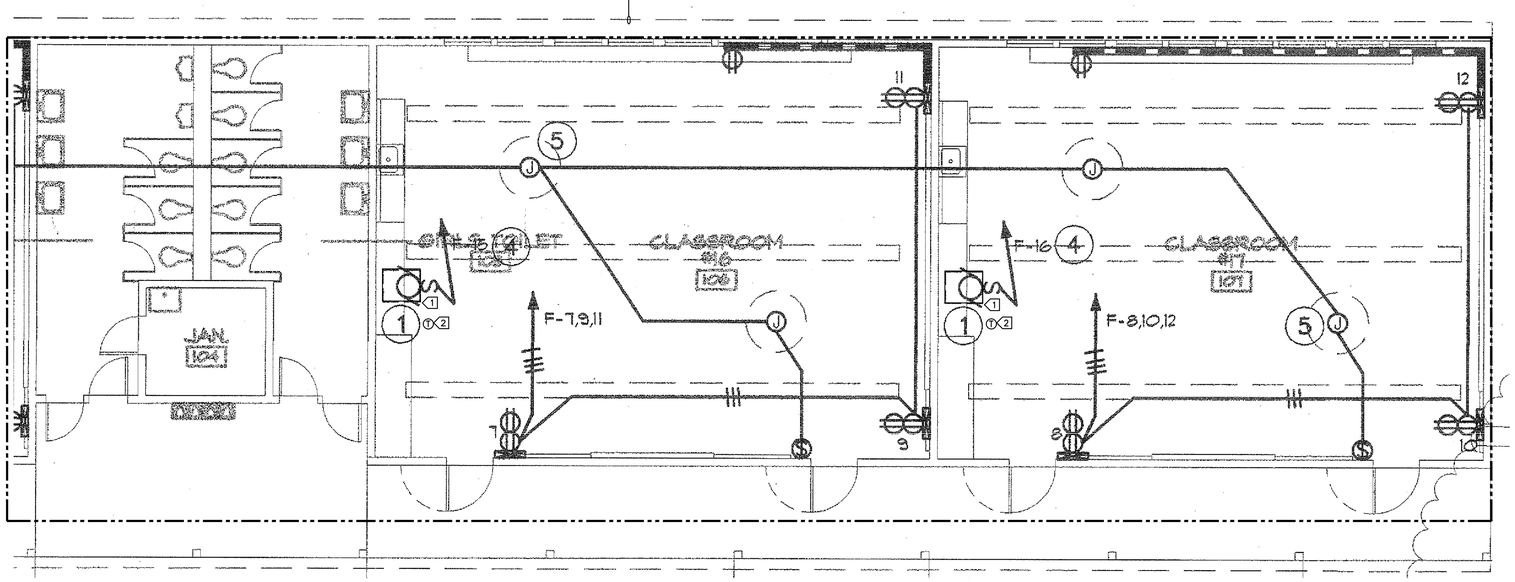
2 REMOVE EXISTING THERMOSTAT AND PROTECT FOR FUTURE INSTALLATION. DEMOLISH CONTROL CABLING AND RACEWAYS PER MECHANICAL DRAWINGS. REPATCH, RESURFACE, AND PAINT DEMOLITION AREAS TO MATCH SURROUNDING AREAS.

DEMOLITION NOTES

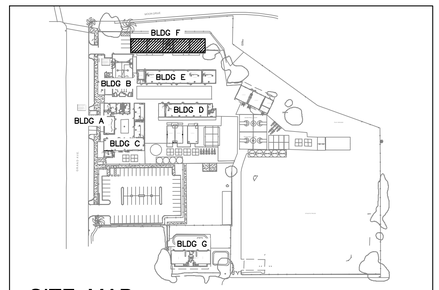
1. SCOPE: PROVIDE AND PERFORM DEMOLITION, PREPARATORY AND MISCELLANEOUS WORK IN AREAS AS INDICATED AND SPECIFIED, COMPLETE.
2. DEMOLITION AND REMOVAL OF EXISTING ELECTRICAL CONDUIT, WIRING AND EQUIPMENT REQUIRED TO COMPLETE THE PROJECT.
3. PREPARATION OF THE EXISTING BUILDING TO RECEIVE OR CONNECT THE NEW WORK.
4. MISCELLANEOUS DEMOLITION, CUTTING, ALTERATION, AND REPAIR WORK ON EXISTING SITE AND IN THE EXISTING BUILDING NECESSARY FOR THE COMPLETION OF THE ENTIRE PROJECT.
5. DISCONNECTING AND RECONNECTION OF ELECTRICAL EQUIPMENT AS REQUIRED BY THE CONSTRUCTION MODIFICATIONS.
6. EXISTING CONDITIONS: PRIOR TO BID MAKE A DETAILED SURVEY OF THE EXISTING CONDITIONS PERTAINING TO THE WORK. CHECK THE LOCATIONS OF ALL EXISTING STRUCTURES, EQUIPMENT AND WIRING (BRANCH CIRCUITING AND CONTROLS). CHECK FOR ANY HAZARDOUS MATERIALS WHICH MAY REQUIRE SPECIAL HANDLING.
7. SALVAGE AND DISPOSAL: ALL REMOVED MATERIAL OTHER THAN ITEMS TO BE REUSED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF IN ACCORDANCE WITH INSTRUCTIONS FROM THE OWNER'S REPRESENTATIVE. DISPOSAL SHALL BE DONE IN ACCORDANCE WITH EPA AND GOVERNING BODY REQUIREMENTS AND REGULATIONS. CONTRACTOR SHALL PAY FEES AND CHARGES FOR DISPOSAL.
8. TWO WEEKS PRIOR TO START OF ANY WORK CONTRACTOR SHALL SCHEDULE ALL WORK AND ELECTRICAL SYSTEM OUTAGES WITH OWNERS WRITTEN APPROVAL.
9. PROTECT ALL EXISTING POWER, MOTORS AND RELATED EQUIPMENT, ALARM SYSTEM, LIGHTING AND CONTROL SYSTEMS, AND TELEPHONE EQUIPMENT, NOT SCHEDULED FOR REMOVAL IN PLACE.
10. CONTRACTOR SHALL LEAVE ALL POWER AND SIGNAL CIRCUITS ENERGIZED, VIA JUNCTION BOX. TO DEVICES IN AREAS OUTSIDE OF DEMOLITION AREA EVEN IF SYSTEMS ARE ROUTED THROUGH DEMOLITION AREA.



2 BUILDING F HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"



1 BUILDING F HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"



SITE MAP
SCALE: NONE

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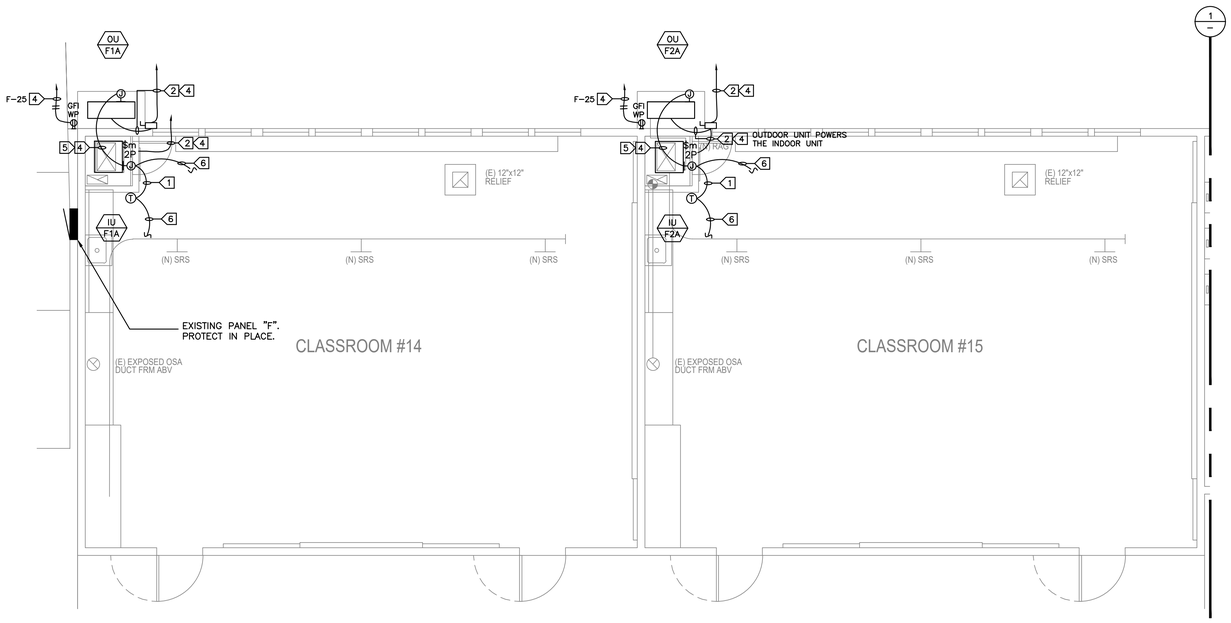
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DATE	10/11/2024		
JOB. NO.	23053		

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SHEET TITLE: BUILDING F HVAC DEMO POWER PLANS

SHEET
E801



2 BUILDING F HVAC POWER PLAN

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

CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK-ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS. LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GFS3629WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN-USE LOCKABLE #MX3200 OR EQUAL.

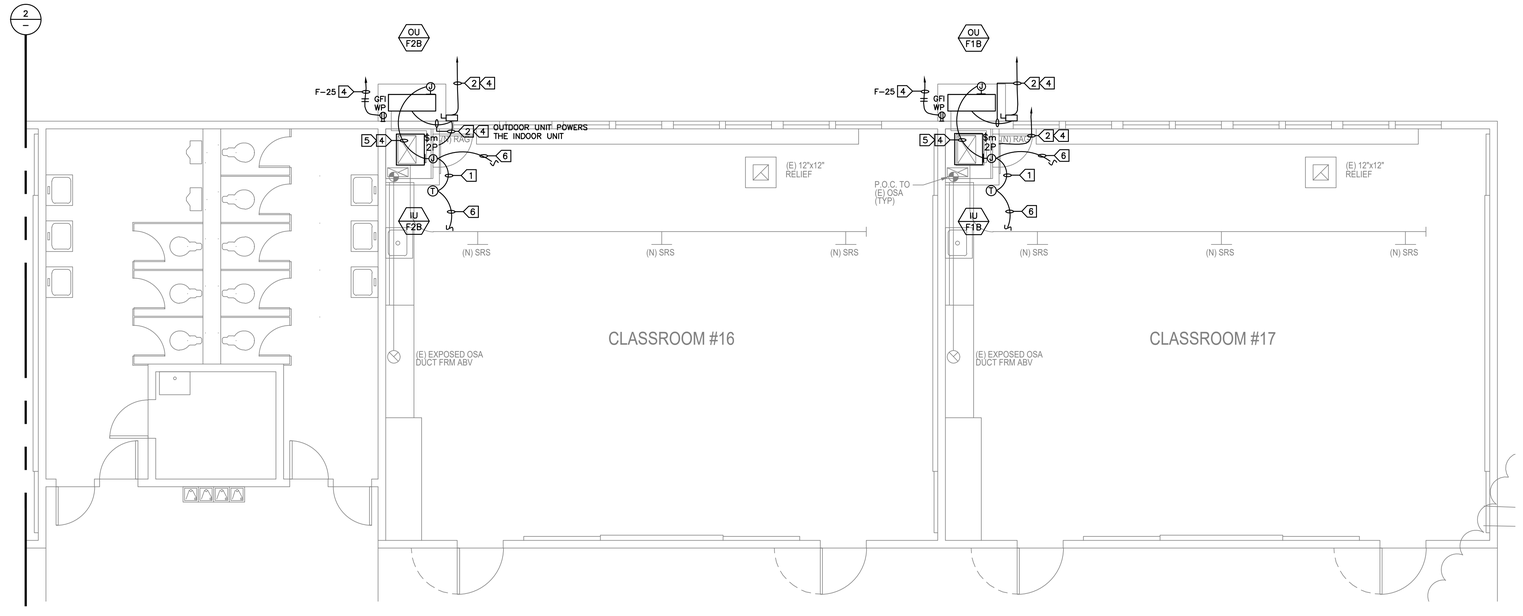
CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC. AS REQUIRED ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M-002 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.

