

BARRANCA ELEMENTARY SCHOOL

727 S. BARRANCA AVENUE. COVINA, CA 91723

COVID-19 COVINA VALLEY DISTRICT WIDE HVAC REPLACEMENT

100% CONSTRUCTION DOCUMENTS

05/05/2022

DLR GROUP PROJECT NUMBER: 75-22605-00

DSA APPLICATION #
A# 03-122224

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TOTAL: 27 SHEETS

VICINITY MAP



PROJECT DIRECTORY

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Statement of General Conformance

FOR ARCHITECTS/ENGINEERS WHO UTILIZE PLANS,
INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER
LICENSED DESIGN PROFESSIONALS AND/OR CONSULTANTS

(Application No. 03-122224 File No. 19-25)

- THE DRAWINGS OR SHEETS LISTED ON THE COVER OR INDEX SHEETS
 THIS DRAWING, PAGE OF SPECIFICATION/CALCULATIONS

HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR:

- DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS, AND THE PROJECT SPECIFICATIONS PREPARED BY ME, AND
- COORDINATION WITH MY PLANS AND SPECIFICATIONS, AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341 AND 4-344" OF TITLE 24, PART 1, (TITLE 24, PART 1, SECTION 4-317(b))

- I FIND THAT: ALL DRAWINGS OR SHEETS LISTED ON THE COVER OR INDEX SHEET FOR EACH DISCIPLINE (SEE SHEET INDEX FOR LIST OF DISCIPLINES)
 THIS DRAWING OR PAGE

- ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN, AND
 HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND SPECIFICATIONS.

SIGNATURE	DATE	SIGNATURE	DATE
	05/05/2022		
ARCHITECT OR ENGINEER DESIGNATED TO BE IN GENERAL RESPONSIBLE CHARGE		ARCHITECT OR ENGINEER DELEGATED RESPONSIBILITY FOR THIS PORTION OF THE WORK	
JESSE MILLER			
PRINT NAME		PRINT NAME	
C-32306		10/31/2023	
LICENSE NUMBER		EXPIRATION DATE	

DESIGN ANALYSIS DATA

- WIND DESIGN CRITERIA (CBC 1603A.1.4) - STRUCTURAL DESIGN PARAMETERS
- RISK CATEGORY: III
- WIND DESIGN SPEED: V=110 MPH
- WIND EXPOSURE CATEGORY: B (PER ASCE 7-16)
- EARTHQUAKE DESIGN CRITERIA (CBC 1603A1.5)
- SEISMIC DESIGN CATEGORY: E OR F
- SITE CLASS: D
- $S_u = 1.666$
- $S_1 = 0.811$
- $S_2 = 0.7$
- $S_{vs} = 0.9$
- $S_{vs} = 1.33$
- $S_{vs} = 0.9$
- L_v (IMPORTANCE FACTOR) = 1.25
- F_a (CONTROLLING HOR. SEISMIC FORCE) = 2089.48 LB
- DESIGN LOAD BEARING VALUES OF SOILS (CBC 1603A1.6)
- ALLOWABLE SOIL BEARING PRESSURE: 1,500 PSF
- ALLOWABLE LATERAL BEARING PRESSURE: 100 PSF MIN.

SCOPE OF WORK

SCOPE OF WORK SHALL BE AS FOLLOWS:

REMOVAL AND REPLACEMENT OF ALL EXISTING ROOF MOUNTED HVAC UNITS AT ALL CLASSROOMS BUILDINGS TO INCLUDE: NEW ADAPTER CURBS, CONTROLS, ELECTRICAL, ROOF PATCHING AND FLASHING AS REQUIRED.

IN ADDITIONAL, REMOVAL AND REPLACEMENT OF EXISTING MPR UNIT WITH NEW HVAC SYSTEMS.

REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL SCOPE AS REQUIRED.

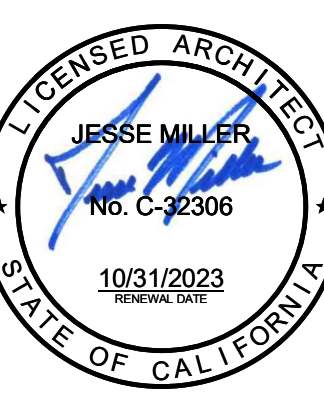
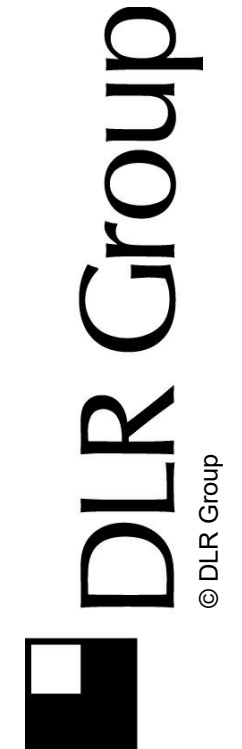
APPLICABLE CODES

- 2019 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
- 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
- (2018 INTERNATIONAL BUILDING CODE, VOL. 1 & 2, AND 2019 CALIFORNIA AMENDMENTS)
- 2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
- (2017 NATIONAL ELECTRICAL CODE AND 2019 CALIFORNIA AMENDMENTS)
- 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
- (2018 APFMO UNIFORM MECHANICAL CODE AND 2019 CALIFORNIA AMENDMENTS)
- 2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
- (2018 APFMO UNIFORM PLUMBING CODE AND 2019 CALIFORNIA AMENDMENTS)
- 2019 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
- 2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
- (2018 INTERNATIONAL FIRE CODE AND 2019 CALIFORNIA AMENDMENTS)
- 2019 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
- (2018 INTERNATIONAL EXISTING BUILDING CODE AND 2019 CALIFORNIA AMENDMENTS)
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CAL GREEN), PART 11, TITLE 24 CCR
- 2019 CALIFORNIA REFERENCED STANDARDS CODE (CEC), PART 12, TITLE 24 CCR
- TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
- 2016 ASME A17.1/CSA B44-13 SAFETY CODE FOR ELEVATORS AND ESCALATORS (PER 2019 CBC PART 4.35)
- NOTE: CALIFORNIA ELEVATOR UNIT ENFORCES CCR TITLE 8 AND USES THE 2004 ASME A17.1 BY ADOPTION
- 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

- NFPA 13 - STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS (CA AMENDED) 2016 ADDITION
- NFPA 14 - STANDARD FOR INSTALLATION OF SAND PIPE AND HOSE SYSTEMS (CA AMENDED) 2013 ADDITION
- NFPA 17 - STANDARD FOR DRY CHEMICAL EXTINGUISHING SYSTEMS 2016 ADDITION
- NFPA 17A - STANDARD FOR WET CHEMICAL EXTINGUISHING SYSTEMS 2017 ADDITION
- NFPA 20 - STANDARD FOR INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION 2017 ADDITION
- NFPA 22 - STANDARD FOR WATER TANKS FOR PRIVATE FIRE PROTECTION 2013 ADDITION
- NFPA 24 - STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES (CA AMENDED) 2016 ADDITION
- NFPA 72 - NATIONAL FIRE ALARM AND SIGNALING CODE (CA AMENDED) 2016 ADDITION
- NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENINGS PROTECTIVE 2016 ADDITION
- NFPA 2001 - STANDARD ON CLEAN AGENT FIRE EXTINGUISHING SYSTEMS (CA AMENDED) 2015 ADDITION
- UL 300 - STANDARD FOR FIRE TESTING OF FIRE EXTINGUISHING DEVICES FOR PROTECTION OF COMMERCIAL COOKING EQUIPMENT 2005 (R2010)
- UL 464 - AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES 2003 ADDITION
- UL 521 - STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS 1999 ADDITION
- UL 1971 - STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED 2002 (R2010)
- ICC 300 - STANDARD FOR BLEACHERS, FOLDING AND TELESCOPIC SEATING, AND GRANDSTANDS 2017 ADDITION

DSA GENERAL NOTES

- CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT APPROVED BY THE DIVISION OF THE STATE ARCHITECT (DSA), AS REQUIRED BY SECTION 4-338(b), PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR), NOT WITH STANDING OTHER PROVISIONS OF THE PROJECT SPECIFICATIONS, COMPLY WITH ALL PROVISIONS OF THE CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR), SECTION 4-338, FOR ALL ADDENDUM AND CONSTRUCTION CHANGE DOCUMENTS
- CONSTRUCTION CHANGE DOCUMENTS MUST BE SIGNED BY ALL THE FOLLOWING: ARCHITECT OR ENGINEER HAVING GENERAL RESPONSIBLE CHARGE OF THE PROJECT, AND STRUCTURAL ENGINEER OF RECORD OR DELEGATED PROFESSIONAL ENGINEER (WHEN APPLICABLE).
- SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS (ACCESSIBILITY, STRUCTURAL ENGINEER, AND FIRE/SAFETY) SHALL BE CONSIDERED AS A CONSTRUCTION CHANGE DOCUMENT, AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION IN ACCORDANCE WITH DSA R.4.4.6 AND SECTION 4-338(b), PART 1, TITLE 24, CCR. SUBSTITUTIONS SHALL BE FOR ANY MATERIALS, SYSTEMS OR PRODUCT THAT WOULD OTHERWISE BE REGULATED BY DSA.
- A DSA-CERTIFIED PROJECT INSPECTOR WITH CLASS 3 CERTIFICATION, EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE ARCHITECT AND BY THE DIVISION OF THE STATE ARCHITECT, SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE PROJECT INSPECTOR ARE DEFINED IN SECTION 4-342, CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR).
- A DSA-ACCEPTED TESTING LAB EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL REQUIRED TESTS AND INSPECTIONS OF THE WORK.
- THE DSA-CERTIFIED PROJECT INSPECTOR AND DSA-ACCEPTED TESTING LAB SHALL BE EMPLOYED AND PAID BY THE OWNER (DISTRICT) AND APPROVED BY ALL OF THE FOLLOWING: ARCHITECT OR ENGINEER HAVING GENERAL RESPONSIBLE CHARGE OF THE PROJECT, STRUCTURAL ENGINEER OF RECORD, AND DIVISION OF THE STATE ARCHITECT (DSA). THE INSPECTOR OF RECORD FOR THIS PROJECT SHALL BE CLASS 3 OR BETTER.
- ALL WORK SHALL CONFORM TO 2019 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).
- A DSA-ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.
- THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE PROJECT DOCUMENTS WHEN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK (SECTION 4-317(c)), PART 1, TITLE 24, CCR.
- FABRICATION AND INSTALLATION OF DEFERRED SUBMITTAL ITEMS SHALL NOT BE STARTED UNTIL CONTRACTOR'S DRAWINGS, SPECIFICATIONS, AND ENGINEERING CALCULATIONS FOR THE ACTUAL SYSTEMS TO BE INSTALLED HAVE ACCEPTED AND SIGNED BY THE ARCHITECT OR STRUCTURAL ENGINEER AND APPROVED BY DSA. LIST DEFERRED SUBMITTAL ITEMS FOR THIS PROJECT. (IF THIS PROJECT HAS NO DEFERRED SUBMITTAL ITEMS, PLEASE INDICATE AS SUCH).
- GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
- 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 CONTROL ACCEPTANCE TESTS MUST BE PERFORMED BY CERTIFIED LIGHTING CONTROL ACCEPTANCE TEST TECHNICIAN (ATT).
- MECHANICAL SYSTEM ACCEPTANCE TEST 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 OR 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-TESTING-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE.COM](https://www.energy.ca.gov/programs-and-topics/programs/acceptance-testing-technician-certification-provider-program/acceptance.com)
- 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.



BARRANCA ELEMENTARY SCHOOL
COVID-19 COVINA VALLEY DISTRICT WIDE HVAC REPLACEMENT
727 S. BARRANCA AVENUE, COVINA, CA 91723

100% CONSTRUCTION DOCUMENTS
05/05/2022 REVISIONS

75-22605-00
DSA A#03-122224
DSA File #: 19-25

COVER SHEET

G0.1

GENERAL ABBREVIATIONS

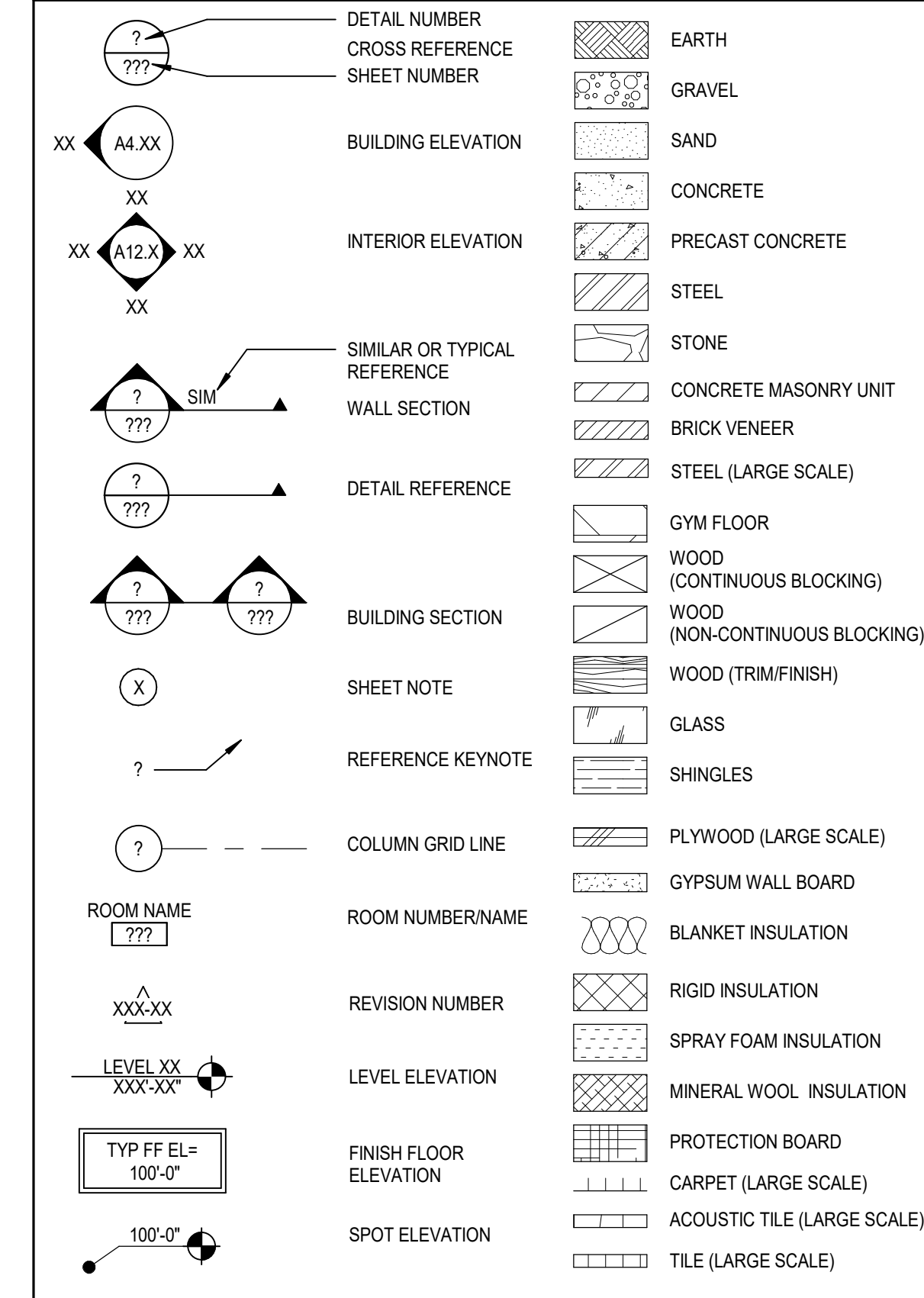
#	NUMBER
&	AND
@	AT
ADA	AMERICANS WITH DISABILITY ACT
ADDN	ADDITION OR ADDITIONAL
AD	ADDITIONAL
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
ALT	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
BLDG	BUILDING
BSMT	BASEMENT
CL	CENTER LINE
CLG	CEILING
CM	CENTIMETER
CONC	CONCRETE
CON(S)	CONNECTION(S)
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR(OR)
C	CENTER
D	DEPTH
DEG	DEGREE
DEMO	DEMOLISH OR DEMOLITION
DI	DIAMETER
DM	DIMENSION
DIV	SPECIFICATION DIVISION
DN	DOWN
DTL	DETAIL
DWG(S)	DRAWING(S)
E	EAST
EA	EACH
EL	ELECTRICAL CONTRACTOR
EG	ELEVATION
ELEC	ELECTRICAL
ENG	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
EXST	EXISTING
EXT	EXTERIOR
FN	FINISHED
FL	FLOOR
FT	FEET
FUT	FUTURE
GC	GENERAL CONTRACTOR
GOVT	GOVERNMENT
H	HEIGHT
HORIZ	HORIZONTAL
HT	HEIGHT
i.e.	THAT IS
IBC	INTERNATIONAL BUILDING CODE
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
M	THOUSAND
M	METER
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETER
N	NORTH
N/A	NOT APPLICABLE
NC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
OVHD	OVERHEAD
PAR	PARALLEL
PENT	PENTHOUSE
PLYWD	PLYWOOD
QTY	QUANTITY
REQ(D)	REQUIRE(D)
REV	REVISION(S)
RM	ROOM
RND	ROUND
S	SOUTH
SCHED	SCHEDULE
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION(S)
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
TEMP	TEMPORARY
TYP	TYPICAL
UNEX	UNEXCAVATED
UNFN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
W	WEST
W	WITH
W/O	WITHOUT

ARCHITECTURAL ABBREVIATIONS

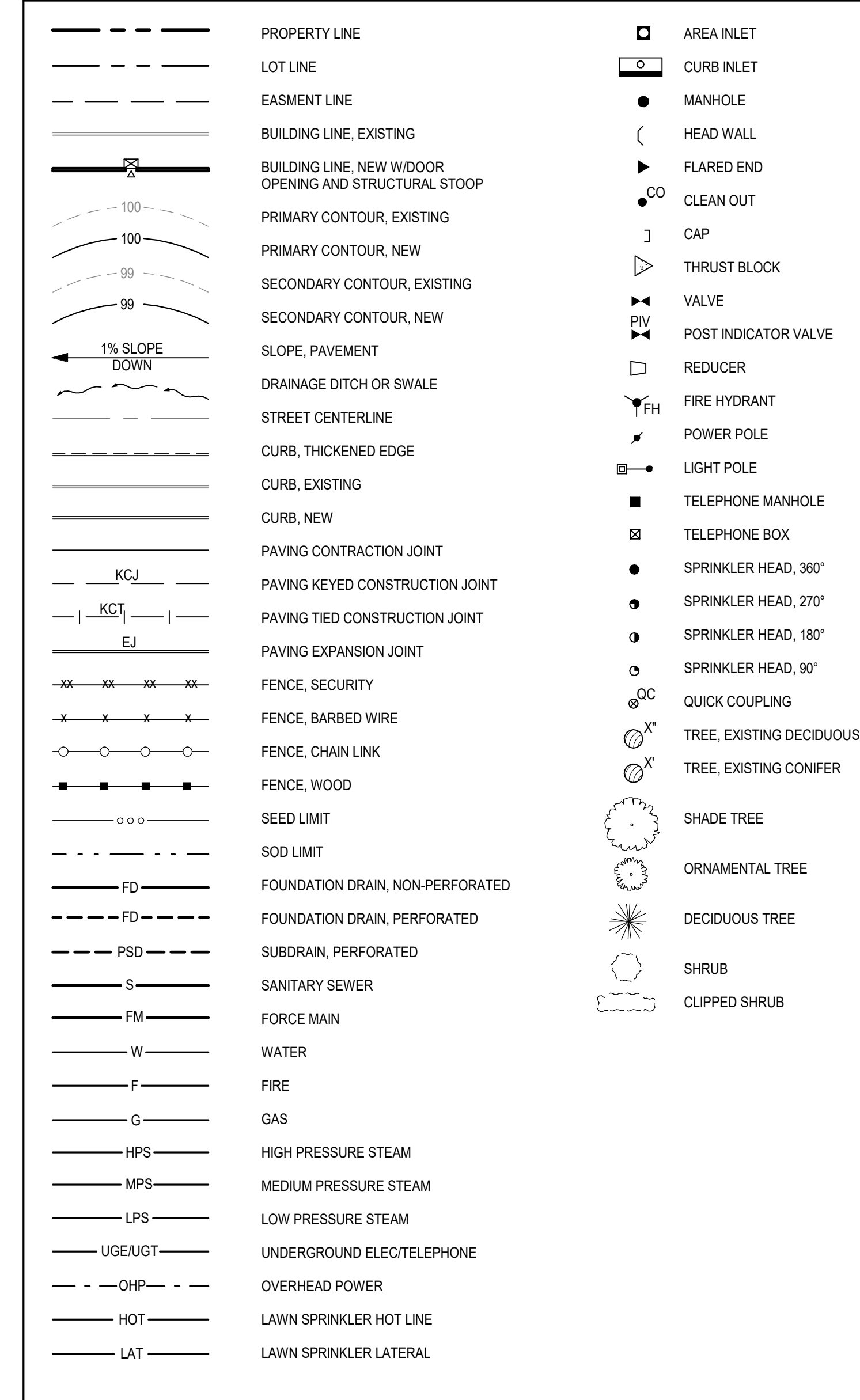
A/E	ARCHITECT/ENGINEER
AB	AIR BARRIER
ABS	ASBESTOS
ACC	ADA ACCESSIBLE
ACR	ACRYLIC
ACT	ACOUSTIC CEILING TILE
AD	ACCESS DOOR
ADJ	ADJUSTABLE
ADJT	ADJACENT
ADMIN	ADMINISTRATION
AEC	AUTOMATED EXTERNAL DEFIBRILLATORS
AL	ALUMINUM
ALUM	ALUMINUM
AP	ACCESS PANEL
APC	ACOUSTIC PANEL CEILING
ASPH	ASPHALT
AUTO	AUTOMATIC
AVG	AVERAGE
AWP	ACOUSTIC WALL PANEL
B.O.	BOTTOM OF
B/S	BABY CHANGING STATION
BD	BOARD
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BMS(S)	BEAM(S)
BT	BOTTOM
BDG	BRIDGING
BRG	BEARING
BRKT	BRACKET
BT	BATHTUB
BTWN	BETWEEN
CAB	CABINET
CB	CHALKBOARD
CER	CERAMIC
CF	CUBIC FEET
CFI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFMF	COLD-FORMED METAL FRAMING
CE	ELEVATION
CI	CAST IRON
CIG	CLEAR INSULATING GLASS
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CJA	CONTROL JOINT ABOVE
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COM	COMMON
COMB	COMBINATION
COMM	COMMUNICATIONS
COMP	COMPRESSIBLE
CONF	CONFERENCE
CONFIG	CONFIGURATION
CORR	CORRIDOR
CP	COVER PLATE
CPT	CARPET
CR	CHAIR RAIL
CS	COUNTERSINK
CSTJ	CONSTRUCTION JOINT
CSWK	CASEWORK
CT	CERAMIC TILE
CTG	CLEAR TEMPERED FLOAT GLASS
CTIG	CLEAR TEMPERED INSULATING GLASS
CU	COPPER
CJ	COMBINATION UNIT
CJ	CONTROL JOINT
CY	CUBIC YARD
CYL	CYLINDER
DB	DECIBEL
DBL	DOUBLE
DC	DUST COLLECTOR
DEPR	DEPRESSION(ED)
MTG	MOUNTING
MUL	MULLION
NC	NOISE CRITERIA
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOM	NOMINAL
O to O	OUT TO OUT
OA	OVERALL
OCFI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OFI	OWNER FURNISHED OWNER INSTALLED
OH	OPPOSITE HAND
OP(S)	OPENSING(S)
OSHA	OPERATIONAL SAFETY AND HEALTH ADMINISTRATION
OTB	OPEN TO BELOW
OVFL	OVERFLOW
P	PAINT
PAN B	PANIC BOLT
PB	PARTICLE BOARD
PC	PRECAST CONCRETE
PCD	PAPER CUP DISPENSER
PCT	PORCELAIN CERAMIC TILE
PD	PANIC DEVICE
PERF	PERFORATED
PERP	PERPENDICULAR
PG	PATTERN GLASS
PIC	PORTABLE INSTRUMENT CONNECTION
PIG	PATTERN INSULATING GLASS
PL	PLATE
PL	PROPERTY LINE
PL	PLASTIC LAMINATE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PR	PAIR
PREFAB	PREFABRICATED
PROJ	PROJECTOR(OR) (ION)
PS	PROJECTION SCREEN
PT	POINT
PT	POINT OF TANGENCY
PTD	PAPER TOWEL DISPENSER
PTDR	COMBINATION TOWEL DISPENSER/RECEPTACLE
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PWL	SOUND POWER LEVEL
QT	QUARRY TILE
QTR RND	QUARTER ROUND
R	RISER
RAD	RADIUS
RB	RUBBER BASE
RC	REMOTE CONTROL
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFERENCE
REFL	REFLECTED
REM	REMOVABLE
RESIL	RESILIENT
RF	RESILIENT FLOORING
RF	RUBBER FLOOR
RFM	RECESSED FLOOR MAT
RH	ROBE HOOK
R&C	ROUGH IN AND CONNECT
S	SINK
SAT	SPRAYED ACOUSTIC TREATMENT
SAW	SOUND ABSORBING WALL UNITS
SB	SPLASH BLOCK
SC	SOLID CORE
SC	SHOWER CURTAIN
SCD	SEAT COVER DISPENSER
SCH	SHOWER CURTAIN HOOK
SCR	SHOWER CURTAIN ROD
SCT	STRUCTURAL CLAY TILE
GL	GLUE LAMINATED
GL	GLASS
GMP	GUARANTEED MAXIMUM PRICE
GR	GUARD RAIL
GR	GRADE
GRS	GALVANIZED RIGID STEEL
GWB	GYPSUM WALL BOARD
GYSUM	GYPSUM
HC	HOLLOW CORE
HD	HAND DRIVER
HDF	HIGH DENSITY FIBERBOARD
HDR	HEADER
HOWD	HARDWOOD
HDWR	HARDWARE
HM	HOLLOW METAL
HR	HOUR
HR	HANDRAIL
HS	HARDWARE SET
HSS	HOLLOW STRUCTURAL SHAPE
HVAC	HEATING VENTILATING AND AIR CONDITIONING
IAW	IN ACCORDANCE WITH
ID	INSIDE DIAMETER
IF	INSIDE FACE
IFP	INSULATED INFILL PANEL GLASS
IJ	ISOLATION JOINT
IJS	IN JOIST SPACE
INC	INCLUDE(ING)
INSUL	INSULATION
JAN	JANITOR
JBE	JOIST BEARING ELEVATION
JCT	JUNCTION
JFB	JOINT FILLER BOARD
JST	JOIST
JT	JOINT
KCJ	KEYED CONSTRUCTION JOINT
KD	KNOCKDOWN
KH	KITCHEN HOOD
KIT	KITCHEN
L	ANGLE
LAB	LABORATORY
LAM	LAMINATED
LAV	LAVATORY
LBR	LUMBER
LDG	LOADING
LF	LENGTH (LONG)
LG	LAMINATED GLASS
LN	LINEAR
LNO	LINEUM
LNR	LOOKER
LOC	LOCATION
LONG	LONGITUDINAL
LSC	LIFE SAFETY CODE
LTG	LIGHTING
LV	LOUVER
LVT	LUXURY VINYL TILE
MAG	MAGNETIC
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MB	MOP BASIN
MB	MARKER BOARD
MBH	MOP/BROOM HOLDER
MC	MEDICINE CABINET
MEMB	MEMBRANE
MH	MANHOLE
MIR	MIRROR WITH SHELF
MTD	MOUNTED
WI	WROUGHT IRON
WOM	WALK OFF MAT
WR	WASTE RECEPTACLE
WRB	WEATHER RESISTANT BARRIER
WW	WARM WHITE
WWF	WELDED WIRE FABRIC
YD	YARD

SD	SOAP DISPENSER
SECY	SECRETARY
SF	SQUARE FEET
SG	SPANDREL GLASS
SGL	SINGLE
SH	SHOWER
SHM	SECURITY HOLLOW METAL
SLNT	SEALANT
SM	SHEET METAL
SND	SANITARY NAPKIN DISPOSAL
SNV	SANITARY NAPKIN VENDOR
SPL	SOUND PRESSURE LEVEL
SQ	SQUARE
SS	SOLID SURFACE
SSA	STORM SHELTER AREA
SSS	STAINLESS STEEL SHELF
SST	STAINLESS STEEL
ST	STONE
ST	STAIR
STAGD	STAGGERED
STC	SOUND TRANSMISSION CLASS
STR	STRINGER
SUBFL	SUBFLOOR
SURF	SURFACE
SUSP	SUSPENDED
SVF	SHEET VINYL FLOORING
T	TREAD
T&G	TONGUE AND GROOVE
T.O.	TOP OF
TAN	TANGENT
TB	TOWEL BAR
TBD	TACK BOARD
TOP	TOILET COMPARTMENT PARTITION
TERR	TERRAZZO
TFG	TINTED FLOAT GLASS
TG	TEMPERED GLASS
TH	THRESHOLD
THK	THICKNESS
TI	TENANT IMPROVEMENT
TIG	TINTED INSULATING GLASS
TMR	TILT MIRROR UNIT
TOIL	TOILET
TOP	TOP OF PAVING
TRANS	TRANSVERSE
TT	TERRAZZO TILE
TTD	TOILET TISSUE DISPENSER
TTG	TINTED TEMPERED FLOAT GLASS
TTTG	TINTED TEMPERED INSULATING GLASS
TW	TACK WALL
UL	UNDERWRITERS LABORATORIES
UR	URINAL
US	UTILITY SHELF
UTIL	UTILITY
VB	VAPOR BARRIER
VB	VINYL BASE
VCB	VENTED COVE BASE
VF	VINYL FLOOR
VOC	VOLATILE ORGANIC COMPOUND
VOL	VOLUME
VP	VENEER PLASTER
VT	VINYL TILE
VWC	VINYL WALL COVERING
W	WIDE
WB	WALL BASE
WC	WATER CLOSET
WC	WALL COVERING
WCL	WATER CLOSET/LAVATORY COMBINATION
WD	WOOD
WDF	WOOD FLOORING
WDW	WINDOW
WG	POLISHED WIRE GLASS
WI	WROUGHT IRON
WOM	WALK OFF MAT
WR	WASTE RECEPTACLE
WRB	WEATHER RESISTANT BARRIER
WW	WARM WHITE
WWF	WELDED WIRE FABRIC
YD	YARD

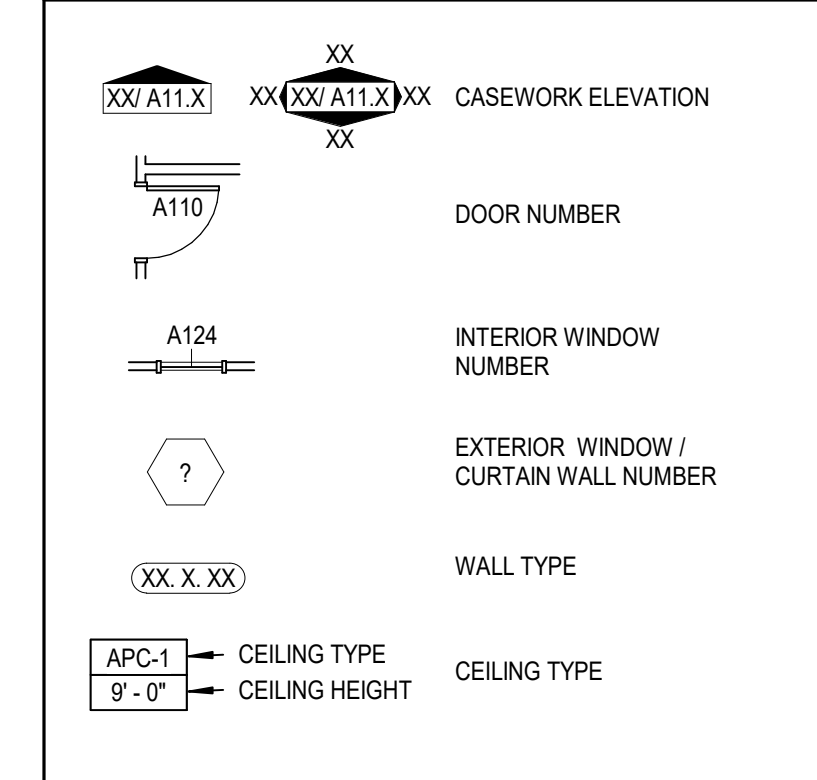
GENERAL SYMBOLS



SITE SYMBOLS

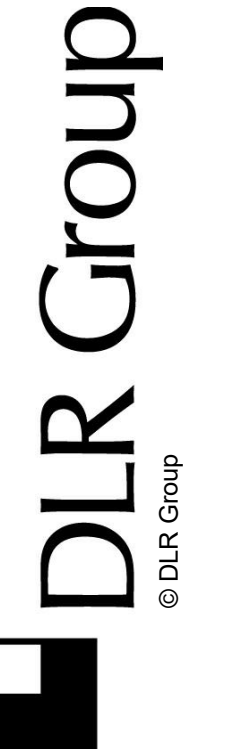


ARCHITECTURAL SYMBOLS



GENERAL NOTES

- GENERAL NOTES APPLY TO ALL SHEETS.
- DIMENSIONS ARE ACTUAL AND ARE TO FACE OF STUDS, FACE OF CONCRETE WALLS, FACE OF CMU WALLS, FACE OF FRAMES, OR CENTERLINE OF COLUMNS, UNLESS NOTED OTHERWISE.
- INCLUDE ALL OWNER-FURNISHED AND INSTALLED ITEMS AND OWNER-FURNISHED AND CONTRACTOR-INSTALLED ITEMS IN THE CONSTRUCTION SCHEDULE, AND SHALL COORDINATE WITH THE OWNER TO ACCOMMODATE THESE ITEMS.
- COORDINATE ALL MECHANICAL CHASE SIZES WITH THE MECHANICAL CONTRACTOR.
- SEE FLOOR PLANS FOR LOCATION OF (E) WALLS OF FIRE-RESISTANCE-RATED CONSTRUCTION. ALL WALLS OF FIRE-RESISTANCE-RATED CONSTRUCTION SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE.
- ALL PENETRATIONS THROUGH WALLS SHALL BE SEALED WITH PENETRATION FIRE STOPPING MATERIAL AS REQUIRED TO ACHIEVE THE RESPECTIVE FIRE-RESISTANCE RATING AND SMOKE STOPPAGE. SEE SPECIFICATION SECTION 07410.
- COORDINATE WITH MECHANICAL AND ELECTRICAL CONTRACTORS THE SIZE AND LOCATION OF EQUIPMENT PADS SHOWN ON PLANS.
- CONSTRUCTION DOCUMENTS ARE COMPLEMENTARY. SEE DRAWING FOR QUANTITIES AND LOCATION OF WORK. SEE SPECIFICATIONS FOR QUALITIES AND CONDITIONS OF WORK.
- WORK ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AND INDICATED IN THE CONTRACTOR'S BID.
- GENERAL SHEET NOTES ONLY APPLY TO PARTICULAR DRAWINGS OR SERIES OF DRAWINGS.
- NO ASBESTOS OR PCB CONTAINING MATERIALS SHALL BE USED ON THIS PROJECT.
- DO NOT SCALE DRAWINGS. DIMENSIONS NOTED PREVAIL. NOTIFY ARCHITECT IN CASE OF DISCREPANCY.
- HORIZONTAL AND VERTICAL DIMENSIONS ARE MINIMUM DIMENSIONS. CLEARANCES ARE GIVEN TO FINISH SURFACES. GO TO VERIFY ALL CLEARANCES. NOTIFY ARCHITECT IN CASE OF DISCREPANCY.



