GRAPHIC SCALES: 1/16" = 1'-0" (0, 5', 50') · 1/8" = 1'-0" (0, 5', 25') · 1/4" = 1'-0" (0, 1', 12') · 1/2" = 1'-0" (0, 1', 6') · 3/4" = 1'-0" (0, 4') · 1" = 1'-0" (0, 1', 3') · 1 1/2" = 1'-0" (0, 2') · 3" = 1'-0" (0, 1')

IF THIS SHEET IS NOT 30"x42" , IT IS A REDUCED PRINT SCALE ACCORDINGLY

SAN RAFAEL CITY SCHOOLS

SAN RAFAEL HIGH SCHOOL

BLDG LA HVAC UPGRADES

150 3RD STREET, SAN RAFAEL, CA 94901

FILE: 21-H1
APPL: 116479

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF GOVERNING CODES LISTED IN "APPLICABLE CODES" AND ALL GOVERNING LOCAL CODES AND REGULATIONS.
2. THE OWNER / ARCHITECT HAVE OBTAINED APPROVAL OF THE PRIMARY AUTHORITY HAVING JURISDICTION (DSA, HCAI, CITY BUILDING PERMIT). CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER REQUIRED PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. UNLESS STATED OTHERWISE IN THE SPECIFICATIONS, SPECIAL INSPECTION IS REQUIRED FOR SHOP AND FIELD STRUCTURAL WELDING.
4. WHERE INCORPORATED IN THE CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COPIES OF HCAI OR DSA PRE-APPROVALS FOR PRE-APPROVED ITEMS OR SYSTEMS INCORPORATED INTO THE CONSTRUCTION AND DISTRIBUTE TO OWNER'S REPRESENTATIVE, ARCHITECT AND INSPECTOR.
5. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO FURNISH AND AND INSTALL ALL MATERIALS AND WORK DESCRIBED, DEPICTED OR DETAILED WITHIN THESE DOCUMENTS REGARDLESS OF THE LOCATION OF THAT MATERIAL OR WORK WITHIN THE DOCUMENTS OR OMISSION (WHETHER DELIBERATE OR ACCIDENTAL) OF THAT MATERIAL OR WORK BY A SUBCONTRACTOR ON HIS/HER BID.
6. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL CONSIDER THESE DOCUMENTS IN THEIR ENTIRETY. DISCREPANCIES OR CONTRADICTIONS BETWEEN PORTIONS OF THESE DOCUMENTS MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AT LEAST 72 HOURS PRIOR TO BID OPENING FOR CLARIFICATION. OTHERWISE, THE MOST RESTRICTIVE REQUIREMENT SHALL BE IN FORCE AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE SAFETY OF ALL PERSONS ON OR ABOUT THE CONSTRUCTION SITE, IN ACCORDANCE WITH APPLICABLE LAWS AND CODES. CONTRACTOR ESTABLISH PROCEDURES TO ASSURE ALL PERSONS ENTERING A POSSIBLY HAZARDOUS AREA, INCLUDING WORKERS, SUBCONTRACTORS, OTHER CONTRACTORS, VISTORS, AND OTHERS ARE AWARE OF APPROPRIATE / REQUIRED SAFETY PROCEDURES. COMPLY WITH LOCAL, STATE, AND FEDERAL SAFETY STANDARDS, INCLUDING OSHA REQUIREMENTS AND WITH THE SAFETY PROVISIONS OF THE LATEST MANUAL OF ACCIDENT PREVENTION PUBLISHED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA.
8. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TEMPORARY FENCING AND GATES, SIGNAGE, SECURITY LIGHTING OR OTHER SECURITY AND CONTROL MEASURES NECESSARY TO PROVIDE FOR THE SAFETY OF THE PUBLIC AND FACILITY USERS UNTIL THE COMPLETION OF THE WORK.
9. THE CONTRACTOR IS RESPONSIBLE TO FOR PROTECTION OF ADJACENT PROPERTY AND SHALL REPAIR AND / OR REPLACE ALL PROPERTY DAMAGED DURING THE COURSE ON THE WORK.
10. THE CONTRACTOR SHALL LIMIT HIS / HER ACTIVITY TO THE AREA DESCRIBED WITHIN THE DOCUMENTS UNLESS OTHERWISE PERMITTED BY THE OWNER'S REPRESENTATIVE.
11. THE CONTRACTOR IS RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY ITEMS DAMAGED OR DISTURBED DURING THE COURSE OF THE WORK. INSTALLATION SHALL MATCH EXISTING IN KIND, QUALITY, AND PERFORMANCE.
12. WHERE EXISTING CONSTRUCTION AND FINISHES ARE CUT, DAMAGED, OR REMODELED, PATCH WITH MATERIALS TO MATCH IN KIND, QUALITY, PERFORMANCE CHARACTERISTICS, AND APPEARANCE.
13. ALL DIMENSIONS ARE TO FACE OF STUD, UNLESS OTHERWISE NOTED. DIMENSIONS NOTED AS "CLR" MEAN CLEAR DIMENSION TO FACE OF FINISH. VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES FOUND.
14. VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS. NOTIFY ARCHITECT OF ANY DISCREPANCIES FOUND. VERIFY DIMENSIONS OF ALL OWNER-FURNISHED ITEMS, INCLUDING FURNITURE AND EQUIPMENT, TO ENSURE PROPER COORDINATION WITH CONSTRUCTION.
15. ALL ITEMS IN THESE DRAWINGS ARE NEW UNLESS OTHERWISE NOTED.
16. ALL UTILITIES REQUIRED FOR THE CONTINUOUS OPERATION OF ALL OCCUPIED EXISTING FACILITIES SHALL BE MAINTAINED IN SERVICE AT ALL TIMES. ANY SHUT DOWNS FOR NEW CONNECTIONS MUST BE COORDINATED WITH THE OWNER'S REPRESENTATIVE TWO WEEKS PRIOR TO THE REQUESTED SHUT DOWN.
17. COORDINATION WITH OTHER CONTRACTS: IF ANY PART OF THIS CONTRACTOR'S WORK DEPENDS UPON THE WORK OF A SEPARATE CONTRACTOR, THIS CONTRACTOR SHALL INSPECT SUCH OTHER WORK AND PROMPTLY REPORT IN WRITING TO THE OWNER'S REPRESENTATIVE ANY DEFECTS IN SUCH OTHER WORK THAT RENDER IT UNSUITABLE TO RECEIVE THE WORK OF THIS CONTRACTOR. FAILURE OF THIS CONTRACTOR TO SO INSPECT AND REPORT SHALL CONSTITUTE AN ACCEPTANCE OF THE OTHER CONTRACTOR'S WORK, EXCEPT AS TO DEFECTS WHICH MAY DEVELOP IN OTHER CONTRACTOR'S WORK AFTER EXECUTION OF THIS CONTRACTOR'S WORK.
18. COORDINATION OF SCHEDULE: PORTIONS OF THIS WORK MAY BE REQUIRED TO BE COMPLETED ON SCHEDULE IN ORDER TO AVOID DELAY TO OTHER CONTRACTORS OR OWNERS OPERATIONS. CONTRACTOR SHALL STRICTLY ADHER TO ESTABLISHED COMPLETION DATES AS DESIGNATED IN THE SPECIFICATIONS AND COORDINATE WORK SCHEDULE WITH THE OWNER'S REPRESENTATIVE AND OTHER CONTRACTORS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND LIQUIDATED DAMAGES.
19. SCHEDULE ALL WORK WITH THE OWNER'S REPRESENTATIVE, INCLUDING CONSTRUCTION ACCESS AND STORAGE, AND WORK OUTSIDE THE "EXTENT OF WORK" SET FORTH IN THESE DOCUMENTS. THE CONSTRUCTION SCHEDULE SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO THE START OF CONSTRUCTION.
20. CONSTRUCTION PROCEDURES SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO THE START OF CONSTRUCTION.
21. DEMOLITION IS NOT NECESSARILY LIMITED TO ONLY WHAT IS SHOWN ON THIS OR OTHER DRAWINGS OR AS OUTLINED IN THE SPECIFICATIONS. THE INTENT IS TO INDICATE GENERAL SCOPE OF DEMOLITION REQUIRED. CONTRACTOR SHALL INCLUDE ALL MISCELLANEOUS DEMOLITON, CUTTING AND PATCHING REQUIRED TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
22. ALL ITEMS IDENTIFIED TO BE SALVAGED SHALL BE DELIVERED IN GOOD CONDITION TO A PLACE OF STORAGE AS DIRECTED BY THE OWNER'S REPRESENTATIVE. ALL OTHER ITEMS MUST BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.
23. ARCHITECT IS NOT RESPONSIBLE FOR THE DISCOVERY, PRESENCE, HANDLING, REMOVAL OR DISPOSAL OF, OR EXPOSURE OF PERSONS TO, HAZARDOUS MATERIALS OR TOXIC SUBSTANCES IN ANY FORM AT THE PROJECT SITE. TO THE EXTENT THESE DOCUMENTS RELATE TO SUCH ISSUES, ARCHITECT'S PARTICIPATION IS SOLELY ADMINISTRATIVE WITHOUT ANY RESPONSIBILITY FOR THE CONTENT OR EXECUTION OF SUCH DOCUMENTS.
24. DETAIL DRAWINGS WITH REFERENCES TO FIRE-RATED ASSEMBLIES OR CONSTRUCTION WHICH HAVE BEEN TESTED BY UNDERWRITERS LABORATORIES, THE CALIFORNIA BUILDING CODE OR ANY OTHER APPROVED TESTING AGENCY, SHALL BE CONSTRUED TO INCLUDE ALL WORK AND PROCEDURES CONTAINED IN THE REFERENCED ASSEMBLY DESCRIPTION..
25. ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RATED CONSTRUCTION SHALL BE FIRE STOPPED AND SEALED TO MAINTAIN THE REQUIRED RATING.
26. CONTRACTOR TO MAINTAIN CONTEMPORANEOUSLY RECORDED "AS-BUILT" INFORMATION OF ALL WORK, WHICH SHALL BE MARKED IN COLOR ON THE DRAWINGS AND SPECIFICATIONS. A SCANNED PDF OF THE "AS-BUILT" DRAWINGS AND SPECIFICATIONS SHALL BE TURNED OVER TO THE OWNER'S REPRESENTATIVE PRIOR TO FINAL APPLICATION FOR PAYMENT. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
27. CONTRACTOR SHALL PROVIDE TEMPORARY PROTECTION AND DUST COVERS ADJACENT TO OCCUPIED AREAS AS REQUIRED TO CONTAIN DUST AND DEBRIS WITHIN CONSTRUCTION AREA. BROOM CLEAN ALL AREAS, INLCUDING SIDEWALKS AND DRIVEWAYS EACH DAY. KEEP DIRT AND DUST TO A MINIMUM.
28. WORK SHALL BE EXECUTED IN A CAREFUL AND ORDERLY MANNER WITH THE LEAST POSSIBLE DISTURBANCE TO PUBLIC AND TO OCCUPANTS OF EXISTING BUILDING.
29. CLEAN ALL EXPOSED SURFACES AND NEW EQUIPMENT AFTER COMPLETION.

ABBREVIATIONS

&	AND
@	AT
℄	CENTERLINE
Ø	DIAMETER
#	POUND OR NUMBER
A/C	AIR CONDITIONING
AC	ASPHALTIC CONCRETE
ACOUS	ACOUSTICAL
ACT	ACOUSTIC CEILING TILE
ADD	ADDITIONAL
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ALUM	ALUMINIUM
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
BITUM	BITUMINOUS
BD	BOARD
BLDG	BUILDING
BLKG	BLOCKING
BOT	BOTTOM
BTWN	BETWEEN
BUR	BUILT-UP ROOFING
CAB	CABINET
CB	CATCH BASIN
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CG	CORNER GUARD
CJ	CONTROL JOINT
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMP	COMPOSITION
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CORR	CORRIDOR
CT	CERAMIC TILE
CUST	CUSTODIAN
DBL	DOUBLE
DEMO	DEMOLITION
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DI	DRAIN OR DROP INLET
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPENSER
DIV	DIVISION
DN	DOWN
DS	DOWNSPOUT
DTL	DETAIL
DW	DISHWASHER
DWG	DRAWING
(E)	EXISTING
E	EAST
EA	EACH
EF	EXHAUST FAN
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
ENCL	ENCLOSURE
EQ	EQUAL
EQUIP	EQUIPMENT
EVA	EMERGENCY VEHICLE ACCESS
EWC	ELECTRICAL WATER COOLER
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FIN	FINISH
FLR	FLOOR
FO	FACE OF
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOS	FACE OF STUD
FRP	FIBERGLASS REINFORCED PANEL
FT	FOOT OR FEET
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GSM	GALVANIZED WHEET METAL
GYP	GYPSUM
HB	HOSE BIB
HC	HOLLOW CORE
HD	HEAD
HDWR	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HOUR
HT	HEIGHT
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
JAN	JANITOR
JT	JOINT
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LBS	POUNDS
LT	LIGHT
MAX	MAXIMUM
MB	MACHINE BOLT
MDF	MEDIUM DENSITY FIREBOARD
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MODULAR
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MUL	MULLION
(N)	NEW
N/A	NOT APPLICABLE
N	NORTH
NIC	NOT IN CONTRACT
NO or #	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
O/	OVER
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OPP	OPPOSITE
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLYWD	PLYWOOD
PR	PAIR
PTD	PAPER TOWEL DISPENSER
PVC	POLYVINYL CHLORIDE
(R)	RELOCATE
RB	RESILIENT OR RUBBER BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFERENCE
REFR	REFRIGERATOR
REINF	REINFORCED
REQ	REQUIRED
RF	RESILIENT FLOORING
RM	ROOM
RO	ROUGH OPENING
RWL	RAIN WATER LEADER
S	SOUTH
SC	SOLID CORE
SCD	SEE CIVIL DRAWINGS
SCHED	SCHEDULE
SD	SOAP DISPENSER
SED	SEE ELECTRICAL DRAWINGS
SF	SQUARE FEET
SFPD	SEE FIRE PROTECTION DRAWINGS
SHT	SHEET
SIM	SIMILAR
SLD	SEE LANDSCAPE DRAWINGS
SMD	SEE MECHANICAL DRAWINGS
SMS	SHEET METAL SCREW
SND	SANITARY NAPKIN DISPENSER
SPD	SEE PLUMBING DRAWINGS
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SSD	SEE STRUCTURAL DRAWINGS
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPEND
TEL	TELEPHONE
TEMP	TEMPORARY
THK	THICK
T.O.	TOP OF
TOC	TOP OF CURB
TOP	TOP OF PARAPET
TOS	TOP OF SLAB
TOW	TOP OF WALL
TPD	TOILET PAPER DISPENSER
TV	TELEVISION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
W	WEST
w/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER

VICINITY MAP

NO SCALE

PROJECT LOCATION

APPLICABLE CODES

ALL WORK PERFORMED UNDER THIS CONTRACT IS TO CONFORM TO THE FOLLOWING CODES AND REGULATIONS:

2022 CALIFORNIA BUILDING ADMINISTRATIVE CODE,
PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)

2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24, CCR BASED ON THE 2021 INTERNATIONAL BUILDING CODE (IBC) WITH 2021 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24, CCR BASED ON THE 2020 NATIONAL ELECTRICAL CODE (NEC) WITH 2020 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24, CCR BASED ON THE 2021 UNIFORM MECHANICAL CODE (UMC) WITH 2021 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24, CCR BASED ON THE 2021 UNIFORM PLUMBING CODE (UPC) WITH 2021 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA ENERGY EFFICIENCY STANDARDS (ENERGY CODE), PART 6, TITLE 24 CCR

2022 SAFETY CODE FOR ELEVATORS AND ESCALATORS
(ASME A17.1-2019)

2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24, CCR BASED ON THE 2021 INTERNATIONAL FIRE CODE (IFC) WITH 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA EXISTING BUILDING CODE, PART 10, TITLE 24 CCR
(2021 IEB CODE AND 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA GREEN BUILDING CODE (CALGreen), PART 11, TITLE 24, CCR

2022 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 CCR

TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

NFPA 13	INSTALLATION OF SPRINKLER SYSTEMS	2022 EDITION
NFPA 14	INSTALLATION OF STANDPIPE SYSTEMS	2019 EDITION
NFPA 17	STANDARD FOR DRY CHEMICAL EXTINGUISHING SYSTEM	2021 EDITION
NFPA 17A	STANDARD FOR WET CHEMICAL SYSTEM	2021 EDITION
NFPA 20	INSTALLATION OF STATIONARY PUMPS	2019 EDITION
NFPA 24	INSTALLATION OF PRIVATE FIRE MAINS	2019 EDITION
NFPA 72	NATIONAL FIRE ALARM AND SIGNALING CODE	2022 EDITION
NFPA 80	FIRE DOORS AND OTHER OPENING PROTECTIVES	2019 EDITION
NFPA 92	STANDARD FOR SMOKE CONTROL SYSTEMS	2018 EDITION
NFPA 110	STANDARD FOR EMERGENCY AND STANDBY POWER SYS.	2019 EDITION
NFPA 170	STANDARD FOR FIRE SAFETY AND EMERGENCY SYMBOLS	2018 EDITION
NFPA 253	CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEM	2019 EDITION
NFPA 2001	CLEAN AGENT FIRE EXTINGUISHING SYSTEM	2018 EDITION
ICC 300	STANDARD ON BLEACHER, FOLDING AND TELESCOPIC SEATING	2017 EDITION
UL 38	STANDARD FOR SAFETY MANUAL SIGNALING BOXES FOR FA	1999 EDITION
UL 268	SMOKE DETECTORS FOR FIRE ALARM SYSTEMS	2016 EDITION
UL 300	FIRE SUPPRESSION STANDARDS	2005 (R2010) EDITION
UL 305	STANDARD FOR SAEFTY PANIC HARDWARE	2012 EDITION

REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS - 2022 CBC CHAPTER 35 AND 2022 CFC CHAPTER 80

THE ABOVE CODES AND REGULATIONS REFER TO THE LATEST EDITION OR REVISION IN FORCE ON THE DATE OF THE CONTRACT, UNLESS OTHERWISE STATED. NOTHING ON THE DRAWINGS IS TO BE CONSTRUED AS REQUIRING OR PERMITTING WORK THAT IS CONTRARY TO THE LISTED CODES AND REGULATIONS, OR OTHER LOCAL, STATE OR FEDERAL CODES OR REGULATIONS WHICH MAY BE APPLICABLE.

COMPLIANCE WITH CFC CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION, AND CBC CHAPTER 33, SAFETY DURING CONSTRUCTION WILL BE ENFORCED.

ADMINISTRATIVE NOTES

1. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO ***CONSTRUCT THE SCOPE OF THE PROJECT*** IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS SUCH THAT THE FINISHED WORK WILL NOT COMPLY WITH THE SAID TITLE 24, CALIFORNIA CODE OF REGULATIONS, CONSTRUCTION CHANGE DOCUMENTS DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK.
2. A COPY OF PARTS 1 THROUGH 5, TITLE 24 C.C.R. SHALL BE KEPT ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONSTRUCTION CHANGE DOCUMENT AND ADDENDA TO BE SIGNED BY THE ARCHITECT AND THE OWNER AND APPROVED BY DSA. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM 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.
4. ALL TESTS TO CONFROM TO THE REQUIREMENTS OF SECTION 4-335, PART 1, TITLE 24.
5. TESTS OF MATERIALS AND TESTING LABORATORY SHALL BE IN ACCORDANCE WITH SECTION 4-335 OF PART 1, TITLE 24 AND THE DISTRICT SHALL EMPLOY AND PAY THE LABORATORY. COSTS OF RE-TEST MAY BE BACK CHARGED TO THE CONTRACTOR.
6. DSA SHALL BE NOTIFIED AT THE START OF CONSTRUCTION AND PRIOR TO THE PLACEMENT OF CONCRETE PER SECTION 4-331, PART 1, TITLE 24.
7. A "DSA CERTIFIED" PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DSA SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CCR. A MINIMUM CLASS 1 INSPECTOR IS REQUIRED.
8. SUPERVISION OF CONSTRUCTION BY DSA SHALL BE IN ACCORDANCE WITH SECTION 4-334, PART 1, TITLE 24.
9. CONTRACTOR, INSPECTOR, ARCHITECT, AND ENGINEERS SHALL SUBMIT VERIFIED REPORTS (FORM DSA-6 IN ACCORDANCE WITH SECTION 4-336 AND 4-343, PART 1, TITLE 24.
10. THE ARCHITECT AND THE STRUCTURAL ENGINEER SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTION 4-333(A) AND 4-341, PART 1, TITLE 24.
11. THE CONTRACTOR SHALL PERFORM HIS DUTIES IN ACCORDANCE WITH SECTION 4-343, PART 1, TITLE 24.
12. THE CALIFORNIA ENERGY CODE SECTION 10-103 REQIUIRES ACCEPTANCE TESTING ON ALL NEWLYINSTALLED 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 OF THE OWNER'S AGENT.

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

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

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

OWNER

SAN RAFAEL CITY SCHOOLS

310 NOVA ALBION WAY — TEL. (415) 492-3285
SAN RAFAEL, CA 94903 — FAX. (415) 492-3229
SENIOR DIRECTOR OF STRATEGIC FACILITY PLANNING:
TIMOTHY RYAN

CONSTRUCTION MANAGER

GREYSTONE WEST COMPANY — TEL. (707) 933-0624
621 WEST SPAIN STREET — FAX. (707) 996-8390
SONOMA, CA 95476

CONSULTANTS

ARCHITECT

HIBSER YAMAUCHI ARCHITECTS — TEL. (510) 446-2222
300 27TH STREET, 2ND FLOOR — FAX (510) 446-2211
OAKLAND, CA 94612
CONTACT: LEE POLLARD

STRUCTURAL

ZFA STRUCTURAL ENGINEERS — TEL. (415) 243-4091
ADDRESS
CITY, ST ZIP
CONTACT: ANGIE SOMMER

MECHANICAL / PLUMBING

CAPITAL ENGINEERING — TEL. (916) 851-3519
ADDRESS
CITY, ST ZIP
CONTACT: RYAN CELAYA

ELECTRICAL / COMMUNICATIONS

WKM ELECTRICAL CONSULTANTS INC. — TEL. (925) 385-0649
3397 MT. DIABLO BLVD., SUITE C
LAFAYETTE, CA 94549
CONTACT: TIFFANY KANE

SYMBOLS

- GRID LINE (1, A)
- BUILDING ELEVATION (1, A3.01): ELEVATION IDENTIFICATION; SHEET WHERE ELEVATION IS SHOWN
- BUILDING OR WALL SECTION (1, A3.01): SECTION IDENTIFICATION; SHEET WHERE SECTION IS SHOWN
- DETAIL (1, A3.01): DETAIL IDENTIFICATION; SHEET WHERE DETAIL IS SHOWN
- INTERIOR ELEVATION(S) (A, C, D, 1, A5.01): DETAIL NO. OF ELEVATION; NO ARROWS MEAN ELEVATION NOT SHOWN; SHEET WHERE ELEVATION IS SHOWN; ELEVATION IDENTIFICATION
- WORK POINT, CONTROL POINT OR DATUM POINT
- REVISIONS (3): REVISION NUMBER, SEE REVISION SCHEDULE ON TITLE BLOCK; AREA OF REVISION
- ROOM IDENTIFICATION (CORR, CORRD, 2088, 9'-0"): ROOM NAME; KAISER ROOM CODE NAME; ROOM NUMBER; CEILING HEIGHT (OTHER THAN EXISTING OR 8'-0" A.F.F.)
- KEYNOTE TAG (00.00): REFER TO KEYNOTE LIST LOCATED ON PLAN SHEETS
- AREA OF NO WORK

INDEX OF DRAWINGS

DEFERRED APPROVALS

1. NONE

SCOPE OF WORK

BUILDING LA

1. UPGRADE TWO ROOFTOP AIR HANDLING AND SUPPORTING DUCKWORK IN EXISTING ROOF PENETRATIONS.
2. REPLACE ONE HEAT PUMP UNIT IN KIND AND REFRIGERANT CONNECTIONS.
3. REMOVE ALL CLASSROOM HEAT COILS AND PIPING CONNETIONS, REPLACE WITH NEW DUCTWORK.
4. CONSTRUCT ROOFTOP MECHANICAL PLATFROM EXTENSION WITH STRUCTURAL SUPPORTS AND REPLACE HOUSEKEEPING PADS.
5. UPGRADE THERMOSTAT CONTROLS.
6. ASSOCIATED ELECTRICAL UPGRADE.
7. EXISTING TWO HEAT PUMP UNITS AND CURB TO REMAIN.

STATEMENT OF GENERAL CONFORMANCE

Application No.: 116479

File No.: 21-H1

The drawings identified as follows:
- [x] All drawing sheets included in this set not bearing my stamp and signature.
- [ ] Drawing sheets denoted in the sheet index as follows: ____________________
- [ ] Drawing sheets included under the following PC approval(s): ______________

have been prepared by other design professionals or consultants who are licensed and authorized to prepare such drawings (plans) in this state. Then have been examined by me for:

1. Design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications prepared by me, and
2. Coordination with my drawings (plans) and specifications and are acceptable for incorporation into the construction of this project.

Per Title 24, Part, Section 4-316(b): This Statement of General Conformance shall not be construed as relieving me of my rights, duties, and responsibilities under Section 17302 and 81138 of the Education Code and Sections 4-336, 4-341, and 4-344 of Title 24, Part 1.

Signature ____________ Date ____________

Printed Name	License Number	Expiration Date
W. LEE POLLARD	C-13315	11/30/25

SAN RAFAEL CITY SCHOOLS
310 NOVA ALBION WAY
SAN RAFAEL, CA 94903
TEL: 415.492.3200 FAX: 415.492.3229

Revisions

Delta	Date	Revisions	By

NOT FOR CONSTRUCTION

DESIGN DEVELOPMENT

HIBSER YAMAUCHI Architects, Inc.
300 – 27th Street
Oakland, CA 94612
510.446.2222 tel ¦ 510.446.2211 fax

HY Architects Project number: 6189

Facility
SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
TITLE SHEET

Client Project Number: 0000.0

Scale: 12" = 1'-0"
Drawn By: SN, VL
Checked By: VL
Issue Date: 11/8/2024
Revit Version: 2023

Sheet
A0.01
Sheet of 200

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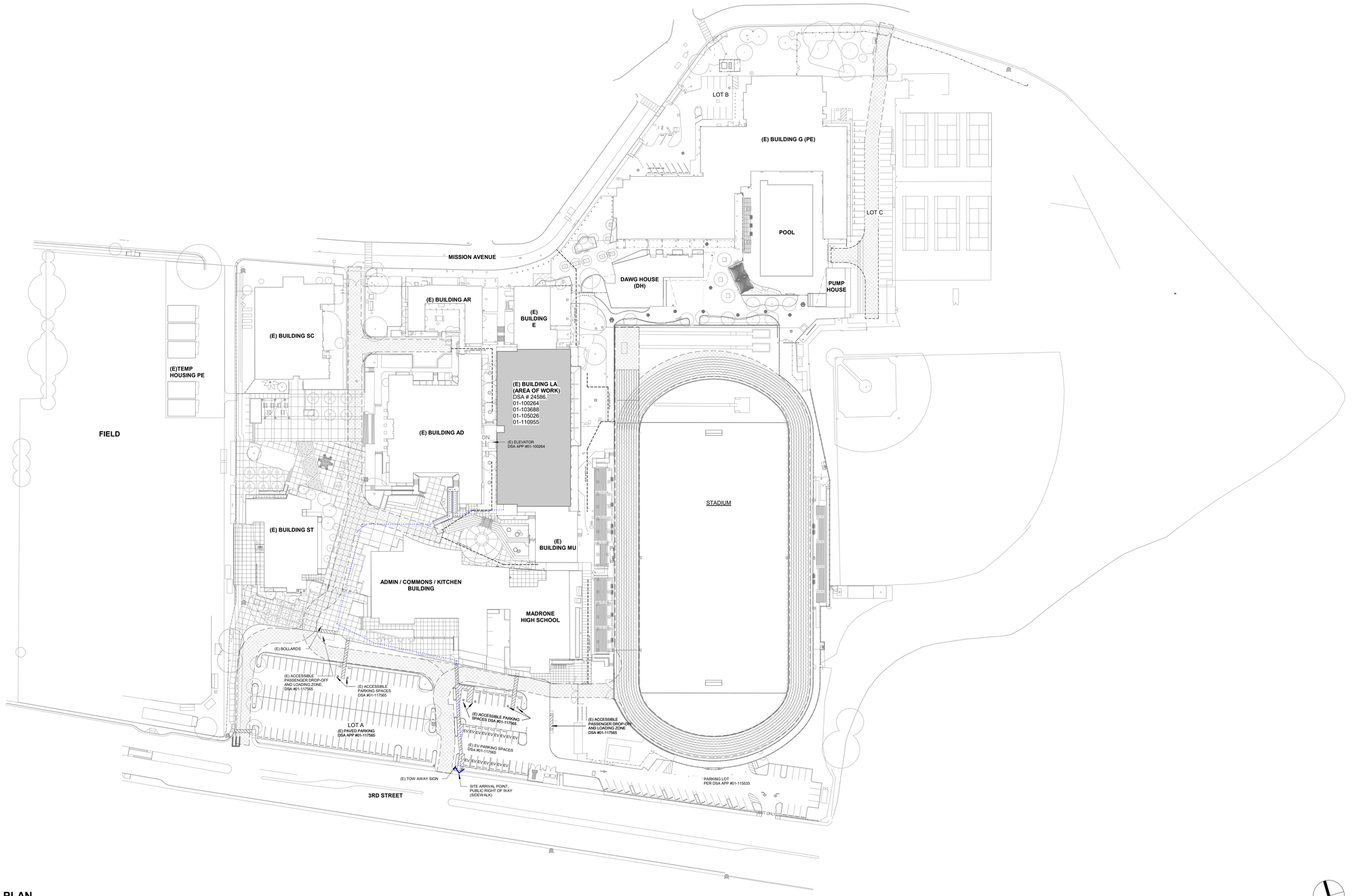
GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"



1 SITE PLAN
1" = 60'-0"

DSA CERTIFICATION & CLOSE OUT

ADMIN / COMMONS / KITCHEN BUILDING	DSA # 01-117565 (2019)	BUILDING E (PREVIOUSLY LABELED "G" (E) CLASSROOMS)	DSA # 2470 (1939) DSA # 21467 DSA # 24586 (1964) DSA # 01-100264 (1987) DSA # 01-103688 (2001) DSA # 01-105026 (2003)
MADRONE HIGH SCHOOL (E) CLASSROOMS	DSA # 01-117565 (2019)		
(E) BUILDING ST (PREVIOUSLY LABELED "P" (E) CLASSROOMS)	DSA # 15759 DSA # 41929 DSA# 01-106287 DSA # 01-110955	BUILDING MU (E) MUSIC / CLASSROOMS)	DSA # 2469 (1939) DSA # 24586 (1964) DSA # 01-100264 (1987) DSA # 01-103688 (2001) DSA # 01-105026 (2003) DSA # 01-118811 (2020)
BUILDING AD (PREVIOUSLY LABELED "A" (E) CLASSROOMS)	DSA # 5984 DSA # 26295 (1965) DSA # 01-100264 (1987) DSA # 01-106287 (2004) DSA # 01-118811 (2020)	BUILDING G (PREVIOUSLY LABELED "P" (E) GYMNASIUM)	DSA # 15618 (1958) DSA # 01-103688 (2001) DSA # 01-105833 (2004) DSA # 01-112267 (2013) DSA # 01-118811 (2020)
BUILDING LA (E) LIBRARY / CLASSROOMS)	DSA # 24586 (1964) DSA # 01-100264 (1987) DSA # 01-103688 (2001) DSA # 01-105026 (2003) DSA # 01-110955 (2010) DSA # 01-116479 (2017)	BUILDING AR (PREVIOUSLY LABELED "R" (E) CLASSROOMS)	DSA # 2432 (1939) DSA # 01-100264 (1987) DSA # 01-106287 (2004) DSA # 01-114363 (2014) DSA # 01-118811 (2020)
BUILDING SC (PREVIOUSLY LABELED "F" (E) CLASSROOMS)	DSA # 15996 (1957) DSA # 01-105833 (2004) DSA # 01-118811 (2020)	PORTABLES (E) CLASSROOMS	DSA # 01-114363 (2014) DSA # 01-115104 (2015)
		STADIUM	DSA # 01-115533 (2017)

LEGEND

- (E) BUILDING
- AREA OF WORK
- DW — DETECTABLE WARNING SURFACE
- (E) 20' WIDE FIRE LANE (NO CHANGE)
- EXISTING FIRE HYDRANT
- LIMIT OF WORK
- HOSE PULL DISTANCE
- PROPERTY LINE
- (E) EGRESS ROUTE TO PUBLIC WAY

NOTE: THIS PROJECT IS HVAC WORK ONLY AND MAKES NO CHANGES TO EXISTING EMERGENCY VEHICLE ACCESS ROUTES (APPROVED PER DSA 01-105026)

KEYNOTES

SAN RAFAEL CITY SCHOOLS
310 NOVA ALBION WAY
SAN RAFAEL, CA 94903
TEL: 415.492.3200 FAX: 415.492.3229

Delta	Date	Revisions	By

NOT FOR CONSTRUCTION
DESIGN DEVELOPMENT

HIBSER YAMAUCHI Architects, Inc.
300 – 27th Street
Oakland, CA 94612
510.446.2222 tel ¦ 510.446.2211 fax

HY Architects Project number: 6189

Facility
SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
FIRE LIFE SAFETY & CODE ANALYSIS SITE PLAN

Client Project Number: 0000.0

Scale: As indicated
Drawn By: SN, VL
Checked By: VL
Issue Date: 11/8/2024
Revit Version: 2023

Sheet **A1.01**
Sheet 2 of 200

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GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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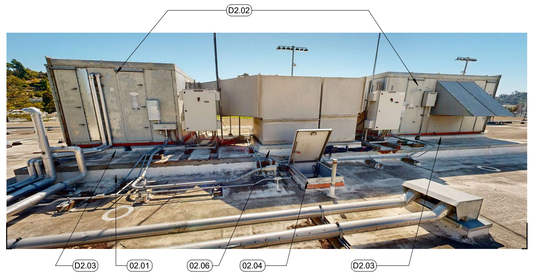
LEGEND

(E) ROOF MEMBRANE TO BE REMOVED

REMOVE (E) ROOF MEMBRANE MATERIAL AND MECHANICAL EQUIPMENT CURBS. (E) MECHANICAL EQUIPMENT PLATFORM TO REMAIN

GENERAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR TO FIELD VERIFY (E) CONDITIONS & NOTIFY ARCHITECT OF ANY DISCREPANCIES FROM THE PLANS.
2. ALL DIMENSIONS SHALL BE FROM FACE OF STUD, UON. DIMENSIONS NOTED AS "CLR" REFER TO CLEAR DIMENSION FROM FACE OF FINISH.
3. WHEREVER THE TERM "ALIGN" IS SHOWN, CONTRACTOR TO ALIGN THE FACES OF WALL FINISH(ES).
4. PROTECT & MAINTAIN ALL (E) PARTITION RATINGS, UON.
5. PRESERVE & PROTECT (E) FINISHES THAT ARE TO REMAIN. WHERE DAMAGE OCCURS DURING CONSTRUCTION PATCH & REPAIR ALL WALLS, CEILING, AND FLOOR SURFACES TO MATCH (E), UON. IF FINISHES ARE DAMAGED BEYOND REPAIR & AN EXACT MATCH CANNOT BE PROCURED NOTIFY THE ARCHITECT IMMEDIATELY FOR DIRECTION ON REPLACEMENT FINISH SPECIFICATION. WALLS SHALL BE PAINTED TO THE NEAREST CORNER/ INTERSECTION & ALL OTHER FINISHES TO BE REPLACED AT THE NEAREST CORNER/ INTERSECTION FOR A SEAMLESS AESTHETIC.
6. REFER TO M AND E SERIES SHEETS FOR ADDITIONAL INFORMATION. COORDINATE LOCATIONS OF WALL MOUNTED ACCESSORIES, EQUIPMENT, SIGNAGE & THEIR ASSOCIATED BACKING WITH POWER/DATA, THERMOSTAT, LIGHT SWITCH & MISC. PANEL LOCATIONS PRIOR TO INSTALLATION.
7. COORDINATE WITH ROOFING REPLACEMENT PROJECT BY OTHERS.