KEY NOTES

1. 1/2"C & HVAC CONTROL CABLING FROM HVAC UNIT TO THERMOSTAT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR DISCONNECT, FUSE, FEEDER, ETC. REQUIREMENTS. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL SHOP DRAWINGS AND APPROVED SUBMITTALS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
3. PROVIDE WIREMOLD 2300 RACEWAY FROM ABOVE CEILING JUNCTION BOX TO NEW DEVICE LOCATION. RUN WIREMOLD 2300 IN EXPOSED AREAS FROM DROPPED CEILING TO DOWN WALL TO DEVICE LOCATION. CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. SEE DETAIL 8\E911.
4. RUN ALL BRANCH CIRCUIT WIRING BELOW ROOF STRUCTURE IN ACCESSIBLE CEILING, PROVIDE ALL SUPPORTS, NEW CEILING WIRES, CADDY CLIPS, ETC. AS REQUIRED FOR A COMPLETE RACEWAY SUPPORT SYSTEM. ELECTRICAL CONTRACTOR SHALL RUN ELECTRICAL BRANCH CIRCUITS ADJACENT TO REFRIGERATION LINES.
5. 3/4"C. & HVAC CONTROL CABLING FROM OUTDOOR UNIT TO INDOOR UNIT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.
6. 1/2"C & HVAC CONTROL CABLING TO PT-1. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

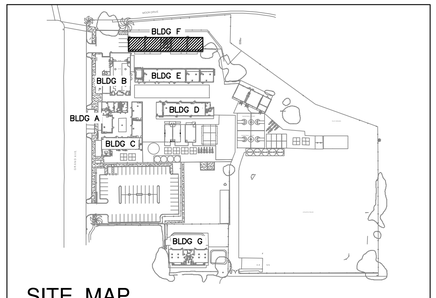
SHEET NOTES

1. FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR ELECTRICAL REQUIREMENTS.
3. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
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6. PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
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17. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
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1 BUILDING F HVAC POWER PLAN

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



SITE MAP

SCALE: NONE

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JOB NO.	23053		

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SHEET TITLE: BUILDING F HVAC POWER PLANS

SHEET
E802

MINOR ELECTRICAL DEMOLITION FOR REMODELING

1.0 EXAMINATION

A. OBTAIN RECORD DRAWINGS / AS-BUILTS FROM OWNER. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON RECORD DRAWINGS.

B. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.

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D. BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.

2.0 PREPARATION

A. DISCONNECT AND MAKE SAFE ALL ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.

B. COORDINATE ELECTRICAL SERVICE OUTAGES WITH OWNER'S REPRESENTATIVE.

C. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN REQUIRED EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

D. EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER AT LEAST 72 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA WHEN OUTAGE AFFECTS BUSINESS OPERATION.

3.0 DEMOLITION AND EXTENSION OF EXISTING WORK

A. DEMOLISH AND EXTEND EXISTING ELECTRICAL WORK UNDER PROVISIONS OF THIS SECTION.

B. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.

C. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND RE-LABEL DEVICES AS SPARES.

D. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.

E. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.

F. DISCONNECT AND REMOVE ABANDONED DISTRIBUTION EQUIPMENT.

G. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.

H. DISCONNECT AND REMOVE ABANDONED CONDUIT.

I. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK.

J. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.

K. EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, AND IN COMPLIANCE WITH NEW PROJECT SPECIFICATIONS.

L. MODIFY EXISTING AS-BUILT DRAWINGS TO NOTE CHANGES.

4.0 CLEANING AND REPAIR

A. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED.

B. PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING REVISED CIRCUITING ARRANGEMENT.

5.0 INSTALLATION

A. INSTALL RELOCATED MATERIALS AND AS REQUIRED BY OWNER'S REPRESENTATIVE.

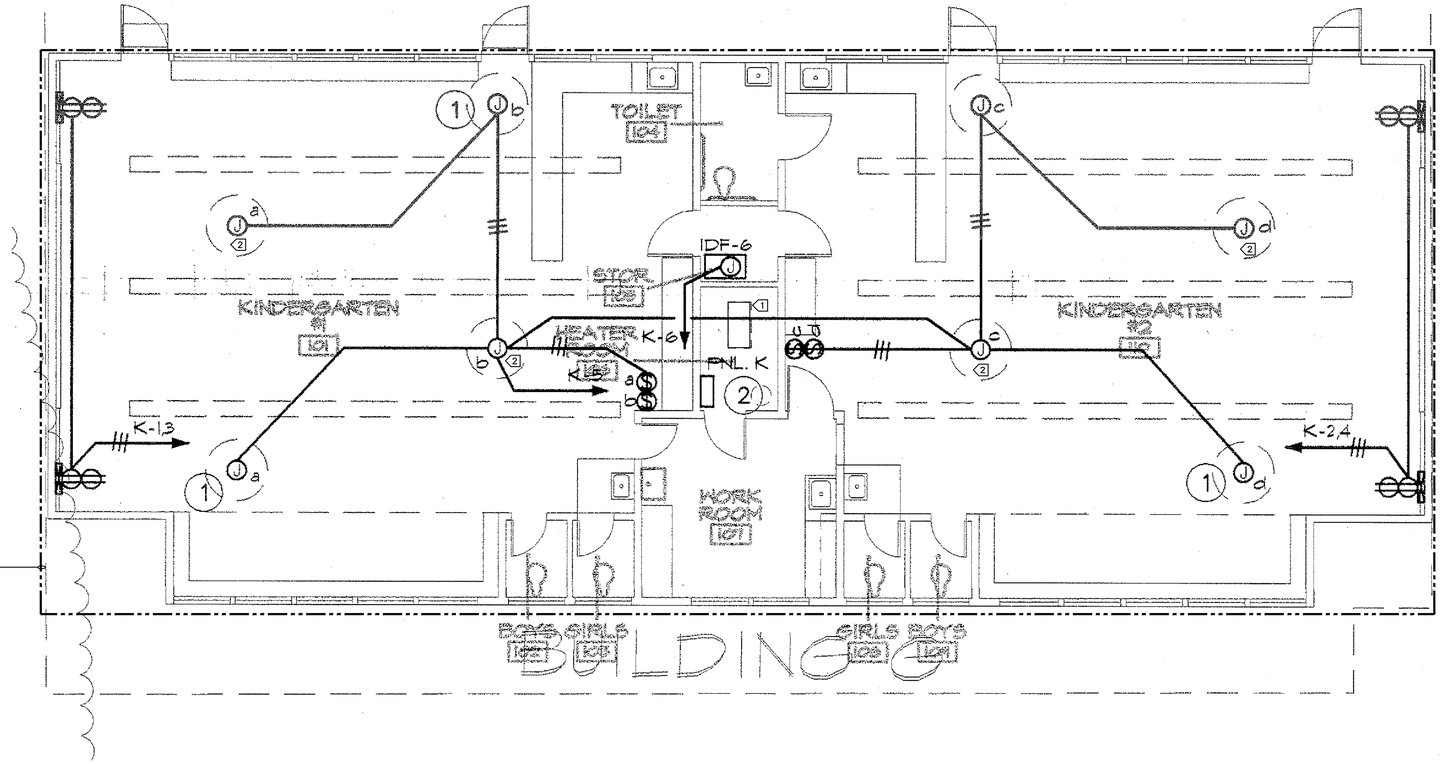
KEY NOTES

1 CONTRACTOR SHALL REMOVE EXISTING FURNACE, DISCONNECT, & HVAC CONTROLS, ETC. CONTRACTOR SHALL SAFE OFF ELECTRICAL TERMINATIONS AND MARK AND IDENTIFY UNUSED JUNCTION BOXES AND CIRCUITS WHERE CIRCUITS ARE TO BE REUSED IN NEW HVAC POWER PLANS. CONTRACTOR SHALL INTERCEPT AND EXTEND EXISTING BRANCH CIRCUIT WIRING TO REFEED NEW/REPLACED FURNACE.

2 EXISTING CEILING FANS TO BE REMOVED. CONTRACTOR SHALL SAFE-OFF EXISTING ELECTRICAL CIRCUITS AT JUNCTION BOXES AND LABEL PER CEC REQUIREMENTS. CONTRACTOR SHALL RESURFACE EXISTING CEILING STRUCTURES AT DEMOLITION AREAS AND PAINT AREA TO MATCH SURROUNDING AREAS. EXISTING CEILING FANS NOT SHOWN TO BE REMOVED SHALL BE RESTORED TO FULL SWITCH CONTROL OPERATION.

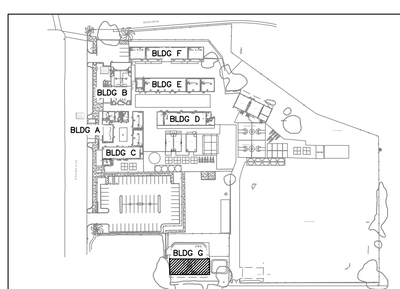
DEMOLITION NOTES

1. SCOPE: PROVIDE AND PERFORM DEMOLITION, PREPARATORY AND MISCELLANEOUS WORK IN AREAS AS INDICATED AND SPECIFIED, COMPLETE.
2. DEMOLITION AND REMOVAL OF EXISTING ELECTRICAL CONDUIT, WIRING AND EQUIPMENT REQUIRED TO COMPLETE THE PROJECT.
3. PREPARATION OF THE EXISTING BUILDING TO RECEIVE OR CONNECT THE NEW WORK.
4. MISCELLANEOUS DEMOLITION, CUTTING, ALTERATION, AND REPAIR WORK ON EXISTING SITE AND IN THE EXISTING BUILDING NECESSARY FOR THE COMPLETION OF THE ENTIRE PROJECT.
5. DISCONNECTING AND RECONNECTION OF ELECTRICAL EQUIPMENT AS REQUIRED BY THE CONSTRUCTION MODIFICATIONS.
6. EXISTING CONDITIONS: PRIOR TO BID MAKE A DETAILED SURVEY OF THE EXISTING CONDITIONS PERTAINING TO THE WORK. CHECK THE LOCATIONS OF ALL EXISTING STRUCTURES, EQUIPMENT AND WIRING (BRANCH CIRCUITING AND CONTROLS). CHECK FOR ANY HAZARDOUS MATERIALS WHICH MAY REQUIRE SPECIAL HANDLING.
7. SALVAGE AND DISPOSAL: ALL REMOVED MATERIAL OTHER THAN ITEMS TO BE REUSED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF IN ACCORDANCE WITH INSTRUCTIONS FROM THE OWNER'S REPRESENTATIVE. DISPOSAL SHALL BE DONE IN ACCORDANCE WITH EPA AND GOVERNING BODY REQUIREMENTS AND REGULATIONS. CONTRACTOR SHALL PAY FEES AND CHARGES FOR DISPOSAL.
8. TWO WEEKS PRIOR TO START OF ANY WORK CONTRACTOR SHALL SCHEDULE ALL WORK AND ELECTRICAL SYSTEM OUTAGES WITH OWNERS WRITTEN APPROVAL.
9. PROTECT ALL EXISTING POWER, MOTORS AND RELATED EQUIPMENT, ALARM SYSTEM, LIGHTING AND CONTROL SYSTEMS, AND TELEPHONE EQUIPMENT, NOT SCHEDULED FOR REMOVAL IN PLACE.
10. CONTRACTOR SHALL LEAVE ALL POWER AND SIGNAL CIRCUITS ENERGIZED, VIA JUNCTION BOX. TO DEVICES IN AREAS OUTSIDE OF DEMOLITION AREA EVEN IF SYSTEMS ARE ROUTED THROUGH DEMOLITION AREA.



NOTE:
CONTRACTOR SHALL PROTECT IN PLACE EXISTING POWER, LIGHTING, SIGNAL, FIRE ALARM, AND MISCELLANEOUS ELECTRICAL SYSTEMS FROM HVAC DEMOLITION AREAS UNLESS OTHERWISE NOTED.

