Project No. DSA #04-120521

Mountain Empire Unified School District

Mountain Empire High School - HVAC Unit Replacement

3305 Buckman Springs Rd, Pine Valley, CA 91962

ABBREVIATIONS

'	FOOT
"	INCHES
&	AND
@	AT
℄	CENTERLINE
(E)	EXISTING
(N)	NEW
#	NUMBER OR POUND
⌀	ROUND OR DIAMETER
SF	SQUARE FEET
ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
AP	ACCESS PANEL
ACT	ACOUSTICAL TILE
ADH	ADHESIVE
AGG	AGGREGATE
A/C	AIR CONDITIONING
ALT	ALTERNATE
AL, ALUM	ALUMINUM
AB	ANCHOR BOLT
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECT (URAL)
ASPH	ASPHALT
ATT	ATTACHED
AC	ASPHALT CONCRETE PAVING
AUTO	AUTOMATIC
AVC	AVERAGE
BSMT	BASEMENT
BM	BEAM
BPL	BEARING PLATE
BEL	BELOW
BET	BETWEEN
BVL	BELEVED
BIT	BITUMINOUS
BLK	BLOCK
BLKG	BLOCKING
BD	BOARD
BS	BOTH SIDES
BOT	BOTTOM
BRZ	BRONZE
BLDG	BUILDING
BUR	BUILT UP ROOFING
CAB	CABINET
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CK	CALK (ING), CAULK (ING)
CPT	CARPET (ED)
CSMT	CASEMENT
CIPC	CAST IN PLACE CONCRETE
CI	CAST IRON
CLG	CEILING
CHT	CEILING HEIGHT
CEM	CEMENT
CEN	CENTER
CM	CENTIMETER (S)
CER	CERAMIC
CT	CERAMIC TILE
CIR	CIRCLE
CIRC	CIRCUMFERENCE
CLR	CLEAR (ANCE)
CLO	CLOSET
CW	COLD WATER
COL	COLUMN
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CX	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS OR CONTINUE
CONTR	CONTRACT (OR)
CJ	CONTROL JOINT
CPR	COPPER
(E)	EXISTING
FOF	FACE OF FINISH
GA	GAGE, GAUGE
GALV	GALVANIZED
GKT	GASKET (ED)
GEN	GENERAL
GC	GENERAL CONTRACT (OR)
GL	GLASS, GLAZING
GLB	BLASS BLOCK
GD	GRADE, GRADING
GND	GROUND
GT	GROUT
GYP	GYPSUM
HH	HANDHOLE
HDW	HARDWARE
HWD	HARDWOOD
HDR	HEADER
HTG	HEATING
HVAC	HEATING/VENTILATION/ AIR CONDITIONING
HT	HEIGHT
HEX	HEXAGONAL
HC	HOLLOW CORE
HOR/HORIZ	HORIZONTAL
HB	HOSE BIBB
HW	HOT WATER
HR	HOUR
IN	INCH
ID	INSIDE DIAMETER
INFO	INFORMATION
INSUL	INSULATE (D), (ION)
INT	INTERIOR
JC	JANITOR'S CLOSET
JT	JOINT
J	JOIST
J-BOX	JUNCTION BOX
KIT	KITCHEN
KO	KNOCKOUT
LAB	LABORATORY
LAD	LADDER
LB	LAG BOLT
LAM	LAMINATE (D)
LAV	LAVORATORY
LH	LEFT HAND
L	LENGTH
LT(G)	LIGHT-(ING)
LWC	LIGHT-WEIGHT CONCRETE
LIN	LINEAR
LL	LIVE LOAD

MB	MACHINE BOLT
MH	MANHOLE
MFR	MANUFACTURE (ER)
MAS	MASONRY
MTL	MATERIAL (S)
MAX	MAXIMUM
MOE	MEANS OF EGRESS
MECH	MECHANIC (AL)
MC	MEDICINE CABINET
MED	MEDIUM
MEMB	MEMBRANE
MET	METAL
M	METER (S)
MM	MILLIMETER (S)
MWK	MILLWORK
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MOD	MODULAR
MLD	MOLDING, MOULDING
MT	MOUNT (ED), (ING)
MUL	MULLION
NAT	NATURAL
NR	NOISE REDUCTION
NOM	NOMINAL
N	NORTH
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO	NUMBER
P, PNT	PAINT (ED)
PNL	PANEL
PB	PANIC BAR
PAR	PARALLEL
PK	PARKING
PBD	PARTICLE BOARD
PTN	PARTITION
PERF	PERFORATE (D)
PERI	PERIMETER
PLAS	PLASTER
PLAM	PLASTIC LAMINATE
PL	PLATE
PLBG	PLUMBING
PROP	PROPERTY
PL	PROPERTY LINE
PWD	PLYWOOD
PT	POINT
PVC	PLYVINYL CHLORIDE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PCC	PRECAST CONCRETE
PFB	PREFABRICATE (D)
PFN	PREFINISHED
QTY	QUANTITY
RAD	RADIUS
REFR	REFRIGERATOR
REINF	REINFORCE (D), (ING)
REM	REMOVE
REQ	REQUIRE (D)
REV	REVISION (S), REVISED
RH	RIGHT HAND
ROW	RIGHT OF WAY
R	RISER
RD	ROOF DRAIN
RFG	ROOFING
RM	ROOM
RO	ROUGH OPENING
RBT	RUBBER TILE
SFGL	SAFETY GLASS
SCH	SCHEDULE
SNT	SEALANT
SEC	SECTION
SHT	SHEET
SH	SHELF, SHELVING
SHR	SHOWER
SIM	SIMILAR
SKL	SKYLIGHT
SC	SOLID CORE
SP	SOUNDPROOF (ING)
S	SOUTH
SPK	SPEAKER
SPL	SPECIAL
SPEC	SPECIFICATION (S)
SQ	SQUARE
SF	SQUARE FEET
SQ IN	SQUARE INCH
SST	STAINLESS STEEL
STD	STANDARD
ST	STEEL
STO	STORAGE
SD	STORM DRAIN
STR	STRUCTURAL
SUSP	SUSPENDED
SYS	SYSTEM
TEL	TELEPHONE
TV	TELEVISION
TEMP	TEMPORARY
THK	THICK (NESS)
TPD	TOILET PAPER DISPENSER
T&G	TONGUE & GROOVE
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOP	TOP OF PARAPET
TSL	TOP OF SLAB
TST	TOP OF STEEL
TW	TOP OF WALL
TR	TRANSOM
T	TREAD
TYP	TYPICAL
TFTI	TENANT FURNISHED TENANT INSTALLED
UNF	UNFINISHED
UON	UNLESS OTHERWISE NOTED
UR	URINAL
VB	VAPOR BARRIER
VNR	VENEER
VTR	VENT THROUGH ROOF
VIF	VERIFY IN FIELD
VERT	VERTICAL
VT	VINYL TILE
WSCT	WAINSCOT
WSH	WASHER
WC	WATER CLOSET
WH	WATER HEATER
WP	WATERPROOFING
WWF	WELDED WIRE FABRIC
W	WEST, OR WIDTH, WIDE
WIN	WINDOW
WG	WIRE GLASS
WM	WIRE MESH
W/	WITH
W/O	WITHOUT
WD	WOOD
WI	WROUGHT IRON

SYMBOL LEGEND

GENERAL IDENTIFICATION TAGS

- KEYNOTE IDENTIFICATION
- DOOR IDENTIFICATION REFER TO DOOR SCHEDULE
- REVISION REFERENCE
- WINDOW IDENTIFICATION REFER TO WINDOW SCHEDULE
- FINISH IDENTIFICATION REFER TO FINISH SCHEDULE
- WALL TYPE, REFER TO WALL TYPES LEGEND
- EQUIPMENT IDENTIFICATION

CASEWORK TAG

CASEWORK WIDTH (INCHES) — W; CASEWORK IDENTIFICATION — ---; CASEWORK DEPTH (INCHES) — D; CASEWORK HEIGHT (INCHES) — H; COMMENT — ----

ROOM IDENTIFICATION TAGS

ROOM — ROOM NAME; # — ROOM NUMBER; 100 SF — ROOM AREA

ROOM — ROOM NAME; ROOM NUMBER; ROOM AREA; OCCUPANT LOAD FACTOR; TOTAL OCCUPANT LOAD; OCCUPANCY TYPE

VIEW REFERENCE SYMBOLS

- BUILDING SECTION NUMBER / SHEET NUMBER
- BUILDING ELEVATION NUMBER / SHEET NUMBER
- WALL SECTION NUMBER / SHEET NUMBER / SIM. INDICATES SIMILAR CONDITION
- INTERIOR ELEVATION REFERENCE, TYP. / SHEET NUMBER
- DETAIL NUMBER / SHEET NUMBER / SIM. INDICATES SIMILAR CONDITION
- FLOOR PLAN REFERENCE MATCHLINE (- / ---)

LOCATION SYMBOLS

- x' - x" LEVEL NAME — DIMENSION TO ELEVATION / LEVEL IDENTIFICATION
- GRID BUBBLE AND LINE / GRID IDENTIFICATION
- EXISTING GRID BUBBLE AND LINE / GRID IDENTIFICATION
- N — NORTH ARROW

DIMENSIONS

- DIM. — DIMENSION TO FACE OF STUD U.O.N.
- CLR. — INDICATES CLEAR DIMENSION REQUIRED
- ℄ DIM. ℄ — DIMENSION LINE TO CENTERLINE

LINE STYLES

- ADA CLEARANCE
- PROPERTY LINE
- HIDDEN, FUTURE, OR EXISTING TO BE REMOVED
- BREAK LINE
- AREA OF WORK

SYMBOL LEGEND

ARCHITECTURAL PLAN LEGEND

- EXISTING WALL TO REMAIN
- PARTIAL HEIGHT WALL
- NON RATED PARTITION
- 1 HOUR FIRE RATED WALL
- 2 HOUR FIRE RATED WALL
- SMOKE WALL
- CMU WALL
- DOOR AND FRAME ASSEMBLY, REFERENCE DOOR SCHEDULE -/--
- WINDOW AND FRAME ASSEMBLY, REFERENCE DOOR SCHEDULE -/--
- 30" x 42" ACCESSIBLE CLEAR SPACE
- 5' - 0" ACCESSIBLE CLEAR TURNING SPACE

ARCHITECTURAL CEILING PLAN LEGEND

- 2 X 4 SUSPENDED ACOUSTICAL CEILING SYSTEM
- 2 X 2 SUSPENDED ACOUSTICAL CEILING SYSTEM
- GYPSUM CEILING
- PLASTER CEILING
- 2 X 2 SUPPLY AIR REGISTER
- 2 X 2 RETURN AIR REGISTER
- 2 X 2 EXHAUST AIR REGISTER
- LINEAR DIFFUSER
- PENDANT LIGHT FIXTURE, PER SCHEDULE
- RECESSED CAN LIGHT FIXTURE, PER SCHEDULE
- 24" X 24" LIGHT FIXTURE, PER SCHEDULE
- 24" X 48" LIGHT FIXTURE, PER SCHEDULE
- 12" X 48" LIGHT FIXTURE, PER SCHEDULE
- SURFACE MOUNTED LIGHT FIXTURE, PER SCHEDULE

SYMBOL LEGEND

- ILLUMINATED EXIT SIGN, REFERENCE ELECTRICAL DRAWINGS
- FEC — FIRE EXTINGUISHER CABINET PER DETAIL:
- S — SMOKE DETECTOR, REFERENCE ELECTRICAL DRAWINGS
- OS — OCCUPANCY SENSOR, REFERENCE ELECTRICAL DRAWINGS
- CR — CARD READER
- SECURITY CAMARA, REFERENCE ELECTRICAL DRAWINGS
- AP — ACCESS POINT, REFERENCE ELECTRICAL DRAWINGS
- SMOKE DETECTOR, REFERENCE FIRE PROTECTION DRAWINGS
- S — SPEAKER, REFERENCE ELECTRICAL DRAWINGS

SHEET INDEX

00 - GENERAL INFORMATION	
G-000	TITLE SHEET
01 - ARCHITECTURAL PLANS	
A-001	SITE PLAN
A-002	SITE PLAN - ENLARGED
A-121	ROOF PLAN - BUILDING A
02 - STRUCTURAL	
S 1.1	STRUCTURAL NOTES
S 2.2	ROOF FRAMING PLAN
03 - MECHANICAL	
M-001	MECHANICAL LEGEND AND GENERAL NOTES
M-002	TITLE 24
M-201	MECHANICAL DEMOLITION ROOF PLAN BUILDING A
M-211	MECHANICAL ROOF PLAN BUILDING A
M-501	MECHANICAL DETAILS
M-601	MECHANICAL SPECIFICATIONS
05 - ELECTRICAL	
E-001	ELECTRICAL LEGEND AND GENERAL NOTES
E-101	ELECTRICAL SITE PLAN
E-211	ELECTRICAL ROOF PLAN BUILDING A
E-212	ELECTRICAL ROOF PLAN BUILDING A
E-401	SINGLE LINE DIAGRAM
E-601	ELECTRICAL SPECIFICATIONS
18	

FIRE NOTES

1. STRUCTURES IN THE COURSE OF CONSTRUCTION, ALTERATION OR DEMOLITION, INCLUDING THOSE IN UNDERGROUND LOCATIONS SHALL BE IN ACCORDANCE TO 2019 CFC CH. 33.

2. ADDRESS SHALL BE PROVIDED FOR ALL NEW AND EXISTING BUILDINGS IN A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY (2019 CFC SEC. 505.1 FHPS POLICY P-00-6.

3. DECORATIVE MATERIALS SHALL BE MAINTAINED IN A FLAME RETARDANT CONDITION. (CAL CODE REGS., TIT. 19, SEC. 1173 & 1174, CFC SEC. 801.

4. AT LEAST ONE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 2-A:20-B:C SHALL BE PROVIDED WITHIN 75' MAXIMUM TRAVEL DISTANCE FROM PUMPS, DISPENSERS OR STORAGE TANK FILL-PIPE OPENINGS. (CFC SEC. 2305.5, CAL. CODE REGS.,TIT. 19, 3.29.)

5. COMPLETE PLANS AND SPECIFICATIONS FOR FIRE ALARM SYSTEMS; FIRE-EXTINGUISHING SYSTEMS, INCLUDING AUTOMATIC SPRINKLERS AND WET & DRY STANDPIPES; HALON SYSTEMS AND OTHER SPECIAL TYPES OF AUTOMATIC FIRE -EXTINGUISHING SYSTEMS; BASEMENT PIPE INLETS AND OTHER FIRE-PROTECTION SYSTEMS AND APPURTENANCES THERETO SHALL BE SUBMITTED TO FIRE AND HAZARD PREVENTION SERVICES FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. (CFC SEC. 901.2)

6. FIRE-EXTINGUISHING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH 2019 CBC SEC. 906.9.1 THROUGH 906.9.3.

7. ALL VALVES CONTROLLING THE WATER SUPPLY FOR AUTOMATIC SPRINKLER SYSTEMS, PUMPS, TANKS, WATER LEVELS AND TEMPERATURES, CRITICAL AIR PRESSURES AND WATER FLOW SWITCHES ON ALL SPRINKLER SYSTEMS SHALL BE ELECTRICALLY SUPERVISED BY A LISTED FIRE ALARM CONTROL UNIT. (CBC SEC. 903.4)

8. FIRE ALARM SYSTEMS SHALL BE IN ACCORDANCE WITH CFC SEC. 907.

9. AT LEAST ONE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 4-A-20-B:C SHALL BE PROVIDED OUTSIDE EACH MECHANICAL, ELECTRICAL, OR BOILER ROOM. (2019 CFC SEC. 906.1, CAL. CODE REGS., TIT 19, SEC. 3.29)

10. FIRE PROTECTION, INCLUDING FIRE APPARATUS ACCESS ROADS AND WATER SUPPLIES FOR FIRE PROTECTION, SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING TIME OF CONSTRUCTION. (CFC SEC. 501.4 AND 503)

11. FIRE HYDRANTS SYSTEMS SHALL COMPLY IN ACCORDANCE WITH CFC SEC. 507.1-507.5.6 AND APPENDIX C.

12. PROVIDE AN APPROVED KEY BOX IN AN APPROVED LOCATION (2019 CFC SEC. 506.1, FHPS POLICY K-00-2)

13. SHOULD ANY EXISTING CONDITION SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BE THE APPROVED DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CONSTRUCTION CHANGE DOCUMENT OR A SEPARATE SET OF PLANS AND SPECIFICATION, DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BEFORE PROCEEDING WITH THE REPAIR WORK. (CAC, 2013, 4-317(C)).

STATEMENT OF GENERAL CONFORMANCE

THE SHEETS LISTED IN THE INDEX ABOVE EXCEPT ARCHITECTURAL SHEETS HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/ OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THE STATE OF CALIFORNIA. IT HAS BEEN EXAMINED BY ME FOR:

1. DESIGN INTENT AND APPEAR TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME AND;

2. COORDINATION WITH MY 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 4-334" OF (TITLE 24, PART 1, SECTION 4-317 [B]).

ARCHITECT OF RECORD SIGNATURE — Eric Davy

DATE — September 24, 2021

DSA NOTES

1. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED OR BY SECTION 4-338 PART 1, TITLE 23 CCR.

2. A DSA CERTIFIED CLASS 3 PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK, THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342 PART 1, TITLE 24, CCR.

3. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTING AND INSPECTIONS.

4. GRADING PLAN, DRAINAGE IMPROVEMENT, ROADS AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS, SHALL COMPLY WITH ALL LOCAL ORDINANCES.

5. ALL WORK SHALL CONFIRM TO 2019 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

PROJECT TEAM

MOUNTAIN EMPIRE UNIFIED SCHOOLD DISTRICT
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3291 BUCKMAN SPRINGS RD. PINE VALLEY, CA 91962
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O'CONNOR CONSTRUCTION MANAGEMENT
COST ESTIMATOR
2150 WEST WASHINGTON, SUITE 203, SAN DIEGO, CA 92110
MICHAEL MEJIA - MMEJIA@OCMI.COM
P: (619) 291-4600

PROJECT DATA

PROJECT NAME :	MOUNTAIN EMPIRE HIGH SCHOOL - BLDG A HVAC UNIT REPLACEMENT
PROJECT SCOPE:	AN EXISTING 20-TON HVAC UNIT HAS FAILED AND NEEDS TO BE REPLACE. A NEW 25 TON UNIT IS PROPOSED TO REPLACE THIS UNIT LOCATED AT THE CAMPUS' MAIN SCHOOL BUILDING 'A'. THE EXISTING STRUCTURAL FRAMING HAS BEEN EVALUATED BY A LICENSED STRUCTURAL ENGINEER AND DETERMINED THE EXISTING STRUCTURE WILL ACCOMODATE THE NEW 25-TON HVAC REPLACEMENT UNIT.
PROJECT ADDRESS :	305 BUCKMAN SPRINGS ROAD, PINE VALLEY, CA 91962
PROPERTY OWNER :	MOUNTAIN EMPIRE UNIFIED SCHOOL DISTRICT
YEAR BUILT :	1990, 2004 ADDITION
LEGAL DESCRIPTION:	
BUILDING 'A' :	EXISTING - 1 STORY HIGH SCHOOL CONSTRUCTION TYPE V-B 'E' OCCUPANCY SPRINKLERED 38,000 SF ALLOWABLE 26,433 SF TOTAL

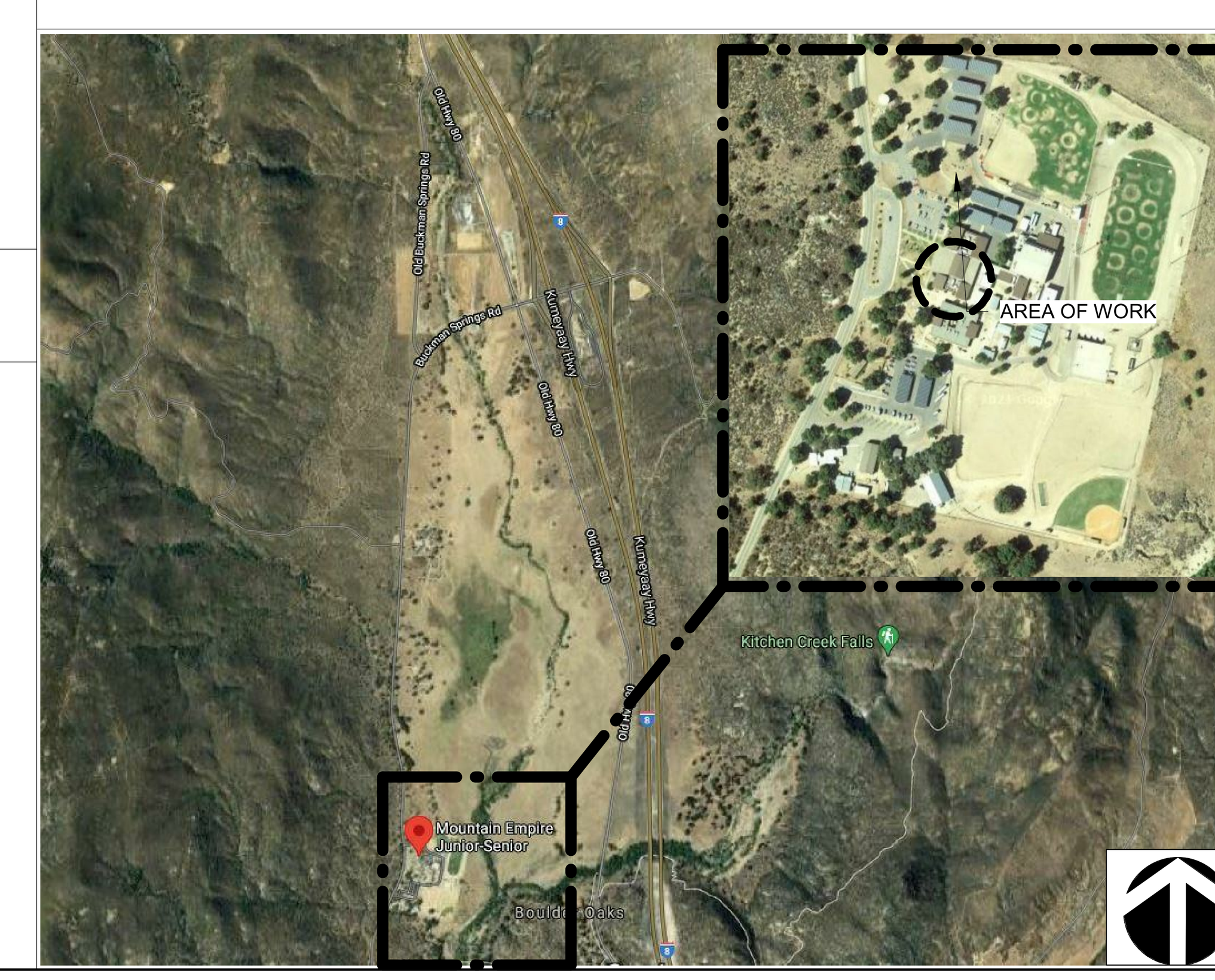
APPLICABLE CODES

THE PROJECT IS GOVERNED BY THE FOLLOWING CODES, GUIDELINES AND ENTITIES:

2019 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 C.C.R.
2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
2019 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.
2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.
2019 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE, (CAL GREEN), PART II, TITLE 24 C.C.R.
2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.