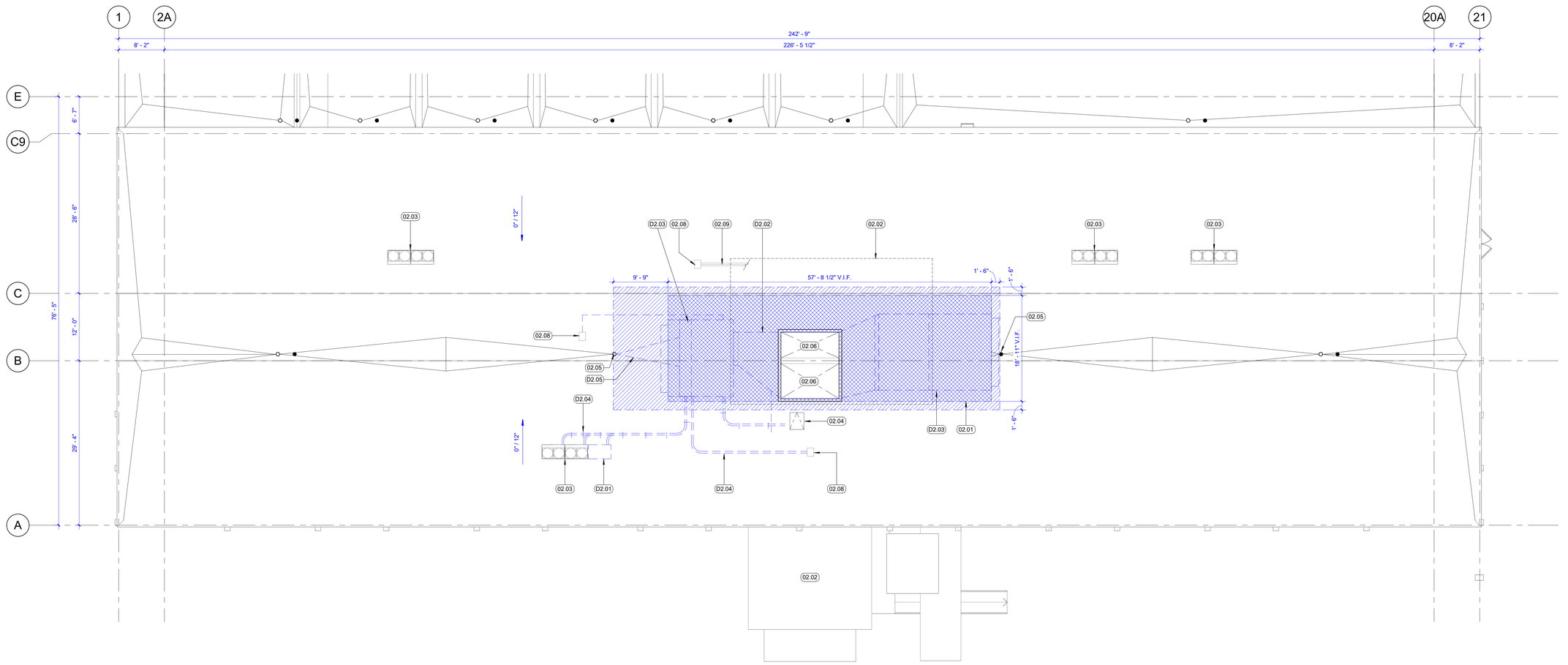
2 (E) CONDITIONS PHOTO
NTS

DEMOLITION KEYNOTES

D2.01	REMOVE CONDENSING UNIT MODULE FROM (E) 3-PART HEAT PUMP, SMD
D2.02	DEMOLISH (E) AIR HANDLING UNIT AND ROOFTOP DUCT WORK, SMD
D2.03	DEMOLISH (E) MECHANICAL EQUIPMENT CURB
D2.04	DEMOLISH (E) CONDUIT/PIPE LINE AND SALVAGE ROOF SUPPORT BLOCKS, SMD
D2.05	REMOVE (E) ROOF CRICKET, PREPARE SURFACE FOR NEW PLATFORM EXTENSION

KEYNOTES

02.01	(E) STEEL FRAMED MECHANICAL PLATFORM TO REMAIN
02.02	(E) THICKENED CONCRETE SHEATHING
02.03	(E) HEAT PUMP UNITS TO REMAIN, PROTECT DURING CONSTRUCTION
02.04	(E) ROOF HATCH TO REMAIN
02.05	VERIFY LOCATION OF (E) ROOF DRAIN INLET BEFORE START OF MECHANICAL CURB EXTENSION, PROTECT DURING CONSTRUCTION
02.06	(E) DUCT OPENING TO REMAIN
02.08	(E) EQUIPMENT TO REMAIN
02.09	(E) CONDUIT TO REMAIN



1 ROOF PLAN - DEMOLITION
1/8" = 1'-0"

SAN RAFAEL CITY SCHOOLS
310 NOVA ALBION WAY
SAN RAFAEL, CA 94903
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Revisions			
Delta	Date	Revisions	By

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HY Architects Project number: 6189

Facility
SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
DEMOLITION ROOF PLAN

Client Project Number: 0000.0

Scale: As indicated
Drawn By: SN, VL
Checked By: VL
Issue Date: 11/8/2024
Revit Version: 2023

Sheet
A2.01
Sheet 2 of 200

GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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LEGEND

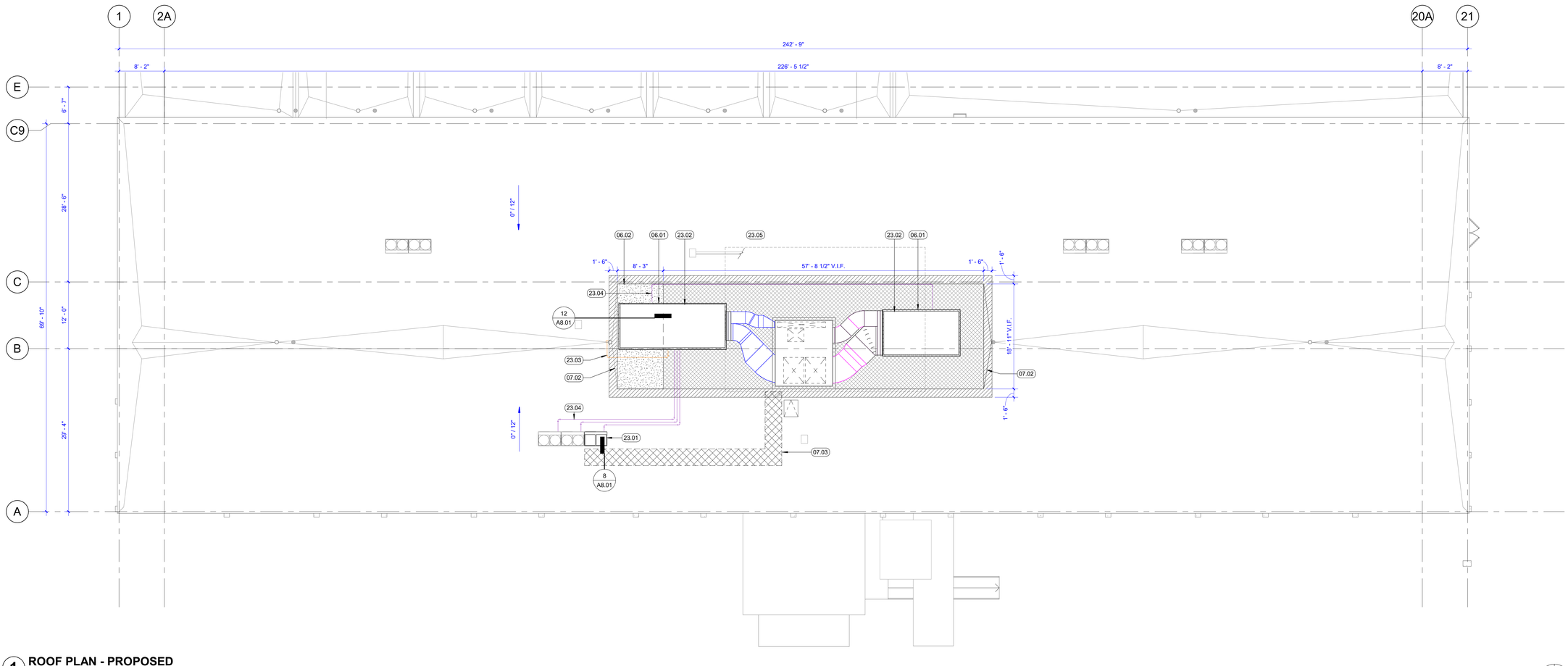
- ROOF WALKING PADS, SEE DETAIL 3/A8.01
- WOOD FRAMED PLATFORM EXTENSION, SEE DETAIL 12/A8.01
- ROOF MEMBRANE OVER (E) ROOF STRUCTURE
- ROOF MEMBRANE OVER (E) MECHANICAL PLATFORM

GENERAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR TO FIELD VERIFY (E) CONDITIONS & NOTIFY ARCHITECT OF ANY DISCREPANCIES FROM THE PLANS.
2. ALL DIMENSIONS SHALL BE FROM FACE OF STUD, UON. DIMENSIONS NOTED AS "CLR" REFER TO CLEAR DIMENSION FROM FACE OF FINISH.
3. WHEREVER THE TERM "ALIGN" IS SHOWN, CONTRACTOR TO ALIGN THE FACES OF WALL FINISH(ES).
4. PROTECT & MAINTAIN ALL (E) PARTITION RATINGS, UON.
5. PRESERVE & PROTECT (E) FINISHES THAT ARE TO REMAIN. WHERE DAMAGE OCCURS DURING CONSTRUCTION PATCH & REPAIR ALL WALLS, CEILING, AND FLOOR SURFACES TO MATCH (E), UON. IF FINISHES ARE DAMAGED BEYOND REPAIR & AN EXACT MATCH CANNOT BE PROCURED NOTIFY THE ARCHITECT IMMEDIATELY FOR DIRECTION ON REPLACEMENT FINISH SPECIFICATION. WALLS SHALL BE PAINTED TO THE NEAREST CORNER/ INTERSECTION & ALL OTHER FINISHES TO BE REPLACED AT THE NEAREST CORNER/ INTERSECTION FOR A SEAMLESS AESTHETIC.
6. REFER TO M AND E SERIES SHEETS FOR ADDITIONAL INFORMATION. COORDINATE LOCATIONS OF WALL MOUNTED ACCESSORIES, EQUIPMENT, SIGNAGE & THEIR ASSOCIATED BACKING WITH POWER/DATA, THERMOSTAT, LIGHT SWITCH & MISC. PANEL LOCATIONS PRIOR TO INSTALLATION.
7. COORDINATE WITH ROOFING REPLACEMENT PROJECT BY OTHERS.

KEYNOTES

06.01	MECHANICAL EQUIPMENT CURB, SSD
06.02	WOOD FRAMED MECHANICAL PLATFORM EXTENSION W/ ROOF MEMBRANE. HEIGHT TO MATCH (E) ADJACENT PLATFORM
07.02	CRICKET, SLOPE TO (E) ROOF DRAIN.
07.03	ROOF WALKING PADS
23.01	HEAT PUMP UNIT MOUNTED TO (E) CURB, SMD
23.02	AIR HANDLING UNIT, SMD
23.03	CONDENSATE LINE TO ROOF DRAIN, SMD
23.04	DX PIPING ON ROOFTOP SUPPORT BLOCK, SMD
23.05	ROOFTOP DUCT AND SUPPORT, SMD



1 ROOF PLAN - PROPOSED
1/8" = 1'-0"

SAN RAFAEL CITY SCHOOLS
310 NOVA ALBION WAY
SAN RAFAEL, CA 94903
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DESIGN DEVELOPMENT

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HY Architects Project number: 6189

Facility
SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
ROOF PLAN

Client Project Number: 0000.0

Scale: As indicated
Drawn By: Author
Checked By: Checker
Issue Date: 11/8/2024
Revit Version: 2023

Sheet
A2.02
Sheet of 200

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RCP LEGEND

- (E) 1-HR RATED SUSPENDED ACOUSTIC CEILING TILE SYSTEM TO REMAIN
- (E) SUSPENDED ACOUSTIC CEILING TILE SYSTEM TO REMAIN
- AREA OF WORK UNDER NEW ROOFTOP MECHANCIAL UNIT
- (E) 2X2 SUSPENDED ACOUSTIC CEILING TILE TO BE REMOVED. SALAVAGED, AND REINSTALLED AT (E) FAN COIL UNITS

GENERAL NOTES

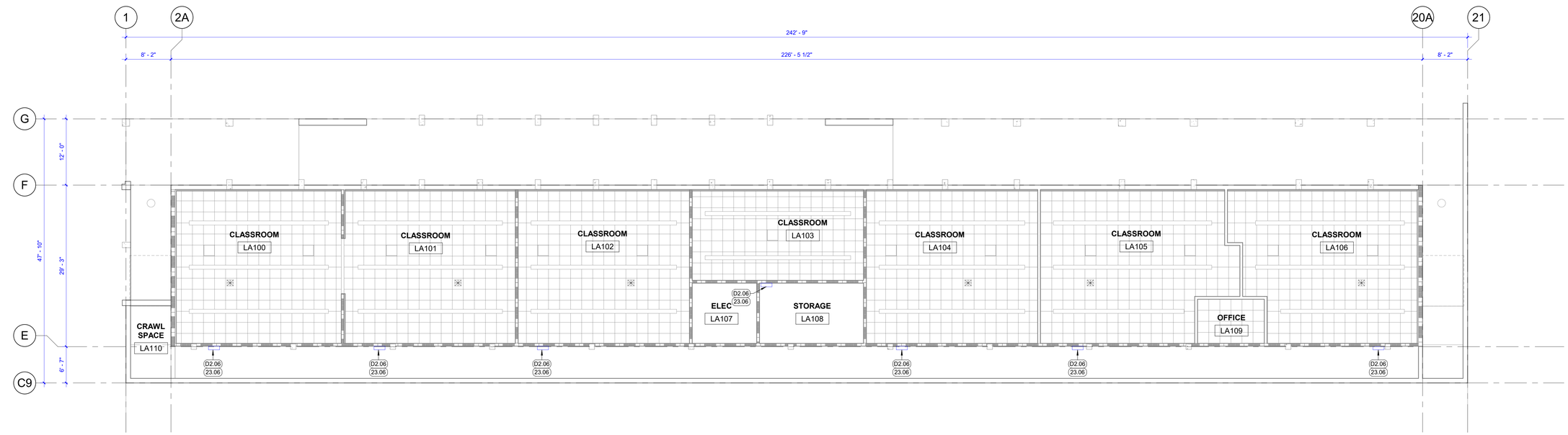
1. NOTIFY ARCHITECT OF ANY IN THE FIELD DISCREPANCIES PRIOR TO INSTALLATION.
2. REFER TO M SERIES SHEETS FOR ADDITIONAL INFORMATION.
3. CONTRACTOR TO CONFIRM AND VERIFY ALL HEAT COIL UNITS BEFORE START OF DEMO.
4. PROVIDE CAULKING AND SEALANT AT ALL PENETRATIONS. FOR RATED WALLS, PROVIDE FIRE BLOCKING AND SEALANT. SEE PLANS FOR RATED WALLS LOCATIONS.

KEYNOTES

23.06	PATCH LINE AT REMOVED FAN COIL, SMD

DEMOLITION KEYNOTES

D2.06	REMOVE (E) HEAT COIL UNIT AND PIPING CONNECTIONS, (E) PIPE LINES TO REMAIN, SMD



1 REFLECTED CEILING PLAN - FIRST LEVEL A.F.F.
1/8" = 1'-0"

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310 NOVA ALBION WAY
SAN RAFAEL, CA 94903
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HY Architects Project number: 6189

Facility
SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
REFLECTED CEILING PLAN - FIRST LEVEL

Client Project Number: 0000.0

Scale: As indicated
Drawn By: SN, VL
Checked By: VL
Issue Date: 11/8/2024
Revit Version: 2023

Sheet
A6.01
Sheet 2 of 200

GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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RCP LEGEND

- (E) 1-HR RATED SUSPENDED ACOUSTIC CEILING TILE SYSTEM TO REMAIN
- (E) SUSPENDED ACOUSTIC CEILING TILE SYSTEM TO REMAIN
- AREA OF WORK UNDER NEW ROOFTOP MECHANICAL UNIT
- (E) 2X2 SUSPENDED ACOUSTIC CEILING TILE TO BE REMOVED. SALAVAGED, AND REINSTALLED AT (E) FAN COIL UNITS

GENERAL NOTES

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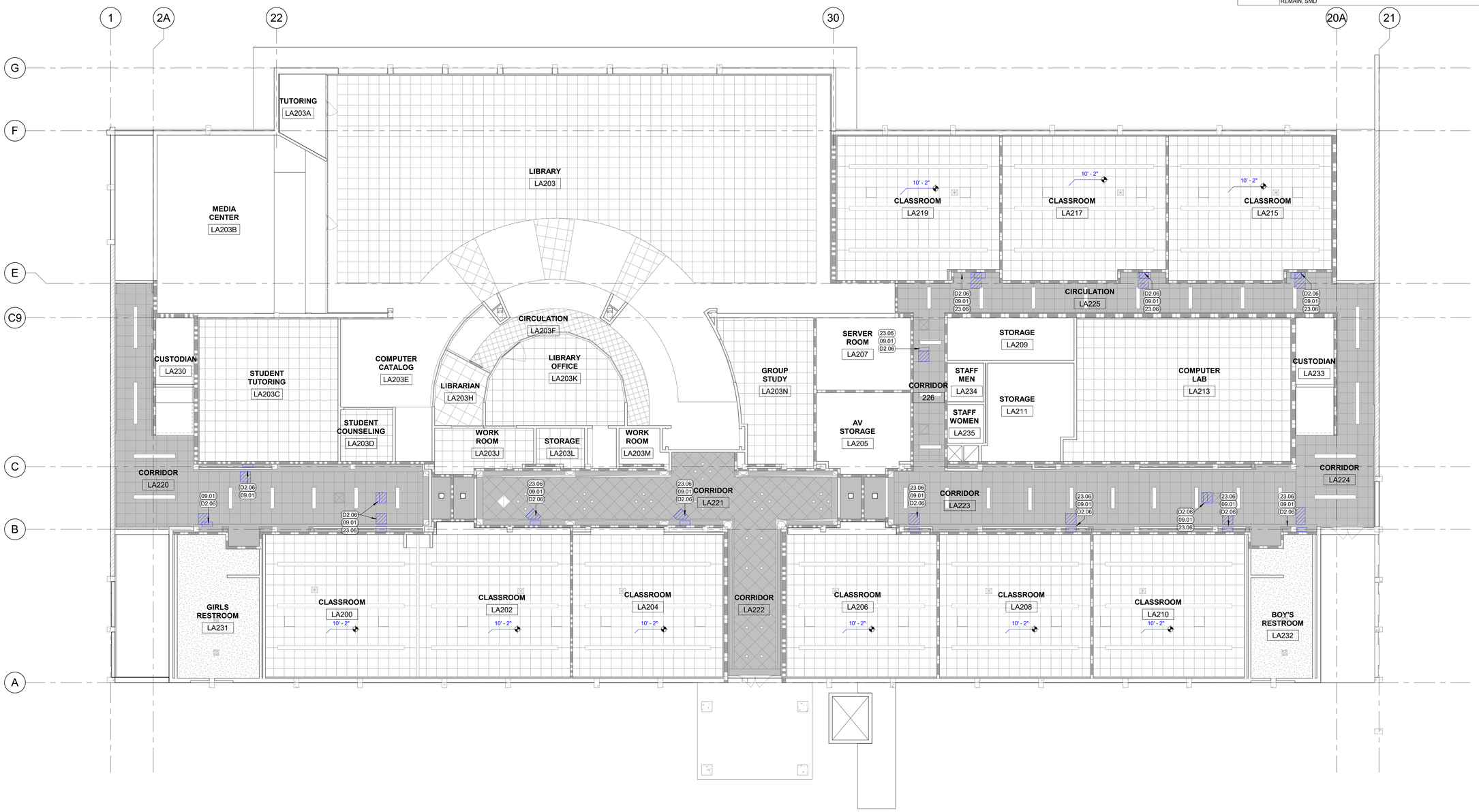
3. CONTRACTOR TO CONFIRM AND VERIFY ALL HEAT COIL UNITS BEFORE START OF DEMO.
4. PROVIDE CAULKING AND SEALANT AT ALL PENETRATIONS. FOR RATED WALLS, PROVIDE FIRE BLOCKING AND SEALANT. SEE PLANS FOR RATED WALLS LOCATIONS.

KEYNOTES

09.01	REMOVE, SALVAGE, AND REINSTALL (E) ACOUSTICAL CEILING TILE(S) SURROUNDING (E) FAN COIL
23.06	PATCH LINE AT REMOVED FAN COIL, SMD

DEMOLITION KEYNOTES

D2.06	REMOVE (E) HEAT COIL UNIT AND PIPING CONNECTIONS, (E) PIPE LINES TO REMAIN, SMD



1 REFLECTED CEILING PLAN - SECOND LEVEL
1/8" = 1'-0"

SAN RAFAEL CITY SCHOOLS
310 NOVA ALBION WAY
SAN RAFAEL, CA 94903
TEL: 415.492.3200 FAX: 415.492.3229

Revisions

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HY Architects Project number: 6189

Facility
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150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
REFLECTED CEILING PLANS - SECOND LEVEL

Client Project Number: 0000.0

Scale: As indicated
Drawn By: SN, VL
Checked By: VL
Issue Date: 11/8/2024
Revit Version: 2023

Sheet
A6.02
Sheet 2 of 200

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0 5' 50'
GRAPHIC SCALES: 1/16" = 1'-0"

0 5' 25'
1/8" = 1'-0"

0 1' 12'
1/4" = 1'-0"

0 1' 6'
1/2" = 1'-0"

0 4'
3/4" = 1'-0"

0 1' 3'
1" = 1'-0"

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

0 1'
3" = 1'-0"

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RCP LEGEND

- (E) 1-HR RATED SUSPENDED ACOUSTIC CEILING TILE SYSTEM TO REMAIN
- (E) SUSPENDED ACOUSTIC CEILING TILE SYSTEM TO REMAIN
- AREA OF WORK UNDER NEW ROOFTOP MECHANCIAL UNIT
- (E) 2X2 SUSPENDED ACOUSTIC CEILING TILE TO BE REMOVED. SALAVAGED, AND REINSTALLED AT (E) FAN COIL UNITS

GENERAL NOTES

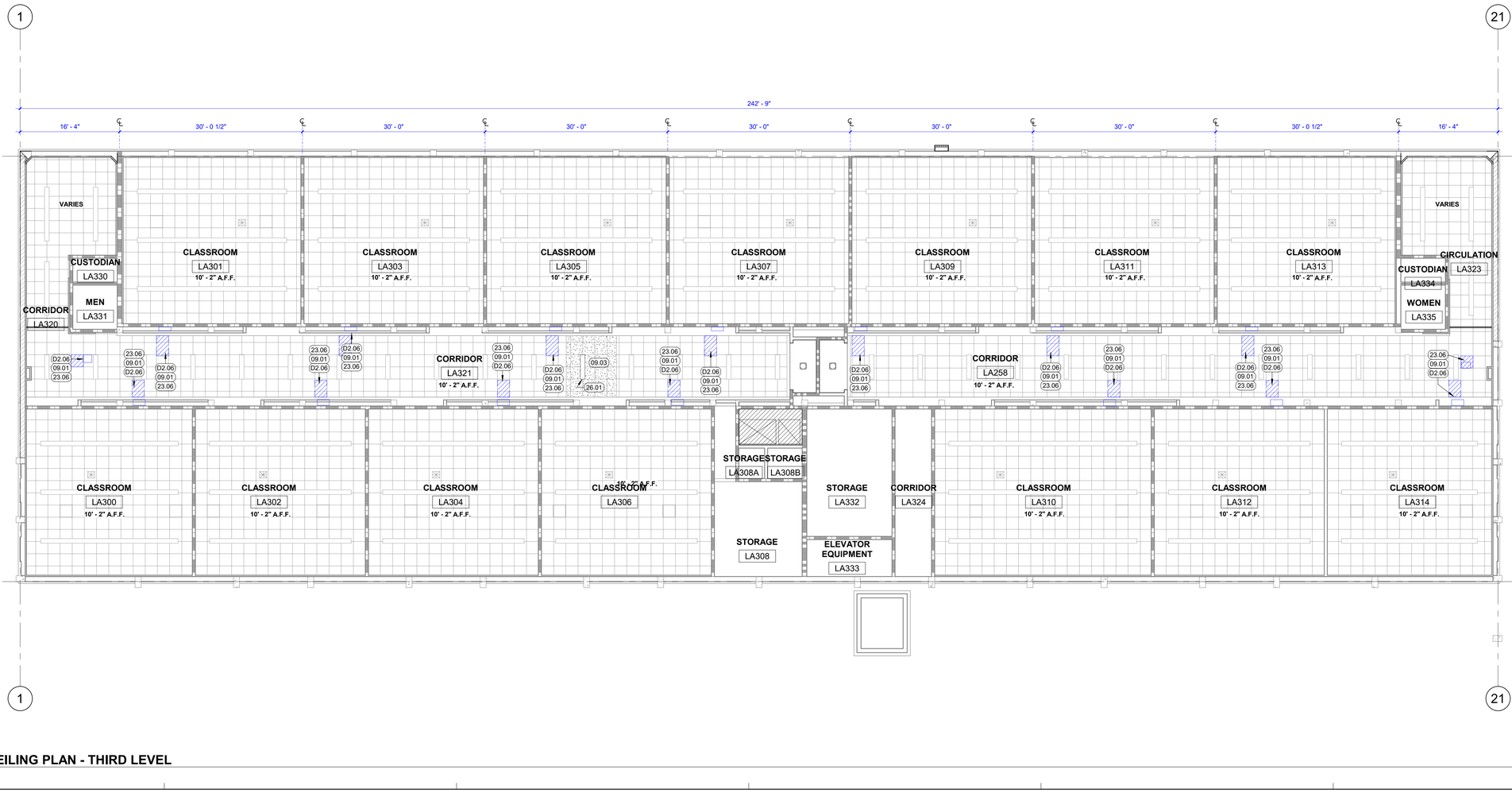
1. NOTIFY ARCHITECT OF ANY IN THE FIELD DISCREPANCIES PRIOR TO INSTALLATION.
2. REFER TO M SERIES SHEETS FOR ADDITIONAL INFORMATION.
3. CONTRACTOR TO CONFIRM AND VERIFY ALL HEAT COIL UNITS BEFORE START OF DEMO.
4. PROVIDE CAULKING AND SEALANT AT ALL PENETRATIONS. FOR RATED WALLS, PROVIDE FIRE BLOCKING AND SEALANT. SEE PLANS FOR RATED WALLS LOCATIONS.