1 BUILDING G HVAC DEMO POWER PLAN
SCALE : 1/4" = 1' - 0"



SITE MAP
SCALE: NONE

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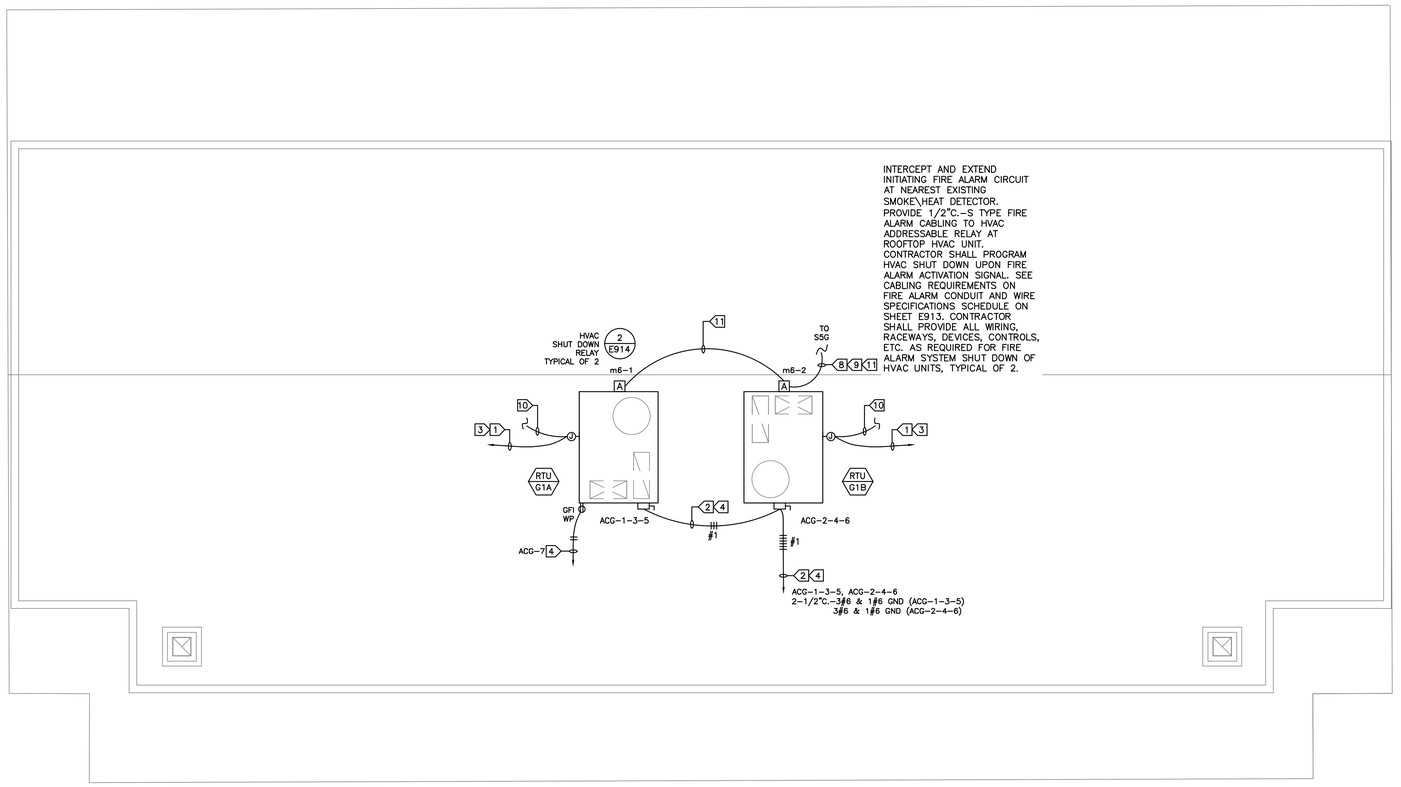
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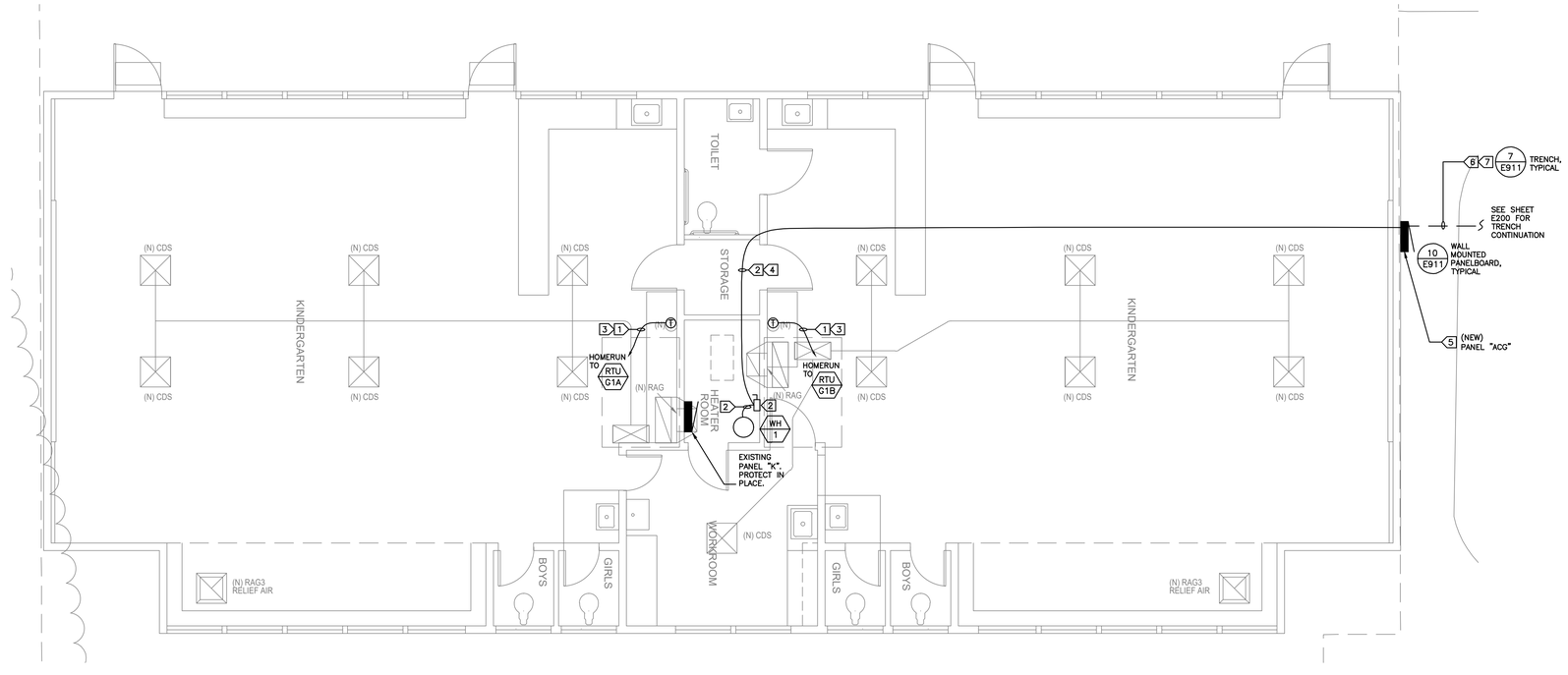
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SHEET TITLE: BUILDING G HVAC DEMO POWER PLAN

SHEET
E901



2 BUILDING G HVAC ROOF POWER PLAN
SCALE : 1/4" = 1' – 0"



1 BUILDING G HVAC POWER PLAN
SCALE : 1/4" = 1' – 0"

KEY NOTES

8 INTERCEPT AND EXTEND FIRE ALARM INITIATING CIRCUIT AND PROVIDE ADDRESSABLE RELAY AT HVAC UNITS. CONTRACTOR SHALL PROGRAM HVAC UNIT TO SHUT DOWN HVAC UNIT UPON FIRE ALARM ACTIVATION SIGNAL. VERIFY AND PROVIDE A FULLY OPERATIONAL HVAC UNIT SHUT DOWN RELAY FIRE ALARM SYSTEM AND REPROGRAM EXISTING CAMPUS FATC & FACP TO INCORPORATE NEW ADDRESSABLE HVAC RELAYS.

9 CONTRACTOR SHALL RE–PROGRAM, RE–ADDRESS AND RESTORE A FULLY OPERATIONAL AND COMPLETE FIRE ALARM SYSTEM. CONTRACTOR SHALL PERFORM A CAMPUS WIDE FIRE ALARM TEST AND RECORD DOCUMENTS AFTER FIRE ALARM WORK IS COMPLETED.

10 1/2"C & HVAC CONTROL CABLING TO PE–1/PT–1. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

11 1/2"C.– WITH TYPE S FIRE ALARM SYSTEM CABLING.

CONTRACTOR SHALL PROVIDE ELECTRICAL HEAVY DUTY SAFETY DISCONNECTS FOR ALL HVAC UNITS WITH LOCK–ON DEVICE HARDWARE. CONTRACTOR SHALL PROVIDE LOCKS AND MASTER KEYS TO OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE OUTDOOR GFI RECEPTACLES WITH LOCKABLE RGS WEATHERPROOF COVERS, LOCKS, AND MASTER KEYS FOR SCHOOL CUSTODIAN. TYPICAL FOR ALL HVAC MAINTENANCE RECEPTACLES. CONTRACTOR SHALL PROVIDE HUBBELL CAT #GF5362WA WITH COVER BY TAYMAC CORPORATION EXTRA DUTY METAL IN–USE LOCKABLE #MX3200 OR EQUAL.

CONTRACTOR TO INCLUDE IN BID PROPOSAL 120V RECEPTACLE POWER FOR HVAC PELICAN RELAY MODULES, HVAC CONTROL REPEATERS, CONDENSATE PUMPS, ETC. AS REQUIRED ON MECHANICAL PLANS. SEE CONTROL SCHEDULE ON M–002 FOR POWER REQUIREMENTS AND MECHANICAL PLANS FOR DEVICE LOCATIONS.

SHEET NOTES

1. FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
2. SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR ELECTRICAL REQUIREMENTS.
3. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
4. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, 3/4" MINIMUM, AND USE THREADED CONDUIT FITTINGS.
5. THE FINAL CONNECTIONS TO EQUIPMENT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT. INSTALL WITH ENOUGH SLACK TO PRECLUDE VIBRATION TRANSMISSION. SUPPORT SHALL BE PER N.E.C.
6. PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
7. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL CONTRACTOR SHOP DRAWINGS AND APPROVED SUBMITTALS.
8. ALL CONDUIT SHALL BE MOUNTED ON UNISTRUT ON SUPPORTS.
9. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID, ROUGH –IN, & INSTALLATION.
10. EACH DISCONNECT OR STARTER AND A SPARE SET OF FUSES SHALL BE CONTRACTOR PROVIDED.
11. ALL MECHANICAL EQUIPMENT CONTROL WIRING SHALL BE RUN IN 1/2" CONDUIT MINIMUM U.O.N.
12. FINAL CONNECTION TO HVAC EQUIPMENT AND ANY VIBRATING MACHINERY SHALL USE LIQUID TIGHT FLEXIBLE CONDUIT.
13. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH–IN AND FINISH.
14. CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWING. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
15. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
16. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
17. PROVIDE CODE SIZE EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
18. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
19. VERIFY THE EXACT ROUTING OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION. PAINT EXPOSED CONDUITS TO MATCH SURROUNDING AREAS.
20. SEE DETAILS 5&6 ON SHEET E911 FOR ALL WALL PENETRATION REQUIREMENTS. EXTERIOR POWER AND HVAC CONTROLS CONDUITS CONTRACTOR SHALL PAINT CONDUIT, JUNCTION BOXES, CONDUIT SUPPORTS, ETC. TO MATCH SURROUNDING AREAS.

KEY NOTES

1 1/2"C & HVAC CONTROL CABLING FROM HVAC UNIT TO THERMOSTAT. SEE MECHANICAL PLANS FOR LOCATION AND CABLE REQUIREMENTS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

2 SEE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT FOR DISCONNECT, FUSE, FEEDER, ETC. REQUIREMENTS. PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL SHOP DRAWINGS AND APPROVED SUBMITTALS. CONTRACTOR SHALL PAINT ELECTRICAL SYSTEMS TO MATCH SURROUNDING AREAS.