BARRANCA ELEMENTARY SCHOOL
 COVID-19 COVINA VALLEY DISTRICT WIDE HVAC REPLACEMENT
 727 S. BARRANCA AVENUE, COVINA, CA 91723

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 05/05/2022 REVISIONS

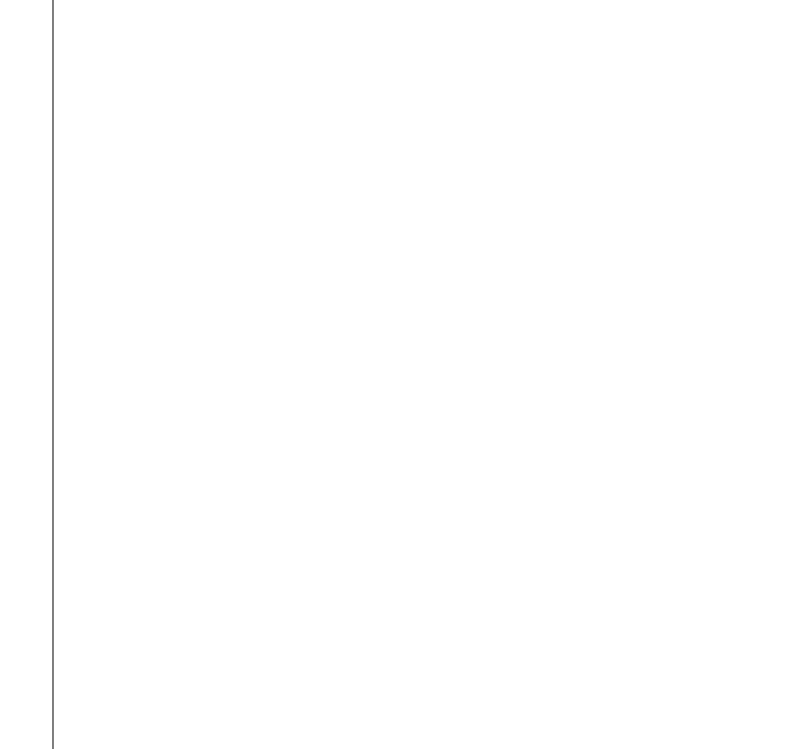
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 DSA A#03-122224
 DSA File #: 19-25

GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

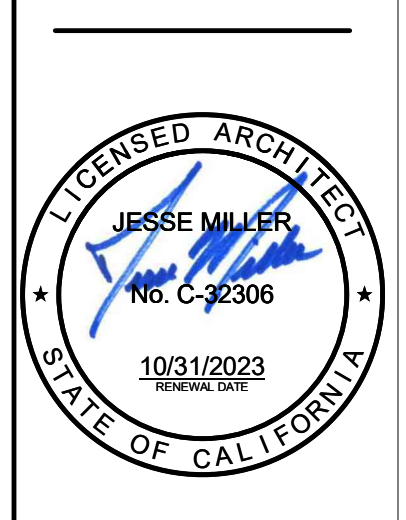
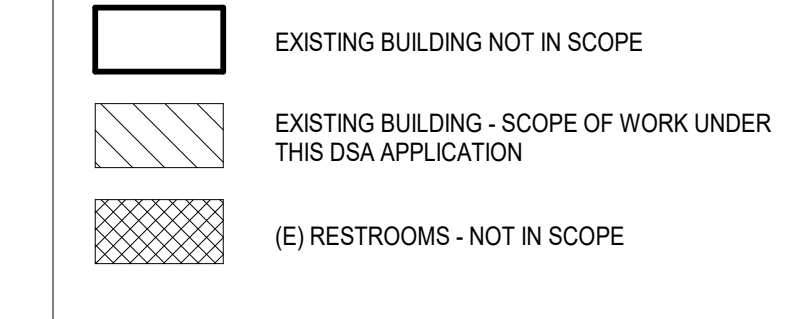
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REFERENCE KEYNOTES



SITE LEGEND



BARRANCA ELEMENTARY SCHOOL
 COVID-19 COVINA VALLEY DISTRICT WIDE HVAC REPLACEMENT
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 DSA A#03-122224
 DSA File #: 19-25
 ARCHITECTURAL
 SITE PLAN

A1.1

DSA Certification Record

APPLICATION #	FILE #	APPROVAL YEAR	NOTE
03-7530	19-25	1949	ORIGINAL CAMPUS BUILDINGS
03-59613	19-25	1993	MODERNIZATION
03-100833	19-25	2000	(10) RELOCATABLES
03-106615	19-25	2005	PARKING LOT SITE IMPROVEMENTS
03-108409	19-25	2005	MULTI-PURPOSE BLDG MODERNIZATION
03-106574	19-25	2006	LIB/MEDIA CTR BLDG, SITE IMPROVEMENTS
03-107141	19-25	2008	ALTERATION TO BLDGS. C, D, E, H, J, K, L, AND M
03-114865	19-25	2012	ALTERATIONS TO CLASSROOM BLDG (A#7530); RELOCATION OF 2-CLASSROOMS FROM ANOTHER SITE (A#03-107020)
03-116461	19-25	2016	RELOCATION OF 2-CLASSROOMS BLDG. (A#04-101310 & A# 03-11051) AND SITE WORK.

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A

B

C

D

E

F

1

2

3

4

5

REFERENCE KEYNOTES

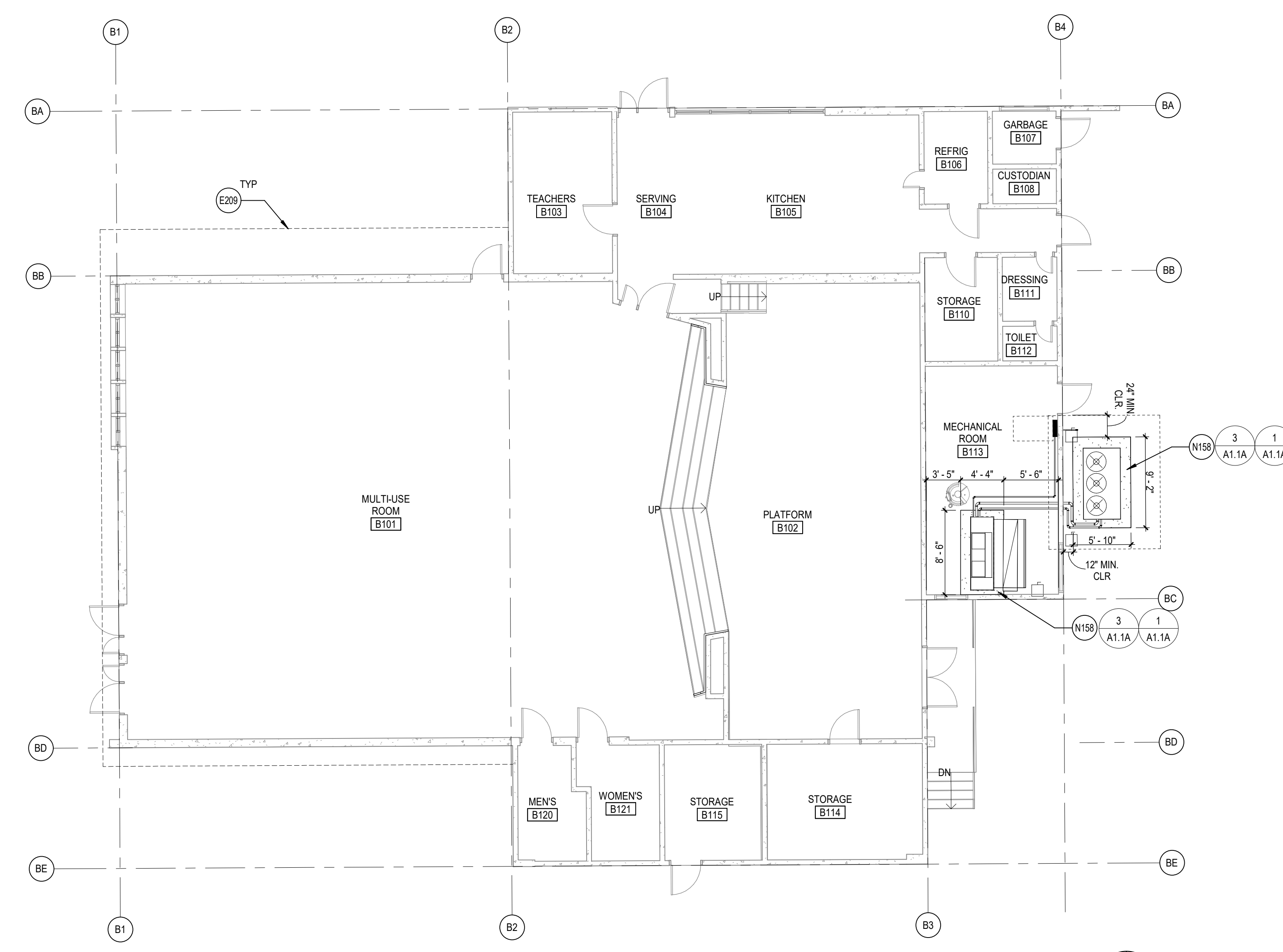
E209 LINE OF (E) ROOF ABOVE SHOWN DASHED
 N158 NEW MECHANICAL EQUIPMENT ON NEW 6" THK. TOP LEVELLED CONCRETE PAD & PLACED 6" FROM EDGE OF PAD. SEE MECH DWGS.

GENERAL ARCHITECTURAL NOTES

- ALL INTERIOR CMU WALLS SHALL BE TO REMAIN U.N.O.
- SCRIBE (E) CURB/WALL BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF DECK ABOVE. SEAL TIGHTLY AROUND ALL PENETRATIONS.

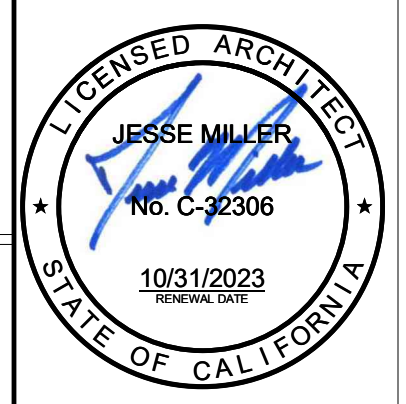
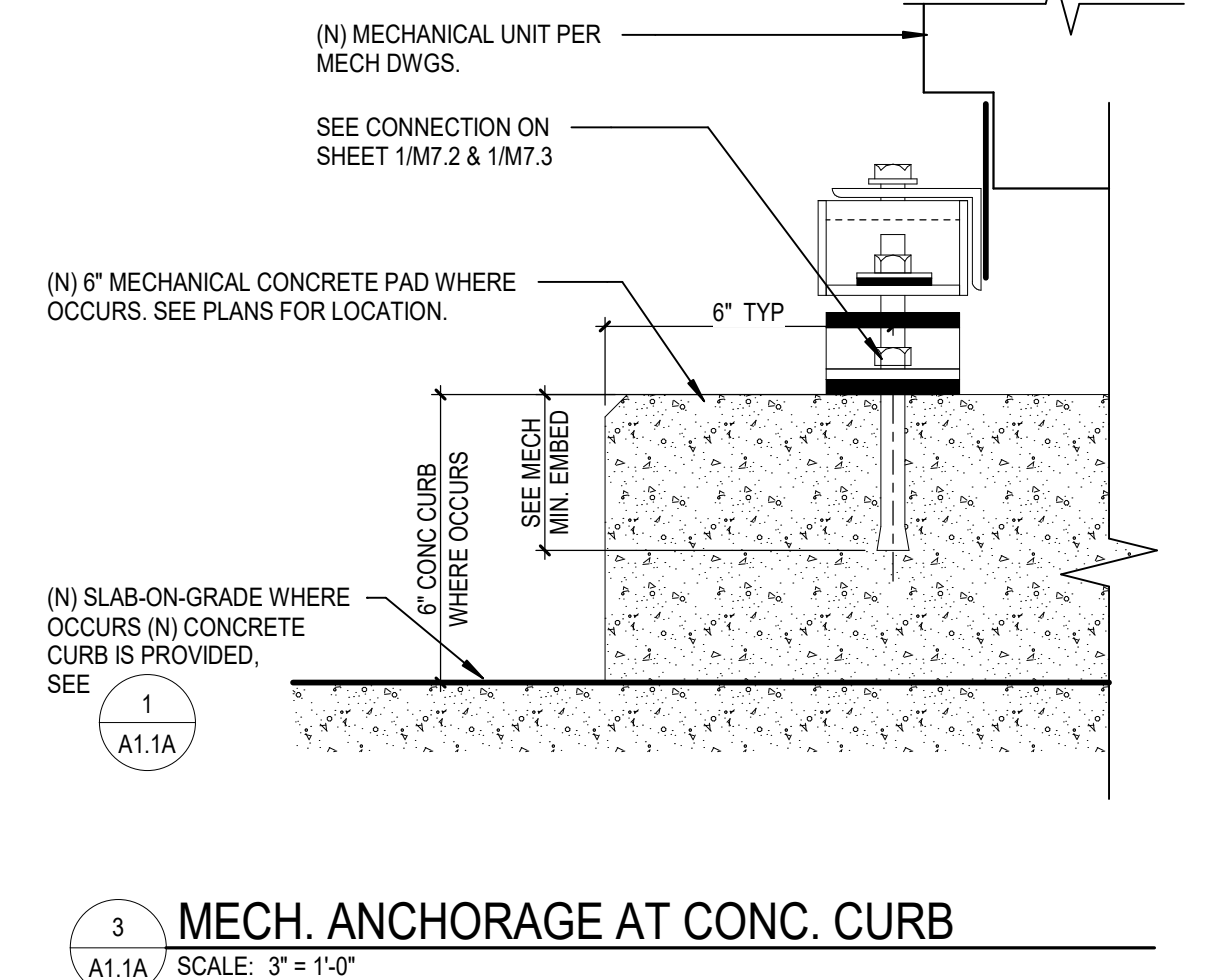
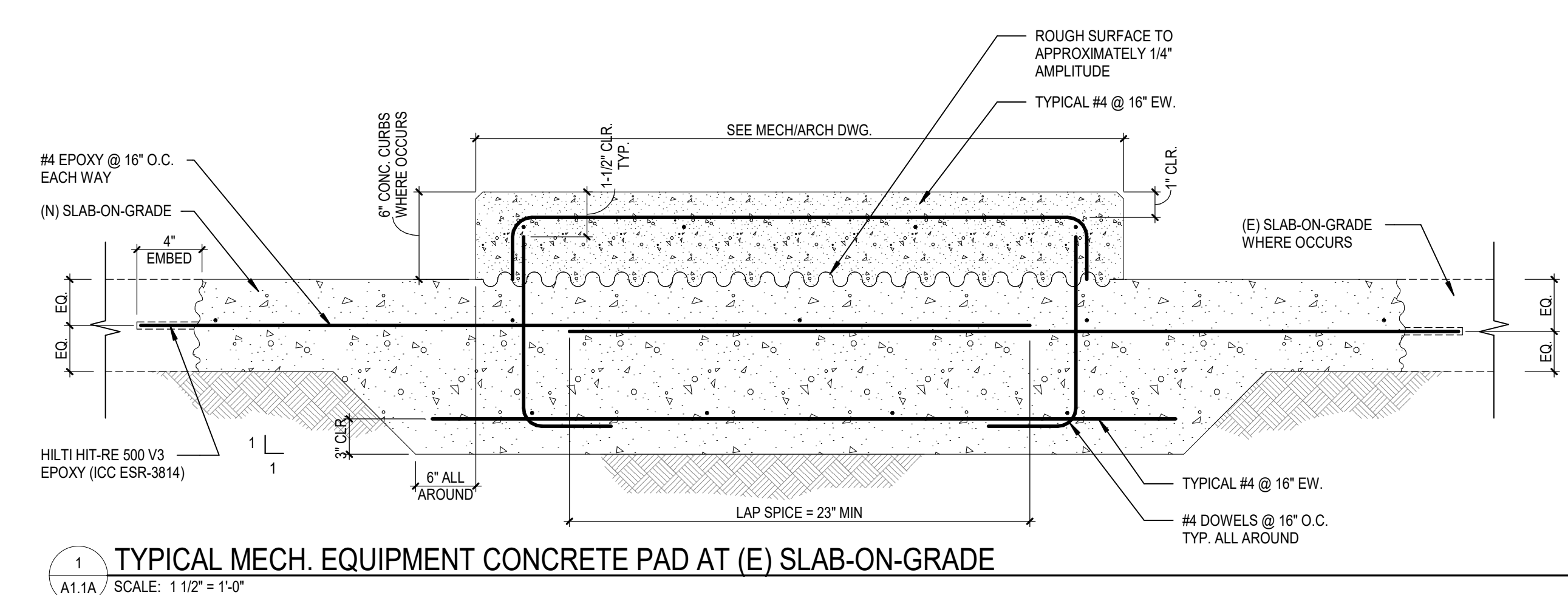
DEMOLITION GENERAL NOTES

- DEMOLITION NOTES APPLY TO ALL DEMOLITION SHEETS.
- THE CONTRACTOR SHALL:
- COORDINATE ALL DEMOLITION AND PHASING EFFORTS WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH THE OWNER'S REPRESENTATIVE. IN ALL CASES, PROVISIONS SHALL BE MADE FOR USER'S SAFETY.
 - COORDINATE ANY DISRUPTION OF UTILITY SERVICES WITH THE OWNER AND AS SPECIFIED.
 - CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WITHIN THE EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSURE TO ISOLATE ANY DEMOLITION/CONSTRUCTION WORK FROM THE GENERAL PUBLIC AND AS DEEMED NECESSARY BY THE OWNER AND CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH THE OWNER AND MAINTAIN MEANS OF EGRESS THROUGHOUT THE WORK.
 - MAINTAIN A SECURE, WEATHER-TIGHT ENCLOSURE AT ALL TIMES.
 - VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
 - REMOVE IN THEIR ENTIRETY ALL EXISTING WALLS, DOORS, MILLWORK, PLUMBING FIXTURES, CEILINGS, SOFFITS, MARKERBOARDS, AND OTHER ITEMS, AS REQUIRED TO EXECUTE THE DEMOLITION/CONSTRUCTION WORK DESCRIBED BY THE DRAWINGS.
 - THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
 - PROVIDE PROTECTION FOR ALL EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO ANY DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS CONTRACT.
 - REPAIR OR REPLACE ITEMS THAT ARE DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH AND/OR CONDITION.
 - EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
 - VERIFY AND MAINTAIN THE LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF THEIR SERVICE.
 - PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR RE-ROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, AND OTHER ITEMS, AS REQUIRED TO MAINTAIN FIRE-RESISTANCE-RATED SEPARATIONS. FINISH AS REQUIRED FOR NEW OR EXISTING ADJACENT SURFACES.
 - CAP ALL DISCONNECTED MECHANICAL PIPING LINES WITHIN THE WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
 - SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.
 - AVOID ANY DISTURBANCE OF SOILS WITHIN THE ZONE OF INFLUENCE AROUND EXISTING FOOTINGS AND FLOOR SLABS AS DIRECTED BY GEOTECHNICAL INSPECTOR.
 - WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED, PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 1'-0" BEYOND DEMOLITION.



BUILDING B FLOOR PLAN

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



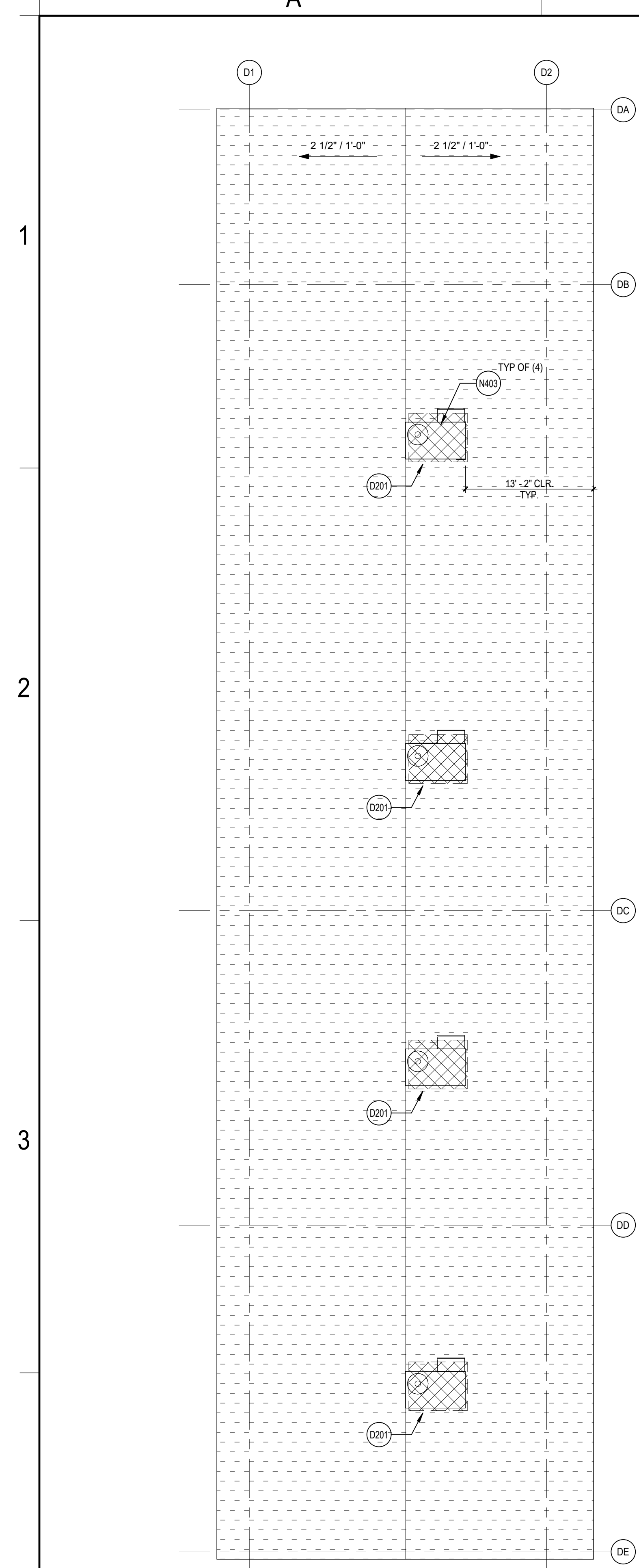
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 727 S. BARRANCA AVENUE, COVINA, CA 91723

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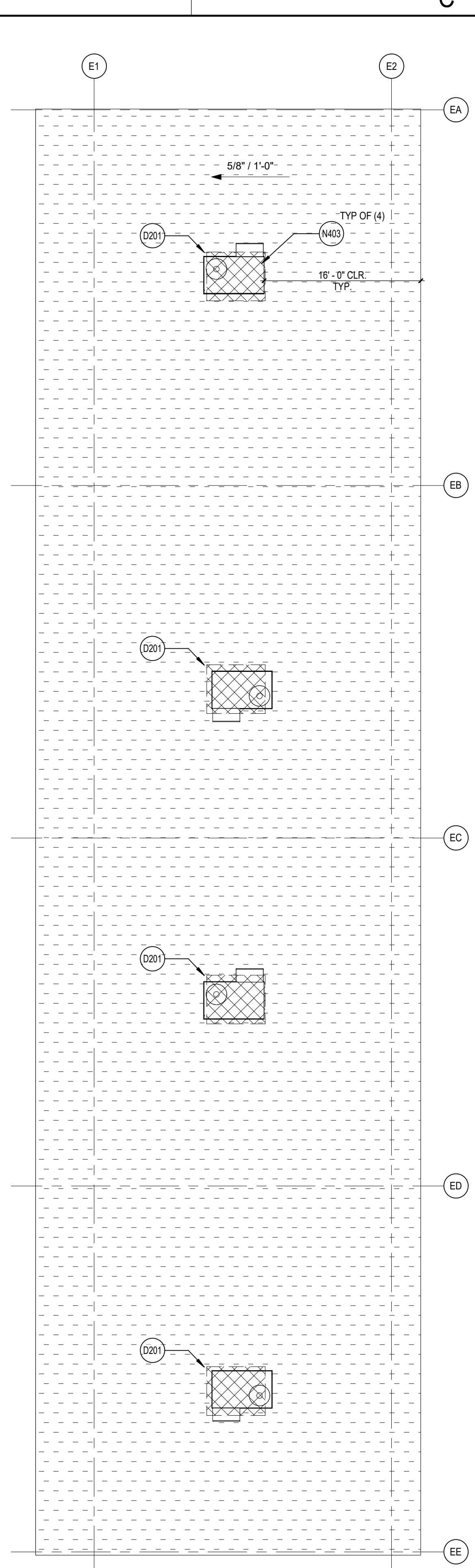
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 DSA File #: 19-25
BUILDINGS B AND C FLOOR PLAN

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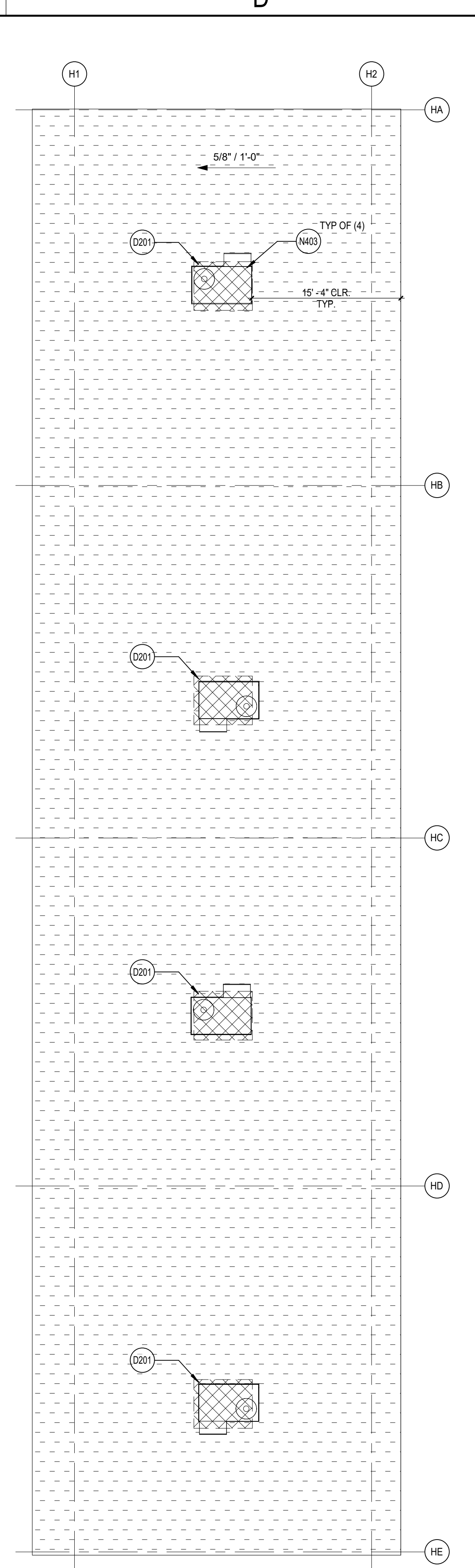
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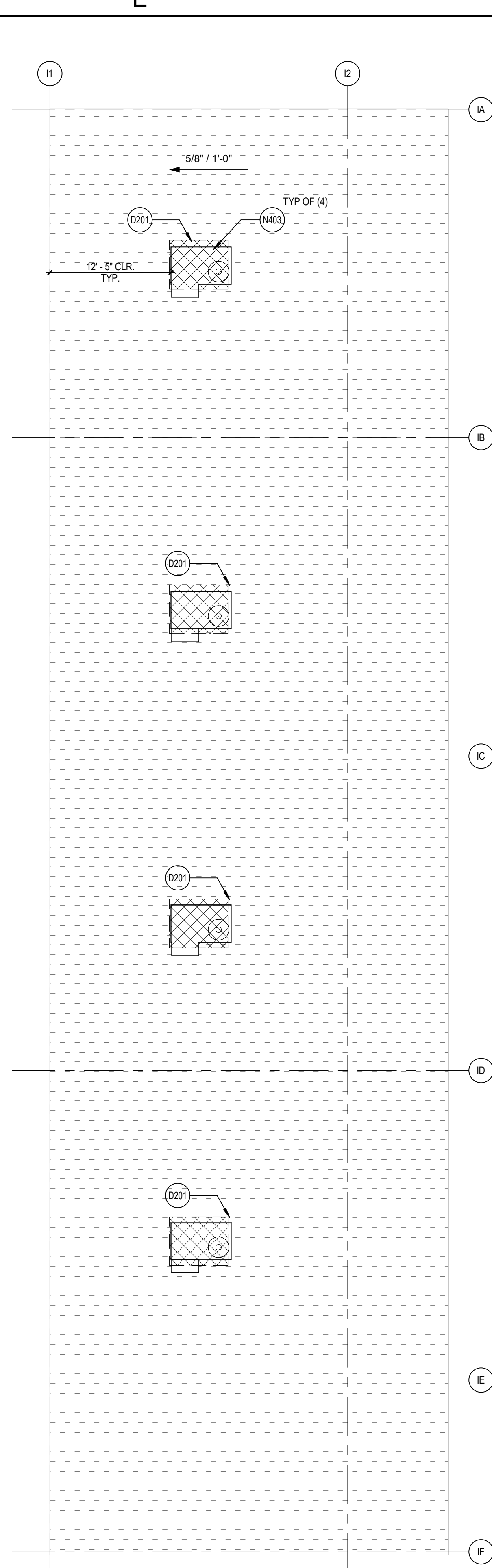
BUILDING D ROOF PLAN
SCALE: 1/8" = 1'-0"