KEYNOTES

09.01	REMOVE, SALVAGE, AND REINSTALL (E) ACOUSTICAL CEILING TILE(S) SURROUNDING (E) FAN COIL
09.03	ACOUSTIC CEILING TILE PROFILE AND COLOR TO MATCH EXISTING ADJACENT TILE
23.06	PATCH LINE AT REMOVED FAN COIL, SMD
26.01	REMOVE AND SALVAGE (E) CEILING LIGHT FIXTURE FOR REINSTALLATION, PROTECT DURING CONSTRUCTION

DEMOLITION KEYNOTES

D2.06	REMOVE (E) HEAT COIL UNIT AND PIPING CONNECTIONS, (E) PIPE LINES TO REMAIN, SMD



1 REFLECTED CEILING PLAN - THIRD LEVEL
1/8" = 1'-0"

SAN RAFAEL CITY SCHOOLS
310 NOVA ALBION WAY
SAN RAFAEL, CA 94903
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HY Architects Project number: 6189

Facility
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150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
REFLECTED CEILING PLANS - THIRD LEVEL

Client Project Number: 0000.0

Scale: As indicated
Drawn By: SN, VL
Checked By: VL
Issue Date: 11/8/2024
Revit Version: 2023

Sheet
A6.03
Sheet 2 of 200

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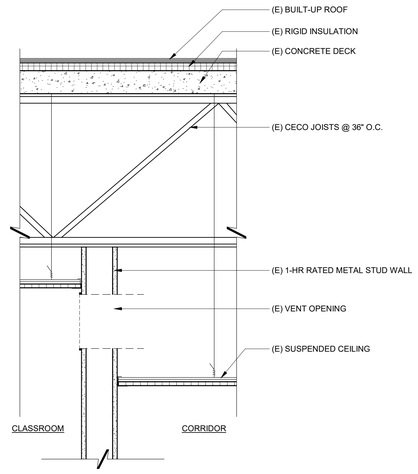
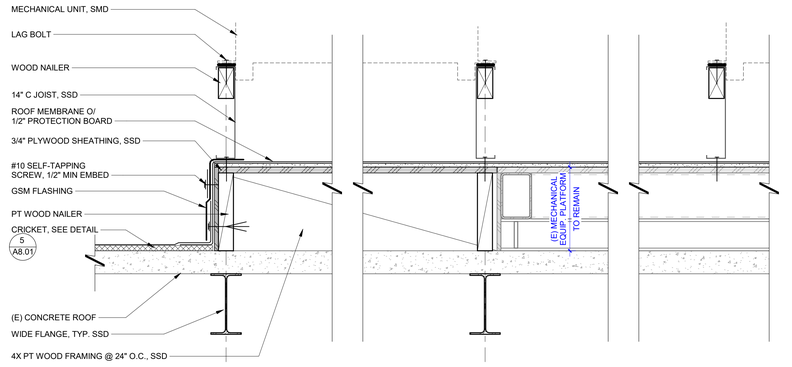
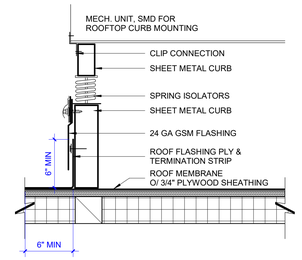


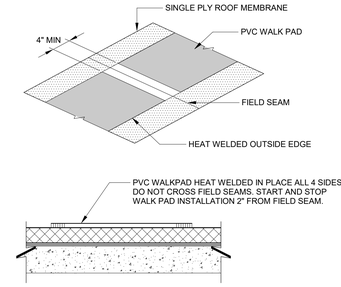
17 TYPICAL ROOF SECTION
1 1/2" = 1'-0"



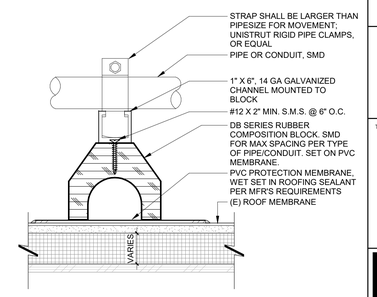
12 MECHANICAL CURB AT PLATFORM EXTENSION
1 1/2" = 1'-0"



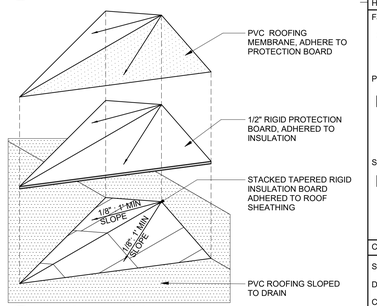
8 FLASHING @ MECHANICAL CURB
1 1/2" = 1'-0"



3 WALKPAD INSTALLATION
3/8" = 1'-0"



4 TYPICAL PIPE SUPPORT
3" = 1'-0"



5 CRICKET ASSEMBLY
1/2" = 1'-0"

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#	Revisions		
Delta	Date	Revisions	By

NOT FOR CONSTRUCTION

DESIGN DEVELOPMENT

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HY Architects Project number: 6189

Facility

SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project

BLDG LA HVAC UPGRADES

Sheet Title

EXTERIOR DETAILS

Client Project Number: 0000.0

Scale:	As indicated
Drawn By:	SN, VL
Checked By:	VL
Issue Date:	11/8/2024
Revit Version:	2023

Sheet

A8.01

Sheet 2 of 200

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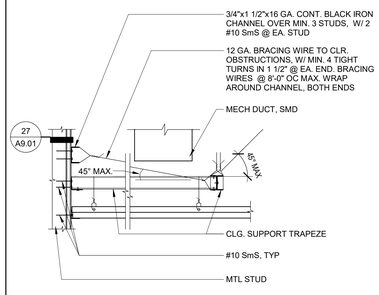
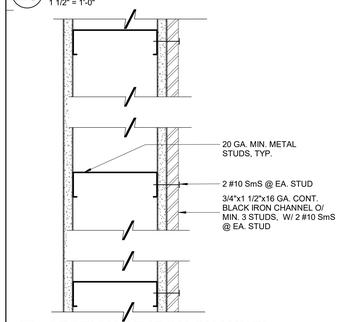
GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

IF THIS SHEET IS NOT 30"x42" , IT IS A REDUCED PRINT SCALE ACCORDINGLY



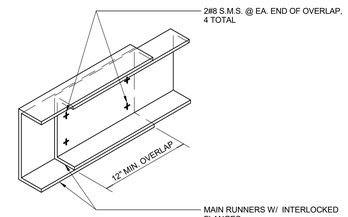
26 BRACING WIRE AT SUPPORT TRAPEZE

1 1/2" = 1'-0"



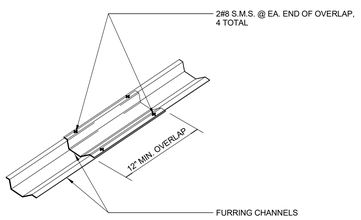
27 SECTION AT IRON CHANNEL

3" = 1'-0"



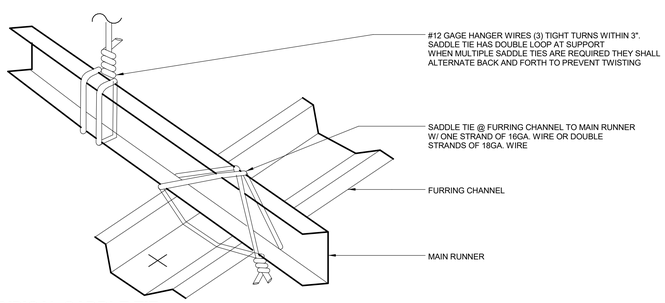
28 TYPICAL MAIN RUNNER SPLICE

1 1/2" = 1'-0"



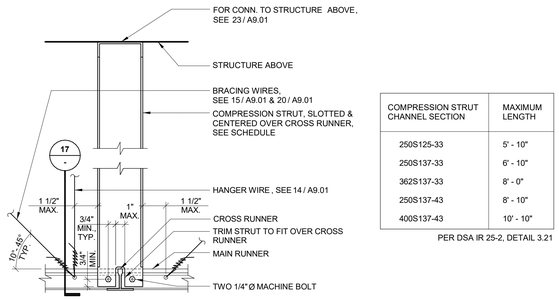
29 TYP. FURRING CHANNEL SPLICE

1 1/2" = 1'-0"



30 TYPICAL SADDLE TIE

12" = 1'-0"

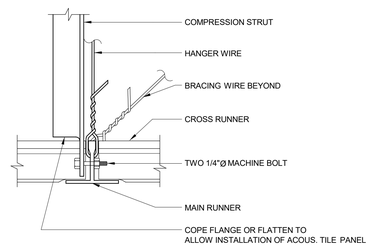


COMPRESSION STRUT CHANNEL SECTION	MAXIMUM LENGTH
250S125-33	5' - 10"
250S137-33	6' - 10"
362S137-33	8' - 0"
250S137-43	8' - 10"
400S137-43	10' - 10"

PER DSA IR 25-2, DETAIL 3.21

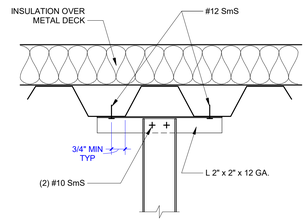
16 CHANNEL TYPE STRUT

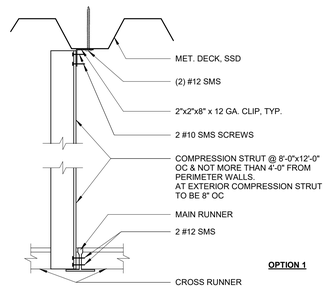
1 1/2" = 1'-0"



17 CHANNEL STRUT SECTION

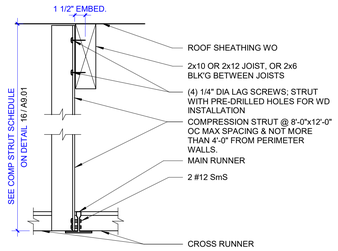
1 1/2" = 1'-0"





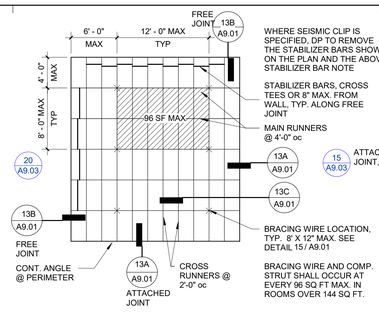
23 COMPRESSION STRUT AT MTL DECK

3" = 1'-0"



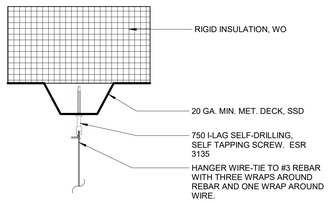
19 TYP. COMPRESSION STRUT

1 1/2" = 1'-0"



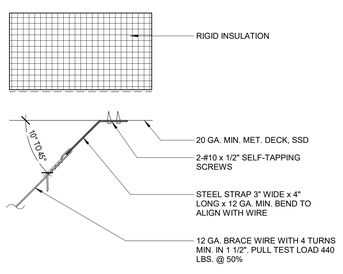
11 TYP CEILING PLAN

1/8" = 1'-0"



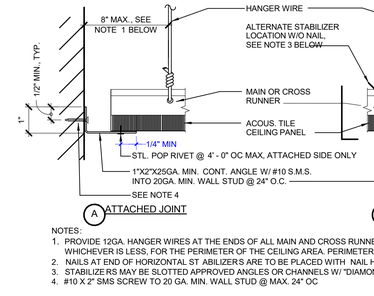
14 HANGER WIRE ATTACHMENT

3" = 1'-0"



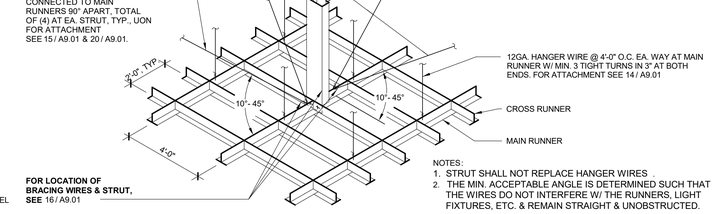
20 BRACING WIRE PARALLEL ATTACHMENT

3" = 1'-0"



15 BRACING WIRE ATTACHMENT

3" = 1'-0"



NOTES:
1. STRUT SHALL NOT REPLACE HANGER WIRES
2. THE MIN. ACCEPTABLE ANGLE IS DETERMINED SUCH THAT THE WIRES DO NOT INTERFERE W/ THE RUNNERS, LIGHT FIXTURES, ETC. & REMAIN STRAIGHT & UNOBSTRUCTED.

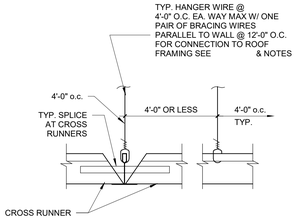
12 SUSPENDED ACOUSTICAL CEILING SUSPENSION AND BRACING ASSEMBLY

1/4" = 1'-0"

NOTES:
1. PROVIDE 12GA. HANGER WIRES AT THE ENDS OF ALL MAIN AND CROSS RUNNERS WITHIN 8" OF THE SUPPORT OR WITHIN 1/4 OF THE LENGTH OF THE END TEE. WHICHEVER IS LESS, FOR THE PERIMETER OF THE CEILING AREA. PERIMETER WIRES ARE NOT REQUIRED WHEN THE LENGTH OF THE END TEE IS 8" OR LESS.
2. NAILS AT END OF HORIZONTAL ST ABILIZER S ARE TO BE PLACED WITH NAIL HEAD TOWARD CENTER LINE OF SPAN OF STRUT.
3. STABILIZE RS MAY BE SLOTTED APPROVED ANGLES OR CHANNELS W/ "DIAMOND POINTS" OF SPRING STEEL WHICH SNAP TIGHT TO PREVENT MOVEMENT OF STRUT.
4. #10 X 2" SMS SCREW TO 20 GA. MIN. WALL STUD @ MAX. 24" OC

13 ACOUSTIC CEILING TILE PERIMETER CONNECTION

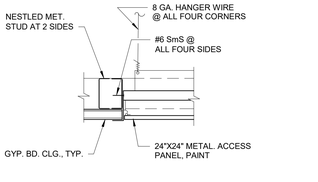
3" = 1'-0"



NOTE: PROVIDE #12 GATE HANGER WIRES AT THE ENDS OF ALL MAIN AND CROSS RUNNERS WITHIN EIGHT (8) INCHES OF THE SUPPORT OR WITHIN ONE-FOURTH (1/4) PF THE LENGTH OF THE END TEE, WHICHEVER IS LESS, FOR THE PERIMETER OF THE CEILING AREA, PERIMETER WIRES ARE NOT REQUIRED WHEN THE LENGTH OF THE END TEE IS EIGHT (8) INCHES OR LESS.

9 CROSS RUNNER SPLICE

12" = 1'-0"



10 TYP ACCESS PANEL @ FRAMED GYP. BD.

12" = 1'-0"

CEILING NOTES (DSA IR 25-2)

1. CEILING SYSTEM GENERAL NOTES:
1.01 Ceiling system components shall comply with ASTM C635 and Section 5.1 of ASTM E580.
1.02 The ceiling grid system must be rated heavy duty as defined by ASTM C635.
1.03 Ceiling systems. The following ceiling system(s) are part of the scope of this project:
Manufacturer: USG or Equal
Product Name: Donn Brand DXI/DXL Acoustical Suspension System or equal
Evaluation Report Number: ESR-1222
Main Runner Part, Model, or Catalog Number: DX24 or DX24L or DXL24HRC
Cross Runner Part, Model, or Catalog Number: DX216 or DXL216 or DXL216HRC
1.04 Seismic Wall Clip: Manufacturer's Model M20SM
1.05 Ceiling panels shall not support any light fixtures, air terminals or devices.
1.06 For ceiling installations utilizing acoustical tile panels of mineral or glass fiber, it is not mandatory to provide ¾" clearance between the acoustical tile panels and the wall on the sides of the ceiling which are free to slip. For all other ceiling panel types, provide ¾" clearance between the ceiling panel and the wall on the sides of the ceiling free to slip.

2. MATERIALS:
2.01 Ceiling wire shall be Class 1 zinc coated (galvanized) carbon steel conforming to ASTM A641. Wire shall be #12 gage (0.106" diameter) with soft temper and minimum tensile strength = 70 ksi.
2.02 Galvanized sheet steel (including that used for metal stud and track compression struts/post) shall conform to ASTM A653, or other equivalent sheet steel listed in Section A3.1 of the North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100). Material 43 mil (18 gage) thick and lighter shall have minimum yield strength of 33 ksi. Material 54 mil (16 gage) thick and heavier shall have a minimum yield strength of 50 ksi.
2.03 Electrical metallic tube (EMT) shall be ANSI C80.3/UL 797 carbon steel with G90 galvanizing. EMT shall have minimum yield strength (Fy) of 30 ksi and minimum ultimate strength (Fu) of 48 ksi.

3. ATTACHMENT OF HANGER AND BRACING WIRES:
3.01 Separate all ceiling hanger and bracing wires at least six (6) inches from all unbraced ducts, pipes, conduit, etc.
3.02 Hanger and bracing wires shall not attach to or bend around obstructions including but not limited to: piping, ductwork, conduit and equipment.
3.03 Hanger wires that are more than one (horizontal) in six (vertical) out of plumb shall have counter-sloping wires.
3.04 Slack safety wires shall be considered hanger wires for installation and testing requirements.
3.05 Hanger and bracing wire anchorage to the structure shall be installed in such a manner that the direction of the anchorage aligns closely with the direction of the wire. (e.g. bracing wire ceiling clips must be bent as shown in the details and rotated as required to align closely with the direction of the wire, screw eyes in wood must be installed so they align closely with the direction of the wire, etc.)

4. FASTENERS AND WELDING:
4.01 Sheet metal screws shall comply with ASTM C1513, ASME B18.6.3. Penetration of screws through joined material shall not be less than three exposed threads.
4.02 Expansion anchors shall be: HILTI KB-TZ2 ESR#2606
4.03 Power-Actuated Fasteners shall be: HILTI X-U ESR#2269
4.04 If not otherwise specified in the evaluation report, power-actuated fasteners installed in steel shall be installed so the entire pointed end of the fastener is driven through the steel member.
4.05 Power-actuated fasteners in concrete are not permitted for bracing wires.
4.06 Concrete reinforcement and pre-stressing tendons shall be located by non-destructive means prior to installing post - installed anchor.
4.07 Welding shall be in accordance with AWS D1.3 using E60XX series electrodes.

5. TESTING: All field testing must be performed in the presence of the project inspector.
5.01 Post-installed anchors in concrete used to support hanger wires shall be tested at a frequency of 10 percent. Power actuated fasteners in concrete shall be field tested for 200 lbs. in tension. All other post-installed anchors in concrete shall be tested in accordance with CBC Section 1910A.5.
5.02 Post-installed anchors in concrete used to attach bracing wires shall be tested at a frequency of 50 percent in accordance with CBC Section 1910A.5.

6. LIGHT FIXTURES:
6.01 All light fixtures shall be positively attached to the ceiling suspension systems by mechanical means to resist a horizontal force equal to the weight of the fixture. A minimum of two screws or approved fasteners are required at each light fixture, per ASTM E580, Section 5.3.1.
6.02 Surface-mounted light fixtures shall be attached to the main runner with at least two positive clamping devices. The clamping device shall completely surround the supporting ceiling runner and be made of steel with a minimum thickness of #14 gage. Rotational spring catches do not comply. A #12 gage slack safety wire shall be connected from each clamping device to the structure above. Provide additional supports when light fixtures are eight (8) feet or longer or exceed 56 lb. Maximum spacing between supports shall not exceed eight (8) feet.
6.03 Light fixtures weighing less than or equal to 10 lb. shall have a minimum of one (1) #12 gage slack safety wire connected from the fixture housing to the structure above.
6.04 Light fixtures weighing greater than 10 lb. but less than or equal to 56 lbs. may be supported directly on the ceiling runners, but they shall have a minimum of two (2) #12 gage slack safety wires connected from the fixture housing at diagonal corners to the structure above.
Exception: All light fixtures greater than two by four feet weighing less than 56 lbs. shall have a #12 gage slack safety wire at each corner.
6.05 All Light fixtures weighing greater than 56 lb. shall be independently supported by not less than four (4) taut #12 gage hanger wires (one at each corner) attached from the fixture housing to the structure above or other approved hangers. The four (4) taut #12 gage wires or other approved hangers, including their attachment to the structure above, shall be capable of supporting four (4) times the weight of the fixture.

7. SERVICES WITHIN THE CEILING:
7.01 All flexible sprinkler hose fitting mounting brackets, ceiling-mounted air terminals or other services shall be positively attached to the ceiling suspension systems by mechanical means. Screws or approved fasteners are required. A minimum of two attachments are required at each component.
7.02 Ceiling-mounted air terminals or other services weighing less than or equal to 20 lb. shall have one (1) #12 gage slack safety wire attached from the terminal or service to the structure above.
7.03 Flexible sprinkler hose fittings, ceiling-mounted air terminals or other services weighing more than 20 lb. but less than or equal to 56 lb. shall have two (2) #12 gage slack safety wires (at diagonal corners) connected from the terminal or service to the structure above.
7.04 Flexible sprinkler hose fittings, ceiling-mounted air terminals or other services weighing more than 56 lb. shall be supported directly from the structure above by not less than four (4) taut #12 gage hanger wires attached from the terminal or service to the structure above or other approved hangers.

8. OTHER DEVICES WITHIN THE CEILING:
8.01 All lightweight miscellaneous devices, such as strobe lights, occupancy sensors, speakers, exit signs, etc., shall be attached to the ceiling grid. In addition, devices weighing more than 10 lbs. shall have a #12 gage slack safety wire anchored to the structure above. Devices weighing more than 20 lb. shall be supported independently from the structure above.

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Delta	Date	Revisions	By

INCREMENT 2 OF 2

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HY Architects Project number: 6189

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150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
SUSPENDED ACT CEILING DETAILS

Client Project Number: Client Proj. #

Scale: As indicated
Drawn By: SN, CB
Checked By: JA
Issue Date: 11/8/2024
Revit Version: 2023

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GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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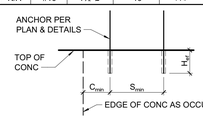
ADHESIVE ANCHOR IN 2500 PSI MIN CONCRETE							
ADHESIVE TYPE	ANCHOR THRD ROD	ANCHOR REBAR	PILOT HOLE	MIN EMBED UNO H_{ef}	MIN EDGE DISTANCE C_{min}	MIN SPCG S_{min}	MIN CONC DEPTH H_{min}
SIMPSON SET-3G (ICC-ESR 4057)	-	#3	½"ø	3"	1⅜"	3"	H_{ef} + 1¼"
	-	#4	⅝"ø	4"	1⅜"	3"	H_{ef} + 1¼"
	-	#5	¾"ø	5"	1⅜"	3"	H_{ef} + 1½"
	⅜"ø	-	⅜"ø	3"	1⅜"	3"	H_{ef} + 1¼"
	½"ø	-	⅝"ø	4"	1⅜"	3"	H_{ef} + 1¼"
	⅝"ø	-	⅞"ø	5"	1⅜"	3"	H_{ef} + 1⅜"
	¾"ø	#6	⅞"ø	6"	1⅜"	3"	H_{ef} + 1⅜"
	⅞"ø	#7	1"ø	7"	1⅜"	3"	H_{ef} + 2"
	1"ø	#8	1⅛"ø	8"	1⅜"	3"	H_{ef} + 2¼"
	1¼"ø	#10	1⅜"ø	10"	2¾"	6"	H_{ef} + 2¾"
HILTI HIT-HY 200R V3 (ICC-ESR 4868)	⅜"ø	N/A	½"ø	3"	1¾"	1¾"	H_{ef} + 1¾"
	N/A	#3	½"ø	3"	1¾"	1¾"	
	½"ø	N/A	¾"ø	4"	1¾"	2½"	
	N/A	#4	⅝"ø	4"	1¾"	2½"	
	⅝"ø	#5	¾"ø	5"	1¾"	3⅛"	H_{ef} + 1½"
	¾"ø	#6	⅞"ø	6"	1¾"	3¾"	H_{ef} + 1¾"
	⅞"ø	#7	1"ø	7"	1¾"	4⅜"	H_{ef} + 2"
	1"ø	#8	1⅛"ø	8"	1¾"	5"	H_{ef} + 2¼"
	N/A	#9	1⅜"ø	9"	1¾"	5⅝"	H_{ef} + 2½"
	1¼"ø	N/A	1⅜"ø	10"	1¾"	6¼"	
	N/A	#10	1½"ø	10"	1¾"	6¼"	H_{ef} + 3"



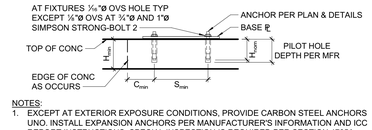
NOTES:

1. INSTALL ADHESIVE ANCHORS PER MANUFACTURER'S INFORMATION AND ICC REPORT.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, SPACING, AND THICKNESS ARE IN ACCORDANCE W/ SCHEDULE PRIOR TO INSTALLING ANCHOR.
3. HOLES TO BE DRILLED W/ ROTARY DRILL ONLY. WHEN DRILLING HOLES IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN 1" CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A AND THE REQUIREMENTS OF THE ICC REPORTS. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705A.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), CONCRETE THICKNESS, AND ADHESIVE INJECTION. TEST ANCHORS IN ACCORDANCE W/ CBC SECTION 1910A.5. SEE DRAWINGS FOR SPECIFIC TENSION TEST LOADS FOR ANCHORS.

3 ADHESIVE ANCHOR IN CONCRETE
3/4" = 1'-0"

CARBON STEEL EXPANSION ANCHORS IN 2500 PSI MIN CONC						
ANCHOR TYPE	ANCHOR & PILOT HOLE DIA	MIN NOMINAL EMBED H_{nom}	MIN EDGE DISTANCE C_{min}	MIN SPCG S_{min}	MIN CONC THICKNESS H_{min}	INSTALL & TEST TORQUE (FT-LB)
SIMPSON STRONG-BOLT 2 (ICC-ESR 3037)	⅜"	1⅞"	6"	3"	3½"	30
	½"	2½"	6"	6"	4"	60
	⅝"	3⅜"	6½"	5"	5½"	90
	¾"	4½"	4¼"	10"	6"	150
	1"	5¼"	8"	8"	9"	230
HILTI KB1 (IAPMO-ER 678)	¼"	1⅛"	8"	8"	3½"	20
	½"	2⅜"	4"	8½"	4"	40
	⅝"	3¼"	5½"	8"	5"	60
	¾"	4"	9½"	5"	5½"	110

STAINLESS STL EXPANSION ANCHORS IN 2500 PSI MIN CONC						
SIMPSON STRONG-BOLT 2 (ICC-ESR 3037)	⅜"	1⅞"	6"	10"	3½"	30
	½"	2⅜"	6½"	8"	4½"	65
	⅝"	3⅜"	4"	8"	5½"	80
	¾"	4¼"	6"	6½"	6½"	150
HILTI KB-TZ2 (ICC-ESR 4266)	⅜"	1⅞"	5"	8"	3½"	30
	½"	2½"	2¾"	5½"	4"	40
	⅝"	3¼"	4"	7"	5"	60
	¾"	4"	5"	11"	5½"	125



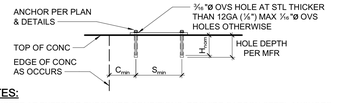
NOTES:

1. EXCEPT AT EXTERIOR EXPOSURE CONDITIONS, PROVIDE CARBON STEEL ANCHORS UNO. INSTALL EXPANSION ANCHORS PER MANUFACTURER'S INFORMATION AND ICC REPORT INSTRUCTIONS. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A AND THE REQUIREMENTS OF THE ICC REPORTS.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, SPACING AND THICKNESS ARE IN ACCORDANCE W/ SCHEDULE PRIOR TO INSTALLING ANCHOR.
3. NO CORE DRILLING PERMITTED. USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN 1" CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705A.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), CONCRETE THICKNESS, AND TIGHTENING TORQUE.
5. TEST ANCHORS IN ACCORDANCE W/ CBC SECTION 1910A.5.

2 EXPANSION ANCHOR IN CONCRETE
3/4" = 1'-0"

CARBON SCREW ANCHOR IN 2500 PSI MIN CONCRETE							
ANCHOR TYPE	ANCHOR AND PILOT HOLE DIA	MINIMUM EMBEDMENT H_{nom}	MINIMUM EDGE DIST C_{min}	MINIMUM SPCG S_{min}	MINIMUM CONCRETE THICKNESS H_{min}	INSTALL & TEST TORQUE (FT-LB)	MAXIMUM INSTALL TORQUE (FT-LB)
SIMPSON TITEN HD (ICC-ESR 2713)	½"	1⅝"	1½"	1½"	3¼"	10	24
	⅝"	2½"	1¾"	3"	4"	10	50
	¾"	3½"	1¾"	3"	5"	10	65
	⅞"	4"	1¾"	3"	6"	10	100
	1"	5½"	1¾"	3"	8¼"	20	150
HILTI KH-EZ (ICC-ESR 3027)	½"	1⅝"	1½"	3"	3¼"	10	18
	⅝"	2½"	1½"	3"	4"	10	40
	¾"	3"	1¾"	3"	4¾"	10	45
	⅞"	3½"	1¾"	4"	5"	10	85
	1"	4"	1¾"	4"	6"	20	95

STAINLESS STEEL SCREW ANCHOR IN 2500 PSI MIN CONCRETE							
SIMPSON TITEN HDSS (IAPMO UES ER-493)	⅜"	2½"	1¾"	3"	4"	10	40
	½"	3¼"	1¾"	4"	5"	10	70
	⅝"	4"	1¾"	3"	6"	10	85
	¾"	5½"	1¾"	3"	8¾"	20	150



NOTES:

1. EXCEPT AT EXTERIOR EXPOSURE CONDITIONS, PROVIDE CARBON STEEL ANCHORS UNO. INSTALL SCREW ANCHORS PER MANUFACTURER'S INFORMATION AND ICC REPORT INSTRUCTIONS. SPECIAL INSPECTION IS REQUIRED PER SECTION 1705A OF THE CBC AND THE REQUIREMENTS OF THE ICC REPORTS. INSTALLED ANCHORS SHALL BRING CONNECTED PLIES INTO FIRM CONTACT, MEETING THE INSTALL TORQUE BUT NOT EXCEEDING THE MAXIMUM INSTALL TORQUE.
2. CONTRACTOR TO VERIFY MINIMUM EDGE DISTANCES, SPACING AND THICKNESS ARE IN ACCORDANCE W/ SCHEDULE PRIOR TO INSTALLING ANCHOR.
3. HOLES TO BE DRILLED W/ ROTARY DRILL ONLY. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN 1" CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR. FILL ABANDONED HOLES W/ HIGH STRENGTH GROUT.
4. THE SPECIAL INSPECTOR SHALL PERFORM PERIODIC/CONTINUOUS INSPECTION IN ACCORDANCE WITH TABLE 1705A.3. THE SPECIAL INSPECTOR SHALL INSPECT ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE(S), ANCHOR SPACING(S), CONCRETE THICKNESS, AND TIGHTENING TORQUE.
5. TEST ANCHORS IN ACCORDANCE W/ CBC SECTION 1910A.5.

1 SCREW ANCHOR IN CONCRETE
3/4" = 1'-0"

A DESIGN CRITERIA

DESIGN CRITERIA: 2022 CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2 (CBC)
ROOF LIVE LOAD: 20 PSF (REDUCIBLE)
RISK CATEGORY: III
WIND DATA: ULTIMATE WIND SPEED (3 SEC GUST) IN MPH: 98
WIND EXPOSURE: C
INTERNAL WIND PRESSURE COEFFICIENT (GCPI) = ±0.18
COMPONENTS AND CLADDING DESIGN PRESSURES FOR SYSTEMS DESIGNED BY OTHERS SHALL COMPLY WITH THE "ASCE 7-16" DESIGN STANDARD
EARTHQUAKE DATA: SEISMIC IMPORTANCE FACTOR, I_e: 1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS: S_s = 1.50; S_1 = 0.60
SITE CLASS: D (BY DEFAULT)
SPECTRAL RESPONSE COEFFICIENTS: S_{DS} = 1.20; S_{D1} = 0.68
SEISMIC DESIGN CATEGORY: D (BY DEFAULT)

SCOPE: THE PROJECT IS LOCATED IN SAN RAFAEL, CA. AND CONSISTS OF REPLACING EXISTING ROOFTOP UNITS WITH SIMILARLY SIZED NEW ROOFTOP UNITS. LOADING DOES NOT INCREASE BY MORE THAN 5%. THEREFORE, PER CEBC 503.3, THE EXISTING FRAMING IS PERMITTED TO REMAIN UNALTERED.

B GENERAL NOTES

1. REFER TO SHEETS S1.1 FOR STANDARD DETAILS OF CONSTRUCTION. REFER TO THE PROJECT SPECIFICATIONS FOR MATERIALS AND METHODS.
2. BUILDING DIMENSIONS SHOWN ARE FOR GENERAL REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS (SAD) FOR ALL ACTUAL BUILDING DIMENSIONS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER SO CLARIFICATION CAN BE MADE PRIOR TO COMMENCING WORK.
3. STRUCTURAL DRAWINGS SHALL NOT BE SCALED. ALL DIMENSIONS AND FIT SHALL BE DETERMINED AND VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING WORK.
4. DETAILS NOT FULLY OR SPECIFICALLY SHOWN SHALL BE OF SAME NATURE AS OTHER SIMILAR CONDITIONS.
5. COORDINATION OF MECHANICAL, ELECTRICAL, PLUMBING, AND SITE UTILITY SYSTEMS WITH THE STRUCTURAL SYSTEM IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. USE DETAILS ON SHEET S1.1 . AT CONDITIONS WHERE THESE DETAILS DO NOT APPEAR TO APPLY, NOTIFY THE STRUCTURAL ENGINEER PRIOR TO INSTALLATION. AT CONDITIONS WHERE FIELD MODIFICATIONS OF MECHANICAL, ELECTRICAL, PLUMBING, OR SITE UTILITIES AFFECT STRUCTURAL SYSTEMS, NOTIFY STRUCTURAL ENGINEER PRIOR TO INSTALLATION.
6. VERIFY WEIGHTS AND LOCATIONS OF MECHANICAL UNITS WITH MECHANICAL ENGINEER PRIOR TO PLACEMENT. UNITS EXCEEDING WEIGHT NOTED ON PLANS SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER PRIOR TO INSTALLATION. CONTRACTOR TO VERIFY MECHANICAL UNIT SIZES AND WEIGHTS AS INSTALLED PRIOR TO INSTALLATION OF ADDITIONAL FRAMING TO ENSURE CORRECT PLACEMENT UNDER CURBS, ETC. SEE 8/S1.3.
7. SHORING, SCAFFOLDING, AND BRACING DESIGN, MATERIALS AND INSTALLATION SHALL BE PROVIDED BY THE GENERAL CONTRACTOR, AND SHALL BE ADEQUATE FOR ALL LOADS. LEAVE IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY AND UNTIL FINAL STRUCTURAL CONSTRUCTION IS COMPLETED. THE CONTRACTOR SHALL ENGAGE A LICENSED CIVIL OR STRUCTURAL ENGINEER TO PROVIDE SHORING.

C EXISTING CONSTRUCTION NOTES

1. IN PREPARING THE PROJECT PLANS, THE SOURCE OF INFORMATION WAS BASED ON THE EXISTING BUILDING PLANS PREPARED BY, H. M. EENGLE CIVIL & STRUCTURAL ENGINEER , DATED 03/19/1964. THE CONTRACTOR SHALL VERIFY ALL EXISTING JOB CONDITIONS, REVIEW THE PLANS AND VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ALL DISCREPANCIES AND EXCEPTIONS BEFORE PROCEEDING WITH ANY WORK. DRAWINGS FOR THE EXISTING CONSTRUCTION ARE AVAILABLE FOR REVIEW.
2. ALL WORK NOT INDICATED AS EXISTING (E) SHALL BE ASSUMED TO BE NEW (N).
3. ANY REMOVAL, CUTTING, DRILLING, ETC OF EXISTING WORK SHALL BE PERFORMED WITH GREAT CARE. SMALL TOOLS SHALL BE USED IN ORDER NOT TO JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE STRUCTURE. IF STRUCTURAL MEMBERS OR MECHANICAL, ELECTRICAL, OR ARCHITECTURAL ELEMENTS NOT INDICATED FOR REMOVAL INTERFERE WITH THE NEW WORK, THE ARCHITECT/ENGINEER SHALL BE IMMEDIATELY NOTIFIED AND PRIOR APPROVAL SHALL BE OBTAINED BEFORE REMOVAL OF THE MEMBERS.
4. DO NOT OVER CUT EXISTING WOOD, CONCRETE, MASONRY OR OTHER WORK TO REMAIN. CUTS SHALL BE MADE NEATLY TO A CORNER, THEN ALTERNATE MEANS SHALL BE USED TO REMOVE REMAINING MATERIAL. CONTRACTOR IS RESPONSIBLE FOR REPAIR/REPLACEMENT OF OVER CUT MATERIAL AS DIRECTED BY THE ARCHITECT AND/OR ENGINEER.
5. EXISTING DAMAGED STRUCTURAL MEMBERS WHICH ARE UNCOVERED SHALL BE REPORTED TO THE ARCHITECT/ENGINEER FOR REVIEW AND REPAIR.
6. EXISTING CONCRETE SURFACE ABUTTING NEW CONCRETE SHALL BE ROUGHENED TO ¼" AMPLITUDE AND THOROUGHLY CLEANED OF DUST, LOOSE AGGREGATE, LAITANCE, ETC.
7. EXISTING REINFORCING AND/OR STEEL EMBEDS THAT ARE EXPOSED DURING DEMOLITION SHALL BE WIRE-BRUSHED AND FOREIGN MATERIAL REMOVED PRIOR TO PLACEMENT OF NEW CONCRETE.
8. ALTERATIONS REQUIRE ASSUMPTIONS BE MADE REGARDING EXISTING CONDITIONS WHICH MAY NOT BE VERIFIABLE WITHOUT DESTROYING OTHERWISE ADEQUATE OR SERVICEABLE PORTIONS OF THE STRUCTURE. THIS ANALYSIS DOES NOT MAKE ANY GUARANTEE TO THE ADEQUACY OF THE STRUCTURAL DESIGN OF THE EXISTING BUILDING NOT SPECIFICALLY ADDRESSED IN THE STRUCTURAL CALCULATIONS. ZFA SHALL NOT BE RESPONSIBLE FOR UNSATISFACTORY PERFORMANCE OF EXISTING PORTIONS OF THE STRUCTURE NOT SPECIFICALLY ADDRESSED IN THE CONSTRUCTION DOCUMENTS.