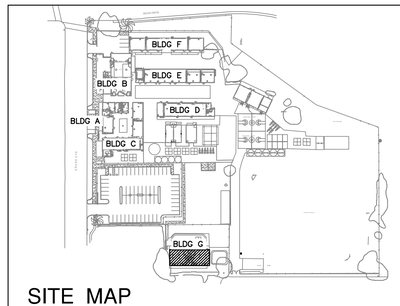
3 PROVIDE WIREMOLD 2300 RACEWAY FROM ABOVE CEILING JUNCTION BOX TO NEW DEVICE LOCATION. RUN WIREMOLD 2300 IN EXPOSED AREAS FROM DROPPED CEILING TO DOWN WALL TO DEVICE LOCATION. CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. SEE DETAIL 8\E911.

4 RUN ALL BRANCH CIRCUIT WIRING BELOW ROOF STRUCTURE IN ACCESSIBLE CEILING, PROVIDE ALL SUPPORTS, NEW CEILING WIRES, CADDY CLIPS, ETC. AS REQUIRED FOR A COMPLETE RACEWAY SUPPORT SYSTEM. ELECTRICAL CONTRACTOR SHALL RUN ELECTRICAL BRANCH CIRCUITS ADJACENT TO REFRIGERATION LINES.

5 NEW PANEL "ACG" TO BE WALL MOUNTED. SEE ELECTRICAL SINGLE LINE DIAGRAM ON SHEET E201 FOR FEEDER INFORMATION AND ADDITIONAL REQUIREMENTS.

6 CONTRACTOR SHALL SAW CUT, TRENCH, & PROVIDE NEW FEEDERS TO NEW PANELBOARD "ACG" FROM EXISTING CAMPUS SWITCHBOARD "MS". SEE SINGLE LINE DIAGRAM ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.

7 APPROXIMATE LOCATION OF EXISTING UNDERGROUND POWER SYSTEMS. CONTRACTOR SHALL HIRE DIG ALERT AND FIELD VERIFY EXISTING ELECTRICAL, COMMUNICATION, FIRE ALARM, & OTHER UTILITIES SYSTEMS PRIOR STARTING TRENCH WORK.



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SHEET TITLE: BUILDING G HVAC POWER PLANS

SHEET
E902

ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT

TAG #	DESCRIPTION	H.P.	MCA	MOCP	VOLTAGE	PHASE	NEMA STARTER SIZE	250V DISCONNECT NEMA 3R	RECOMMENDED FUSE SIZE/TYPE *	REMARKS	PANEL/CIRCUIT NO.	FEEDER
OU AD1	BUILDING A SPLIT SYSTEM – OUTDOOR		32.2	40	208	1	–	60A 2P	–	VERIFY AND PROVIDE HEAVY DUTY LOCK-ON DISCONNECTS, MOCP RATINGS, FUSES, HVAC CONTROLS & CABLING, ETC. PER MANUFACTURER'S APPROVED SHOP DRAWINGS AND EQUIPMENT NAMEPLATE REQUIREMENTS.	ACC-12-14	3/4"C.-2#8 & 1#10 GND
IU AD1	BUILDING A SPLIT SYSTEM – INDOOR				208	1	–	30A 2P	–		ACC-12-14	3/4"C.-2#8 & 1#10 GND
RTU L1	BUILDING A – LIBRARY		86.2	90	208	3	–	100A 3P	–		Q-37-39-41	2"C.-3#1 & 1#6 GND
F MP1A	BUILDING B FURNACE		33.42	50	208	1	–	60A 2P	–		DP	SEE FEEDER TAG SCHEDULE E201
F MP1B	BUILDING B FURNACE		33.42	50	208	1	–	60A 2P	–		DP	SEE FEEDER TAG SCHEDULE E201
OU C1	BUILDING C SPLIT SYSTEM – OUTDOOR		24	30	208	1	–	30A 2P	–		ACC-1-3	SEE PLAN E503
IU C1	BUILDING C SPLIT SYSTEM – INDOOR				208	1					ACC-1-3	3/4"C.-2#10 & 1#10 GND
OU C2	BUILDING C SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACC-2-4	SEE PLAN E503
IU C2	BUILDING C SPLIT SYSTEM – INDOOR		2.6	15	208	1	–	30A 2P	–		ACC-2-4	3/4"C.-2#12 & 1#12 GND
RTU C1A	BUILDING "C" CLASSROOM 1		85.3	90	208	3	–	100A 3P	–		ACC-5-7-9	2"C.-3#1 & 1#6 GND
RTU C1B	BUILDING "C" CLASSROOM 3		85.3	90	208	3	–	100A 3P	–		ACC-6-8-10	2"C.-3#1 & 1#6 GND
RTU C2	BUILDING "C" CLASSROOM 5		86.2	90	208	3	–	100A 3P	–		ACC-11-13-15	2"C.-3#1 & 1#6 GND
OU D1	BUILDING D SPLIT SYSTEM – OUTDOOR		24.5	35	208	1	–	60A 2P	–		ACD-1-3	3/4"C.-2#8 & 1#10 GND
IU D1	BUILDING D SPLIT SYSTEM – INDOOR				208	1	–	30A 2P	–		ACD-1-3	3/4"C.-2#8 & 1#10 GND
OU D2A	BUILDING D SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACD-2-4	1"C.-2#6 & 1#10 GND
IU D2A	BUILDING D SPLIT SYSTEM – INDOOR		7.2	15	208	1		30A 2P	–		ACD-6-8	3/4"C.-2#12 & 1#12 GND
OU D2B	BUILDING D SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACD-10-12	1"C.-2#6 & 1#10 GND
IU D2B	BUILDING D SPLIT SYSTEM – INDOOR		7.2	15	208	1		30A 2P	–		ACD-14-16	3/4"C.-2#12 & 1#12 GND
OU D2C	BUILDING D SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACD-18-20	1"C.-2#6 & 1#10 GND
IU D2C	BUILDING D SPLIT SYSTEM – INDOOR		7.2	15	208	1		30A 2P	–		ACD-22-24	3/4"C.-2#12 & 1#12 GND
OU E1	BUILDING E SPLIT SYSTEM – OUTDOOR		24	30	208	1	–	30A 2P	–		ACE-21-23	SEE PLAN E702
IU E1	BUILDING E SPLIT SYSTEM – INDOOR				208	1	–	30A 2P	–		ACE-21-23	3/4"C.-2#8 & 1#10 GND
OU E2A	BUILDING E SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACE-25-27	SEE PLAN E702
IU E2A	BUILDING E SPLIT SYSTEM – INDOOR		7.2	15	208	1	–	30A 2P	–		ACE-29-31	3/4"C.-2#12 & 1#12 GND
OU E2B	BUILDING E SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACE-33-35	SEE PLAN E702
IU E2B	BUILDING E SPLIT SYSTEM – INDOOR		7.2	15	208	1	–	30A 2P	–		ACE-14-16	3/4"C.-2#12 & 1#12 GND
OU E2C	BUILDING E SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACE-20-22	SEE PLAN E702
IU E2C	BUILDING E SPLIT SYSTEM – INDOOR		7.2	15	208	1	–	30A 2P	–		ACE-24-26	3/4"C.-2#12 & 1#12 GND
OU E2D	BUILDING E SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACE-28-30	SEE PLAN E702
IU E2D	BUILDING E SPLIT SYSTEM – INDOOR		7.2	15	208	1	–	30A 2P	–		ACE-32-34	3/4"C.-2#12 & 1#12 GND
OU E2E	BUILDING E SPLIT SYSTEM – OUTDOOR		32	50	208	1	–	60A 2P	–		ACE-36-38	SEE PLAN E702
IU E2E	BUILDING E SPLIT SYSTEM – INDOOR		7.2	15	208	1	–	30A 2P	–		ACE-40-42	3/4"C.-2#12 & 1#12 GND
OU F1A	BUILDING F SPLIT SYSTEM – OUTDOOR		34	50	208	1	–	60A 2P	–		F-27-29	1"C.-2#6 & 1#10 GND
IU F1A	BUILDING F SPLIT SYSTEM – INDOOR		2.6	15	208	1	–	30A 2P	–		F-31-33	3/4"C.-2#12 & 1#12 GND
OU F1B	BUILDING F SPLIT SYSTEM – OUTDOOR		34	50	208	1	–	60A 2P	–		F-35-37	1"C.-2#6 & 1#10 GND
IU F1B	BUILDING F SPLIT SYSTEM – INDOOR		2.6	15	208	1	–	30A 2P	–		F-39-41	3/4"C.-2#12 & 1#12 GND
OU F2A	BUILDING F SPLIT SYSTEM – OUTDOOR		32.8	40	208	1	–	60A 2P	–		F-34-36	3/4"C.-2#8 & 1#10 GND
IU F2A	BUILDING F SPLIT SYSTEM – INDOOR				208	1	–	30A 2P	–		F-34-36	3/4"C.-2#8 & 1#10 GND
OU F2B	BUILDING F SPLIT SYSTEM – OUTDOOR		32.8	40	208	1	–	60A 2P	–		F-38-40	3/4"C.-2#8 & 1#10 GND
IU F2B	BUILDING F SPLIT SYSTEM – INDOOR				208	1	–	30A 2P	–		F-38-40	3/4"C.-2#8 & 1#10 GND
RTU G1A	BUILDING "G"		86.2	90	208	3	–	100A 3P	–		ACG-1-3-5	SEE PLAN E902
RTU G1B	BUILDING "G"		86.2	90	208	3	–	100A 3P	–		ACG-2-4-6	SEE PLAN E902
CP 1	CONDENSATE PUMP	75W	.6	–	208	1	–	MOTOR RATED SWITCH	–	VERIFY AND PROVIDE POWER FROM INDOOR UNIT PER HVAC SHOP DWGS	3/4"C.-2#12 & 1#12 GND	
EF 1	EXHAUST FAN	110W			120	1	–	MOTOR RATED SWITCH	–	VERIFY AND PROVIDE AT LOCATIONS SHOWN ON MECHANICAL PLANS	3/4"C.-2#12 & 1#12 GND	
EF 2	EXHAUST FAN	9.6W			120	1	–	MOTOR RATED SWITCH	–	VERIFY AND PROVIDE AT LOCATIONS SHOWN ON MECHANICAL PLANS	3/4"C.-2#12 & 1#12 GND	
WH 1	WATER HEATER	4.5KW			208	1	–	30A 2P	–		ACG-8-10	3/4"C.-2#10 & 1#10 GND

* ALL FUSES BY BUSSMANN AND SHALL BE SIZED PER EQUIPMENT MANUFACTURERS RECOMMENDATION & NAMEPLATE DATA.

NOTE: CONTRACTOR SHALL VERIFY & PROVIDE ALL EMS & ELECTRICAL RACEWAYS, WIRING, CONNECTIONS, DEVICES, CONTROLS, SUPPORTS, ETC. AS REQUIRED ON MECHANICAL & PLUMBING PLANS AND APPROVED SHOP DRAWINGS. ALL MECHANICAL EQUIPMENT CONTROL WIRING SHALL BE RUN IN 1/2" CONDUIT MINIMUM U.O.N.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 650-1033 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

All ideas, design arrangements and plans indicated or represented by this drawing are owned by and are the property of Kruger-Bensen-Ziemer, AIA architects, and were created, evolved and developed for use on, and in connection with, the specified projects. None of such ideas, designs, arrangements or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Kruger-Bensen-Ziemer.

ARCHITECTS STAMP & SIGNATURE

LICENSED ARCHITECT TODD A. JESPERSEN No. C-23839 Exp. 06/30/2025 STATE OF CALIFORNIA

ENGINEERS STAMP & SIGNATURE

REGISTERED PROFESSIONAL ENGINEER CRAIG C. HOOD 15392 EXP. 6-30-25 ELECTRICAL STATE OF CALIFORNIA

CONSULTANT INFORMATION

C. HOOD ASSOCIATES, INC.
CONSULTING ELECTRICAL ENGINEERS
858 East Front Street Phone (805) 641-4012
Ventura, California 93001 Fax (805) 641-0450
www.choodassociates.com

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REVISION	DESCRIPTION	DATE	BY
1	-	-/-/-	XX
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DRAWN
CHECKED
DATE 10/11/2024
JOB NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE ELECTRICAL SCHEDULE FOR MECHANICAL EQUIPMENT

SHEET
E910

Catalog Number: WSXA PDT 2P FAN 2VA 120V ASHRT WH LT | Date: 8-19-22 | Project: MESA HVAC

OVERVIEW

The WSXA Family of wall switch occupancy sensors provides simple and cost effective solutions for commercial and residential lighting control applications. All WSXA family sensors have a stylish low profile appearance, soft-click buttons, and provide small motion detection up to 20 ft (6.10 m), making them perfect for private offices, private restrooms, closets, copy rooms, or any other small enclosed space. Additionally, all WSXA family sensors have a patent-pending wiring method that enables them to function either with or without a neutral connection. WSXA units come pre-configured for wiring without a neutral, however if connection to neutral is required by code, contractors can convert the unit in seconds.