DEPARTMENT OF STATE ARCHITECT (DSA)
CALIFORNIA DEPARTMENT OF EDUCATION (CDE)
THE OFFICE OF PUBLIC SCHOOL CONSTRUCTION (OPSC)
STATE WATER RESOURCES CONTROL BOARD
COUNTY HEALTH DEPARTMENT
COUNTY FIRE MARSHAL

VICINITY MAP / LOCATION MAP



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-120521 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 10/04/2021

DAVY ARCHITECTURE
DISABLED VETERAN + EMPLOYEE OWNED
1053 TENTH AVENUE
SAN DIEGO, CA 92101
PHONE 619.238.3811
www.davyarchitecture.com

SDVOSB — Service Disabled Veteran Owned Small Business — cVe

ARCHITECT — ERIC H. DAVY — #C 14152 — EXPIRES AUGUST 31, 2023 — STATE OF CALIFORNIA

Mountain Empire Unified School District

Project No.DSA #04-120521

Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
CD	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No:	2017
DRAWN BY:	LL / DV
CHECKED BY:	JM / DV

TITLE SHEET

G-000

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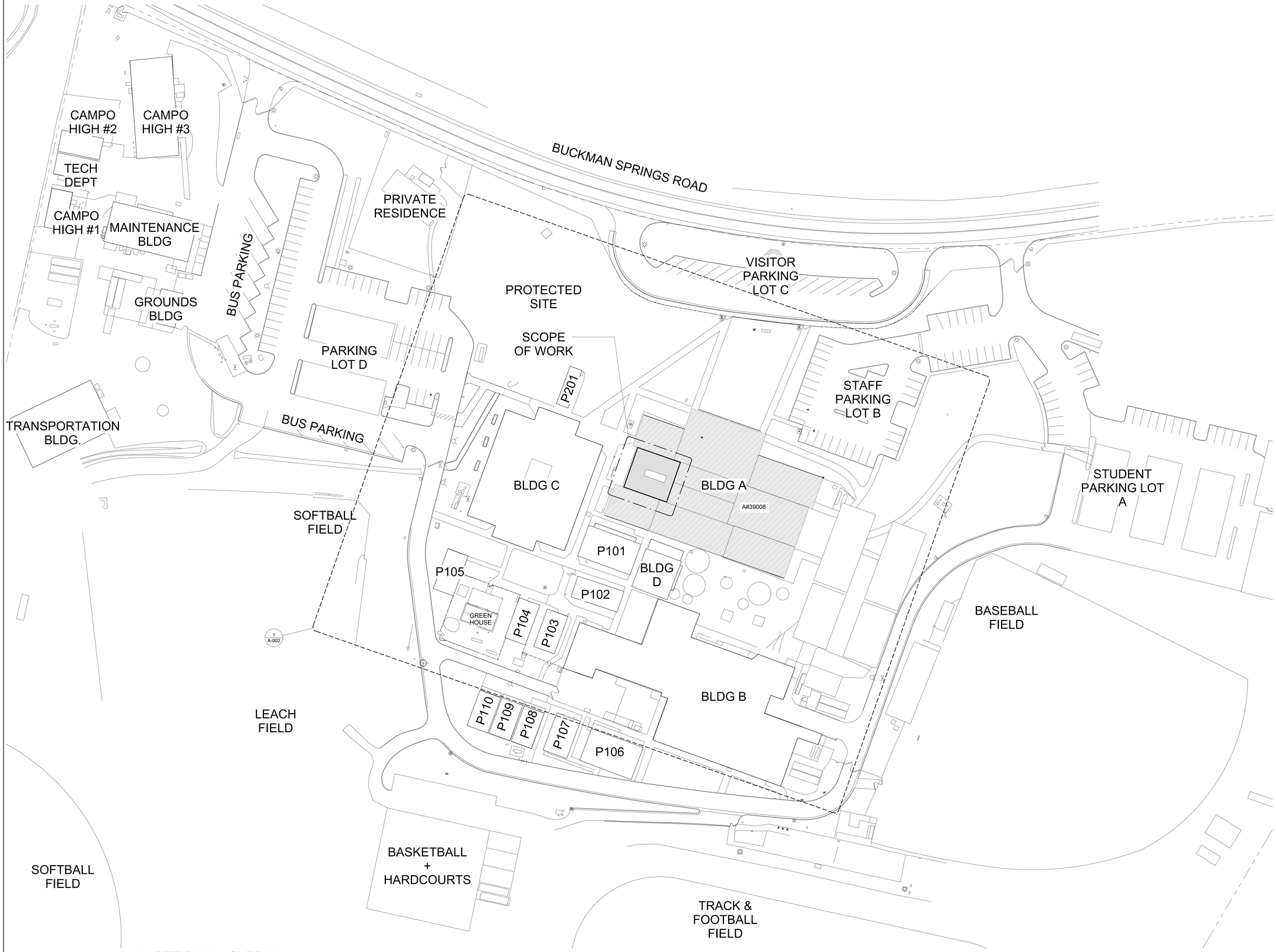

1 SITE PLAN - OVERALL
1" = 40'-0"

TRUE NORTH

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DIV. OF THE STATE ARCHITECT
APP: 04-120521 INC:
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cVE

ARCHITECT
ERIC H. DAVY
RC 14152
EXPIRES AUGUST 31, 2023
STATE OF CALIFORNIA

Mountain Empire Unified School District

Project No.DSA #04-120521

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MARK	DATE	DESCRIPTION
CD	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No:	2017
DRAWN BY:	LL / DV
CHECKED BY:	JM / DV

SITE PLAN

A-001

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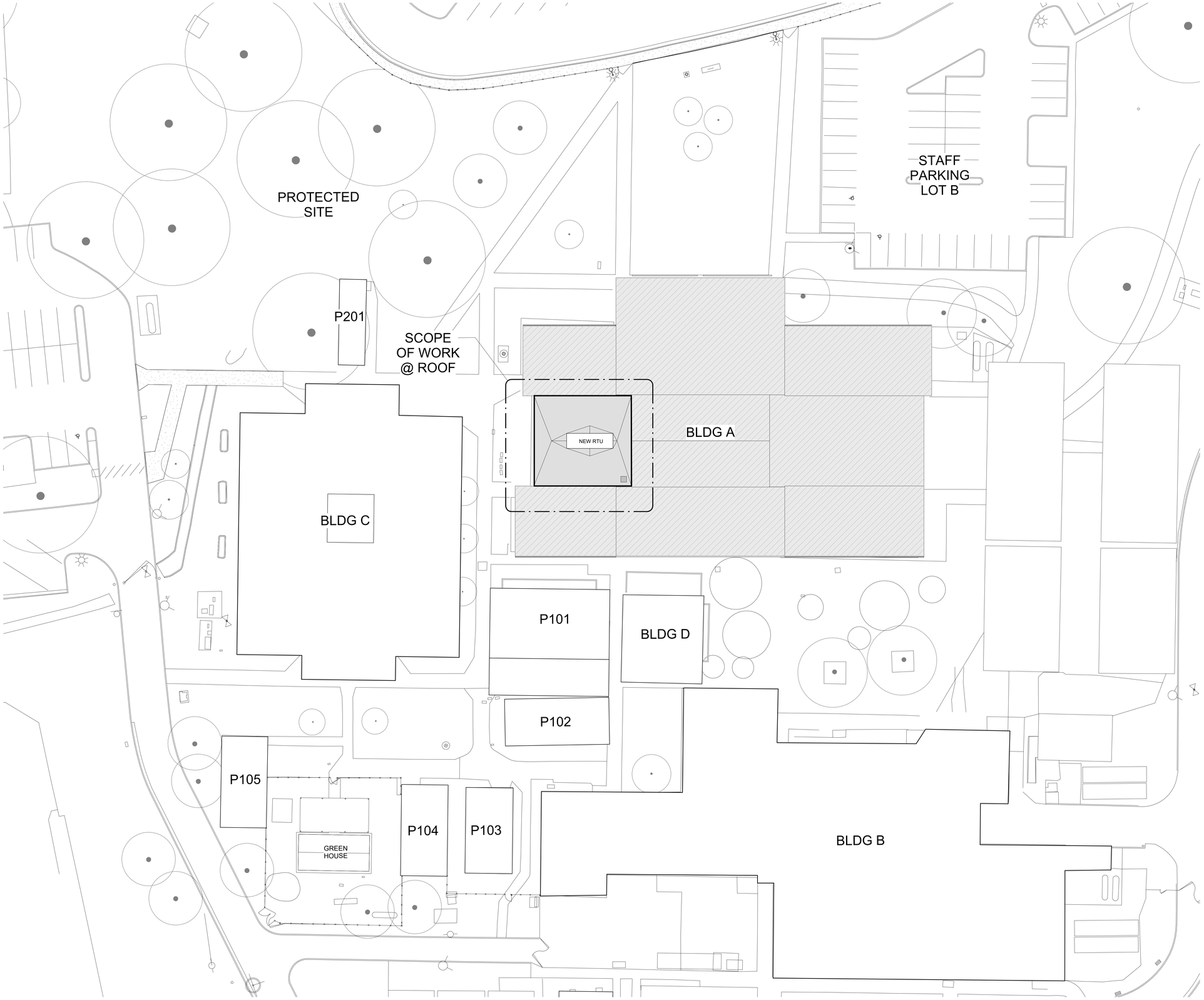

1 ARCHITECTURAL SITE PLAN - ENLARGED
1" = 20'-0"

TRUE NORTH

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-120521 INC:
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SS ☑ FLS ☑ ACS ☐
DATE: 10/04/2021

DAVY ARCHITECTURE
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www.davyarchitecture.com

SDVOSB CVE

ARCHITECT ERIC H. DAVY RC 14152 RENEWAL AUGUST 31, 2023 STATE OF CALIFORNIA

Mountain Empire Unified School District

Project No.DSA #04-120521

Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
CD	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No:	2017
DRAWN BY:	LL / DV
CHECKED BY:	JM / DV

SITE PLAN - ENLARGED

A-002

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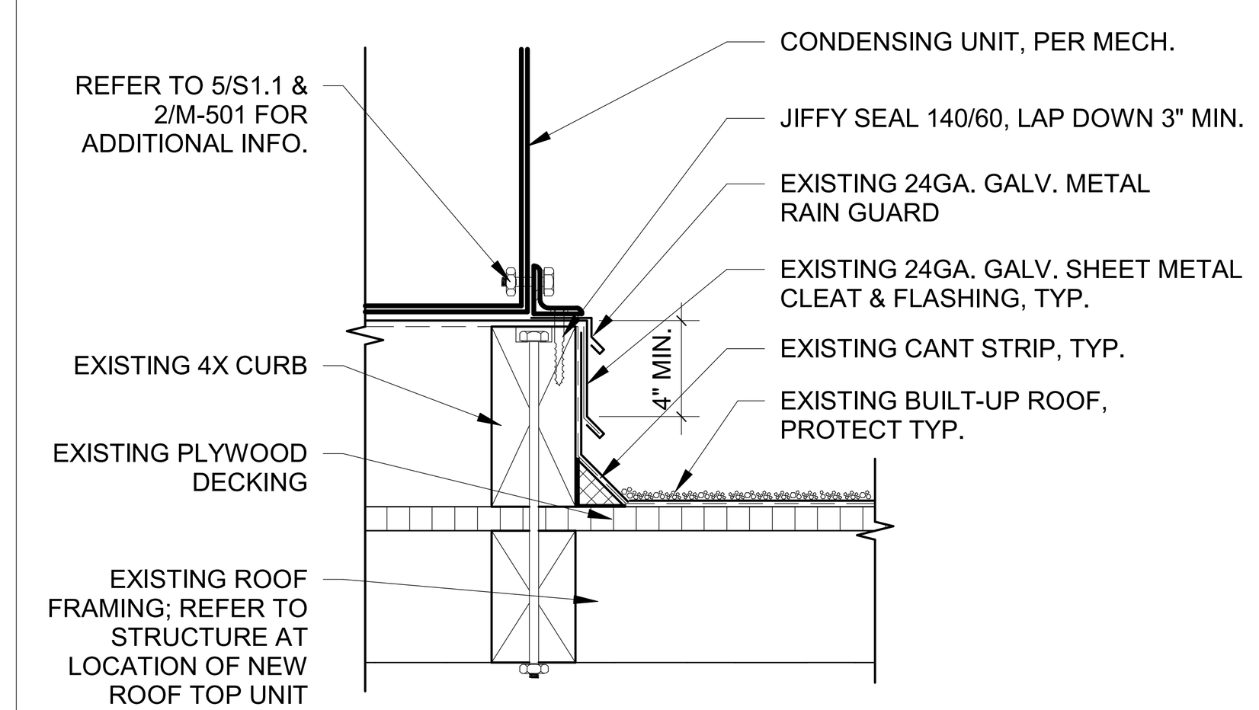
GENERAL NOTES

A. ALL MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE OF 20% OF ITS OPERATING WEIGHT IN ANY DIRECTION.

B. CONTRACTOR SHALL PROVIDE STRUCTURAL CALCULATION TO MEET OAC REQUIREMENTS.



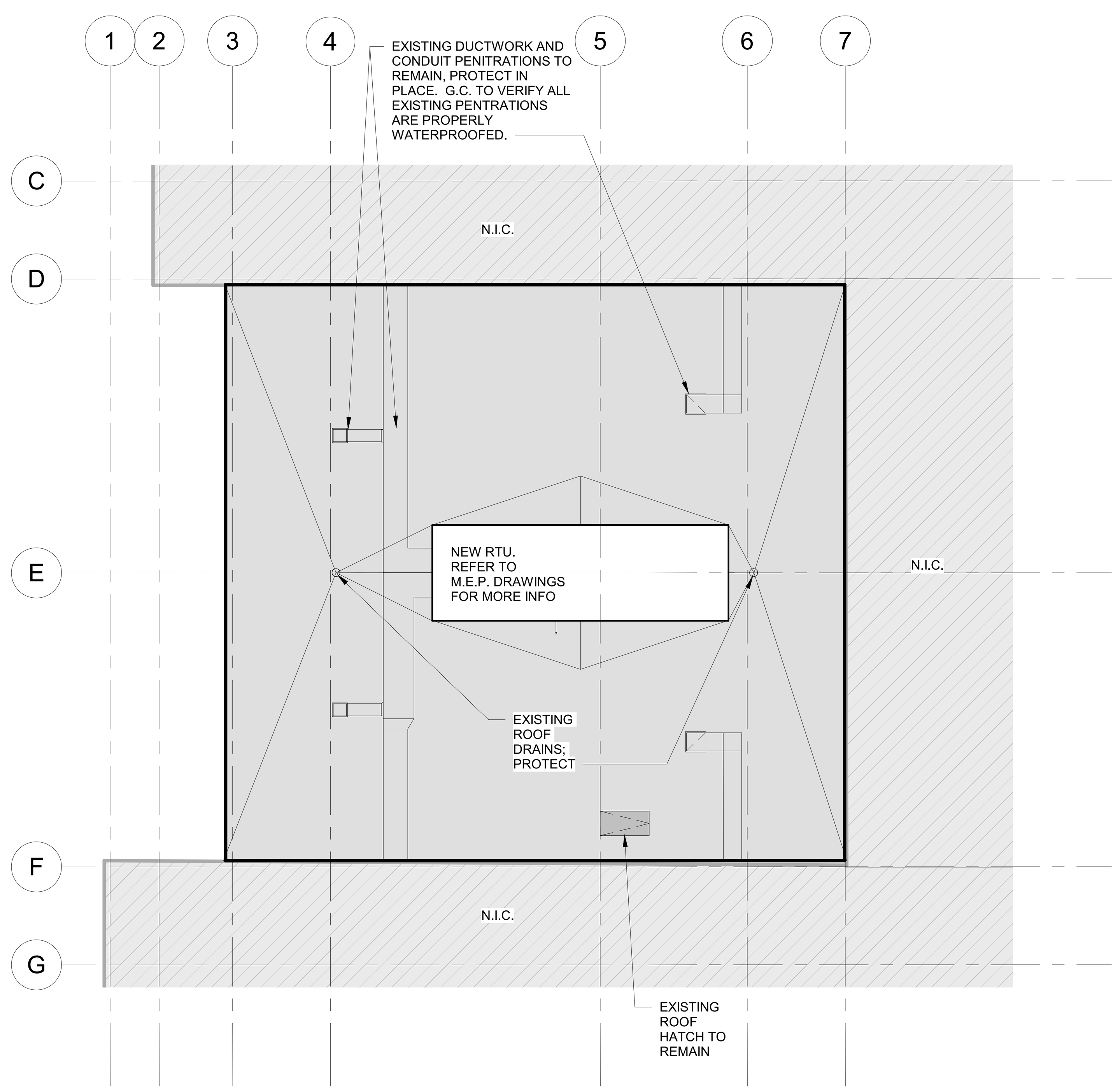
3 EQUIPMENT PLATFORM
1 1/2" = 1'-0"

LEGEND

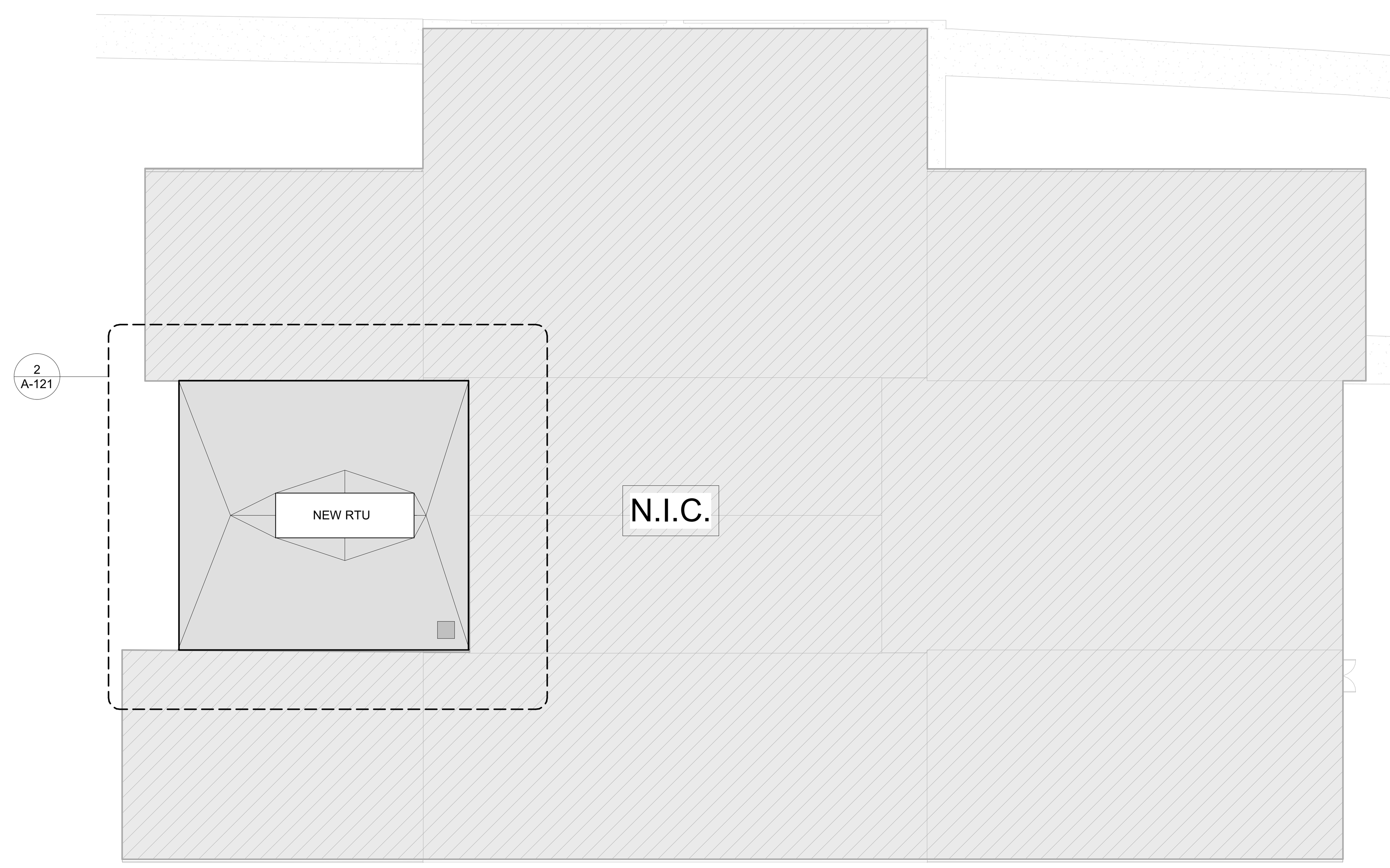
[hatched]	EXISTING BUILDING STRUCTURE NOT IN CONTRACT
[shaded]	EXISTING ROOFING TO REMAIN, PROTECT. PATCH AND REPAIR AS REQUIRED.
NEW RTU	NEW 25-TON HVAC UNIT. REFER TO MEP & STRUCTURAL DRAWINGS

Keynote Legend

Key Value	Keynote Text



2 ROOF PLAN - BUILDING A - Callout 1
1/8" = 1'-0"



1 OVERALL ROOF PLAN- BUILDING A
1/16" = 1'-0"

PLAN NORTH TRUE NORTH

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-120521 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 10/04/2021

DAVY ARCHITECTURE
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ARCHITECT ERIC M. DAVY C 18152 EXPIRES AUGUST 31 STATE OF CALIFORNIA

Mountain Empire Unified School District

Project No.DSA #04-120521

Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
CD	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No:	2017
DRAWN BY:	LL / DV
CHECKED BY:	JM / DV

ROOF PLAN - BUILDING A

A-121

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WOOD (CBC CHAPTER 23)

1. ALL WOOD MEMBERS SHALL BE DOUGLAS FIR (DF) OR LARCH GRADE MARKED BY A RECOGNIZED GRADING AGENCY (WCLIB & WWPA)
2. WOOD GRADES:
   A. FOR HORIZONTAL MEMBERS:
      3 X & LARGER BEAMS & HEADERS: ....GRADE #1
      2 X: ....GRADE #1
   B. FOR VERTICAL MEMBERS:
      2 X & 3 X STUDS: ....GRADE #2
      4 X & LARGER STUDS OR POSTS..................GRADE #1
3. APA RATED SHEATHING CONFORMING TO APA STANDARD PS-1 SHALL BE USED FOR FLOOR, ROOF, AND WALL SHEATHING IN ACCORDANCE WITH CBC SECTION 2303.1.5, TITLE 24, PART 2, CCR. PLYWOOD AND OSB SHALL COMPLY WITH DSA IR 23-6.
4. NOTCHING AND BORING OF STUDS AND JOISTS SHALL BE PERMITTED ONLY AS DETAILED OR APPROVED BY THE ENGINEER.
5. AS A MINIMUM, ALL NAILING SHALL BE WITH COMMON NAILS, EXCEPT AS NOTED IN CBC TABLE 2304.10.1.
6. 10D X 2 1/2" COMMON NAILS CAN BE USED FOR ATTACHMENT OF PLYWOOD SHEATHING.
7. ALL SILLS OR PLATES RESTING ON CONCRETE OR MASONRY, WHICH IS IN CONTACT WITH EARTH OR RESTING ON FOUNDATIONS, SHALL BE PRESSURE TREATED DOUGLAS FIR. NEWLY EXPOSED SURFACES RESULTING FROM FIELD CUTTING, BORING OR HANDLING SHALL BE FIELD TREATED IN ACCORDANCE WITH AWPA M-4.
8. BOLTS: ALL BOLT HOLES IN WOOD SHALL BE DRILLED 1/32" DIAMETER LARGER THAN NOMINAL BOLT DIAMETERS. BOLTS IN WOOD SHALL NOT BE LESS THAN 7 DIAMETERS FROM THE END AND 4 DIAMETERS FROM THE EDGE OF THE MEMBER. THREAD PROJECTION SHALL BE 1/16 INCH MINIMUM. ALL NUTS SHALL BE TIGHTENED WHEN INSTALLED AND RE-TIGHTENED AT THE COMPLETION OF WORK OR BEFORE CLOSING IN.
9. MACHINE BOLT ANCHOR BOLTS SHALL BE PROVIDED WITH FULL BODY DIAMETER AS FOLLOWS:

NOMINAL SIZE (INCHES)		BODY OR SHANK DIAMETER (INCHES)	
		MAX	MIN
1/2	0.500	0.515	0.482
5/8	0.625	0.642	0.605
3/4	0.750	0.768	0.729
7/8	0.875	0.895	0.852
1	1.000	1.022	0.976

   A. ADOPTED FROM ANSI B18.2.1.
   B. FOR BOLT DIAMETERS NOT INDICATED, REFER TO ASME B18.2.1 AND B18.2.6.
   C. THE BODY AND SHANK OF A BOLT IS THE SMOOTH PORTION BETWEEN THE HEAD AND THE THREADS.
10. LAG SCREWS: SHALL BE FULL BODY DIAMETER ACCORDING TO ANSI B18.2.1 PRE-DRILL LEAD WITH A BIT SIZE OF 40% TO 70% OF THE SHANK DIAMETER FOR THE THREADED PORTION. CLEARANCE HOLE TO BE THE SAME LENGTH AND DIAMETER AS THE UN-THREADED SHANK. LUBRICATE LAGS AND SCREW INTO PLACE.
11. WOOD SCREWS SHALL BE CUT THREAD ACCORDING TO ANSI B18.6.1
12. WASHERS: ALL BOLT HEADS, LAG SCREWS AND NUTS BEARING ON WOOD SHALL HAVE STANDARD CUT WASHERS.
13. ALL FRAMING ANCHORS, POST CAPS, BASES, HANGERS, STRAPS, ETC., SHALL BE AS MANUFACTURED BY "SIMPSON STRONG-TIE COMPANY" LATEST CATALOG OR ENGINEER APPROVED EQUAL. SUBMIT LOAD COMPARISONS WITH CATALOG AND ICC REPORTS TO THE ENGINEER FOR APPROVAL.
14. PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL PARTITIONS AND 2X SOLID BLOCKING UNDER PARTITIONS PERPENDICULAR TO JOISTS.
15. PROVIDE FULL DEPTH BLOCKING OR BRIDGING NOT EXCEEDING 8 FEET ON CENTER FOR ALL 2X12 JOISTS AND RAFTERS AND PER CBC SECTION 2308.7.8.
16. TOP PLATES OF ALL WOOD STUD WALLS TO BE 2-2X MINIMUM (SAME WIDTH AS STUDS), LAP 48" (MINIMUM), WITH NOT LESS THAN 6-16D NAILS AT EACH LAP AND NOT MORE THAN 12" BETWEEN NAILS.
17. MOISTURE CONTENT OF WOOD AT TIME OF PLACING SHALL NOT EXCEED 19%.
18. OVER DRIVING OF NAILS THROUGH SHEARWALL, ROOF, OR FLOOR SHEATHING IS NOT ALLOWED. NAILS SHALL BE DRIVEN SO THAT THE HEADS ARE FLUSH WITH THE SURFACE OF SHEATHING.
19. MACHINE APPLIED NAILING TO WOOD FRAMING OR PLYWOOD: SUBJECT TO SATISFACTORY JOB SITE DEMONSTRATION FOR THIS PROJECT AND APPROVAL BY THE ENGINEER AND DSA. IF NAIL-HEADS PENETRATE THE OUTER PLY MORE THAN WOULD BE NORMAL FOR HAND HAMMER OR IF MINIMUM ALLOWABLE EDGE DISTANCES ARE NOT MAINTAINED, THE PERFORMANCE WILL BE DEEMED UNSATISFACTORY AND MACHINE NAILING SHALL BE DISCONTINUED.
20. GLUED FLOORS: FIELD GLUE TO ALL SUPPORTS AND T&G EDGES PER APA SPECIFICATION, AFG-01. FRAMING SHALL BE FREE OF SURFACE MOISTURE & DEBRIS PRIOR TO GLUING.
21. WHERE ADJACENT WALLS ARE SHEATHED, PROVIDE SHEATHING OVER AND UNDER OPENINGS AND REMAINDER OF UNSHEATHED WALLS.
22. FASTENERS, NAILS AND CONNECTORS IN CONTACT WITH PRESERVATIVE TREATED WOOD SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-653 HOT DIPPED ZINC COATED GALVANIZED OR SHALL BE STAINLESS STEEL.
23. WHEN HARDWARE THAT REQUIRE 10d x 1 1/2" NAILS ARE INSTALLED OVER SHEATHING. THE LENGTH OF THE NAILS USED SHALL BE INCREASED BY THE THICKNESS OF THE SHEATHING.