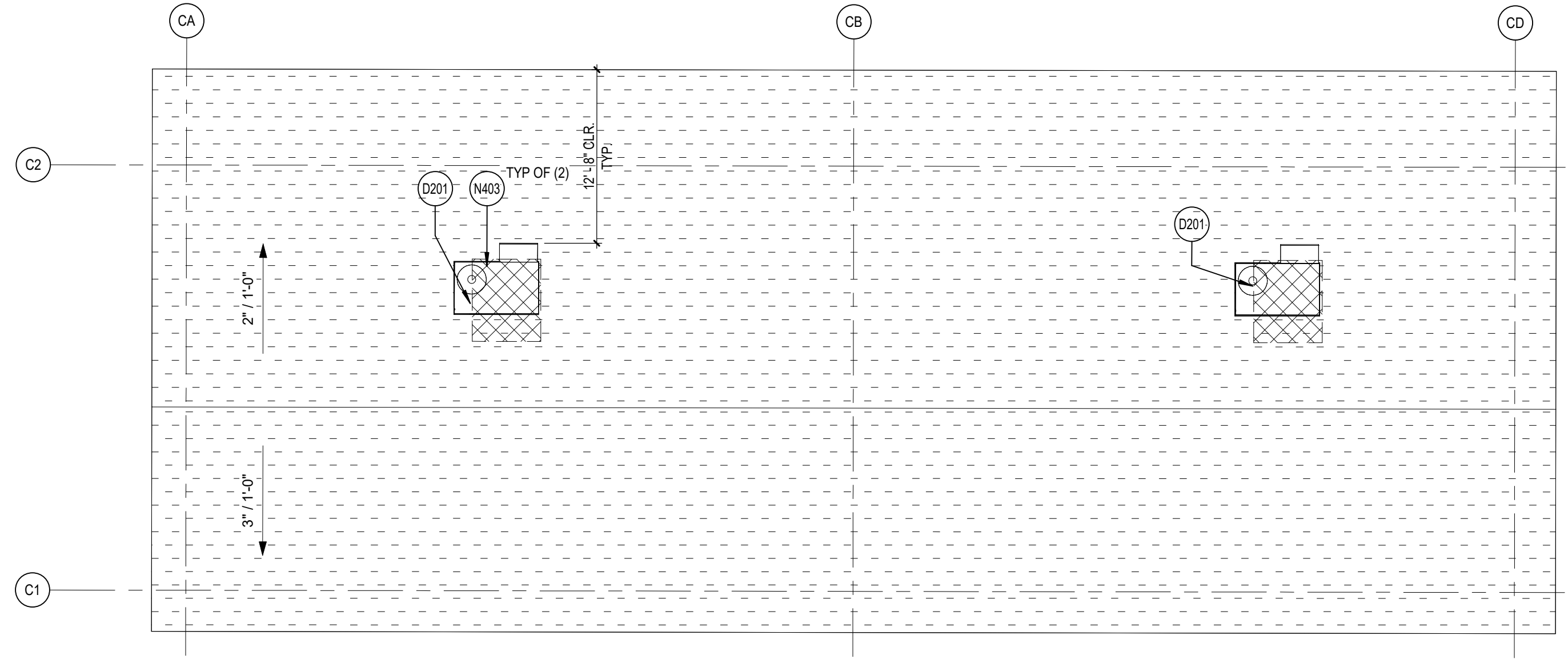
BUILDING E ROOF PLAN
SCALE: 1/8" = 1'-0"



BUILDING H ROOF PLAN
SCALE: 1/8" = 1'-0"



BUILDING I ROOF PLAN
SCALE: 1/8" = 1'-0"



BUILDING C ROOF PLAN
SCALE: 1/8" = 1'-0"

REFERENCE KEYNOTES

- D201 REMOVE (E) HVAC EQUIPMENT AND (E) DUCTWORK TO REMAIN PROTECT IN PLACE. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- N403 (N) MECHANICAL UNITS ATTACHED TO THE (E) UNIT CURB. SEE MECHANICAL DRAWING SHEET M1.3B & M1.3D.

ROOF PLAN GENERAL NOTES

- A. (E) ROOF CURBS TO REMAIN U.O. SEE MECHANICAL DRAWINGS SHEET M1.3B AND M1.3D FOR ADDITIONAL INFORMATION.
- B. COORDINATE THE SIZE AND LOCATION OF WALL PENETRATIONS FOR MECHANICAL AND ELECTRICAL EQUIPMENT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR PENETRATIONS NOT SHOWN ON THIS DRAWING.
- C. (E) DRAINS, CURBS, VENTS AND STACKS TO REMAINS.

DEMOLITION GENERAL NOTES

- DEMOLITION NOTES APPLY TO ALL DEMOLITION SHEETS.
- THE CONTRACTOR SHALL:
- A. COORDINATE ALL DEMOLITION AND PHASING EFFORTS WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH THE OWNER'S REPRESENTATIVE. IN ALL CASES, PROVISIONS SHALL BE MADE FOR USER'S SAFETY.
 - B. COORDINATE ANY DISRUPTION OF UTILITY SERVICES WITH THE OWNER AND AS SPECIFIED.
 - C. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WITHIN THE EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSURE TO ISOLATE ANY DEMOLITION/CONSTRUCTION WORK FROM THE GENERAL PUBLIC AND AS DEEMED NECESSARY BY THE OWNER AND CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH THE OWNER AND MAINTAIN MEANS OF EGRESS THROUGHOUT THE WORK.
 - D. MAINTAIN A SECURE, WEATHER-TIGHT ENCLOSURE AT ALL TIMES.
 - E. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
 - F. REMOVE IN THEIR ENTIRETY ALL EXISTING WALLS, DOORS, MILLWORK, PLUMBING FIXTURES, CEILING, SOFFITS, MARKERBOARDS, AND OTHER ITEMS, AS REQUIRED TO EXECUTE THE DEMOLITION/CONSTRUCTION WORK DESCRIBED BY THE DRAWINGS.
 - G. THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
 - H. PROVIDE PROTECTION FOR ALL EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO ANY DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS CONTRACT.
 - I. REPAIR OR REPLACE ITEMS THAT ARE DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH AND/OR CONDITION.
 - J. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
 - K. VERIFY AND MAINTAIN THE LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF THEIR SERVICE.
 - L. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR RE-ROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, AND OTHER ITEMS, AS REQUIRED TO MAINTAIN FIRE-RESISTANCE-RATED SEPARATIONS. FINISH AS REQUIRED FOR NEW OR EXISTING ADJACENT SURFACES.
 - M. CAP ALL DISCONNECTED MECHANICAL PIPING LINES WITHIN THE WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
 - N. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.
 - O. AVOID ANY DISTURBANCE OF SOILS WITHIN THE ZONE OF INFLUENCE AROUND EXISTING FOOTINGS AND FLOOR SLABS AS DIRECTED BY GEOTECHNICAL INSPECTOR.
 - P. WHERE PLASTER/STUCCO WALLS ARE INDICATED TO BE REMOVED, PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 1'-0" BEYOND DEMOLITION.

DLR Group
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JESSE MILLER
REGISTERED ARCHITECT
No. C-29306
10/31/2023
RENEWAL DATE
STATE OF CALIFORNIA

USO

BARRANCA ELEMENTARY SCHOOL
COVID-19 COVINA VALLEY DISTRICT WIDE HVAC REPLACEMENT
727 S. BARRANCA AVENUE, COVINA, CA 91723

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DSA A#03-122224
DSA File #: 19-25

BUILDINGS D, E, H AND I ROOF PLAN

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STATE OF CALIFORNIA
Mechanical Systems
NRC-MCH-E CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRC-MCH-E
This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.4, or §141.0(b)(2) for alterations.

Project Name: CVUSD Barranca Report Page: (Page 1 of 39)
Project Address: 727 S Barranca Ave Date Prepared: 6/28/2022

A. GENERAL INFORMATION

01 Project Location (City)	Covina	04 Total Conditioned Floor Area	21505
02 Climate Zone	10	05 Total Unconditioned Floor Area	0
03 Occupancy Types Within Project:		06 # of Stories (Habitable Above Grade)	1
<input type="checkbox"/> Office (B)	<input type="checkbox"/> Retail (M)	<input type="checkbox"/> Non-refrigerated Warehouse (S)	
<input type="checkbox"/> Hotel/ Motel Guest Rooms (R-1)	<input type="checkbox"/> School (E)	<input type="checkbox"/> Healthcare Facility (I)	
<input type="checkbox"/> High-Rise Residential (R-2/R-3)	<input type="checkbox"/> Relocatable Class Bldg (E)	<input type="checkbox"/> Other (write in)	See Table J

B. PROJECT SCOPE
This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.4, or §141.0(b)(2) for alterations.

01 Air System(s)	02 Wet System Components	03 Dry System Components
<input checked="" type="checkbox"/> Heating Air System	<input type="checkbox"/> Water Economizer	<input checked="" type="checkbox"/> Air Economizer
<input checked="" type="checkbox"/> Cooling Air System	<input type="checkbox"/> Pumps	<input type="checkbox"/> Electric Resistance Heat
<input type="checkbox"/> Mechanical Controls	<input type="checkbox"/> System Piping	<input type="checkbox"/> Fan Systems
<input checked="" type="checkbox"/> Mechanical Controls (existing to remain, altered or new)	<input type="checkbox"/> Cooling Towers	<input checked="" type="checkbox"/> Ductwork (existing to remain, altered or new)
	<input type="checkbox"/> Chillers	<input checked="" type="checkbox"/> Ventilation
	<input type="checkbox"/> Boilers	<input type="checkbox"/> Zonal Systems/ Terminal Boxes

Registration Number: Registration Date/Time: Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-06-28 11:56:10
Schema Version: rev 20200601

STATE OF CALIFORNIA
Mechanical Systems
NRC-MCH-E CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRC-MCH-E
Project Name: CVUSD Barranca Report Page: (Page 4 of 39)
Project Address: 727 S Barranca Ave Date Prepared: 6/28/2022

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters)

01	02	03	04	05	06	07	08	09	10	11
RTU-E3	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	19.86	33.62	0	36	33.4	43.71	36.74
RTU-E4	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	21.02	35.58	0	37.49	34.94	46.26	38.42
RTU-H1	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	21.16	35.83	0	38.22	35.83	46.57	39.4
RTU-H2	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	20.14	34.1	0	36.98	34.41	44.32	37.85
RTU-H3	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	19.86	33.62	0	36	33.4	43.71	36.74
RTU-H4	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	21.02	35.58	0	37.49	34.94	46.26	38.42
RTU-I1	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	21.07	35.67	0	38.7	36.32	46.36	39.95
RTU-I2	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	20.04	33.92	0	36.48	33.89	44.09	37.27
RTU-I3	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	19.97	33.81	0	36.33	33.74	43.95	37.11
RTU-I4	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	19.93	33.74	0	36.15	33.55	43.85	36.9

¹FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per §140.4(c). Healthcare facilities are exempt.
²It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.
³If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.
⁴Authority Having Jurisdiction may ask for load calculations used for compliance per §140.4(b).

Registration Number: Registration Date/Time: Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Report Generated: 2022-06-28 11:56:10
Schema Version: rev 20200601

STATE OF CALIFORNIA
Mechanical Systems
NRC-MCH-E CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRC-MCH-E
Project Name: CVUSD Barranca Report Page: (Page 7 of 39)
Project Address: 727 S Barranca Ave Date Prepared: 6/28/2022

H. FAN SYSTEMS & AIR ECONOMIZERS

System Name:	RTU-C2	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(c) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	2000	BHP	0.91		
Total System Design Supply Airflow (CFM):			2000	Total System Design (BHP):		0.91	Maximum System Fan Power (BHP):
System Name:	RTU-D1	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(c) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	1600	BHP	0.91		
Total System Design Supply Airflow (CFM):			1600	Total System Design (BHP):		0.91	Maximum System Fan Power (BHP):
System Name:	RTU-D2	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(c) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	1600	BHP	0.91		
Total System Design Supply Airflow (CFM):			1600	Total System Design (BHP):		0.91	Maximum System Fan Power (BHP):

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C. COMPLIANCE RESULTS
Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, or the table indicated as not compliant for guidance.

01	02	03	04	05	06	07	08	09
System Summary	AND	Pumps	AND	Fans/Economizers	AND	System Controls	AND	Ventilation
§110.1, §110.2, §140.4		§140.4(b)		§140.4(c), §140.4(e)		§110.2, §120.2, §140.4(f)		§120.1
(See Table F)	(See Table G)	(See Table H)	(See Table I)	(See Table J)	(See Table K)	(See Table L)	(See Table M)	COMPLIES
Yes	AND	AND	AND	AND	AND	AND	AND	COMPLIES

D. EXCEPTIONAL CONDITIONS
This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS
This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP))

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
FCU-B1	>=135,000 and <240,000		COP	3.2	3.4	EER	10.6	12.2
RTU-C1	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-C2	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-D1	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-D2	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-D3	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-D4	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-E1	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-E2	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-E3	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-E4	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-H1	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-H2	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-H3	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-H4	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-I1	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-I2	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-I3	<=65,000		HSPF	7.7	13	SEER	13.0	14.3
RTU-I4	<=65,000		HSPF	7.7	13	SEER	13.0	14.3

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name:	RTU-D3	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(c) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	1600	BHP	0.91		
Total System Design Supply Airflow (CFM):			1600	Total System Design (BHP):		0.91	Maximum System Fan Power (BHP):
System Name:	RTU-D4	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(c) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	1600	BHP	0.91		
Total System Design Supply Airflow (CFM):			1600	Total System Design (BHP):		0.91	Maximum System Fan Power (BHP):
System Name:	RTU-E1	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(c) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	1600	BHP	0.91		
Total System Design Supply Airflow (CFM):			1600	Total System Design (BHP):		0.91	Maximum System Fan Power (BHP):

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
This table is used to demonstrate compliance for mechanical equipment with mandatory requirements found in §110.1 and §110.2(a) and prescriptive requirements found in §140.4(a), §140.4(b) and §140.4(b) or §141.0(b)(2) for alterations.

Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2	Equipment Type per Tables 110.2 / Title 20	Smallest Size Available ¹ §140.4(a)	Equipment Sizing per Mechanical Schedule (kBtu/h)			Load Calculations ^{4,4}			
				Heating Output ^{2,3}	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
FCU-B1	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Load Controls	100.42	170	0	188.38	144	359.82	274.73
RTU-C1	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	33.55	56.8	0	41.9	39.6	49.75	43.56
RTU-C2	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	33.55	56.8	0	41.9	39.6	49.82	43.24
RTU-D1	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	19.94	33.76	0	36.21	33.61	43.89	36.97
RTU-D2	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	19.94	33.76	0	36.21	33.61	43.89	36.97
RTU-D3	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	19.93	33.74	0	36.15	33.55	43.85	36.9
RTU-D4	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	20.96	35.48	0	37.25	34.69	46.13	38.15
RTU-E1	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	21.16	35.83	0	38.22	35.83	46.57	39.4
RTU-E2	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	20.14	34.1	0	36.98	34.41	44.32	37.85

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G. PUMPS
This section does not apply to this project.

H. FAN SYSTEMS & AIR ECONOMIZERS
This table is used to demonstrate compliance with prescriptive requirements found in §140.4(c), §140.4(e) and §140.4(m) for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name:	FCU-B1	Economizer: ¹	NA: Special OA Filtration	Economizer Controls:	Designed per §140.4(c) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	6000	BHP	0.91		
Total System Design Supply Airflow (CFM):			6000	Total System Design (BHP):		0.91	Maximum System Fan Power (BHP):
System Name:	RTU-C1	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(c) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	2000	BHP	0.91		
Total System Design Supply Airflow (CFM):			2000	Total System Design (BHP):		0.91	Maximum System Fan Power (BHP):

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H. FAN SYSTEMS & AIR ECONOMIZERS							
System Name:	RTU-H1	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(e) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	1600	BHP	0.91		
Total System Design Supply Airflow (CFM):			1600	Total System Design (BHP):	0.91	Maximum System Fan Power (BHP):	

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I. SYSTEM CONTROLS								
This table is used to demonstrate compliance with mandatory controls in §110.2 and §120.2 and prescriptive controls in §140.4(f) and (n) or requirements in §141.0(b)(2) for altered space conditioning systems.								
System Name	System Zoning	Conditioned Floor Area Being Served (ft ²)	Thermostats §110.2(b) & (c), §120.2(a)(1) or §141.0(b)(2)	Shut-Off Controls §120.2(e)	Isolation Zone Controls §120.2(f)	Demand Response §110.12 and §120.2(b)	Supply Air Temp. Reset §140.4(f)	Window Interlocks per §140.4(n)
FCU-B1	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-C1	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-C2	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-D1	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-D2	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-D3	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-D4	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-E1	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-E2	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-E3	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-E4	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-H1	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided

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J. VENTILATION AND INDOOR AIR QUALITY										
System Name		RTU-C2	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0	Air Filtration per §120.1(c) and §141.0(b)(2) ²			07
08		09		10	11	12	13	14	15	16
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/ toilets	# of people ⁵	Required Min OA CFM	Required Min CFM	Provided per Design CFM	DCV or Sensor Controls per §120.1(d)(3), §120.1(d)(5), and §120.1(e)(3) ⁶	DCV	Provided per §120.1(d)(4)
Classroom	Lecture/ postsecondary classroom	1270		30	450	0	0	NA: Not required space type	NA: Not required space type	NA: Not required space type
17		Total System Required Min OA CFM		450	18	Ventilation for this System Complies?			Yes	

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H. FAN SYSTEMS & AIR ECONOMIZERS							
System Name:	RTU-H4	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(e) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	1600	BHP	0.91		
Total System Design Supply Airflow (CFM):			1600	Total System Design (BHP):	0.91	Maximum System Fan Power (BHP):	

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I. SYSTEM CONTROLS								
RTU-H2	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-H3	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-H4	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-I1	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-I2	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-I3	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided
RTU-I4	Single zone	<= 25,000 ft ²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	Included	Provided

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I. VENTILATION AND INDOOR AIR QUALITY										
System Name		RTU-D2	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0	Air Filtration per §120.1(c) and §141.0(b)(2) ²			07
08		09		10	11	12	13	14	15	16
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/ toilets	# of people ⁵	Required Min OA CFM	Required Min CFM	Provided per Design CFM	DCV or Sensor Controls per §120.1(d)(3), §120.1(d)(5), and §120.1(e)(3) ⁶	DCV	Provided per §120.1(d)(4)
Classroom	Lecture/ postsecondary classroom	930		30	450	0	0	NA: Not required space type	NA: Not required space type	NA: Not required space type
17		Total System Required Min OA CFM		450	18	Ventilation for this System Complies?			Yes	

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H. FAN SYSTEMS & AIR ECONOMIZERS							
System Name:	RTU-I3	Economizer: ¹	NA: <=54 kbtu/h cooling	Economizer Controls:	Designed per §140.4(e) and (m)	System Fan Type:	Constant Volume
01	02	03	04	05	06	07	08
Fan Name or Item Tag	Fan Function	Qty	Maximum Design Supply Airflow (CFM)	HP Unit ²	Design HP	Fan Power Pressure Drop Adjustment - Table 140.4-B	Design Airflow through Device (CFM)
SF	Supply	1	1600	BHP	0.91		
Total System Design Supply Airflow (CFM):			1600	Total System Design (BHP):	0.91	Maximum System Fan Power (BHP):	

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J. VENTILATION AND INDOOR AIR QUALITY										
System Name		FCU-B1	System Design OA CFM Airflow ¹	4500	System Design Transfer Air CFM	0	Air Filtration per §120.1(c) and §141.0(b)(2) ²			07
08		09		10	11	12	13	14	15	16
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/ toilets	# of people ⁵	Required Min OA CFM	Required Min CFM	Provided per Design CFM	DCV or Sensor Controls per §120.1(d)(3), §120.1(d)(5), and §120.1(e)(3) ⁶	DCV	Provided per §120.1(d)(4)
MPR Building	Assembly- multuse	3700		300	4500	0	0	NA: Not required space type	NA: Not required space type	NA: Not required space type
17		Total System Required Min OA CFM		4500	18	Ventilation for this System Complies?			Yes	

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J. VENTILATION AND INDOOR AIR QUALITY										
System Name		RTU-D4	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0	Air Filtration per §120.1(c) and §141.0(b)(2) ²			07
08		09		10	11	12	13	14	15	16
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/ toilets	# of people ⁵	Required Min OA CFM	Required Min CFM	Provided per Design CFM	DCV or Sensor Controls per §120.1(d)(3), §120.1(d)(5), and §120.1(e)(3) ⁶	DCV	Provided per §120.1(d)(4)
Classroom	Lecture/ postsecondary classroom	950		30	450	0	0	NA: Not required space type	NA: Not required space type	NA: Not required space type
17		Total System Required Min OA CFM		450	18	Ventilation for this System Complies?			Yes	

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1
2
3
4
5

DLR Group
DLS
Barranca Elementary School
Covina Valley USD
727 S Barranca Ave, Covina, CA 91723
75-22605-00
TITLE 24 COMPLIANCE
MO.3

Autodesk Docs/775-22605-00_CVUSD - District Wide HVAC Replacement/75-22605-00_CVUSD_Barranca ES_MEP_2022.rvt
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J. VENTILATION AND INDOOR AIR QUALITY

System Name	04	05	06	07
RTU-E2	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0
				Air Filtration per §120.1(c) and §141.0(b)2 ² Provided per §120.1(c) (NR and Hotel/Motel)
08	09	10	11	12
Mechanical Ventilation Required per §120.1(c)3 ³				
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/toilets	# of people ⁵
Classroom	Lecture/ postsecondary classroom	995		30
				Required Min OA CFM
				Provided per Design CFM
				DCV or Sensor Controls per §120.1(d)3, §120.1(d)5, and §120.1(e)3 ⁶
				DCV
				Provided per §120.1(d)4
				Occ Sensor NA: Not required space type
17	Total System Required Min OA CFM		450	18
				Ventilation for this System Complies? Yes

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J. VENTILATION AND INDOOR AIR QUALITY

System Name	04	05	06	07
RTU-E4	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0
				Air Filtration per §120.1(c) and §141.0(b)2 ² Provided per §120.1(c) (NR and Hotel/Motel)
08	09	10	11	12
Mechanical Ventilation Required per §120.1(c)3 ³				
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/toilets	# of people ⁵
Classroom	Lecture/ postsecondary classroom	970		30
				Required Min OA CFM
				Provided per Design CFM
				DCV or Sensor Controls per §120.1(d)3, §120.1(d)5, and §120.1(e)3 ⁶
				DCV
				Provided per §120.1(d)4
				Occ Sensor NA: Not required space type
17	Total System Required Min OA CFM		450	18
				Ventilation for this System Complies? Yes

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STATE OF CALIFORNIA
Mechanical Systems
 NRCC-MCH-E CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE
 Project Name: CVUSD Barranca Report Page: NRCC-MCH-E (Page 21 of 39)
 Project Address: 727 S Barranca Ave Date Prepared: 6/28/2022

J. VENTILATION AND INDOOR AIR QUALITY

System Name	04	05	06	07
RTU-H2	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0
				Air Filtration per §120.1(c) and §141.0(b)2 ² Provided per §120.1(c) (NR and Hotel/Motel)
08	09	10	11	12
Mechanical Ventilation Required per §120.1(c)3 ³				
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/toilets	# of people ⁵
Classroom	Lecture/ postsecondary classroom	995		30
				Required Min OA CFM
				Provided per Design CFM
				DCV or Sensor Controls per §120.1(d)3, §120.1(d)5, and §120.1(e)3 ⁶
				DCV
				Provided per §120.1(d)4
				Occ Sensor NA: Not required space type
17	Total System Required Min OA CFM		450	18
				Ventilation for this System Complies? Yes

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STATE OF CALIFORNIA
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 Project Name: CVUSD Barranca Report Page: NRCC-MCH-E (Page 22 of 39)
 Project Address: 727 S Barranca Ave Date Prepared: 6/28/2022

J. VENTILATION AND INDOOR AIR QUALITY

System Name	04	05	06	07
RTU-H4	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0
				Air Filtration per §120.1(c) and §141.0(b)2 ² Provided per §120.1(c) (NR and Hotel/Motel)
08	09	10	11	12
Mechanical Ventilation Required per §120.1(c)3 ³				
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/toilets	# of people ⁵
Classroom	Lecture/ postsecondary classroom	970		30
				Required Min OA CFM
				Provided per Design CFM
				DCV or Sensor Controls per §120.1(d)3, §120.1(d)5, and §120.1(e)3 ⁶
				DCV
				Provided per §120.1(d)4
				Occ Sensor NA: Not required space type
17	Total System Required Min OA CFM		450	18
				Ventilation for this System Complies? Yes

Registration Number: Registration Date/Time: Registration Provider: Energysoft
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STATE OF CALIFORNIA
Mechanical Systems
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J. VENTILATION AND INDOOR AIR QUALITY

System Name	04	05	06	07
RTU-I2	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0
				Air Filtration per §120.1(c) and §141.0(b)2 ² Provided per §120.1(c) (NR and Hotel/Motel)
08	09	10	11	12
Mechanical Ventilation Required per §120.1(c)3 ³				
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/toilets	# of people ⁵
Classroom	Lecture/ postsecondary classroom	950		30
				Required Min OA CFM
				Provided per Design CFM
				DCV or Sensor Controls per §120.1(d)3, §120.1(d)5, and §120.1(e)3 ⁶
				DCV
				Provided per §120.1(d)4
				Occ Sensor NA: Not required space type
17	Total System Required Min OA CFM		450	18
				Ventilation for this System Complies? Yes

Registration Number: Registration Date/Time: Registration Provider: Energysoft
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STATE OF CALIFORNIA
Mechanical Systems
 NRCC-MCH-E CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE
 Project Name: CVUSD Barranca Report Page: NRCC-MCH-E (Page 24 of 39)
 Project Address: 727 S Barranca Ave Date Prepared: 6/28/2022

J. VENTILATION AND INDOOR AIR QUALITY

System Name	04	05	06	07
RTU-I4	System Design OA CFM Airflow ¹	450	System Design Transfer Air CFM	0
				Air Filtration per §120.1(c) and §141.0(b)2 ² Provided per §120.1(c) (NR and Hotel/Motel)
08	09	10	11	12
Mechanical Ventilation Required per §120.1(c)3 ³				
Space Name of Item Tag	Occupancy Type ⁴	Conditioned Floor Area (ft ²)	# of Shower heads/toilets	# of people ⁵
Classroom	Lecture/ postsecondary classroom	925		30
				Required Min OA CFM
				Provided per Design CFM
				DCV or Sensor Controls per §120.1(d)3, §120.1(d)5, and §120.1(e)3 ⁶
				DCV
				Provided per §120.1(d)4
				Occ Sensor NA: Not required space type
17	Total System Required Min OA CFM		450	18
				Ventilation for this System Complies? Yes

Registration Number: Registration Date/Time: Registration Provider: Energysoft
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FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system
² Air filtration requirements apply to the following three system types per §120.1(c)1A: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space
³ Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.
⁴ See Standards Tables 120.1-A and 120.1-B
⁵ For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.
⁶ §120.2(e)3 requires systems serving rooms that are required by §120.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft² or smaller, multipurpose rooms less than 1,000ft², classrooms, conference rooms, restrooms, and open areas in warehouses, library book stock aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by §130.1(c).

K. TERMINAL BOX CONTROLS
 This section does not apply to this project.

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CERTIFICATE OF COMPLIANCE
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L. DISTRIBUTION (DUCTWORK and PIPING)
 This table is used to show compliance with mandatory pipe insulation requirements found in §120.3 and prescriptive requirements found in §140.4(f) for duct leakage testing.

Duct Leakage Sealing

The answers to the questions below apply to the following duct systems: FCU-B1 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)11B or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code

The answers to the questions below apply to the following duct systems: RTU-C1 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)11B or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space

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L. DISTRIBUTION (DUCTWORK and PIPING)

In other unconditioned spaces

15 The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.

16 The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.

17 Yes Duct system shall be sealed in accordance with the California Mechanical Code

The answers to the questions below apply to the following duct systems: RTU-C2 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)11B or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code

The answers to the questions below apply to the following duct systems: RTU-D1 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)11B or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space

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L. DISTRIBUTION (DUCTWORK and PIPING)

In other unconditioned spaces

15 The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.

16 The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.

17 Yes Duct system shall be sealed in accordance with the California Mechanical Code

The answers to the questions below apply to the following duct systems: RTU-D2 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)11B or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code

The answers to the questions below apply to the following duct systems: RTU-D3 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)11B or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space

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DLR Group
 DSA SUBMITTED SET 5/5/2022 REVISIONS
 TITLE 24 COMPLIANCE
 MO.4

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NRC-MCH-E		CALIFORNIA ENERGY COMMISSION	
CERTIFICATE OF COMPLIANCE		NRCC-MCH-E	
Project Name:	CVUSD Barranca	Report Page:	(Page 37 of 39)
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O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

Form/Title	Systems/Spaces To Be Field Verified	Field Inspector	
		Pass	Fail
NRCA-MCH-11-A Automatic Demand Shed Controls	FCU-B1; RTU-C1; RTU-C2; RTU-D1; RTU-D2; RTU-D3; RTU-D4; RTU-E1; RTU-E2; RTU-E3; RTU-E4; RTU-H1; RTU-H2; RTU-H3; RTU-H4; RTU-I1; RTU-I2; RTU-I3; RTU-I4;	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-16-A Supply Air Temperature Reset Controls	FCU-B1; RTU-C1; RTU-C2; RTU-D1; RTU-D2; RTU-D3; RTU-D4; RTU-E1; RTU-E2; RTU-E3; RTU-E4; RTU-H1; RTU-H2; RTU-H3; RTU-H4; RTU-I1; RTU-I2; RTU-I3; RTU-I4;	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-18-A Energy Management Control Systems	FCU-B1; RTU-C1; RTU-C2; RTU-D1; RTU-D2; RTU-D3; RTU-D4; RTU-E1; RTU-E2; RTU-E3; RTU-E4; RTU-H1; RTU-H2; RTU-H3; RTU-H4; RTU-I1; RTU-I2; RTU-I3; RTU-I4;	<input type="checkbox"/>	<input type="checkbox"/>

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no NRCV forms required for this project.