MULTI-WAY (MWO)

Our new WSXA MWO series allows for multi-location On/Off or 0-10 dimming up to 9 devices (2 device limit when neutral-less wiring used) on a single traveler.

FEATURES

- Single Pole devices can be programmed with Sensor Switch VLP app or traditional push button programming
- WSXA MWO can be used in conjunction with sPODMRA MWO
- Devices can be spaced up to 250 ft with MWO option
- MWO option support up to 9 additional MWO enabled devices (2 neutral-less) on a single traveler
- Compatible w/LEDs, electronic & magnetic ballasts, CFLs, & incandescents
- 100% passive detection, no potential for interference with other building systems
- Small motion detection to up to 20 ft; Large motion detection up to 36ft
- Push-button programmable without removing cover plate - adjustable time delays & operating modes
- Dual technology (PDT) utilizes PIR/Microphonics™ detection (patented)
- Device accommodates powering over ground or neutral connection (patent pending)
- Fully meets NEC 2017 Section 404.2C neutral requirements - no current leakage to ground when connected to neutral
- Line power and load wires are interchangeable - impossible to wire backwards (patented)
- Integrated Photocell (disabled by default) prevents light from turning on if sufficient daylight is present
- New aesthetic with vandal resistant lens

ADAPTIVE DAYLIGHT HARVESTING (ADH)

With Sensor Switch's Adaptive Daylight Harvesting (ADH), automatic dimming has never been more reliable - even in a wall switch. It works by establishing two state change set-points; daylight and darkness. The light level in the space will then be automatically maintained by intelligently controlling the dim level of the electric light source. Set-points can be established using the "Set Now" option or programmed using desired light levels as measured in foot candles (fc).



Warranty

Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

sensorswitch

WSXA Series
Wall Switch Sensor



WSXA-WSXA MWO On/Off Single Relay



WSXA-D WSXA MWO D On/Off/Dimming Single Relay



WSXA 2P FAN On/Off Dual Relay

App Store | Google play | YLP | 24 | UL LISTED

ORDERING INFORMATION

WSXA Single Pole — Example: WSXA MWO PDT D WH

Series Option		Detection Mode		eldoLED		Dimming[1]		Operating Mode[2]	
WSXA	Wall Switch Sensor (Occupancy and Daylighting)	[blank]	Passive Infrared (PIR)	[blank]	none	[blank]	On/Off	[blank]	Automatic on (default) or Vacancy
WSXA MWO	WSXA with Multi-way Operation	PDT	Dual Technology	E1[3]	eldoLED Driver Compatibility	D	Dimming	SA	Manual On (default) or Automatic On
								VA	Vacancy
								ASL[4]	Automatic Start Level 5VDC

Voltage		Color[5]				Max Dim Level[6,7]		Min Dim Level[6,7]		Temp / Humidity	
[blank]	120-277 VAC	WH	White	AL	Light Almond	[blank]	10 VDC	[blank]	8 VDC	[blank]	Standard
347	347 VAC	IV	Ivory	BK	Black	9H	9 VDC	7V	1 VDC	LT	Low Temp/ High Humidity
		GY	Gray	RD	Red	8H	8 VDC	2V	2 VDC		
						7H	7 VDC	3V	3 VDC		

4	4 VDC	4V	4 VDC		
5	5 VDC	5V	5 VDC		
6	6 VDC	6V	6 VDC		

Notes:
1. Max Dim Level default set to 9 1VDC. Min Dim Level default set to 1.5VDC.
2. LT only available with D option.
3. Operating Modes re-programmable via push button except for VA version.
4. Not available with EZ, Max Dim, or Min Dim Level. Also requires the D option.
5. Matching wall plate provided for 120-277 VAC units.
6. Only available with D option.
7. Minimum order qty of 30 units for Max or Min Dim Level settings. Additional time may be required.

WSXA 2P — Example: WSXA 2P FAN WH LT

WSXA 2P		PDT		2P		FAN		2VA	
Series Option		**Detection Mode**		**Poles**		**Fan[1]**		**Operating Mode[2]**	
WSXA	Wall Switch Sensor (Occupancy and Daylighting)	[blank]	Passive Infrared (PIR)	2P[3]	2 Poles	[blank]	No Fan	[blank]	Pole 1 auto-on Pole 2 Manual On
		PDT	Passive Dual Technology			FAN	Fan Operation	2SA	Both poles Manual On (default)
								2VA	Both poles vacancy (only)

120-277VAC		ASHRT		WH		LT	
Voltage		**Run Time[4]**		**Color[5]**		**Temp/Humidity**	
[blank]	120-277 VAC	[blank]	Pole 1 Lights Pole 2 Fan	WH	White	[blank]	Standard
347	347 VAC			IV	Ivory	LT	Low Temp/ High Humidity
		2SHRT	Pole 1 Lights Pole 2 Fan, Minimum Fan Run time per Ashrae 62.2	GY	Gray		
				AL	Lt. Almond		
				RD	Red		
				BK	Black		

Notes:
1. 2P does not have VLP functionality.
2. If Fan Operation is selected Operating Mode must be blank.
3. Operating Modes re-programmable via push button except for VA version.
4. Only available if 2P FAN is selected.
5. Matching wall plate provided for 120-277VAC Units.

SSW — Example: SSW 1GANG DCC WH

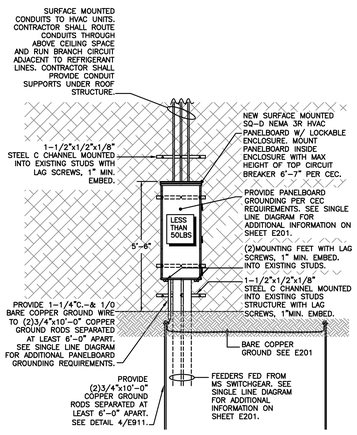
Series		Number of Gangs		Mount		Color	
SSW	Sealed Screwless Wall-Plate	1GANG	Single-Gang	[blank]	Standard Wall Switch	WH	White
				OCC	Occ. Wall Switch	IV	Ivory
						RD	Red

WALLP

Series		Color				Multi-Pack Size	
WALLP1	Screwless Wall Plate Single Gang	WH	White	AL	Light Almond	MS	(5 Wall Plates)
WALLP2	Screwless Wall Plate Dual Gang	IV	Ivory	BK	Black		
		GY	Gray	RD	Red		

LINE VOLTAGE OCCUPANCY SENSOR WALL SWITCH - HP RATED
11 SCALE: NONE

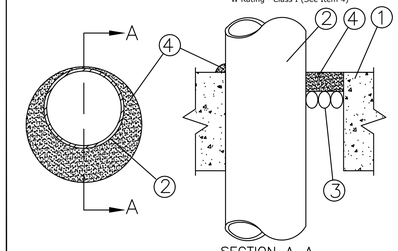
NOTE: VERIFY AND PROVIDE SIZE AND SPACING OF PANELBOARD FASTENERS PER MANUFACTURER'S REQUIREMENTS BUT NOT LESS THAN REQUIRED BY SPECIFICATIONS ON THIS DETAIL. PROVIDE NAMEPLATE REQUIREMENTS AS SHOWN ON DETAIL 1/E911.



TYPICAL WALL MOUNTED PANELBOARD INSTALLATION
10 SCALE: 1/2"=1'-0"

* NOTE
THIS MATERIAL WAS EXTRACTED BY 3M FIRE PROTECTION PRODUCTS FROM THE 2004 EDITION OF THE UL FIRE RESISTANCE DIRECTORY.

System No. C-AJ-1044
June 15, 2005
F Ratings - 2, 3, and 4 Hr (See Items 2A and 4)
T Rating - 0 Hr
L Rating At Ambient - 2 CFM/sq ft
L Rating At 400 F - less than 1 CFM/sq ft
W Rating - Class I (See Item 4)



1. Floor or Wall Assembly — Lightweight or normal weight (100–150 pcf or 1600–2400 kg/m3) concrete. Except as noted in table under Item 2, min thickness of wall or floor or wall assembly is 4–7/8 in. (124 mm). See Concrete Blocks (CAZT) and Precast Concrete Units (EYTV) categories in the Fire Resistance Directory for Precast Concrete Units. When floor is constructed of hollow-core precast concrete units, positive material (Item 3) and caulk fill material (Item 4) to be installed symmetrically on both sides of floor, flush with floor surface. Wall assembly may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is in solid lightweight or normal weight concrete, Floor is 32 in. (813 mm). Max diam of opening in floor constructed of hollow-core precast concrete units is 7 in. (178 mm).

See Concrete Blocks (CAZT) and Precast Concrete Units (EYTV) categories in the Fire Resistance Directory for names of manufacturers.

1A. Steel Sleeve (Optional, not shown) — Max 15 in. (381 mm) ID (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 2 in. (51 mm) above top of floor or beyond either surface of wall. Max 16 in. (406 mm) ID (or smaller) min 0.028 (0.71 mm) wall thickness (or heavier) galvanized steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 1/2 in. (13 mm) beyond either surface of floor or wall.

2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Annular space between pipe, conduit or tubing and edge of through opening or sleeve is dependent on the pipe/conduit/tubing in Item 4. Min annular space between pipe or conduit and edge of through opening is 0 in. (0 mm). (point contact). Pipe conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
C. Conduit — Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
D. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
E. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tube.
F. Copper Pipe — Nom 8 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Packing Material — Polyethylene backer rod or corn 1 in. (25 mm) thickness of tightly-packed mineral wool batt or glass fiber insulation firmly packed into opening as a permanent form. Packing material to be recessed from both surfaces of wall or floor to accommodate the required thickness of fill material (Item 4).

4. Fill,Void or Cavity Material* – Caulk or Sealant — Applied to fill the annular space flush with top surface of floor. In wall assemblies, required caulk thickness is to be installed symmetrically on both sides of wall. Min 1/4 in. (6 mm) diam bead of caulk shall be applied at the annulus between the through penetrant and concrete, a min 1/4 in. (6 mm) diam bead of caulk shall be applied at top surface of floor and at both surfaces of wall. The hourly F Ratings and the min required caulk thicknesses are dependent upon a number of parameters, as shown in the following table:

Min Floor or Wall Thkns In. (mm)	Nom Pipe Tube or Conduit Diam In. (mm)	Max Annular Space In. (mm)	Min Caulk Thkns In. (mm)	F Rating Hr
2-1/2 (64)	1/2-12 (13-305)	1-3/8 (35)	1/2 (13)	2
2-1/2 (64)	1/2-12 (13-305)	3-1/4 (83)	1 (25)	2
4-1/2 (114)	1/2-8 (13-152)	1-3/8 (35)	1/4 (6.4)	2
4-1/2 (114)	1/2-12 (13-305)	1-1/4 (32)	1/2 (13)	3
4-1/2 (114)	1/2-20 (13-508)	2 (51)	1 (25)	3
4-1/2 (114)	1/2-20 (13-508)	2 (51)	1 (25)	3
4-1/2 (114)	1/2-12 (13-305)	3-1/4 (83)	1 (25)	3
4-1/2 (114)	22-30 (558-762)	2 (51)	2 (51)	3
5-1/2 (140)	1/2-20 (13-508)	1-3/4 (35)	1 (25)	4

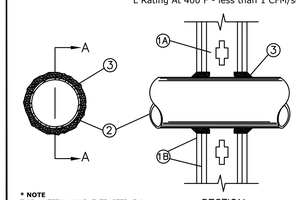
(c)Min 2 in. (51 mm) thickness of mineral wool batt insulation required in annular space. (d)Min 4 in. (102 mm) thickness of mineral wool batt insulation required in annular space on both sides of floor or wall assembly. Min 1 in. (25 mm) thickness of caulk to be installed flush with each surface of floor or wall assembly.