ABBREVIATIONS

A.B.	ANCHOR BOLT	FLG.	FLANGE	P/C	PRECAST CONCRETE
ABV.	ABOVE	FLR.	FLOOR	PERP.	PERPENDICULAR
ADD'L.	ADDITIONAL	F.N.	FIELD(FACE)NAIL	PL.	PLATE
ADJ.	ADJACENT	F.O.C.	FACE OF CONCRETE	PLAM	PARALAM BEAM
ALT.	ALTERNATE	F.O.M.	FACE OF MASONRY	PLY.	PLYWOOD
ARCH.	ARCHITECT	F.O.S.	FACE OF STUD	P.S.F.	POUNDS PER SQUARE FOOT
ARCH'L.	ARCHITECTURAL	F.O.W.	FACE OF WALL	P.S.I.	POUNDS PER SQUARE INCH
BLW.	BELOW	FRM.	FRAME	P.T.	PRESSURE TREATED
B.F.	BRACED FRAME	FRMG.	FRAMING	P.T.D.F.	PRESSURE TREATED DOUGLAS FIR
BLDG.	BUILDING	F.S.	FAR SIDE	P/T	POSTTENSIONED
BLK.	BLOCK	FT.(')	FOOT(FEET)	P/S	PRE-STRESSED
BLKG.	BLOCKING	FTDF	FIRE-RETARDANT TREATED	QTY.	QUANTITY
BM.	BEAM		DOUGLAS FIR	RAD. (R)	RADIUS
B.N.	BOUNDARY NAILING	FTG.	FOOTING	REF.	REFERENCE
B.O.F.	BOTTOM OF FOOTING	GA.	GAUGE	REINF.	REINFORCEMENT(ING)
BR.	BRACE	GALV.	GALVANIZED	REQ'D.	REQUIRED
BRDG.	BRIDGE(ING)	GB.	GRADE BEAM	M.F.	MOMENT FRAME
BRG.	BEARING	GLB.	GLUED LAMINATED BEAM	R.O.	ROUGH OPENING
(B)	BOTTOM	GRD.	GRADE	RO.S.	ROUGH SAWN
BTWN.	BETWEEN	GYPBD.	GYPSUM WALLBOARD	R.S.	RE-SAWN
C	CAMBER(ED)	HD	HOLD DOWN	SCH.	SCHEDULE
CANT.	CANTILEVERED	HDR.	HEADER	SHR	SHEAR
C.F.	CUBIC FEET(FOOT)	HGR.	HANGER	SHT.	SHEET
C.G.	CENTER OF GRAVITY	HORIZ.	HORIZONTAL	SIM.	SIMILAR
C.I.P.	CAST IN PLACE	(H)	HORIZONTAL	SKW.	SKEW(ED)
C.J.	CONSTRUCTION JOINT	HSB	HIGH STRENGTH BOLT	SPEC.	SPECIFICATION(S)
CL.	CENTER LINE	HSS	HOLLOW STRUCTURAL SECTION	SQ.	SQUARE
CLG.	CEILING	HT.	HEIGHT	SS	SELECT STRUCTURAL
CLR.	CLEAR	I.D.	INSIDE DIAMETER	STD.	STANDARD
CMU.	CONC. MASONRY UNIT	I.E.	INVERT ELEVATION	STG.	STRONG
COL.	COLUMN	I.F.	INSIDE FACE	STGR.	STAGGER(ED)
CONC.	CONCRETE	IN.(")	INCH(S)	STIFF.	STIFFENER(S)
CONN.	CONNECTION	INT.	INTERIOR	STIR.	STIRRUP(S)
CONSTR.	CONSTRUCTION	JST.	JOIST	STL.	STEEL
CONT.	CONTINUOUS	JT.	JOINT	STRUC.	STRUCTURAL
CTSK.	COUNTERSINK	K	KIPS(1000)	SUSP.	SUSPENDED
CTR.	CENTER(ED)	LAT.	LATERAL	SYMM.	SYMMETRICAL
C.Y.	CUBIC YARD	LB(#)	POUNDS	(A)	TOP
d	PENNY(NAILS)	LDGR.	LEDGER	T & B	TOP AND BOTTOM
DBL.	DOUBLE	L.F.	LINEAL FEET(FOOT)	TEMP.	TEMPERATURE
D.F.	DOUGLAS FIR	LONG.	LONGITUDINAL	T & G	TONGUE AND GROOVE
DIA.(Φ)	DIAMETER	LGTH.	LENGTH	THK.	THICK(NESS)
DIAG.	DIAGONAL	LLH	LONG LEG HORIZ.	THRD.	THREADED
DIAPH.	DIAPHRAGM	LLV	LONG LEG VERT.	TEMP.	TEMPORARY
DIM.	DIMENSION	LT. WT.	LIGHT WEIGHT	T.N.	TOE NAIL
DN.	DOWN	L.S.	LAG SCREW	T.O.C.	TOP OF CONCRETE
DP (D)	DEEP(DEPTH)	MAS.	MASONRY	T.O.F.	TOP OF FOOTING
DWG.	DRAWING(S)	MAT'L.	MATERIAL	T.O.P.	TOP OF PARAPET
DWL.	DOWEL(S)	MAX.	MAXIMUM	T.O.S.	TOP OF SHEATHING
E.F.	EACH FACE	M.B.	MACHINE BOLT	T.S.	TOP OF STEEL
E.J.	EXPANSION JOINT	MECH.	MECHANICAL	T.O.W.	TOP OF WALL
EL.	ELEVATION	MEZZ.	MEZZANINE	TRANS.	TRANSVERSE
ELEC.	ELECTRICAL	MFR.	MANUFACTURER	TYP.	TYPICAL
ELEV.	ELEVATOR	MISC.	MISCELLANEOUS	U.O.N.	UNLESS OTHERWISE NOTED
EMBED.	EMBEDMENT	MTL.	METAL	VERT.(V)	VERTICAL
E.N.	EDGE NAIL	(N)	NEW	VIF	VERIFY IN FIELD
ENG.	ENGINEER	NO.(#)	NUMBER	(V)	WIDE(WIDTH)
E.O.D.	EDGE OF DECK	N.S.	NEAR SIDE	W/	WITH
E.O.S.	EDGE OF SLAB	N.T.S.	NOT TO SCALE	WD.	WOOD
EQ.	EQUAL	N. WT.	NORMAL WEIGHT	W.F.	WIDE FLANGE
EQPT.	EQUIPMENT	O.C.	ON CENTER	W.P.	WORK POINT
EXP.	EXPANSION	O.D.	OUTSIDE DIAMETER	WPJ	WEAKENED PLANE JOINT
EXIST	EXISTING	O.F.	OUTSIDE FACE	W.S.	WOOD SCREW(S)
(E)	EXISTING	O.H.	OPPOSITE HAND	WT.	WEIGHT
EXT.	EXTERIOR	OPNG.	OPENING	WWF	WELDED WIRE FABRIC
FAB.	FABRICATION	ORNT.	ORIENTATE(ION)	X-STG	EXTRA STRONG
FND.	FOUNDATION	O.W.J.	OPEN WEB JOISTS	XX-STG	DOUBLE EXTRA STRONG
FIN.	FINISH(ED)	O.W..J.	OPEN WEB STEEL JOISTS	YD.	YARD
F.F.	FINISH FLOOR	PAR. (//)	PARALLEL		

GENERAL NOTES

1. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER THESE STANDARD STRUCTURAL NOTES. TYPICAL DETAILS SHALL BE USED WHENEVER APPLICABLE. REFER TO SPECIFICATIONS FOR INFORMATION NOT COVERED BY THESE NOTES OR DRAWINGS. THESE NOTES TAKE PRECEDENCE OVER ANY OTHER BOOK SPECIFICATIONS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK, AND THE ENGINEER/ ARCHITECT SHALL BE IMMEDIATELY NOTIFIED, IN WRITING, OF ANY DISCREPANCIES. IN NO CASE SHALL DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THE STRUCTURAL DRAWINGS.
3. ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF, AND RESOLVED WITH, THE ENGINEER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
4. WHERE A CONSTRUCTION DETAIL IS NOT SHOWN OR NOTED, THE DETAIL SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
5. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN THE AREA TO BE EXCAVATED, BEFORE BEGINNING EXCAVATION.
6. NO PIPES, DUCTS, SLEEVES, CHASES, ETC. SHALL BE PLACED IN SLABS, BEAMS, OR WALLS, NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, ETC. THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FOR INSTALLATION OF ANY ADDITIONAL PIPES, DUCTS, ETC.
7. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE 2016 CALIFORNIA BUILDING CODE (CBC).
8. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE ENGINEER FREE AND HARMLESS FROM ALL CLAIMS, DEMANDS AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.
9. RETAIN A CA REGISTERED CIVIL ENGINEER TO DESIGN ALL TEMPORARY BRACING, SHORING, AND SUPPORT REQUIRED DURING CONSTRUCTION.
10. INCLUDE ENGINEERING FEES, ENGINEERING DESIGN TIME AND BUILDING DEPARTMENT APPROVAL TIME IN THE COST OF PROPOSED MATERIAL ALTERNATES. CONTACT ENGINEER FOR FEE AMOUNT. SUBMIT MATERIAL ALTERNATE FOR REVIEW BEFORE CONSTRUCTION.
11. STRUCTURAL CAD DRAWINGS SHALL NOT BE USED FOR SHOP DRAWINGS UNLESS AN AGREEMENT BETWEEN THE STRUCTURAL ENGINEER AND CONTRACTOR HAS BEEN ESTABLISHED ACCORDING TO CASE DOCUMENT 11-1996. CONTACT ENGINEER FOR FEE AMOUNT.
12. ALL ADDENDA AND CONSTRUCTION CHANGE DOCUMENTS (CCD) SHALL BE SUBMITTED TO DSA FOR APPROVAL.

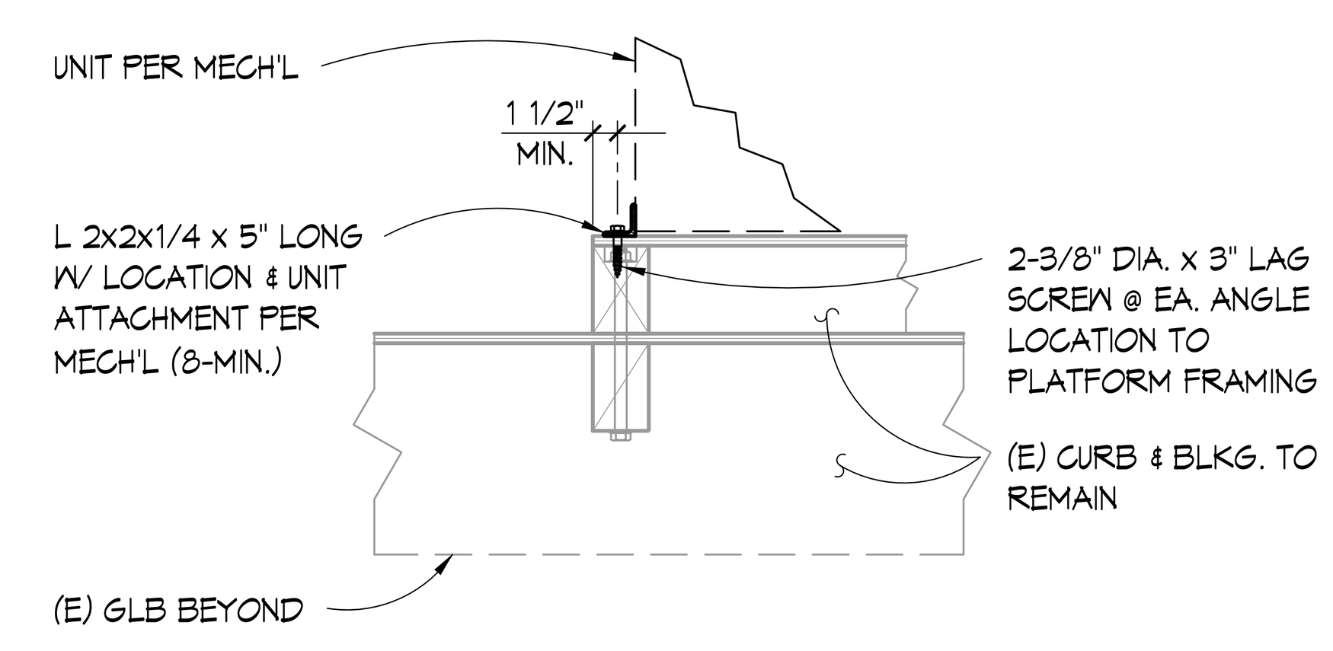
DESIGN CRITERIA

1. VERTICAL LOADS:
   A. DEAD LOADS:
      ROOF (FLAT) ……….......... 18 PSF
      ROOF (SLOPED)…….......... 17 PSF
      ROOF (OVERHANGS)........... 22 PSF
   B. B. LIVE LOADS: REDUCIBLE UNLESS NOTES OTHERWISE
      ROOF (FLAT)…………......... 20 PSF
      ROOF (SLOPED) ………........ 20 PSF
2. LATERAL LOADS:
   A. WIND: PER ACSE 7-16 (CBC 2019)
      BASIC WIND SPEED-3 SECOND GUST (V3s)............ 103 MPH
      TOPOGRAPHIC FACTOR (Kzt)……………................. 1.0
      RISK CATEGORY.. III
      EXPOSURE CATEGORY………………………........... C
      ENCLOSURE CLASSIFICATION……………............. ENCLOSED
   B. SEISMIC: PER ASCE 7-16 (CBC 2019)
      RISK CATEGORY……………………........................ III
      SEISMIC IMPORTANCE FACTOR (IE)………........…. 1.25
         RHO (N-S) 1.0
         RHO (E-W)... 1.0
      MAPPED SPECTRAL RESPONSE ACCELERATIONS:
         SS= 0.899 G
         S1= 0.316 G
      SITE CLASS:……………………………………............ C
      SPECTRAL RESPONSE COEFFICIENTS:
         Sds= 0.719 G
         Sd1= 0.316 G
      SEISMIC DESIGN CATEGORY:………………............ D
      SITE COEFFICIENTS:
         Fa= 1.2
         Fv = 1.5
      RESPONSE MODIFICATION FACTOR:…….............. R=6.5
      SEISMIC FORCE RESISTING SYSTEM:
         LIGHT FRAMED WOOD SHEAR WALLS
      ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
      SEISMIC RESPONSE COEFFICIENT (Cs)……............. 0.110
         V= Cs* W = 0.14W (STRENGTH)
         V= Cs* W / 1.4 = 0.10W (ASD)

SPECIAL INSPECTIONS & TESTING (CBC CHAPTER 17A)

1. SPECIAL INSPECTIONS & TESTING SHALL MEET THE REQUIREMENTS OF CBC SECTION 1704A, 1707A AND 1708A, TITLE 24, PART 2, CCR.
2. PROJECT INSPECTOR OF RECORD: IN ACCORDANCE WITH TITLE 24, PART 1.
3. CERTIFIED SPECIAL INSPECTORS SHALL:
   A. BE CERTIFIED BY DSA TO PERFORM THE TYPES OF INSPECTIONS SPECIFIED.
   B. PREPARE REPORTS THAT SHALL BE SIGNED BY A CALIFORNIA REGISTERED CIVIL ENGINEER.
   C. OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH APPROVED DRAWINGS AND SPECIFICATIONS.
   D. FURNISH INSPECTION REPORTS TO THE ENGINEER AND PROJECT INSPECTOR AND DSA. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION; THEN, IF NOT CORRECTED, TO THE ENGINEER AND DSA PER CBC SECTION 1704A.2.4.
   E. SUBMIT TO THE ENGINEER AND DSA A FINAL VERIFIED REPORT, SIGNED BY A CALIFORNIA REGISTERED CIVIL ENGINEER, STATING THAT THE WORK WAS IN CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS AND THE
4. SUMMARY OF CONTINUOUS AND PERIODIC INSPECTIONS:
   A. SPECIAL INSPECTIONS ARE IN ADDITION TO THE CALLED INSPECTIONS REQUIRED BY CBC SECTION 110.3, TITLE 24, PART 2, CCR. SPECIAL INSPECTION IS NOT A SUBSTITUTE FOR INSPECTION BY DSA. SPECIALLY INSPECTED WORK WHICH IS INSTALLED OR COVERED WITHOUT THE APPROVAL OF DSA IS SUBJECT TO REMOVAL OR EXPOSURE.
   B. CONTINUOUS INSPECTION IS REQUIRED DURING THE PERFORMANCE OF THE WORK UNLESS OTHERWISE SPECIFIED.
   C. IT IS THE RESPONSIBILITY OF THE PROJECT INSPECTOR TO INFORM THE SPECIAL INSPECTOR OR INSPECTION AGENCY AT LEAST ONE WORKING DAY BEFORE PERFORMING ANY WORK THAT REQUIRES SPECIAL INSPECTION. ALL WORK PERFORMED WITHOUT REQUIRED SPECIAL INSPECTION IS SUBJECT TO REMOVAL.
5. SEE DSA-103 DOCUMENT FOR LIST OF REQUIRED INSPECTIONS BY DSA. THIS DOCUMENT SHALL BE CONSIDERED PART OF THE CONSTRUCTION DOCUMENTS.

NOTE:
NEW UNIT TO BEAR DIRECTLY ON TOP OF (E) PERIMETER WOOD CURB



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SDVOSB

REGISTERED PROFESSIONAL ENGINEER
JAMES M. WISEMAN
4215
EXP. 06-30-22
STRUCTURAL
STATE OF CALIFORNIA

WISEMAN + ROHY STRUCTURAL ENGINEERS

Mountain Empire Unified School District

Project No. 04-120521

Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
01	08.26.2021	DSA PROGRESS SET
02	08.31.2021	DSA PLAN REVIEW SET

DAVY PROJECT No: 20026.01
DRAWN BY: Team
CHECKED BY: DM

STRUCTURAL NOTES

S1.1

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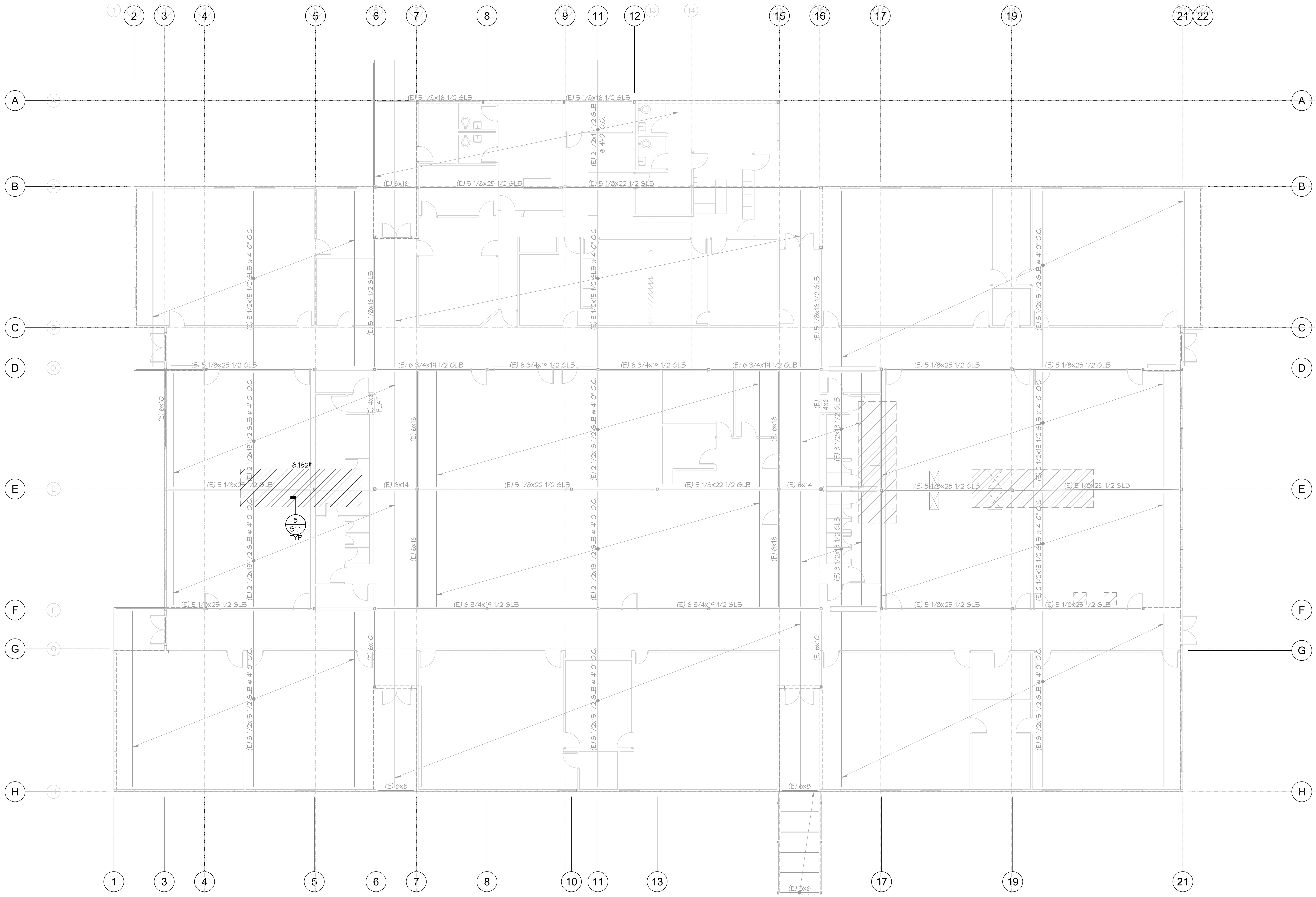

ROOF FRAMING PLAN - BUILDING A

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

ROOF FRAMING PLAN LEGEND

(solid line)	FRAMING MEMBER BEARING ON TOP OF SUPPORT.
(line with hanger ends)	FRAMING MEMBER INSTALLED FLUSH (IN HANGER) AT ITS SUPPORT.
(beam symbol)	BEAM MEMBER INSTALLED DIRECTLY BELOW SHEATHING, U.O.N.
500# (ABV.)	APPROXIMATE SIZE, LOCATION, AND ASSUMED MAXIMUM WEIGHT OF MECHANICAL EQUIPMENT. COORDINATE EXACT LOCATION OF EQUIPMENT WITH MECHANICAL DRAWINGS. WEIGHT INDICATED SHALL NOT BE EXCEEDED NOR UNIT RELOCATED WITHOUT PRIOR WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

ROOF FRAMING PLAN NOTES

1. SEE GENERAL NOTES AND TYPICAL DETAILS ON SHEET S1.1. THESE NOTES AND DETAILS SHALL BE USED WHERE APPLICABLE WHETHER SPECIFICALLY REFERENCED OR NOT.
2. CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES WITH THE STRUCTURAL REQUIREMENTS INDICATED. REFER TO CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS.
3. SIZE AND LOCATION OF ALL MECHANICAL EQUIPMENT TO BE REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO PLACEMENT.
4. WHEN HARDWARE THAT REQUIRE 10dx1 1/2" NAILS ARE INSTALLED OVER SHEATHING, THE LENGTH OF NAILS USED SHALL BE INCREASED BY THE THICKNESS OF THE SHEATHING.