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NRC-MCH-E		CALIFORNIA ENERGY COMMISSION	
CERTIFICATE OF COMPLIANCE		NRCC-MCH-E	
Project Name:	CVUSD Barranca	Report Page:	(Page 38 of 39)
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Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

	O1	O2
Compliance with Mandatory Measures documented through MCH	Yes	M-Sheets
Mandatory Measures Note Block		

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NRC-MCH-E		CALIFORNIA ENERGY COMMISSION	
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Project Address:	727 S Barranca Ave	Date Prepared:	6/28/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: TONG FANG ZHAO	Documentation Author Signature: <i>Tong Fang Zhao</i>
Company: DLR Group	Signature Date: 2022-06-28
Address: 700 FLOWER STREET	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: LOS ANGELES CA 90017	Phone: 213-444-0610

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 4 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: TONG FANG ZHAO	Responsible Designer Signature: <i>Tong Fang Zhao</i>
Company: DLR GROUP	Date Signed: 2022-06-28
Address: 700 FLOWER STREET	License: M-34291
City/State/Zip: LOS ANGELES CA 90017	Phone: 213-444-0610

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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Barranca Elementary School
 Covina Valley USD
 727 S Barranca Ave, Covina, CA 91723

DSA SUBMITTED SET
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 REVISIONS

75-22605-00

TITLE 24 COMPLIANCE

M0.6

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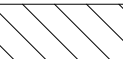

5



GENERAL NOTES

2
A FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING M0.1

SITE LEGEND

-  EXISTING BUILDING - NOT IN SCOPE
-  EXISTING BUILDING - SCOPE OF WORK UNDER THIS DSA APPLICATION
-  (E) RESTROOMS - NOT IN SCOPE



Barranca Elementary School
Covina Valley USD
777 S Barranca Ave, Covina, CA 91723

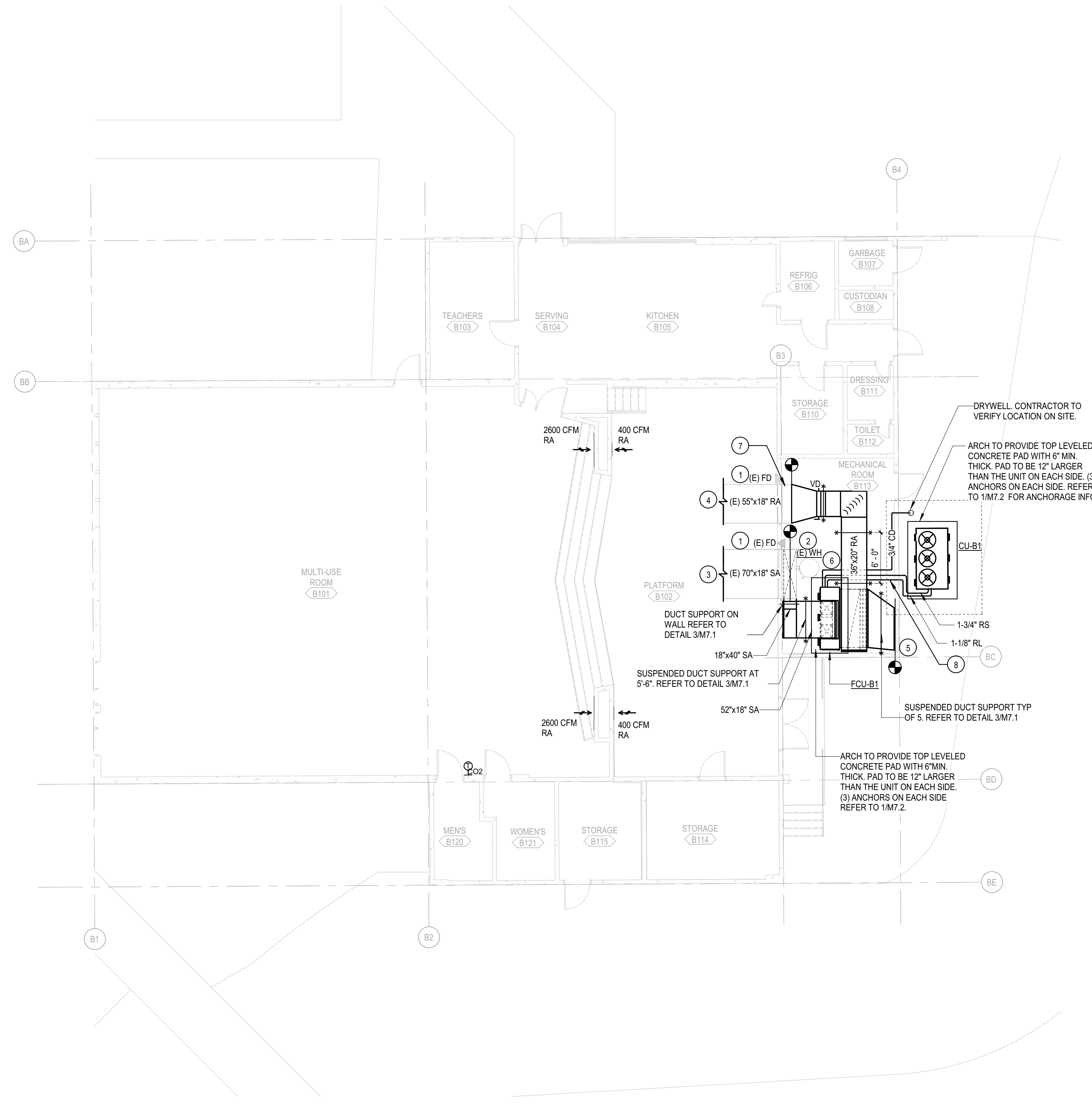
DSA SUBMITTED SET
5/5/2022
REVISIONS

75-22605-00

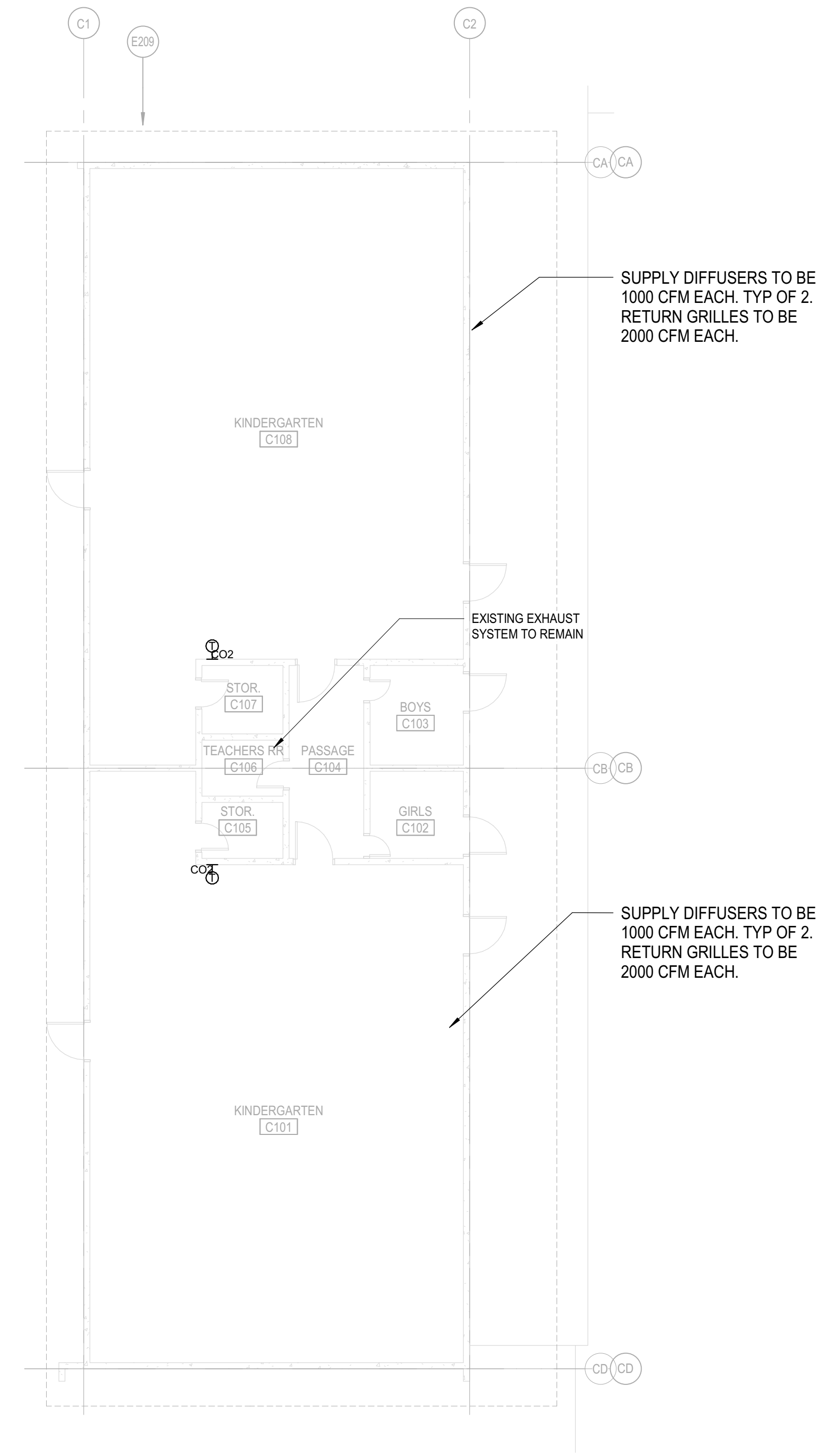
MECHANICAL SITE PLAN

M1.1

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BUILDING B MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



BUILDING C MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"

DEMO NOTES - MPR ONLY

- A. REMOVE SUPPLY FAN, FURNACE AND RELATED DUCT, WIRING, MOTOR, SUPPORTS AND OTHER APPURTENANCES TO POC. REMOVE GAS PIPING UP TO MAIN AND CAP.
- B. (E) VEH AND RELATED EQUIPMENT, PIPING AND FLUE DUCT TO REMAIN.

GENERAL NOTES

1. SCOPE OF WORK IS CLASSROOMS & MPR ONLY.
2. EXISTING DUCTWORK IN CLASSROOMS & MPR TO REMAIN.
3. DIFFUSERS AND GRILLES AIR PATH CANNOT BE BLOCK BY ANY ITEMS.
4. PROVIDE 1" LINEAR TO NEW DUCT IN MPR.

KEY NOTES

1. (E) FIRE DAMPER AND RELATED ACCESS PANEL TO REMAIN.
2. PDD/POC TO BE BEFORE (E) FIRE DAMPER ACCESS PANEL.
3. (E) SA DUCTWORK TO REMAIN. 200 CFM FOR EACH SA DIFFUSER. TYP. OF 3).
4. (E) RA DUCTWORK & ROUTE TO REMAIN.
5. (E) OSA LOUVER & DAMPER TO REMAIN TO BE READY TO CONNECT TO DUCTWORK. CONTRACTOR TO VERIFY DAMPER CONDITION ON SITE PRIOR TO BID.
6. PROVIDE 1" CD PIPING TO DRAIN TO EXISTING FLOOR SINK. CONTRACTOR TO VERIFY PRIOR TO BID.
7. RE-BALANCE (E) EXHAUST DAMPER TO 2000 CFM. (E) EXHAUST HOOD TO REMAIN.
8. RULS PENETRATE WALL ABOVE GRADE. CONTRACTOR TO VERIFY LOCATION ON SITE. PROVIDE PHP PIPE SUPPORT.



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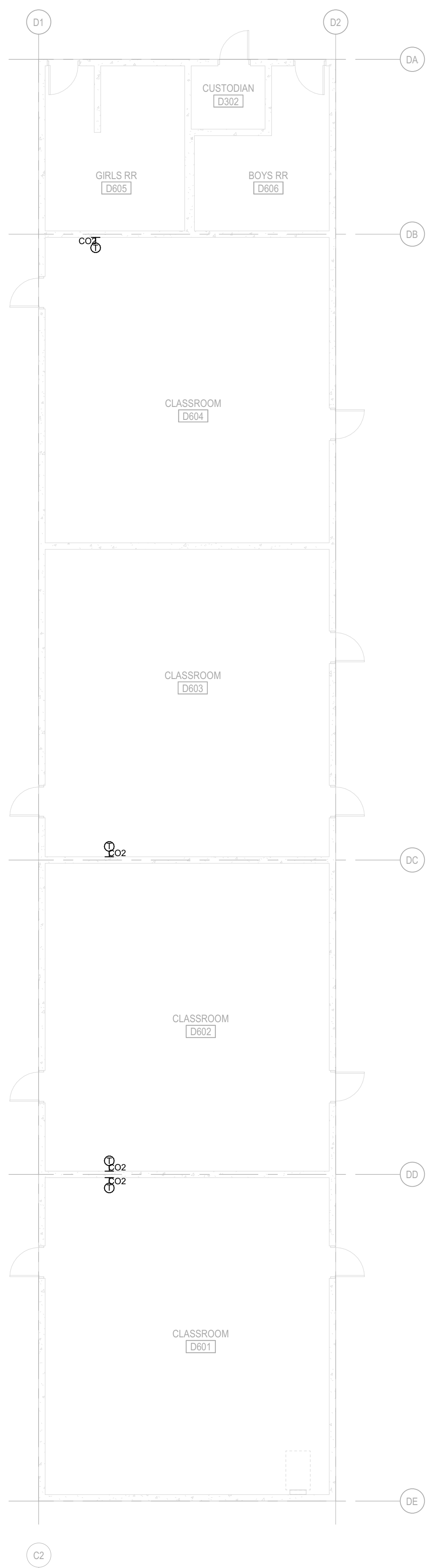
75-22605-00

BUILDING B & C MECHANICAL FLOOR PLAN

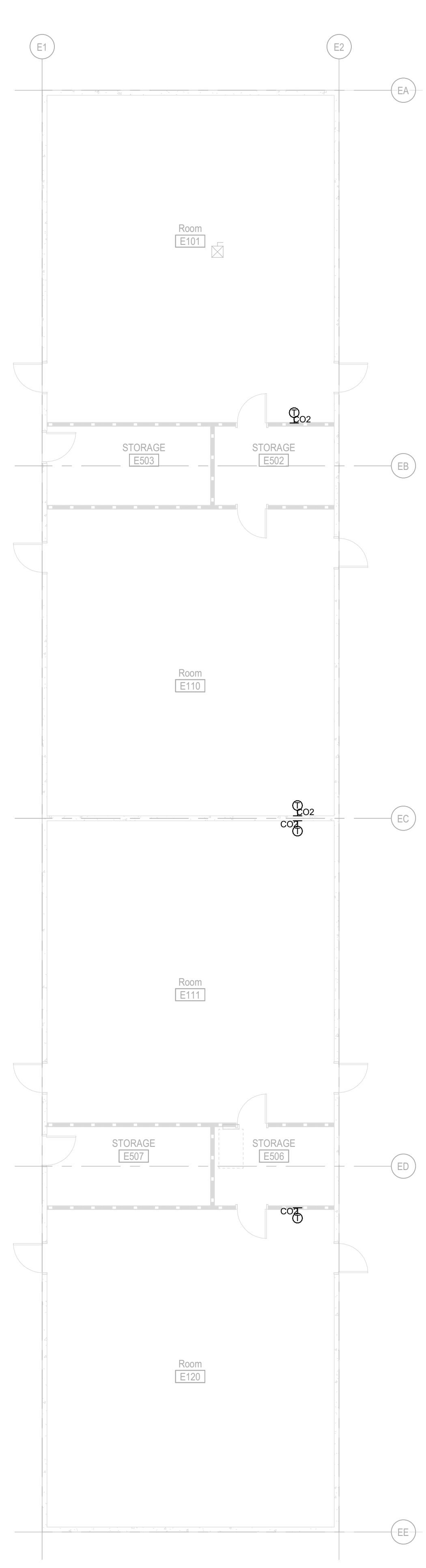
M1.1B

Autodesk Docs/75-22605-00 CVUSD - District Wide HVAC Replacement/75-22605-00 CVUSD_Barranca ES_MEP_2022.rvt 8/2/2022 12:59:40 PM

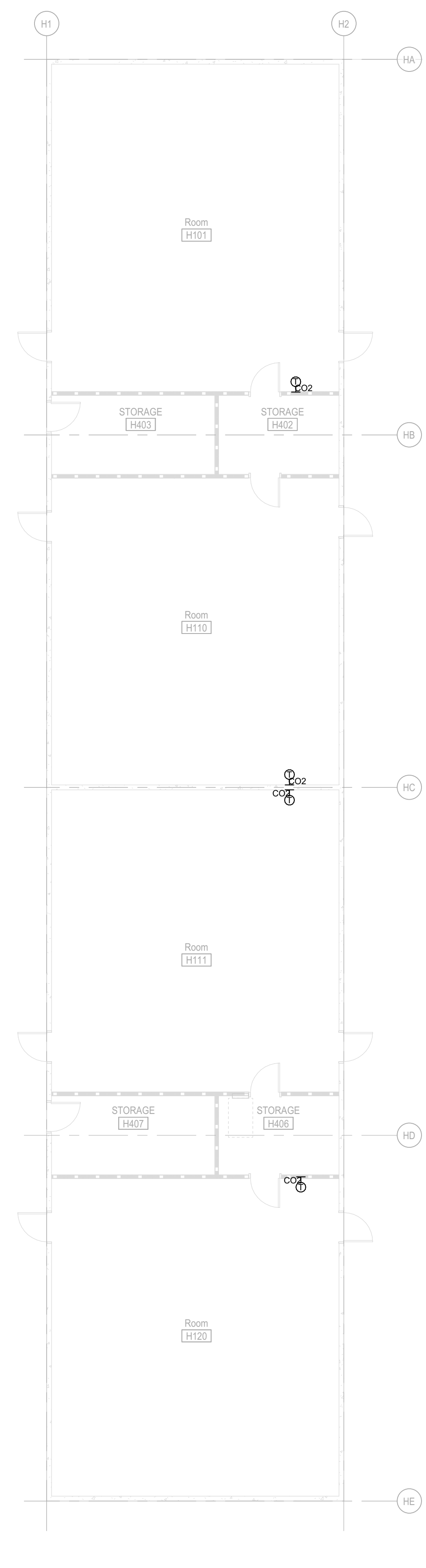
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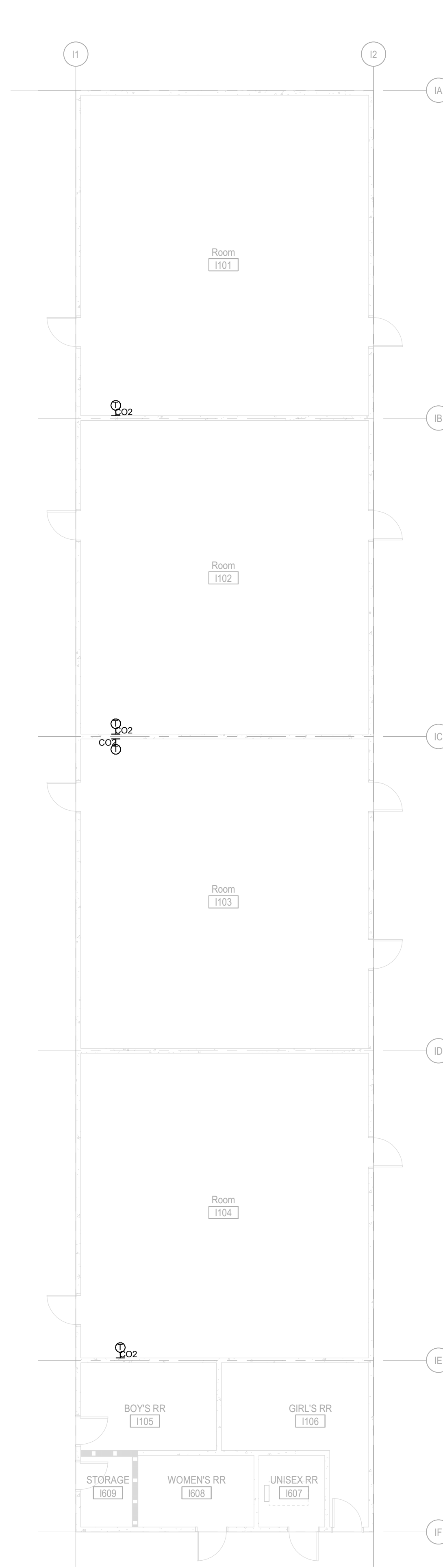
BUILDING D MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



BUILDING E MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



BUILDING H MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



BUILDING I MECHANICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. SCOPE OF WORK IS CLASSROOMS ONLY.
2. EXISTING DUCTWORK TO REMAIN AND BE ASSUMED TO MATCH AS-BUILT DATED 9/11/1974.
3. SUPPLY DIFFUSERS TO BE 400 CFM EACH, TYP. OF 2" IN EACH CLASSROOM. RETURN GRILLES TO BE 1000 CFM EACH.



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BUILDINGS D,E,H & I MECHANICAL FLOOR PLAN

M1.1D

Autodesk Docs/75-22605-00 CVUSD - District Wide HVAC Replacement/75-22605-00 CVUSD - Barranca ES MEP_2022.rvt
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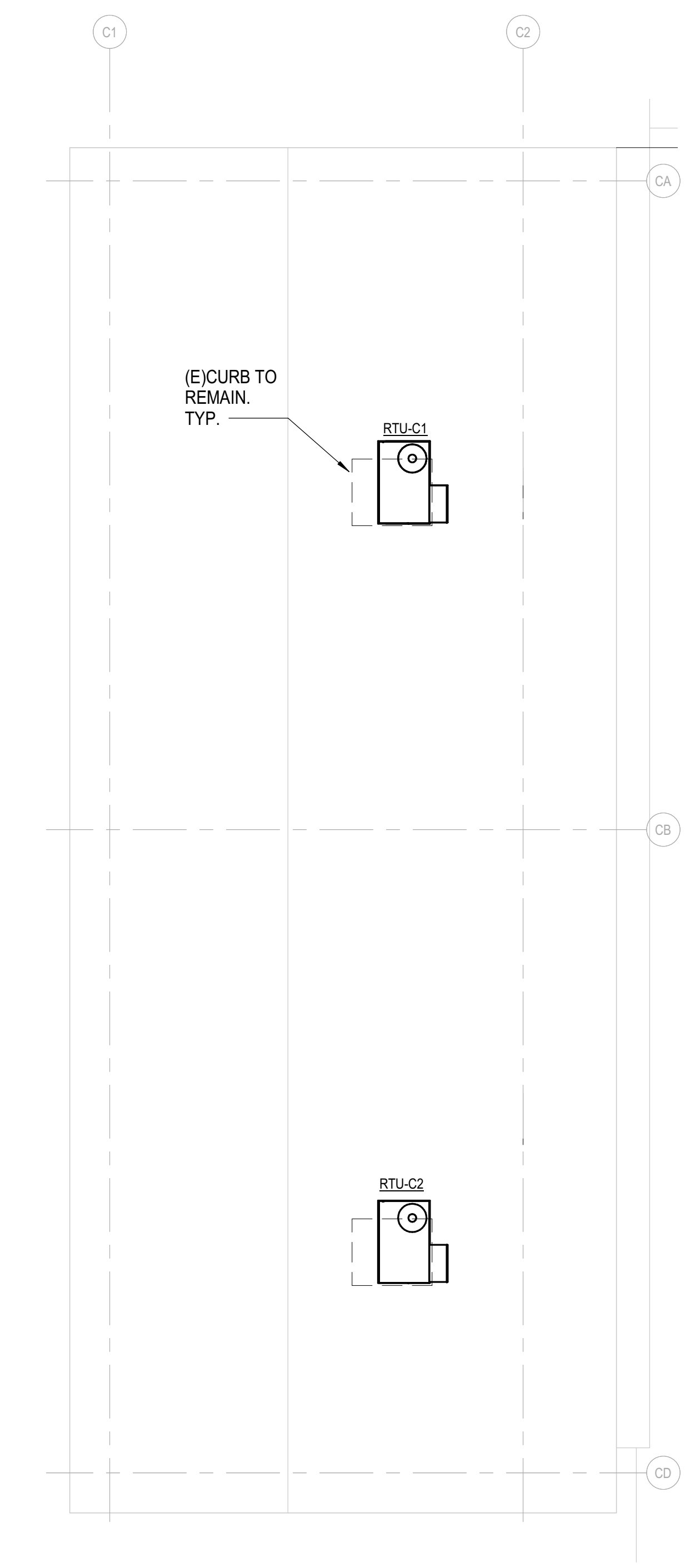
1

2

3

4

5



BUILDING C MECHANICAL ROOF PLAN
 SCALE: 1/8" = 1'-0"

DEMO NOTES

- A. REMOVE ALL EXISTING RTUS AND DISCONNECT RELATED PIPING AND DUCTWORK. EXISTING DUCTWORK IN CLASSROOMS TO REMAIN.
- B. DISCONNECT EXISTING GAS PIPING FROM RTUS. EMPTY AND CAP PIPING AND ABANDON IN PLACE. TURN OFF SHUT-OFF VALVE AT BUILDING.

GENERAL NOTES

- 1. DESIGN IS BASED ON EXISTING INDOOR DUCTWORK & CONNECTIONS TO RTUS SHOWN ON AS-BUILT DATED 9/11/1974. CONTRACTOR TO VERIFY ON SITE PRIOR TO RTU INSTALLATION AND CURB ADAPTOR FABRICATION.
- 2. EXISTING RTU CURBS TO REMAIN. THE CURB ADAPTORS FOR CARRIER 499UL TO REMAIN. PROVIDE NEW ADAPTOR WHERE THE UNITS ARE NOT CARRIER.
- 3. RECONNECT 3/4" CONDENSATE WATER PIPING BACK TO EXISTING.



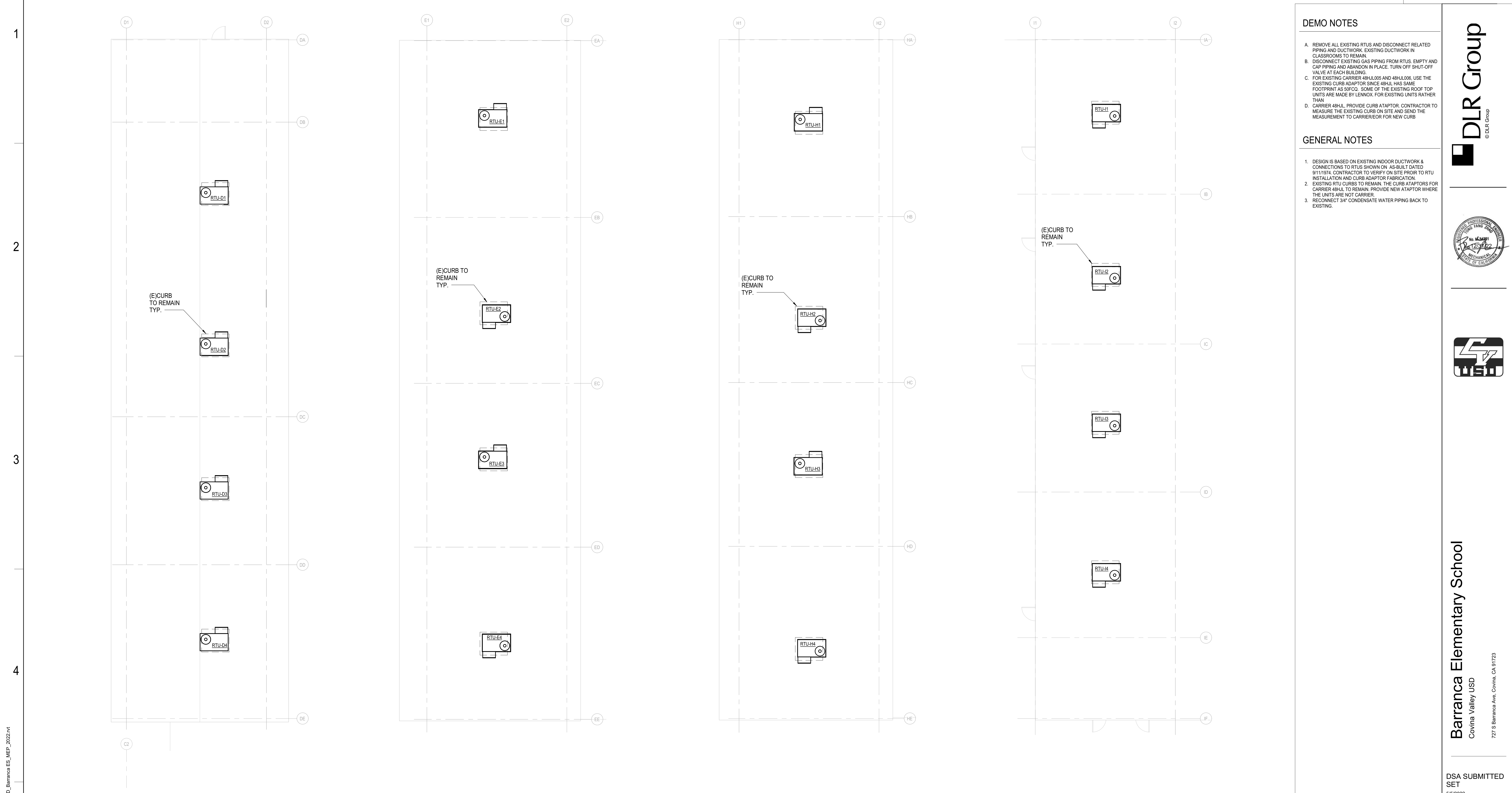
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 Covina Valley USD
 777 S Barranca Ave, Covina, CA 91723

DSA SUBMITTED SET
 5/5/2022
 REVISIONS

75-22605-00

BUILDING C
 MECHANICAL
 ROOF PLAN

M1.3B



BUILDING D MECHANICAL ROOF PLAN
SCALE: 1/8" = 1'-0"

BUILDING E MECHANICAL ROOF PLAN
SCALE: 1/8" = 1'-0"

BUILDING H MECHANICAL ROOF PLAN
SCALE: 1/8" = 1'-0"

BUILDING I MECHANICAL ROOF PLAN
SCALE: 1/8" = 1'-0"

DEMO NOTES

- REMOVE ALL EXISTING RTUS AND DISCONNECT RELATED PIPING AND DUCTWORK. EXISTING DUCTWORK IN CLASSROOMS TO REMAIN.
- DISCONNECT EXISTING GAS PIPING FROM RTUS. EMPTY AND CAP PIPING AND ABANDON IN PLACE. TURN OFF SHUT-OFF VALVE AT EACH BUILDING.
- FOR EXISTING CARRIER 48HJL05 AND 48HJL06, USE THE EXISTING CURB ADAPTOR SINCE 48HJL HAS SAME FOOTPRINT AS 50FCQ. SOME OF THE EXISTING ROOF TOP UNITS ARE MADE BY LENNOX. FOR EXISTING UNITS RATHER THAN CARRIER 48HJL, PROVIDE CURB ADAPTOR. CONTRACTOR TO MEASURE THE EXISTING CURB ON SITE AND SEND THE MEASUREMENT TO CARRIER/EOOR FOR NEW CURB.

GENERAL NOTES

- DESIGN IS BASED ON EXISTING INDOOR DUCTWORK & CONNECTIONS TO RTUS SHOWN ON AS-BUILT DATED 9/11/1974. CONTRACTOR TO VERIFY ON SITE PRIOR TO RTU INSTALLATION AND CURB ADAPTOR FABRICATION.
- EXISTING RTU CURBS TO REMAIN. THE CURB ADAPTORS FOR CARRIER 48HJL TO REMAIN. PROVIDE NEW ADAPTOR WHERE THE UNITS ARE NOT CARRIER.
- RECONNECT 3/4" CONDENSATE WATER PIPING BACK TO EXISTING.