3M COMPANY — CP 25WB+ caulk or FB-3000 WT sealant. (Note: W Rating applies only when FB-3000 WT sealant is used.) *Bearing the UL Classification Marking

UL NO. C-A-J-1044
TYP. PENETRATION THRU CONCRETE
5 SCALE: NONE

Max Pipe or Conduit Diam In. (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0*, 1, 2*
1 (25)	3 or 4	0, 1, 2, 3
4 (102)	1 or 2	0
6 (152)	1 or 2	0
12 (305)	1 or 2	0

System No.W-L-1001
June 15, 2005
F Ratings - 1, 2, 3 and 4 Hr
(See Items 2 and 3)
T Ratings - 0, 1, 2, 3, and 4 Hr (See Item 3)
L Rating At Ambient - less than 1 CFM/sq ft
L Rating At 400 F - less than 1 CFM/sq ft



* NOTE
THIS MATERIAL WAS EXTRACTED BY 3M FIRE PROTECTION PRODUCTS FROM THE 2004 EDITION OF THE UL FIRE RESISTANCE DIRECTORY.

1. Wall Assembly - The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs (max 2 hr fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

B. Gypsum Board* - Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. Through Penetrant - One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe - Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

C. Conduit - Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing

D. Copper Tubing - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing

E. Copper Pipe - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

F. Through Penetrating Product* - Flexible Metal Piping The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

TITEFLEX CORP
A BUNDY CO

3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG INC

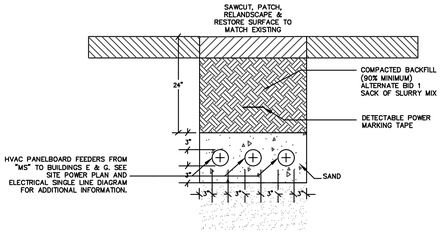
3. Fill,Void or Cavity Material* - Caulk or Sealant - Min 5/8- 1-1/4,1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table.The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below: +When copper pipe is used, T Rating is 0 hr.
3M COMPANY - CP 25WB+ caulk or FB-3000 WT sealant, *Bearing the UL Classification Marking

UL NO. W-L-1001
TYPICAL PENETRATION THRU GYPSUM BOARD DETAIL
6 SCALE: NONE

DETAIL NOTES:

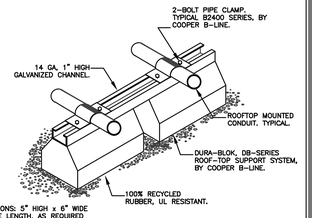
1. CONDUIT QUANTITIES AS INDICATED ON PLANS
2. ALL CONDUITS SHALL BE ON CARLON SNAP–LOC SPACERS 8'–0" ON CENTER.

NOTE: CONTRACTOR SHALL VERIFY AND PROTECT IN PLACE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY TRENCH WORK. ANY UTILITY SYSTEM DAMAGED BY CONTRACTOR SHALL BE REPAIRED AND REPLACED BY CONTRACTOR AS A APART OF THIS PROJECT.



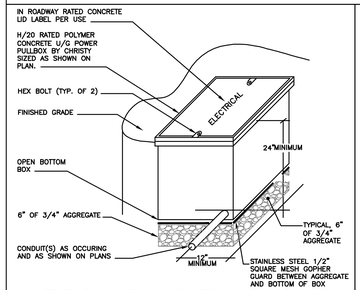
TYPICAL DUCT BANK DETAIL
7 SCALE: NONE

NOTE: SET ROOFTOP CONDUIT SUPPORT AT 6FT. O.C. MAXIMUM. PROVIDE ADDITIONAL SUPPORTS, AS REQUIRED, PER NATIONAL ELECTRICAL CODE.



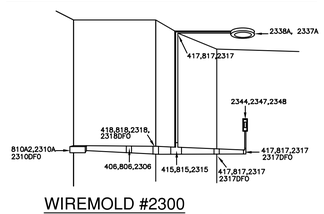
DIMENSIONS: 5" HIGH x 6" WIDE
PROVIDE LENGTH, AS REQUIRED FOR CONDUIT SYSTEM.

TYPICAL ROOFTOP CONDUIT SUPPORT DETAIL
3 SCALE: NONE

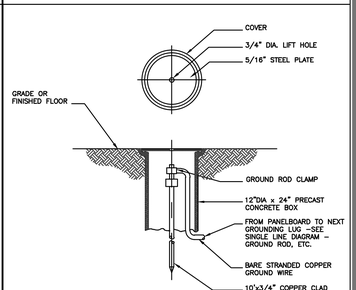


TYPICAL HEAVY DUTY IN ROADWAY RATED POWER PULLBOXES
9 SCALE: NONE

NOTE:
SURFACE MOUNTED RACEWAY COMPLETENESS; CONTRACTOR SHALL PROVIDE ALL RACEWAY, FITTINGS, SUPPORTS, BOXES, DEVICES PLATES, ETC. NECESSARY FOR A COMPLETE AND WORKABLE SURFACE MOUNTED ELECTRICAL RACEWAY SYSTEM. PRIOR TO INSTALLATION CONTRACTOR SHALL PERFORM A PREINSTALLATION OF SURFACE MOUNTED RACEWAY JOB WALK WITH OWNER & ARCHITECT FOR CONTRACTOR TO FIELD VERIFY EXACT ROUTING OF ANY & ALL SURFACE MOUNTED RACEWAYS.



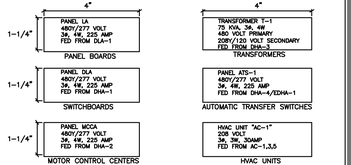
WIREMOLD #2300
TYPICAL SURFACE MOUNTED FIRE ALARM RACEWAY DETAIL
8 SCALE: NONE



GROUND ROD IN INSPECTION WELL
4 SCALE: NONE

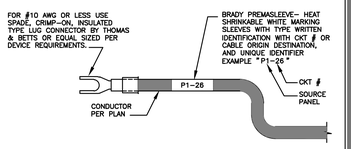
NOTE:
CONTRACTOR SHALL PROVIDE NAMEPLATES ON ALL ELECTRICAL EQUIPMENT INCLUDING, BUT NOT LIMITED TOO, PANELBOARDS, FEEDER BREAKERS, PULLBOXES, GENERATORS, TRANSFER SWITCHES, DISCONNECTS, ETC.

IDENTIFICATION SHALL MATCH PROJECT SPECIFIC DETAILS

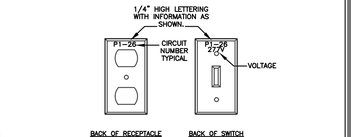


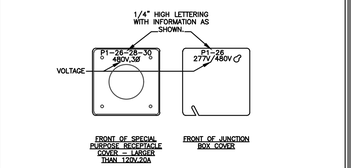
TYPICAL NAMEPLATE DETAILS
1 SCALE: NONE

NOTE:
CONTRACTOR SHALL PROVIDE CONDUCTOR AND JUNCTION BOX LABELING TO ALL POWER FEEDERS, BRANCH CIRCUITS, GROUNDED CONDUCTORS, CONTROL, COMMUNICATION, FIRE ALARM, & SECURITY CONDUCTORS.



TYPICAL CONDUCTOR LABEL





TYPICAL DEVICE COVER PLATE LABELING

TYPICAL LABELING DETAIL
2 SCALE: N.T.S.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL HVAC REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 650-1033 WWW.KBZARCH.COM
TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE
PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECTS STAMP & SIGNATURE — ENGINEERS STAMP & SIGNATURE



CONSULTANT INFORMATION

C. HOOD & ASSOCIATES, INC.
CONSULTING ELECTRICAL ENGINEERS
858 East Front Street Phone (805) 641-4012
Ventura, California 93001 Fax (805) 641-0450
www.choodassociates.com

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3	-	-/-/-	XX
2	-	-/-/-	XX
1	-	-/-/-	XX

REVISION	DESCRIPTION	DATE	BY
DRAWN			
CHECKED			
DATE	10/11/2024		
JOB. NO.	23053		

DSA A03-124514 FILE:56-40 PTN:72652-125

SHEET TITLE: ELECTRICAL DETAILS

SHEET E911

SHEET NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE FULLY AUTOMATIC FIRE ALARM & SYSTEM.
2. FIRE ALARM WIRING SHALL BE POWER LIMITED.
3. EXPOSED RACEWAYS SHALL BE WIREMOLD #2300.
4. FIELD VERIFY LOCATION OF ALL DEVICES.
5. 1" MINIMUM BELOW GRADE, 3/4" CONDUIT MINIMUM UNLESS OTHERWISE NOTED.

KEY NOTES

<1> INTERCEPT AND EXTEND FIRE ALARM INITIATING CIRCUIT AND PROVIDE ADDRESSABLE RELAY AT HVAC UNITS. CONTRACTOR SHALL PROGRAM HVAC UNIT TO SHUT DOWN HVAC UNIT UPON FIRE ALARM ACTIVATION SIGNAL. VERIFY AND PROVIDE A FULLY OPERATIONAL HVAC UNIT SHUT DOWN RELAY FIRE ALARM SYSTEM AND REPROGRAM EXISTING CAMPUS FATC & FACP TO INCORPORATE NEW ADDRESSABLE HVAC RELAYS.

FIRE ALARM CONDUIT AND WIRE SPECIFICATIONS SCHEDULE				
CABLE TYPE	DESCRIPTION OF CONTENTS	CONDUIT SIZE (UON)	CIRCUIT DESCRIPTION	C.S.F.M LISTING
S	2 - CONDUCTOR TWISTED PAIR SOLID CABLE NON-SHIELD #12 AWG, FPLR WEST PENN AQUASEAL	1/2" MIN.	(SLC) SIGNALING LINE CIRCUIT CABLE IN CONDUIT FOR ADDRESSABLE DATA. CONTRACTOR SHALL VERIFY CABLING REQUIREMENTS WITH FCT MANUFACTURER PRIOR TO BID FOR A FULLY OPERATIONAL FIRE ALARM SYSTEM.	7161-0859:0101

NOTES:
1. ALL WIRING TO BE LISTED FOR USE AS REQUIRED BY TITLE 24/CEC, ART. 760.
2. "THWN" (INTERIORS), "XHHW" (FOR UNDERGROUND & EXTERIORS) OR EQUAL TO BE USED IN WET LOCATIONS. USE WEST PENN AQUASEAL FOR FPLR CABLING.
3. ALL WIRE AND CABLE TO BE SIGNED, TYPED AND CONDUIT FILL PER CALIFORNIA ELECTRICAL CODE AND MANUFACTURER'S RECOMMENDATION.

FIRE ALARM WIRE SYMBOL

TYPE "S" CABLES SHALL BE RUN IN 1/2"C. DEDICATED CONDUIT. NO MORE THAN (2)S CABLES SHALL BE RUN IN DEDICATED CONDUIT. (2)S INDICATES TWO TYPE "S" CABLES IN RACEWAY.

CONTRACTOR SHALL ASSUME ALL FIRE ALARM SYSTEM SUPPORTS, BOXES, CABINETS, RACEWAYS, ETC. ARE NEW UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL RE-PROGRAM, RE-ADDRESS AND RESTORE A FULLY OPERATIONAL AND COMPLETE FIRE ALARM SYSTEM. CONTRACTOR SHALL PERFORM A CAMPUS WIDE FIRE ALARM TEST AND RECORD DOCUMENTS AFTER FIRE ALARM WORK IS COMPLETED.

FIRE ALARM RACEWAYS SHALL BE RECESSED IN EMT CONDUIT TO THE MAXIMUM EXTENT POSSIBLE. WHERE FIRE ALARM RACEWAYS ARE EXPOSED THEY SHALL BE PROVIDED IN WIREMOLD #2300. CONTRACTOR SHALL ASSUME ALL FIRE ALARM & VOICE EVACUATION SYSTEM, SUPPORTS, BOXES, CABINETS, DEVICES, RACEWAYS, ETC. ARE NEW UNLESS OTHERWISE NOTED.