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CHECKED BY: DM

ROOF FRAMING PLAN

S2.1

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GENERAL NOTES

1. THESE DOCUMENTS MAY NOT BE USED FOR ANY REPRODUCTION, BIDDING, OR CONSTRUCTION UNLESS AUTHORIZED, IN WRITING, BY SALAS O'BRIEN AND THE ENGINEER OF RECORD RESPONSIBLE FOR THEIR PREPARATION.
2. ALL BRANCH DUCTS SHALL HAVE BALANCE DAMPERS WITH QUADRANT LOCKS.
3. ALL DUCT SIZES SHOWN ARE NET INSIDE DIMENSIONS.
4. DUCTWORK SHALL BE GALVANIZED SHEET METAL IN COMPLETE CONFORMANCE WITH C.M.C., AND SMACNA HVAC DUCT CONSTRUCTION STANDARDS. FLEXIBLE DUCTS MAY BE USED TO CONNECT INTO AIR OUTLETS AND INLETS. MAXIMUM LENGTH OF FLEXIBLE DUCTWORK SHALL BE 5'–0".

   DUCTWORK ON ROOF SHALL BE INTERNALLY LINED AND PAINTED. ALL JOINTS AND SEAMS SHALL BE WEATHERPROOF.

   ALL BRACING OF DUCTS AND PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES.

   DUCTS SERVING TYPE 1 KITCHEN HOODS SHALL BE CONSTRUCTED OF MINIMUM 16 GAUGE CARBON STEEL OR MINIMUM 18 GAUGE STAINLESS STEEL WITH FULLY WELDED JOINTS. DISHWASHER EXHAUST SHALL BE MINIMUM 18 GAUGE STAINLESS STEEL.
5. ALL FLEXIBLE DUCTS SHALL BE INSULATED. MINIMUM BEND RADIUS SHALL BE TWICE THE DUCT DIAMETER.
6. SUPPLY AND RETURN DROPS SHALL BE LINED SHEET METAL PLENUMS.
7. DUCT AND PLENUM INSULATION SHALL BE IN ACCORDANCE WITH THE 2019 CALIFORNIA CODE OF REGULATIONS, TITLE–24, PART 6, ENERGY EFFICIENCY STANDARDS (E.E.S.), TABLE 150.1–A AND THE 2019 CALIFORNIA MECHANICAL CODE (C.M.C.) SECTION 604.0.
8. ALL SHEET METAL DUCTS SHALL BE INSULATED BY MEANS OF FOIL WRAP, 3/4 LB. DENSITY FIBERGLASS INSULATION. INSULATION SHALL BE UL LISTED. DUCT LINERS SHALL BE NON–FIBERGLASS TYPE WITH THICKNESS AS REQUIRED TO MEET T–24 REQUIREMENTS.
9. THERMOSTATS SHALL BE LOCATED AT 4' – 0" ABOVE FINISHED FLOOR (46" MAX. IF MOUNTED OVER CASEWORK OR OTHER OBSTRUCTION) IN ACCORDANCE WITH A.D.A. REQUIREMENTS, UNLESS NOTED OTHERWISE.
10. CONDENSATE DRAIN PIPING SHALL BE COPPER TYPE "L", AND SHALL BE ROUTED TO AN APPROVED RECEPTOR.
11. PROVIDE FLEXIBLE CONNECTIONS AT THE INLET AND OUTLET OF ALL FANS.
12. COORDINATE FINAL LOCATIONS OF AIR DISTRIBUTION DEVICES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS, I.E. LIGHTS, SPEAKERS, TILES AND SPRINKLER HEADS.
13. ALL SUPPLY CEILING DIFFUSERS SHALL HAVE 4–WAY AIR FLOW DISTRIBUTION PATTERNS, UNLESS INDICATED OTHERWISE.
14. COORDINATE FINAL LOCATIONS OF THERMOSTATS WITH ARCHITECT AND OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. FIELD COORDINATE LOCATIONS WITH OTHER TRADES INCLUDING ELECTRICAL, TELEPHONE, ETC.
15. FIRE/SMOKE DAMPERS SHALL BE INSTALLED ON ALL DUCTWORK PASSING THROUGH FIRE SEPARATING WALLS, AND SHALL BE INSTALLED AS PER 2019 CMC SECTION 605.0, 2019 CBC SECTION 717. AND UL,, LOCAL, STATE, AND N.F.P.A. FIRE CODES.
16. ALL ROOF PENETRATIONS, CUTTING, PATCHING, BLOCKOUTS, STRUCTURAL SUPPORT, ROOF OPENINGS, LEVELING OF PRE–FAB CURBS SHALL BE BY GENERAL CONTRACTOR. CONTRACTOR SHALL VERIFY EXACT ROOF OPENING SIZES WITH UNIT MANUFACTURER PRIOR TO START OF WORK AND SHALL MAKE ALL NECESSARY ADJUSTMENTS AT NO EXTRA COST TO OWNER.
17. LOCATION OF ALL MECHANICAL EQUIPMENT SHOWN ARE SCHEMATIC. CONTRACTOR SHALL FIELD COORDINATE EXACT LOCATIONS AND REQUIRED SERVICE/MAINTENANCE CLEARANCES PRIOR TO START OF WORK.
18. CONTRACTOR SHALL VERIFY WEIGHTS OF ALL MECHANICAL EQUIPMENT WITH THEIR MANUFACTURER PRIOR TO START OF WORK. IF DIFFERENT THAN THE WEIGHTS INDICATED ON DRAWINGS, CONTRACTOR SHALL INFORM THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO START OF WORK.
19. CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS W/MFR. AND COORDINATE WITH THE ELECTRICAL CONTRACTOR AND THE MANUFACTURER PRIOR TO START OF WORK. NOTIFY THE ARCHITECT, IN WRITING, IN CASE OF ANY DISCREPANCIES, PRIOR TO START OF WORK.
20. ALL HVAC EQUIPMENT, APPLIANCES, AND DUCTWORK SHALL CONFORM TO THE LATEST GUIDELINES OF U.L., A.G.A., N.F.P.A., C.M.C., C.P.C., AND ALL OTHER LOCAL CODES HAVING JURISDICTION.
21. TEST AND BALANCE THE HVAC SYSTEM AS PER REQUIREMENTS OF THE MANDATORY HVAC MEASURES INDICATED ON THIS SHEET.
22. CONTRACTOR SHALL FIELD VERIFY EXACT CEILING SPACE AVAILABLE FOR ROUTING OF DUCT, PRIOR TO START OF WORK. INFORM ARCHITECT, IN WRITING, IN CASE OF ANY DISCREPANCY OR POTENTIAL CONFLICTS PRIOR TO FABRICATING AND/OR PURCHASE OF ANY DUCTWORK.
23. ALL HVAC UNITS SYSTEMS WITH 2000 CFM OR MORE OR SERVING A COMMON AIR SPACE MUST BE INTERCONNECTED TO SHUT DOWN IMMEDIATELY UPON ALARM CONDITION FROM DUCT DETECTORS (OR FIRE ALARM SYSTEM WHEN USING AREA SMOKE DETECTORS IN LIEU OF DUCT DETECTORS) WITHOUT INTERFACE FROM EMS OR ANY OTHER SYSTEMS. ALL CONTROL RELAYS USED FOR SHUT DOWN MUST BE CALIFORNIA STATE FIRE MARSHAL LISTED FOR RELEASING SERVICE.
24. ACCESS PANELS SHALL BE PROVIDED TO ALL EQUIPMENT, MANUAL VOLUME DAMPERS, ETC. LOCATED IN INACCESSIBLE AREAS.
25. MAINTAIN MINIMUM 10'–0" BETWEEN ALL OA INTAKES AND EXHAUST AIR DISCHARGES OR VENTS.
26. COORDINATE SMOKE DETECTOR CONNECTION TO FIRE ALARM SYSTEM WITH FIRE LIFE SAFETY CONTRACTOR.

ANCHORAGE AND BRACING NOTES

APPLICABLE CODE: 2019 CBC

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, MOVEABLE, OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE, OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED 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 SUPPORTS 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 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 SYSTEMS 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 SECTION 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 PRE–APPROVED INSTALLATION GUIDE (e.g., OSHPD OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

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

MP☐ MD☐ PP☑ E☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP☐ MD☐ PP☐ E☐ OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE–APPROVAL #OPM–0052–13.

LEGEND

SYMBOL	ABBREV.	DESCRIPTION
		DEMOLITION
		ITEM TO BE RELOCATED
		FLEXIBLE CONNECTION, DUCTWORK
10x6		DUCT SIZE (1ST NUMBER INDICATES SIDE SHOWN)
(L)		INTERNALLY LINED DUCTWORK
TV		SQUARE ELBOW WITH TURNING VANES
		ROUND ELBOW
MVD		MANUAL VOLUME DAMPER
BD		BACKDRAFT DAMPER
		FLEXIBLE DUCTWORK
FSD		FIRE SMOKE DAMPER
OA		OUTSIDE AIR
		ROUND DUCT UP
		CEILING SUPPLY AIR DIFFUSER (4–WAY THROW UNLESS NOTED OTHERWISE)
SA		SUPPLY AIR
RR/RG		RETURN AIR REGISTER/GRILLE
RA		RETURN AIR
ER/EG		EXHAUST AIR REGISTER/GRILLE
EA		EXHAUST AIR
AP		CEILING ACCESS PANEL
		RECTANGULAR SUPPLY DUCT UP
		RECTANGULAR RETURN DUCT UP
EA		RECTANGULAR EXHAUST DUCT UP
TSTAT		THERMOSTAT
HSTAT		HUMIDISTAT
		WALL SWITCH/WALL STAT
CO		CARBON MONOXIDE SENSOR
CO_2		CARBON DIOXIDE SENSOR
SD		DUCT MOUNTED SMOKE DETECTOR INTERLOCK WITH FIRE ALARM. SEE ELECT. DWGS.
TC		TIME CLOCK (ELECTRONIC PROGRAMMABLE)
TS		TIMER SWITCH
POC		POINT OF CONNECTION
POD		POINT OF DISCONNECT
¢	CFM	CUBIC FEET PER MINUTE
—CHWR—	CHWR	CHILLED WATER RETURN
—CHWS—	CHWS	CHILLED WATER SUPPLY
—HHWR—	HHWR	HEATING HOT WATER RETURN
—HHWS—	HHWS	HEATING HOT WATER SUPPLY
	ACI	AMERICAN CONCRETE INSTITUTE
	A.D.A.	AMERICANS WITH DISABILITIES ACT
	A.F.F.	ABOVE FINISH FLOOR
	A.G.A.	AMERICAN GAS ASSOCIATION
	AL	ALUMINUM
	AMB.	AMBIENT
	APRX.	APPROXIMATE(LY)
	ARCH.	ARCHITECT OR ARCHITECTURAL
	ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
	BHP	BRAKE HORSEPOWER
	BLDG	BUILDING
	BTU(H)	BRITISH THERMAL UNIT (PER HOUR)
	B.U.R.	BUILT–UP ROOFING
	CAP.	CAPACITY
	C.B.C.	CALIFORNIA BUILDING CODE
	C.E.C.	CALIFORNIA ENERGY COMMISSION
	C.M.C.	CALIFORNIA MECHANICAL CODE
	C.P.C.	CALIFORNIA PLUMBING CODE
	CD	CONDENSATE DRAIN
	CGBSC	CALIFORNIA GREEN BUILDING STANDARDS COMMISSION
	CHW	CHILLED WATER
	CONC.	CONCRETE
	COND.	CONDITIONS
	CONN.	CONNECTIONS
	COORD.	COORDINATE
	C.O.P.	COEFFICIENT OF PERFORMANCE
	CORR.	CORRIDOR
	CU	COPPER
	CW	COLD WATER
	DB	DRY BULB
	DET.	DETAIL
	DIM.	DIMENSIONS
	DN.	DOWN
	DWG(S).	DRAWING(S)

LEGEND (CONT.)

SYMBOL	ABBREV.	DESCRIPTION
	DX	DIRECT EXPANSION
	(E)	EXISTING
	EAT	ENTERING AIR TEMPERATURE
	EDB.	ENTERING DRY BULB
	ENT.	ENTERING
	EQ.	EQUAL
	EWT	ENTERING WATER TEMPERATURE
	EER	ENERGY EFFICIENCY RATIO
	E.E.S.	ENERGY EFFICIENCY STANDARDS
	EFF.	EFFICIENCY
	ELEC.	ELECTRICAL
	ESP	EXTERNAL STATIC PRESSURE (INCHES OF WATER)
	FAB	FABRICATED
	F.A.R.	FREE AREA REQUIRED
	FLA	FULL LOAD AMPS
	FPM	FEET PER MINUTE
	FT.	FEET
	GA.	GAUGE
	GALV.	GALVANIZED
	GPM	GALLONS PER MINUTE
	GSM	GALVANIZED SHEET METAL
	HERS	HOME ENERGY RATING SYSTEM
	HHW	HEATING HOT WATER
	HP	HORSEPOWER
	HSPF	HEATING SEASONAL PERFORMANCE FACTOR
	HVAC	HEATING, VENTILATION AND AIR CONDITIONING
	I.B.C.	INTERNATIONAL BUILDING CODE
	I.M.C.	INTERNATIONAL MECHANICAL CODE
	I.P.C.	INTERNATIONAL PLUMBING CODE
	IN.	INCHES
	IPLV	INTEGRATED PART–LOAD VALUE
	KW	KILOWATT
	LAT	LEAVING AIR TEMPERATURE
	LBS.	POUNDS
	LVG.	LEAVING
	LWT	LEAVING WATER TEMPERATURE
	MECH.	MECHANICAL
	MAX.	MAXIMUM
	MB	MACHINE BOLT
	MBH	1000 BTUH
	MCA	MINIMUM CIRCUIT AMPACITY
	MFR	MANUFACTURER
	MIN.	MINIMUM
	MOCP	MAXIMUM OVERCURRENT PROTECTION
	MTG.	MOUNTING
	MVD	MANUAL VOLUME DAMPER
	NA	NOT APPLICABLE
	N.F.P.A.	NATIONAL FIRE PROTECTION ASSOCIATION
	NIC	NOT IN CONTRACT
	NC	NOISE CRITERIA
	NO.	NUMBER
	OBD	OPPOSED BLADE DAMPER
	OPER.	OPERATING
	OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
	PH	PHASE
	QTY.	QUANTITY
	RECT.	RECTANGLE/RECTANGULAR
	RPM	REVOLUTIONS PER MINUTE
	SEER	SEASONAL ENERGY EFFICIENCY RATIO
	SF	SQUARE FEET
	SQ.	SQUARE
	SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
	S.M.S.	SHEET METAL SCREW
	S.O.V.	SHUT–OFF VALVE
	SPD	STATIC PRESSURE DROP
	SQFT	SQUARE FEET
	STRUC.	STRUCTURAL
	STL.	STEEL
	TEMP.	TEMPERATURE
	THRU	THROUGH
	TSP	TOTAL STATIC PRESSURE
	TYP.	TYPICAL
	U/C	UNDERCUT DOOR
	U.L.	UNDERWRITER'S LABORATORIES
	U.F.C.	UNIFIED FACILITIES CRITERIA
	V	VOLTAGE/VOLTS
	VEL.	VELOCITY
	VAV	VARIABLE AIR VOLUME
	VFD	VARIABLE FREQUENCY DRIVE
	WB	WET BULB
	WT.	WEIGHT

MANDATORY HVAC SYSTEM MEASURES

1. ALL WORK INDICATED ON DRAWINGS AND/OR SPECIFICATIONS SHALL BE COORDINATED WITH WORKS OF OTHER TRADES PRIOR TO START OF WORK.
2. ALL HVAC EQUIPMENT LISTED IN SECTION 100(H) OF THE E.E.S. MUST BE C.E.C. CERTIFIED.
3. ALL PIPING INSULATION SHALL BE CONSISTENT WITH THE REQUIREMENTS OF C.M.C. SECTIONS 1201.2 AND TABLE E 502.5, AND E.E.S. SECTION 120.3–A.
4. ALL DUCTWORK INSULATION SHALL BE CONSISTENT WITH THE REQUIREMENTS OF SECTIONS C.M.C. SECTION 604.0 TITLE 24 E.E.S. TABLE 150.1–A.
5. ALL HVAC EQUIPMENT AND APPLIANCE SHALL MEET THE REQUIREMENTS PER SECTIONS 110.1–110.2, 110.5 AND 120.1–120.7 E.E.S.
6. ALL HVAC SYSTEMS SHALL MEET THE CONTROL REQUIREMENTS PER SECTION 110.2 AND 120.2 E.E.S.
7. ALL VENTILATION SYSTEMS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE C.M.C.
8. THE CONTRACTOR SHALL PROVIDE THE BUILDING OWNER, MANAGER, AND THE ORIGINAL OCCUPANTS A LIST OF THE HEATING, VENTILATION, AND AIR CONDITIONING FEATURES, MATERIALS, AND COMPONENTS INSTALLED IN THE BUILDING AND OPERATING INSTRUCTIONS.
9. INSULATION MATERIAL SHALL MEET THE CALIFORNIA QUALITY STANDARD PER SECTION 120.3 AND 120.4 E.E.S.
10. ALL SPACE CONDITIONING AND VENTILATION SYSTEMS SHALL BE BALANCED TO THE QUANTITIES SPECIFIED IN THESE PLANS, IN ACCORDANCE WITH THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) PROCEDURAL STANDARDS, OR ASSOCIATED AIR BALANCE COUNCIL (AABC) NATIONAL STANDARDS. TESTING AND BALANCING SHALL BE DONE BY AN INDEPENDENT QUALIFIED AGENCY.
11. ALL SYSTEMS SHALL PROVIDE THE MINIMUM OUTSIDE AIR AS SHOWN ON THE MECHANICAL DRAWINGS, AND SHALL BE MEASURED AND CERTIFIED BY AN INDEPENDENT QUALIFIED TESTING AGENCY.
12. DUCT INSULATION SHALL HAVE A MINIMUM INSTALLED R–VALUE OF 8.0.
13. DURING CONSTRUCTION, ENDS OF DUCT OPENINGS SHALL BE SEALED AND MECHANICAL EQUIPMENT SHALL BE COVERED TO PROTECT INTEGRITY OF SYSTEM CLEANLINESS.
14. PRIOR TO FINAL APPROVAL OF THE BUILDING, THE LICENSED CONTRACTOR, ARCHITECT, OR ENGINEER IN RESPONSIBLE CHARGE OF THE OVERALL CONSTRUCTION MUST COMPLETE AND SIGN THE GREEN BUILDING STANDARDS CERTIFICATION FORM AND GIVE TO THE BUILDING DEPARTMENT OFFICIAL TO BE FILED WITH THE APPROVED PLANS.
15. PROVIDE TEMPORARY MEANS OF BUILDING VENTILATION DURING CONSTRUCTION IN ACCORDANCE WITH CGBSC SECTION 5.504.1.1.
16. BUILDING FLUSH–OUT SHALL BE PERFORMED AND MONITORED UPON CONSTRUCTION COMPLETION IN ACCORDANCE WITH CGBSC SECTION 5.504.2.
17. ALL ENVELOPE AND MECHANICAL CERTIFICATE OF ACCEPTANCE FORMS AND ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED TO THE FIELD INSPECTOR DURING CONSTRUCTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE FORMS ARE REVIEWED AND APPROVED.
18. FOR PROJECTS OVER 10,000 SQUARE FEET IN FLOOR AREA, UNLESS NOTED OTHERWISE, FUNDAMENTAL BUILDING COMMISSIONING FOR HVAC, LIGHTING AND DOMESTIC HOT WATER SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 23 08 00 AND THE CGBSC SECTION 5.410.2.
19. (FOR RESIDENTIAL ONLY) MECHANICAL EXHAUST FANS DIRECTLY EXHAUSTING BATHROOMS SHALL BE ENERGY STAR COMPLIANT AND CONTROLLED BY SPACE HUMIDISTAT AS PER CALGREEN CODE SECTION 4.506.1.
20. THERMOSTATIC CONTROLS FOR ALL SINGLE ZONE AIR CONDITIONERS AND HEAT PUMPS SHALL COMPLY WITH THE REQUIREMENTS OF EES SECTION 110.2(C) AND REFERENCE JOINT APPENDIX JA5. THERMOSTAT SHALL BE CAPABLE OF COMMUNICATING THROUGH EITHER (1) AT LEAST ONE EXPANSION PORT WITH A REMOVABLE MODULE TO ENABLE COMMUNICATION; OR (2) ON BOARD COMMUNICATION DEVICE.
21. DUCTWORK SHALL BE LEAK TESTED IN ACCORDANCE WITH SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL FOR A REPRESENTATIVE TOTAL NOT LESS THAN 10% OF INSTALLED DUCTWORK IN ACCORDANCE WITH THE REQUIREMENTS OF CMC 603.10.

ROOFTOP GAS/ELEC. AIR CONDITIONING UNIT SCHEDULE

TAG	MANUFACTURER & MODEL NO.	SERVES	NOMINAL CAP. @ ARI COND. (TONS)	SEER (EER)	SUPPLY FAN						COMPRESSOR			CONDENSER FAN			POWER EXH.		V/PH		COMB. FAN		UNIT POWER SUPPLY				COOLING				HEATING		FILTERS			OPER. WEIGHT (LBS.)	REMARKS
					CFM	ESP (IN. W.G.)	OA CFM	NO.	HP	FLA	NO.	RLA	LRA	NO.	HP	FLA	CFM	ESP	HP	NO.	FLA	MCA	MOCP	V	PH	TOTAL CAP (MBH)	SENS. CAP (MBH)	EAT (°F) DB	EAT (°F) WB	AMB. TEMP (°F)	INPUT (MBH)	MIN. AFUE (%)	QTY	SIZE (IN.)		
AC 1	TRANE SFHLF25	SOUTH BUILDING A	25	– (10.8)	10000	0.75	3721	1	10	12.6	1 1	19.1 22.2	–	3	1	5.4	8000	0.4	3	–	–	71.05	90.0	460	3	314.50	269.96	78.1	63.5	95	235.0	80	12	20"x20"x2"		6162	(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)

(1) PROVIDE BELT DRIVEN INDOOR FAN MOTOR WITH VFD.