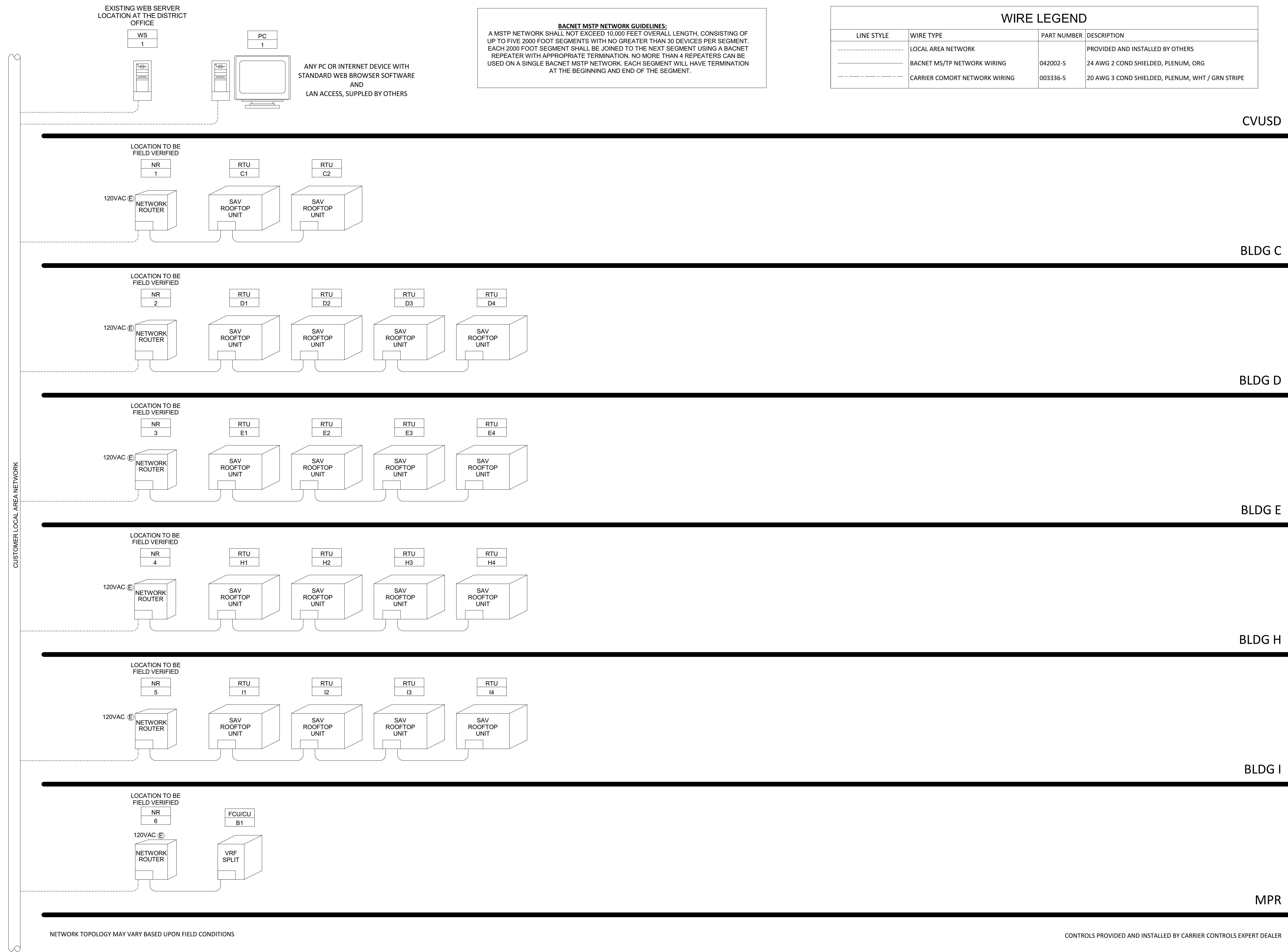


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5/5/2022
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75-22605-00
BUILDINGS D,E,H & I MECHANICAL ROOF PLAN

M1.3D



1 BACS RISER DIAGRAM
 M5.1 NO SCALE



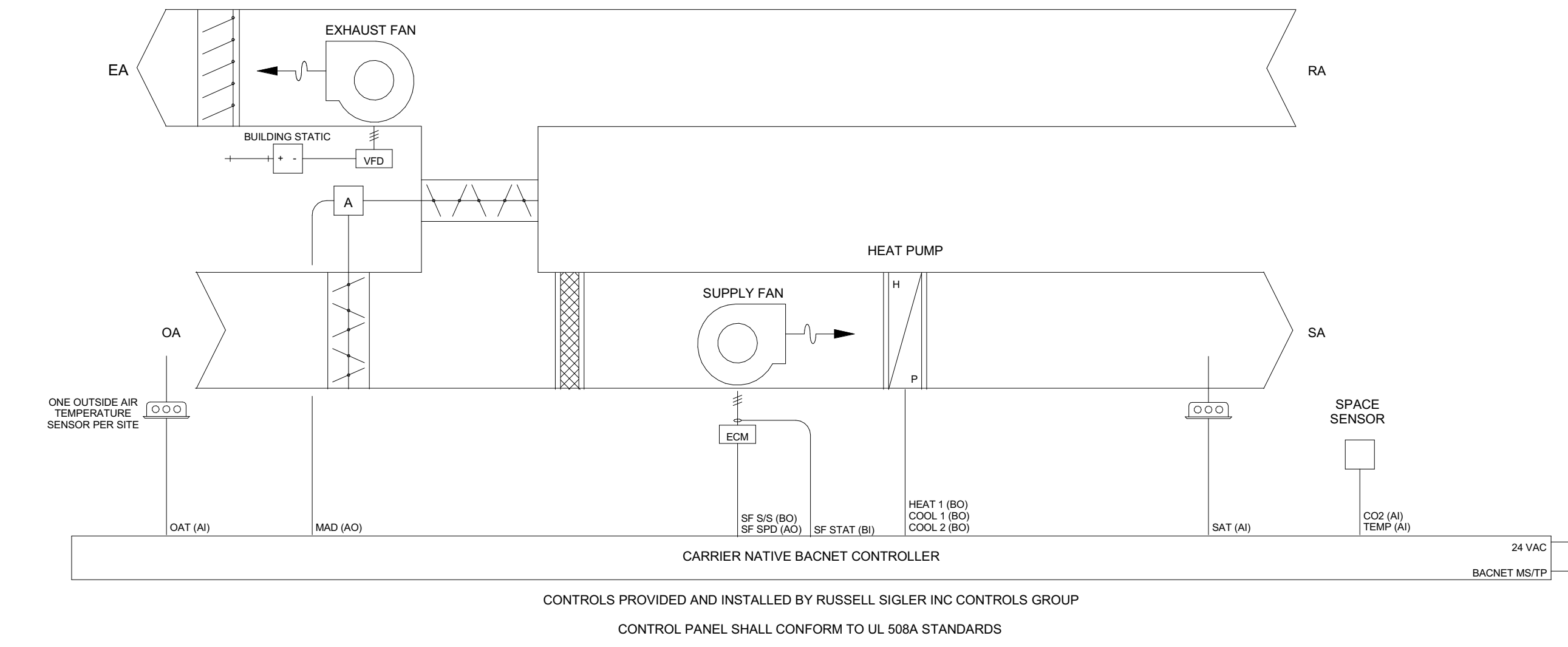
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 5/5/2022
 REVISIONS

75-22605-00

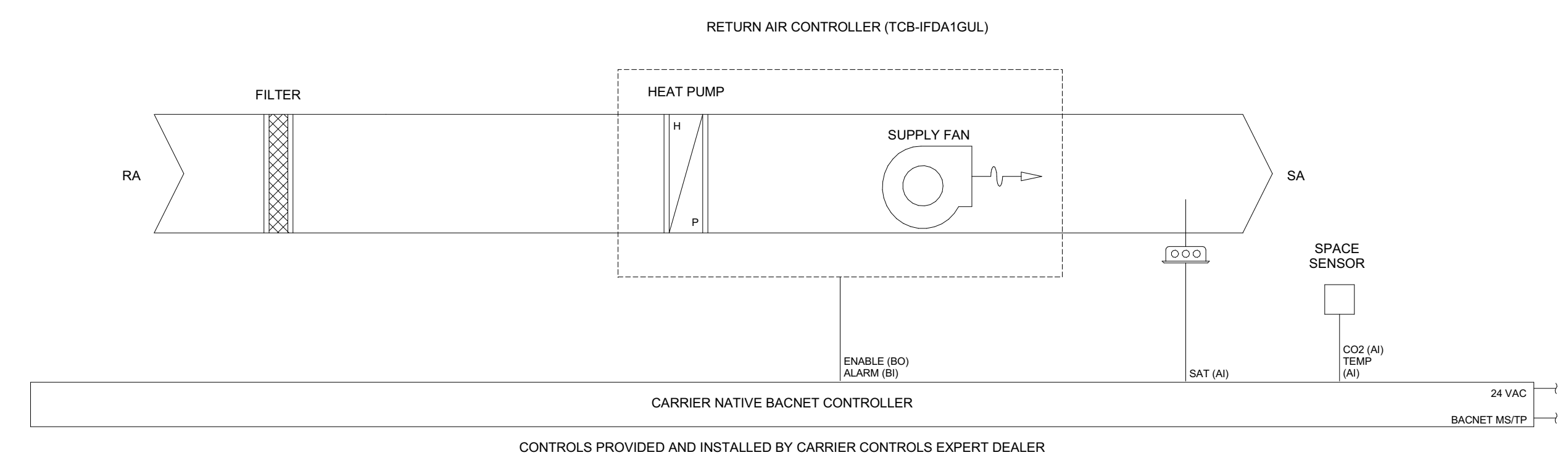
CONTROLS DIAGRAMS

M5.1



50FCQ HEAT PUMP DETAIL (RTU-C1, RTU-C2, RTU- D1 THRU RTU-D4, RTU-E1 THRU RTU-E4, RTU-H1 THRU RTU-H4, AND RTU-I1 THRU RTU-I4)

SCALE	1
NONE	



SPLIT SYSTEM DETAIL (FCU/CU-B1)

SCALE	2
NONE	

SEQUENCES OF OPERATION
SEQUENCE OF OPERATION FOR CVUSD BARRANCA ES
HEAT PUMP RTU CONTROLLER (RTU-C1 AND RTU-C2, RTU- D1 THRU RTU-D4, RTU-E1 THRU RTU-E4, RTU-H1 THRU RTU-H4, AND RTU-I1 THRU RTU-I4)

Indoor Fan
The fan operates at a variable speed to meet the load conditions and SAT safety requirements to provide maximum energy savings by minimizing fan horsepower consumption. Fan speed is NOT controlled by static pressure.

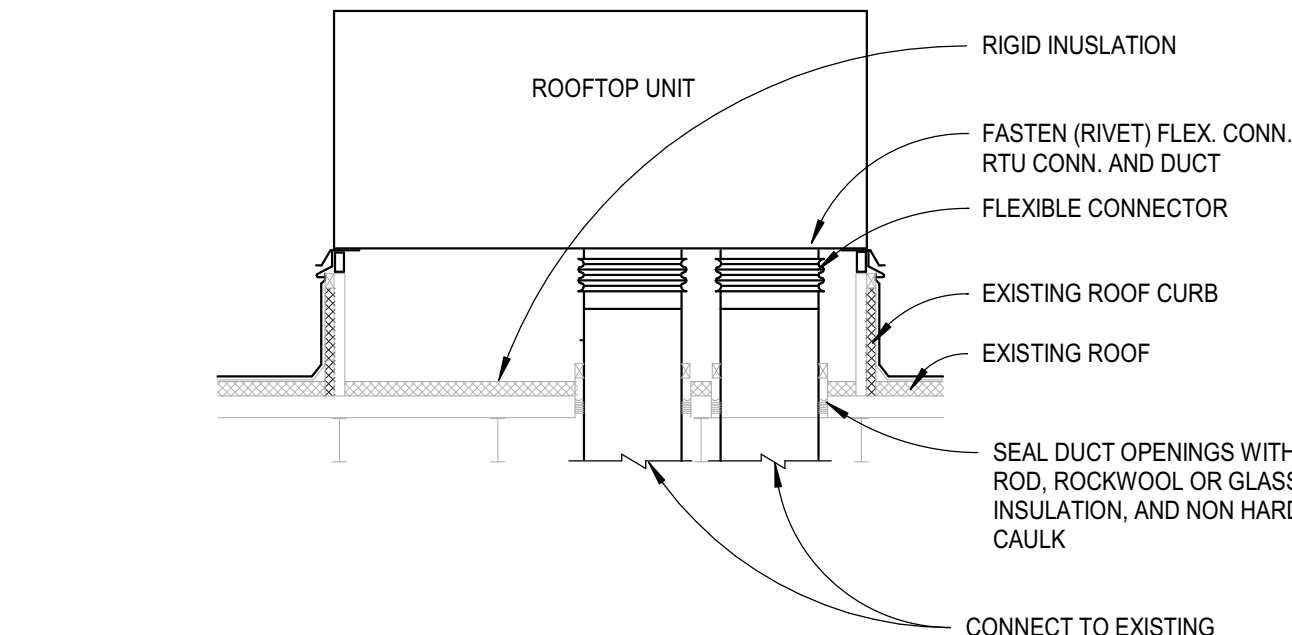
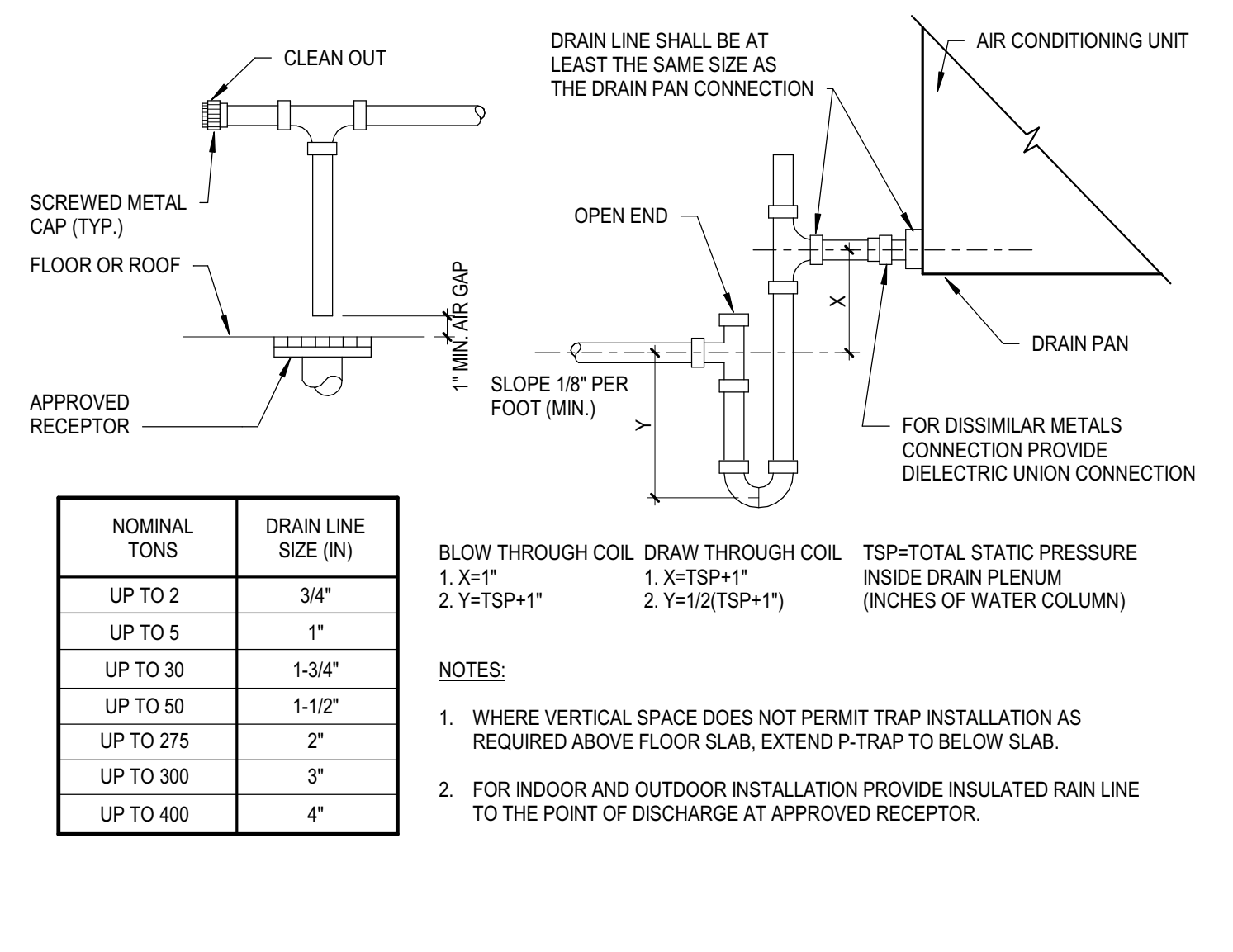
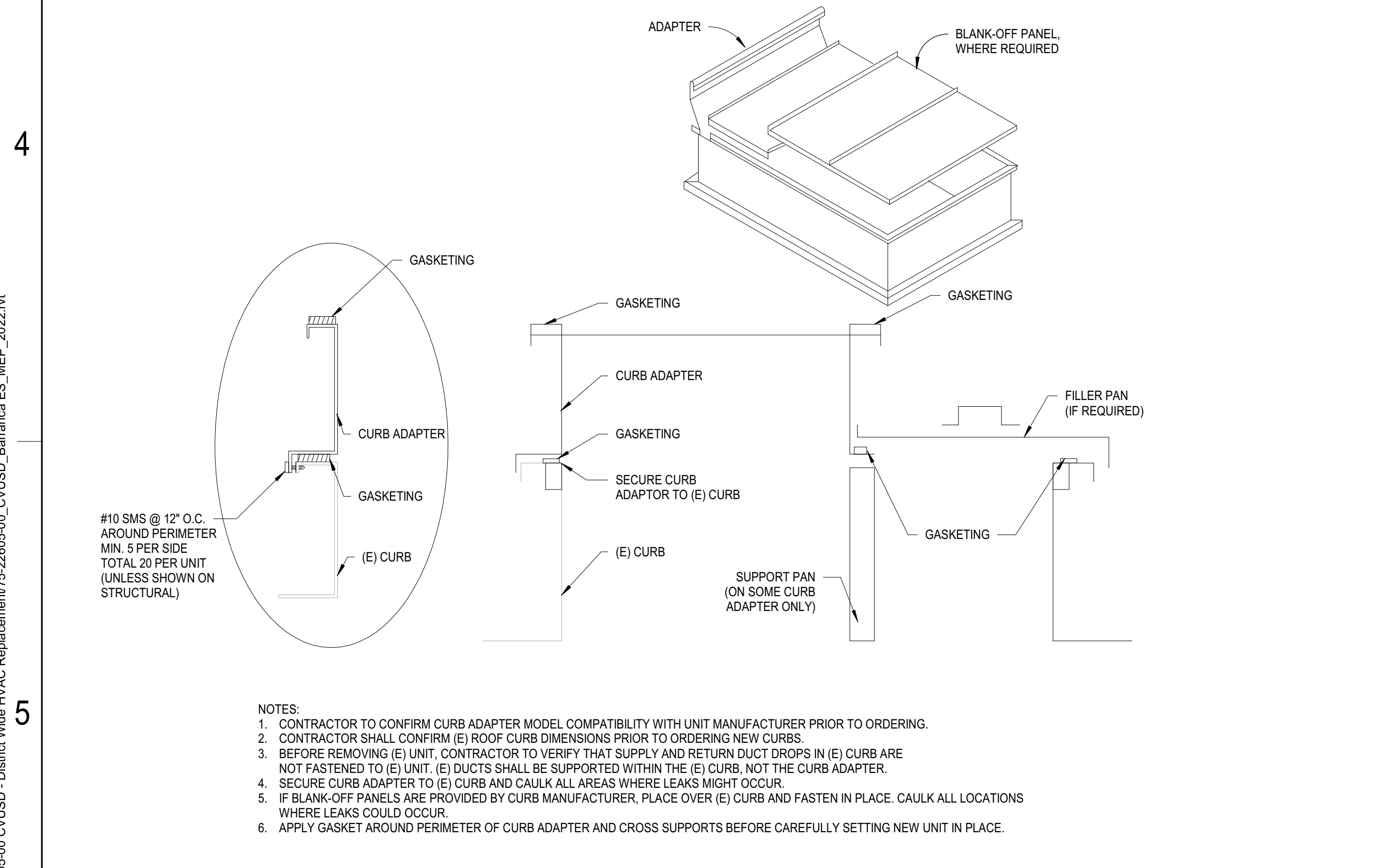
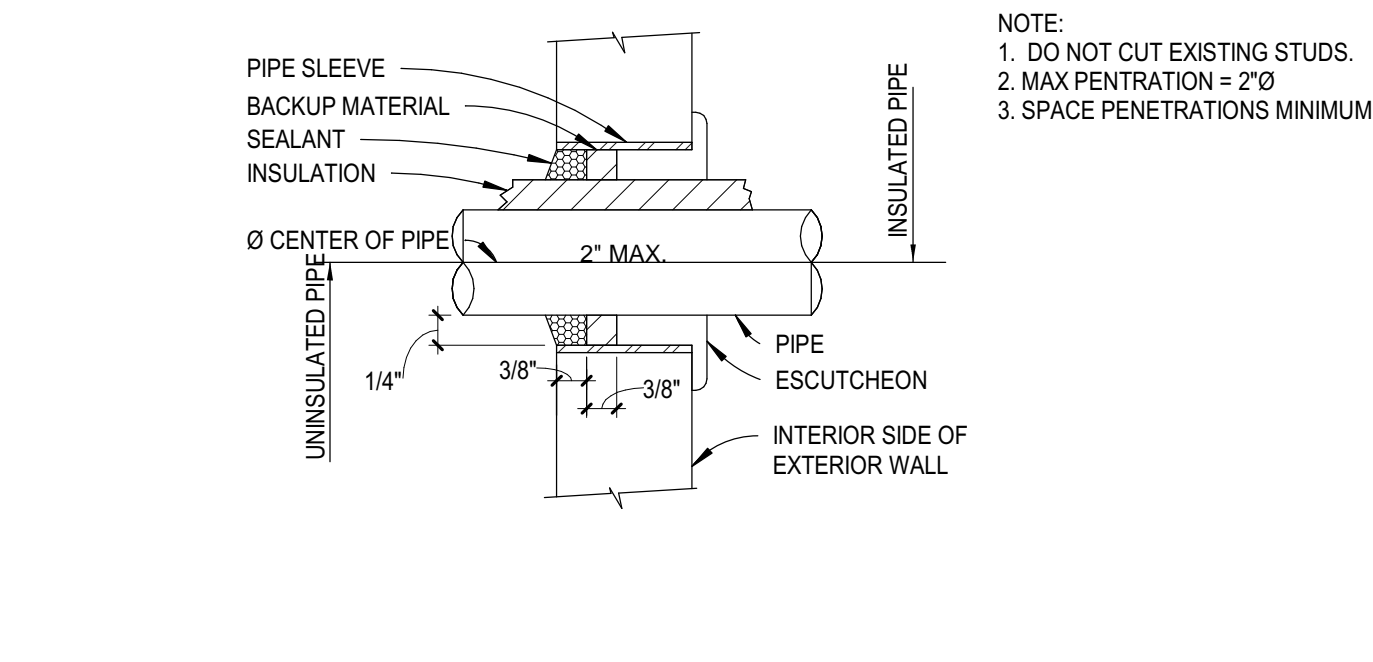
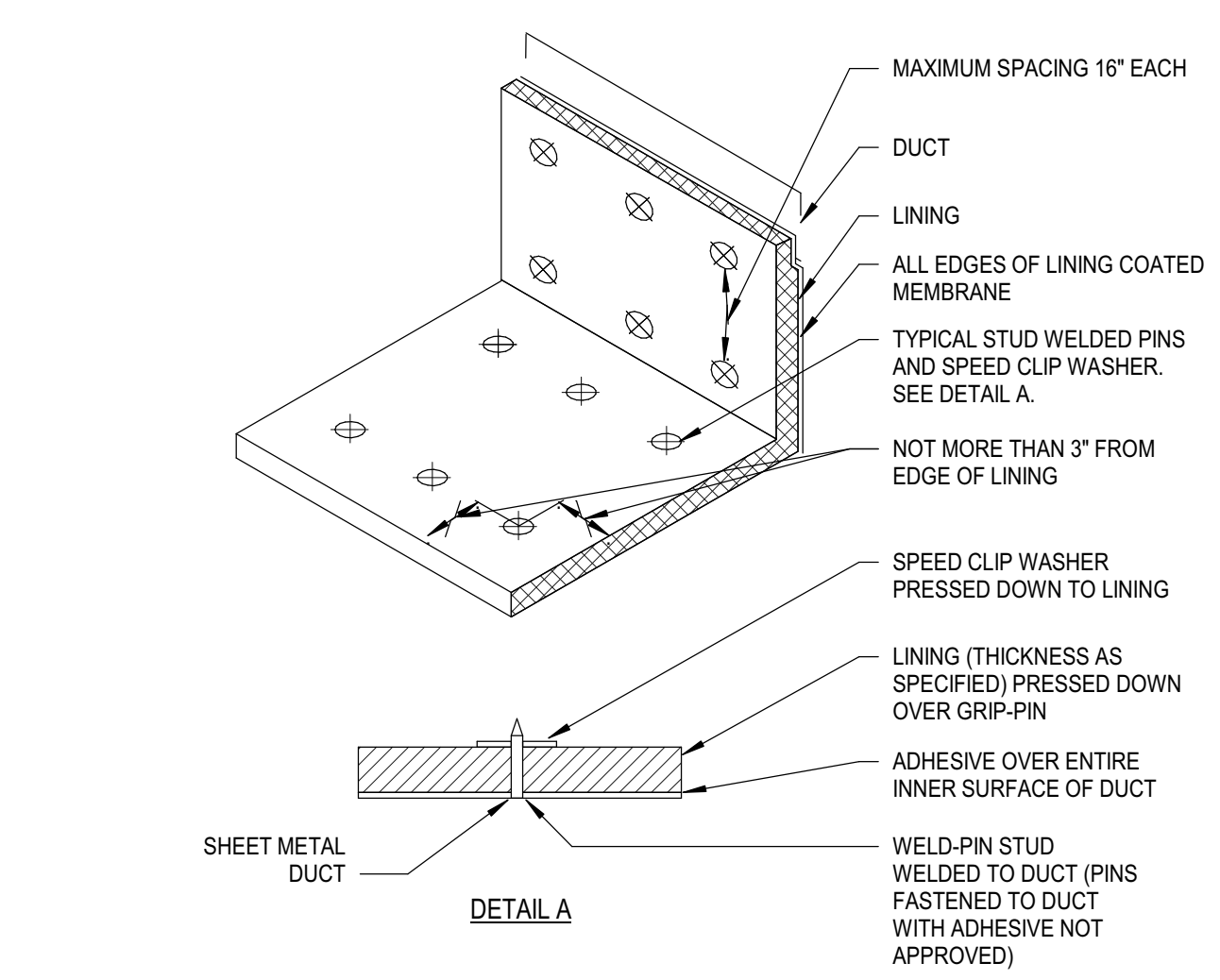
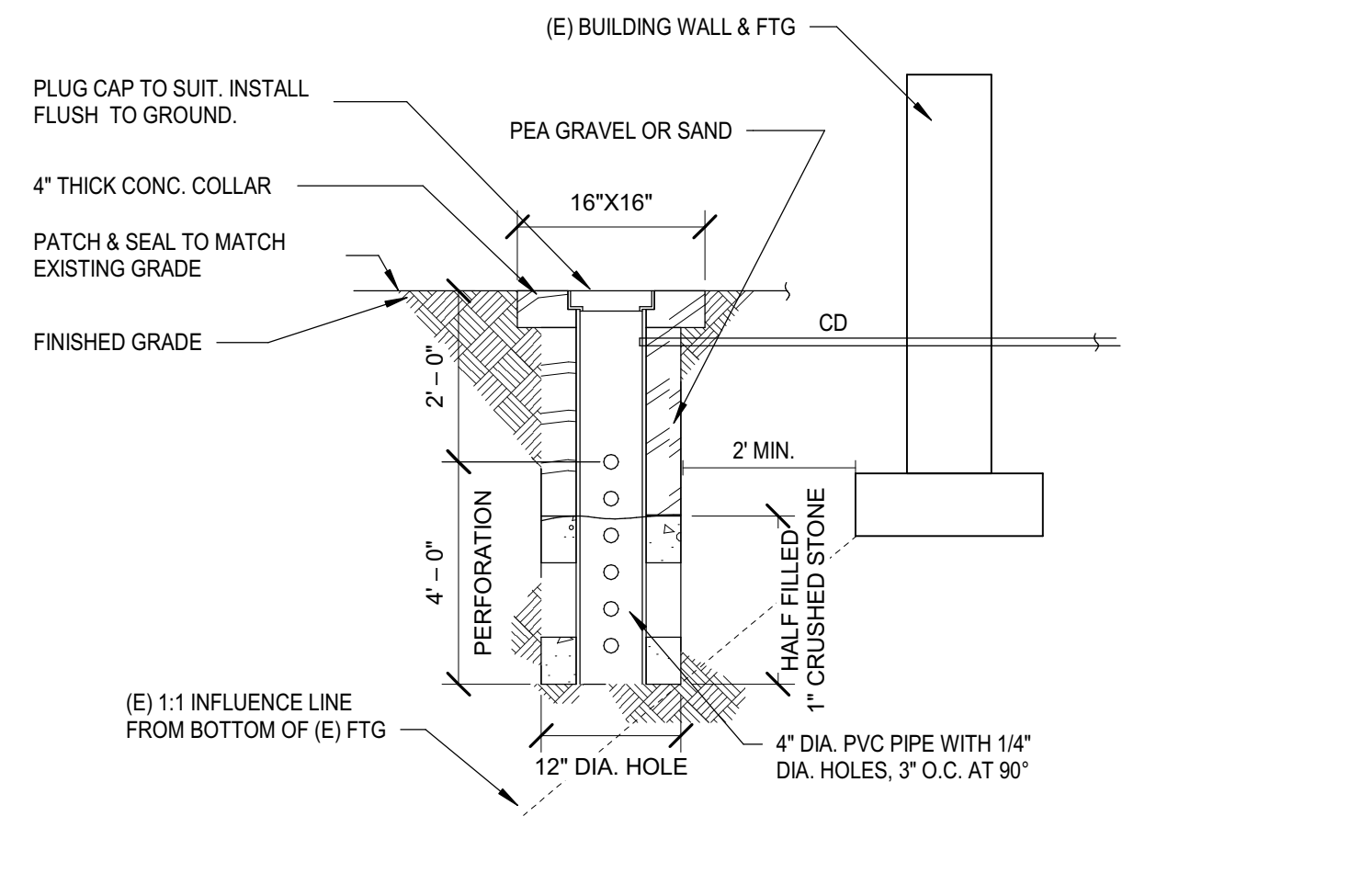
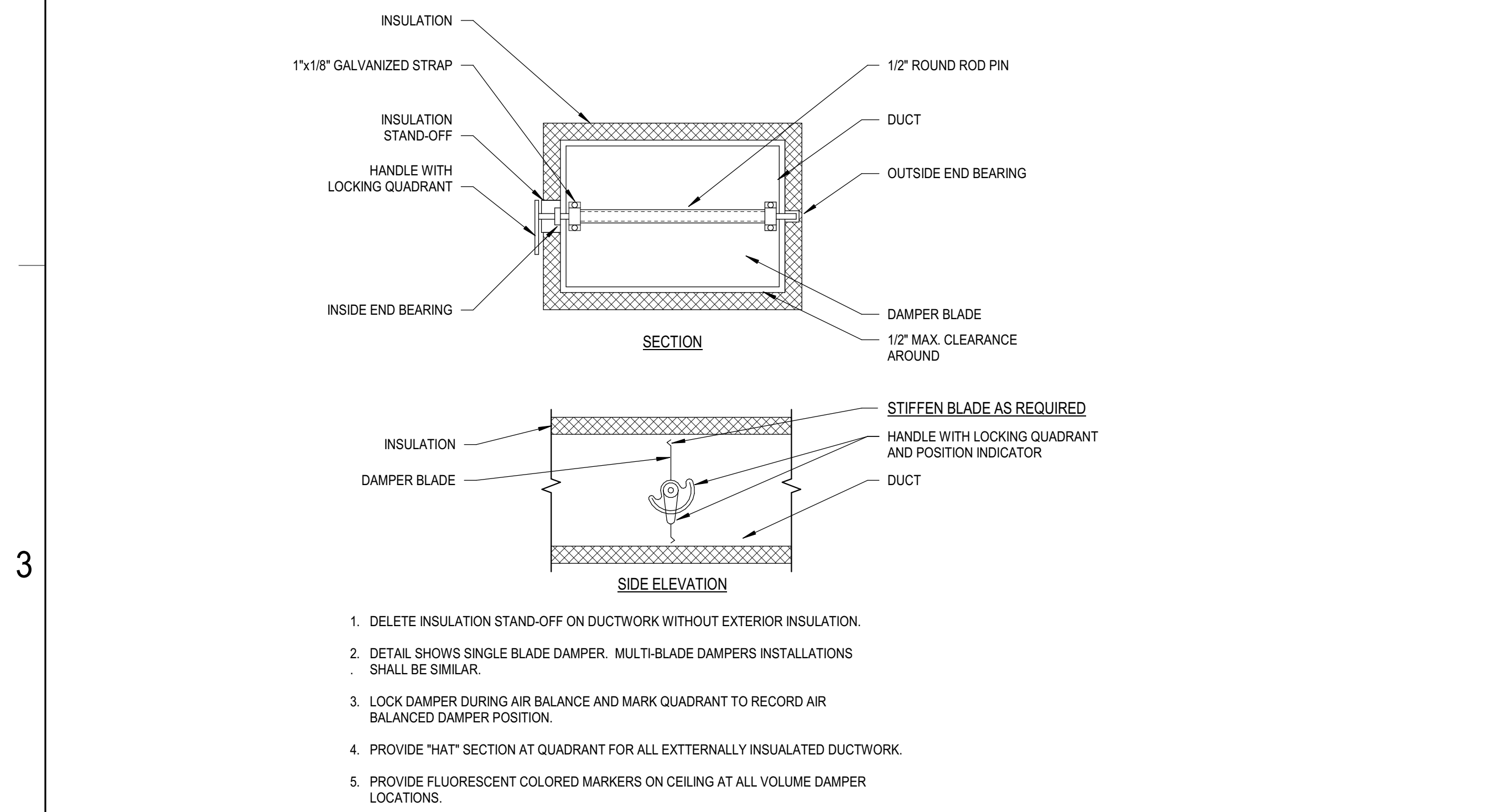
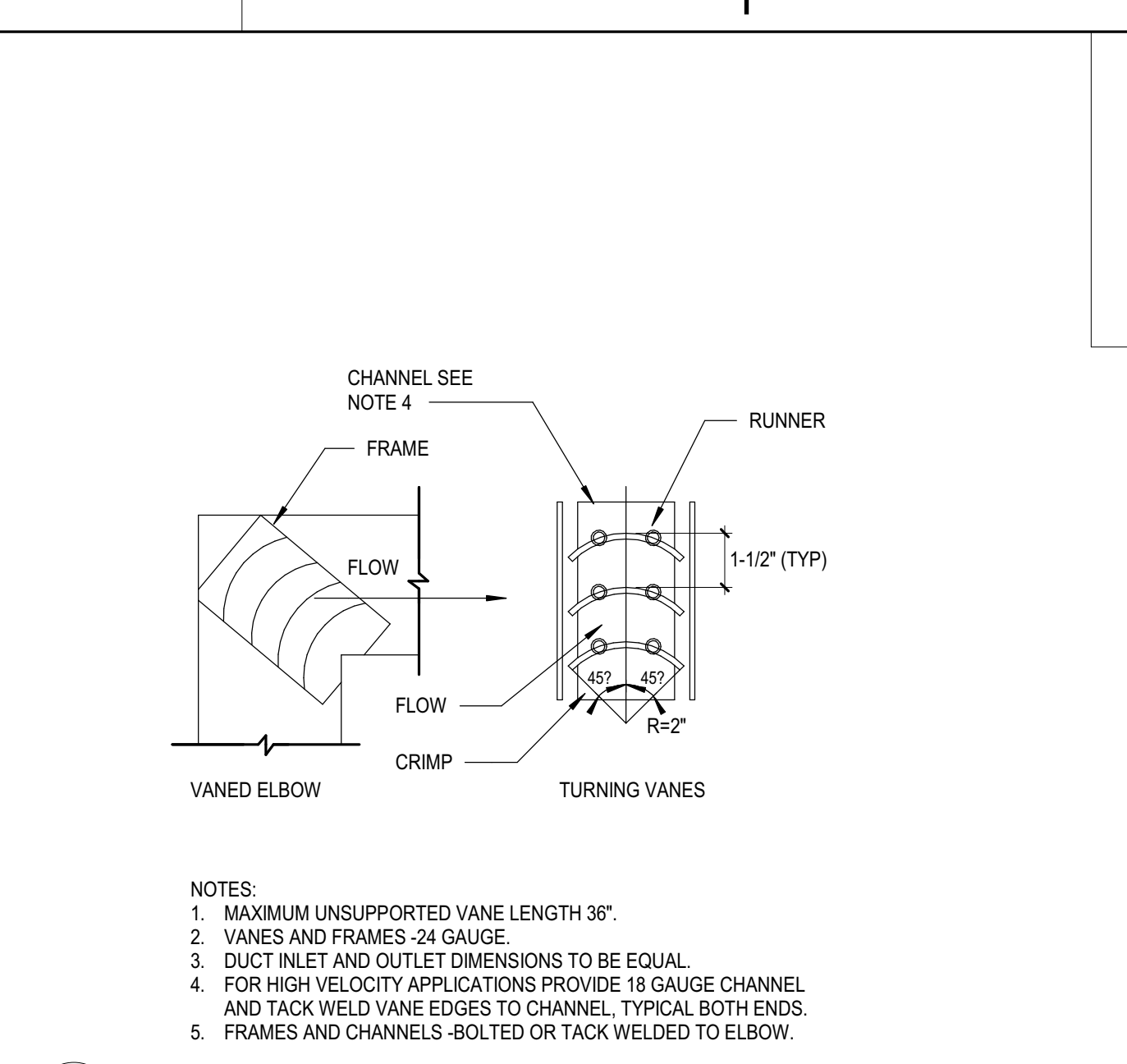
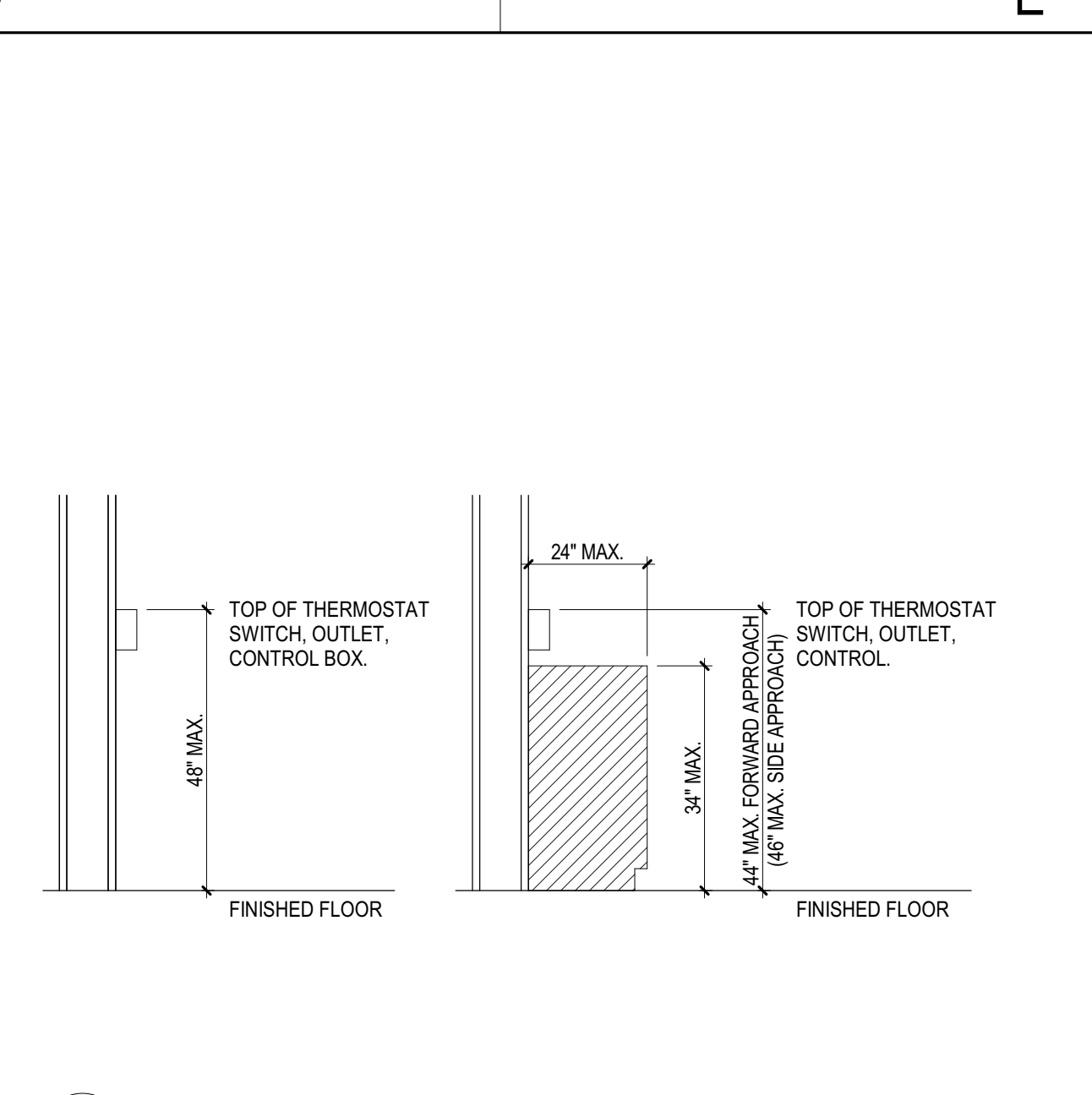
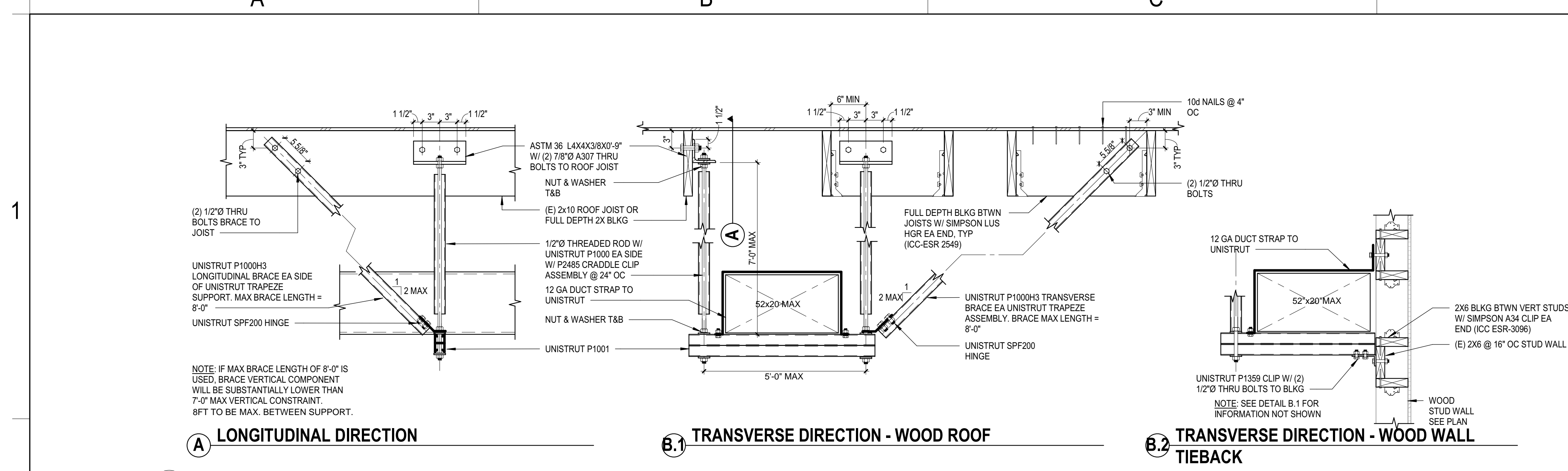
Heating Mode
When space temperature is below the occupied heating setpoint, unit shall operate in the heating mode. Unit shall stage available heat stages to satisfy demand in the occupied space.