D MATERIAL DATA

(INFORMATION SHOWN IS FOR STRUCTURAL DESIGN REFERENCE ONLY. SEE THE PROJECT SPECIFICATIONS FOR ALL MATERIAL SPECIFICATIONS.)

STRUCTURAL STEEL (UNO):
W SHAPES - ASTM A992 (Fy = 50,000 PSI)
ANGLES, CHANNELS, AND PLATES - ASTM A36 (Fy = 36,000 PSI)

FASTENERS:
MACHINE BOLTS - ASTM A307 GRADE A
HIGH STRENGTH BOLTS - ASTM F3125 GRADE A325 OR F1852 UNO
ANCHOR RODS - ASTM F1554 GR 36 UNO
ARC-WELDING ELECTRODES - E70

WOOD BASE DESIGN STRESSES (UNO):

SAWN LUMBER MEMBER	SPECIES AND MINIMUM GRADE, UNO	F_b (PSI)	F_v (PSI)	E (PSI)
6x POSTS	DOUGLAS FIR - #1	1200	170	$1.6x10^6$
6x BEAMS	DOUGLAS FIR - #1	1350	170	$1.6x10^6$
4x POSTS & BEAMS	DOUGLAS FIR - #1	1000	180	$1.7x10^6$
2x JOISTS, RAFTERS	DOUGLAS FIR - #1	1000	180	$1.7x10^6$
₱ MATERIAL	DOUGLAS FIR - #1	1000	180	$1.7x10^6$
2x STUDS	DOUGLAS FIR - #1	1000	180	$1.7x10^6$

FOR METAL CONNECTOR DESIGNATION REFER TO SIMPSON STRONG-TIE PER SPECIFICATIONS.

SHEET INDEX	
S0.1	GENERAL NOTES AND SPECIFICATIONS
S2.1	ROOF FRAMING PLAN

ABBREVIATIONS

AB	ANCHOR BOLT	FTG	FOOTING	PNL	PANEL
ABV	ABOVE	GA	GAGE or GAUGE	PSF	POUNDS PER SQUARE FOOT
AC	AIR CONDITIONING	GALV	GALVANIZED	PSI	POUNDS PER SQUARE INCH
ADJ	ADJACENT	GB	GRADE BEAM	PSL	PARALLEL STRAND LUMBER
ADDL	ADDITIONAL	GL	GRIDLINE	PTDF	PRESSURE TREATED DOUGLAS FIR
ALT	ALTERNATE	GLB	GLUE LAMINATED BEAM		
ALUM	ALUMINUM	GR	GRADE	PT	POINT
ARCH	ARCHITECT	HD	HOLD DOWN	R	RADIUS
AYC	ALASKAN YELLOW CEDAR	HDG	HOT-DIP GALVANIZED	RBS	REDUCED BEAM SECTION
BF	BOTH FACES	HDR	HEADER	REINF	REINFORCING
BF	BRACED FRAME	HGR	HANGER	REF	REFERENCE
BLDG	BUILDING	HK	HOOK	REINF	REINFORCING
BLK/BLKG	BLOCK/BLOCKING	HORIZ	HORIZONTAL	REQD	REQUIRED
BLW	BELOW	HSB	HIGH STRENGTH BOLT	RET	RETAINING
BM	BEAM	HSG	HIGH STRENGTH GROUT	REV	REVISION
BN	BOUNDARY NAIL	HSH	HORIZONTAL SLOTTED HOLE	RF	ROOF
BOT	BOTTOM	HSS	HOLLOW STRUCTURAL SECTION	RWD	REDWOOD
BRG	BEARING			S	AMERICAN STANDARD BEAM
BTWN	BETWEEN			SAD	SEE ARCHITECTURAL DRAWINGS
BU	BUILT UP	HT	HEIGHT	SB	SOLID BLOCK
BYND	BEYOND	ID	INSIDE DIAMETER	SD	SLIP CRITICAL
C	AMERICAN STANDARD CHANNEL	IJ	I SHAPED WOOD BUILT UP TRUSS	SCD	SEE CIVIL DRAWINGS
CA	CALIFORNIA	INT	INTERIOR	SCHED	SCHEDULE
CANT	CANTILEVER	JST	JOIST	SED	SEE ELECTRICAL DRAWINGS
CB	CARRIAGE BOLT	JT	JOINT	SEOR	STRUCTURAL ENGINEER OF RECORD
CFS	COLD FORMED STEEL	KP	KING POST	SFRS	SEISMIC FORCE RESISTING SYSTEM
CIP	CAST IN PLACE	L	STEEL ANGLE		
COL	CERTIFIED GLUED LUMBER	L, or ₱	ROUNDIN	SHTG	SHEATHING
CJ	CONTROL JOINT	LGMF	LIGHT GAGE METAL FRAMING	SIM	SIMILAR
℄	CENTERLINE	LGMFC	LIGHT GAGE METAL FRAMING CONTRACTOR	SKYLT	SKYLIGHT
CJP	COMPLETE JOINT PENETRATION			SLD	SEE LANDSCAPE DRAWINGS
CLG	CEILING	LL	LIVE LOAD	SMS	SHEET METAL SCREW
CLR	CLEAR	LLH	LONG LEG HORIZONTAL	SMD	SEE MECHANICAL DRAWINGS
COL	COLUMN	LLV	LONG LEG VERTICAL	SOG	SLAB ON GROUND
CONC	CONCRETE	LSC	LOW SLOPE	SPCG	SPACING
CONN	CONNECTION	LSL	LAG SCREW	SPD	SEE PLUMBING DRAWINGS
CONT	CONTINUOUS	LVL	LAMINATED STRAND LUMBER	SPL	SPLICE/SECTION
COORD	COORDINATE/ COORDINATION	LWC	LAMINATED VENEER LUMBER	SQ	SQUARE
CMU	CONCRETE MASONRY UNIT	MAX	LIGHTWEIGHT CONCRETE	SS	SELECT STRUCTURAL or STAINLESS STEEL
CSK	COUNTERSINK	MB	MAXIMUM	STGR	STAGGERED
CW	CUT WASHER	MBM	MACHINE BOLT	STD	STANDARD
DBA	DEFORMED BAR ANCHOR		METAL BUILDING MANUFACTURER	STIFF	STIFFENER
DBL	DOUBLE	MC	MISCELLANEOUS CHANNEL	STL	STEEL
DCW	DOUBLE CRITICAL WELD	MECH	MECHANICAL	STRUCT	STRUCTURAL
DF	DOUGLAS FIR	MEZZ	MEZZANINE	SW	SHEAR WALL
DIA or ø	DIAMETER	MF	MOMENT FRAME	SYM	SYMMETRICAL
DIAG	DIAGONAL	MFR	MANUFACTURER	T&B	TOP AND BOTTOM
DIM	DIMENSION	MIN	MINIMUM	T&G	TONGUE AND GROOVE
DIST	DISTANCE	MISC	MISCELLANEOUS	THK	THICK
DJ	DOWEL JOINT	MW	MALLEABLE IRON WASHER	THRD	THREADED
DL	DEAD LOAD	MTL	METAL	THRU	THROUGH
DN	DOWN	MU	MECH UNIT	TL	TOTAL LOAD
DO	DITTO	(N)	NEW	TN	TOE NAIL
DWG	DRAWING	NA	NOT APPLICABLE	TNC	TOE NAIL CONCRETE
DWL	DOWEL	NO or #	NUMBER	TOF	TOP OF FRAMING
EA	EACH	NS	NEAR SIDE	TOM	TOP OF MASONRY
EE	EACH END	NSG	NON-SHRINK GROUT	TOP	TOP OF PLYWOOD
EF	EACH FACE	NTS	NOT TO SCALE	TOS	TOP OF STEEL
ELEC	ELECTRICAL	NWC	NORMAL-WEIGHT CONCRETE	TOT	TOTAL
ELEV	ELEVATOR/ELEVATION	O/	OVER	TU	TILT UP
EMBED	EMBEDMENT	oc	ON CENTER	TYP	TYPICAL
EQ	EQUAL	OD	OUTSIDE DIAMETER	UNO	UNLESS NOTED OTHERWISE
EQUIP	EQUIPMENT	OH	OPPOSITE HAND	VERT	VERTICAL
ES	EACH SIDE	OPNG	OPENING	VIF	VERIFY IN FIELD
EW	EACH WAY	OPP	OPPOSITE	VSH	VERTICAL SLOTTED HOLE
(E)	EXISTING	OVS	OVERSIZED	W	WIDE FLANGE STEEL BEAM
EXP	EXPANSION	OW	OTHERWISE	W/	WITH
EXT	EXTERIOR	OWT	OPEN WEB TRUSS	W/O	WITHOUT
FDN	FOUNDATION	₱	PLATE or PROPERTY LINE	WD	WOOD
FIN	FINISH	PA	POST ABOVE	WHS	WELDED HEADED STUD
FG	FINISH GRADE	PAF	POWER ACTUATED FASTENERS	WLD	WELDED
FLR	FLOOR			WP	WORK POINT/WATERPROOF
FN	FACE NAIL	PEN	PANEL EDGE NAIL	WS	WOOD SCREW
FOC	FACE OF CONCRETE	PESP	PANEL EDGE SPACING	WT	WEIGHT
FOM	FACE OF MASONRY	PES	PANEL EDGE SCREWS	WTS	WELDED THREADED STUD
FOS	FACE OF STUD	PJP	PARTIAL JOINT PENETRATION	WWR	WELDED WIRE REINFORCEMENT
FRMG	FRAMING	PLF	POUNDS PER LINEAR FOOT		
FS	FAIR SIDE				

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#	Revisions		
Delta	Date	Revisions	By

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HY Architects Project number: 24552

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Project
BLDG LA HVAC UPGRADES

Sheet Title
GENERAL NOTES AND SPECIFICATIONS

Client Project Number:

Scale: As indicated
Drawn By: -
Checked By: -
Issue Date: NOV 1, 2024
Revit Version: 2023

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ZFA STRUCTURAL ENGINEERS
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IF THIS SHEET IS NOT 30"x42" , IT IS
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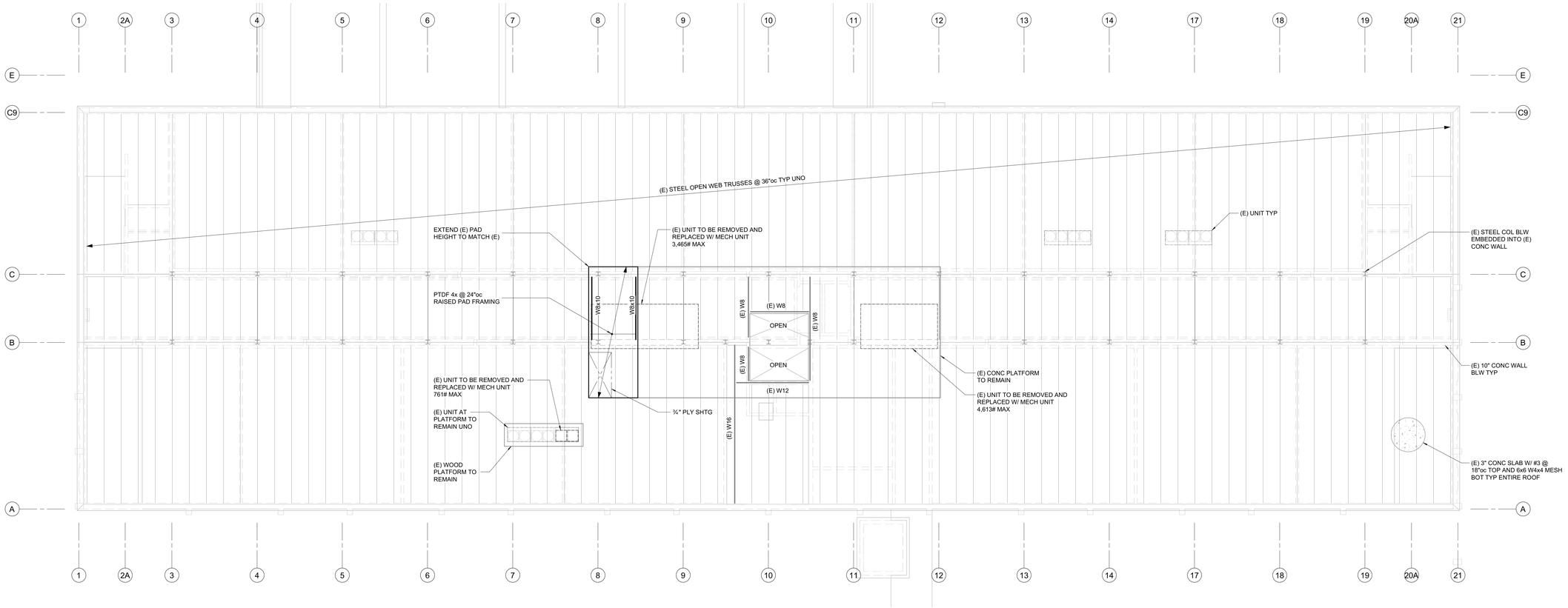
GRAPHIC SCALES:
0 5' 50' 1/16" = 1'-0"
0 5' 25' 1/8" = 1'-0"
0 1' 12' 1/4" = 1'-0"
0 1' 6' 1/2" = 1'-0"
0 4' 3/4" = 1'-0"
0 1' 3' 1" = 1'-0"
0 2' 1 1/2" = 1'-0"
0 1' 3" = 1'-0"



NORTH

ROOF FRAMING PLAN

1/8" = 1'-0"

SAN RAFAEL CITY SCHOOLS

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Revisions

Delta	Date	Revisions	By

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Project
BLDG LA HVAC UPGRADES

Sheet Title
ROOF FRAMING PLAN

Client Project Number:

Scale: 1/8" = 1'-0"
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GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

IF THIS SHEET IS NOT 30"x42" , IT IS A REDUCED PRINT SCALE ACCORDINGLY

MECHANICAL GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES, AND INDUSTRY STANDARDS.
2. VERIFY EXACT LOCATION OF ALL (E) EQUIPMENT, DUCTWORK, DIFFUSERS, REGISTERS, AND GRILLES. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN (E) SYSTEMS AND DRAWINGS.
3. COORDINATE EXACT LOCATION OF EQUIPMENT AND ALL PENETRATIONS THROUGH ROOF, FLOORS, AND WALLS WITH ARCHITECTURAL STRUCTURAL SYSTEMS PRIOR TO COMMENCING WORK.
4. COORDINATE EXACT SIZE AND ROUTING OF DUCTWORK WITH ARCHITECTURAL PLANS, STRUCTURE, AND EQUIPMENT PRIOR TO COMMENCING WORK.
5. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES.
6. FURNISH AND INSTALL MANUAL AIR DAMPERS AT ALL DUCT BRANCH TAKEOFFS TO A SINGLE DIFFUSER, GRILLE, OR REGISTER.
7. FLEXIBLE DUCTWORK CONNECTIONS TO CEILING DIFFUSERS ARE LIMITED TO 5' MAXIMUM LENGTH.
8. ALL DUCTWORK, CEILING DIFFUSERS/REGISTERS/GRILLES, EQUIPMENT, PIPING, ETC. ARE NEW U.O.N. (SHOWN HEAVY). (E) DUCTWORK, PIPING, ETC. IS SHOWN LIGHT. SEE LEGEND.
9. (E) DUCTWORK AND ITEMS TO BE REMOVED ARE SHOWN CROSSED ("X") OUT, SEE LEGEND. COORDINATE CLOSELY WITH (N) DUCTWORK AND P.O.C.'S SHOWN. ALL OTHER (E) DUCTWORK, ETC. TO REMAIN.
10. WHERE INLET DUCT DIAMETER AND DIFFUSER NECK SIZE ARE THE SAME (I.E. 9"ø AND 9x9) CONTRACTOR SHALL OVERSIZE THE SHEET METAL PLENUM TO ACCOMMODATE THE ROUND DUCT CONNECTION.
11. THERMOSTATS AND ROOM TEMPERATURE SENSORS SHALL BE INSTALLED AT +46" ABOVE FINISHED FLOOR (TO TOP OF DEVICE). DO NOT INSTALL THERMOSTATS AND ROOM TEMPERATURE SENSORS ABOVE CASEWORK, SHELVING OR OTHER OBSTRUCTIONS OVER 24" IN DEPTH AND 34" IN HEIGHT.

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, AND 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 THE 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 NEED NOT 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 DISTRIBUTION 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.

MEP DISTRIBUTION SYSTEM BRACING NOTE FOR PIPING, DUCTWORK, & ELECTRICAL CONDUIT

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7 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.126.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. THE MEP DESIGN PROFESSIONAL ENGINEER RESPONSIBLE FOR CONTENT ON THESE SHEETS HAS VERIFIED THAT THE DESIGN METHODS IDENTIFIED BELOW ARE IN ACCORDANCE WITH DSA IR 16-13.

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

MP ☒ MD ☒ PP ☒ E ☐ OPTION 1: PROJECT SPECIFIC DESIGN.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 2: DESIGN BASED ON OSHPD OPM, WITHIN PROJECT SUBMITTAL.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 3: DESIGN BASED ON OSHPD OPM, DEFERRED SUBMITTAL.

CALIFORNIA ENERGY CODE - ACCEPTANCE TESTING

1. 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.

HVAC ABBREVIATIONS

SYMBOL	DESCRIPTION
ABC	ABOVE CEILING
ABV	ABOVE
ACC DR	ACCESS DOOR
ACC P	ACCESS PANEL
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP, INCHES WATER COLUMN
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATTEN	ATTENUATORS
ATV	ACOUSTIC TURNING VANE
BD	BALANCE DAMPER
BDD	BACK DRAFT DAMPER
BHP	BRAKE HORSE POWER
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BOR	BOTTOM OF REGISTER
BTUH	BRITISH THERMAL UNITS PER HOUR
CAP	CAPACITY
CD	CONDENSATE DRAIN
CEF	CEILING EXHAUST FAN
CFH	CUBIC FEET OF GAS PER HOUR
CFM	CUBIC FEET OF AIR FLOW PER MINUTE
CHV	CHECK VALVE
CLG	CEILING
CLR	CLEAR
CONC	CONCRETE
COND	CONDENSER
CONN	CONNECT/CONNECTION
CONT	CONTINUATION
CONTR	CONTRACTOR
D	DAMPER
DGP	DATA GATHERING PANEL
DIA	DIAMETER
DL	DOOR LOUVER
DN	DOWN
DSP	DRY STAND PIPE
DB	DRY BULB
DTR	DOWN THROUGH ROOF
DWG	DRAWING
EA	EXHAUST AIR
EAD	EXHAUST AIR DAMPER
EC	EVAPORATIVE COOLER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATING
EF	EXHAUST FAN
EFF	EFFICIENCY
EH	EXHAUST HOOD
EL	ELEVATION
ELEC	ELECTRIC/ELECTRICAL
ENT	ENTERING
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EVAP	EVAPORATOR
EW	ENTERING WATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXT	EXPANSION TANK
f	CUBIC FEET OF AIR FLOW PER MINUTE
F	DEGREES FAHRENHEIT
FA	FROM ABOVE
FB	FROM BELOW
FC	FLEXIBLE CONNECTION
FCV	FLOW CONTROL VALVE
FD	FIRE DAMPER
FF	FLY FAN
FIN	FINISH
FLA	FULL LOAD AMPS
FLR	FLOOR
FPM	FEET PER MINUTE
FSD	FIRE AND SMOKE DAMPER
FT (')	FOOT OR FEET
FT^2	SQUARE FEET
FV	FACE VELOCITY
GA	GAUGE
GALV	GALVANIZED
GI	GALVANIZED IRON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HC	HEATING COIL
HDG	HEAVY DUTY GRILLE
HP	HORSE POWER
HPS	HIGH PRESSURE STEAM
HTG	HEATING
HV	HAND VALVE
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
ICF	INSTANTENEOUS CURRENT FLOW
IE	INVERT ELEVATION
IN. (")	INCH
IN^2	SQUARE INCHES
KEF	KITCHEN EXHAUST FAN
KW	KILOWATTS
LAV	LAVATORY
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LD	LOUVERED DOOR
LDB	LEAVING DRY BULB
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LVR	LOUVER
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	THOUSAND BTUs PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
OA	OUTSIDE AIR
OAD	OUTSIDE AIR DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OV	OUTLET VELOCITY
PCR	PUMPED CONDENSATE RETURN
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE/ PRESSURE REGULATING VALVE
PSI (G) (A)	POUNDS PER SQUARE INCH (GAUGE) (ABSOLUTE)
RA	RETURN AIR
RAD	RETURN AIR DAMPER
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RPM	REVOLUTIONS PER MINUTE
RLA	RATED LOAD AMPS
RV	RELIEF VENTILATOR
S & R	SUPPLY AND RETURN
SA	SUPPLY AIR
SAD	SEE ARCHITECTURAL DRAWINGS
SB	SECURITY BARS
SD	SPLITTER DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATING
SF	SUPPLY FAN
SG	STEAM GENERATOR
SK	SINK
SM	SHEET METAL
SOV	SHUT OFF VALVE
SP	STATIC PRESSURE
SPD	STATIC PRESSURE DROP
SQ FT	SQUARE FEET
SQ IN	SQUARE INCHES
SS	STAINLESS STEEL
STR	STRAINER
STRUC	STRUCTURAL
T	THERMOSTAT
TA	TO ABOVE
TB	TO BELOW
T.C.C.	TEMPERATURE CONTROL CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
TCV	TEMPERATURE CONTROL VALVE
TEMP	TEMPERATURE
TFH	THERMAL FLUID HEATER
THK	THICK
TP	TOTAL PRESSURE
TS	TEMPERATURE SENSOR
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UCD	UNDERCUT DOOR
UF	UNDERFLOOR
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UTR	UP THROUGH ROOF
V (VTR)	VENT (VENT THROUGH ROOF)
VAC	VACUUM
VD	VOLUME DAMPER
VF	VENTILATION FAN
VFC	VARIABLE FREQUENCY CONTROLLER
VLV	VALVE
VRF	VARIABLE REFRIGERANT FLOW
VSD	VARIABLE SPEED DRIVE
VV	VARIABLE AIR VOLUME CONTROLLER
VVRH	VARIABLE AIR VOLUME CONTROLLER WITH REHEAT COIL
W	WATTS
WALL MTD (R)	WALL MOUNTED (RECESSED)
WB	WET BULB
WC	WATER CLOSET
WMS	WIRE MESH SCREEN
WP	WORKING PRESSURE
WPD	WATER PRESSURE DROP FEET OF WATER COLUMN
WT	WEIGHT

DUCT LEGEND

SINGLE LINE SYMBOL	DOUBLE LINE SYMBOL	DESCRIPTION
24x12	24x12	RECTANGULAR DUCT; WIDTH x DEPTH (PLAN VIEW) DEPTH x WIDTH (SECTION VIEW)
26x14L	26x14L	ACOUSTICALLY LINED RECTANGULAR DUCT - DIMENSIONS ARE OUTSIDE
		MANUAL AIR DAMPER
R or D	R or D	RISE OR DROP DUCT IN DIRECTION OF AIR FLOW
	OR	RECTANGULAR TO RECTANGULAR TRANSISTION OR ROUND TO ROUND TRANSITION, MAX. SLOPE OF 1:3
		RECTANGULAR TO ROUND TRANSITION, MAX. SLOPE OF 1:3
	W, R, R/W = 1.5	ELBOW, RECTANGULAR, SMOOTH RADIUS, WITHOUT TURNING VANES
		SQUARE/RECTANGULAR DUCT ELBOW WITH TURNING VANES
		CONVERGING OR DIVERGING TEE, 45° ENTRY, RECTANGULAR MAIN AND BRANCH. WHEN REDUCING MAIN, SIDE OF TAKE OFF OR ENTRY BRANCH TO BE FLAT, OTHER SIDES MAX. SLOPE OF 1:3
ROUND DUCT		ROUND DUCT TAKE OFF FROM RECTANGULAR VIA SMOOTH CONVERGING BELL MOUTH
		RECTANGULAR DUCT TEE MAD'S ON THE 2 BRANCHES, THROAT SIZED FOR EQUAL PRESSURE DROP
		RECTANGULAR DUCT SPLIT MAD'S, THROAT SIZED FOR EQUAL PRESSURE DROP
		3-WAY RECTANGULAR SPLIT WITH TWO TRANSITIONAL ELBOW'S AND TRANSITIONING MAIN. DOWNSTREAM MAD'S OF THE TREE BRANCHES. THROATS SIZED FOR EQUAL PRESSURE DROP.
		FOR CONCEALED DUCT: DROP TO DIFFUSER SHALL BE FULL SIZE OF DIFFUSER NECK. IOR EXPOSED DUCT: DROP SHALL BE FULL SIZE OF OD DIFFUSER FRAME. FLANGE FOR MOUNTING DIFFUSER TURNED IN. AIR EXTRACTOR AND EQUALIZER GRID AT CONNECTION TO MAIN.
		SUPPLY AIR, SUPPLY DROP/RISE
		RETURN AIR, RETURN AIR DROP/RISE
		EXHAUST AIR, EXHAUST AIR DROP/RISE
		NEW - FLEXIBLE DUCT (ROUND)
OR		EXISTING - FLEXIBLE DUCT (ROUND)
10"Ø, 18"Ø, 12"Ø	10"Ø, 18"Ø, 12"Ø	45° REDUCING LATERAL FITTING
18"Ø, 10"Ø, 12"Ø	18"Ø, 10"Ø, 12"Ø	90° REDUCING TEE FITTING

MECHANICAL SHEET LIST

Sheet Number	Sheet Name
M0.01	MECHANICAL LEGEND AND NOTES
M0.02	MECHANICAL SCHEDULES
M2.01	MECHANICAL FLOOR PLAN - FIRST LEVEL
M2.02	MECHANICAL FLOOR PLAN - SECOND LEVEL
M2.03	MECHANICAL FLOOR PLAN - THIRD LEVEL
M2.04	MECHANICAL ROOF PLAN
M2.04D	MECHANICAL DEMOLITION ROOF PLAN
M5.01	MECHANICAL DETAILS
M5.02	MECHANICAL DETAILS
M6.01	MECHANICAL CONTROL DIAGRAMS
M7.01	MECHANICAL TITLE 24 DOCUMENTATION

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capital engineering
RANCHO CORDOVA, CALIFORNIA
RC - CS/EG PM - DESIGN TEAM
240309.00 PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER — RYAN CELAYA — M 34234 EXPIRES 12/31/24 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: _____

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Project
BLDG LA HVAC UPGRADES

Sheet Title
MECHANICAL LEGEND AND NOTES

Client Project Number: 0000.0

Scale: 1" = 1'-0"
Drawn By: Author
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Issue Date: 11/01/24
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GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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AIR HANDLING UNIT SCHEDULE

UNIT	LOCATION SERVED	"DAIKIN" MODEL	CFM	FILTERS				HEAT RECOVERY COIL							ELEC HEATER			DX COIL																		FAN								ELECTRICAL			OPER. WT. (LBS.)			MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
				EFFICIENCY	MAX FACE VEL. FPM	SIZE (QTY.)	DEPTH	FLUID	QTY.	ROWS	FH (IN.)	FL (IN.)	FACE VEL. FPM	APD (IN. WG)	VOLT/PH	KW	FLA	FLUID	QTY.	ROWS	FPI	FH (IN.)	FL (IN.)	CFM	FACE VEL. FPM	APD (IN. WG)	SENS. COOLING CAP. (MBH)	TOTAL COOLING CAP. (MBH)	CLG. EDB (°F)	CLG. EWB (°F)	CLG. LDB (°F)	TOTAL HEATING CAP. (MBH)	HTG. EDB (°F)	HTG. LDB (°F)	QTY.	HP	BHP	CFM	ESP (IN. W.G.)	TSP (IN. W.G.)	FAN RPM	MAX. RPM	VOLT/PH	MCA	MOCP	UNIT	ROOF CURB	TOTAL			
AHU 1S	BUILDING LA	OAH039GVCM	18,830	MERV 13	370	24x24 (15)	4	R410A	2	10	36	73	520	1.0	480/3	71.6	86.4	CKT A	1	4	6	22	73	5,640	505	0.29	--	144.1	96.0	71.0	74.0	138.0	50.0	70.0	4	6.6 EA.	4.95 EA.	4,708 EA.	2.0	4.44	2,410 EA.	2,600 EA.	208/3	67.2	80	4,615	420	5,035	4 M5.02	3 M6.01	1 2 3
																		CKT B	1	4	6	22	73	5,640	505	0.29	--	144.1	96.0	71.0	74.0	138.0	50.0	70.0																			
																		CKT C	1	4	6	22	73	7,520	530	0.32	--	168.0	96.0	71.0	74.0	145.7	50.0	70.0																			
AHU 1R	BUILDING LA	OAH039GVCM	17,750	MERV 13	370	24x24 (15)	4	R410A	2	10	36	73	490	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	6.6 EA.	4.65 EA.	5,917 EA.	1.5	2.89	2,390 EA.	2,600 EA.	208/3	51.4	60	3,465	340	3,805	4 M5.02	4 M6.01	1 3

NOTES:

1. UNITS SELECTED AT 96 F DB / 71 F WB SUMMER AMBIENT, 30 F DB WINTER AMBIENT AIR TEMPERATURES. COOLING CAPACITIES SCHEDULED ARE NET SENSIBLE & NET TOTAL CAPACITIES.
2. PROVIDE SEPARATE 480V/3PH POWER CONNECTION FOR ELECTRIC HEATER, 208V/3PH CONNECTION FOR FANS.
3. HEAT RECOVERY COIL SHALL HAVE SHUTDOWN CAPABILITY FOR ECONOMIZER OPERATION, BY BMS.

HEAT PUMP UNIT SCHEDULE

UNIT	LOCATION	"DAIKIN" MODEL NO.	COOL (BTUH)	HEAT (BTUH)	ELECTRICAL DATA			EER (IEER)	COP	OPER. WT. (LBS.)	MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
					VOLT/PH	MCA	MOCP						
HP 4B	ROOF	RXYQ144AAYDB	144,000	162,000	460/3	21.3	25	11.0 (21.8)	3.3	765	1 M5.02	2 M6.01	1

NOTES:

1. R410 REFRIGERANT.
2. COOLING CAPACITY RATED AT 80 DEG. F DB / 67 DEG. F WB INDOOR AIR AND 95 DEG. F DB OUTDOOR AIR.
3. HEATING CAPACITY IS RATED AT 70 DEG. F DB / 60 DEG. F WB INDOOR AIR AND 47 DEG. F DB OUTDOOR AIR.

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BLDG LA HVAC UPGRADES

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MECHANICAL SCHEDULES

Client Project Number: 0000.0

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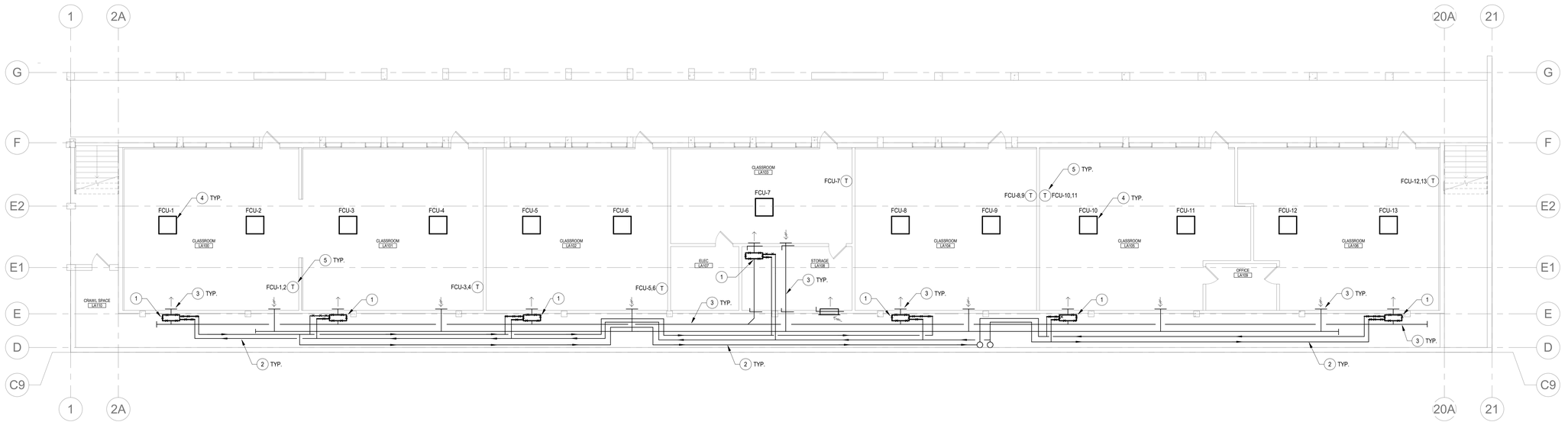
KEYNOTES:

1. REMOVE EXISTING HEATING COIL AND HHW PIPING CONNETIONS. PROVIDE NEW DUCTWORK TO REPLACE HEATING COIL AND SEAL AIRTIGHT. REFER TO DETAIL 1/M5.01 FOR ADDITIONAL INFORMATION.
2. EXISTING HHW PIPING TO BE ABANDONED IN PLACE. DRAIN PIPING DURING REMOVAL OF THE HEATING COILS.
3. EXISTING SUPPLY/RETURN DUCTWORK, DIFFUSERS AND GRILLES TO REMAIN, TYP.
4. EXISTING VRF FAN COIL TO REMAIN, TYP.
5. EXISTING THERMOSTAT TO REMAIN, TYP.