NOTE:
ALL FIRE ALARM CABLES INSTALLED IN CONDUITS OUTDOOR AND UNDERGROUND SHALL BE "AQUA SEAL" (AQC) RATED. TRANSITION FROM AQC RATED CABLES WITHIN BUILDING INTERIORS SHALL BE TERMINATED AT FIRE ALARM TERMINAL CABINETS.

F.A. CABLE SCHEDULE

A - 2#6 AWG FPL CABLE
WEST PENN #AQ22B OR EQUAL

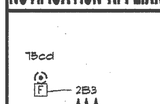
B - 2#12 THWN CU

C - ARMOR CABLE 2#6 THHN CU WITH GROUND CONDUCTOR

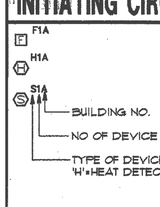
D - ARMOR CABLE 2 THHN CU WITH GROUND CONDUCTOR

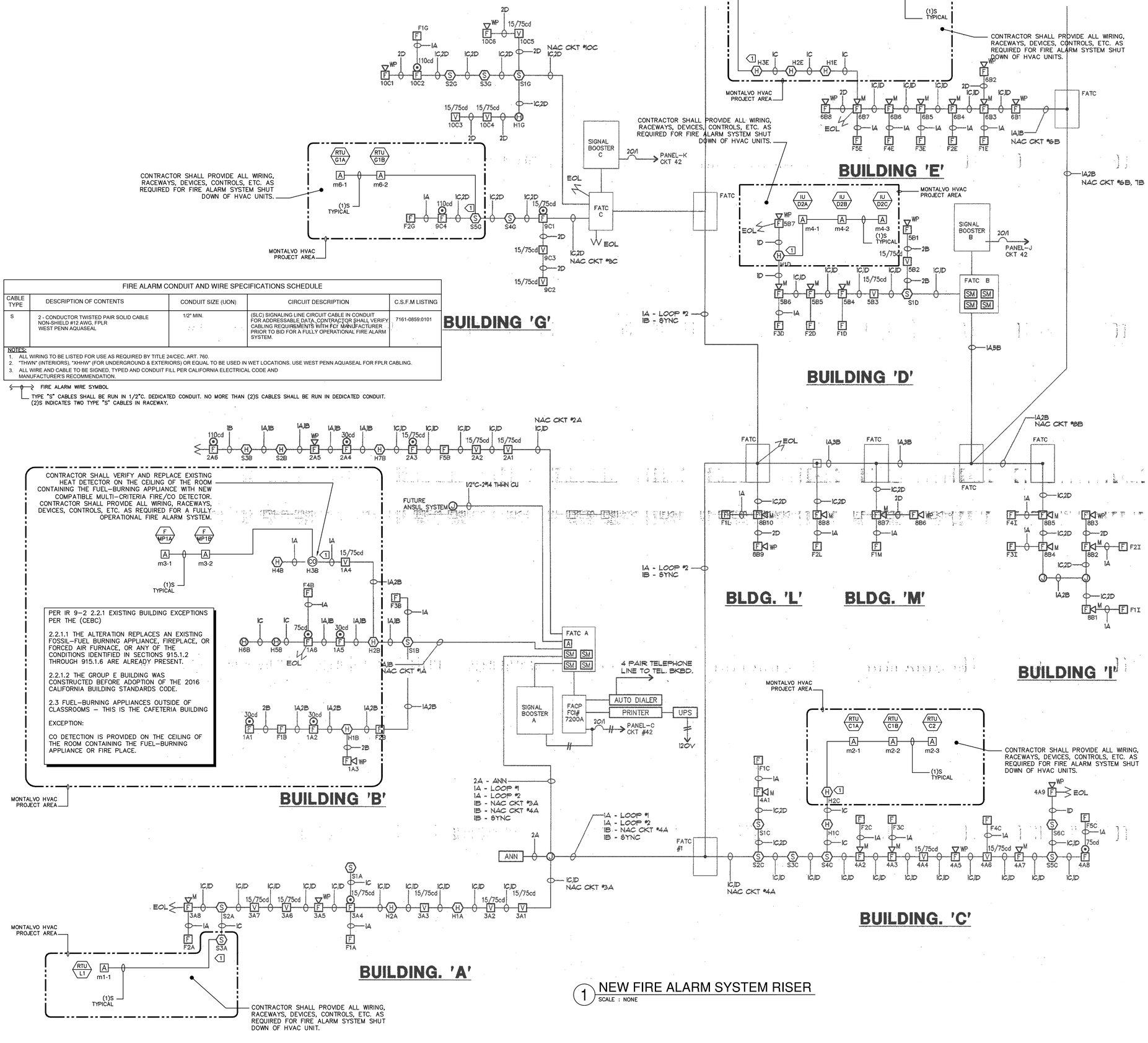
NOTES:
ALL FIRE ALARM CONDUCTORS SHALL BE RUN CONTINUOUS BETWEEN F.A. DEVICES OR TERMINAL CABINETS. NO SPLICE IS ALLOWED IN FULL BOX, IN ATTIC SPACE OR UNDER CRAWL SPACE. (U.N.O.).

NOTIFICATION APPLIANCE CIRCUIT LABELING



INITIATING CIRCUIT LABELING





1 NEW FIRE ALARM SYSTEM RISER
SCALE : NONE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
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ARCHITECTS STAMP & SIGNATURE
LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Exp. 06/30/2025 STATE OF CALIFORNIA

ENGINEERS STAMP & SIGNATURE
REGISTERED PROFESSIONAL ENGINEER CRAIG C. HOOD 15392 EXP. 6-30-25 ELECTRICAL STATE OF CALIFORNIA

CONSULTANT INFORMATION
C. HOOD & ASSOCIATES, INC.
CONSULTING ELECTRICAL ENGINEERS
858 East Front Street Phone (805) 641-4012
Ventura, California 93001 Fax (805) 641-0450
www.choodassociates.com
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REVISION	DESCRIPTION	DATE	BY
5	-	-/-/-	XX
4	-	-/-/-	XX
3	-	-/-/-	XX
2	-	-/-/-	XX
1	DSA PLAN CHECK	09/26/24	CHA

DRAWN
CHECKED
DATE 10/11/2024
JOB NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE NEW FIRE ALARM SYSTEM RISER

SHEET E913

Honeywell | Addressable Devices

Gamewell FCI

MCS-COF3 and MCS-COF3-IV

Multi-Criteria Fire/CO Detector

General Description

MCS-COF3 and MCS-COF3-IV are plug-in addressable devices that provide both fire and carbon monoxide (CO) detection. The detector combines four separate sensing elements to sense multiple components of a fire: smoke, CO, light/flame, and heat. This approach enables enhanced sensitivity to real fire with heightened immunity to nuisance particulates. For CO, the detector's electrochemical sensing cell creates a separate signal for life safety CO detection.

Multiple sensors and communication can greatly reduce nuisance alarms compared to single sensing methods. Sophisticated algorithms maximize the advantages of all four sensor types creating our best detection strategy offering heightened immunity to nuisance particulate and enhanced sensitivity to real fire.

- Photoelectric sensors detect airborne particles associated with smoke.
- Thermal sensors detect heat and rate-of-rise (135°F fixed temperature threshold).
- Infrared sensors discern light patterns in the environment as an additional data point for alarm determination.

This ability to reject certain nuisance alarm triggers, such as theater smoke, supports the use of the fire/CO detector in applications where moderate to heavy nuisance conditions exist that might cause single sensing detectors to false alarm.

UL models meet UL 268 7th edition and UL 521 listing requirements for fire detection and UL 2075 standard for system-connected life safety carbon monoxide detection.

Released through the incomplete burning of various fuels, CO is a colorless, odorless and deadly gas that is virtually impossible to detect with the human senses. Because the potential exists for dangerous levels of CO to accumulate in almost any building, legislation mandating the use of CO detection in commercial spaces continues to grow.



MCS-COF3 in B200S-WH sounder base



RA100Z Remote LED Annunciator



CK300-IR-BL Color Kit



TR300 Trim Ring

B200S series intelligent sounder bases are recommended for use with MCS-COF3 and MCS-COF3-IV. These bases can generate either a Temp 3 pattern for fire or a Temp 4 pattern for CO alarm indication. The B200S series bases recognize the System Sensor synchronization protocol for use as a component of the general evacuation signal — along with other System Sensor Audible/Visible devices — when connected to a power supply or Fire Alarm Control Panel (FACP) output capable of generating the System Sensor synchronization pulses.

FEATURES & BENEFITS

- Detects all four major elements of a fire
- Separate CO detection signal
- Operates in Velociti® SLC protocol
- Separate audible signal for fire or CO alarm when used with a B200S series base
- Highest nuisance alarm immunity
- Automatic drift compensation for smoke and CO sensors
- RealTest® CO testing capability
- New modern profile with expanded color options
- Uses only one address on the SLC loop
- UL 268 7th edition, UL 521, and UL 2075 listed
- 10-year CO cell with end-of-life warning

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No.:	7272-1703:0508
CATEGORY:	7272 - SMOKE DETECTOR-SYSTEM TYPE-PHOTOELECTRIC
LISTEE:	GAMEWELL-FCI 12 Clintonville Road, Northford, CT, 06472 Contact: Brant, Lisa 2034846105 Email: lisa.brant@honeywell.com
DESIGN:	Models MCS-COF3, MCS-COF3-IV, photoelectric smoke detector with complementary heat detector, complementary electrochemical carbon monoxide (CO) detector, and supplemental infrared flame sensor, analog addressable. Models MCS-PTIR, MSC-PTIR-IV, photoelectric smoke detector with complementary heat detector, and supplemental infrared flame sensor, analog addressable. Refer to listee's printed data sheet for additional detailed product description and operational considerations.
RATING:	24 VDC
INSTALLATION:	In accordance with the listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, model number, electrical rating, and UL label

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

APPROVAL:	Listed as automatic smoke detector with complementary heat detection for use with: System Sensor (S911) - Models B200S, B200S-WH, B200S-IV, B200SR, B200SR-WH, B200SR-IV, (CSFM Listing 7300-1653:0213) *B200S-LF, *B200S-LF-IV, *B200S-LF-WH, B200SR-LF, B200SR-LF-WH, B200SR-LF-IV, (CSFM Listing 7300-1653:0238), B210LP, B300-6, B300-6-IV, B300-6-IS, B300-6-IS-W, B300-6-IS-IV, B501, B501-WHITE, B501-IV, B501-BL, (CSFM Listing 7300-1653:0109) B224BI, B224BI-WH, B224BI-IV, B224RB, B224RB-WH, B224RB-IV, (CSFM Listing 7300-1653:0126). Silent Knight (S6173) - Model IDP-6AB (CSFM Listing 7300-0559:0159). Fire-Lite (S1059) - Model B350LP (CSFM Listing 7300-0075:0192).
NOTES:	

*Rev 08-02-19 gt

This listing is based upon technical data submitted by the applicant. OSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: 05/03/2024 **Listing Expires: 06/30/2025**

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division

4 ADDRESSABLE FIRE\CO COMBO DETECTOR

SCALE : NONE

Detailed Specification & Technical Data

WEST PENN WIRE Since 1971
AV, SECURITY & NETWORKING SOLUTIONS

Aquaseal® Water Resistant Cables



AQ296

12/2 Shielded Indoor/Outdoor Direct Burial CL3/FPL Rated
Audio, Control, Alarm Direct Burial

Construction & Dimensions

CONSTRUCTION & DIMENSIONS	-
CONDUCTOR PARAMETER	-
• Number of Conductors	2
• AWG Size	12
• Conductor Stranding	19x25
• Conductor Type	Bare copper
• Nominal DCR	1.7 Ohm/1000ft
INSULATION PARAMETER	-
• Insulation Type	PVC-Nylon
• Insulation Thi kness	0.02 in
• Insulation Color Code	1. Black 2.Red
SHIELDING PARAMETER	-
• Shield Type	Overall 100% Aluminum Foil
• Shield Type 2	Aquaseal Water Blocking Tape
• Drain Wire Type	Tinned Copper
• Drain Wire AWG	24 AWG
ELECTRICAL CHARACTERISTICS	-
• Nom. Cap. Between Conductors	54 pF/ft
• Nom. Cap. Conductor to Shield	97 pF/ft