(2) PROVIDE FULLY MODULATING ENTHALPY BASED ECONOMIZER.

(3) PROVIDE CENTRIFUGAL POWER EXHAUST WITH VFD AND ALL INTEGRATED FAULT DETECTION DIAGNOSTICS, CONTROLS AND REQUIRED ACCESSORIES PER MANUFACTURER RECOMMENDATION FOR PROPER SYSTEM OPERATION.

(4) PROVIDE UL900 (CLASS 1 OR 2) 30% EFFICIENT (MERV 13) DISPOSABLE PLEATED FILTERS.

(5) PROVIDE WITH MANUFACTURER INSTALLED SMOKE DETECTOR IN SUPPLY AIRSTREAM WITHIN EQUIPMENT CABINET.

(6) PROVIDE WITH FLUE DISCHARGE DEFLECTOR.

(7) RECONNECT TO EXISTING FUSED DISCONNECT SWITCH. SEE ELECTRICAL DRAWINGS.

(8) RECONNECT TO EXISTING CONTROL WIRING FOR ALL ACCESSORIES REQUIRED BY MANUFACTURER FOR A COMPLETE AND OPERATIONAL SYSTEM.

(9) FIELD VERIFY EXACT ELECTRICAL REQUIREMENTS WITH MANUFACTURER AND COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO START OF WORK.

(10) PROVIDE WITH NON–CFC REFRIGERANT BASED SYSTEM.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-120521 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 10/04/2021

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REGISTERED PROFESSIONAL ENGINEER
Reg. No. 632881
Exp. 6/30/22
MECHANICAL
STATE OF CALIFORNIA

Mountain Empire Unified
School District

Project No. 04-120521

Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
01	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No: 2017
DRAWN BY: SOBE
CHECKED BY: SOBE

MECHANICAL LEGEND AND GENERAL NOTES

M-001

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Building A Mountain Empire Jr & Senior high school AC 1 replacement	Report Page: (Page 7 of 9)
Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

L. DISTRIBUTION (DUCTWORK and PIPING)

The answers to the questions below apply to the following duct systems: | Roof top ductwork is existing to remain with no new ductwork added | Duct leakage testing triggered for these systems? | No

11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	No	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	No	The space conditioning system serves less than 5,000 ft² 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:	
	☐	Outdoors	
	☐	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)1B or if the roof has fixed vents or openings to the outside/ unconditioned spaces	
	☐	In an unconditioned crawl space	
	☐	In other unconditioned spaces	
15	No	The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		Duct system shall be sealed in acordance with the California Mechanical Code	

M. COOLING TOWERS

This section does not apply to this project.

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

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

Form/Title	Field Inspector Pass	Fail
NRCI-MCH-01-E - Must be submitted for all buildings	☐	☐

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Building A Mountain Empire Jr & Senior high school AC 1 replacement	Report Page: (Page 8 of 9)
Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

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Form/Title	Systems/Spaces To Be Field Verified	Field Inspector Pass	Fail
NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.	AC 1	☐	☐
NRCA-MCH-05-A - Air Economizer Controls	AC 1	☐	☐
NRCA-MCH-07-A Supply Fan Variable Flow Controls	AC 1 supply fan	☐	☐
NRCA-MCH-12-A FDD for Packaged Direct Expansion Units	AC 1	☐	☐
NRCA-MCH-18-A Energy Management Control Systems	AC 1	☐	☐

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no NRCV forms required for this project.

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

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

01		02
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block	No	Plan sheet or construction document location: Mechanical sheets M001 thru M601

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Building A Mountain Empire Jr & Senior high school AC 1 replacement	Report Page: (Page 4 of 9)
Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

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:	AC 1	Economizer:[1]	Fixed Temperature	Economizer Controls:	Designed per §140.4(e) and (m)	System Fan Type:	Variable Air 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 Device	Design Airflow through Device (CFM)
AC 1 supply fan	Supply	1	10000	BHP	6.79	MERV 13-15 (Alterations only)	10000
						Calculated Adjustment (in H_2O)	
Total System Design Supply Airflow (CFM):			10000	Total System Design (B)HP:	6.79	Maximum System Fan Power (B)HP:	15.18

[1] *FOOTNOTES: Computer room economizers must meet requirements of §140.9(a) and will be documented on the NRCC-PRC-E document.*

[2] *The unit used for HP must be consistent for all fans within a system.*

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Building A Mountain Empire Jr & Senior high school AC 1 replacement	Report Page: (Page 5 of 9)
Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

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)2E for altered space conditioning systems.

01 System Name	02 System Zoning	03 Conditioned Floor Area Being Served (ft²)	04 Thermostats §110.2(b) & (c)[1], §120.2(a)or §141.0(b)2E	05 Shut-Off Controls §120.2(e)	06 Isolation Zone Controls §120.2(g)	07 Demand Response §110.12 and §120.2(b)	08 Supply Air Temp. Reset §140.4(f)	09 Window Interlocks per §140.4(n)
AC 1	Multi-zone	<= 25,000 ft²	EMCS	NA: Altered per §141.0(b)2E	NA: Altered per §141.0(b)2E	EMCS	NA: Alteration	NA: Alteration Project

[1]*FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.*

*Notes: Controls with a * require a note in the space below explaining how compliance is achieved. EX: system 1: SA Temp Reset: Exempt because zones compliant with §140.4(d) ; EXCEPTION 1 to §140.4(f)

J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in §120.1 and §120.2(e)3B for all nonresidential, high-rise residential and hotel/motel occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.

01	☐	Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
02	☒	Check this box if the project included Nonresidential or Hotel/Motel spaces
	☐	Check this box if the project included new or altered high-rise residential dwelling units.
03	☐	Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per §120.1(c)2.

Nonresidential and Hotel/ Motel Ventilation Systems

04 System Name	05 AC 1	System Design OA CFM Airflow[1]	3721	06 System Design Transfer Air CFM	0	07 Air Filtration per §120.1(c) and §141.0(b)2 [2] Provided per §141.0(b)2c (alteration)	
08	09	10	11	12	13	14	15	16

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Building A Mountain Empire Jr & Senior high school AC 1 replacement	Report Page: (Page 6 of 9)
Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

J. VENTILATION AND INDOOR AIR QUALITY

Space Name ot item Tag	Mechanical Ventilation Required per §120.1(c)3 [3] Occupancy Type[4]	Conditioned Floor Area (ft²)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Exh. Vent per §120.1(c)4 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]	
Building A south	Classroom (ages 5-18)	9790			3720.2			DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				3720.2	18	Ventilation for this System Complies?		Yes

[1] *FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system*

[2] *Air filtration requirements apply to the following three system types per §120.1(c)1A : space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.*

[3] *Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.*

[4] *See Standards Tables 120.1-A and 120.1-B.*

[5] *For lecture halls with fixed seating, the expected number of occupants shall be shall be determined in accordance with the California Building Code.*

[6] *§120.2(e)3 requires systems serving rooms that are required by §130.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft² or smaller, multipurpose rooms less than 1,000 ft², classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by §130.1(c).*

K. TERMINAL BOX CONTROLS

This section does not apply to this project.

L. DISTRIBUTION (DUCTWORK and PIPING)

This table is used to show compliance with mandatory pipe insulation requirements found in §120.3 and prescriptive requirements found in §140.4(l) for duct leakage testing.

Duct Leakage Sealing

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Building A Mountain Empire Jr & Senior high school AC 1 replacement	Report Page: (Page 1 of 9)
Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

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.

A. GENERAL INFORMATION

01	Project Location (city)	Spring Valley	04	Total Conditioned Floor Area	9790
02	Climate Zone	14	05	Total Unconditioned Floor Area	0
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1
☐	Office (B)	☐ Retail (M)	☐	Non-refrigerated Warehouse (S)	
☐	Hotel/ Motel Guest Rooms (R-1)	☒ School (E)	☐	Healthcare Facility (I)	
☐	High-Rise Residential (R-2/R-3)	☐ Relocatable Class Bldg (E)	☐	Other (write in)	

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
☒ Heating Air System	☐ Water Economizer	☒ Air Economizer
☒ Cooling Air System	☐ Pumps	☐ Electric Resistance Heat
Mechanical Controls	☐ System Piping	☐ Fan Systems
☐ Mechanical Controls (existing to remain, altered or new)	☐ Cooling Towers	☒ Ductwork (existing to remain, altered or new)
	☐ Chillers	☒ Ventilation
	☐ Boilers	☐ Zonal Systems/ Terminal Boxes

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Building A Mountain Empire Jr & Senior high school AC 1 replacement	Report Page: (Page 2 of 9)
Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

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 System Summary §110.1, §110.2, §140.4	AND	02 Pumps §140.4(k)	AND	03 Fans/ Economizers §140.4(c), §140.4(e)	AND	04 System Controls §110.2, §120.2, §140.4(f)	AND	05 Ventilation §120.1	AND	06 Terminal Box Controls §140.4(d)	AND	07 Distribution §120.3, §140.4(l)	AND	08 Cooling Towers §110.2(e)2	09 Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND		AND	Yes	AND	Yes	AND	Yes	AND		AND	Yes	AND		COMPLIES
Mandatory Measures Compliance (See Table Q for Details)										COMPLIES					

D. EXCEPTIONAL CONDITIONS

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

E. ADDITIONAL REMARKS

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

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Building A Mountain Empire Jr & Senior high school AC 1 replacement	Report Page: (Page 3 of 9)
Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

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(e) and prescriptive requirements found in §140.4(a), §140.4(b) and §140.4(k) or §141.0(b)2 for alterations.

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

01 Name or Item Tag	02 Equipment Category per Tables 110.2	03 Equipment Type per Tables 110.2 / Title 20	04 Smallest Size Available[1] §140.4(a)	05 Equipment Sizing per Mechanical Schedule (kBtu/h) §140.4 (a&b) Heating Output[2,3] Per Design (kBtu/h)	06 Heating Output[2,3] Rated (kBtu/h)	07 Heating Output[2,3] Supp. Heating Output (kBtu/h)	08 Cooling Output[2,3] Sensible Per Design (kBtu/h)	09 Cooling Output[2,3] Rated (kBtu/h)	10 Load Calculations[3,4] Total Heating Load (kBtu/h)	11 Load Calculations[3,4] Total Sensible Cooling Load (kBtu/h)
AC 1	Unitary AC/ Condensers	AC, air-cooled pkg (3 phase)	Yes				269.89	314.5		300

[1] *FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per §140.4(a). Healthcare facilities are excepted.*

[2] *It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.*

[3] *If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.*

[4] *Authority Having Jurisdiction may ask for load calculations used for compliance per §140.4(b).*

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP))

01 Name or Item Tag	02 Size Category (Btu/h)	03 Heating Mode Rating Condition (°F)	04 Heating Mode Efficiency Unit	05 Heating Mode Minimum Efficiency Required per Tables 110.2 / Title 20	06 Heating Mode Design Efficiency	07 Cooling Mode Efficiency Unit	08 Cooling Mode Minimum Efficiency Required per Tables 110.2 / Title 20	09 Cooling Mode Design Efficiency
AC 1	>=240,000 and <760,000					EER IEER	10 11.6	10.8 14.5

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

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
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Project Address:		Date Prepared: 2021-08-30T17:28:15-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Jeffrey Ogle	Documentation Author Signature:
Company: Salasobrien	Signature Date: 08/30/2021
Address: 3220 Executive Ridge, Suite 210	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Vista, CA 92081	Phone: 760-560-0100

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Jeffrey Ogle	Responsible Designer Signature:
Company: Salasobrien	Date Signed: 08/30/2021
Address: 3220 Executive Ridge, Suite 210	License:
City/State/Zip: Vista, CA 92081	Phone: 760-560-0100

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-120521 INC:
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DATE: 10/04/2021

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REGISTERED PROFESSIONAL ENGINEER
Jeffrey Ogle
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Exp. 6/30/23
MECHANICAL
STATE OF CALIFORNIA

Mountain Empire Unified
School District

Project No. 04-120521

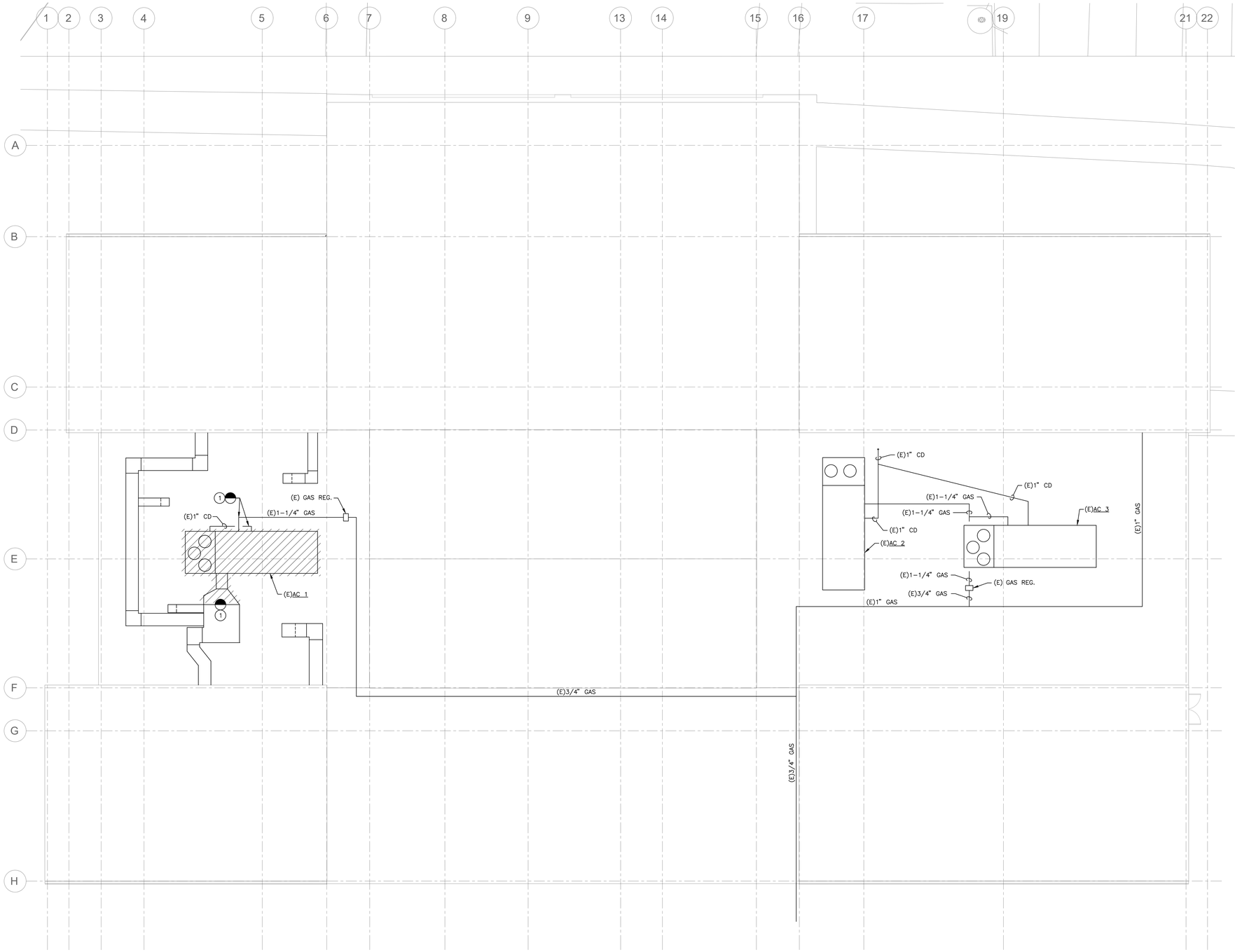
Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
01	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No: 2017
DRAWN BY: SOBE
CHECKED BY: SOBE

TITLE 24

M-002



1 MECHANICAL DEMOLITION ROOF PLAN - BUILDING A

1/8"=1'-0"

0' 2' 4' 8' 16'

GENERAL NOTES

A. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, DETERMINING EXTENT OF DEMOLITION, AND COORDINATE WITH ALL OTHER TRADES. IN CASE OF DISCREPANCIES OR ANY POTENTIAL CONFLICTS, INFORM THE ARCHITECT AND ENGINEER IN WRITING PRIOR TO START OF WORK.

B. ALL EXISTING EQUIPMENT, DUCTWORK AND AIR DISTRIBUTION DEVICES, WHICH ARE TO REMAIN, SHALL BE CLEANED AND REFURBISHED TO ORIGINAL WORKING CONDITION.

C. ALL WORK TO BE DEMOLISHED OR REMOVED SHALL NOT BE RE-INSTALLED UNLESS NOTED OTHERWISE.

KEY NOTES

(1) POINT OF DISCONNECT. PREPARE FOR NEW CONNECTIONS. SEE M-211 FOR NEW CONNECTIONS.

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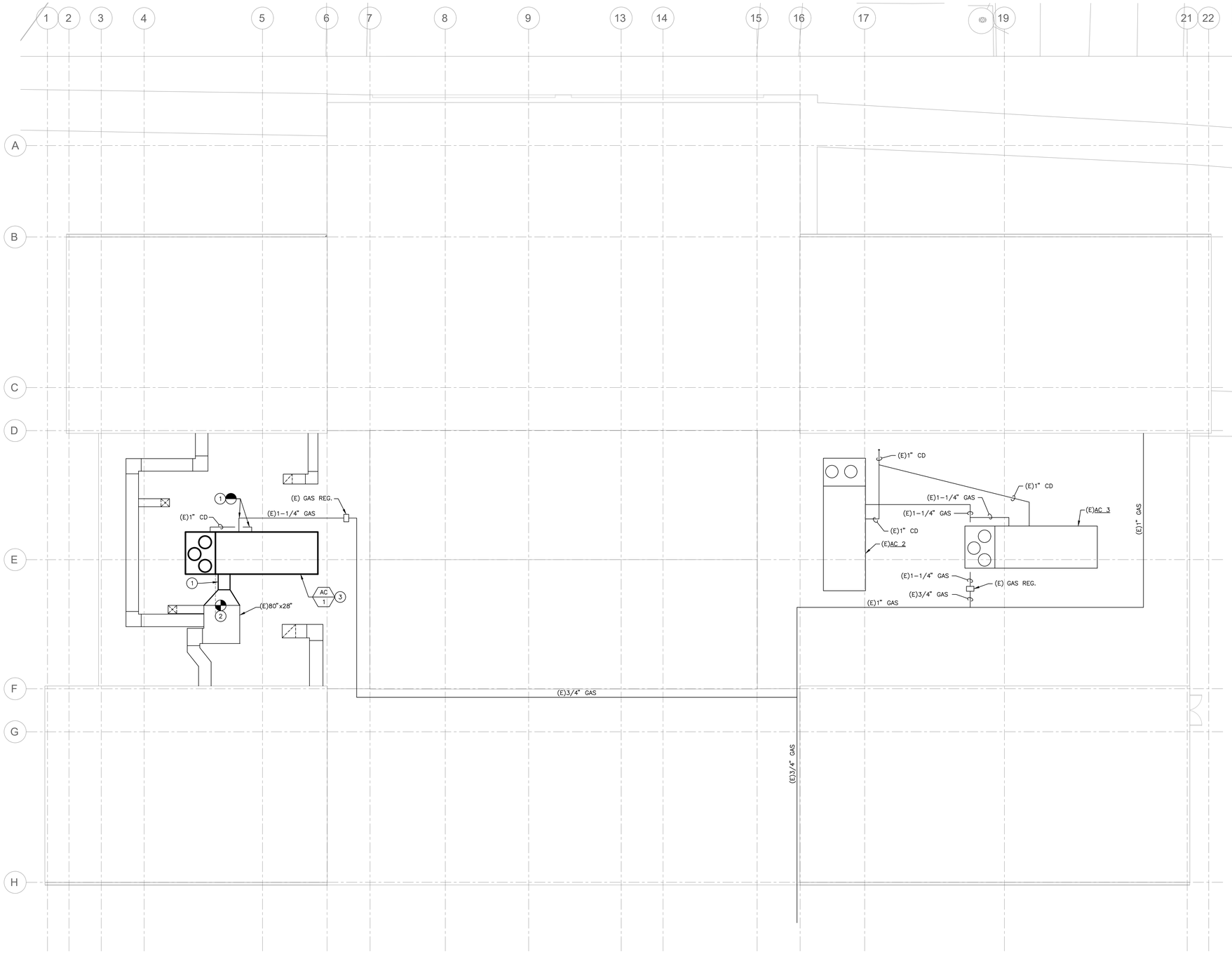
DRAWN BY:	SOBE
CHECKED BY:	SOBE

MECHANICAL DEMOLITION ROOF PLAN BUILDING A

M-201



1 MECHANICAL ROOF PLAN - BUILDING A

1/8"=1'-0"

0' 2' 4' 8' 16'

GENERAL NOTES

A. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, DETERMINING EXTENT OF DEMOLITION, AND COORDINATE WITH ALL OTHER TRADES. IN CASE OF DISCREPANCIES OR ANY POTENTIAL CONFLICTS, INFORM THE ARCHITECT AND ENGINEER IN WRITING PRIOR TO START OF WORK.

B. ALL EXISTING EQUIPMENT, DUCTWORK AND AIR DISTRIBUTION DEVICES, WHICH ARE TO REMAIN, SHALL BE CLEANED AND REFURBISHED TO ORIGINAL WORKING CONDITION.

C. ALL WORK TO BE DEMOLISHED OR REMOVED SHALL NOT BE RE-INSTALLED UNLESS NOTED OTHERWISE.

KEY NOTES

1. FULL SIZED DOUBLE WALL SUPPLY DUCT FROM AC 1 CONNECTION TO EXISTING ROOFTOP DUCTWORK.
2. POINT OF CONNECTION TO EXISTING DUCTWORK. TRANSITION AS NEEDED TO MATCH EXISTING
3. SECURE UNIT TO EXISTING ROOF PLATFORM. SEE DETAIL 2/M-501.
4. RECONNECT EXISTING CONDENSATE DRAIN TO NEW UNIT. SEE DETAIL 3/M-501.
5. RECONNECT TO EXISTING GAS PIPING. SEE DETAIL 4/M-501.