SHEET NOTES:

1) THE EXISTING HVAC DESIGN HAS BEEN BASED ON RECORD DRAWINGS AND SITE OBSERVATIONS. CONTRACTOR SHALL PERFORM INVESTIGATION OF THE EXISTING CONDITIONS PRIOR TO INSTALLATION OF NEW WORK. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF EXISTING CONDITIONS THAT MAY NOT ALLOW INSTALLATION OF NEW WORK AS SHOWN.
2) EXISTING EQUIPMENT, DUCTWORK, PIPING, COMPONENTS, ETC. ARE SHOWN DIAGRAMMATICALLY AND ARE NOT EXACTLY AS SHOWN ON PLANS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK, RECORD THE EXISTING CONDITIONS IN "COORDINATED LAYOUTS" REQUIRED BY SPECIFICATION SECTION 238000, AND MAKE ANY ADJUSTMENTS NECESSARY TO COMPLETE THE DESCRIBED SCOPE OF WORK. CONTRACTOR SHALL MAKE ALLOWANCE IN BID FOR THIS REQUIREMENT.



1 MECHANICAL FLOOR PLAN - FIRST LEVEL

1 / M2.01

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

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Project

BLDG LA HVAC UPGRADES

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2. EXISTING HHW PIPING TO BE ABANDONED IN PLACE. DRAIN PIPING DURING REMOVAL OF THE HEATING COILS.
3. EXISTING SUPPLY/RETURN DUCTWORK, DIFFUSERS AND GRILLES TO REMAIN, TYP.
4. EXISTING VRF FAN COIL TO REMAIN, TYP.
5. EXISTING THERMOSTAT TO REMAIN, TYP.

SHEET NOTES:

1) THE EXISTING HVAC DESIGN HAS BEEN BASED ON RECORD DRAWINGS AND SITE OBSERVATIONS. CONTRACTOR SHALL PERFORM INVESTIGATION OF THE EXISTING CONDITIONS PRIOR TO INSTALLATION OF NEW WORK. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF EXISTING CONDITIONS THAT MAY NOT ALLOW INSTALLATION OF NEW WORK AS SHOWN.
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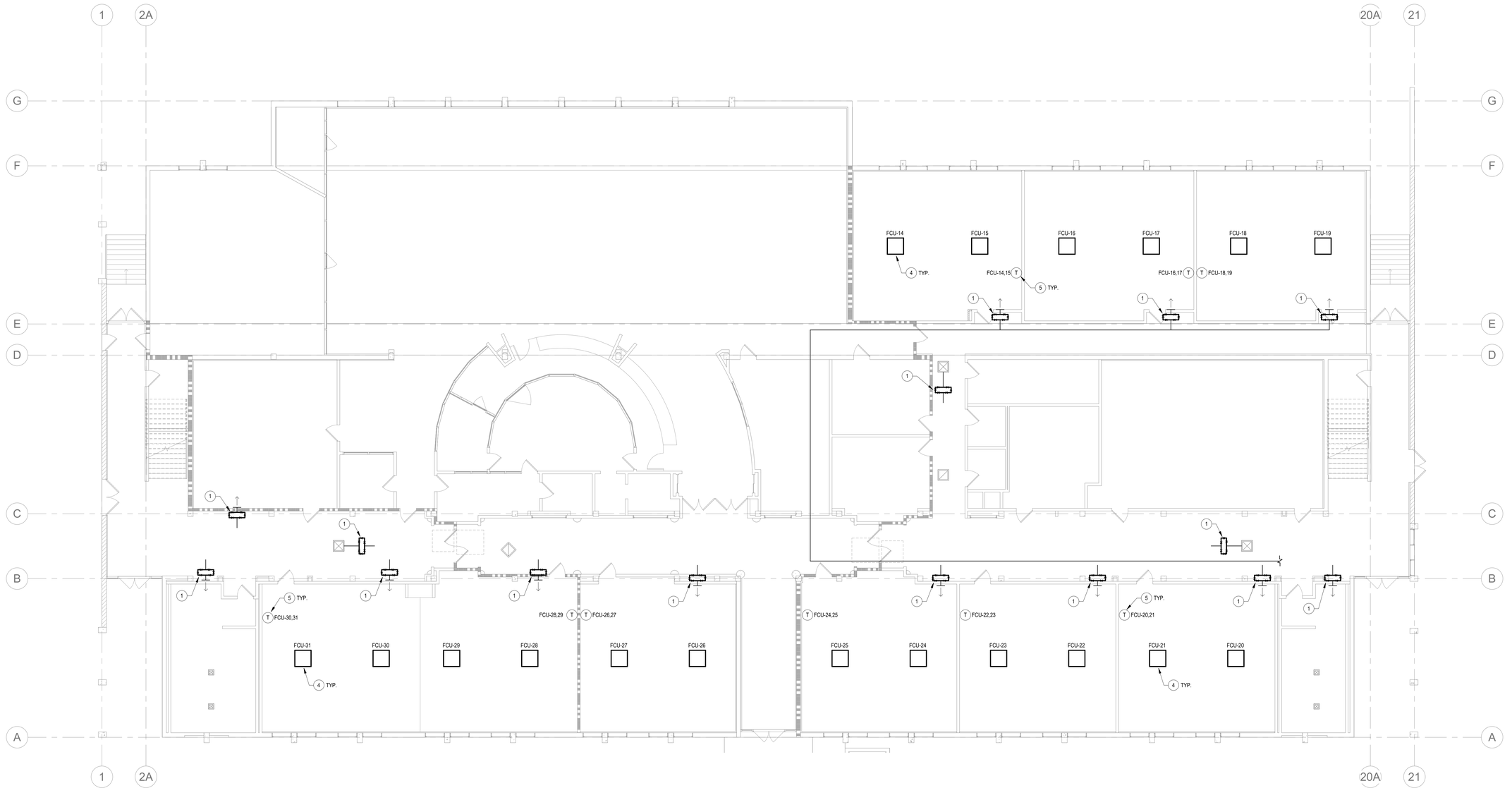

1 M2.02 MECHANICAL FLOOR PLAN - SECOND LEVEL

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

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SAN RAFAEL CITY SCHOOLS

310 NOVA ALBION WAY
SAN RAFAEL, CA 94903
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Revisions

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100% DESIGN DEVELOPMENT

capital engineering
RANCHO CORDOVA, CALIFORNIA

RC - CS/EG — PM - DESIGN TEAM
240309.00 — PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER — RYAN CELAYA — M 34234 — EXPIRES 12/31/24 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED:

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Oakland, CA 94612
510.446.2222 tel ¦ 510.446.2211 fax

HY Architects Project number: 6189

Facility

SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project

BLDG LA HVAC UPGRADES

Sheet Title

MECHANICAL FLOOR PLAN - SECOND LEVEL

Client Project Number: 0000.0

Scale: 1/8" = 1'-0"
Drawn By: Author
Checked By: Checker
Issue Date: 11/01/24
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Sheet **M2.02**

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KEYNOTES:

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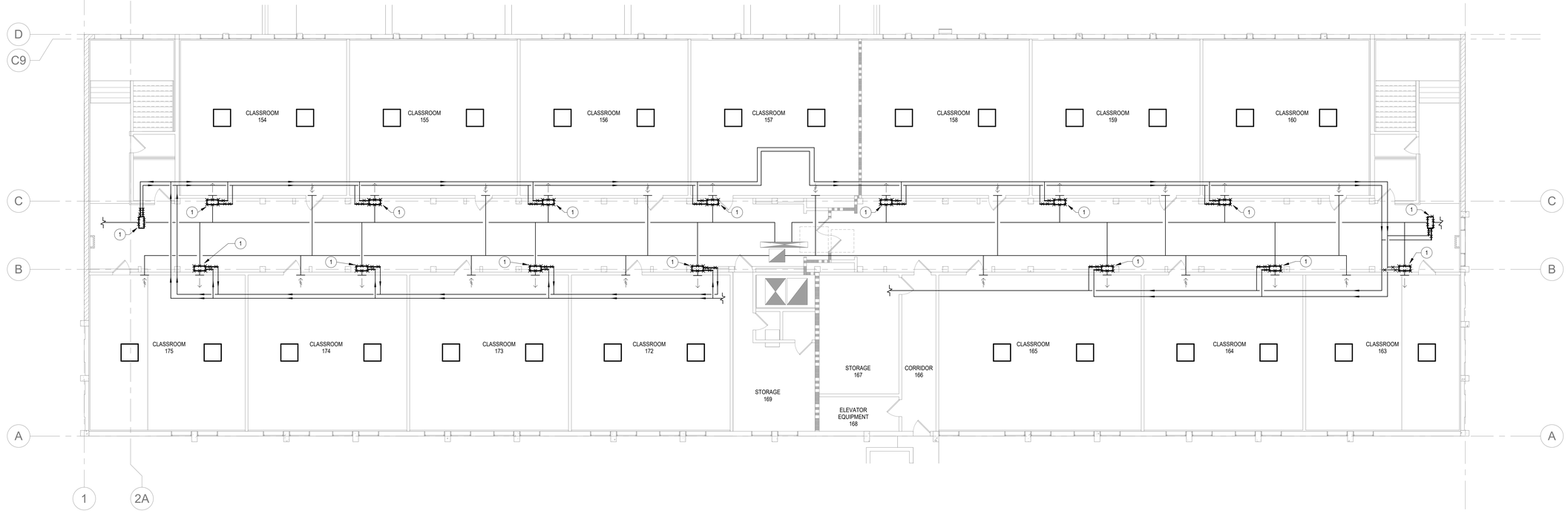

1 / M2.03 MECHANICAL FLOOR PLAN - THIRD LEVEL
SCALE: 1/8" = 1'-0"

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RC - CS/EG PM - DESIGN TEAM | 240309.00 PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER — RYAN CELAYA — M 34234 — EXPIRES 12/31/24 — MECHANICAL — STATE OF CALIFORNIA

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HY Architects Project number: 6189

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Project
BLDG LA HVAC UPGRADES

Sheet Title
MECHANICAL FLOOR PLAN - THIRD LEVEL

Client Project Number: 0000.0

Scale: 1/8" = 1'-0"
Drawn By: Author
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KEYNOTES:

(1) XXXX

SHEET NOTES:

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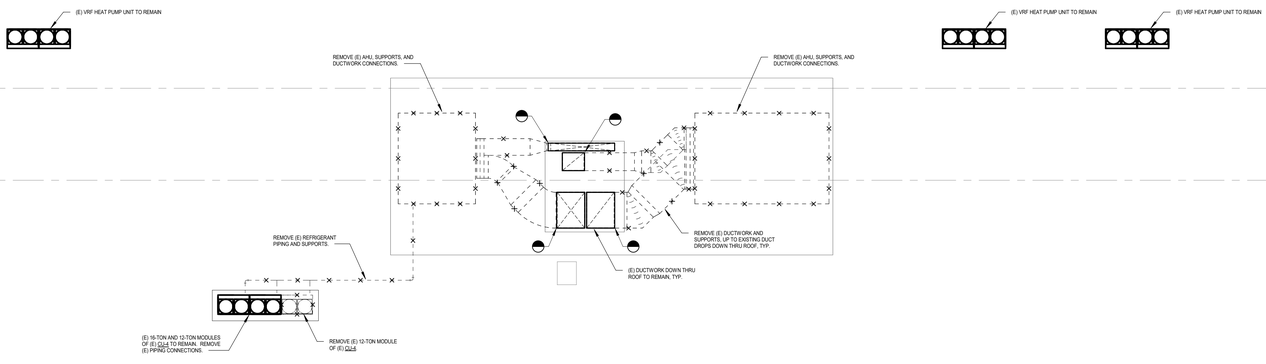

1 M2.04D HVAC DEMOLITION ROOF PLAN

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

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BLDG LA HVAC UPGRADES

Sheet Title

MECHANICAL DEMOLITION ROOF PLAN

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Sheet **M2.04D**

Sheet of 200

0 5' 50'
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0 1"
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KEYNOTES:

(1) XXXX

SHEET NOTES:

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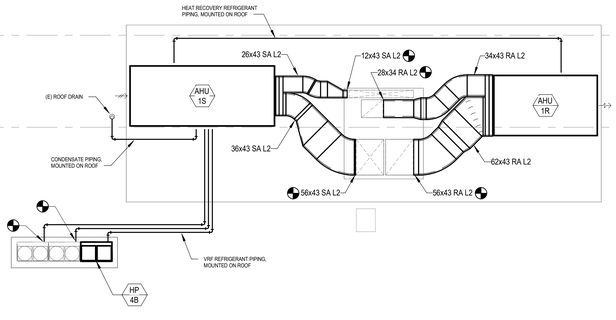

1 / M2.04 MECHANICAL ROOF PLAN
SCALE: 1/8" = 1'-0"

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M 34234
EXPIRES 12/31/24
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HY Architects Project number: 6189

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SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
MECHANICAL ROOF PLAN

Client Project Number: 0000.0

Scale: 1/8" = 1'-0"
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Sheet
M2.04
Sheet of 200

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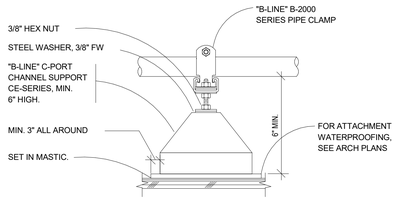
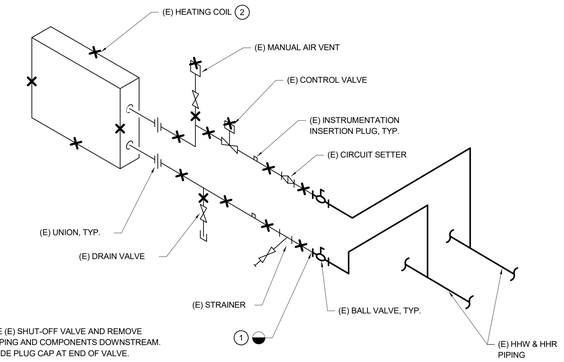


	2022 CPC TABLE 1210.2.4.1 SUPPORT OF PIPING		NFPA 54:7.2.5.1 TABLE 7.2.5.2 SUPPORT OF PIPING
STEEL PIPE, NOMINAL SIZE OF PIPE (IN.)	SPACING OF SUPPORTS (FT.)	NOMINAL SIZE OF TUBING SMOOTH-WALL (IN. O.D.)	SPACING OF SUPPORTS (FT.)
1/2	6	1/2	4
3/4 OR 1	8	5/8 OR 3/4	6
1 1/4 OR LARGER (HORZ.)	10	7/8 OR 1 (HORZ.)	8
1 1/4 OR LARGER (VERT.)	EVERY FLOOR LEVEL	1 OR LAGER (VERT.)	EVERY FLOOR LEVEL

CONDENSATE SUPPORT DETAIL

SCALE : NONE

3 M5.01



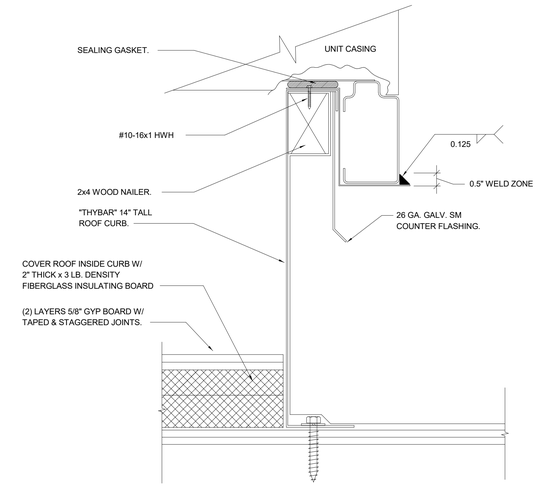
NOTES:

1. CLOSE (E) SHUT-OFF VALVE AND REMOVE ALL PIPING AND COMPONENTS DOWNSTREAM. PROVIDE PLUG CAP AT END OF VALVE.
2. REMOVE (E) HEATING COIL AND REPLACE W/ (N) DUCTWORK. MATCH DUCTWORK SIZE TO EXISTING CONNECTION SIZE.

HEATING COIL REPLACEMENT DETAIL

SCALE : NONE

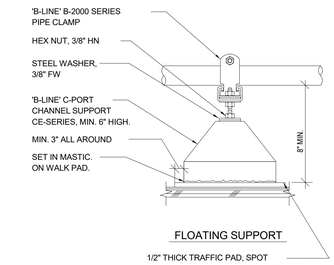
1 M5.01



AIR HANDLING UNIT SUPPORT DETAIL

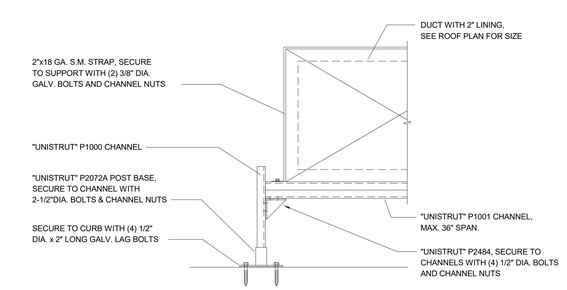
SCALE : NONE

4 M5.01



FLOATING SUPPORT

1/2" THICK TRAFFIC PAD, SPOT
NOTE: AT SINGLE-PLY ROOF, PROVIDE ROOFING MFRS ACCEPTABLE PAD

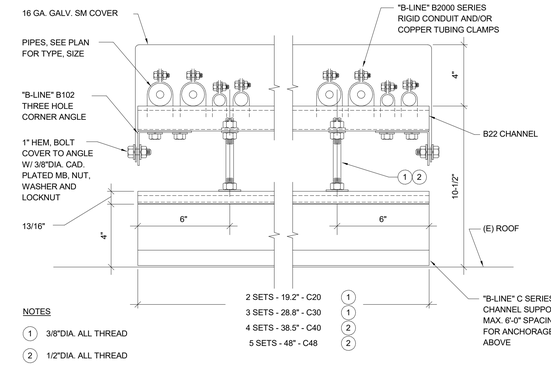


NOTES: 1) SUPPORTS SHALL BE SPACED AT 8'-0" MAXIMUM AND WITHIN 12" OF ANY CHANGE IN DIRECTION.
2) TOP OF SUPPORT SHALL BE BETWEEN 8" TO 18" ABOVE ROOF.

DUCT SUPPORT ON ROOF

SCALE : NONE

5 M5.01



NOTES

1. 3/8"DIA. ALL THREAD
2. 1/2"DIA. ALL THREAD
3. SINGLE SET = 1 RL, 1 RS, & 1 CONTROL CONDUIT
4. ALL EXPOSED METAL PARTS INCLUDING SHEET METAL COVER SHALL BE PRIMED AND PAINTED TO MATCH ROOF SURFACE

2 SETS - 19.2" - C20	1	1
3 SETS - 28.8" - C30	1	1
4 SETS - 38.5" - C40	2	2
5 SETS - 48" - C48	2	

REFRIGERANT PIPE SUPPORT ON ROOF

SCALE : NONE

2 M5.01

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HY Architects Project number: 6189

Facility

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150 3RD STREET, SAN RAFAEL, CA 94901

Project

BLDG LA HVAC UPGRADES

Sheet Title

MECHANICAL DETAILS

Client Project Number: 0000.0

Scale: 12" = 1'-0"
Drawn By: Author
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Sheet of 200

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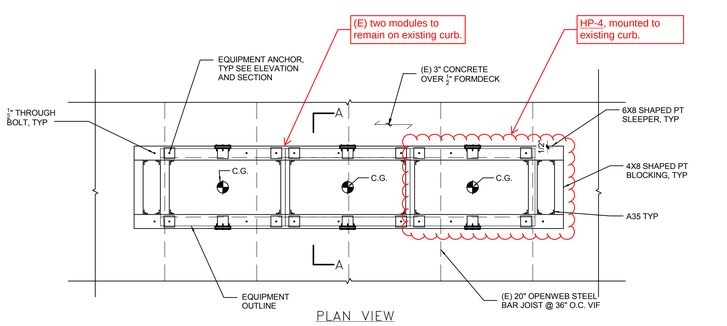

VRF HEAT PUMP MOUNTING DETAIL

SCALE : NONE

1
M5.02

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M5.02
Sheet of 200

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- EXV KIT CONTROLLED BY ODU
- 0-10V ECM FAN CONTROL (BY BAS CONTRACTOR)
- ECONOMIZER LOGIC (BY BAS CONTRACTOR)
- HEAT PIPE ECONOMIZER MULTIPLE RELAY INPUT (BY BAS CONTROLLER) (STAGED ECONOMIZATION VIA HEAT RECOVERY COIL SHUTDOWN)
- ELECTRIC HEAT SCR 0-10V CONTROL (BY BAS CONTROLLER)
- SHUTOFF DAMPER ACTUATORS AND CONTROL (BY BAS CONTROLLER)

SUPPLY AHU CONTROL DIAGRAM

SCALE : NONE

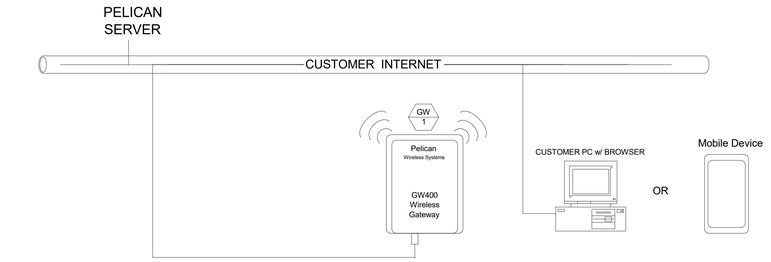
3
M6.01

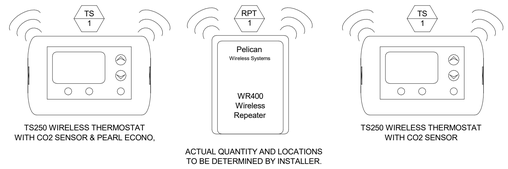
- 0-10V ECM FAN SPEED CONTROL (BY BAS CONTROLLER)
- SHUTOFF DAMPER ACTUATORS AND CONTROL (BY BAS CONTROLLER)

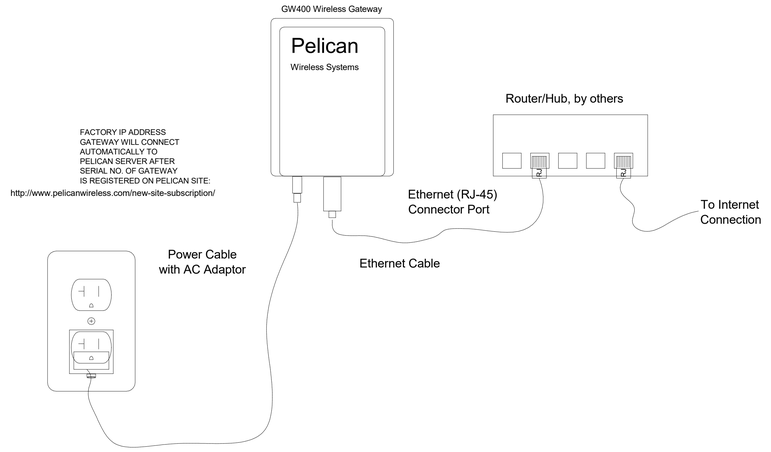
RETURN AHU CONTROL DIAGRAM

SCALE : NONE

4
M6.01







PELICAN WIRELESS LAN LAYOUT

SCALE : NONE

1
M6.01

HEAT PUMP UNITS

- DAISY CHAIN COMMUNICATION FROM EXISTING ODU TO NEW ODU
- VERIFY EXISTING COMM CONNECTION TO ITOUCH CONTROLLER (BAS CONTACTOR)
- 3X 0-10V INPUT CAPACITY SIGNAL, ONE PER CIRCUIT (FROM BAS CONTROLLER)
- HEAT/COOL INPUT (FROM BAS CONTROLLER)
- ENABLE DISABLE INPUT. (FROM BAS CONTROLLER)
- INTEGRATION TO ITOUCH TO BE READ ONLY. (BY BAS CONTRACTOR)
- BASIC WIRING DIAGRAM ATTACHED.

DAIKIN I-TOUCH MANAGER

- NEW BACNET LICENSE KEY (PROVIDED BY NSW)
- CONNECT TO BAS LAN NETWORK (ETHERNET BY BAS CONTRACTOR)
- CONFIGURE BAS BACNET INTERFACE WITH ITOUCH TO ALLOW CONTROL OF ALL CONNECTED FCUS (BY BAS CONTRACTOR)
- CONFIGURE DOAS ODU TO ALLOW CONTROL FROM ITOUCH AND BAS (BY BAS CONTRACTOR)
- CONFIGURE DOAS ODU DEFROST CONTROL TO ONLY ALLOW ONE ODU AT A TIME TO PERFORM DEFROST.

HEAT PUMP UNIT CONTROL DIAGRAM

SCALE : NONE

2
M6.01

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Project
BLDG LA HVAC UPGRADES

Sheet Title
MECHANICAL CONTROL DIAGRAMS

Client Project Number: 0000.0

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M6.01
Sheet of 200

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GENERAL ELECTRICAL NOTES

1. ELECTRICAL CONTRACTOR IS TO PROVIDE LABOR, MATERIALS, TRANSPORTATION, EQUIPMENT, RELATED HAND TOOLS, SPECIAL AND OCCASIONAL SERVICES TO CONSTRUCT AND INSTALL THE COMPLETE ELECTRICAL SYSTEM AS SPECIFIED AND SHOWN ON THE PLANS.
2. MOUNTING HEIGHTS SHALL BE A MAXIMUM +48" TO TOP OF BOX OR MINIMUM 15" TO BOTTOM OF BOX PER CBC 1142A. ALL MOUNTING HEIGHTS SHALL BE AS SHOWN ON SYMBOL LIST UNLESS OTHERWISE NOTED ON DRAWINGS.
3. BONDING JUMPERS SHALL BE INSTALLED TO INSURE CONTINUITY WHERE CONDUIT CONNECTIONS AT CONCENTRIC KNOCKOUTS ARE TO SERVE AS A GROUND.
4. PROVIDE GREEN THWN COPPER GROUND WIRE FROM PANELBOARD GROUND BUS TO ALL BRANCH CIRCUITS.
5. THE ELECTRICIAN SHALL CHECK THE TIGHTNESS OF ALL PANELBOARD BUSES AND CIRCUIT BREAKER LUGS. COMPLETELY VACUUM AND CLEAN INTERIOR OF EQUIPMENT PRIOR TO TURN OVER TO THE OWNER.
6. ALL NEW AND EXISTING PANELBOARDS AND SWITCHBOARDS SHALL BE PROVIDED WITH NEW TYPEWRITTEN DIRECTORIES TO IDENTIFY THE LOCATION OF EACH LOAD SERVED.
7. ALL EQUIPMENT SHALL BE U.L. LISTED AND INSTALLED AS PER LISTING OR LABELING (I.E. MAX. FUSE SIZES MEAN FUSE PROTECTION REQUIRED).
8. CONTRACTOR TO COORDINATE ALL NEW WORK WITH ALL OTHER TRADES FOR A SMOOTH FLOW OF INSTALLATION WORK.
9. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO ALL WALLS, FLOORS AND CEILINGS INCURRED DURING ELECTRICAL CONSTRUCTION. IF DAMAGE OCCURS DURING ELECTRICAL CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR TO PATCH, PAINT AND REPAIR TO MATCH EXISTING CONDITIONS.
10. COORDINATE EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT REQUIRING ELECTRICAL HOOK-UP WITH CONTRACTOR RESPONSIBLE FOR PROVIDING EQUIPMENT AND EQUIPMENT MANUFACTURER DATA SHEETS.
11. ALL CORRIDOR AND EXTERIOR WALL PENETRATIONS FOR PIPES, CONDUITS, ETC., IN WALLS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. FIRE STOP MATERIAL SHALL BE A TESTED ASSEMBLY APPROVED BY THE CALIFORNIA STATE FIRE MARSHAL.
12. ELECTRICAL CONTRACTOR SHALL REVIEW MECHANICAL AND PLUMBING CONTRACT DRAWINGS AND VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS, MOTOR SIZES AND CONTROL WIRING REQUIREMENTS WITH MECHANICAL CONTRACTOR AND MECHANICAL EQUIPMENT SUPPLIERS AND MANUFACTURERS PRIOR TO INSTALLATION OF ELECTRICAL CONNECTIONS.
13. ALL CONTROL DEVICES TO BE USED BY THE OCCUPANT OF THE ROOM OR AREA SHALL BE INSTALLED AT A MINIMUM OF 36" C/L, TO A MAXIMUM OF 48" TO TOP OF BOX FROM THE FINISHED FLOOR.
14. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND ALTHOUGH THE SIZE AND LOCATIONS OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE, CONTRACTOR SHALL MAKE USE OF MANUFACTURER'S OR OWNER'S DATA AVAILABLE AND/OR VERIFY DATA IN THE FIELD FOR PROVIDING AND INSTALLING CORRECT CABLE LENGTHS.
15. ALL EQUIPMENT MUST BE LISTED, LABELED, OR CERTIFIED BY A NATIONAL RECOGNIZED TESTING LABORATORY (NRTL).
16. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO KEEP ELECTRICAL ROOMS EXCLUSIVELY DEDICATED TO PANELBOARDS, SIGNAL AND OTHER ELECTRICAL EQUIPMENT. NO PLUMBING, PIPING OR MECHANICAL DUCTS SHALL RUN OVER ELECTRICAL PANEL OR OTHER ELECTRICAL EQUIPMENT PER C.E.C. 110-26(f).
17. ALL SWITCHES AND RECEPTACLES SHALL BE PROVIDED WITH 'BROTHER' LABELING SYSTEM TO IDENTIFY THE PANEL AND CIRCUIT NUMBER OF EACH OUTLET. COLOR TO BE 3/8" HIGH BLACK ON TRANSPARENT TAPE.
18. ALL CABINETS, DISCONNECT SWITCHES, PULLBOXES, AND TERMINAL BOXES SHALL BE PROVIDED WITH LABELING SYSTEM TO IDENTIFY THE PANEL AND ITS USE. SEE SPECIFICATIONS FOR REQUIREMENTS.
19. MAINTAIN "AS-BUILT" RECORDS AT ALL TIMES, SHOWING EXACT LOCATION OF ALL UNDERGROUND AND/OR CONCEALED CONDUITS AND SERVICES INSTALLED UNDER THIS CONTRACT, INCLUDING CIRCUIT IDENTIFICATION WHERE APPLICABLE. PROVIDE OWNER WITH "AS-BUILT" DOCUMENTS AS INDICATED IN THE PROJECT MANUAL.
20. DRAWINGS INDICATE THE LOCATION OF DEVICES, FIXTURES AND EQUIPMENT AND THE CIRCUIT NUMBER AND PANEL DESIGNATION WHICH SUPPLIES THEM. THE CONTRACTOR SHALL VERIFY WITH ARCHITECT/VENDORS AND COORDINATE ALL LOCATIONS PRIOR TO INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETELY CONNECTING ALL ELECTRICAL DEVICES TO CIRCUITS INDICATED ON THE DRAWINGS.
21. ALL EQUIPMENT GROUNDING SHALL CONFORM TO ARTICLE 250 OF THE NATIONAL ELECTRIC CODE, LATEST EDITION.
22. ALL EXTERIOR CONDUIT ABOVE GRADE INCLUDING ALL ROOF MOUNTED CONDUIT, SHALL BE RIGID GALVANIZED STEEL, U.O.N. COAT ALL EXPOSED THREADS WITH GALVANIZING PAINT.
23. ALL CONDUIT SHALL BE CONCEALED, UNLESS OTHERWISE NOTED.
24. ALL UNDERGROUND CONDUIT RUNS SHALL BE SEALED TO PREVENT GAS/MOISTURE ENTERING THE PIPE PER ARTICLE 230-8, 300.5 AND 300.5OE.
25. PROVIDE EXPANSION FITTINGS AND/OR CONDUIT FLEX TO CONDUITS PASSING THROUGH STRUCTURAL EXPANSION JOINT SYSTEM. VERIFY/COORDINATE WITH ARCHITECT FOR LOCATION.
26. ALL RACEWAY PASSING THROUGH EXPANSION JOINT AREA SHALL BE PROVIDED WITH EXPANSION JOINT FITTINGS AND/OR FLEX CONDUIT AS REQUIRED.
27. ALL EXTERIOR MOUNTED GFI RECEPTACLE OUTLETS TO BE PROVIDED WITH LOCKABLE COVERS, TAYMAC MX3200.
28. ALL EQUIPMENT/COMPONENTS/DEVICES INSTALLED OUTDOOR SHALL BE U.L. LISTED FOR WET LOCATION.
29. THE CONTRACTOR SHALL VERIFY WITH THE ARCHITECTURAL DRAWINGS ALL LOCATIONS AND DIMENSIONS OF DEVICES/EQUIPMENT PRIOR TO ROUGH-IN.
30. ALL DIVISION 23 EQUIPMENT LOW VOLTAGE CONTROL WIRING SHALL BE PROVIDED AND INSTALLED BY DIVISION 23 U.O.N. PROVIDE CONDUIT WHERE REQUIRED BY DIV 23.
31. ALL CONDUIT STUB OUTS AND CONDUITS TERMINATING TO A J-BOX, CABINET, AND THE LIKE SHALL BE PROVIDED WITH INSULATED THROAT. BOX OR CABINET COVER SHALL BE LABELED AS TO USE.
32. MEP COMPONENT ANCHORAGE NOTES:

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 OR MOVABLE 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 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 IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTARTE 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 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 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 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, SECTIONS 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. OSHPD 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.