Overall Construction

OVERALL CONSTRUCTION PARAMETERS	-
Jacket Type	UV Resistant PVC
Jacket Thi kness	0.04 in
Nominal Cable O.D.	0.375 in
Plenum	No
NEC UL Rating	CL3, FPL, PLTC
RoHS Compliant	Yes
TIA Test	TIA455-82 Water Penetration Test
Pull Tension	161 lbs
Bend Radius	3.375 in
Cable Weight	89 lbs

Overall Electrical & Optical Characteristics

OVERALL ELECTRICAL/OPTICAL CHARACTERISTICS	-
UL Flammability	UL1685
Operating Range	-20 to 90 Deg C

Toll Free: 800-245-4964 | sales@westpennwire.com | www.westpennwire.com

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No.:	7161-0859:0101
CATEGORY:	7161 - CABLES-FIRE PROTECTIVE SIGNALING
LISTEE:	West Penn Wire 2200 U.S. Highway 27 South, Richmond, IN, 47374 Contact: Dorna, Gerald (765) 994-9963 Email: gerald.dorna@belden.com
DESIGN:	Types FPL and FPLP power limited fire protective signaling cable. Refer to listee's data sheet for detailed product description and operational considerations.
RATING:	
INSTALLATION:	In accordance with listee's printed installation instructions, NEC Article 760, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, type, NEC rating and UL label.
APPROVAL:	Listed as power-limited fire protective signaling cable.
NOTES:	

Rev. 12-15-23 bh

This listing is based upon technical data submitted by the applicant. OSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: 05/03/2024 **Listing Expires: 06/30/2025**

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division

3 FIRE ALARM CABLE DATA SHEET

SCALE : NONE

Honeywell | Addressable Devices

Gamewell FCI

Velociti Series® AOM-2RF

Addressable Output Relay Control Module

General

The Gamewell-FCI Velociti® Series, addressable output relay control module (AOM-2RF) allows a Gamewell-FCI analog addressable fire alarm control panel to switch discrete relay contacts by code command. The relay provides two isolated sets of Form-C contacts which transfer simultaneously. Circuit connections to the relay contacts are not supervised by the module.

The Velociti® Series use a communication protocol that substantially increases the speed of communication between the SLC devices and certain Gamewell-FCI analog addressable fire alarm control panels. These devices operate in a grouped fashion. If one of the devices in the group has a status change, the panel's microprocessor stops the group poll and concentrates on the single device. The net result produces a superior response speed up to five times greater than earlier designs.

The AOM-2RF Module is designed for installation in the signaling line circuit of any Gamewell-FCI analog addressable fire alarm control panel. The module contains a panel controlled LED. The AOM-2RF is designed to mount in a 4" (10.16 cm) square junction box 2 1/8" (5.53 cm) deep.



AOM-2RF

Ordering Information

AOM-2RF: Addressable output relay control module

Table 1 lists the relay contact ratings.

CURRENT RATING	MAXIMUM VOLTAGE	LOAD DESCRIPTION	APPLICATION
3A	30 VDC	Resistive	Non-Coded
2A	30 VDC	Resistive	Coded
0.9A	110 VDC	Resistive	Non-Coded
0.5A	125 VAC	Resistive	Non-Coded
0.5A	30 VDC	Inductive (L/R=5ms)	Coded
1A	30 VDC	Inductive (L/R=2ms)	Coded
0.5A	125 VAC	Inductive (PF=.35)	Non-Coded
0.7A	75 VAC	Inductive	Non-Coded

Table 1: Relay Contact Ratings

FEATURES & BENEFITS

- Listed under UL® Standard 864
- Offers two sets of Form "C" contacts
- Provides visual rotary, decimal switch addressing (01-159)
- Includes a bi-color LED that flashes green whenever the module is addressed, and lights steady red upon activation*
- Designed as a compact size to allow easy installation

Note 1: Only the red LED is operative in panels that do not operate in Velociti® mode
*Note 2: The bi-color LED functionality is not available on the GWF-7075 panel.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No.:	7300-1703:0102
PARENT LISTING No.:	7300-1653:0103
CATEGORY:	7300 - FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES
LISTEE:	GAMEWELL-FCI 12 Clintonville Road, Northford, CT, 06472 Contact: Brant, Lisa 2034846105 Email: lisa.brant@honeywell.com
DESIGN:	Models AMM-4, *AMM-4F, AMM-2 and *AMM-2F monitor modules and Models AOM, AOM-2, AOM-2R, *AOM-2RF, AOM-2S and *AOM-2SF control modules. Refer to listee's data sheet for detailed product description and operational considerations.
RATING:	
INSTALLATION:	In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, model designation, electrical rating and UL label.
APPROVAL:	Listed as accessories for use with separately listed compatible control units. System Sensor Model SMB500 surface mount box (CSFM Listing No. 7300-1653:103) may be used as an enclosure for these modules
NOTES:	FORMERLY: 7300-0694:178

12-4-07

This listing is based upon technical data submitted by the applicant. OSFM Fire Engineering staff has reviewed the test resultsand/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria.Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: 05/08/2024 **Listing Expires: 06/30/2025**

Authorized By: **David Castillo** , Program Coordinator
Fire Engineering & Investigations Division

2 ADDRESSABLE HVAC SHUT DOWN RELAY

SCALE : NONE

FIRE ALARM SYSTEM LEGEND

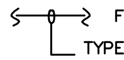
SYMBOL	QTY.	DESCRIPTION	MODEL #	C.S.F.M. #	BACK BOX REQUIREMENTS
FACP		(X) CAMPUS FACP A#03-102799	FCI #7200A	7165-0694:174	SURFACE OR FLUSH MOUNT
FATC		(X) NOTIFICATION APPLIANCE PANEL A#03-102799	FCI SNAC-4	7300-0694:191	SURFACE MOUNT
A	16	ADDRESSABLE HVAC SHUT DOWN RELAY	FCI AOM-2RF	7300-1703:0102	4" SQ. BOX
⊗	1	MULTI-CRETERIA FIRE \ CO DETECTOR	FCI MCS-COF3	7272-1703:0508	4" SQ. BOX

		CONTROL UNIT ANNUNCIATION										NOTIFICATION										REQUIRED FIRE SAFETY CONTROL							
		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE COMMON TROUBLE SIGNAL	DISPLAY CHANGE OF STATUS MESSAGE ON LCD DISPLAY	NOT USED	ACTUATE BUILDING GENERAL ALARM SIGNALS	DISPLAY MESSAGE ON LCD READOUT	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION	ACTUATE ALARM LED ON REMOTE ANNUNCIATOR	NOT USED	NOT USED	NOT USED	NOT USED	SYSTEM WILL BE 100% OPERATIONAL ON BATTERY BACKUP	ACTIVATE HVAC SHUT DOWN	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	MULTI-CRITERIA FIRE/CO DETECTORS	●	●					●		●	●	●			●						●							
2	ADDRESSABLE HVAC SHUT DOWN RELAY							●		●	●	●			●						●							

FIRE ALARM CONDUIT AND WIRE SPECIFICATIONS SCHEDULE

CABLE TYPE	DESCRIPTION OF CONTENTS	CONDUIT SIZE (UON)	CIRCUIT DESCRIPTION	C.S.F.M LISTING
S	2 - CONDUCTOR TWISTED PAIR SOLID CABLE NON-SHIELD #12 AWG, FPLR WEST PENN AQUASEAL	1/2" MIN.	(SLC) SIGNALING LINE CIRCUIT CABLE IN CONDUIT FOR ADDRESSABLE DATA. CONTRACTOR SHALL VERIFY CABLING REQUIREMENTS WITH FCI MANUFACTURER PRIOR TO BID FOR A FULLY OPERATIONAL FIRE ALARM SYSTEM.	7161-0859:0101

NOTES:
1. ALL WIRING TO BE LISTED FOR USE AS REQUIRED BY TITLE 24/CEC, ART. 760.
2. "THWN" (INTERIORS), "XHHW" (FOR UNDERGROUND & EXTERIORS) OR EQUAL TO BE USED IN WET LOCATIONS. USE WEST PENN AQUASEAL FOR FPLR CABLING.
3. ALL WIRE AND CABLE TO BE SIGNED, TYPED AND CONDUIT FILL PER CALIFORNIA ELECTRICAL CODE AND MANUFACTURER'S RECOMMENDATION.



FIRE ALARM WIRE SYMBOL

TYPE "S" CABLES SHALL BE RUN IN 1/2"C. DEDICATED CONDUIT. NO MORE THAN (2)S CABLES SHALL BE RUN IN DEDICATED CONDUIT.
(2)S INDICATES TWO TYPE "S" CABLES IN RACEWAY.

1 FIRE ALARM SYSTEM INFORMATION SHEET

SCALE : NONE

F.A. CABLE SCHEDULE

A - 2#16 AWG FPL CABLE
WEST PENN #AQ225 OR EQUAL

B - 2#12 THWN CU

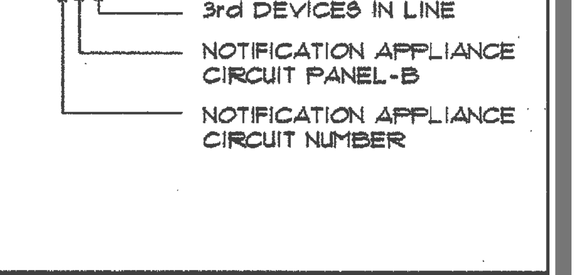
C - ARMOR CABLE 2#16 THHN CU WITH GROUND CONDUCTOR.

D - ARMOR CABLE 2 THHN CU WITH GROUND CONDUCTOR.

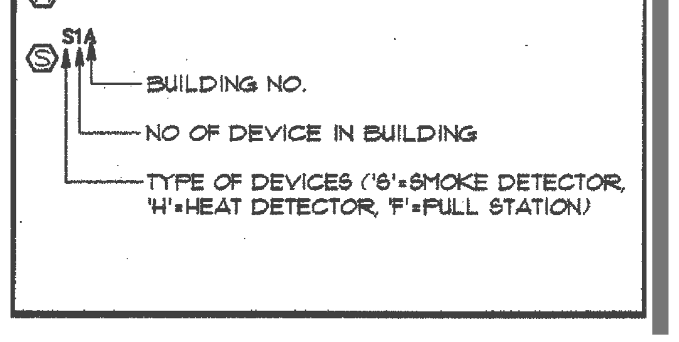
NOTES:

ALL FIRE ALARM CONDUCTORS SHALL BE RUN CONTINUOUS BETWEEN F.A. DEVICES OR TERMINAL CABINETS, NO SPLICE IS ALLOWED IN PULL BOX, IN ATTIC SPACE OR UNDER CRAWL SPACE. (U.N.O).

NOTIFICATION APPLIANCE CIRCUIT LABELING



INITIATING CIRCUIT LABELING



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124514 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 12/06/2024

VENTURA UNIFIED SCHOOL DISTRICT
2050 GRAND AVENUE, VENTURA, CA 93003

MONTALVO ELEMENTARY SCHOOL
HVAC REPLACEMENT

KBZ
KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUEROA STREET SUITE 100A VENTURA CA 93001
TELEPHONE (805) 650-1033 WWW.KBZARCH.COM

TODD A. JESPERSEN, A.I.A.
PRINCIPAL-IN-CHARGE

PATRICK B. PANLAQUI
PROJECT MANAGER

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ARCHITECT'S STAMP & SIGNATURE
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Ren. 06/30/2025

ENGINEER'S STAMP & SIGNATURE
15392
EXP 6-30-25

CONSULTANT INFORMATION

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858 East Front Street
Ventura, California 93001
Phone (805) 641-4012
Fax (805) 641-0450
www.choodassociates.com

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REVISION	DESCRIPTION	DATE	BY
5	-	-/-/-	XX
4	-	-/-/-	XX
3	-	-/-/-	XX
2	-	-/-/-	XX
1	DSA PLAN CHECK	09/26/24	CHA

DRAWN
CHECKED
DATE 10/11/2024
JOB. NO. 23053
DSA A03-124514 FILE:56-40 PTN:72652-125
SHEET TITLE FIRE ALARM SYSTEM INFORMATION SHEET

SHEET
E914