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Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
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DAVY PROJECT No:	2017
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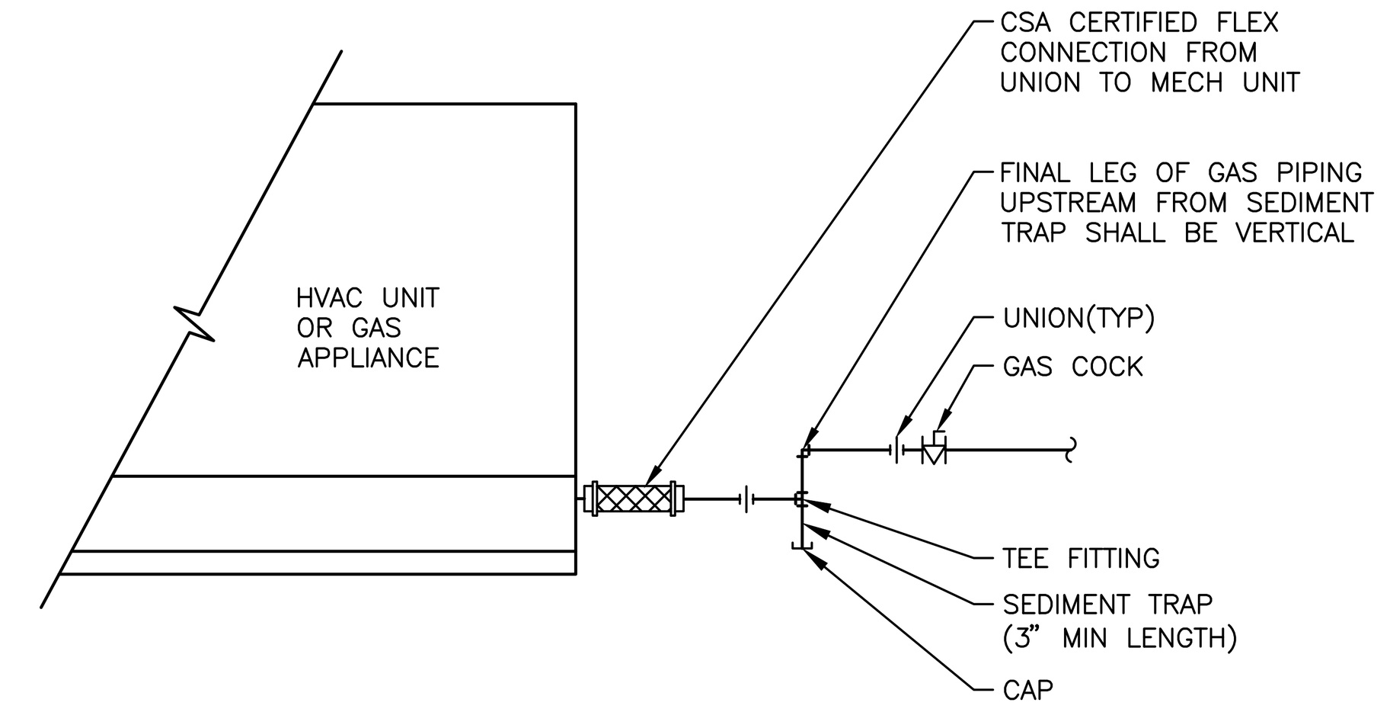
CHECKED BY:	SOBE

MECHANICAL ROOF PLAN BUILDING A

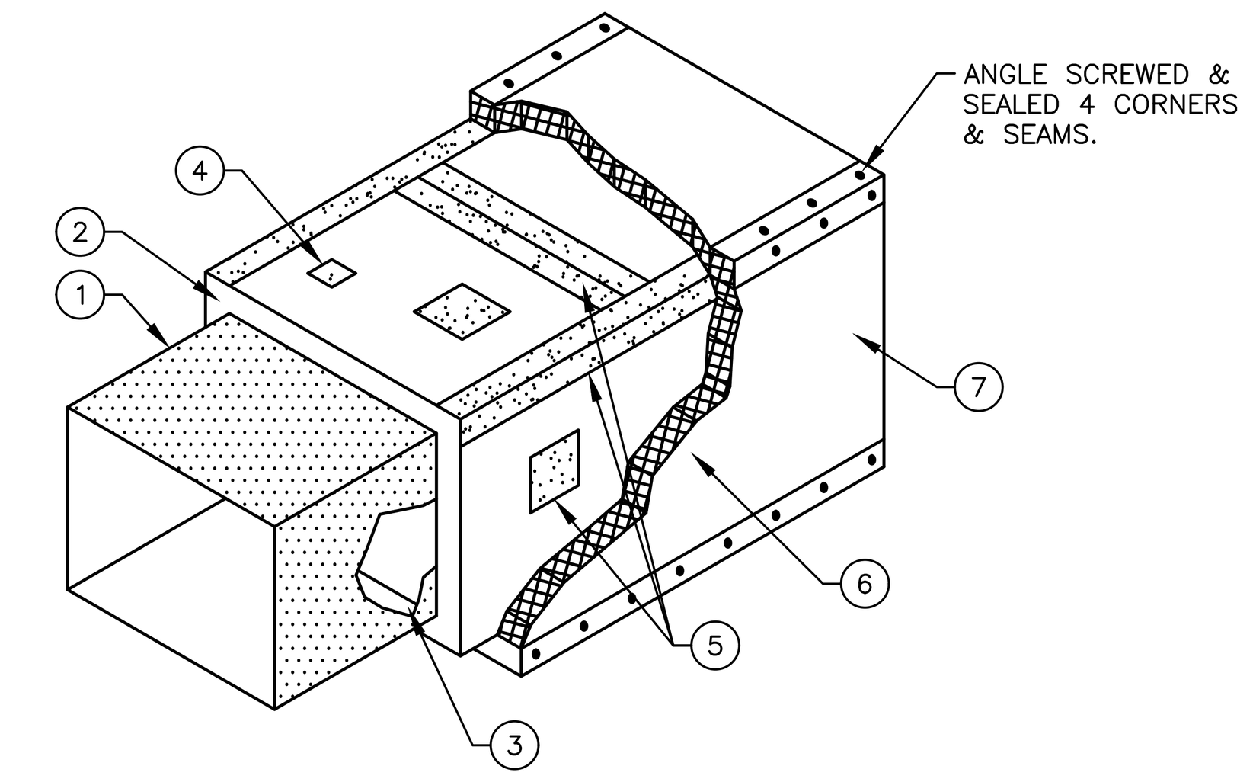
M-211



NOTE: SEDIMENT TRAP NOT REQUIRED FOR APPLIANCES WITH INTERNAL SEDIMENT TRAP, RANGES, CLOTHES DRYERS, FIREPLACES OR OUTDOOR GRILLES.

GAS CONNECTION DETAIL

SCALE NONE — 4



1. RECTANGULAR DUCT.
2. FIBROUS BOARD INSULATION.
3. ADHESIVE SPOTTED TO ASSIST INSTALLATION.
4. MECHANICAL FASTENERS AS REQUIRED TO SECURE INSULATION.
5. VAPOR–RETARDER TAPE OVER JOINTS, BREAKS AND PENETRATIONS OF THE VAPOR–RETARDER JACKET.
6. WEATHER–BARRIER MASTIC REINFORCED WITH FABRIC OR MESH (FOR OUTDOOR APPLICATIONS).
7. ALUMINUM JACKETING.

DOUBLE WALL DUCT DETAIL

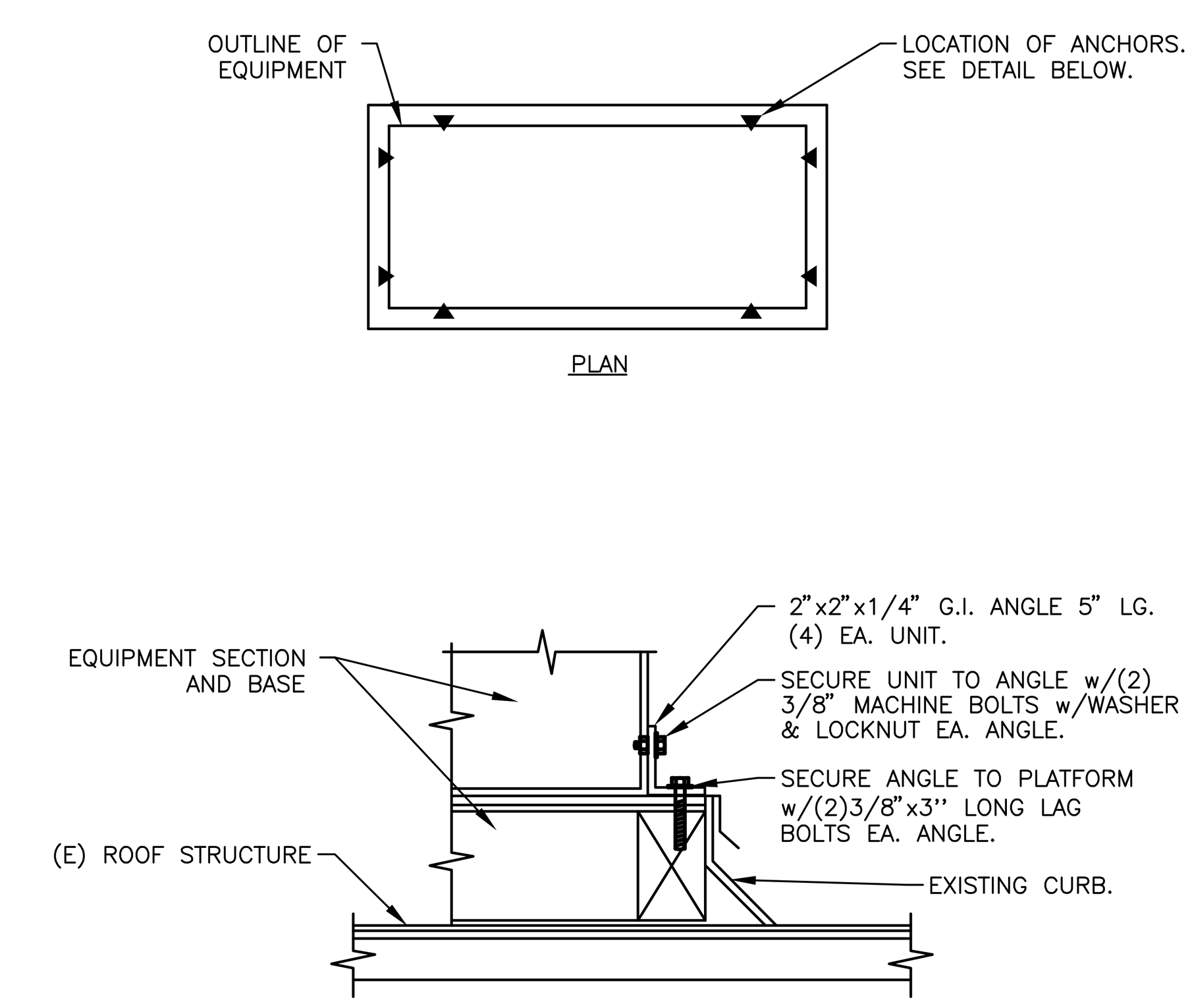
SCALE NONE — 1

NOT USED

SCALE NONE — 10

NOT USED

SCALE NONE — 7



AIR CONDITIONING UNIT MOUNTING DETAIL

SCALE NONE — 2

NOT USED

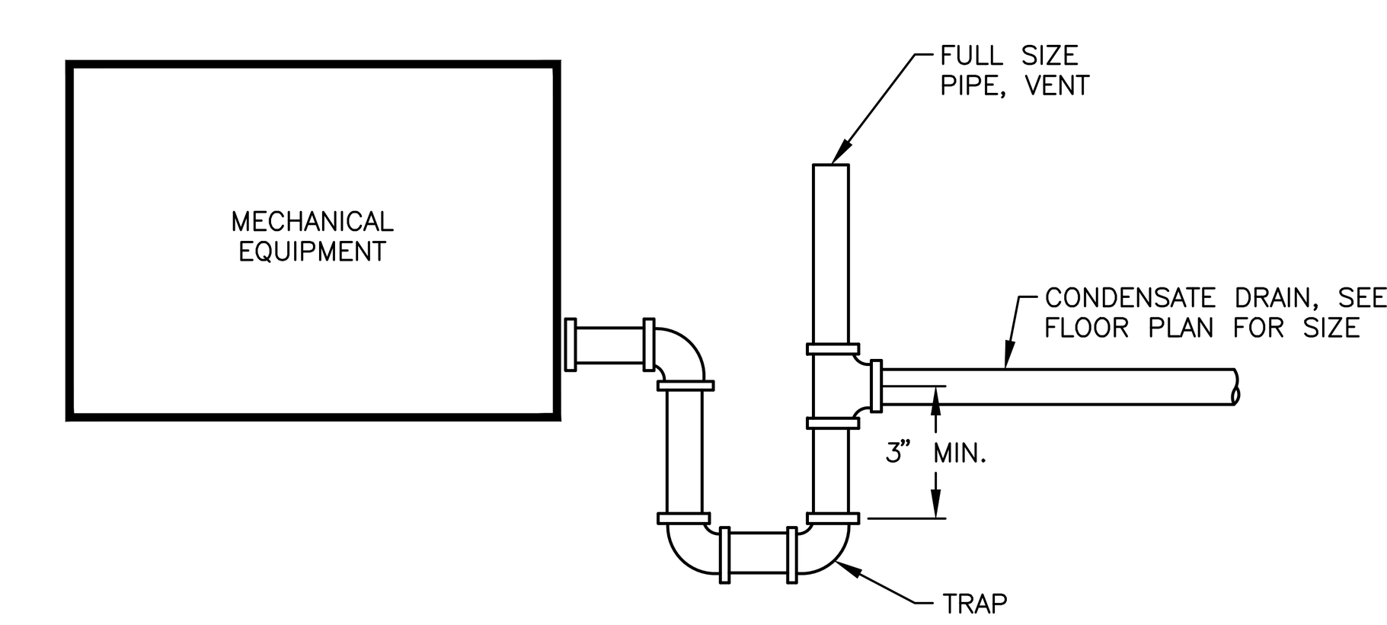
SCALE NONE — 11

NOT USED

SCALE NONE — 8

NOT USED

SCALE NONE — 5



CONDENSATE DRAIN TRAP DETAIL

SCALE NONE — 3

NOT USED

SCALE NONE — 12

NOT USED

SCALE NONE — 9

NOT USED

SCALE NONE — 6

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Mountain Empire Unified School District

Project No. 04-120521

Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
01	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No: 2017
DRAWN BY: SOBE
CHECKED BY: SOBE

MECHANICAL DETAILS

M-501

DIVISION 15 – MECHANICAL

SECTION 15010 – GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

A. THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, SPECIAL REQUIREMENTS, AND APPLICABLE PORTIONS OF DIVISION 1 OF THE SPECIFICATION ARE A PART OF THIS DIVISION AND THE REQUIREMENTS CONTAINED HEREIN ARE SUPPLEMENTARY TO THEM.

B. THIS DIVISION IS AN INTEGRATED WHOLE COMPRISING INTERRELATED AND INTERDEPENDENT SECTIONS AND SHALL BE CONSIDERED IN ITS ENTIRETY IN DETERMINING REQUIREMENTS.

C. REFER TO OTHER SECTIONS OF THIS DIVISION FOR ADDITIONAL REQUIREMENTS OR INFORMATION REGARDING THE SUBJECTS OF THIS SECTION.

1.02 DESCRIPTION

A. PROVIDE A COMPLETE AND OPERABLE INSTALLATION, INCLUDING ALL LABOR, SUPERVISION, MATERIALS, EQUIPMENT, TOOLS, APPARATUS, TRANSPORTATION, WAREHOUSING, RIGGING, SCAFFOLDING AND OTHER EQUIPMENT AND SERVICES NECESSARY TO ACCOMPLISH THE WORK IN ACCORDANCE WITH THE INTENT AND MEANING OF THESE DRAWINGS AND SPECIFICATIONS.

1.03 RELATED WORK

A. COORDINATION: REFER TO ARCHITECTURAL, CIVIL, STRUCTURAL, AND ELECTRICAL DRAWINGS FOR THE CONSTRUCTION DETAILS AND COORDINATE THE WORK OF THIS DIVISION WITH THAT OF OTHER DIVISIONS. ORDER THE WORK OF THIS DIVISION SO THAT PROGRESS WILL HARMONIZE WITH THAT OF OTHER DIVISIONS AND ALL WORK WILL PROCEED EXPEDITIOUSLY. THE WORK OF THIS DIVISION SHALL INCLUDE DIRECT RESPONSIBILITY FOR THE CORRECT PLACING AND CONNECTION OF MECHANICAL WORK IN RELATION TO THE WORK OF OTHER DIVISIONS.

B. EXAMINE OTHER DIVISIONS FOR WORK RELATED TO THE WORK OF THIS DIVISION ESPECIALLY DIVISION 16 – ELECTRICAL.

1.04 EXISTING CONDITIONS

A. VISIT THE SITE PRIOR TO BIDDING AND INVESTIGATE THE EXISTING CONDITIONS WHICH AFFECT OR WILL BE AFFECTED BY THE WORK OF THIS DIVISION. BECOME THOROUGHLY FAMILIAR WITH THE WORKING CONDITIONS AND TAKE INTO ACCOUNT ANY SPECIAL OR UNUSUAL FEATURES PECULIAR TO THIS JOB. BY THE ACT OF SUBMITTING A BID, THE CONTRACTOR WILL BE DEEMED TO HAVE COMPLIED WITH THE FORGOING, TO HAVE ACCEPTED SUCH CONDITIONS, AND TO HAVE MADE ALLOWANCE THEREFORE IN PREPARING HIS BID.

B. THE LOCATIONS OF EXISTING CONCEALED UTILITY LINES ARE SHOWN IN ACCORDANCE WITH REFERENCE DATA RECEIVED BY THE ARCHITECT. THE ARCHITECT DOES NOT GUARANTEE THE ACCURACY OF SUCH DATA. THE POINTS OF CONNECTION ARE THEREFORE APPROXIMATE AND THE BIDDER SHALL INCLUDE ADEQUATE FUNDS IN HIS BID TO COVER COSTS OF CONNECTION REGARDLESS OF THEIR EXACT LOCATION.

C. EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS. REPAIR THE DAMAGE CAUSED BY SUCH OPERATIONS TO EXISTING UTILITY LINES AT NO COST TO THE OWNER, WHETHER THE LINES ARE SHOWN ON DRAWINGS OR NOT.

1.05 DRAWINGS AND SPECIFICATIONS

A. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO COMPLEMENT EACH OTHER. WHERE A CONFLICT EXISTS BETWEEN THE REQUIREMENTS OF THE DRAWINGS AND/OR THE SPECIFICATIONS, REQUEST CLARIFICATION.

B. THE ARCHITECT SHALL INTERPRET THE DRAWINGS AND THE SPECIFICATIONS, AND HIS DECISION AS TO THE TRUE INTENT AND MEANING THEREOF AND THE QUALITY, QUANTITY, AND SUFFICIENCY OF THE MATERIALS AND WORKMANSHIP FURNISHED THERE UNDER SHALL BE ACCEPTED AS FINAL AND CONCLUSIVE.

C. IN CASE OF CONFLICT NOT CLARIFIED PRIOR TO BIDDING DEADLINE, USE THE MOST COSTLY ALTERNATIVE (BETTER QUALITY, GREATER QUANTITY, OR LARGER SIZE) IN PREPARING THE BID. A CLARIFICATION WILL BE ISSUED TO THE SUCCESSFUL BIDDER AS SOON AS FEASIBLE AFTER THE AWARD AND IF APPROPRIATE A DEDUCTIVE CHANGE ORDER WILL BE ISSUED.

D. ALL PROVISIONS SHALL BE DEEMED MANDATORY EXCEPT AS EXPRESSLY INDICATED AS OPTIONAL BY THE WORD "MAY" OR "OPTION".

1.06 CODES AND REGULATIONS

A. BY SUBMITTING A BID, CONTRACTOR IS DEEMED TO REPRESENT HIMSELF AS COMPETENT TO ACCOMPLISH THE WORK OF THIS DIVISION IN CONFORMANCE WITH ALL APPLICABLE CODES. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND THE CODE REQUIREMENTS, THE CODES SHALL TAKE PRECEDENCE. SHOULD SUCH CONFLICTS APPEAR, CEASE WORK ON THE PARTS OF THE CONTRACT AFFECTED AND IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CORRECT, AT NO COST TO THE OWNER, ANY WORK HE EXECUTES IN VIOLATION OF CODE REQUIREMENTS. SPECIFY REFERENCES TO CODES ELSEWHERE IN THIS DIVISION ARE EITHER TO AID THE CONTRACTOR IN LOCATING APPLICABLE INFORMATION OR TO DENY HIM PERMISSION TO USE OPTIONS WHICH ARE PERMITTED BY CODES. WHERE CONFLICT OR VARIATION EXISTS AMONG CODES, THE MOST STRINGENT SHALL GOVERN.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. STANDARD PRODUCTS: MATERIALS AND EQUIPMENT SHALL BE ESSENTIALLY THE STANDARD CATALOGED PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN PRODUCTION OF SUCH MATERIALS OR EQUIPMENT AND SHALL BE THEIR LATEST STANDARD DESIGNS THAT COMPLY WITH THE SPECIFICATION REQUIREMENTS. MATERIALS AND EQUIPMENT SHALL DUPLICATE ITEMS THAT HAVE BEEN IN SATISFACTORY COMMERCIAL OR INDUSTRIAL USE AT LEAST TWO YEARS PRIOR TO BID OPENING. WHERE TWO OR MORE UNITS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THESE UNITS SHALL BE PRODUCTS OF A SINGLE MANUFACTURER. THE COMPONENTS THEREOF, HOWEVER, ARE NOT REQUIRED TO BE EXCLUSIVELY OF THE SAME MANUFACTURER. EACH MAJOR COMPONENT OF EQUIPMENT SHALL HAVE MANUFACTURER'S NAME, ADDRESS, MODEL, AND SERIAL NUMBER ON A NAMEPLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE. THE NAMEPLATE OF THE DISTRIBUTING AGENT WILL NOT BE ACCEPTABLE.

B. WHENEVER ON THE PLANS, OR IN THESE SPECIFICATIONS, PRODUCTS ARE IDENTIFIED BY THE NAME OF ONE MANUFACTURER, IT IS INTENDED THAT EQUIVALENT PRODUCTS OF OTHER MANUFACTURERS ARE ACCEPTABLE, UNLESS OTHERWISE INDICATED, IF ACCEPTED AS A SUBSTITUTION BY THE ARCHITECT. WHERE THREE OR MORE MANUFACTURERS ARE LISTED AS "ACCEPTABLE MANUFACTURERS" HOWEVER, THEN THE PRODUCTS FURNISHED SHALL BE THE PRODUCT OF ONE OF THE MANUFACTURERS LISTED. MANUFACTURERS LISTED AS "ACCEPTABLE MANUFACTURERS" SHALL MEET QUALITY AND PERFORMANCE OF A PARTICULAR ONE SPECIFIED BY BOTH NAME AND CATALOG NUMBER.

2.02 SUBSTITUTIONS

A. GENERAL: SHOULD THE CONTRACTOR DESIRE TO SUBSTITUTE FOR SPECIFIED PRODUCTS, HE SHALL SUBMIT WITH THE MATERIAL LIST A COMPLETE LIST OF THE REQUESTED SUBSTITUTIONS. THE REQUEST SHALL CONTAIN COMPLETE DESCRIPTIVE INFORMATION OF THE PRODUCTS. SAMPLES FOR EVALUATION SHALL ALSO BE SUBMITTED UPON THE ARCHITECT'S REQUEST. IF IN THE ARCHITECT'S OPINION THE PRODUCTS AS PRESENTED IN THIS FIRST SUBMITTAL ARE IN VARIANCE WITH THE SPECIFIED PRODUCTS, OR IF THE INFORMATION SUBMITTED IS NOT SUFFICIENTLY COMPLETE TO ALLOW PROPER EVALUATION, THE SUBSTITUTION WILL BE DISALLOWED FROM CONSIDERATION AND THE SPECIFIED PRODUCTS SHALL BE FURNISHED. BY PROPOSING A SUBSTITUTION, IT IS DEEMED THAT THE CONTRACTOR SHALL BEAR THE COST OF ANY CHANGES (WHETHER ARCHITECTURAL, STRUCTURAL, ELECTRICAL OR MECHANICAL) NECESSARY TO ACCOMMODATE THE SUBSTITUTION.

2.03 SUBMITTALS

A. GENERAL:

1. PROVIDE FOR ALL ITEMS IN ACCORDANCE WITH THE DIVISION 1 SECTION COVERING SUBMITTALS AND AS HEREIN SPECIFIED. WHERE WARRANTY OF LONGER THAN ONE YEAR IS SPECIFIED, INCLUDE SUCH WARRANTY WITH SUBMITTAL. ARCHITECT'S REVIEW OF THE SUBMITTAL IS ONLY FOR GENERAL CONFORMANCE WITH DESIGN COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFORMATION AND CORRELATION OF THE DIMENSIONS, QUANTITIES AND SIZES, FOR INFORMATION THAT PERTAINS TO FABRICATION METHODS OR CONSTRUCTION TECHNIQUES, AND FOR COORDINATION OF WORK OF ALL DIVISIONS OF THE WORK. DEVIATIONS, IF ANY, FROM CONTRACT DOCUMENTS SHALL BE CLEARLY AND COMPLETELY INDICATED (BY A SEPARATE LETTER IF DEVIATIONS ARE EXTENSIVE) IN THE SUBMITTALS, AND THE LACK OF SUCH IS DEEMED COMPLETE COMPLIANCE WITH CONTRACT DOCUMENTS WITHOUT ANY DEVIATIONS. SUBMITTALS FAVORABLY PROCESSED WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DEVIATIONS NOT SO REPORTED NOR FOR ERRORS IN THE SUBMITTAL.