ELECTRICAL SYMBOL LIST

NOTE: DASHED SYMBOLS ON PLANS DENOTE EXISTING DEVICES

	20A, 125V, 3W GROUNDING TYPE DUPLEX RECEPTACLE, +18" U.O.N.
	20A, 125V DUPLEX GFI RECEPTACLE, +18" U.O.N.
J H	JUNCTION BOX, CEILING OR WALL MOUNTED - SIZED PER CODE
	DISCONNECT SWITCH - FUSED AS REQUIRED, WEATHERPROOF FOR OUTDOORS, SIZED PER MANUFACTURER'S REQUIREMENTS
	MOTOR CONNECTION
S T	THERMAL OVERLOAD SWITCH
S M	MANUAL MOTOR STARTING SWITCH, HORSE POWER RATED WITH OVERLOADS
—— - ——	EXISTING CONDUIT
———	BRANCH CIRCUIT CONDUIT CONCEALED IN WALL OR CEILING
- - - - - -	BRANCH CIRCUIT CONDUIT CONCEALED UNDER FLOOR OR UNDERGROUND
———►	HOMERUN TO PANELBOARD OR OTHER TERMINATION POINT
———┤	STUB CONDUIT TO ACCESSIBLE SPACE
o	CONDUIT UP
•	CONDUIT DOWN
	ANY BRANCH CIRCUIT CONDUIT SHALL BE MINIMUM 3/4"C - 2#12, 1#12 GREEN GROUND UNLESS OTHERWISE NOTED. FOR A GREATER NUMBER OF #12 WIRES: (= 3/4"C - 3#12, 1#12G) ETC. FOR WIRE SIZES OTHER THAN #12: (= 3#8, 1#12G), (GROUND SIZED PER CEC, IN CODE SIZE CONDUIT) ETC. #8

(E)	EXISTING
(N)	NEW
AL	ALUMINUM
ANN	ANNUNCIATOR
CL	CENTERLINE
CR	CLASSROOM
CU	COPPER
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
MT	EMPTY CONDUIT WITH PULL CORD
PB	PULL BOX
SAD	SEE ARCHITECTURAL DRAWINGS
STC	SIGNAL TERMINAL CABINET
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS BAR
TTB	TELEPHONE TERMINAL BOARD
WP	WEATHERPROOF
UG	UNDERGROUND
U.O.N.	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
XFMR	TRANSFORMER
A 1	FIXTURE TAG - LETTER DENOTES TYPE, NUMBERS INDICATE LAMP QUANTITY AND WATTAGE
1	NUMBERED ELECTRICAL NOTE
AC 1	MECHANICAL TAG - LETTER DENOTES TYPE, NUMBER DENOTES EQUIPMENT NUMBER

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HY ARCHITECTS JOB NUMBER 6189

Facility

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Project

BLDG LA HVAC UPGRADES

Sheet Title

ELECTRICAL SYMBOLS, NOTES AND SCHEDULES

Client Project Number: XXXX

Scale:	AS NOTED
Drawn By:	DAM
Checked By:	TLK
Issue Date:	11/01/24
Revit Version:	2023

Sheet **E0.01**

GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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EXISTING WEATHERPROOF PANEL GHM

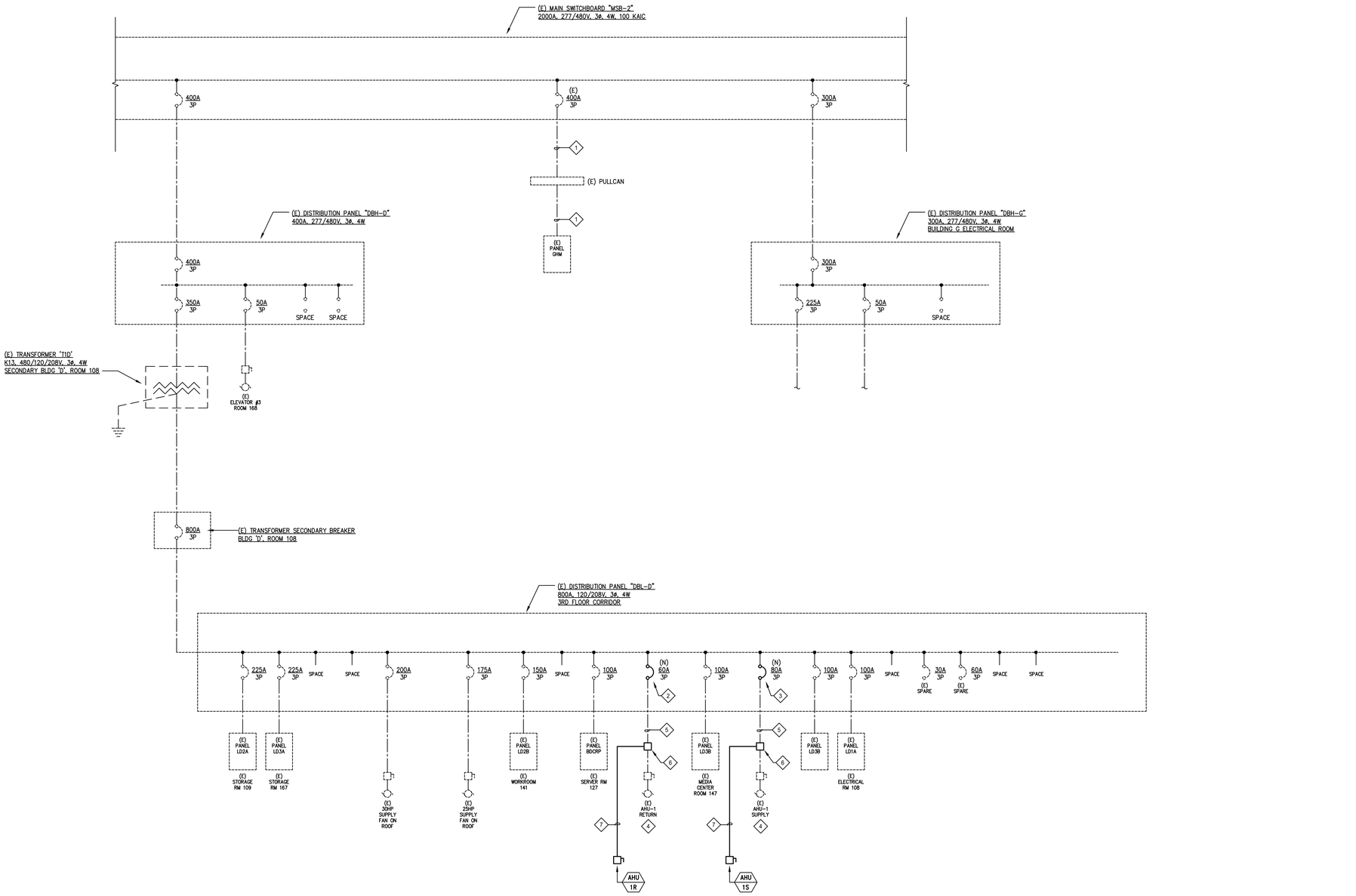
ROOF

DESCRIPTION	LOAD (KVA) LTG.	REC.	RES.	MOT.	CB	CKT	SN	CKT	CB	LOAD (KVA) LTG.	REC.	RES.	MOT.	DESCRIPTION
						1	*	2						
(E) CU-1A (39.1 MCA)				15.80	40/3	3	*	4	25/3				11.30	(E) CU-3A (22 MCA)
						5	*	6						
						7	*	8						
(E) CU-1B (36.1 MCA)				14.60	40/3	9	*	10	25/3				14.60	(E) CU-3B (32 MCA)
						11	*	12						
						13	*	14						
(E) CU-2A (39.1 MCA)				14.60	40/3	15	*	16	25/3				8.50	(E) CU-4C (28.6 MCA)
						17	*	18						
						19	*	20						
(E) CU-2B (39.1 MCA)				14.60	40/3	21	*	22	25/3				17.70	(E) CU-4B (25.9 MCA) (N) HP-4B
						23	*	24						
						25	*	26						
(E) CIRCUIT					40/3	27	*	28	35/3				14.00	(E) CU-4A (25.9 MCA)
						29	*	30						
SPACE						31	*	32						SPACE
SPACE						33	*	34						SPACE
SPACE						35	*	36						SPACE
SPACE						37	*	38						SPACE
SPACE						39	*	40						SPACE
SPACE						41	*	42						SPACE
TOTAL				59.60									66.10	

VOLTS: 277/480V,3ø,4W MTG: UNISTRUT
BUS: 400 AMP TYPE: I-LINE
MAIN: 400 AMP MB KAIC: 18
CONNECTED KVA: 125.70
CONNECTED AMPS: 151.26

SHEET NOTES

1. EXISTING 4" CONDUIT WITH 4#500 KCMIL AND 1#2 GROUND.
2. REPLACE EXISTING 100A/3P BREAKER WITH A NEW 60A/3P.
3. REPLACE EXISTING 100A/3P BREAKER WITH A NEW 80A/3P.
4. EXISTING UNIT TO BE DISCONNECTED AND REMOVED.
5. EXISTING CONDUIT AND CONDUCTORS TO REMAIN.
6. INTERCEPT EXISTING CONDUIT AND CONDUCTORS WITH NEW PULLBOX.
7. EXTEND EXISTING CONDUIT AND CONDUCTORS TO NEW DISCONNECT.
8. REPLACE EXISTING 35A/3P BREAKER WITH NEW 25A/3P BREAKER.



ONE-LINE DIAGRAM | NTS | 1

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Project

BLDG LA HVAC UPGRADES

Sheet Title

ELECTRICAL ONE-LINE DIAGRAM

Client Project Number: XXXX

Scale: AS NOTED
Drawn By: DAM
Checked By: TLK
Issue Date: 11/01/24
Revit Version: 2023

Sheet **E0.02**

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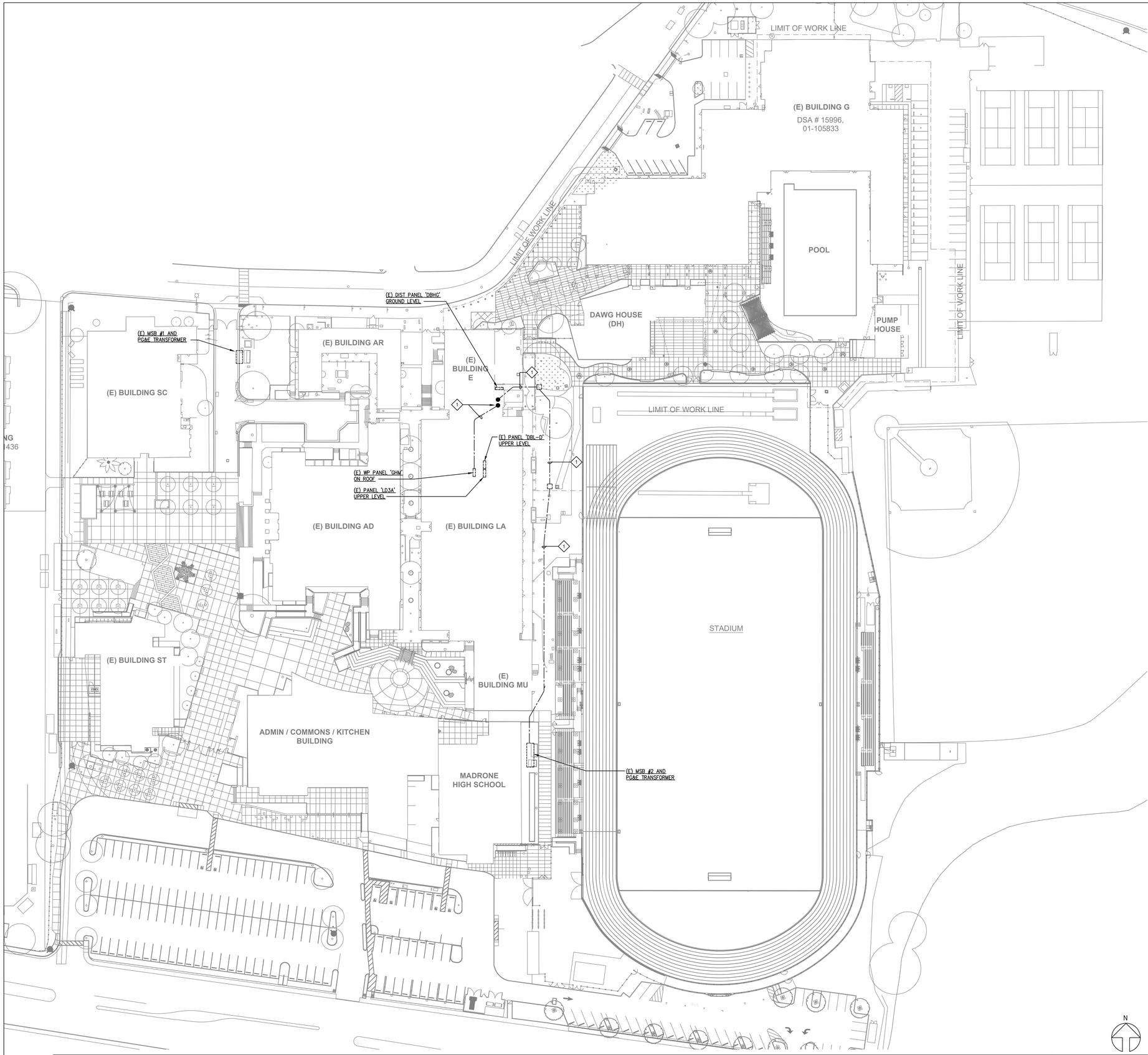

ELECTRICAL POWER SITE PLAN | 1" = 40'-0" | 1

SHEET NOTES

1. EXISTING 4" CONDUITAND FEEDERS TO PANEL 'GHM'.

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BLDG LA HVAC UPGRADES

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ELECTRICAL POWER SITE PLAN

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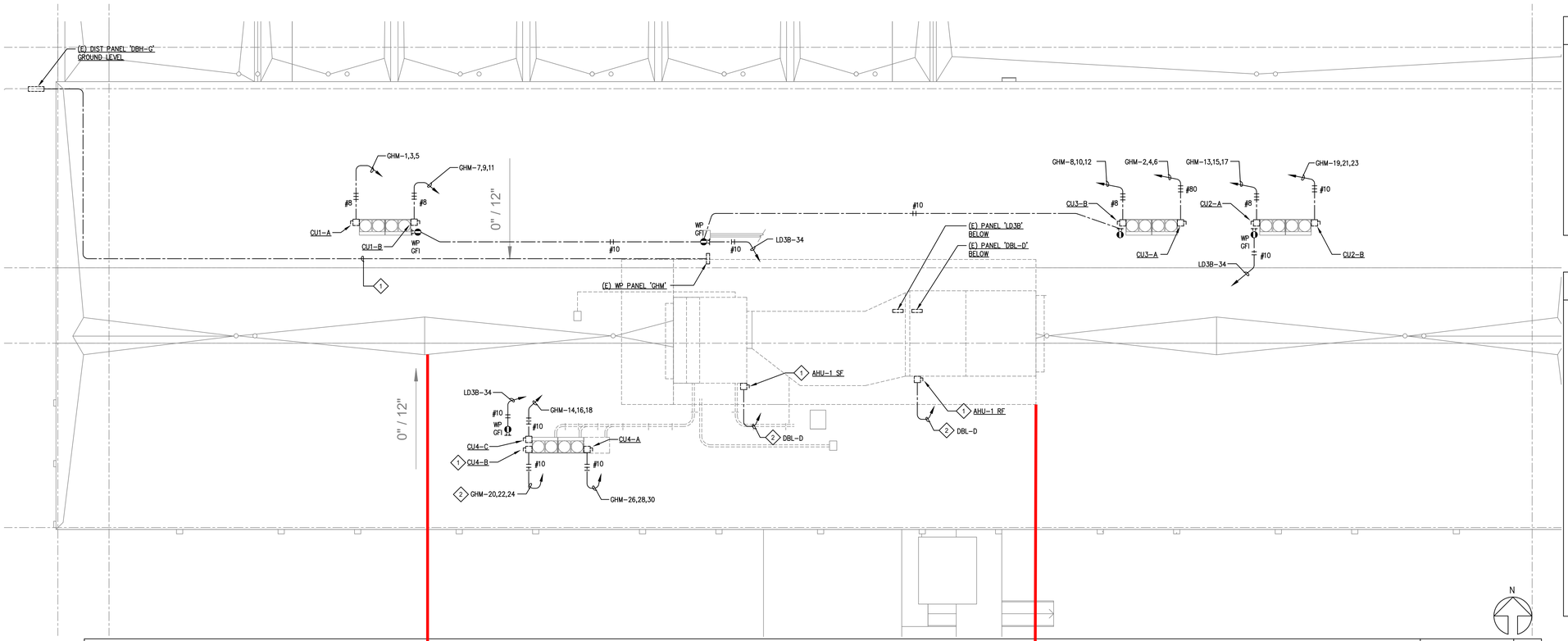
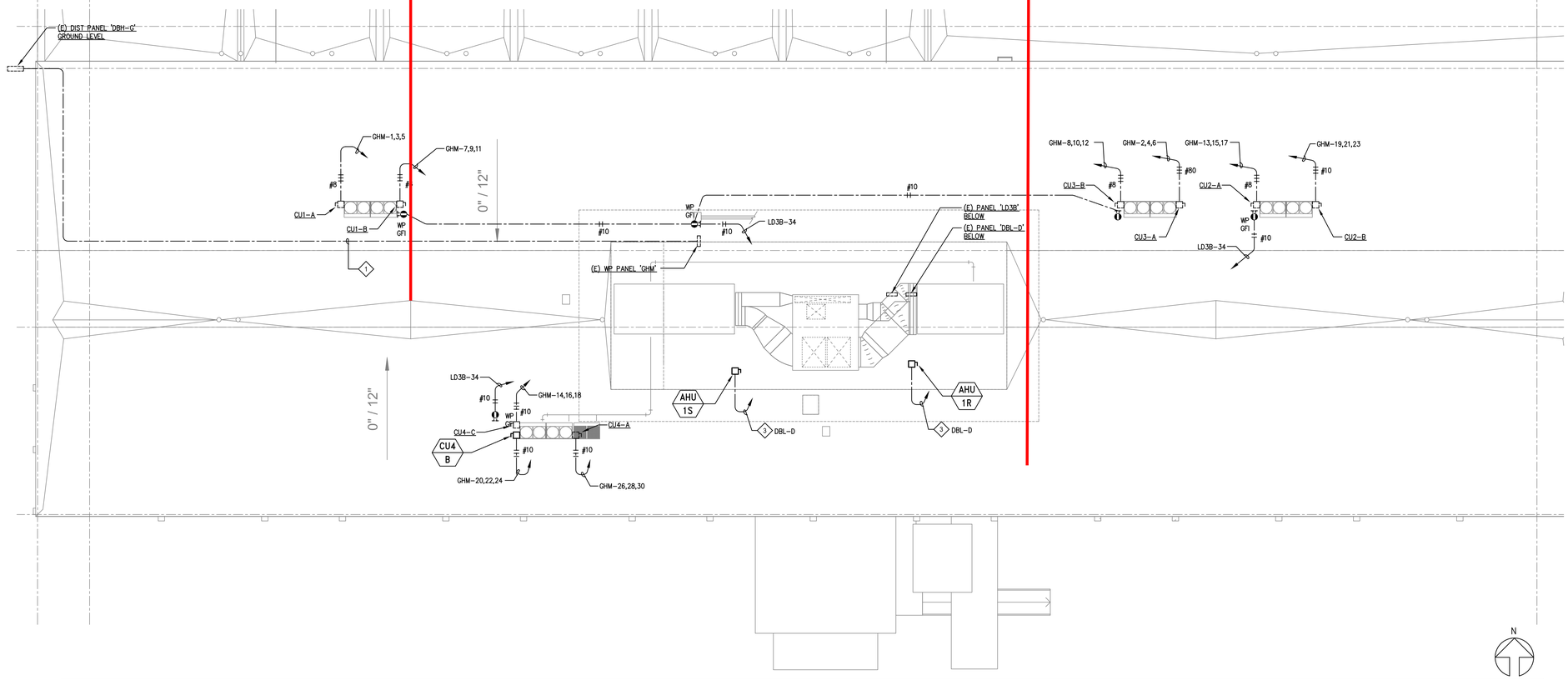


ELECTRICAL DEMOLITION POWER PLAN - ROOF | 1/8" = 1'-0" | 1



ELECTRICAL POWER PLAN - ROOF | 1/8" = 1'-0" | 2

GENERAL NOTES

1. ALL ELECTRICAL SHOWN IS TO REMAIN, UON.

SHEET NOTES

1. EXISTING DISCONNECT TO BE REPLACED WITH NEW FOR CONNECTION TO NEW UNIT.
2. EXISTING CONDUIT AND CONDUCTORS ARE TO BE INTERCEPTED AND CONNECTED TO NEW UNIT.
3. RECONNECT EXISTING CONDUIT AND CONDUCTORS.

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Project

BLDG LA HVAC UPGRADES

Sheet Title

ELECTRICAL POWER PLANS

Client Project Number: XXXX

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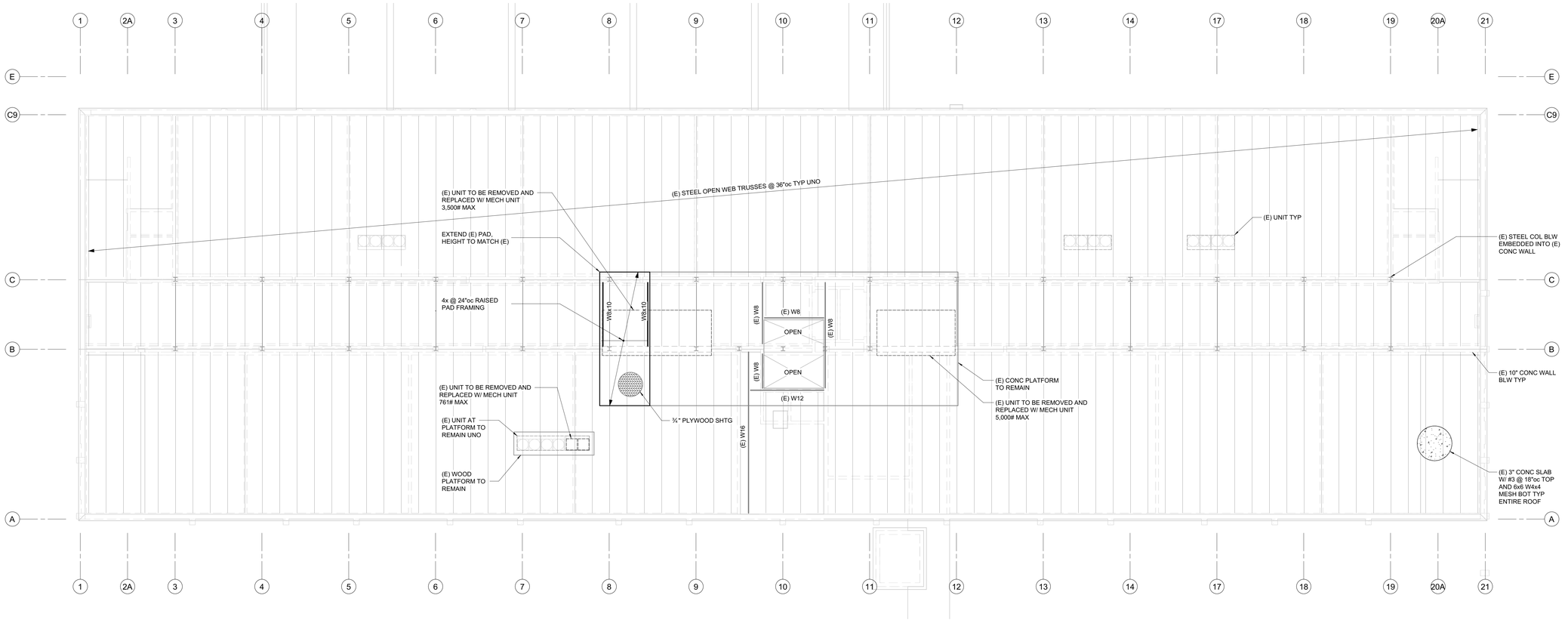

NORTH

ROOF FRAMING PLAN

1/8" = 1'-0"

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10/25/2024 10:08:36 AM

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HY Architects Project number: 24552

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BLDG LA HVAC UPGRADES

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ROOF FRAMING PLAN

Client Project Number:

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Revit Version: 2023

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S2.1

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MECHANICAL GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES, AND INDUSTRY STANDARDS.
2. VERIFY EXACT LOCATION OF ALL (E) EQUIPMENT, DUCTWORK, DIFFUSERS, REGISTERS, AND GRILLES. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN (E) SYSTEMS AND DRAWINGS.
3. COORDINATE EXACT LOCATION OF EQUIPMENT AND ALL PENETRATIONS THROUGH ROOF, FLOORS, AND WALLS WITH ARCHITECTURAL STRUCTURAL SYSTEMS PRIOR TO COMMENCING WORK.
4. COORDINATE EXACT SIZE AND ROUTING OF DUCTWORK WITH ARCHITECTURAL PLANS, STRUCTURE, AND EQUIPMENT PRIOR TO COMMENCING WORK.
5. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES.
6. FURNISH AND INSTALL MANUAL AIR DAMPERS AT ALL DUCT BRANCH TAKEOFFS TO A SINGLE DIFFUSER, GRILLE, OR REGISTER.
7. FLEXIBLE DUCTWORK CONNECTIONS TO CEILING DIFFUSERS ARE LIMITED TO 5' MAXIMUM LENGTH.
8. ALL DUCTWORK, CEILING DIFFUSERS/REGISTERS/GRILLES, EQUIPMENT, PIPING, ETC. ARE NEW U.O.N. (SHOWN HEAVY). (E) DUCTWORK, PIPING, ETC. IS SHOWN LIGHT. SEE LEGEND.
9. (E) DUCTWORK AND ITEMS TO BE REMOVED ARE SHOWN CROSSED ("X") OUT, SEE LEGEND. COORDINATE CLOSELY WITH (N) DUCTWORK AND P.O.C.'S SHOWN. ALL OTHER (E) DUCTWORK, ETC. TO REMAIN.
10. WHERE INLET DUCT DIAMETER AND DIFFUSER NECK SIZE ARE THE SAME (I.E. 9"ø AND 9x9) CONTRACTOR SHALL OVERSIZE THE SHEET METAL PLENUM TO ACCOMMODATE THE ROUND DUCT CONNECTION.
11. THERMOSTATS AND ROOM TEMPERATURE SENSORS SHALL BE INSTALLED AT +46" ABOVE FINISHED FLOOR (TO TOP OF DEVICE). DO NOT INSTALL THERMOSTATS AND ROOM TEMPERATURE SENSORS ABOVE CASEWORK, SHELVING OR OTHER OBSTRUCTIONS OVER 24" IN DEPTH AND 34" IN HEIGHT.

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, AND 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 THE 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 NEED NOT 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 DISTRIBUTION 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.

MEP DISTRIBUTION SYSTEM BRACING NOTE FOR PIPING, DUCTWORK, & ELECTRICAL CONDUIT

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7 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.126.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. THE MEP DESIGN PROFESSIONAL ENGINEER RESPONSIBLE FOR CONTENT ON THESE SHEETS HAS VERIFIED THAT THE DESIGN METHODS IDENTIFIED BELOW ARE IN ACCORDANCE WITH DSA IR 16-13.

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

MP ☒ MD ☒ PP ☒ E ☐ OPTION 1: PROJECT SPECIFIC DESIGN.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 2: DESIGN BASED ON OSHPD OPM, WITHIN PROJECT SUBMITTAL.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 3: DESIGN BASED ON OSHPD OPM, DEFERRED SUBMITTAL.

CALIFORNIA ENERGY CODE - ACCEPTANCE TESTING

1. 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.