Economizer
Economizer shall close when fan is off or during a loss of power. During occupied hours when fan is energized, the economizer shall open to adjustable minimum position. When outside air temperature is below 75° and occupied space requires cooling, economizer shall open. If economizer air is not sufficient to meet the demand in the occupied space, unit shall enable available mechanical cooling stages to satisfy demand in the occupied space.

CO2 Control
Unit shall monitor space CO2 when the supply fan is energized. When CO2 is above setpoint of 1000 PPM, economizer shall modulate open toward an adjustable maximum CO2 position. As the CO2 level in the space increases above the setpoint, the minimum positions of the dampers will be increased proportionally, until the maximum ventilation setting is reached. As the space CO2 level decreases because of the increase in fresh air, the outdoor-damper will follow the higher demand condition from the DCV mode or from the free-cooling mode.

Power Exhaust
The exhaust fan shall modulate to maintain the room pressure setpoint (as determined by air balancer). Not controlled through EMS.

1 DETAILS
M5.2 NO SCALE



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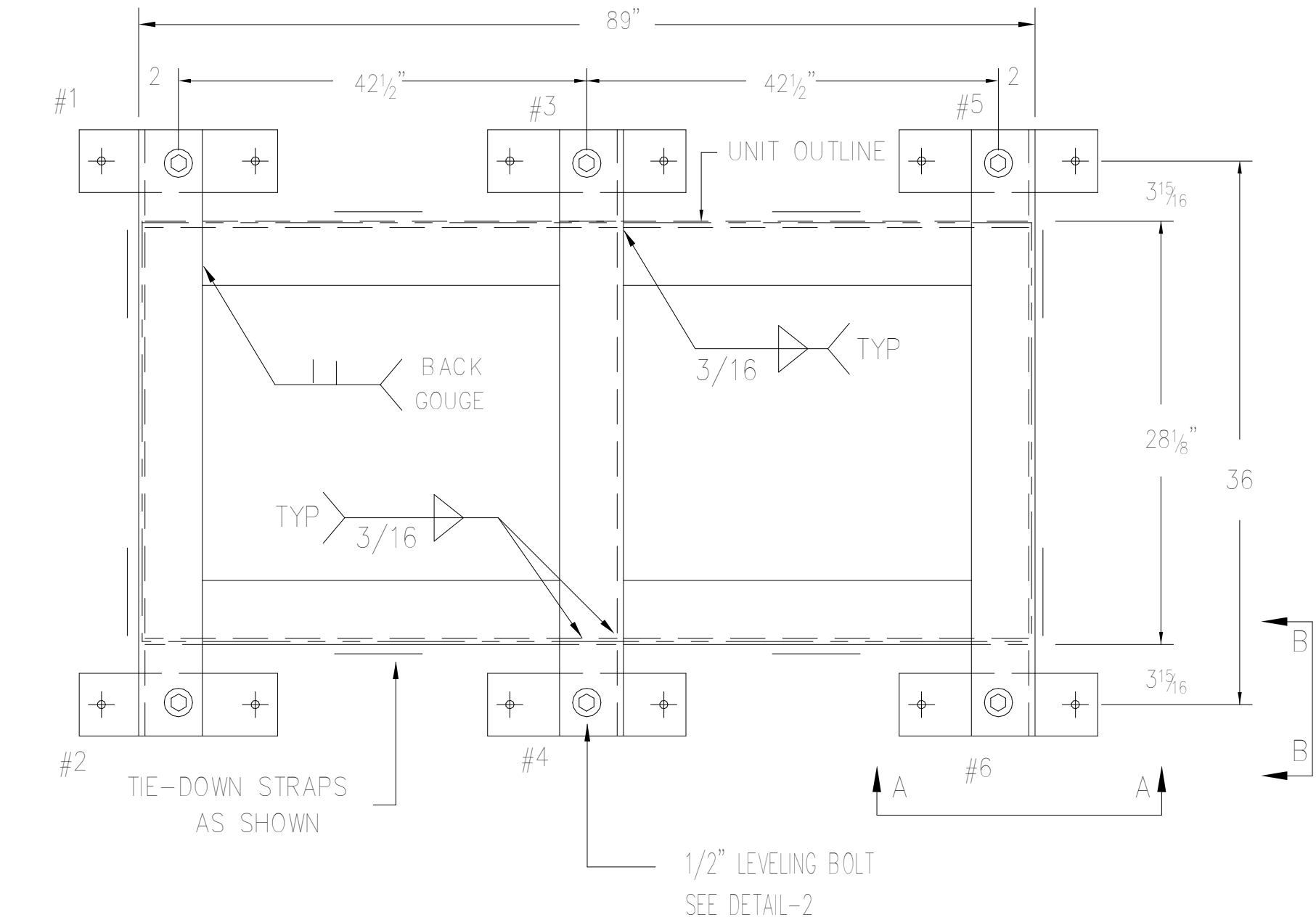
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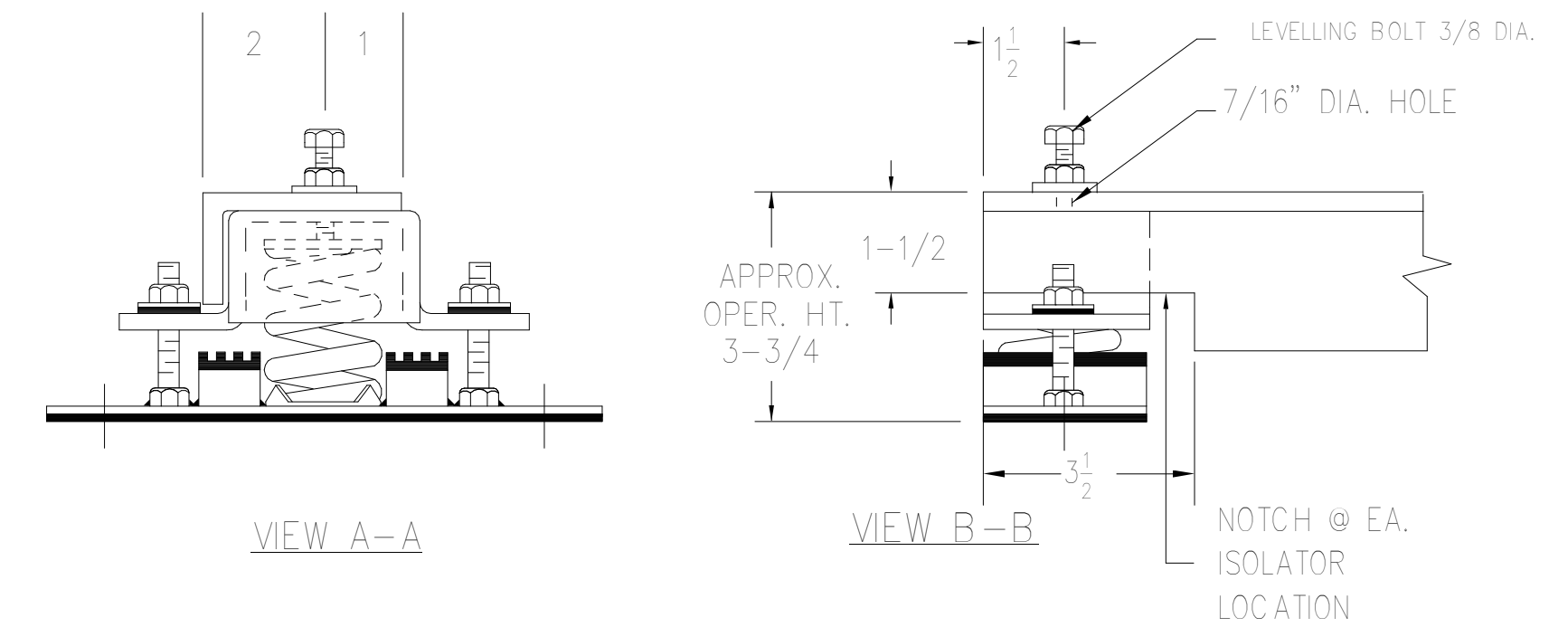
MARK	MAKE	MODEL	STEEL FRAME
FCU-B1	CARRIER	40RUAG-16	L 3 X 2 X 1/4

DETAIL-1



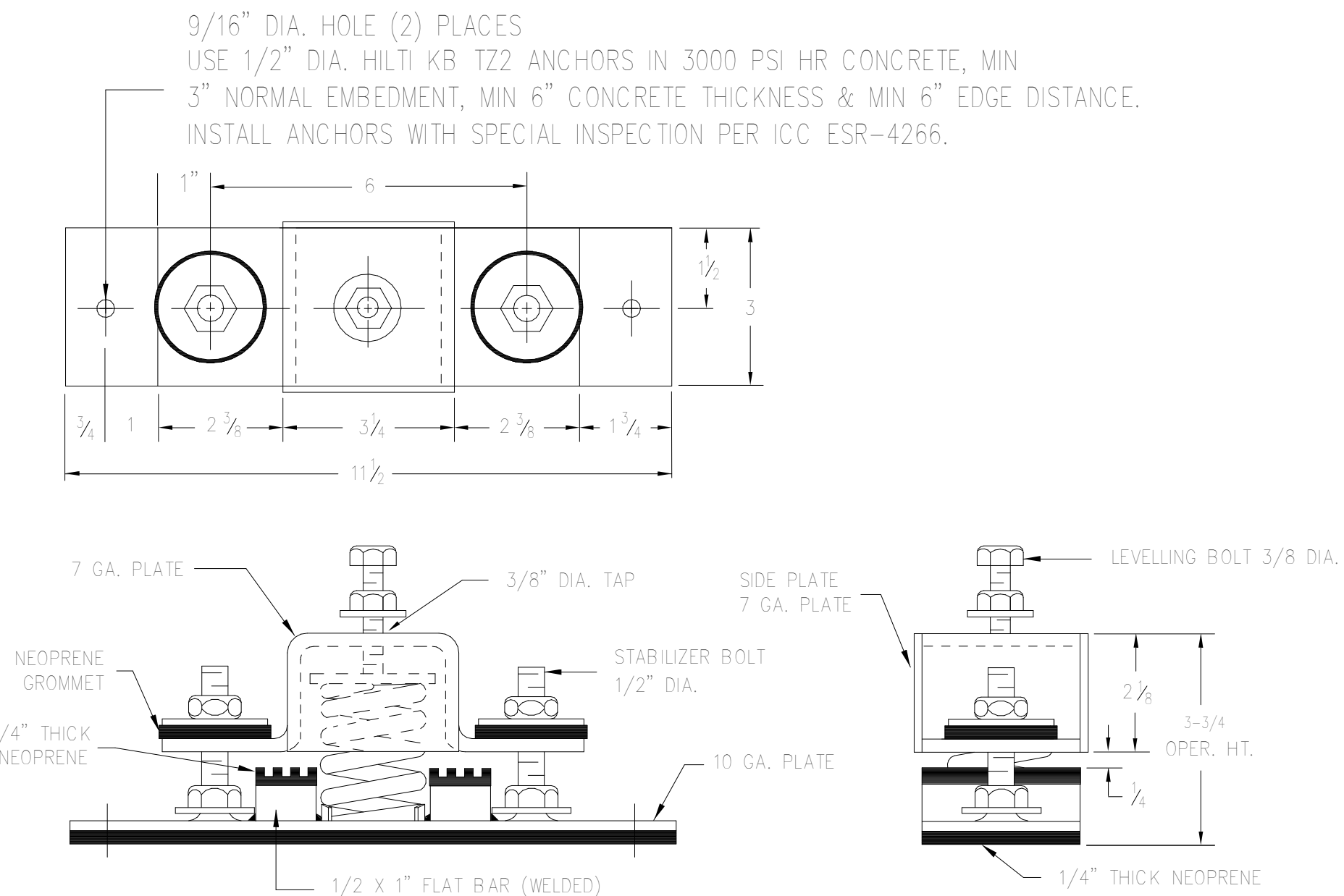
- NOTES:
- APPROX. STEEL WEIGHT INCLUDING ISOLATORS.: 170 LBS.
 - INDICATES TIE-DOWN STRAP. SEE DETAIL 3.
 - ALL DIMENSIONS REQUIRE FINAL REVIEW AT COMMENCEMENT OF PROJECT.

DETAIL-2



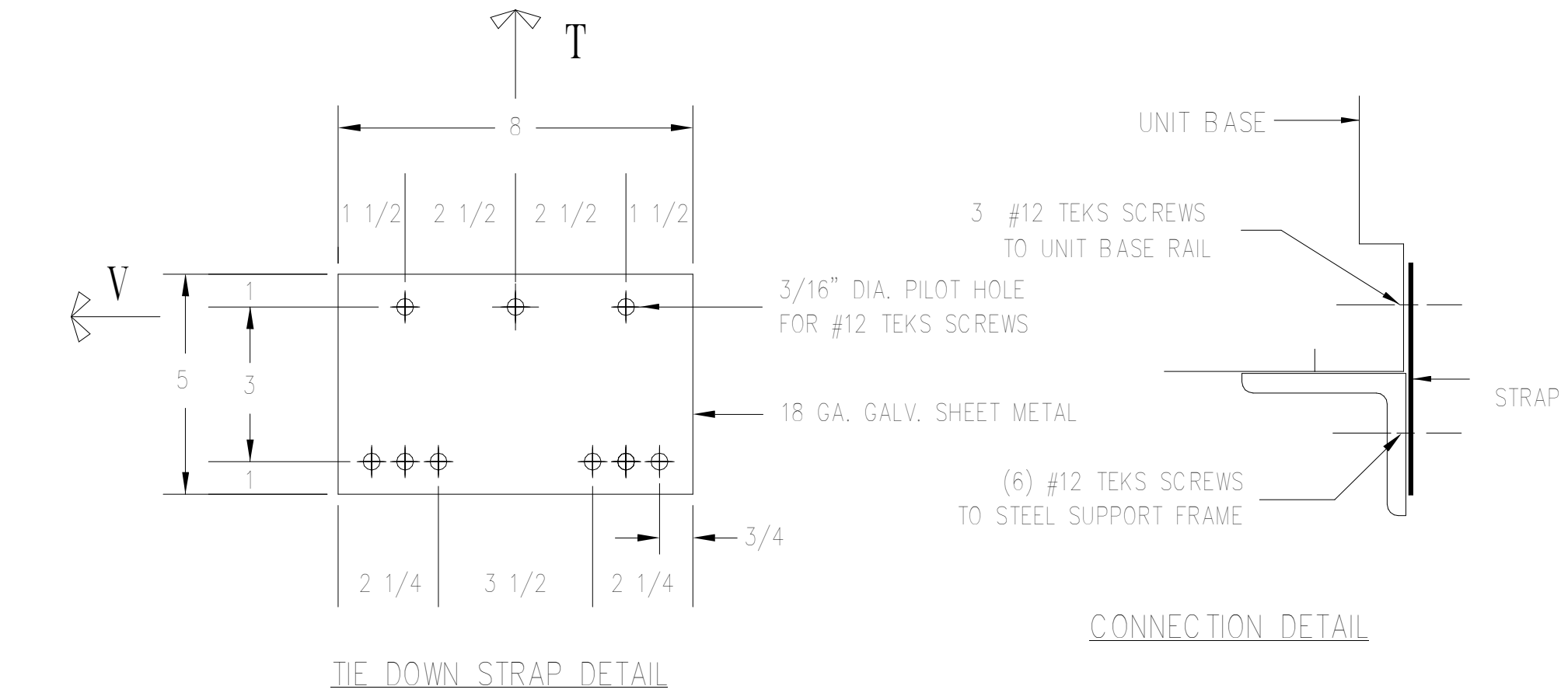
DETAIL-3

MTG	SPRING OD	DEFL.
1-6	3"	1"



MAX. ALLOW. LOADS: HORIZ. 1100 lbs. VERT. (UP) 1400 lbs.

RMU-EQ-SH-1



NOTE(S) 1. THE SEISMIC CAPACITY OF TIE-DOWN PLATES IS DEPENDENT ON PROPER FIELD INSTALLATION AS SHOWN ABOVE.