2. ALL SUBMITTALS SHALL BE COMPLETE AND WITH CATALOG DATA AND INFORMATION PROPERLY MARKED TO SHOW, AMONG OTHER THINGS, EQUALITY OF MATERIAL (WHERE SUBSTITUTION IS ALLOWED AND DESIRED), ADEQUACY IN CAPACITY AND PERFORMANCE TO MEET MINIMUM CAPACITIES OF PERFORMANCE AS SPECIFIED OR INDICATED. ARRANGE THE SUBMITTALS IN THE SAME SEQUENCE AS THESE SPECIFICATIONS, AND REFERENCE (AT THE UPPER RIGHT-HAND CORNER) THE PARTICULAR SPECIFICATION PROVISION FOR WHICH EACH SUBMITTAL IS INTENDED. COMPLETE DESCRIPTIVE SUBMITTALS ARE REQUIRED FOR ALL DIVISION 15 WORK. INCOMPLETE SUBMITTALS WILL BE REJECTED.

B. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS WITH SUCH PROMPTNESS AS TO CAUSE NO DELAY IN THE WORK. DO NOT COMMENCE FABRICATION OF THE EQUIPMENT UNTIL THE APPROVED DRAWINGS ARE RECEIVED FROM THE OWNER'S REPRESENTATIVE.

PART 3 EXECUTION

3.01 WORKMANSHIP AND INSTALLATION METHODS

A. WORKMANSHIP SHALL BE IN THE BEST STANDARD PRACTICE OF THE TRADE.

B. EXECUTE THE WORK SO AS TO CONTRIBUTE TO EASE OF OPERATION AND MAINTENANCE, MAXIMUM ACCESSIBILITY AND BEST APPEARANCE. EXECUTE IT SO THAT THE INSTALLATION WILL CONFORM AND ADJUST ITSELF TO THE BUILDING STRUCTURE, ITS EQUIPMENT AND ITS USAGE. THE WORK SHALL BE SYMMETRICAL, PLUMB, UNIFORM, PROPERLY ALIGNED, AND FIRMLY SECURED IN PLACE.

C. INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS UNLESS OTHERWISE NOTED OR SPECIFIED.

3.02 DELIVERY, HANDLING, STORAGE OF MATERIALS AND PROTECTION OF WORK

A. PROTECT MATERIALS AGAINST DIRT, WATER, CHEMICAL AND MECHANICAL DAMAGE BOTH WHILE IN STORAGE AND DURING CONSTRUCTION.

B. COVER MATERIALS IN SUCH A MANNER THAT NO FINISHED SURFACES WILL BE DAMAGED, MARRED OR SPLATTERED WITH PLASTER OR PAINT AND ALL MOVING PARTS WILL BE KEPT CLEAN AND DRY.

C. REPLACE OR REFINISH ANY DAMAGED MATERIALS INCLUDING FRONTS OF CONTROL PANELS, DUCTWORK FITTINGS, AND SHOP FABRICATED DUCTWORK.

D. KEEP CABINETS AND OTHER OPENINGS CLOSED TO PREVENT ENTRY OF FOREIGN MATTER.

E. COVER ENDS OF DUCTWORK NOT YET CONNECTED TO AIR DISTRIBUTION DEVICES UNTIL FINAL CONNECTION HAS BEEN MADE.

3.03 CLEANUP AND HOUSEKEEPING

A. CLEANING SHALL BE DONE AS THE WORK PROCEEDS. PERIODICALLY REMOVE WASTE AND DEBRIS TO KEEP THE SITE AS CLEAN AS IS PRACTICAL.

B. LEAVE EXPOSED PARTS OF THE MECHANICAL WORK IN A NEAT, CLEAN AND USABLE CONDITION, WITH PAINTED SURFACES UNBLEMISHED AND PLATED METAL SURFACES POLISHED.

3.04 PROJECT CONDITIONS

A. SITE EXAMINATIONS AND CONDITIONS:

1. REGARD INFORMATION RELATIVE TO EXISTING CONDITIONS, SERVICES AND STRUCTURE AS APPROXIMATE ONLY. VERIFY DIMENSIONS AND LOCATIONS, AND BE KNOWLEDGEABLE OF ALL WORKING CONDITIONS BEFORE SUBMITTING BID. VERIFY PRESSURE, LOCATION, SIZE, AND ELEVATION OF EXISTING SERVICES (TO WHICH POINTS OF CONNECTION ARE TO BE MADE OR CROSSED) AS SOON AS POSSIBLE AND PRIOR TO COMMENCEMENT OF ANY NEW WORK.

2. MAKE MINOR DEVIATIONS NECESSARY TO CONFORM WITH ACTUAL LOCATIONS AND CONDITIONS. SUBMISSION OF BID PRESUMES PROPER EXAMINATION OF SITE, LOCATIONS, DIMENSIONS AND CONDITIONS, AND NO ADDITIONAL COST WILL BE HONORED FOR LACK OF SUCH EXAMINATIONS.

B. EXISTING SERVICES: EXAMINE THE CONTRACT DRAWINGS AND VISIT THE PROJECT SITE TO ASCERTAIN THE EXTENT OF THE EXISTING SERVICES. WHERE EXISTING EQUIPMENT/SERVICES SERVING EXISTING STRUCTURES AND/OR EXISTING STRUCTURES TO BE DEMOLISHED ARE TO REMAIN IN SERVICE, REROUTE, RELOCATE, OR EXTEND SUCH EXISTING EQUIPMENT AND/OR SERVICES TO ACCOMMODATE THIS PROJECT WITHOUT ADDITIONAL COST.

C. INTERRUPTION OF EXISTING SERVICES: WHERE IT IS NECESSARY TO REROUTE EXISTING SERVICES OR UTILITIES, OR TO MAKE CONNECTIONS OF NEW WORK TO EXISTING SERVICES OR UTILITIES, GIVE TIMELY WRITTEN NOTICE OF SUCH INTENT TO THE OWNER AND SECURE WRITTEN APPROVAL BEFORE PROCEEDING. MAKE ALL SUCH INTERRUPTIONS AT SUCH TIME AS PERMITTED BY THE OWNER. ANTICIPATE SUCH INTERRUPTIONS TO BE MADE OUTSIDE OF NORMAL WORKING HOURS OR NORMAL WORKING DAYS; THEREFORE, NO ADDITIONAL COST WILL BE PERMITTED FOR SUCH WORK. EXCEPT IN A CASE OF EMERGENCY INVOLVING LIFE, LIMB OR HEALTH, DO NOT OPERATE ANY EXISTING EQUIPMENT (INCLUDING VALVES). WHERE SUCH OPERATIONS ARE NECESSARY, THEY SHALL BE PERFORMED BY THE OWNER'S PERSONNEL.

D. ACCESS AND PLACEMENT OF WORK:

1. CHECK AND COORDINATE FOR CLEARANCE, ACCESSIBILITY AND PLACEMENT OF EQUIPMENT EITHER BY GOING THROUGH OPENINGS PROVIDED OR BY PLACING EQUIPMENT DURING CONSTRUCTION. ORDERING OF EQUIPMENT TO BE SHIPPED, DISASSEMBLED, OR DISASSEMBLY OF EQUIPMENT AT PROJECT SITE AND RE-ASSEMBLY OF EQUIPMENT TO ACCOMPLISH THIS REQUIREMENT SHALL BE EXECUTED WITHOUT ADDITIONAL COST. WHERE PROVIDED OPENINGS ARE INADEQUATE TO ACCOMMODATE EQUIPMENT, PROVIDE NEW OPENINGS AND RESTORATION OF SAME, ALL AT NO ADDITIONAL COST. OBTAIN WRITTEN APPROVAL FOR NEW OPENINGS BEFORE PROCEEDING.

2. VERIFY LOCATION OF ALL PLUMBING FIXTURES AND EQUIPMENT WITHIN FINISHED SPACES WITH THE ARCHITECTURAL DRAWINGS. IN THE EVENT THAT MECHANICAL DRAWINGS DO NOT INDICATE EXACT LOCATIONS, OR ARE IN CONFLICT WITH THE ARCHITECTURAL DRAWINGS, OBTAIN INFORMATION REGARDING PROPER LOCATIONS. INSTALLATION OF WORK WITHOUT PROPER INSTRUCTION UNDER SUCH CIRCUMSTANCES WILL RESULT IN RELOCATION OF WORK, WHEN DIRECTED, WITHOUT ADDITIONAL COST.

3. VERIFICATION AND COORDINATION: DRAWINGS INDICATING SUGGESTED DISTRIBUTION ROUTES ARE DIAGRAMMATIC ONLY, AND ALL SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE AND ARE INDICATED FOR ESTIMATING PURPOSES ONLY. THE DRAWINGS DO NOT INDICATE NECESSARY OFFSETS AND LIKE ITEMS. DO NOT CONSTRUE CONTRACT DRAWINGS AS FABRICATION DRAWINGS. PRIOR TO FABRICATION AND INSTALLATION OF WORK, VERIFY ALL DIMENSIONS, SIZES AND DISTRIBUTION ROUTES WITH ACTUAL CONDITIONS, AND PREPARE SUBMITTAL AND FABRICATION DRAWINGS. COORDINATE TO AVOID POSSIBLE CONFLICTS AND RESOLVE SAME WHERE SUCH EXIST. INSTALL WORK TO CONFORM TO STRUCTURE, AVOID OBSTRUCTION, PRESERVE HEADROOM, AND KEEP OPENINGS AND PASSAGEWAY CLEAR. CHANGES NECESSARY, RESULTING FROM SUCH VERIFICATION AND COORDINATION, SHALL NOT BE CAUSE FOR ADDITIONAL COST.

3.05 WARRANTY

A. GUARANTEE, IN WRITING, ALL WORK AGAINST FAULT OF ANY PRODUCT OR WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE YEAR AFTER FORMAL ACCEPTANCE BY THE OWNER; EXCEPT, WHERE LONGER PERIODS ARE SPECIFIED IN THE SPECIFICATIONS, SUCH LONGER PERIODS SHALL GOVERN. HOWEVER, WHEN ANY COMPONENT FAILS AT ANY TIME DURING THIS PERIOD, THE WARRANTY PERIOD FOR SUCH COMPONENT AND ALL OTHER COMPONENTS THAT ARE INACTIVE BECAUSE OF SAID FAILURE SHALL BE SUSPENDED. THE WARRANTY PERIOD FOR SUCH COMPONENT SHALL RESUME RUNNING FOR THE REMAINING PORTION OF THE WARRANTY PERIOD WHEN FAILED COMPONENT IS COMPLETELY REPAIRED AND IN OPERATION; HOWEVER, IN NO CASE SHALL THE RESUMED PORTION OF THE WARRANTY PERIOD BE LESS THAN 3 MONTHS IN DURATION.

B. NEITHER PAYMENTS FOR WORK, NOR TOTAL OR PARTIAL OCCUPANCY OF WORK BY THE OWNER, WITHIN OR PRIOR TO THE WARRANTY PERIOD SPECIFIED, SHALL BE CONSTRUED AS ACCEPTANCE OF FAULTY WORK OR SHALL CONDONE ANY NEGLIGENCE OF OMISSION OF CONTRACTOR IN DOING THE WORK.

3.06 SAFETY REQUIREMENTS

A. ENCLOSE AND GUARD BELTS, PULLEYS, CHAINS, GEARS, COUPLINGS, PROJECTING SETSCREWS, KEYS AND OTHER ROTATING PARTS IN ACCORDANCE WITH THE OSHA 1910.219. INSULATE, GUARD, AND COVER ANY HIGH-TEMPERATURE EQUIPMENT AND PIPING SO LOCATED AS TO ENDANGER PERSONNEL OR CREATURE A FIRE HAZARD.

3.07 MANUFACTURER'S RECOMMENDATIONS

A. WHERE INSTALLATION PROCEDURES OR ANY PART THEREOF ARE REQUIRED TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL OR EQUIPMENT BEING INSTALLED, FURNISH PRINTED COPIES OF THESE RECOMMENDATIONS TO THE INSTALLING CONTRACTOR AND ARCHITECT PRIOR TO INSTALLATION. DO NOT PROCEED WITH THE INSTALLATION OF THE ITEM UNTIL THE RECOMMENDATIONS ARE RECEIVED. FAILURE TO FURNISH THESE RECOMMENDATIONS CAN BE CAUSE FOR REJECTION OF THE MATERIAL.

END OF SECTION 15010

SECTION 15735 – ROOFTOP PACKAGED ELECTRIC COOLING/GAS HEAT AC UNITS

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

A. SYSTEM DESCRIPTION: OUTDOOR ROOFTOP- OR SLAB-MOUNTED, ELECTRICALLY CONTROLLED HEATING AND COOLING UTILIZING A SCROLL COMPRESSOR FOR COOLING DUTY AND GAS COMBUSTION FOR HEATING DUTY. UNIT SHALL DISCHARGE SUPPLY AIR VERTICALLY OR HORIZONTALLY AS SHOWN ON CONTRACT DRAWINGS. UNIT SHALL BE RATED IN ACCORDANCE WITH ARI STANDARDS 210/240 OR 360 AND 270. UNIT SHALL BE DESIGNED TO CONFORM TO ASHRAE 15, LATEST REVISION, AND IN ACCORDANCE WITH UL 1995. UNIT SHALL BE UL TESTED AND CERTIFIED IN ACCORDANCE WITH ANSI Z21.47 STANDARD AND UL LISTED AND CERTIFIED UNDER CANADIAN STANDARDS AS A TOTAL PACKAGE FOR SAFETY REQUIREMENTS. ROOF CURB SHALL BE DESIGNED TO CONFORM TO NRCA STANDARDS. INSULATION AND ADHESIVE SHALL MEET NFPA 90A REQUIREMENTS FOR FLAME SPREAD AND SMOKE GENERATION.

B. UNIT(S) SHALL BE STORED AND HANDLED PER MANUFACTURER'S RECOMMENDATIONS.

PART 2 PRODUCTS

2.01 PACKAGED ROOFTOP ELECTRIC COOLING/GAS HEAT UNITS [S] [M/O]

A. FACTORY-ASSEMBLED, SINGLE-PIECE HEATING AND COOLING UNIT. CONTAINED WITHIN THE UNIT ENCLOSURE SHALL BE ALL FACTORY WIRING, PIPING, CONTROLS, REFRIGERANT CHARGE (R-410-A), AND SPECIAL FEATURES REQUIRED PRIOR TO FIELD START-UP.

B. UNIT CABINET:

1. UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED AND COATED WITH A BAKED ENAMEL FINISH ON ALL EXTERNALLY EXPOSED SURFACES, AND HAVE PRIMER-COATED INTERIOR PANELS.

2. EVAPORATOR-FAN CABINET INTERIOR SHALL BE INSULATED WITH A MINIMUM 1/2-IN. THICK FLEXIBLE FIBERGLASS INSULATION COATED ON THE AIR SIDE. ALUMINUM FOIL-FACED FIBERGLASS INSULATION SHALL BE USED IN THE HEATING COMPARTMENT.

3. CABINET PANELS SHALL BE EASILY REMOVABLE FOR SERVICING.

4. UNIT SHALL HAVE A FACTORY-INSTALLED, SLOPED CONDENSATE DRAIN PAN MADE OF A NON-CORROSIVE MATERIAL, PROVIDING A MINIMUM 3/4 IN. CONNECTION WITH BOTH VERTICAL AND HORIZONTAL DRAINS AND SHALL COMPLY WITH ASHRAE 62.

5. UNIT SHALL HAVE FACTORY-INSTALLED FILTER ACCESS PANEL TO PROVIDE FILTER ACCESS WITH TOOL-LESS REMOVAL.

6. UNIT SHALL HAVE STANDARD THRU-THE-BOTTOM POWER CONNECTION CAPABILITY.

D. FANS:

3. INDOOR BLOWER WITH VARIABLE FREQUENCY DRIVE (EVAPORATOR FAN) SHALL BE OF THE BELT-DRIVEN, DOUBLE INLET, FORWARD-CURVED CENTRIFUGAL TYPE. BELT DRIVE SHALL INCLUDE AN ADJUSTABLE-PITCH MOTOR PULLEY. DIRECT DRIVE FANS ARE NOT ACCEPTABLE.

4. INDOOR BLOWER (EVAPORATOR FAN) SHALL BE MADE FROM STEEL WITH A CORROSION-RESISTANT FINISH AND SHALL BE DYNAMICALLY BALANCED.

5. BEARINGS SHALL BE OF THE SEALED, PERMANENTLY LUBRICATED, BALL-BEARING TYPE FOR LONGER LIFE AND LOWER MAINTENANCE.

6. CONDENSER FAN SHALL BE OF THE DIRECT-DRIVEN PROPELLER TYPE AND SHALL DISCHARGE AIR VERTICALLY UPWARD.

7. CONDENSER FAN SHALL HAVE ALUMINUM BLADES RIVETED TO CORROSION-RESISTANT STEEL SPIDERS AND SHALL BE DYNAMICALLY BALANCED.

8. INDUCED DRAFT BLOWER SHALL BE OF THE DIRECT-DRIVEN, SINGLE INLET, FORWARD CURVED, CENTRIFUGAL TYPE, SHALL BE MADE FROM STEEL WITH A CORROSION-RESISTANT FINISH, AND SHALL BE DYNAMICALLY BALANCED.

E. COMPRESSOR(S):

1. FULLY HERMETIC SCROLL-TYPE, INTERNALLY PROTECTED.

2. FACTORY RUBBER-SHOCK MOUNTED AND INTERNALLY SPRING MOUNTED FOR VIBRATION ISOLATION.

F. COILS:

1. EVAPORATOR AND CONDENSER COILS SHALL HAVE ALUMINUM PLATE FINS MECHANICALLY BONDED TO ENHANCED COPPER TUBES WITH ALL JOINTS BRAZED.

2. TUBE SHEET OPENINGS SHALL BE BELLED TO PREVENT TUBE WEAR.

3. EVAPORATOR COIL SHALL BE OF THE FULL-FACE ACTIVE DESIGN.

G. HEATING SECTION:

1. INDUCED DRAFT COMBUSTION TYPE WITH ENERGY SAVING DIRECT SPARK IGNITION SYSTEM, REDUNDANT MAIN GAS VALVE, AND 2-STAGE HEAT.

2. THE HEAT EXCHANGER SHALL BE OF THE TUBULAR SECTION TYPE CONSTRUCTED OF A MINIMUM OF 20 GAGE STEEL COATED WITH A NOMINAL 1.2 MIL ALUMINUM-SILICONE ALLOY FOR CORROSION RESISTANCE, AND SHALL HAVE A 10-YEAR WARRANTY.

3. BURNERS SHALL BE OF THE IN-SHOT TYPE CONSTRUCTED OF ALUMINUM COATED STEEL.

4. ALL GAS PIPING SHALL ENTER THE UNIT CABINET AT A SINGLE LOCATION.

5. THE INTEGRATED GAS UNIT CONTROL (IGC) BOARD SHALL PROVIDE TIMED CONTROL OF EVAPORATOR FAN FUNCTIONING AND BURNER IGNITION. AN LED (LIGHT-EMITTING DIODE) SHALL PROVIDE DIAGNOSTIC INFORMATION. THE LED SHALL BE VISIBLE WITHOUT REMOVING THE CONTROL BOX ACCESS PANEL.

6. IGC BOARD CONTAINS ANTI-CYCLE PROTECTION FOR GAS HEAT OPERATION (AFTER 4 CONTINUOUS CYCLES ON HIGH TEMPERATURE LIMIT SWITCH AND ONE CYCLE ON THE FLAME ROLLOUT SWITCH).

H. REFRIGERANT COMPONENTS:

1. REFRIGERANT CIRCUIT COMPONENTS SHALL INCLUDE:

I. REFRIGERANT STRAINER.

J. SERVICE GAGE CONNECTIONS ON SUCTION, DISCHARGE, AND LIQUID LINES.

K. FILTER DRIER.

L. ABILITY TO ROUTE GAGE HOSES THROUGH UNIT TOP COVER.

M. FILTER SECTION:

1. STANDARD FILTER SECTION SHALL CONSIST OF FACTORY-INSTALLED LOW-VELOCITY, THROWAWAY 2-IN. THICK PLEATED, MINIMUM 30% EFFICIENT (MERV 8), FILTERS OF COMMERCIALLY AVAILABLE SIZES.

2. FILTER FACE VELOCITY SHALL NOT EXCEED 300 FPM AT NOMINAL AIRFLOW.

3. FILTER SECTION SHALL USE ONLY ONE SIZE FILTER.

4. FILTERS SHALL BE ACCESSIBLE THROUGH AN ACCESS PANEL WITH "NO-TOOL" REMOVAL.

N. CONTROLS AND SAFETIES:

1. UNIT CONTROLS:

O. UNIT SHALL BE COMPLETE WITH SELF-CONTAINED LOW-VOLTAGE CONTROL CIRCUIT, PROTECTED BY A FUSE ON THE 24-V TRANSFORMER SIDE.

1. SAFETIES:

P. UNIT SHALL INCORPORATE A SOLID-STATE COMPRESSOR PROTECTOR WHICH PROVIDES ANTI-CYCLE RESET CAPABILITY AT THE SPACE THERMOSTAT, SHOULD ANY OF THE FOLLOWING STANDARD SAFETY DEVICES TRIP AND SHUT OFF COMPRESSOR.

Q. COMPRESSOR OVER TEMPERATURE, OVER CURRENT

R. LOSS-OF-CHARGE/LOW-PRESSURE SWITCH.

S. FREEZE-PROTECTION THERMOSTAT, EVAPORATOR COIL.

T. HIGH-PRESSURE SWITCH. THE LOCKOUT PROTECTION SHALL BE EASILY DISCONNECTED AT THE CONTROL BOARD, IF NECESSARY.

1. HEATING SECTION SHALL BE PROVIDED WITH THE FOLLOWING MINIMUM PROTECTIONS:

U. HIGH-TEMPERATURE LIMIT SWITCHES.

V. INDUCED DRAFT MOTOR SPEED SENSOR.

W. FLAME ROLLOUT SWITCH.

X. FLAME PROVING CONTROLS.

Y. OPERATING CHARACTERISTICS:

1. UNIT SHALL BE CAPABLE OF STARTING AND RUNNING AT 125 F AMBIENT OUTDOOR TEMPERATURE, MEETING MAXIMUM LOAD CRITERIA OF ARI STANDARD 210/240 OR 360 AT ±10% VOLTAGE.

2. COMPRESSOR WITH STANDARD CONTROLS SHALL BE CAPABLE OF OPERATION DOWN TO 25F AMBIENT OUTDOOR TEMPERATURE.

Z. THERMOSTAT

1. UNIT SHALL BE SUPPLIED WITH A FACTORY 24 HOUR PROGRAMMABLE THERMOSTAT.

AA. ELECTRICAL REQUIREMENTS:

1. ALL UNIT POWER WIRING SHALL ENTER UNIT CABINET AT A SINGLE FACTORY-PREDRILLED LOCATION.

AB. MOTORS:

1. COMPRESSOR MOTORS SHALL BE COOLED BY REFRIGERANT PASSING THROUGH MOTOR WINDINGS AND SHALL HAVE LINE BREAK THERMAL AND CURRENT OVERLOAD PROTECTION.

2. INDOOR BLOWER (EVAPORATOR-FAN) MOTOR SHALL HAVE PERMANENTLY LUBRICATED BEARINGS AND INHERENT AUTOMATIC-RESET THERMAL OVERLOAD PROTECTION.

3. TOTALLY-ENCLOSED CONDENSER-FAN MOTOR SHALL HAVE PERMANENTLY LUBRICATED BEARINGS AND INHERENT AUTOMATIC-RESET THERMAL OVERLOAD PROTECTION.

4. INDUCED DRAFT MOTOR SHALL HAVE PERMANENTLY LUBRICATED, SEALED BEARINGS AND INHERENT AUTOMATIC RESET THERMAL OVERLOAD PROTECTION.

AC. INTEGRATED ECONOMIZERS:

1. INTEGRATED INTEGRAL-MODULATING TYPE CAPABLE OF SIMULTANEOUS ECONOMIZER AND COMPRESSOR OPERATION.

2. INCLUDES ALL HARDWARE AND CONTROLS TO PROVIDE COOLING WITH OUTDOOR AIR.

3. EQUIPPED WITH LOW-LEAKAGE DAMPERS NOT TO EXCEED 3% LEAKAGE, AT 1 IN. WG PRESSURE DIFFERENTIAL (VARIABLE SLIDING ECONOMIZER).