HVAC ABBREVIATIONS

SYMBOL	DESCRIPTION
ABC	ABOVE CEILING
ABV	ABOVE
ACC DR	ACCESS DOOR
ACC P	ACCESS PANEL
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP, INCHES WATER COLUMN
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATTEN	ATTENUATORS
ATV	ACOUSTIC TURNING VANE
BD	BALANCE DAMPER
BDD	BACK DRAFT DAMPER
BHP	BRAKE HORSE POWER
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BOR	BOTTOM OF REGISTER
BTUH	BRITISH THERMAL UNITS PER HOUR
CAP	CAPACITY
CD	CONDENSATE DRAIN
CEF	CEILING EXHAUST FAN
CFH	CUBIC FEET OF GAS PER HOUR
CFM	CUBIC FEET OF AIR FLOW PER MINUTE
CHV	CHECK VALVE
CLG	CEILING
CLR	CLEAR
CONC	CONCRETE
COND	CONDENSER
CONN	CONNECT/CONNECTION
CONT	CONTINUATION
CONTR	CONTRACTOR
D	DAMPER
DGP	DATA GATHERING PANEL
DIA	DIAMETER
DL	DOOR LOUVER
DN	DOWN
DSP	DRY STAND PIPE
DB	DRY BULB
DTR	DOWN THROUGH ROOF
DWG	DRAWING
EA	EXHAUST AIR
EAD	EXHAUST AIR DAMPER
EC	EVAPORATIVE COOLER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATING
EF	EXHAUST FAN
EFF	EFFICIENCY
EH	EXHAUST HOOD
EL	ELEVATION
ELEC	ELECTRIC/ELECTRICAL
ENT	ENTERING
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EVAP	EVAPORATOR
EW	ENTERING WATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXT	EXPANSION TANK
f	CUBIC FEET OF AIR FLOW PER MINUTE
F	DEGREES FAHRENHEIT
FA	FROM ABOVE
FB	FROM BELOW
FC	FLEXIBLE CONNECTION
FCV	FLOW CONTROL VALVE
FD	FIRE DAMPER
FF	FLY FAN
FIN	FINISH
FLA	FULL LOAD AMPS
FLR	FLOOR
FPM	FEET PER MINUTE
FSD	FIRE AND SMOKE DAMPER
FT (')	FOOT OR FEET
FT^2	SQUARE FEET
FV	FACE VELOCITY
GA	GAUGE
GALV	GALVANIZED
GI	GALVANIZED IRON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HC	HEATING COIL
HDG	HEAVY DUTY GRILLE
HP	HORSE POWER
HPS	HIGH PRESSURE STEAM
HTG	HEATING
HV	HAND VALVE
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
ICF	INSTANTENEOUS CURRENT FLOW
IE	INVERT ELEVATION
IN. (")	INCH
IN^2	SQUARE INCHES
KEF	KITCHEN EXHAUST FAN
KW	KILOWATTS
LAV	LAVATORY
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LD	LOUVERED DOOR
LDB	LEAVING DRY BULB
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LVR	LOUVER
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	THOUSAND BTUs PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
OA	OUTSIDE AIR
OAD	OUTSIDE AIR DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OV	OUTLET VELOCITY
PCR	PUMPED CONDENSATE RETURN
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE/ PRESSURE REGULATING VALVE
PSI (G) (A)	POUNDS PER SQUARE INCH (GAUGE) (ABSOLUTE)
RA	RETURN AIR
RAD	RETURN AIR DAMPER
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RPM	REVOLUTIONS PER MINUTE
RLA	RATED LOAD AMPS
RV	RELIEF VENTILATOR
S & R	SUPPLY AND RETURN
SA	SUPPLY AIR
SAD	SEE ARCHITECTURAL DRAWINGS
SB	SECURITY BARS
SD	SPLITTER DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATING
SF	SUPPLY FAN
SG	STEAM GENERATOR
SK	SINK
SM	SHEET METAL
SOV	SHUT OFF VALVE
SP	STATIC PRESSURE
SPD	STATIC PRESSURE DROP
SQ FT	SQUARE FEET
SQ IN	SQUARE INCHES
SS	STAINLESS STEEL
STR	STRAINER
STRUC	STRUCTURAL
T	THERMOSTAT
TA	TO ABOVE
TB	TO BELOW
T.C.C.	TEMPERATURE CONTROL CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
TCV	TEMPERATURE CONTROL VALVE
TEMP	TEMPERATURE
TFH	THERMAL FLUID HEATER
THK	THICK
TP	TOTAL PRESSURE
TS	TEMPERATURE SENSOR
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UCD	UNDERCUT DOOR
UF	UNDERFLOOR
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UTR	UP THROUGH ROOF
V (VTR)	VENT (VENT THROUGH ROOF)
VAC	VACUUM
VD	VOLUME DAMPER
VF	VENTILATION FAN
VFC	VARIABLE FREQUENCY CONTROLLER
VLV	VALVE
VRF	VARIABLE REFRIGERANT FLOW
VSD	VARIABLE SPEED DRIVE
VV	VARIABLE AIR VOLUME CONTROLLER
VVRH	VARIABLE AIR VOLUME CONTROLLER WITH REHEAT COIL
W	WATTS
WALL MTD (R)	WALL MOUNTED (RECESSED)
WB	WET BULB
WC	WATER CLOSET
WMS	WIRE MESH SCREEN
WP	WORKING PRESSURE
WPD	WATER PRESSURE DROP FEET OF WATER COLUMN
WT	WEIGHT

DUCT LEGEND

SINGLE LINE SYMBOL	DOUBLE LINE SYMBOL	DESCRIPTION
24x12	24x12	RECTANGULAR DUCT; WIDTH x DEPTH (PLAN VIEW) DEPTH x WIDTH (SECTION VIEW)
26x14L	26x14L	ACOUSTICALLY LINED RECTANGULAR DUCT - DIMENSIONS ARE OUTSIDE
		MANUAL AIR DAMPER
R or D	R or D	RISE OR DROP DUCT IN DIRECTION OF AIR FLOW
	OR	RECTANGULAR TO RECTANGULAR TRANSISTION OR ROUND TO ROUND TRANSITION, MAX. SLOPE OF 1:3
		RECTANGULAR TO ROUND TRANSITION, MAX. SLOPE OF 1:3
	W, R, R/W = 1.5	ELBOW, RECTANGULAR, SMOOTH RADIUS, WITHOUT TURNING VANES
		SQUARE/RECTANGULAR DUCT ELBOW WITH TURNING VANES
		CONVERGING OR DIVERGING TEE, 45° ENTRY, RECTANGULAR MAIN AND BRANCH. WHEN REDUCING MAIN, SIDE OF TAKE OFF OR ENTRY BRANCH TO BE FLAT, OTHER SIDES MAX. SLOPE OF 1:3
ROUND DUCT		ROUND DUCT TAKE OFF FROM RECTANGULAR VIA SMOOTH CONVERGING BELL MOUTH
		RECTANGULAR DUCT TEE MAD'S ON THE 2 BRANCHES, THROAT SIZED FOR EQUAL PRESSURE DROP
		RECTANGULAR DUCT SPLIT MAD'S, THROAT SIZED FOR EQUAL PRESSURE DROP
		3-WAY RECTANGULAR SPLIT WITH TWO TRANSITIONAL ELBOW'S AND TRANSITIONING MAIN. DOWNSTREAM MAD'S OF THE TREE BRANCHES. THROATS SIZED FOR EQUAL PRESSURE DROP.
		FOR CONCEALED DUCT: DROP TO DIFFUSER SHALL BE FULL SIZE OF DIFFUSER NECK. IOR EXPOSED DUCT: DROP SHALL BE FULL SIZE OF OD DIFFUSER FRAME. FLANGE FOR MOUNTING DIFFUSER TURNED IN. AIR EXTRACTOR AND EQUALIZER GRID AT CONNECTION TO MAIN.
		SUPPLY AIR, SUPPLY DROP/RISE
		RETURN AIR, RETURN AIR DROP/RISE
		EXHAUST AIR, EXHAUST AIR DROP/RISE
		NEW - FLEXIBLE DUCT (ROUND)
OR		EXISTING - FLEXIBLE DUCT (ROUND)
10"Ø, 18"Ø, 12"Ø	10"Ø, 18"Ø, 12"Ø	45° REDUCING LATERAL FITTING
18"Ø, 10"Ø, 12"Ø	18"Ø, 10"Ø, 12"Ø	90° REDUCING TEE FITTING

MECHANICAL SHEET LIST

Sheet Number	Sheet Name
M0.01	MECHANICAL LEGEND AND NOTES
M0.02	MECHANICAL SCHEDULES
M2.01	MECHANICAL FLOOR PLAN - FIRST LEVEL
M2.02	MECHANICAL FLOOR PLAN - SECOND LEVEL
M2.03	MECHANICAL FLOOR PLAN - THIRD LEVEL
M2.04	MECHANICAL ROOF PLAN
M2.04D	MECHANICAL DEMOLITION ROOF PLAN
M5.01	MECHANICAL DETAILS
M5.02	MECHANICAL DETAILS
M6.01	MECHANICAL CONTROL DIAGRAMS
M7.01	MECHANICAL TITLE 24 DOCUMENTATION

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Delta	Date	Revisions	By

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capital engineering
RANCHO CORDOVA, CALIFORNIA
RC - CS/EG PM - DESIGN TEAM
240309.00 PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER — RYAN CELAYA — M 34234 EXPIRES 12/31/24 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: _____

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Project
BLDG LA HVAC UPGRADES

Sheet Title
MECHANICAL LEGEND AND NOTES

Client Project Number: 0000.0

Scale: 1" = 1'-0"
Drawn By: Author
Checked By: Checker
Issue Date: 11/01/24
Revit Version: 2023

Sheet
M0.01
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GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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AIR HANDLING UNIT SCHEDULE

UNIT	LOCATION SERVED	"DAIKIN" MODEL	CFM	FILTERS				HEAT RECOVERY COIL							ELEC HEATER			DX COIL																		FAN								ELECTRICAL			OPER. WT. (LBS.)			MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
				EFFICIENCY	MAX FACE VEL. FPM	SIZE (QTY.)	DEPTH	FLUID	QTY.	ROWS	FH (IN.)	FL (IN.)	FACE VEL. FPM	APD (IN. WG)	VOLT/PH	KW	FLA	FLUID	QTY.	ROWS	FPI	FH (IN.)	FL (IN.)	CFM	FACE VEL. FPM	APD (IN. WG)	SENS. COOLING CAP. (MBH)	TOTAL COOLING CAP. (MBH)	CLG. EDB (°F)	CLG. EWB (°F)	CLG. LDB (°F)	TOTAL HEATING CAP. (MBH)	HTG. EDB (°F)	HTG. LDB (°F)	QTY.	HP	BHP	CFM	ESP (IN. W.G.)	TSP (IN. W.G.)	FAN RPM	MAX. RPM	VOLT/PH	MCA	MOCP	UNIT	ROOF CURB	TOTAL			
AHU 1S	BUILDING LA	OAH039GVCM	18,830	MERV 13	370	24x24 (15)	4	R410A	2	10	36	73	520	1.0	480/3	71.6	86.4	CKT A	1	4	6	22	73	5,640	505	0.29	--	144.1	96.0	71.0	74.0	138.0	50.0	70.0	4	6.6 EA.	4.95 EA.	4,708 EA.	2.0	4.44	2,410 EA.	2,600 EA.	208/3	67.2	80	4,615	420	5,035	4 M5.02	3 M6.01	1 2 3
																		CKT B	1	4	6	22	73	5,640	505	0.29	--	144.1	96.0	71.0	74.0	138.0	50.0	70.0																			
																		CKT C	1	4	6	22	73	7,520	530	0.32	--	168.0	96.0	71.0	74.0	145.7	50.0	70.0																			
AHU 1R	BUILDING LA	OAH039GVCM	17,750	MERV 13	370	24x24 (15)	4	R410A	2	10	36	73	490	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	6.6 EA.	4.65 EA.	5,917 EA.	1.5	2.89	2,390 EA.	2,600 EA.	208/3	51.4	60	3,465	340	3,805	4 M5.02	4 M6.01	1 3

NOTES:

1. UNITS SELECTED AT 96 F DB / 71 F WB SUMMER AMBIENT, 30 F DB WINTER AMBIENT AIR TEMPERATURES. COOLING CAPACITIES SCHEDULED ARE NET SENSIBLE & NET TOTAL CAPACITIES.
2. PROVIDE SEPARATE 480V/3PH POWER CONNECTION FOR ELECTRIC HEATER, 208V/3PH CONNECTION FOR FANS.
3. HEAT RECOVERY COIL SHALL HAVE SHUTDOWN CAPABILITY FOR ECONOMIZER OPERATION, BY BMS.

HEAT PUMP UNIT SCHEDULE

UNIT	LOCATION	"DAIKIN" MODEL NO.	COOL (BTUH)	HEAT (BTUH)	ELECTRICAL DATA			EER (IEER)	COP	OPER. WT. (LBS.)	MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
					VOLT/PH	MCA	MOCP						
HP 4B	ROOF	RXYQ144AAYDB	144,000	162,000	460/3	21.3	25	11.0 (21.8)	3.3	765	1 M5.02	2 M6.01	1

NOTES:

1. R410 REFRIGERANT.
2. COOLING CAPACITY RATED AT 80 DEG. F DB / 67 DEG. F WB INDOOR AIR AND 95 DEG. F DB OUTDOOR AIR.
3. HEATING CAPACITY IS RATED AT 70 DEG. F DB / 60 DEG. F WB INDOOR AIR AND 47 DEG. F DB OUTDOOR AIR.

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Project

BLDG LA HVAC UPGRADES

Sheet Title

MECHANICAL SCHEDULES

Client Project Number: 0000.0

Scale: 12" = 1'-0"
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Sheet

M0.02

Sheet of 200

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GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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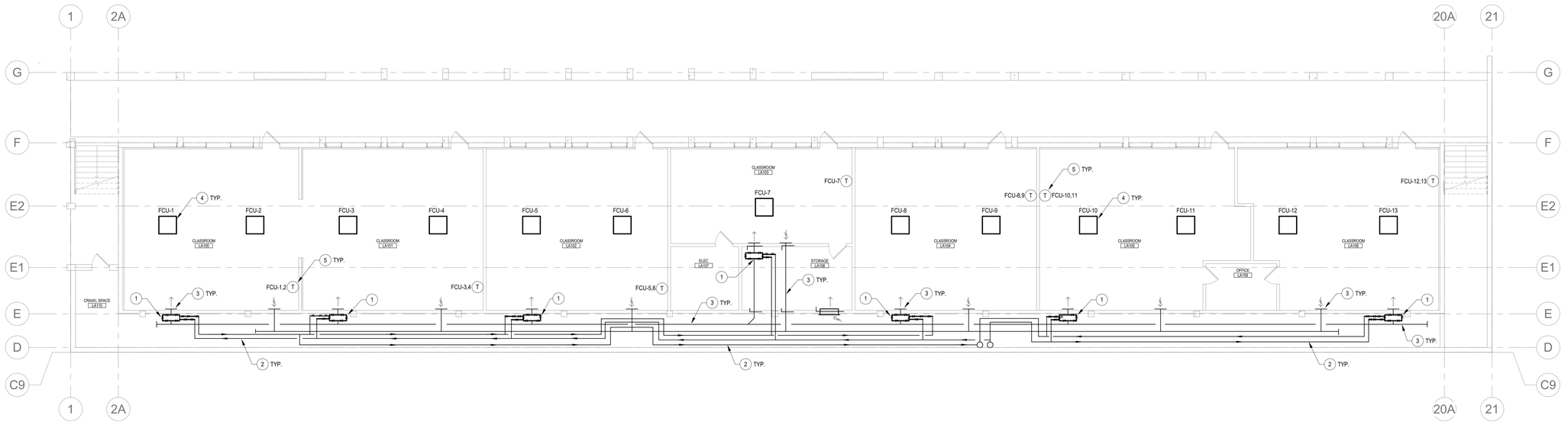
KEYNOTES:

1. REMOVE EXISTING HEATING COIL AND HHW PIPING CONNETIONS. PROVIDE NEW DUCTWORK TO REPLACE HEATING COIL AND SEAL AIRTIGHT. REFER TO DETAIL 1/M5.01 FOR ADDITIONAL INFORMATION.
2. EXISTING HHW PIPING TO BE ABANDONED IN PLACE. DRAIN PIPING DURING REMOVAL OF THE HEATING COILS.
3. EXISTING SUPPLY/RETURN DUCTWORK, DIFFUSERS AND GRILLES TO REMAIN, TYP.
4. EXISTING VRF FAN COIL TO REMAIN, TYP.
5. EXISTING THERMOSTAT TO REMAIN, TYP.

SHEET NOTES:

1) THE EXISTING HVAC DESIGN HAS BEEN BASED ON RECORD DRAWINGS AND SITE OBSERVATIONS. CONTRACTOR SHALL PERFORM INVESTIGATION OF THE EXISTING CONDITIONS PRIOR TO INSTALLATION OF NEW WORK. CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF EXISTING CONDITIONS THAT MAY NOT ALLOW INSTALLATION OF NEW WORK AS SHOWN.
2) EXISTING EQUIPMENT, DUCTWORK, PIPING, COMPONENTS, ETC. ARE SHOWN DIAGRAMMATICALLY AND ARE NOT EXACTLY AS SHOWN ON PLANS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK, RECORD THE EXISTING CONDITIONS IN "COORDINATED LAYOUTS" REQUIRED BY SPECIFICATION SECTION 238000, AND MAKE ANY ADJUSTMENTS NECESSARY TO COMPLETE THE DESCRIBED SCOPE OF WORK. CONTRACTOR SHALL MAKE ALLOWANCE IN BID FOR THIS REQUIREMENT.



1 MECHANICAL FLOOR PLAN - FIRST LEVEL

1 / M2.01

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

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310 NOVA ALBION WAY
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TEL: 415.492.3200 FAX: 415.492.3229

#	Revisions		
Delta	Date	Revisions	By

NOT FOR CONSTRUCTION

100% DESIGN DEVELOPMENT

capital engineering
RANCHO CORDOVA, CALIFORNIA
RC - CS/EG — PM - DESIGN TEAM
240309.00 — PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER — RYAN CELAYA — M 34234 — EXPIRES 12/31/24 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED:

HIBSER YAMAUCHI Architects, Inc.
300 – 27th Street
Oakland, CA 94612
510.446.2222 tel ¦ 510.446.2211 fax

HY Architects Project number: 6189

Facility

SAN RAFAEL HIGH SCHOOL
150 3RD STREET, SAN RAFAEL, CA 94901

Project

BLDG LA HVAC UPGRADES

Sheet Title

MECHANICAL FLOOR PLAN - FIRST LEVEL

Client Project Number: 0000.0

Scale: 1/8" = 1'-0"	Sheet
Drawn By: Author	M2.01
Checked By: Checker	
Issue Date: 11/01/24	
Revit Version: 2023	Sheet of 200

GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

IF THIS SHEET IS NOT 30"x42" , IT IS A REDUCED PRINT SCALE ACCORDINGLY

KEYNOTES:

1. REMOVE EXISTING HEATING COIL AND HHW PIPING CONNETIONS. PROVIDE NEW DUCTWORK TO REPLACE HEATING COIL AND SEAL AIRTIGHT. REFER TO DETAIL 1/M5.01 FOR ADDITIONAL INFORMATION.
2. EXISTING HHW PIPING TO BE ABANDONED IN PLACE. DRAIN PIPING DURING REMOVAL OF THE HEATING COILS.
3. EXISTING SUPPLY/RETURN DUCTWORK, DIFFUSERS AND GRILLES TO REMAIN, TYP.
4. EXISTING VRF FAN COIL TO REMAIN, TYP.
5. EXISTING THERMOSTAT TO REMAIN, TYP.

SHEET NOTES:

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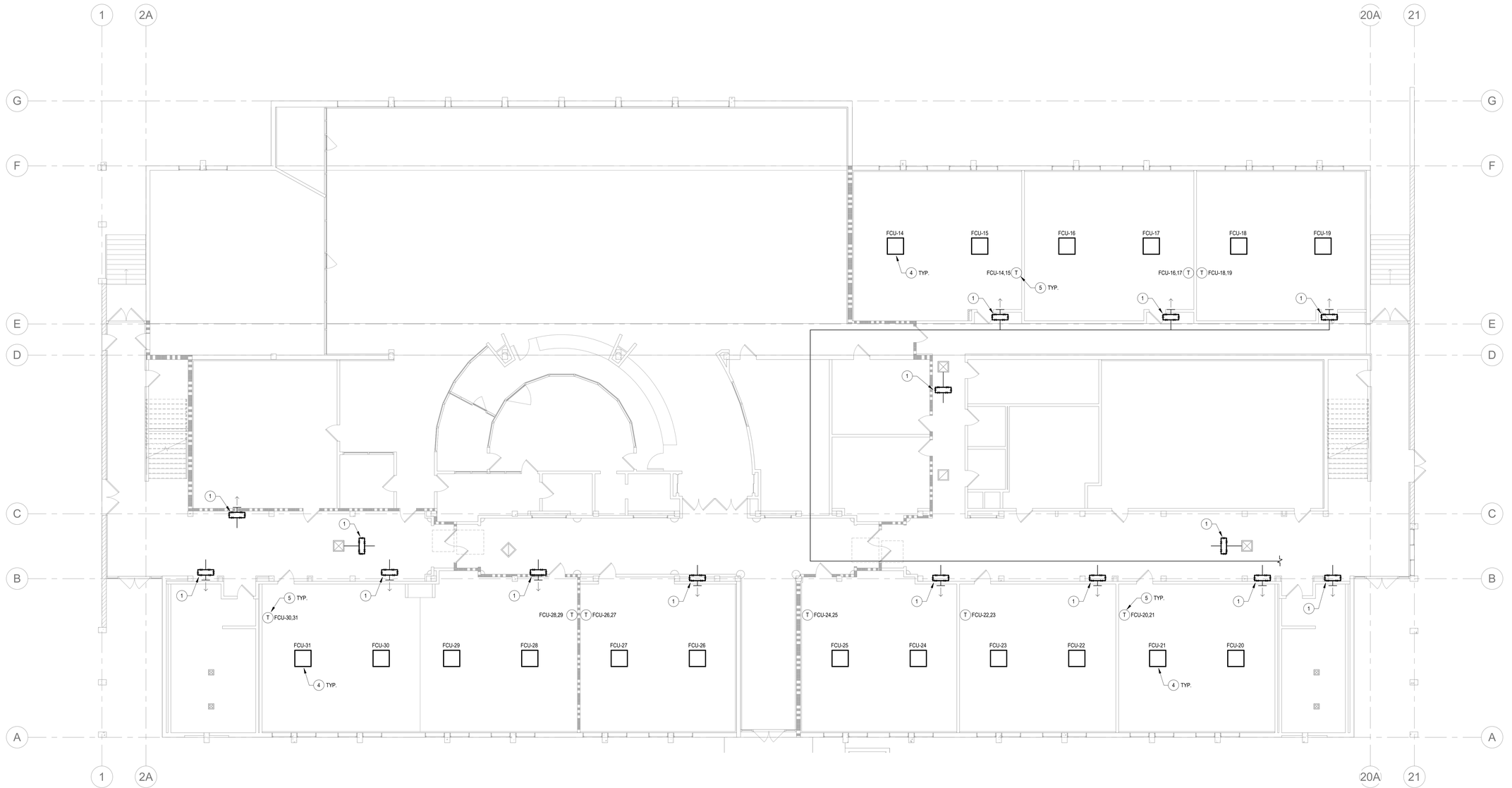

1 M2.02 MECHANICAL FLOOR PLAN - SECOND LEVEL

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

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Project

BLDG LA HVAC UPGRADES

Sheet Title

MECHANICAL FLOOR PLAN - SECOND LEVEL

Client Project Number: 0000.0

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Sheet **M2.02**

Sheet of 200

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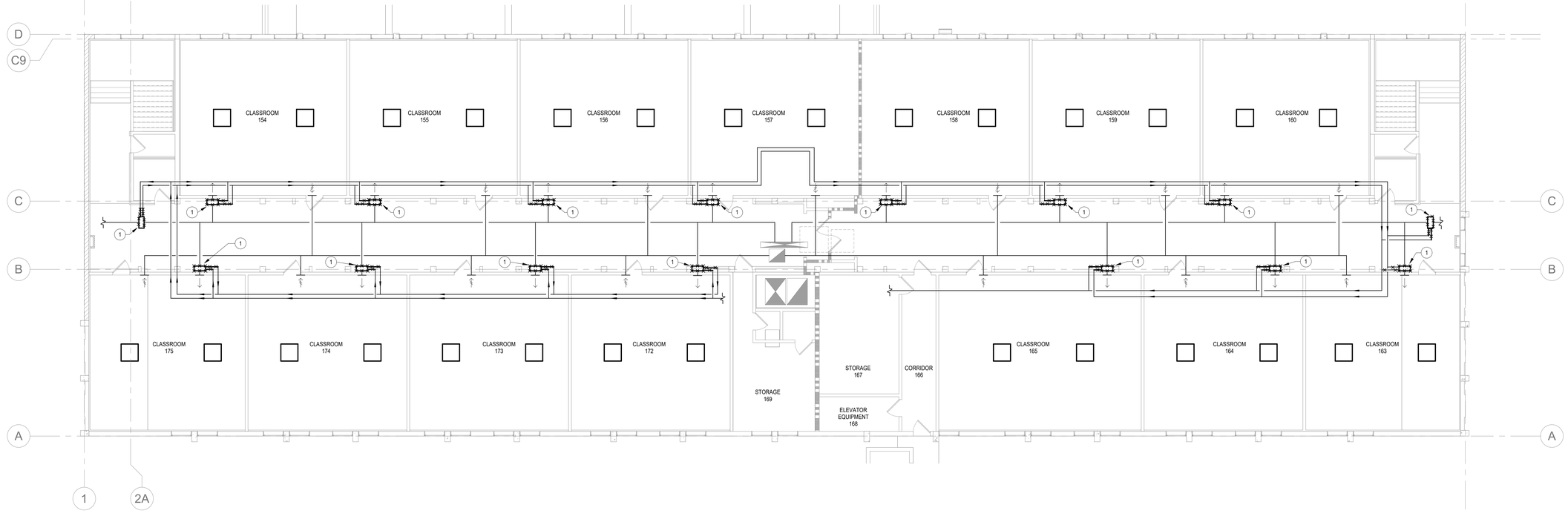

1 / M2.03 MECHANICAL FLOOR PLAN - THIRD LEVEL
SCALE: 1/8" = 1'-0"

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RC - CS/EG PM - DESIGN TEAM | 240309.00 PROJECT NO.

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HY Architects Project number: 6189

Facility
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150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
MECHANICAL FLOOR PLAN - THIRD LEVEL

Client Project Number: 0000.0

Scale: 1/8" = 1'-0"
Drawn By: Author
Checked By: Checker
Issue Date: 11/01/24
Revit Version: 2023

Sheet **M2.03**
Sheet of 200

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KEYNOTES:

(1) XXXX

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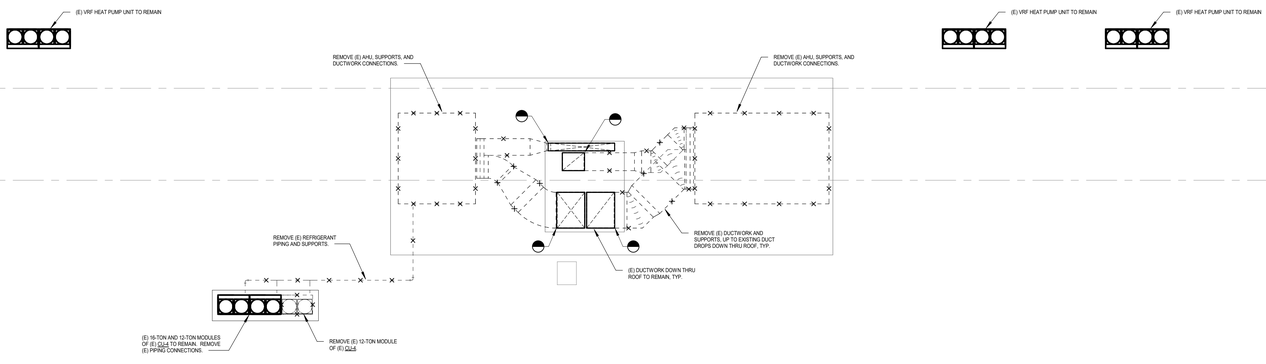

1 M2.04D HVAC DEMOLITION ROOF PLAN

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

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Project

BLDG LA HVAC UPGRADES

Sheet Title

MECHANICAL DEMOLITION ROOF PLAN

Client Project Number: 0000.0

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Revit Version: 2023

Sheet **M2.04D**

Sheet of 200

0 5' 50'
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KEYNOTES:

(1) XXXX

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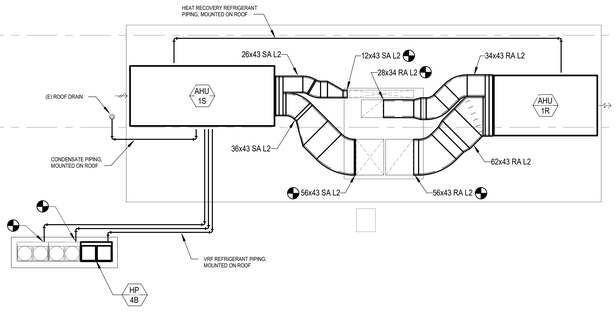

1 / M2.04 MECHANICAL ROOF PLAN
SCALE: 1/8" = 1'-0"

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150 3RD STREET, SAN RAFAEL, CA 94901

Project
BLDG LA HVAC UPGRADES

Sheet Title
MECHANICAL ROOF PLAN

Client Project Number: 0000.0

Scale: 1/8" = 1'-0"
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Sheet
M2.04
Sheet of 200

0 5' 50' GRAPHIC SCALES: 1/16" = 1'-0"

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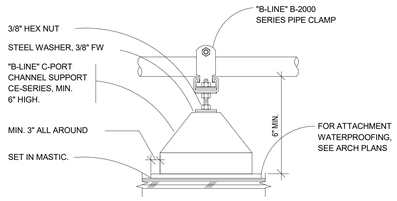
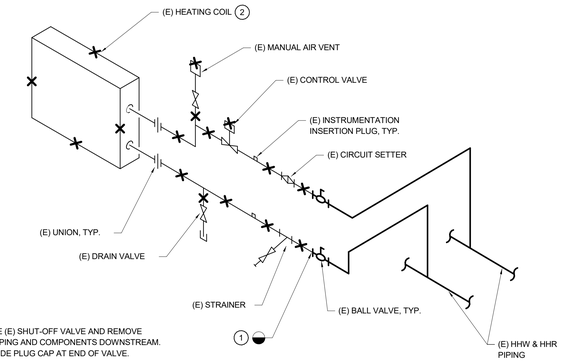


	2022 CPC TABLE 1210.2.4.1 SUPPORT OF PIPING		NFPA 54:7.2.5.1 TABLE 7.2.5.2 SUPPORT OF PIPING
STEEL PIPE, NOMINAL SIZE OF PIPE (IN.)	SPACING OF SUPPORTS (FT.)	NOMINAL SIZE OF TUBING SMOOTH-WALL (IN. O.D.)	SPACING OF SUPPORTS (FT.)
1/2	6	1/2	4
3/4 OR 1	8	5/8 OR 3/4	6
1 1/4 OR LARGER (HORZ.)	10	7/8 OR 1 (HORZ.)	8
1 1/4 OR LARGER (VERT.)	EVERY FLOOR LEVEL	1 OR LAGER (VERT.)	EVERY FLOOR LEVEL

CONDENSATE SUPPORT DETAIL

SCALE : NONE

3 M5.01



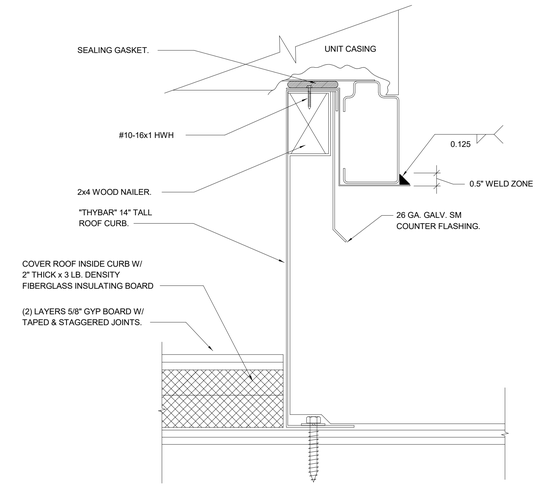
NOTES:

1. CLOSE (E) SHUT-OFF VALVE AND REMOVE ALL PIPING AND COMPONENTS DOWNSTREAM. PROVIDE PLUG CAP AT END OF VALVE.
2. REMOVE (E) HEATING COIL AND REPLACE W/ (N) DUCTWORK. MATCH DUCTWORK SIZE TO EXISTING CONNECTION SIZE.

HEATING COIL REPLACEMENT DETAIL

SCALE : NONE

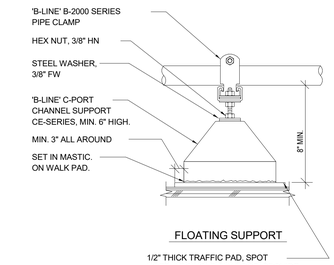
1 M5.01



AIR HANDLING UNIT SUPPORT DETAIL

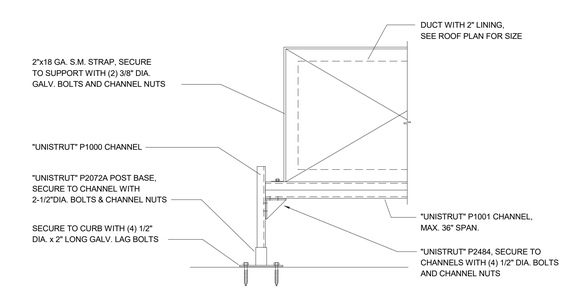
SCALE : NONE

4 M5.01



FLOATING SUPPORT

1/2" THICK TRAFFIC PAD, SPOT
NOTE: AT SINGLE-PLY ROOF, PROVIDE ROOFING MFRS ACCEPTABLE PAD

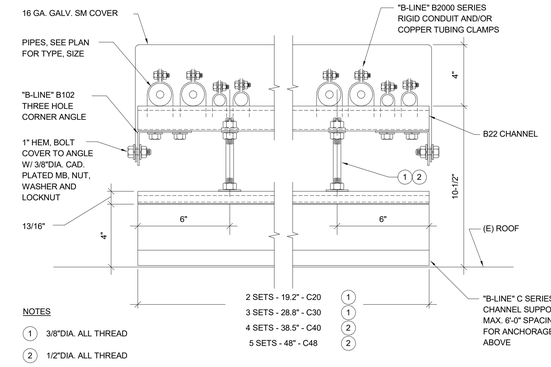


NOTES: 1) SUPPORTS SHALL BE SPACED AT 8'-0" MAXIMUM AND WITHIN 12" OF ANY CHANGE IN DIRECTION.
2) TOP OF SUPPORT SHALL BE BETWEEN 8" TO 18" ABOVE ROOF.

DUCT SUPPORT ON ROOF

SCALE : NONE

5 M5.01



NOTES

1. 3/8"DIA. ALL THREAD
2. 1/2"DIA. ALL THREAD
3. SINGLE SET = 1 RL, 1 RS, & 1 CONTROL CONDUIT
4. ALL EXPOSED METAL PARTS INCLUDING SHEET METAL COVER SHALL BE PRIMED AND PAINTED TO MATCH ROOF SURFACE

2 SETS - 19.2" - C20	1	1
3 SETS - 28.8" - C30	1	1
4 SETS - 38.5" - C40	2	2
5 SETS - 48" - C48	2	

REFRIGERANT PIPE SUPPORT ON ROOF

SCALE : NONE

2 M5.01

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Project

BLDG LA HVAC UPGRADES

Sheet Title

MECHANICAL DETAILS

Client Project Number: 0000.0

Scale: 12" = 1'-0"
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Sheet of 200

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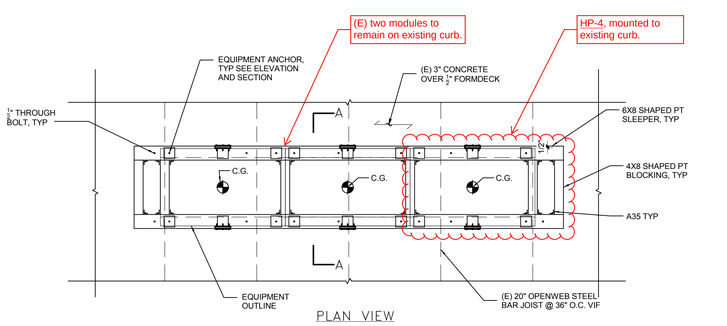

VRF HEAT PUMP MOUNTING DETAIL

SCALE : NONE

1
M5.02

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- EXV KIT CONTROLLED BY ODU
- 0-10V ECM FAN CONTROL (BY BAS CONTRACTOR)
- ECONOMIZER LOGIC (BY BAS CONTRACTOR)
- HEAT PIPE ECONOMIZER MULTIPLE RELAY INPUT (BY BAS CONTROLLER) (STAGED ECONOMIZATION VIA HEAT RECOVERY COIL SHUTDOWN)
- ELECTRIC HEAT SCR 0-10V CONTROL (BY BAS CONTROLLER)
- SHUTOFF DAMPER ACTUATORS AND CONTROL (BY BAS CONTROLLER)

SUPPLY AHU CONTROL DIAGRAM

SCALE : NONE

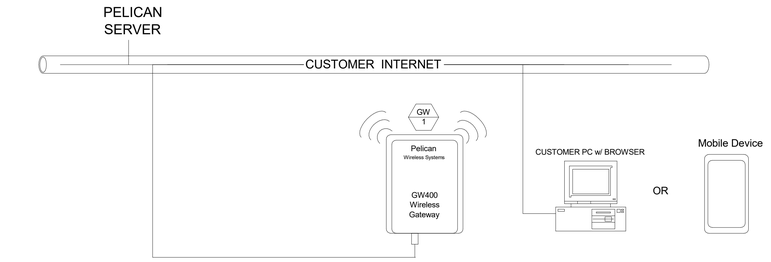
3
M6.01

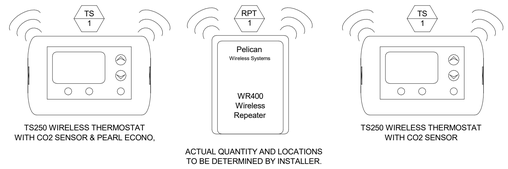
- 0-10V ECM FAN SPEED CONTROL (BY BAS CONTROLLER)
- SHUTOFF DAMPER ACTUATORS AND CONTROL (BY BAS CONTROLLER)

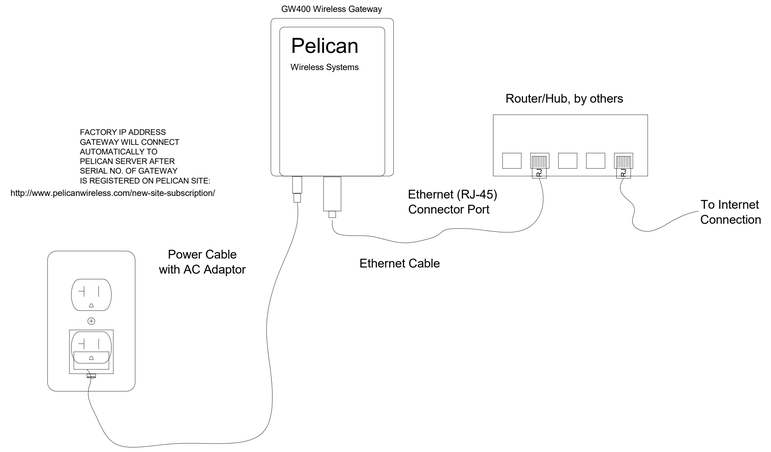
RETURN AHU CONTROL DIAGRAM

SCALE : NONE

4
M6.01







PELICAN WIRELESS LAN LAYOUT

SCALE : NONE

1
M6.01

HEAT PUMP UNITS

- DAISY CHAIN COMMUNICATION FROM EXISTING ODU TO NEW ODU
- VERIFY EXISTING COMM CONNECTION TO ITOUCH CONTROLLER (BAS CONTACTOR)
- 3X 0-10V INPUT CAPACITY SIGNAL, ONE PER CIRCUIT (FROM BAS CONTROLLER)
- HEAT/COOL INPUT (FROM BAS CONTROLLER)
- ENABLE DISABLE INPUT. (FROM BAS CONTROLLER)
- INTEGRATION TO ITOUCH TO BE READ ONLY. (BY BAS CONTRACTOR)
- BASIC WIRING DIAGRAM ATTACHED.