M. W. SAUSSE & CO., INC.
 28744 Whitherspoon Pkwy. Valencia, CA 91355
 Phone: (661) 257-3311 Fax: (661) 257-7673
Vibrex RMUAB
 vibration & seismic control systems

JOB NAME:	COVINA USD - BARRANCA ES
CUST.:	
CUST. P.O.:	
MECH. ENGR.:	DLRG
MARK:	FCU-B1

REVISIONS:	
A:	ADDED WELDING (7-21-22)
B:	
C:	
D:	

DRN:	JO
DATE:	6/24/22
DRAWING NO.:	-2A

1 ISOLATOR DETAILS
 M7.2 NO SCALE



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 5/5/2022
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MECHANICAL DETAILS

M7.2

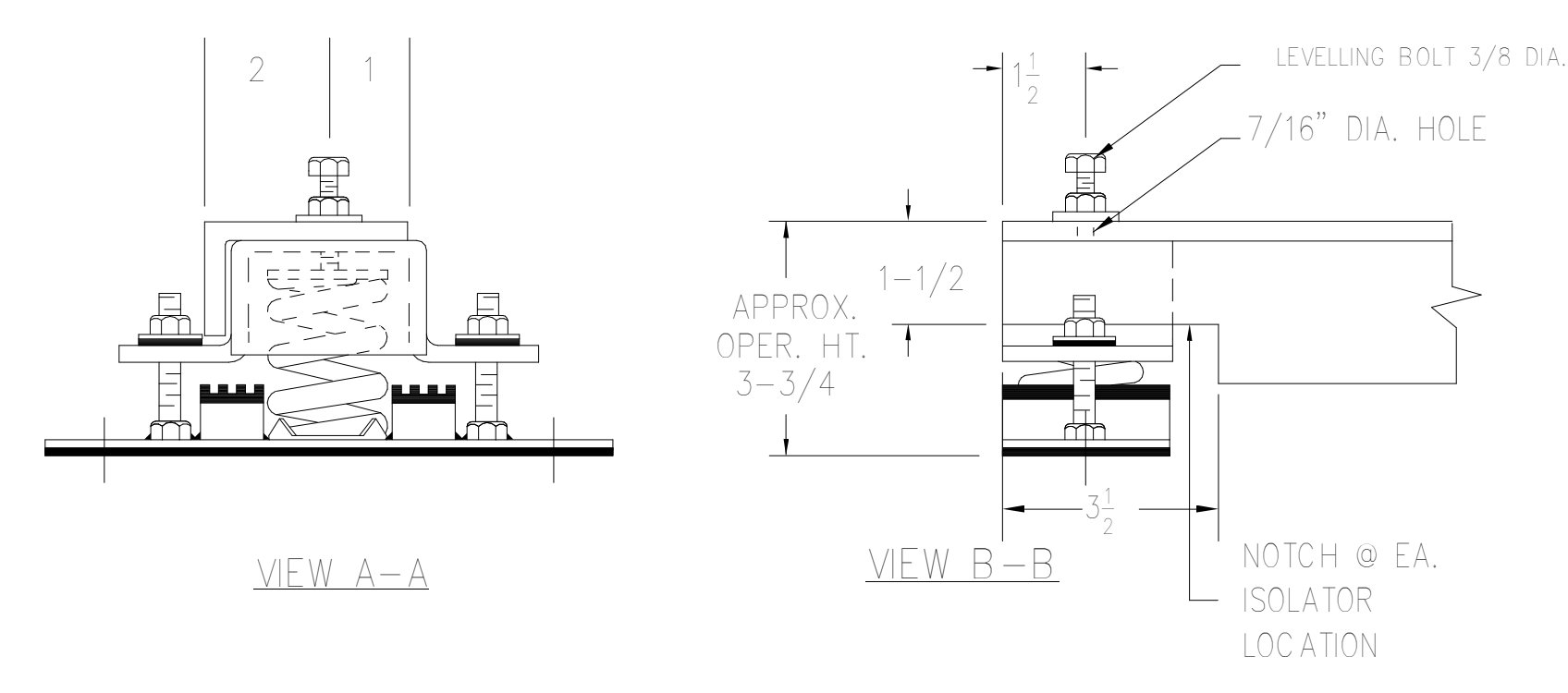
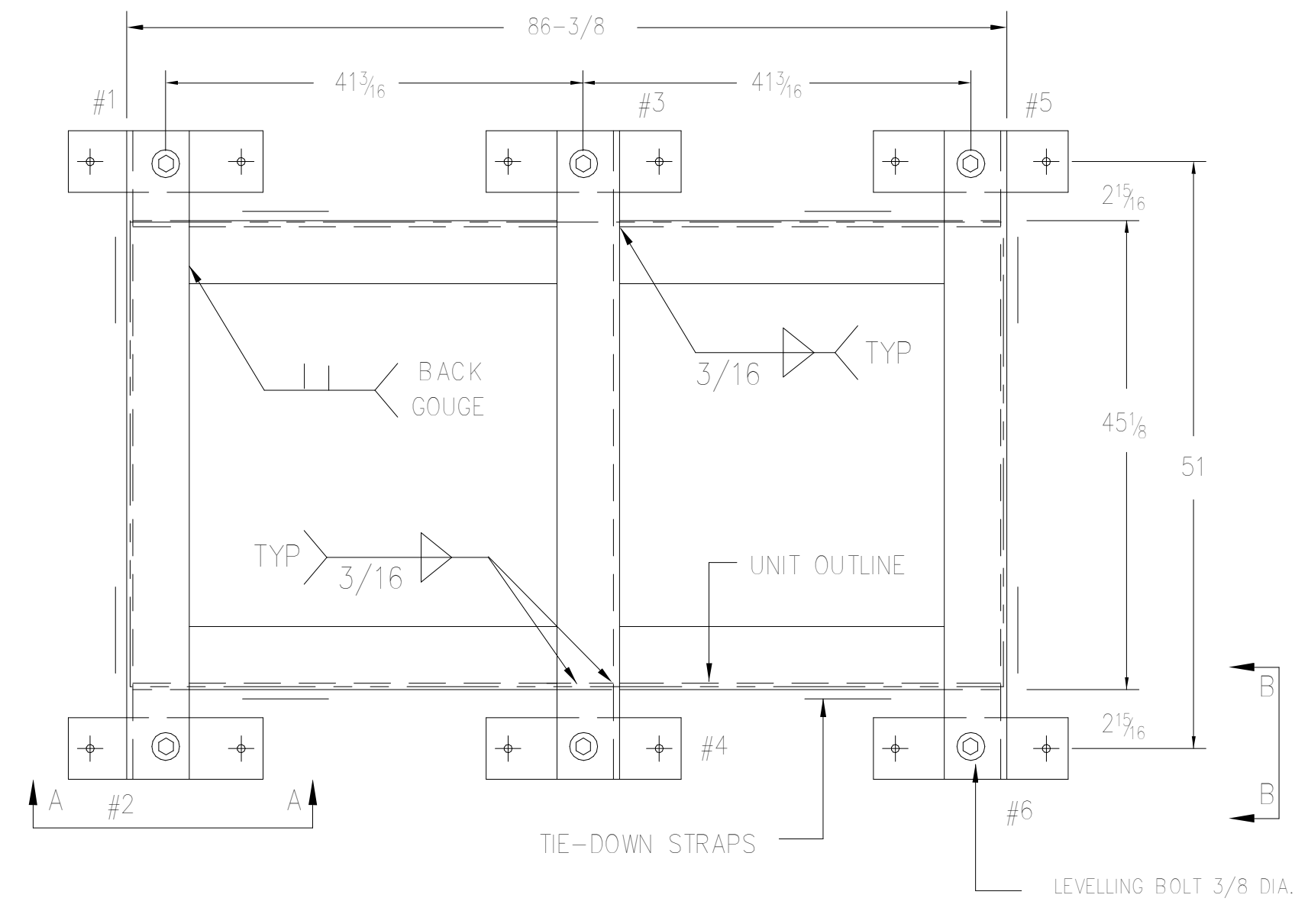
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MARK	MAKE	TYPE	SIZE	STEEL SIZE
CU-B1	CARRIER	3BAUQ	16	L3 X 3 X 1/4

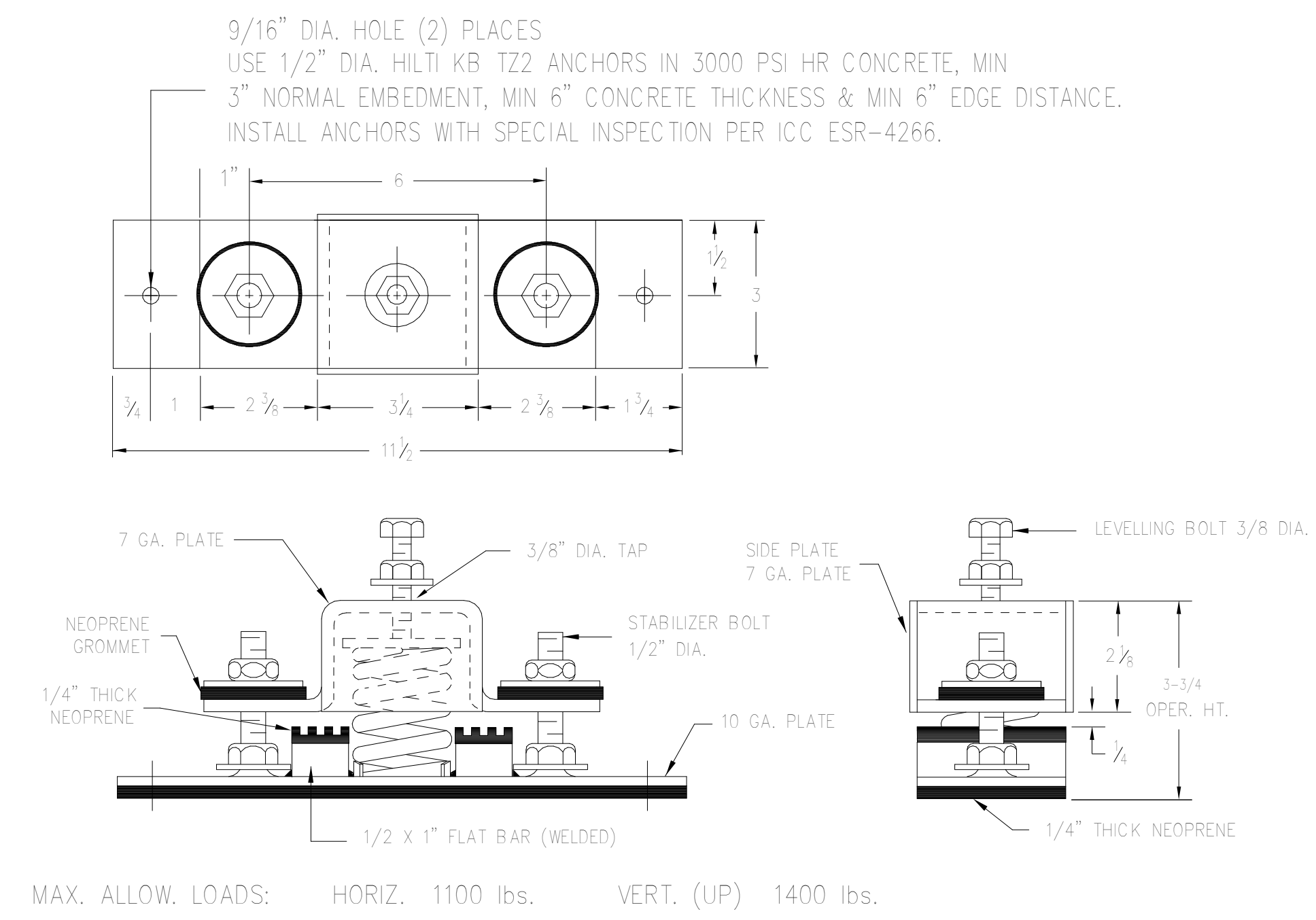
DETAIL-1

DETAIL-2

MTS	SPRING O.D.	DEFL
1-6	2"	1"

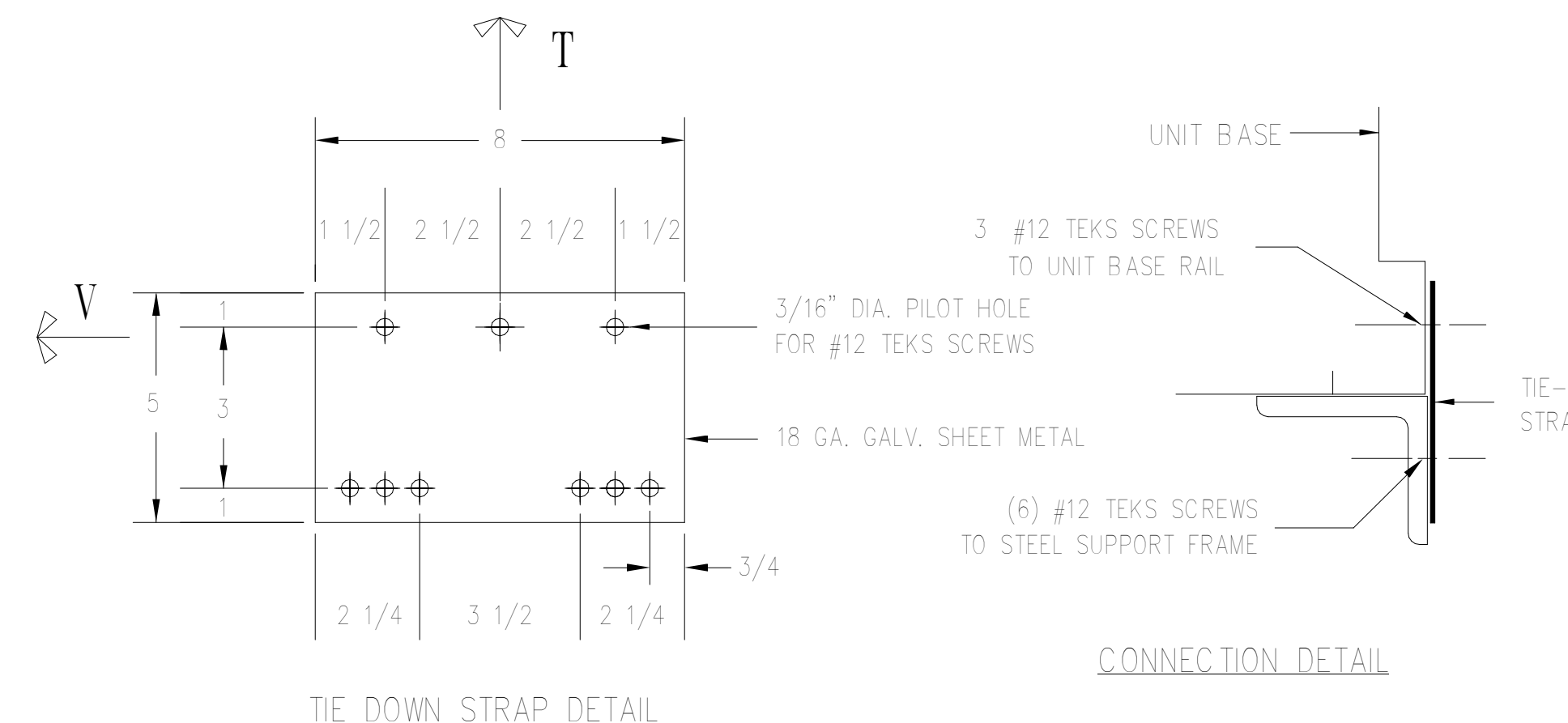


- NOTES:
1. APPROX. STEEL WEIGHT INCLUDING ISOLATORS.: 185 LBS.
 2. — INDICATES TIE-DOWN STRAP. SEE DETAIL 3.
 3. ALL DIMENSIONS REQUIRE FINAL REVIEW AT COMMENCEMENT OF PROJECT.



MAX. ALLOW. LOADS: HORIZ. 1100 lbs. VERT. (UP) 1400 lbs.

RMU-EQ-SH-1



NOTE(S) 1. THE SEISMIC CAPACITY OF TIE-DOWN PLATES IS DEPENDENT ON PROPER FIELD INSTALLATION AS SHOWN ABOVE.

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 28744 Whitherspoon Pkwy. Valencia, CA 91355
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Vibrex RMUAB
 vibration & seismic control systems

JOB NAME:	COVINA USD - BARRANCA ES
CUST.:	
CUST. P.O.:	
MECH. ENGR.:	DLRG
MARK:	CU-B1

REVISIONS:	
A:	ADDED WELDING (7-21-22)
B:	
C:	
D:	

DRN:	JO
DATE:	6/22/22
DRAWING NO.:	-1A

1 CU-B1 ISOLATOR DETAILS
 M7.3 NO SCALE



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75-22605-00

MECHANICAL DETAILS

M7.3

1

BARRANCA E.S. AC UNIT REPLACEMENT

BARRANCA E.S. EXISTING UNIT

NEW UNIT

Table with columns: TAGS, MAKE, MODEL, TYPE, CAPACITY (TONS), GAS INPUT/OUTPUT (BTU/HR), ELECTRICAL (SINGLE CIRCUIT), WEIGHT (LBS), ECONOMIZER, POWER EXHAUST, OPERATING WEIGHT (LBS), CURB & ADAPTOR (LBS), DIRECT REPLACEMENT? Y/N, CURB ADAPTOR, CARRIER MODEL #, COOLING CAPACITY, AIRFLOW (CFM), ESP (IN WG), SEER / IEER, EER, HEATING CAPACITY, NEW MERV RATING, FILTER QUANTITY & SIZE (W" X H" X D"), ELECTRICAL, WEIGHT, ECONOMIZER, POWER EXHAUST, ROOF CURB & ADAPTOR WEIGHT (LBS) (NOTE 9), TOTAL WEIGHT (LBS), UNIT DIMENSIONS (L X W" X H"), DETAIL REFERENCE.

2

NOTES:

- 1. PROVIDE MECHANICAL UNIT WITH INTEGRAL CONVENIENCE RECEPTACLE.
2. ALL ROOFTOP UNITS SHALL BE PROVIDED WITH UNPOWERED CONVENIENCE OUTLET.
3. ALL ROOFTOP UNITS ARE HORIZONTALLY DISCHARGED CONFIGURATION. UNO. FIELD VERIFY PRIOR TO ORDERING.
4. ALL ROOFTOP UNITS SHALL BE PROVIDED WITH UNPOWERED CONVENIENCE OUTLET.
5. PROVIDE HINGED ACCESS PANEL FOR ALL ROOFTOP UNITS.
6. FINAL WEIGHT (LBS) IS SUMMATION OF RTU WEIGHT, ECONOMIZER SECTION, POWER EXHAUST 14" ROOF CURB, AND 18" HIGH CURB ADAPTOR, AS APPLICABLE.
7. SCCR RATING OF RTUs AND FCU-B1 SHALL BE MINIMUM OF 10KA. CU-B1 TO BE 25KA.
8. PROVIDE MODULATING POWER EXHAUST WHERE ECONOMIZER IS REQUIRED.
9. FOR EXISTING CARRIER 48HJL005 AND 48HJL006, USE THE EXISTING CURB ADAPTOR SINCE 48HJL HAS SAME FOOTPRINT AS 50FCQ. CONTRACTOR TO VERIFY ON SITE. SOME OF THE EXISTING ROOF TOP UNITS ARE MADE BY LENNOX. FOR EXISTING UNITS RATHER THAN CARRIER 48HJL, PROVIDE CURB ADAPTOR. TO MATCH CARRIER UNITS.
10. PROVIDE VFD FAN FOR FCU-B1.

3

DUCT SIZING SCHEDULE *** FOR LOW VELOCITY SUPPLY, RETURN AND EXHAUST

Table with columns: CFM RANGE, ROUND DUCT DIAMETER OR EQUIVALENT RECTANGULAR DUCT, CFM RANGE, ROUND DUCT DIAMETER OR EQUIVALENT RECTANGULAR DUCT.

REMARKS:

DUCT SIZES INDICATED ARE INSIDE DIMENSIONS WHICH MAY BE ALTERED BY CONTRACTOR TO OTHER DIMENSIONS TO AVOID INTERFERENCES AND CLEARANCE REQUIREMENTS. USE EQUAL FRICTION METHOD, 0.1" WG PER 100FT. OF DUCT TO DETERMINE DUCT SIZES.

VERIFY ALL DIMENSIONS AT THE SITE. MAKE ALL FIELD MEASUREMENTS AND SHOP DRAWINGS NECESSARY FOR FABRICATION AND ERECTION OF SHEET METAL WORK. MAKE ALLOWANCES FOR BEAMS, PIPE OR OTHER OBSTRUCTION AND FOR WORK BY OTHER TRADES AND NOTIFY THE ARCHITECT IN THE EVENT OF ANY POTENTIAL INTERFERENCE. MAKE AN INITIAL VERIFICATION OF BEAM PENETRATIONS SHOWN ON STRUCTURAL DRAWINGS AND ADVISE OF ANY POTENTIAL INTERFERENCES.

4

Table with columns: LOCATION, AIR VELOCITY GUIDELINES (FPM), NOISE CRITERIA (NC).

Table with columns: EQUIPMENT CAPACITY IN TONS OF REFRIGERATION, MINIMUM CONDENSATE PIPE DIAMETER (IN).

5



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MECHANICAL SCHEDULES

M8.1

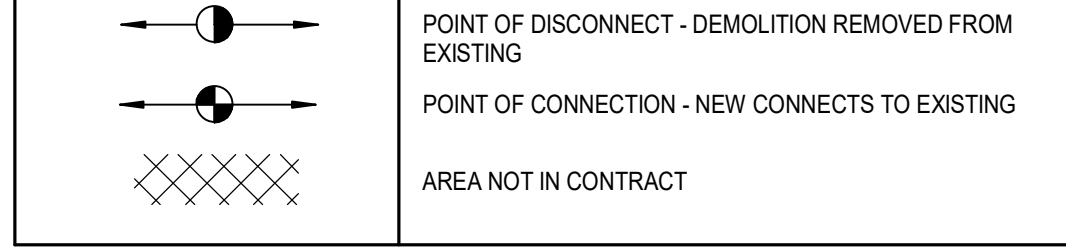
SHEET INDEX

Table with 2 columns: Code (E0.1, E2.1, E5.1, E6.1) and Description (ELECTRICAL SYMBOLS, ROOF ELECTRICAL PLAN, ELECTRICAL DIAGRAMS, ELECTRICAL DETAILS)

GENERAL NOTES

- 1 PENETRATIONS IN WALLS REQUIRING PROTECTED OPENINGS MUST BE FIRESTOPPED WITH AN APPROVED MATERIAL.
2 UNLESS SPECIFICALLY SHOWN ON THESE DRAWINGS, NO STRUCTURAL MEMBER SHALL BE CUT, DRILLED, OR NOTCHED WITHOUT PRIOR AUTHORIZATION IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD AND DSA.

GENERAL SYMBOLS



POWER

- CIRCUIT HOME RUN
CONDUIT TURNING UP
CONDUIT TURNING DOWN
CONDUIT STUB-UP
CONDUIT SLEEVE
CONDUIT SEAL
CONDUIT CONCEALED IN CEILING OR WALLS, POWER
CONDUIT CONCEALED IN CEILING OR WALLS, OTHER
CONDUIT CONCEALED IN FLOOR OR UNDERGROUND, POWER
CONDUIT CONCEALED IN FLOOR OR UNDERGROUND, OTHER
EXPOSED CONDUIT, POWER
EXPOSED CONDUIT, OTHER
FIRE RATED SLEEVE
TRANSFORMER
BRANCH CIRCUIT PANELBOARD
DISTRIBUTION PANELBOARD MOUNT 72-INCHES TO TOP
EQUIPMENT CABINET, AS NOTED
SWITCHBOARD
MOTOR STARTER OR DRIVE
DISCONNECT SWITCH
COMBINATION STARTER / DISCONNECT SWITCH
CURRENT TRANSFORMER ENCLOSURE
METER
GENERATOR
AUTOMATIC TRANSFER SWITCH
SYSTEM GROUND ELECTRODE
THERMOSTAT
MUSHROOM SWITCH
ELECTRICAL MANHOLE
ELECTRICAL HAND HOLE
MOTOR CONNECTION, HORSEPOWER AS INDICATED
FUSE AND SWITCH ASSEMBLY
MANUAL CONTROLLER WITH THERMAL OVERLOAD
MANUAL CONTROLLER W/O THERMAL OVERLOAD
CIRCUIT BREAKER ENCLOSURE
PULL BOX
EQUIPMENT CONNECTION
CABLE TRAY, LADDER TYPE OR RUNWAY
CABLE TRAY
MULTI-OUTLET ASSEMBLIES
DIVIDED SURFACE RACEWAY
PUSHBUTTON STATION
SWITCH, PUSH BUTTON, SINGLE
SWITCH, PUSH BUTTON, DOUBLE
SWITCH, PUSH BUTTON, TRIPLE

- RECEPTACLES: MOUNT 18-INCHES AFF. UNO
DIAGONAL LINE THROUGH SYMBOL OR DENOTED 'AC' INDICATES MOUNT DEVICE ABOVE COUNTER
WHERE INDICATED AS 'MOUNT ABOVE COUNTER' MOUNT BOTTOM OF BOX 2-INCHES ABOVE TOP OF BACKSPLASH OR 6-INCHES ABOVE COUNTERTOP IF NO BACKSPLASH EXISTS.
LABELS SHALL BE MACHINE PRINTED, UNO
SIMPLEX RECEPTACLE
DUPLEX RECEPTACLE
DUPLEX RECEPTACLE, GFI TYPE
DUPLEX RECEPTACLE, MOUNT ABOVE COUNTER
DUPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
FOURPLEX RECEPTACLE
FOURPLEX RECEPTACLE, GFI TYPE
FOURPLEX RECEPTACLE, MOUNT ABOVE COUNTER
FOURPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
DUPLEX RECEPTACLE, FLUSH IN CEILING
FOURPLEX RECEPTACLE, FLUSH IN CEILING
DUPLEX RECEPTACLE, HORIZONTALLY MOUNTED
DUPLEX RECEPTACLE, HORIZ. MTD, GFI TYPE
DUPLEX RECEPTACLE, HORIZ. MTD, ABOVE COUNTER
DUPLEX RECEPTACLE, HORIZ. MTD, GFI TYPE, MOUNT ABOVE COUNTER
WEATHER RESISTANT GFI DUPLEX RECEPTACLE, ROOF MOUNT 18-INCHES ABOVE ADJACENT STRUCTURE WITH A WEATHERPROOF, IN-USE COVER
WEATHER RESISTANT GFI DUPLEX RECEPTACLE, MOUNT 18-INCHES AFF WITH A WEATHERPROOF, IN-USE COVER
STD DUPLEX RECEPTACLE TO SERVE ELECTRIC WATER COOLER, MOUNT AT HEIGHT PER EWC EQUIPMENT MANUFACTURERS INSTALLATION GUIDELINES. WIRE TO GFCI BKR IN PANELBOARD.
DUPLEX RECEPTACLE TO SERVE TELEVISION, MOUNT AT SAME HEIGHT AND WITHIN 8-INCHES OF ADJACENT TV OUTLET
DUPLEX RECEPTACLE, EMERGENCY
FOURPLEX RECEPTACLE, EMERGENCY
DUPLEX RECEPTACLE, LOWER SWITCH
DUPLEX RECEPTACLE, SWITCHED
RANGE RECEPTACLE, MOUNT 8-INCHES AFF
SPECIAL RECEPTACLE, DEEP WELL BOX
FLUSH FLOOR OUTLET BOX UNO
FLUSH FLOOR BOX WITH DUPLEX RECEPTACLE UNO
MULTI-DEVICE FLOOR BOX WITH DUPLEX RECEPTACLE AND TELECOMMUNICATIONS OUTLETS
USB ONLY RECEPTACLE
RECEPTACLE WITH USB PORTS
FLUSH JUNCTION BOX, CEILING MOUNTED
JUNCTION BOX FOR FUTURE PROJECTOR POWER MOUNT 24-INCHES ABOVE SUSPENDED CEILING MOUNT TIGHT TO CEILING AT EXPOSED STRUCTURE LABEL BOX COVER PROJECTOR POWER
JUNCTION BOX ABOVE SUSPENDED CEILING WITH FLEX CONNECTION
FLUSH JUNCTION BOX, WALL MOUNTED
SURFACE JUNCTION BOX, WALL MOUNTED
SURFACE JUNCTION BOX, CEILING MOUNTED
HAND DRYER, INSTALL HAND DRYER SPECIFIED IN DIV. 11

ABBREVIATIONS

Table listing abbreviations and their meanings, such as (D) DEMOLISHED, (E) EXISTING, (R) RELOCATED, AMPERE, AMP FRAME, etc.

APPLICABLE CODE: 2019 CBC 02/02/2020 REVISED: 02/14/2020

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 2019 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.
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 HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

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

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 2019 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):

Table with 4 columns: MP, MD, PP, E and 2 rows of notes regarding bracing and approval.

NOTE
ALL NOTES ON THIS SHEET ARE APPLICABLE TO ALL OTHER SHEETS IN THIS SET.
THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE APPLICABLE IN THIS SET OF DRAWINGS.

Autodesk Docs: /75-22605-00_CVUSD - District Wide HVAC Replacement/75-22605-00_CVUSD_Barranca ES MEP_2022.rvt 7/29/2022 4:06:57 PM



Barranca Elementary School
Covina Valley USD
777 S Barranca Ave, Covina, CA 91723

DSA SUBMITTED SET
5/5/2022
REVISIONS

75-22605-00

ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES

E0.1

GENERAL NOTES

- A WORK TO INCLUDE REMOVAL OF EXISTING FEEDER TO EXISTING HVAC EQUIPMENT THAT ARE TO BE REMOVED AND REPLACED. FEEDER TO EXISTING INDOOR FAN COIL UNIT TO BE REMOVED IN ITS ENTIRETY.
- B DISCONNECTING MEANS TO BE NEMA 3R RATED.
- C CARBON MONOXIDE DETECTION SYSTEM NOT REQUIRED. ELECTRIC HEATING IS BEING PROVIDED.
- D SEE SCHEDULE ON SHEET E0.1 FOR ADDITIONAL INFORMATION.
- E FUSES SHALL BE PROVIDED PER EQUIPMENT NAMEPLATE RATING.
- F ELECTRICAL PANELS LOCATED AT GRADE LEVEL DIRECTLY BELOW WHERE SHOWN.
- G ENERGY MANGEMENT SYSTEM (EMS) / BUILDING AUTOMATION SYSTEM (BAS) IS A DELAGATED DESIGN SCOPE BY CONTRACTOR. CONTRACTOR TO FIELD COORDINATE WITH SCHOOL DISTRICT FOR LOCATIONS OF EMS ROUTER AND EMS PANEL AS WELL AS CONDUIT ROUTING.
- H CARBON MONOXIDE DETECTION SYSTEM WILL NOT BE PROVIDED AT THIS TIME UNDER CEBC 503.15.1.
EXCEPTION 2: THE GROUP BUILDING WAS CONSTRUCTED BEFORE THE ADOPTION OF THE 2016 CALIFORNIA BUILDING STANDARDS CODE.
EXISTING HVAC UNITS ARE BEING REPLACED IN KIND THROUGHOUT.
- J CONTRACTOR TO PROVIDE CONNECTION FROM LOAD SIDE OF HVAC EQUIPMENT DISCONNECT SWITCH TO FEED POWER EXHAUST DISCONNECT SWITCH. PROVIDE SAME SIZE FEEDER. PROVIDE FUSES PER EQUIPMENT NAMEPLATE RATING.