DAIKIN I-TOUCH MANAGER

- NEW BACNET LICENSE KEY (PROVIDED BY NSW)
- CONNECT TO BAS LAN NETWORK (ETHERNET BY BAS CONTRACTOR)
- CONFIGURE BAS BACNET INTERFACE WITH ITOUCH TO ALLOW CONTROL OF ALL CONNECTED FCUS (BY BAS CONTRACTOR)
- CONFIGURE DOAS ODU TO ALLOW CONTROL FROM ITOUCH AND BAS (BY BAS CONTRACTOR)
- CONFIGURE DOAS ODU DEFROST CONTROL TO ONLY ALLOW ONE ODU AT A TIME TO PERFORM DEFROST.

HEAT PUMP UNIT CONTROL DIAGRAM

SCALE : NONE

2
M6.01

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#	Revisions		
Delta	Date	Revisions	By

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capital engineering
RANCHO CORDOVA, CALIFORNIA

RC - CS/EG — PM - DESIGN TEAM
240309.00 — PROJECT NO.

REGISTERED PROFESSIONAL ENGINEER
RYAN CELAYA
M 34234
EXPIRES 12/31/24
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED

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HY Architects Project number: 6189

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Project
BLDG LA HVAC UPGRADES

Sheet Title
MECHANICAL CONTROL DIAGRAMS

Client Project Number: 0000.0

Scale: 12" = 1'-0"
Drawn By: Author
Checked By: Checker
Issue Date: 11/01/24
Revit Version: 2023

Sheet
M6.01
Sheet of 200

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GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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GENERAL ELECTRICAL NOTES

1. ELECTRICAL CONTRACTOR IS TO PROVIDE LABOR, MATERIALS, TRANSPORTATION, EQUIPMENT, RELATED HAND TOOLS, SPECIAL AND OCCASIONAL SERVICES TO CONSTRUCT AND INSTALL THE COMPLETE ELECTRICAL SYSTEM AS SPECIFIED AND SHOWN ON THE PLANS.
2. MOUNTING HEIGHTS SHALL BE A MAXIMUM +48" TO TOP OF BOX OR MINIMUM 15" TO BOTTOM OF BOX PER CBC 1142A. ALL MOUNTING HEIGHTS SHALL BE AS SHOWN ON SYMBOL LIST UNLESS OTHERWISE NOTED ON DRAWINGS.
3. BONDING JUMPERS SHALL BE INSTALLED TO INSURE CONTINUITY WHERE CONDUIT CONNECTIONS AT CONCENTRIC KNOCKOUTS ARE TO SERVE AS A GROUND.
4. PROVIDE GREEN THWN COPPER GROUND WIRE FROM PANELBOARD GROUND BUS TO ALL BRANCH CIRCUITS.
5. THE ELECTRICIAN SHALL CHECK THE TIGHTNESS OF ALL PANELBOARD BUSES AND CIRCUIT BREAKER LUGS. COMPLETELY VACUUM AND CLEAN INTERIOR OF EQUIPMENT PRIOR TO TURN OVER TO THE OWNER.
6. ALL NEW AND EXISTING PANELBOARDS AND SWITCHBOARDS SHALL BE PROVIDED WITH NEW TYPEWRITTEN DIRECTORIES TO IDENTIFY THE LOCATION OF EACH LOAD SERVED.
7. ALL EQUIPMENT SHALL BE U.L. LISTED AND INSTALLED AS PER LISTING OR LABELING (I.E. MAX. FUSE SIZES MEAN FUSE PROTECTION REQUIRED).
8. CONTRACTOR TO COORDINATE ALL NEW WORK WITH ALL OTHER TRADES FOR A SMOOTH FLOW OF INSTALLATION WORK.
9. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO ALL WALLS, FLOORS AND CEILINGS INCURRED DURING ELECTRICAL CONSTRUCTION. IF DAMAGE OCCURS DURING ELECTRICAL CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR TO PATCH, PAINT AND REPAIR TO MATCH EXISTING CONDITIONS.
10. COORDINATE EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT REQUIRING ELECTRICAL HOOK-UP WITH CONTRACTOR RESPONSIBLE FOR PROVIDING EQUIPMENT AND EQUIPMENT MANUFACTURER DATA SHEETS.
11. ALL CORRIDOR AND EXTERIOR WALL PENETRATIONS FOR PIPES, CONDUITS, ETC., IN WALLS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. FIRE STOP MATERIAL SHALL BE A TESTED ASSEMBLY APPROVED BY THE CALIFORNIA STATE FIRE MARSHAL.
12. ELECTRICAL CONTRACTOR SHALL REVIEW MECHANICAL AND PLUMBING CONTRACT DRAWINGS AND VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS, MOTOR SIZES AND CONTROL WIRING REQUIREMENTS WITH MECHANICAL CONTRACTOR AND MECHANICAL EQUIPMENT SUPPLIERS AND MANUFACTURERS PRIOR TO INSTALLATION OF ELECTRICAL CONNECTIONS.
13. ALL CONTROL DEVICES TO BE USED BY THE OCCUPANT OF THE ROOM OR AREA SHALL BE INSTALLED AT A MINIMUM OF 36" C/L, TO A MAXIMUM OF 48" TO TOP OF BOX FROM THE FINISHED FLOOR.
14. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND ALTHOUGH THE SIZE AND LOCATIONS OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE, CONTRACTOR SHALL MAKE USE OF MANUFACTURER'S OR OWNER'S DATA AVAILABLE AND/OR VERIFY DATA IN THE FIELD FOR PROVIDING AND INSTALLING CORRECT CABLE LENGTHS.
15. ALL EQUIPMENT MUST BE LISTED, LABELED, OR CERTIFIED BY A NATIONAL RECOGNIZED TESTING LABORATORY (NRTL).
16. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO KEEP ELECTRICAL ROOMS EXCLUSIVELY DEDICATED TO PANELBOARDS, SIGNAL AND OTHER ELECTRICAL EQUIPMENT. NO PLUMBING, PIPING OR MECHANICAL DUCTS SHALL RUN OVER ELECTRICAL PANEL OR OTHER ELECTRICAL EQUIPMENT PER C.E.C. 110-26(f).
17. ALL SWITCHES AND RECEPTACLES SHALL BE PROVIDED WITH 'BROTHER' LABELING SYSTEM TO IDENTIFY THE PANEL AND CIRCUIT NUMBER OF EACH OUTLET. COLOR TO BE 3/8" HIGH BLACK ON TRANSPARENT TAPE.
18. ALL CABINETS, DISCONNECT SWITCHES, PULLBOXES, AND TERMINAL BOXES SHALL BE PROVIDED WITH LABELING SYSTEM TO IDENTIFY THE PANEL AND ITS USE. SEE SPECIFICATIONS FOR REQUIREMENTS.
19. MAINTAIN "AS-BUILT" RECORDS AT ALL TIMES, SHOWING EXACT LOCATION OF ALL UNDERGROUND AND/OR CONCEALED CONDUITS AND SERVICES INSTALLED UNDER THIS CONTRACT, INCLUDING CIRCUIT IDENTIFICATION WHERE APPLICABLE. PROVIDE OWNER WITH "AS-BUILT" DOCUMENTS AS INDICATED IN THE PROJECT MANUAL.
20. DRAWINGS INDICATE THE LOCATION OF DEVICES, FIXTURES AND EQUIPMENT AND THE CIRCUIT NUMBER AND PANEL DESIGNATION WHICH SUPPLIES THEM. THE CONTRACTOR SHALL VERIFY WITH ARCHITECT/VENDORS AND COORDINATE ALL LOCATIONS PRIOR TO INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETELY CONNECTING ALL ELECTRICAL DEVICES TO CIRCUITS INDICATED ON THE DRAWINGS.
21. ALL EQUIPMENT GROUNDING SHALL CONFORM TO ARTICLE 250 OF THE NATIONAL ELECTRIC CODE, LATEST EDITION.
22. ALL EXTERIOR CONDUIT ABOVE GRADE INCLUDING ALL ROOF MOUNTED CONDUIT, SHALL BE RIGID GALVANIZED STEEL, U.O.N. COAT ALL EXPOSED THREADS WITH GALVANIZING PAINT.
23. ALL CONDUIT SHALL BE CONCEALED, UNLESS OTHERWISE NOTED.
24. ALL UNDERGROUND CONDUIT RUNS SHALL BE SEALED TO PREVENT GAS/MOISTURE ENTERING THE PIPE PER ARTICLE 230-8, 300.5 AND 300.5OE.
25. PROVIDE EXPANSION FITTINGS AND/OR CONDUIT FLEX TO CONDUITS PASSING THROUGH STRUCTURAL EXPANSION JOINT SYSTEM. VERIFY/COORDINATE WITH ARCHITECT FOR LOCATION.
26. ALL RACEWAY PASSING THROUGH EXPANSION JOINT AREA SHALL BE PROVIDED WITH EXPANSION JOINT FITTINGS AND/OR FLEX CONDUIT AS REQUIRED.
27. ALL EXTERIOR MOUNTED GFI RECEPTACLE OUTLETS TO BE PROVIDED WITH LOCKABLE COVERS, TAYMAC MX3200.
28. ALL EQUIPMENT/COMPONENTS/DEVICES INSTALLED OUTDOOR SHALL BE U.L. LISTED FOR WET LOCATION.
29. THE CONTRACTOR SHALL VERIFY WITH THE ARCHITECTURAL DRAWINGS ALL LOCATIONS AND DIMENSIONS OF DEVICES/EQUIPMENT PRIOR TO ROUGH-IN.
30. ALL DIVISION 23 EQUIPMENT LOW VOLTAGE CONTROL WIRING SHALL BE PROVIDED AND INSTALLED BY DIVISION 23 U.O.N. PROVIDE CONDUIT WHERE REQUIRED BY DIV 23.
31. ALL CONDUIT STUB OUTS AND CONDUITS TERMINATING TO A J-BOX, CABINET, AND THE LIKE SHALL BE PROVIDED WITH INSULATED THROAT. BOX OR CABINET COVER SHALL BE LABELED AS TO USE.
32. MEP COMPONENT ANCHORAGE NOTES:

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 OR MOVABLE 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 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 IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTARTE 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 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 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 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, SECTIONS 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. OSHPD 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.

ELECTRICAL SYMBOL LIST

NOTE: DASHED SYMBOLS ON PLANS DENOTE EXISTING DEVICES

	20A, 125V, 3W GROUNDING TYPE DUPLEX RECEPTACLE, +18" U.O.N.
	20A, 125V DUPLEX GFI RECEPTACLE, +18" U.O.N.
J H	JUNCTION BOX, CEILING OR WALL MOUNTED - SIZED PER CODE
	DISCONNECT SWITCH - FUSED AS REQUIRED, WEATHERPROOF FOR OUTDOORS, SIZED PER MANUFACTURER'S REQUIREMENTS
	MOTOR CONNECTION
S T	THERMAL OVERLOAD SWITCH
S M	MANUAL MOTOR STARTING SWITCH, HORSE POWER RATED WITH OVERLOADS
—— - ——	EXISTING CONDUIT
———	BRANCH CIRCUIT CONDUIT CONCEALED IN WALL OR CEILING
- - - - - -	BRANCH CIRCUIT CONDUIT CONCEALED UNDER FLOOR OR UNDERGROUND
———►	HOMERUN TO PANELBOARD OR OTHER TERMINATION POINT
———┤	STUB CONDUIT TO ACCESSIBLE SPACE
o	CONDUIT UP
•	CONDUIT DOWN
	ANY BRANCH CIRCUIT CONDUIT SHALL BE MINIMUM 3/4"C - 2#12, 1#12 GREEN GROUND UNLESS OTHERWISE NOTED. FOR A GREATER NUMBER OF #12 WIRES: (= 3/4"C - 3#12, 1#12G) ETC. FOR WIRE SIZES OTHER THAN #12: (= 3#8, 1#12G), (GROUND SIZED PER CEC, IN CODE SIZE CONDUIT) ETC. #8

(E)	EXISTING
(N)	NEW
AL	ALUMINUM
ANN	ANNUNCIATOR
CL	CENTERLINE
CR	CLASSROOM
CU	COPPER
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
MT	EMPTY CONDUIT WITH PULL CORD
PB	PULL BOX
SAD	SEE ARCHITECTURAL DRAWINGS
STC	SIGNAL TERMINAL CABINET
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS BAR
TTB	TELEPHONE TERMINAL BOARD
WP	WEATHERPROOF
UG	UNDERGROUND
U.O.N.	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
XFMR	TRANSFORMER
A 1	FIXTURE TAG - LETTER DENOTES TYPE, NUMBERS INDICATE LAMP QUANTITY AND WATTAGE
1	NUMBERED ELECTRICAL NOTE
AC 1	MECHANICAL TAG - LETTER DENOTES TYPE, NUMBER DENOTES EQUIPMENT NUMBER

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Project

BLDG LA HVAC UPGRADES

Sheet Title

ELECTRICAL SYMBOLS, NOTES AND SCHEDULES

Client Project Number: XXXX

Scale:	AS NOTED
Drawn By:	DAM
Checked By:	TLK
Issue Date:	11/01/24
Revit Version:	2023

Sheet **E0.01**

GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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EXISTING WEATHERPROOF PANEL GHM

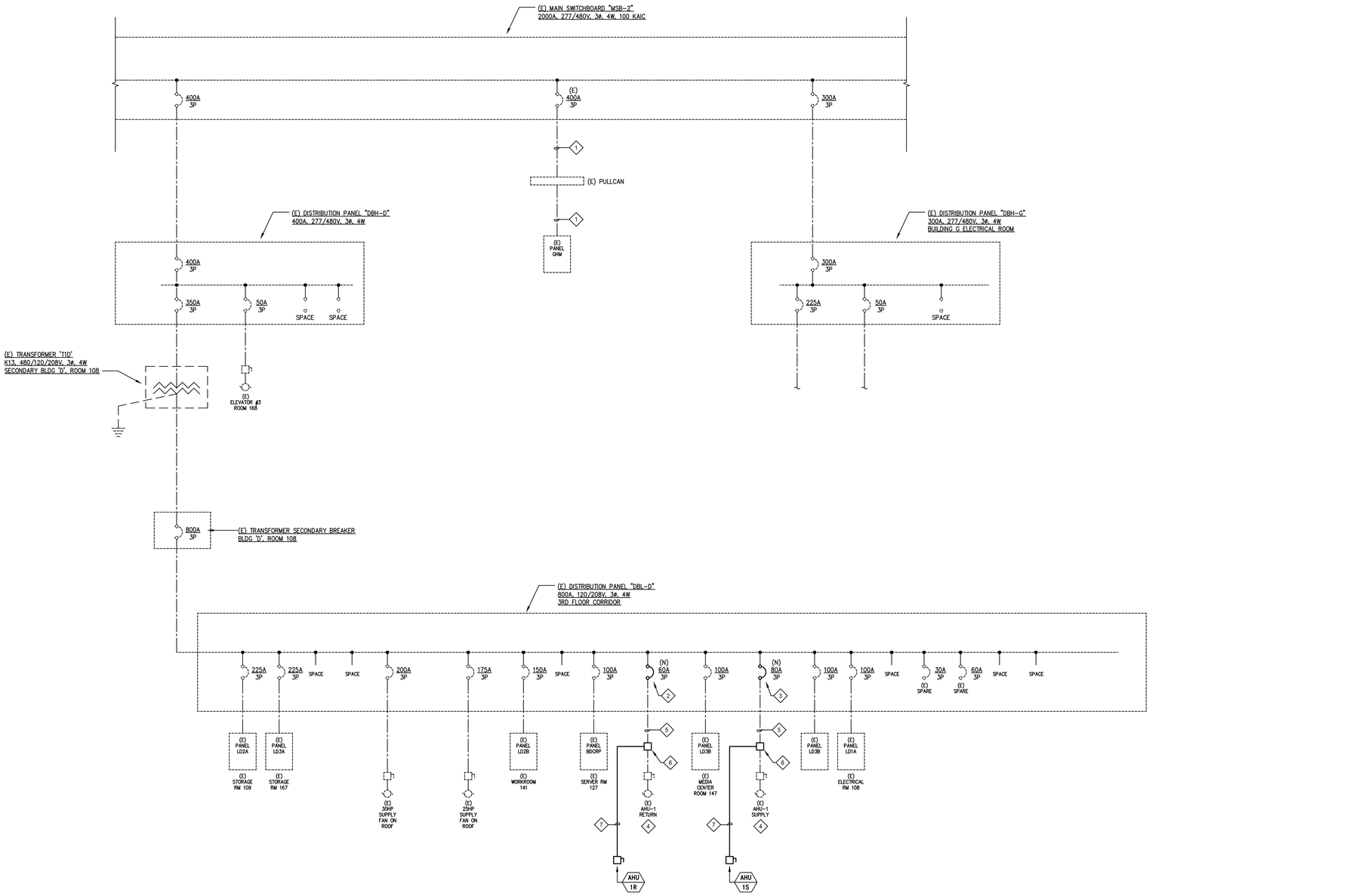
ROOF

DESCRIPTION	LOAD (KVA) LTG.	REC.	RES.	MOT.	CB	CKT	SN	CKT	CB	LOAD (KVA) LTG.	REC.	RES.	MOT.	DESCRIPTION
						1	*	2						
(E) CU-1A (39.1 MCA)				15.80	40/3	3	*	4	25/3				11.30	(E) CU-3A (22 MCA)
						5	*	6						
						7	*	8						
(E) CU-1B (36.1 MCA)				14.60	40/3	9	*	10	25/3				14.60	(E) CU-3B (32 MCA)
						11	*	12						
						13	*	14						
(E) CU-2A (39.1 MCA)				14.60	40/3	15	*	16	25/3				8.50	(E) CU-4C (28.6 MCA)
						17	*	18						
						19	*	20						
(E) CU-2B (39.1 MCA)				14.60	40/3	21	*	22	25/3				17.70	(E) CU-4B (25.9 MCA) (N) HP-4B
						23	*	24						
						25	*	26						
(E) CIRCUIT					40/3	27	*	28	35/3				14.00	(E) CU-4A (25.9 MCA)
						29	*	30						
SPACE						31	*	32						SPACE
SPACE						33	*	34						SPACE
SPACE						35	*	36						SPACE
SPACE						37	*	38						SPACE
SPACE						39	*	40						SPACE
SPACE						41	*	42						SPACE
TOTAL				59.60									66.10	

VOLTS: 277/480V,3ø,4W MTG: UNISTRUT
BUS: 400 AMP TYPE: I-LINE
MAIN: 400 AMP MB KAIC: 18
CONNECTED KVA: 125.70
CONNECTED AMPS: 151.26

SHEET NOTES

1. EXISTING 4" CONDUIT WITH 4#500 KCMIL AND 1#2 GROUND.
2. REPLACE EXISTING 100A/3P BREAKER WITH A NEW 60A/3P.
3. REPLACE EXISTING 100A/3P BREAKER WITH A NEW 80A/3P.
4. EXISTING UNIT TO BE DISCONNECTED AND REMOVED.
5. EXISTING CONDUIT AND CONDUCTORS TO REMAIN.
6. INTERCEPT EXISTING CONDUIT AND CONDUCTORS WITH NEW PULLBOX.
7. EXTEND EXISTING CONDUIT AND CONDUCTORS TO NEW DISCONNECT.
8. REPLACE EXISTING 35A/3P BREAKER WITH NEW 25A/3P BREAKER.



ONE-LINE DIAGRAM | NTS | 1

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Project

BLDG LA HVAC UPGRADES

Sheet Title

ELECTRICAL ONE-LINE DIAGRAM

Client Project Number: XXXX

Scale: AS NOTED
Drawn By: DAM
Checked By: TLK
Issue Date: 11/01/24
Revit Version: 2023

Sheet **E0.02**

GRAPHIC SCALES: 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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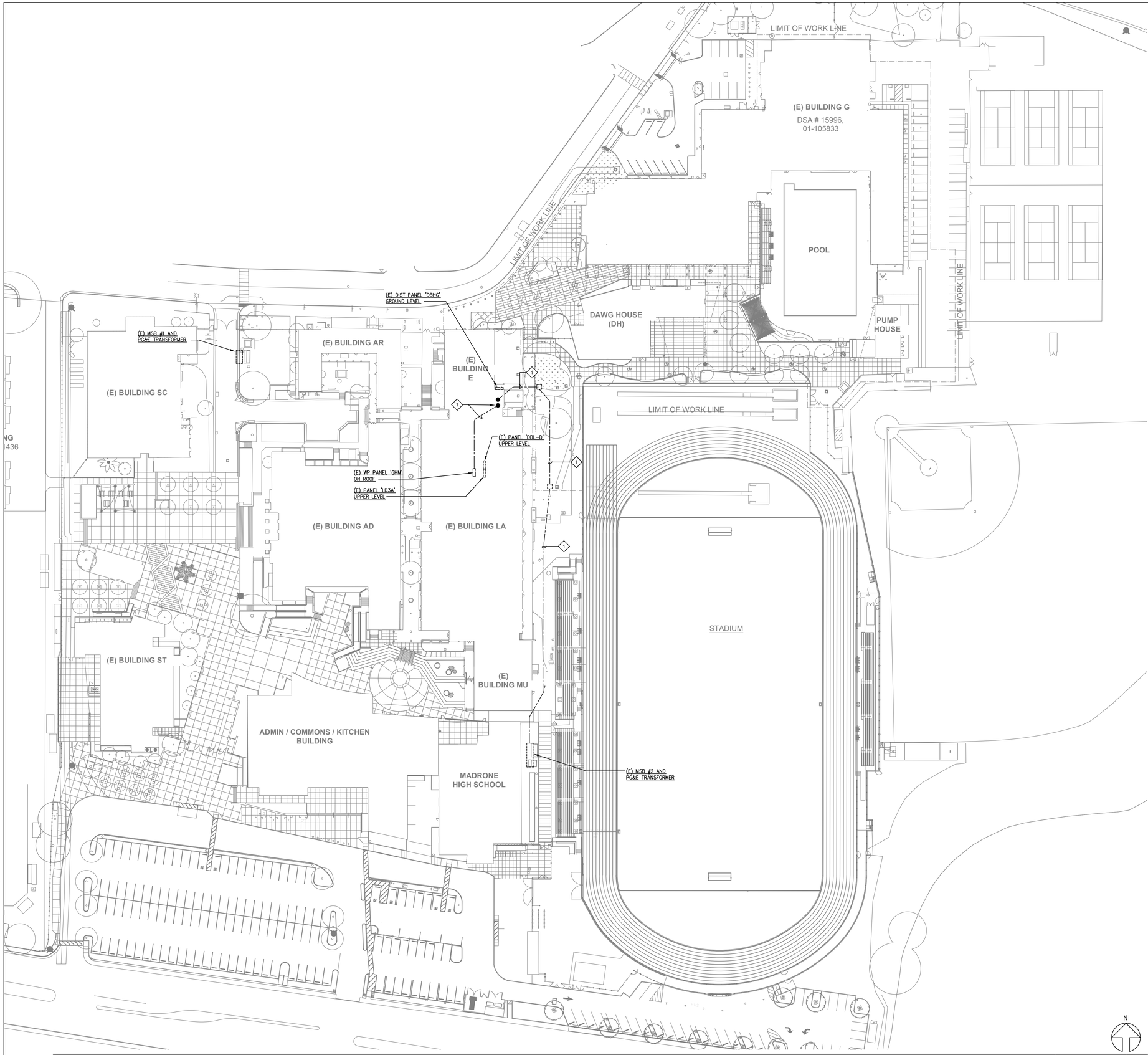

ELECTRICAL POWER SITE PLAN | 1" = 40'-0" | 1

SHEET NOTES

1. EXISTING 4" CONDUITAND FEEDERS TO PANEL 'GHM'.

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Project

BLDG LA HVAC UPGRADES

Sheet Title

ELECTRICAL POWER SITE PLAN

Client Project Number: XXXX

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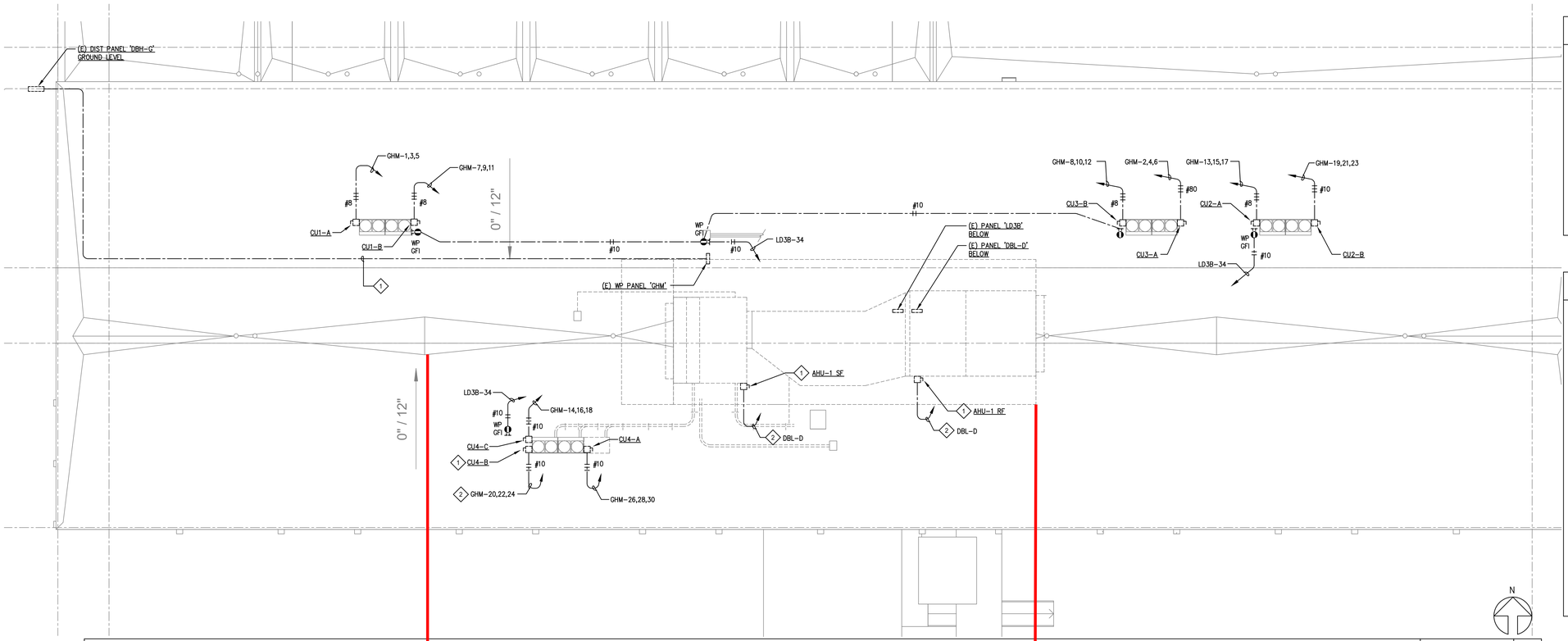
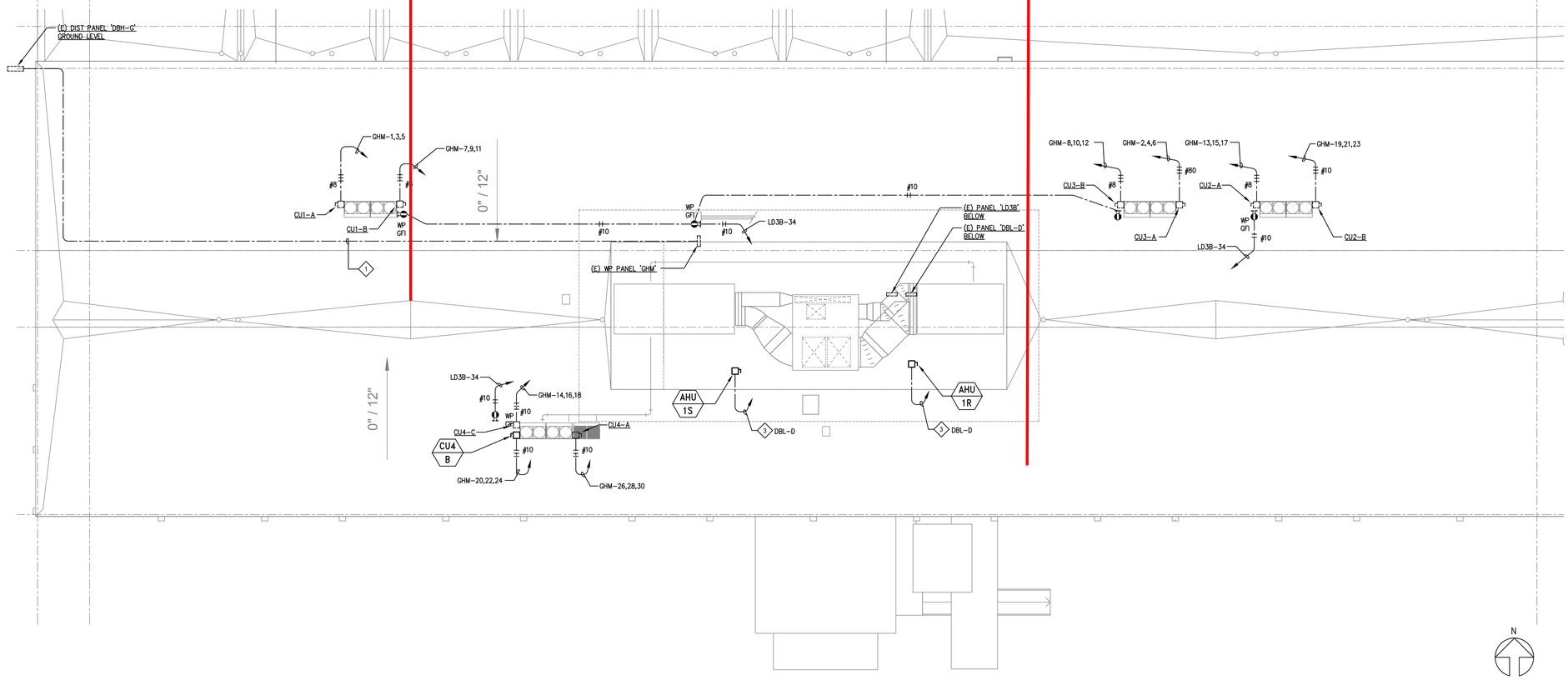


ELECTRICAL DEMOLITION POWER PLAN - ROOF | 1/8" = 1'-0" | 1



ELECTRICAL POWER PLAN - ROOF | 1/8" = 1'-0" | 2

GENERAL NOTES

1. ALL ELECTRICAL SHOWN IS TO REMAIN, UON.

SHEET NOTES

1. EXISTING DISCONNECT TO BE REPLACED WITH NEW FOR CONNECTION TO NEW UNIT.
2. EXISTING CONDUIT AND CONDUCTORS ARE TO BE INTERCEPTED AND CONNECTED TO NEW UNIT.
3. RECONNECT EXISTING CONDUIT AND CONDUCTORS.

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Project

BLDG LA HVAC UPGRADES

Sheet Title

ELECTRICAL POWER PLANS

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Sheet **E2.01**