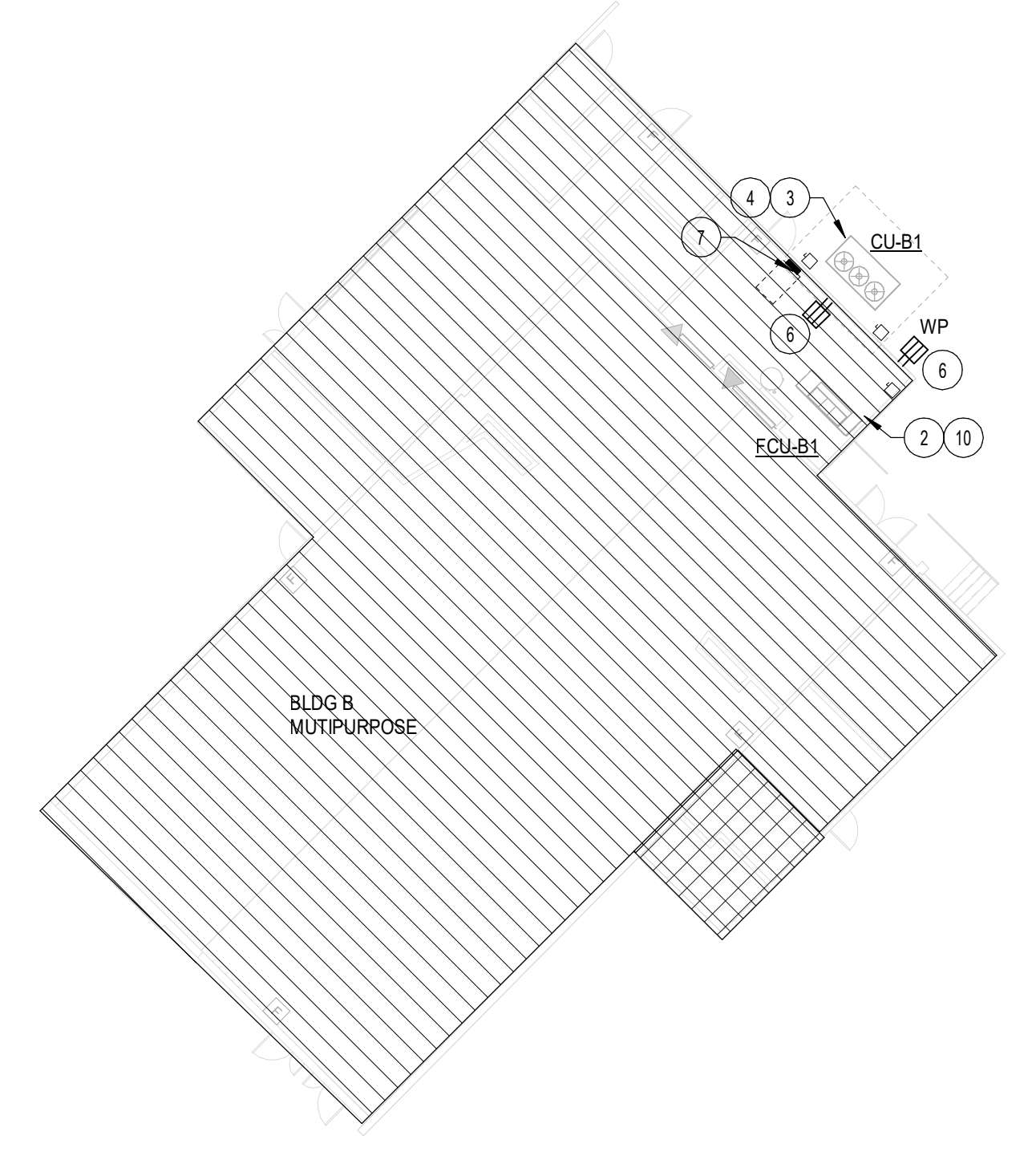
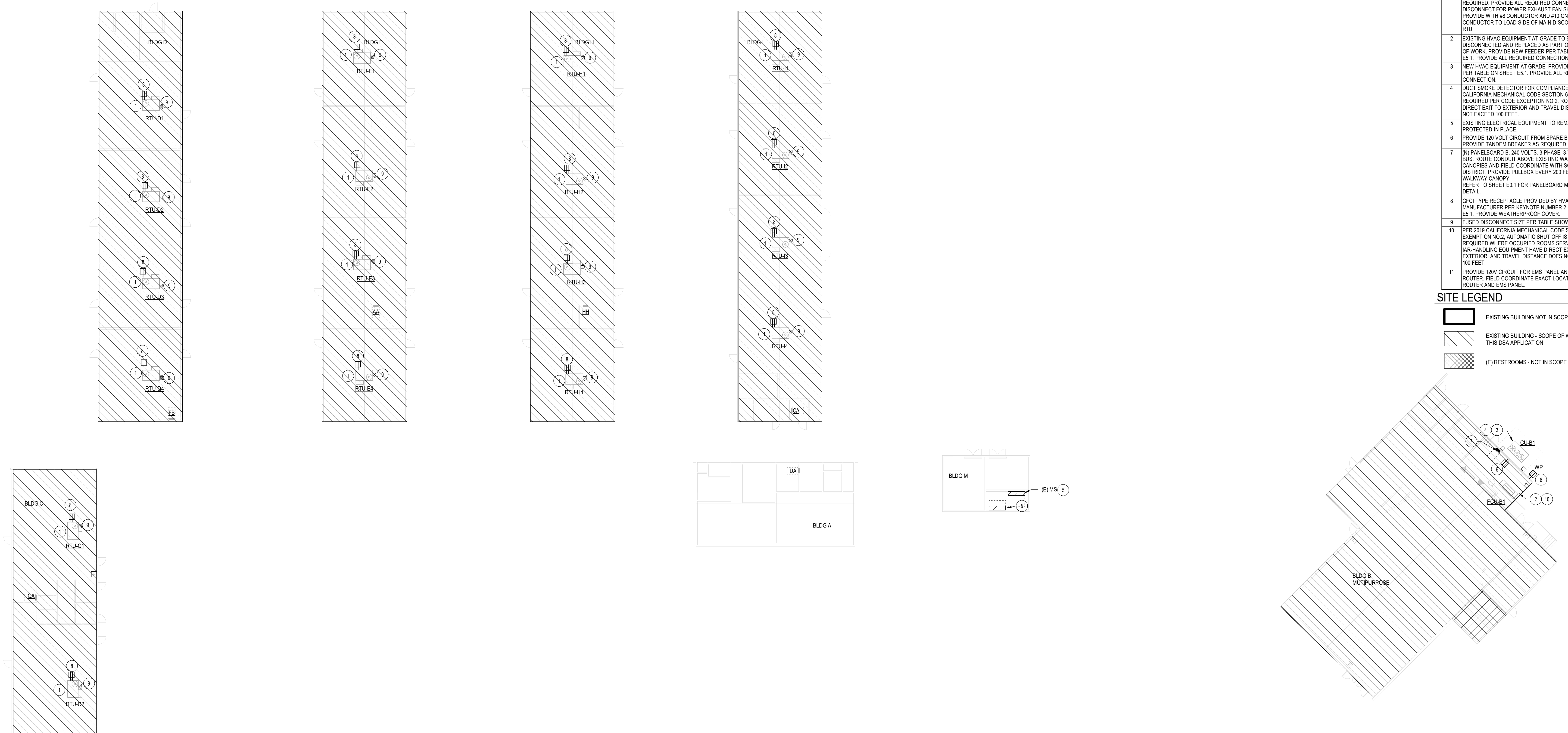
KEYNOTES

No.	DESCRIPTION
1	EXISTING HVAC EQUIPMENT ON THE ROOF TO BE DISCONNECTED AND REPLACED AS PART OF THIS SCOPE OF WORK. EXISTING FEEDER TO BE EXTENDED AS REQUIRED. PROVIDE ALL REQUIRED CONNECTION. FUSED DISCONNECT FOR POWER EXHAUST FAN SHALL BE PROVIDED WITH #8 CONDUCTOR AND #10 GND CONDUCTOR TO LOAD SIDE OF MAIN DISCONNECT FOR RTU.
2	EXISTING HVAC EQUIPMENT AT GRADE TO BE DISCONNECTED AND REPLACED AS PART OF THIS SCOPE OF WORK. PROVIDE NEW FEEDER PER TABLE ON SHEET ES.1. PROVIDE ALL REQUIRED CONNECTION.
3	NEW HVAC EQUIPMENT AT GRADE. PROVIDE NEW FEEDER PER TABLE ON SHEET ES.1. PROVIDE ALL REQUIRED CONNECTION.
4	DUCT SMOKE DETECTOR FOR COMPLIANCE TO CALIFORNIA MECHANICAL CODE SECTION 608 IS NOT REQUIRED PER CODE EXCEPTION NO.2. ROOM HAVE DIRECT EXIT TO EXTERIOR AND TRAVEL DISTANCE DOES NOT EXCEED 100 FEET.
5	EXISTING ELECTRICAL EQUIPMENT TO REMAIN AND TO BE PROTECTED IN PLACE.
6	PROVIDE 120V VOLT CIRCUIT FROM SPARE BREAKER. PROVIDE TANDEN BREAKER AS REQUIRED.
7	(N) PANELBOARD B. 240 VOLTS, 3-PHASE, 3-WIRE, 100 AMP BUS. ROUTE CONDUIT ABOVE EXISTING WALKWAY CANOPIES AND FIELD COORDINATE WITH SCHOOL DISTRICT. PROVIDE PULLBOX EVERY 200 FEET ABOVE THE WALKWAY CANOPY. REFER TO SHEET E0.1 FOR PANELBOARD MOUNTING DETAIL.
8	GFCI TYPE RECEPTACLE PROVIDED BY HVAC EQUIPMENT MANUFACTURER PER KEYNOTE NUMBER 2 ON SHEET ES.1. PROVIDE WEATHERPROOF COVER.
9	FUSED DISCONNECT SIZE PER TABLE SHOWN ON ES.1.
10	PER 2019 CALIFORNIA MECHANICAL CODE SECTION 608 EXEMPTION NO.2, AUTOMATIC SHUT OFF IS NOT REQUIRED WHERE OCCUPIED ROOMS SERVED BY THE IAR-HANDLING EQUIPMENT HAVE DIRECT EXIT TO EXTERIOR, AND TRAVEL DISTANCE DOES NOT EXCEED 100 FEET.
11	PROVIDE 120V CIRCUIT FOR EMS PANEL AND EMS ROUTER. FIELD COORDINATE EXACT LOCATION OF EMS ROUTER AND EMS PANEL.

SITE LEGEND

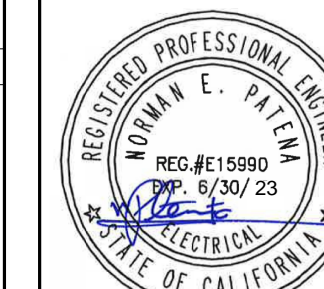
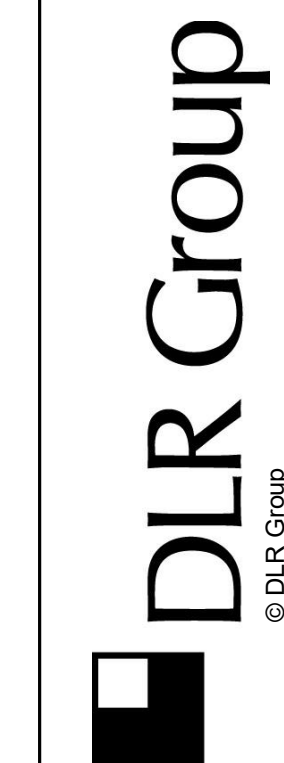
- EXISTING BUILDING - SCOPE OF WORK UNDER THIS DSA APPLICATION
- EXISTING BUILDING - NOT IN SCOPE
- (E) RESTROOMS - NOT IN SCOPE

1
2
3
4
5



OVERALL ELECTRICAL POWER PLAN

SCALE: 1/16" = 1'-0"



Barranca Elementary School
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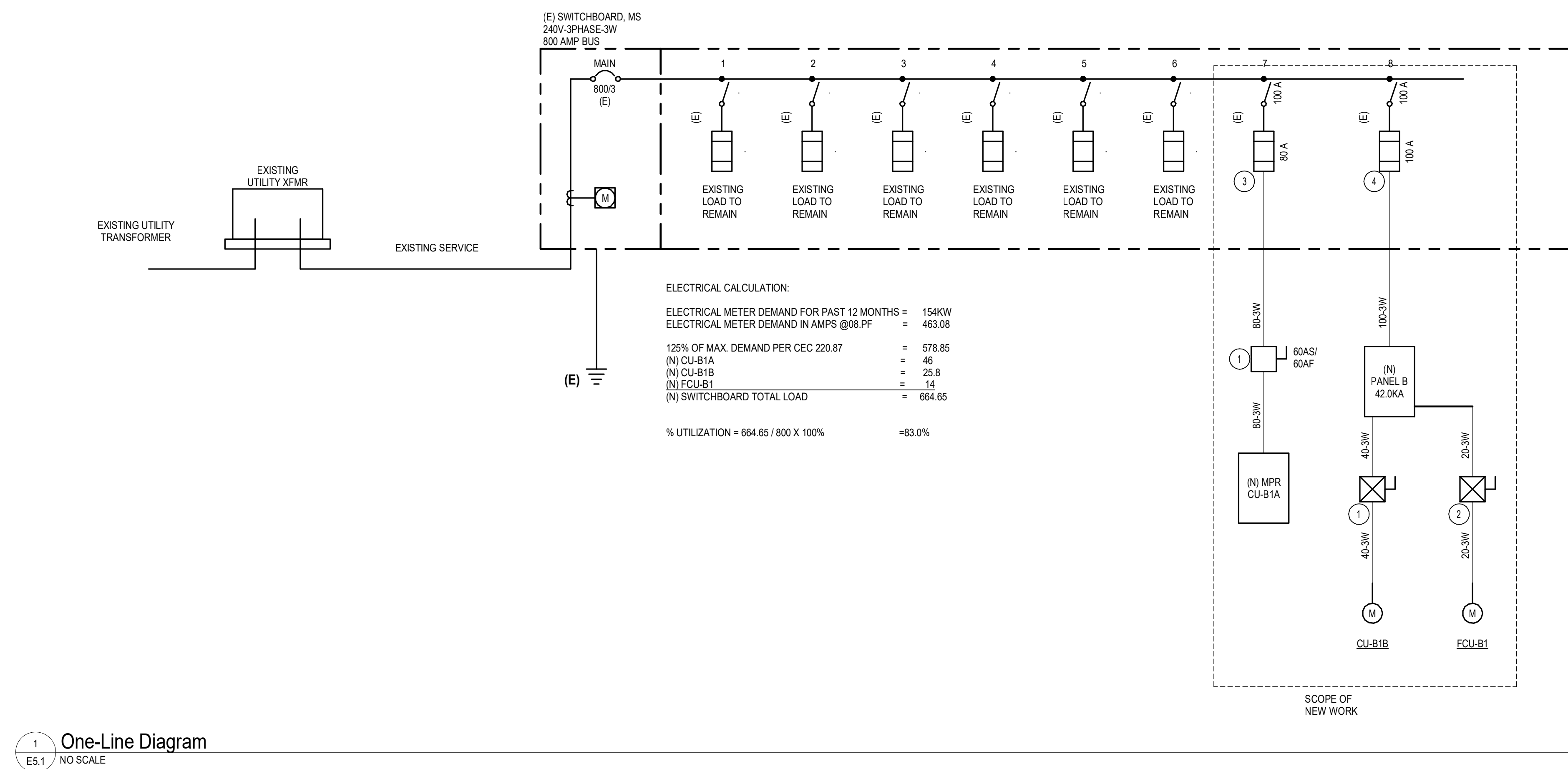
ROOF ELECTRICAL PLAN

E2.1

FEEDER SCHEDULE - COPPER									
MARK (AMPS)	# SETS	Ø & N	GND	CONDUIT SIZE			MARK SUFFIX		
				-4W	-3W	-2W			
15	1	12	12	3/4"	3/4"	3/4"			
20	1	12	12	3/4"	3/4"	3/4"			
25	1	10	10	3/4"	3/4"	3/4"			
30	1	10	10	3/4"	3/4"	3/4"			
35	1	8	10	3/4"	3/4"	3/4"			
40	1	8	10	3/4"	3/4"	3/4"			
45	1	6	10	1"	1"	3/4"			
50	1	6	10	1"	1"	3/4"			
60	1	4	10	1-1/4"	1"	3/4"			
70	1	4	8	1-1/4"	1"	3/4"			
80	1	3	8	1-1/4"	1-1/4"	1"			
90	1	2	8	1-1/4"	1-1/4"	1"			
100	1	1	8	1-1/2"	1-1/2"	1-1/4"			
110	1	1	6	1-1/2"	1-1/2"	1-1/4"			
125	1	1	6	1-1/2"	1-1/2"	1-1/4"			
150	1	10	6	2"	2"	1-1/2"			
175	1	20	6	2"	2"	1-1/2"			
200	1	30	6	2"	2"	1-1/2"			
225	1	40	4	2-1/2"	2"	1-1/2"			
250	1	250	4	2-1/2"	2"	1-1/2"			
300	1	350	4	3"	2-1/2"	2"			
350	1	500	3	3-1/2"	3"	2-1/2"			
400	1	600	3	3-1/2"	3"	2-1/2"			
400	2	300	3	2"	2"	1-1/2"			
450	2	400	2	2-1/2"	2"	1-1/2"			
500	2	250	2	2-1/2"	2-1/2"	2"			
600	2	350	1	3"	2-1/2"	2"			
700	2	500	1/0	3-1/2"	3"	2-1/2"			
800	2	600	1/0	3-1/2"	3"	2-1/2"			
1000	3	400	2/0	3"	3"	2-1/2"			
1200	3	600	3/0	3-1/2"	3-1/2"	3"			
1600	4	600	4/0	3-1/2"	3-1/2"	3"			
2000	5	600	250	4"	3-1/2"	3"			
2500	6	600	350	4"	3-1/2"	3"			
3000	8	500	400	3-1/2"	3"	2-1/2"			
4000	10	600	500	4"	3-1/2"	3"			

ABBREVIATIONS:
Ø PHASE
N NEUTRAL
GND EQUIPMENT GROUNDING CONDUCTOR
-4W FOUR WIRE + GROUND (3Ø N, GND)
-3W THREE WIRE + GROUND (3Ø, GND or 2Ø N, GND)
-2W TWO WIRE + GROUND

NOTES:
1. CONDUCTOR AMPACITIES ARE BASED ON NEC TABLE 310.15(B)(16).
2. CONDUIT SIZES ARE BASED ON A MAXIMUM FILL RATIO OF 40%.
3. SCHEDULE SHALL BE USED FOR FEEDERS AND BRANCH CIRCUITS WHERE APPLICABLE.
4. ALL FEEDERS AND BRANCH CIRCUITS SHALL INCLUDE AN EQUIPMENT GROUNDING CONDUCTOR. SCHEDULE IS VALID FOR TYPE THHN, THWN-2, AND XHHW-2 CONDUCTORS. SEE SPECIFICATIONS FOR CONDUCTOR TYPES REQUIRED.
5. SCHEDULE IS VALID FOR TYPE EMT, IMC, FMC, LFM, HDPE, AND RMC-40 RACEWAYS. SEE SPECIFICATIONS FOR RACEWAY APPLICATIONS.
6. OPTIONAL CONFIGURATIONS (1 OR 2 SETS) ARE GIVEN FOR SOME SIZES.
7. NOT ALL SIZES USED.



- GENERAL SINGLE LINE NOTES**
- OVERCURRENT DEVICES OF ENTIRE DISTRIBUTION SYSTEM SHALL MEET STATED FAULT CURRENT VALUES WITH FULLY RATED EQUIPMENT.
 - CONDUCTOR LENGTHS INDICATED ON THE SINGLE LINE DIAGRAM ARE FOR FAULT CURRENT CALCULATIONS ONLY. ACTUAL LENGTH SHALL BE DETERMINED BY FIELD CONDITIONS AND ACTUAL ROUTES OF FEEDERS.
 - REFER TO SWITCHBOARD SCHEDULES AND DISTRIBUTION PANEL SCHEDULES FOR ADDITIONAL REQUIREMENTS. WHERE A DISCREPANCY EXISTS BETWEEN EQUIPMENT ON THE SINGLE LINE DIAGRAM AND THE DETAILED SCHEDULES, THE ITEM OR ARRANGEMENT WITH BETTER QUALITY, GREATER QUANTITY, OR HIGHER COST SHALL BE USED.
 - ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. REFER TO THE MOTOR AND SPECIAL CONNECTION SCHEDULE FOR ALL FEEDERS DESIGNATED "M".
 - GROUNDING ELECTRODE CONDUCTORS SIZES ARE NOT INDICATED ON THE SINGLE LINE DIAGRAM. REFER TO THE GROUNDING RISER DIAGRAM FOR CONNECTIONS AND CONDUCTOR SIZES.

KEYNOTES

No.	DESCRIPTION
1	FUSED DISCONNECT TO BE PROVIDED BY CONTRACTOR.
2	VARIABLE FREQUENCY DRIVE WITH ON/OFF SWITCH TO BE PROVIDED UNDER DIVISION 23.
3	EXISTING 100 AMP SWITCH. PROVIDE 80 AMP FUSES
4	EXISTING 100 AMP SWITCH. PROVIDE 100 AMP FUSES

1 One-Line Diagram
ES.1 NO SCALE

PANEL: B
LOCATION: MECHANICAL ROOM B113
BUS RATING: 200.0 A
MAIN BREAKER: 100

VOLTS: 240 Delta
PHASES: 3
WIRES: 3
SCCR:

MOUNTING: SURFACE
FEED FROM:
INTEGRAL SPD: Type 1
LUG ACCESSORIES: SEE ONE-LINE

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)	PHASE B (VA)	PHASE C (VA)	LOAD TYPE	BKR TRIP	P	BKR TYPE	CIRCUIT DESCRIPTION	CKT
1														
3	CU-B1	60	3	Motor		2,860	2,860	2,860						4
5														6
7														8
9	FCU-B1	40	3	Motor		1,552	1,552	1,552						10
11														12
13														14
15														16
17														18
19														20
21														22
23														24
25														26
27														28
29														30
31														32
33														34
35														36
37														38
39														40
41														42
TOTAL LOAD:						4412 VA	4412 VA	4412 VA						
TOTAL AMPS:						31.8 A	31.8 A	31.8 A						

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAND D.	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	Ø = GFCI (5mA)	CONNECTED LOAD: 13 WVA ESTIMATED DEMAND: 13 WVA CONNECTED CURRENT: 31.8 A EMD CURRENT: 31.8 A
R	RECEPTACLES	0 VA	0.00%	0 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFF (30mA)	
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	
M	MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	
C	COOLING	0 VA	0.00%	0 VA			
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	0 VA	0.00%	0 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

NOTES:

BARRANCA E.S. AC UNIT REPLACEMENT

EXISTING UNIT									NEW UNIT													
TAGS	ELECTRICAL								TAGS	DIRECT REPLACEMENT? Y/N	CFM	ELECTRICAL					POWER EXHAUST				NOTES	
	VIPH	MCA	FLA	MOCP	PANEL/ CKTW	FEEDER SIZE	DISCONNECT	V-PH				MCA	MOCP	PANEL/ CKTW	DISCONNECT	REQUIRED?	Model#	MCA	MOCP	FEEDER SIZE		DISCONNECT
NA	NA	NA	NA	NA	NA	NA	NA	NA	CU-B1A	N	NA	230/3	46	60	MS-7	60A (60A FUSE)						
NA	NA	NA	NA	NA	NA	NA	NA	NA	CU-B1B	N	NA	230/3	25.8	40	B-1,3,5	60A (40A FUSE)						
NA	NA	NA	NA	NA	NA	NA	NA	NA	FCU-B1	N	6,000	230/3	14	20	B-2,4,6	30A (20A FUSE)						
RTU-C1 (BLDG. C)	230/3	22.6	22.6	30	GA-2,4,6	3#8, 2#14GND-1" C	60	RTU-C1 (BLDG. C)	Y	1,600	230/3	26	30	GA-2,4,6	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-C2 (BLDG. C)	230/3	22.6	22.6	30	GA-1,3,5	3#8, 2#14GND-1" C	60	RTU-C2 (BLDG. C)	Y	1,600	230/3	26	30	GA-1,3,5	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-D1 (BLDG. D)	230/3	22.6	22.6	30	FB-2,4,6	3#8, 2#14GND-1" C	60	RTU-D1 (BLDG. D)	Y	1,600	230/3	26	30	FB-2,4,6	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-D2 (BLDG. D)	230/3	22.6	22.6	30	FB-8,10,12	3#8, 2#14GND-1" C	60	RTU-D2 (BLDG. D)	Y	1,600	230/3	26	30	FB-8,10,12	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-D3 (BLDG. D)	230/3	22.6	22.6	30	FB-1,3,5	3#8, 2#14GND-1" C	60	RTU-D3 (BLDG. D)	Y	1,600	230/3	26	30	FB-1,3,5	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-D4 (BLDG. D)	230/3	22.6	22.6	30	FB-7,9,11	3#8, 2#14GND-1" C	60	RTU-D4 (BLDG. D)	Y	1,600	230/3	26	30	FB-7,9,11	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-E1 (BLDG. E)	230/3	22.6	22.6	30	AA-1,3,5	3#8, 2#14GND-1" C	60	RTU-E1 (BLDG. E)	Y	1,600	230/3	26	30	AA-1,3,5	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-E2 (BLDG. E)	230/3	22.6	22.6	30	AA-2,4,6	3#8, 2#14GND-1" C	60	RTU-E2 (BLDG. E)	Y	1,600	230/3	26	30	AA-2,4,6	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-E3 (BLDG. E)	230/3	22.6	22.6	30	AA-7,9,11	3#8, 2#14GND-1" C	60	RTU-E3 (BLDG. E)	Y	1,600	230/3	26	30	AA-7,9,11	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-E4 (BLDG. E)	230/3	22.6	22.6	30	AA-8,10,12	3#8, 2#14GND-1" C	60	RTU-E4 (BLDG. E)	Y	1,600	230/3	26	30	AA-8,10,12	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-H1 (BLDG. H)	230/3	22.6	22.6	30	BA-1,3,5	3#8, 2#14GND-1" C	60	RTU-H1 (BLDG. H)	Y	1,600	230/3	26	30	BA-1,3,5	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-H2 (BLDG. H)	230/3	22.6	22.6	30	BA-2,4,6	3#8, 2#14GND-1" C	60	RTU-H2 (BLDG. H)	Y	1,600	230/3	26	30	BA-2,4,6	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-H3 (BLDG. H)	230/3	22.6	22.6	30	BA-7,9,11	3#8, 2#14GND-1" C	60	RTU-H3 (BLDG. H)	Y	1,600	230/3	26	30	BA-7,9,11	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-H4 (BLDG. H)	230/3	22.6	22.6	30	BA-8,10,12	3#8, 2#14GND-1" C	60	RTU-H4 (BLDG. H)	Y	1,600	230/3	26	30	BA-8,10,12	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-I1 (BLDG. I)	230/3	22.6	22.6	30	CA-1,3,5	3#8, 2#14GND-1" C	60	RTU-I1 (BLDG. I)	Y	1,600	230/3	26	30	CA-1,3,5	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-I2 (BLDG. I)	230/3	22.6	22.6	30	CA-7,9,11	3#8, 2#14GND-1" C	60	RTU-I2 (BLDG. I)	Y	1,600	230/3	26	30	CA-7,9,11	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-I3 (BLDG. I)	230/3	22.6	22.6	30	CA-2,4,6	3#8, 2#14GND-1" C	60	RTU-I3 (BLDG. I)	Y	1,600	230/3	26	30	CA-2,4,6	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	
RTU-I4 (BLDG. I)	230/3	22.6	22.6	30	CA-8,10,12	3#8, 2#14GND-1" C	60	RTU-I4 (BLDG. I)	Y	1,600	230/3	26	30	CA-8,10,12	60A (30A FUSE)	YES	PCD-SRT12CA	4.9	8.8	3#8, 2#14GND-1" C	20A (15A FUSE)	

GENERAL NOTES:

- CONTRACTOR TO FIELD VERIFY CIRCUITING AND FEEDER INFORMATION PRIOR TO EQUIPMENT REMOVAL. CONTRACTOR TO PROVIDE REQUIRED ADJUSTMENTS AS NEEDED.
- PROVIDE MECHANICAL UNIT WITH INTEGRAL CONVENIENCE RECEPTACLE. FEED FROM SPARE 20A/1P BREAKER IN NEAREST PANEL. ROUTE 2#12+1#12GND IN 1/2" EMT CONDUIT FROM PANEL TO RECEPTACLE.
- POWER NO MORE THAN 10 RECEPTACLES ON ONE CIRCUIT. FIELD VERIFY EX

ALTERNATE ARRANGEMENT OF SEISMIC BRACES FOR CONDUITS ON TRAPEZE

NOTES:
1) REFER TO APPROPRIATE DETAIL F PAGES FOR DIMENSIONS AND NOTATIONS NOT SHOWN.

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TEL (714) 630 - 0701, www.masonwest.com

DATE: 08/16/2019
BY: Jeffrey T. Kikumoto

Jiefu "Jeff" Zhang, SE
California SE No. 55270

PAGE **A25.1**

SEISMIC BRACKET ATTACHMENT TO STRUCTURAL TIMBER WITH (1) THRU BOLT OR THREADED ROD

SEISMIC BRACE BRACKET PERPENDICULAR TO JOIST

SEISMIC BRACE BRACKET PARALLEL TO JOIST

BRACE ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp (LBS)	MAX BRACE RANGE (INCH)	MIN BRACE DIA. (INCH)	MIN BRACE Cmin1 (INCH)	MIN BRACE Cmin2 (INCH)
38A TO 38D	250	30"-48"	3/8"	1 1/2"	1 1/2"
38A TO 38B	150	48"-60"	3/8"	1 1/2"	1 1/2"
50A TO 50D	300	30"-48"	1/2"	1 1/2"	2"
50A TO 50B	170	48"-60"	1/2"	1 1/2"	2"
63A TO 63D	340	30"-48"	3/4"	1 1/2"	2 1/2"
63A TO 63C	200	48"-60"	3/4"	1 1/2"	2 1/2"

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SEISMIC BRACKET ATTACHMENT TO WOOD I-JOISTS WITH (1) THRU BOLT OR THREADED ROD

PERPENDICULAR TO JOIST

PARALLEL TO JOIST

BRACE ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp (LBS)	MAX BRACE RANGE (INCH)	MIN BRACE DIA. (INCH)
38A TO 38B	150	30"-48"	3/8"
38A TO 38A	80	48"-60"	3/8"
50A TO 50C	180	30"-48"	1/2"
50A TO 50A	100	48"-60"	1/2"
63A TO 63C	210	30"-48"	3/4"
63A TO 63A	120	48"-60"	3/4"

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SEISMIC BRACKET ATTACHMENT TO WOOD JOIST

AT JOIST

BRACE ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp (LBS)	MAX BRACE RANGE (INCH)	MIN BRACE DIA. (INCH)
38A TO 38E	420	30"-45"	3/4"
38A TO 38D	300	48"-60"	3/4"
50A TO 50E	420	30"-45"	3/4"
50A TO 50D	300	48"-60"	3/4"
63A TO 63E	420	30"-45"	3/4"
63A TO 63D	300	48"-60"	3/4"

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CONDUIT ELECTRICAL METALLIC TUBING (EMT) MAXIMUM SEISMIC BRACE SPACINGS

VERTICAL FORCE Fpv = 0.375g (ASD)

TRADE SIZE	MAX WEIGHT PER FOOT (LBS/FT)	MAX GRAVITY SUPPORT SPACING (FT)	MAX TRANSVERSE BRACE SPACING BASED ON TRADE SIZE AND g FORCE (FT)						
			0.25g	0.375g	0.5g	0.75g	1g		
3	8.26	10	45	41	38	36	35	33	31
3.5	10.98	10	48	44	41	39	37	35	33
4	13.64	10	50	45	42	40	38	36	34

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ELECTRICAL CONDUIT WEIGHT TABLES

CONDUIT DIAMETER (IN)	PIPE TYPE	PIPE WEIGHT PER FOOT (LBS)		
		PIPE	CONDUCTORS	TOTAL
3/8"	ELECTRICAL METALLIC TUBING (EMT) WEIGHT	0.29	0.22	0.51
1/2"		0.44	0.40	0.84
3/4"		0.64	0.66	1.30
1"		0.95	1.17	2.12
1 1/2"		1.10	1.60	2.70
2"		1.48	2.60	4.08
2 1/2"		2.05	3.74	5.79
3"		2.50	5.76	8.26
3 1/2"		3.25	7.73	10.98
4"		3.79	9.94	13.64
5"	---	---	---	
6"	---	---	---	
3/8"	INTERMEDIATE METAL CONDUIT (IMC) WEIGHT	0.80	0.22	0.82
1/2"		0.82	0.41	1.23
1"		1.16	0.66	1.82
1 1/2"		1.50	1.17	2.67
2"		1.82	1.80	3.42
2 1/2"		2.42	2.62	5.04
3"		4.28	3.47	7.75
3 1/2"		5.26	5.43	10.69
4"		6.12	7.34	13.46
5"		8.82	9.50	18.32
6"	---	---	---	
3/8"	RIGID METAL CONDUIT (RMC) WEIGHT	0.79	0.22	1.01
1/2"		1.05	0.41	1.46
1"		1.53	0.66	2.19
1 1/2"		2.01	1.17	3.18
2"		2.48	1.61	4.09
2 1/2"		3.32	2.62	5.94
3"		5.27	3.74	9.01
3 1/2"		6.82	5.77	12.59
4"		8.31	7.73	16.04
5"		9.72	9.95	19.67
6"	13.14	15.62	28.76	
8"	17.45	22.58	40.03	

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ROOF PENETRATION DETAIL 1

NOTES:
1. MAXIMUM WEIGHT OF EQUIPMENT UNIT NOT TO EXCEED 500 LBS.
2. COORDINATE EXACT LOCATIONS WITH MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS.

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TYP WALL EQUIPMENT BACKING

NOTES:
1. MAXIMUM WEIGHT OF EQUIPMENT UNIT NOT TO EXCEED 500 LBS.
2. COORDINATE EXACT LOCATIONS WITH MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS.

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DSA SUBMITTED SET
5/5/2022
REVISIONS

75-22605-00

ELECTRICAL DETAILS

E6.1

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