4. CAPABLE OF INTRODUCING UP TO 100% OUTDOOR AIR IN BOTH MINIMUM AND FULLY-OPEN POSITIONS.

5. DAMPER SHALL CLOSE UPON UNIT SHUTOFF.

AD. POWERED EXHAUST:

1. CENTRIFUGAL TYPE WITH VFD CONTROL CAPABLE OF SEAMLESS INTEGRATION WITH THE UNIT CONTROLS AND ECONOMIZER DAMPER OPERATION.

2. CONTRACTOR SHALL FIELD VERIFY UNIT ELECTRICAL POWER REQUIREMENTS PRIOR TO START OF WORK.

4. CAPABLE OF EXHAUSTING UP TO 100% RETURN AIR IN BOTH MINIMUM AND FULLY-OPEN POSITIONS.

5. FAN SHALL SHUT DOWN UPON UNIT SHUTOFF.

AE. UNITS SHALL BE MANUFACTURED BY TRANE, CARRIER, YORK OR APPROVED EQUIVALENT.

AF. AIR CONDITIONING CONDENSATE PIPING: ASTM B88 TYPE L, HARD DRAWN COPPER TUBING WITH ANSI B16.22 FITTINGS; 95-5 TIN-ANTIMONY SOLDER.

PART 3 EXECUTION

3.01 INSTALLATION

A. INSTALL AIR HANDLING EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS, PRINTED INSTRUCTIONS, AND AS INDICATED.

3.02 FIELD INSPECTION AND TESTS

A. SCHEDULE AND ADMINISTER THE SPECIFIED TESTS. PROVIDE PERSONNEL, INSTRUMENTS, AND EQUIPMENT FOR SUCH TESTS. CORRECT DEFECTS AND REPEAT THE RESPECTIVE INSPECTION AND TESTS. GIVE THE ARCHITECT AMPLE NOTICE OF THE DATES AND TIMES SCHEDULED FOR TESTS AND TRIAL OPERATIONS. CONDUCT INSPECTION AND TESTING IN THE PRESENCE OF THE ARCHITECT. SUBMIT TEST DATA.

B. FIELD INSPECTION: PRIOR TO INITIAL OPERATION, INSPECT EQUIPMENT INSTALLATION FOR CONFORMANCE WITH DRAWINGS AND SPECIFICATIONS.

C. FIELD TESTS:

1. PRELIMINARY TESTS: FOR EACH AIR HANDLING AND DISTRIBUTION EQUIPMENT AND ITS COMPONENTS, PERFORM AN OPERATIONAL TEST FOR A MINIMUM PERIOD OF 4 HOURS.

2. TESTING AND BALANCING: AFTER PRELIMINARY TESTS, TEST, ADJUST, AND BALANCE THE AIR HANDLING AND DISTRIBUTION EQUIPMENT, IN ACCORDANCE WITH SECTION 15950, TESTING, ADJUSTING, AND BALANCING.

END OF SECTION 15735

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REGISTERED PROFESSIONAL ENGINEER
DUSTY DURRER
No. M32811
Exp. 6/30/22
MECHANICAL
STATE OF CALIFORNIA

Mountain Empire Unified School District

Project No. 04-120521

Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
01	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No: 2017
DRAWN BY: SOBE
CHECKED BY: SOBE

MECHANICAL SPECIFICATIONS

M-601

ELECTRICAL SYMBOL LEGEND

SOME SYMBOLS IN THIS LEGEND MAY OR MAY NOT BE USED IN THIS PROJECT. FLOOR PLANS SHALL DICTATE WHICH SYMBOLS ARE APPLICABLE.

SYMBOL	DESCRIPTION
A–1,3	CONDUIT HOMERUN WITH PANEL DESIGNATION AND CIRCUITS INDICATED.
	CONDUIT/WIRING, INSTALLED IN OR BELOW FLOOR SLAB.
	CONDUIT/WIRING, EXPOSED.
	CONDUIT/WIRING CONCEALED IN WALL OR CEILING SPACE.
	CONDUIT, FLEXIBLE CONNECTION DRY LOCATIONS – FLEXIBLE STEEL CONDUIT WET LOCATIONS – LIQUIDTIGHT FLEXIBLE STEEL CONDUIT
J	JUNCTION BOX, HANDHOLE OR PULLBOX WITH COVER, SIZE PER NEC, ART. 314.28.
M	UTILITY COMPANY APPROVED CT/METER PROVISIONS
	FUSED SWITCH
	CIRCUIT BREAKER
TC	TIME CLOCK
	LIGHTING OR POWER PANEL – FLUSH MOUNT UNLESS INDICATED OTHERWISE
LA	DISTRIBUTION BOARD, LIGHTING OR POWER PANEL DESIGNATION
	MOTOR OR MECHANICAL EQUIPMENT, WITH FLEXIBLE CONNECTION
FC 3	MECHANICAL EQUIPMENT DESIGNATION
30AS 3P F	DISCONNECT SWITCH (30=AMPS 3=POLES) NEMA 1 INDOORS NEMA 3R IN WET LOCATIONS F = FUSED PROVIDE TIME–DELAY TYPE FUSE(S) SIZED PER EQUIPMENT MANUFACTURERS NAMEPLATE RATING.
SM	MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD PROTECTOR
'O'	MAGNETIC MOTOR STARTER WITH THERMAL OVERLOAD PROTECTOR
30AS 3P 'O'	COMBINATION MOTOR STARTER WITH FUSED SWITCH, WITH THERMAL OVERLOAD PROTECTOR AND DUAL ELEMENT FUSES. (30=AMPS, 3=POLES 0=STARTER SIZE).
	PUSHBUTTON OR SHUNT TRIP STATION
GFI	DUPLEX RECEPTACLE, +18" AFF, U.O.N.; NEMA 5–20R, U.O.N.; NUMBER INDICATES CIRCUIT NUMBER. GFIF = GROUND FAULT INTERRUPTION, FEED–THRU TYPE WP = WEATHERPROOF WITH A WEATHERPROOF WHILE–IN–USE COVER WR = WEATHER–RESISTANT TYPE RECEPTACLE WITH A WEATHERPROOF WHILE IN–USE COVER GFI = GROUND FAULT INTERRUPTION.
OR	DOUBLE DUPLEX RECEPTACLE, +18" AFF, U.O.N.
	DUPLEX RECEPTACLE ABOVE COUNTERTOP BACKSPLASH, VERIFY REQ'D HEIGHT
J	POWER RECEPTACLE, SEE POWER RECEPTACLE SCHEDULE FOR NEMA CONFIGURATION AND SIZE.
	POWER POLE, WITH NUMBER OF RECEPTACLES INDICATED
	DUPLEX RECEPTACLE, PEDESTAL MOUNTED
	CEILING MOUNTED DUPLEX RECEPTACLE AT T–BAR CEILING NOT TO BE MOUNTED IN CEILING SPACE.
FD	DUPLEX RECEPTACLE, FLUSH FLOOR MOUNTED, WITH HINGED COVER, U.O.N.
	CORD SUSPENDED CEILING RECEPTACLE, WITH STRAIN RELIEF ASSEMBLY
	SURFACE MOUNTED DUPLEX RECEPTACLE +18" AFF, U.O.N.
	SURFACE MOUNTED DOUBLE DUPLEX RECEPTACLE +18" AFF, U.O.N.
	DOUBLE DUPLEX RECEPTACLE, +18" AFF, U.O.N. 1–CONTROLLED + 1–UNCONTROLLED DUPLEX RECEPTACLE. CONTROLLED RECEPTACLE TO BE GRAY IN COLOR.

SYMBOL	DESCRIPTION
DS	DUCT MOUNTED SMOKE DETECTOR
SS	SOLID STATE, ELECTRONIC, ADJUSTABLE TRIP CIRCUIT BREAKER WITH LSIG.
DS	DAYLIGHT SENSOR
SD	SMOKE DETECTOR

DEMOLITION NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE SPECIFICALLY INCLUDING ALL AREAS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH THESE EXISTING CONDITIONS, AND BY SUBMITTING A BID ACCEPTS CONDITIONS UNDER WHICH THEY WILL BE REQUIRED TO PERFORM THEIR WORK.
2. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, RECEPTACLES, ELECTRICAL EQUIPMENT, ETC., AFFECTED BY THE REMODELED AREA. THIS WILL INCLUDE REROUTING, OR THE EXTENSION OF, EXISTING CONDUIT AND FEEDERS WHERE NECESSARY TO MAINTAIN THE CONTINUITY OF EXISTING EQUIPMENT REMAINING.
3. ALL CIRCUIT NUMBERS AND EXISTING CONDUIT HOMERUNS SHOWN ON THESE DRAWINGS WERE TAKEN FROM EXISTING RECORD DRAWINGS. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF HOMERUNS, AND ADJUST CIRCUIT NUMBERS ACCORDING TO EXISTING CONDITIONS IF REQUIRED.
4. WHERE EXISTING WALLS HAVE BEEN REMOVED, AND THERE ARE EXISTING CONDUIT FEEDS WHICH HAVE BEEN CUT–OFF AND CAPPED FLUSH WITH FLOOR, IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND DIMENSION ALL SUCH CONDUITS ON THE "AS–BUILT" DRAWINGS UNLESS NOTED OTHERWISE.
5. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS, EQUIPMENT, ETC., REMAINING IN OPERATION WHICH ARE BEING FED BY AN ABANDONED OUTLET, MAINTAINING CONTINUITY SHALL CONSIST OF REROUTING CONDUIT, WIRING, ETC., AS REQUIRED.
6. WHERE NEW CIRCUITS ARE SHOWN TO EXISTING PANELS, INSTALL NEW BREAKERS OF SAME TYPE, STYLE AND RATING (MINIMUM 20 AMP, SINGLE POLE) AS CALLED FOR ON DRAWINGS. IDENTIFY EACH NEW CIRCUIT ON PANEL SCHEDULE.
7. EXISTING CONDUIT MAY BE REUSED IF ADEQUATELY SIZED, BUT IN NO CASE SHALL ANY EXISTING CONDUCTORS BE REUSED.
8. ALL ABANDONED OUTLETS INCLUDING LIGHT, RECEPTACLES, TELEPHONE, ETC., SHALL BE COVERED AND PATCHED TO MATCH THE FINISH OF SURROUNDING WALL OR CEILING TO THE SATISFACTION OF THE OWNER.
9. ALL LIGHTING FIXTURES REMOVED TO ACCOMPLISH DEMOLITION WORK SHALL BE REINSTALLED SIMILAR TO NEW WORK

BRANCH CIRCUIT WIRING NOTE:

1. FOR RECEPTACLE CIRCUITS AND 120 VOLT BRANCH CIRCUITS, UNLESS NOTED OTHERWISE, PROVIDE THE FOLLOWING CONDUCTORS: (1) #12 CONDUCTOR FOR EACH PHASE (I.E. CIRCUIT NUMBER) AND (1) SEPARATE DEDICATED #12 NEUTRAL CONDUCTOR FOR EACH SINGLE 120 VOLT CIRCUIT OR FOR 2 TO 3 CIRCUITS PROVIDED THEY ARE OF DIFFERENT PHASES; (1) EQUIPMENT GROUNDING CONDUCTOR, SIZED PER CEC. FOR CIRCUITS TO COMPUTER/DATA EQUIPMENT, PROVIDE DEDICATED NEUTRAL FOR EACH CIRCUIT.
2. FOR LIGHTING BRANCH CIRCUITS, PROVIDE THE FOLLOWING CONDUCTORS: (1) #12 CONDUCTOR FOR EACH PHASE (I.E. CIRCUIT NUMBER); (1) #12 NEUTRAL CONDUCTOR FOR A SINGLE, 120 OR 277 VOLT CIRCUIT, OR (1) #12 NEUTRAL CONDUCTOR FOR 2 TO 3 CIRCUITS WHERE EACH CIRCUIT IS ON A DIFFERENT PHASE; (1) EQUIPMENT GROUNDING CONDUCTOR, SIZED PER CEC ARTICLE 250 (DO NOT USE A COMMON NEUTRAL FOR MULTIPLE CIRCUITS ON SAME PHASE) (1) INTERCONNECTING CONDUCTOR BETWEEN EACH 3–WAY AND/OR 4–WAY SWITCH

APPLICABLE CODES

- 2019 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
- 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR (2018 EDITION INTERNATIONAL BUILDING CODE, VOL. 1 & 2)
- 2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR (2017 EDITION NATIONAL ELECTRICAL CODE)
- 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR (2018 EDITION IAPMO UNIFORM MECHANICAL CODE)
- 2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR (2018 EDITION IAPMO UNIFORM PLUMBING CODE)
- 2019 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
- 2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR (2018 EDITION INTERNATIONAL FIRE CODE)
- 2019 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR (2018 EDITION INTERNATIONAL)
- 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGreen), PART 11, TITLE 24 CCR
- 2019 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24, CCR
- TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHALL REGULATIONS
- 2016 ASME A17.1/CSA B44–13 SAFETY CODE FOR ELEVATORS AND ESCALATORS

PROJECT NOTES

1. THESE DOCUMENTS MAY NOT BE USED FOR ANY REPRODUCTION, BIDDING, OR CONSTRUCTION UNLESS AUTHORIZED, IN WRITING, BY SALAS O'BRIEN AND THE ENGINEER OF RECORD RESPONSIBLE FOR THEIR PREPARATION.
2. VERIFY EXISTING SITE CONDITIONS, ELECTRICAL SERVICE REQUIREMENTS, DIMENSIONS, ELEVATIONS, POINTS OF CONNECTION AND PROJECT CONSTRUCTION LIMITS BEFORE SUBMITTING BID. SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED. ANY DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
3. THESE DRAWINGS ARE DIAGRAMMATIC AND ONLY INDICATE THE INTENT OF OUTLETS, DEVICES, ETC., TO BE CONNECTED AND THE CIRCUIT NUMBERS TO WHICH THEY ARE TO BE CONNECTED TO. CONTRACTOR SHALL INSTALL ALL REQUIRED JUNCTION BOXES ETC., AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM WHICH COMPLIES WITH ALL LOCAL AND NATIONAL GOVERNING CODES.
4. ALL EXTERIOR EQUIPMENT SHALL BE WEATHERPROOF.
5. LOCATIONS OF ALL EQUIPMENT SHALL BE VERIFIED PRIOR TO ROUGH–IN.
6. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN COMPLIANCE WITH OSHA.
7. PVC CONDUIT, WITH CODE SIZED GROUND, SHALL BE USED UNDERGROUND ONLY, IF APPROVED BY LOCAL CODE. INSTALL PER LOCAL CODE REQUIREMENTS. CONDUIT RISERS AND STUBS ABOVE GRADE SHALL BE I.M.C. WITH HALF–LAPPED TAPE COVERING OR PVC COATING.
8. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR A COMPLETE AND PROPERLY OPERATING ELECTRICAL SYSTEM.
9. ALL MATERIALS SHALL BE NEW, AND OF THE SAME MANUFACTURER FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY THE UNDERWRITER'S LABORATORIES, AND SHALL BEAR THE INSPECTION LABEL WHERE SUBJECT TO SUCH APPROVAL. MATERIAL SHALL MEET WITH THE APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY, AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY A.N.S.I., U.L., N.E.M.A. AND N.B.F.U. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
10. ALL CONDUIT SHALL BE INSTALLED CONCEALED WHERE PHYSICALLY POSSIBLE. ALL EXPOSED CONDUIT SHALL BE INTERMEDIATE METAL CONDUIT AND INSTALLED PARALLEL TO OR AT RIGHT ANGLES WITH THE BUILDING WALLS. IF VIEWED BY THE PUBLIC, PAINT TO MATCH SURFACE TO WHICH IT IS ATTACHED.
11. CONTRACTOR SHALL CARRY OUT HIS WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY, LOCAL CODES, O.S.H.A. AND THE CURRENTLY ADOPTED NATIONAL ELECTRICAL CODE (N.E.C.).
12. THE COMPLETE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH THE CURRENTLY ADOPTED EDITION OF THE NEC, ARTICLE 250.
13. ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED AREA SEPARATION AND CORRIDOR ASSEMBLIES INCLUDING CONDUITS AND PIPING SHALL BE TIGHTLY AND SOLIDLY SEALED WITH FIRESTOPPING WALLBOARD COMPOUND AND SHALL BE AN APPROVED MATERIAL AS REQUIRED BY LOCAL ENFORCING AGENCY.
14. ELECTRICAL CONTRACTOR SHALL SECURE ALL NECESSARY BUILDING PERMITS, UTILITY CHARGES AND PAY FOR SAME. COORDINATE AND PAY FOR ALL ELECTRICAL SERVICE CHARGES WITH THE BUILDING DEPARTMENT, SERVING UTILITY AND OWNER.
15. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER AFTER DATE OF ACCEPTANCE BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
16. CONDUCTORS SHALL BE CODE GRADE, 600 VOLT CLASS, COPPER (UNLESS NOTED OTHERWISE) MARKED EVERY 24" ALONG IT'S LENGTH SHOWING MANUFACTURER'S NAME, MAXIMUM ALLOWABLE VOLTAGE AND SIZE. GENERAL PURPOSE WIRING SHALL BE SOLID COPPER CONDUCTORS #10 AND SMALLER, STRANDED COPPER CONDUCTORS FOR #8 AND LARGER, TYPE 'THWN'(WET) OR 'THHN'(DRY). FOR SPECIAL PURPOSE WIRE TYPES REFER TO EQUIPMENT MANUFACTURER'S PLANS.
17. ALL CONDUIT ONLY (C.O.) SHALL HAVE A PULL WIRE OR ROPE.
18. USE ONLY COMPETENT AND SKILLED PERSONNEL AND PERFORM ALL WORK, INCLUDING AESTHETIC AS WELL AS ELECTRICAL AND MECHANICAL ASPECTS TO STANDARDS CONSISTENT WITH THE BEST PRACTICES OF THE TRADE.
19. ALL ELECTRICAL SYSTEM CONDUCTORS SHALL BE INSTALLED IN APPROVED RACEWAYS. NON–METALLIC SHEATHED CABLE IS NOT APPROVED.
20. WHERE IT BECOMES NECESSARY TO DRILL INTO OR CUT THROUGH ANY EXISTING SLABS, WALKWAYS OR DRIVES TO PERMIT THE INSTALLATION OF ANY WORK UNDER THIS CONTRACT, OR TO REPAIR ANY DEFECTS THAT MAY APPEAR TO THE EXPIRATION OF THE WARRANTY, SUCH CUTTING AND PATCHING SHALL PERFORMED BY TRADESMAN EXPERIENCED IN THE WORK REQUIRED. CONTRACTOR SHALL PAY FOR ALL COSTS REQUIRED FOR CUTTING OR REPAIRING. ALL FINISHES SHALL MATCH EXISTING OR NEW ADJACENT SURFACES.
21. ALL BROCHURES, OPERATING MANUALS, CATALOGS, ETC. SHALL BE TURNED OVER TO THE OWNER AT JOB COMPLETION.
22. ALL SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT TEN (10) DAYS PRIOR TO BID. SUBMITTAL SHALL INCLUDE, BUT NOT BE LIMITED TO, COST SAVINGS, WRITTEN REASON FOR SUBSTITUTION AND A WRITTEN STATEMENT THAT IF THE SUBSTITUTION IS APPROVED, THERE WILL BE NO DELAY IN DELIVERY, CONSTRUCTION TIME OR COST TO OTHER TRADES.
23. PROVIDE ENGRAVED PLASTIC NAMEPLATES FOR ALL MAJOR PIECES OF EQUIPMENT. PLATES SHALL BE 3 PLY, BLACK FACE, WHITE CORE WITH 1/4" HIGH CONDENSED GOTHIC LETTERING. SCREW–ON ATTACHMENT ONLY. NO CEMENT.
24. PROVIDE THE OWNER WITH ONE (1) SET OF COMPLETE ELECTRICAL "AS–BUILTS" AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DEPTHS AND LOCATIONS.
25. WHERE A CONFLICT OCCURS BETWEEN THESE DRAWINGS AND THE SPECIFICATIONS ISSUED AS PART OF THESE DOCUMENTS, THE MORE STRINGENT REQUIREMENTS SHALL PREVAIL.
26. COORDINATE ALL ELECTRICAL WORK WITH OTHER TRADES. THE OWNER WILL MAKE NO SUBSEQUENT ALLOWANCE FOR ELECTRICAL WORK REQUIRED BY OTHER TRADES. OBTAIN ALL OTHER PERTINENT INFORMATION REQUIRED TO MEET ACTUAL BUILDING OR FIELD CONDITIONS.
27. ALL FINAL CONNECTIONS TO OWNER–FURNISHED EQUIPMENT SHALL BE MADE BY THE CONTRACTOR. CONNECTIONS TO ALL EQUIPMENT FURNISHED BY OTHERS SHALL BE COORDINATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH EQUIPMENT MANUFACTURER PRIOR TO ROUGHING IN ALL CONDUIT TO THIS EQUIPMENT.
28. NOTIFY THE OWNER'S REPRESENTATIVE WHEREVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT DEVICES, CIRCUIT BREAKERS, TRANSFORMERS, GROUND FAULT PROTECTION SYSTEMS, ETC. (ALL MATERIALS) THAT ARISE ON THE DRAWINGS AND/OR SPECIFICATIONS. PROVIDE AND INSTALL ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON DRAWINGS AND/OR IN THE SPECIFICATIONS TO INSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ENGINEER.
29. ALL FEEDER AND BRANCH CIRCUITS SHALL BE PROVIDED WITH AN EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC, AND RUN IN THE SAME RACEWAY OR CONDUIT SUPPLYING SUCH FEEDER OR BRANCH CIRCUIT.
30. TRENCH AND BACKFILL AS REQUIRED TO PERFORM UNDERGROUND WORK. USE EXTREME CAUTION WHEN TRENCHING SO AS NOT TO INTERFERE WITH EXISTING UNDERGROUND UTILITIES. REPAIR ANY DAMAGE CAUSED BY UNDERGROUND TRENCHING.
31. PATCH AND REPAIR WALLS OR CEILINGS WHICH HAVE BEEN DAMAGED BECAUSE OF ELECTRICAL WORK.
32. CONDUIT SHALL NOT BE RUN THROUGH ANY STRUCTURAL MEMBER OF THE BUILDING, EXCEPT AS SPECIFICALLY DIRECTED BY THE OWNER'S REPRESENTATIVE. UNDER NO CIRCUMSTANCE SHALL CONDUIT RUN THROUGH COLUMNS, FOOTINGS OR GRADE BEAMS.
33. FOR ADDITIONAL ROUGH–IN AND WIRING REQUIREMENTS SEE MANUFACTURER'S INSTALLATION PLANS, WHICH ARE SUPPLEMENTAL TO AND PART OF THE ELECTRICAL WORK.
34. EXACT ROUTING OF ALL FEEDERS, CONDUITS, ETC. SHALL BE FIELD VERIFIED AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. COORDINATE THE INSTALLATION WITH OTHER TRADES.
35. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF RECESSED, SURFACE OR PENDANT MOUNTED LIGHT FIXTURES.
36. COLD WATER PIPE GROUNDING BOND SHALL BE LOCATED WITHIN 5' OF BUILDING ENTRANCE.
37. CONTRACTOR SHALL VERIFY EXACT LOADS OF HVAC EQUIP. WITH MECHANICAL ENGINEER AND HVAC UNIT MANUFACTURER PRIOR TO START OF WORK. IN CASE OF ANY DISCREPANCIES OR POTENTIAL CONFLICTS, INFORM ARCHITECT AND ELECTRICAL ENGINEER IN WRITING PRIOR TO PROCEEDING ANY FURTHER.
38. ALL OUTLET RATINGS SHALL BE 20 AMPS, UNLESS NOTED OTHERWISE.

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 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 OR MOVEABLE 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 HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS 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 SYSTEMS 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 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1617A.1.24, 1617A.1.25, 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 PRE–APPROVED INSTALLATION GUIDE (e.g., OSHPD OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

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

MP☐ MD☐ PP☐ E☑ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP☐ MD☐ PP☐ E☐ OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE–APPROVAL (OPM #) #_____.

ABBREVIATIONS

A	AMPS
AF	AMP FUSE (SIZE), AMP FRAME (SIZE)
AFCI	ARC FAULT CURRENT INTERRUPT
AFF	ABOVE FINISH FLOOR
AS	AMP SWITCH (SIZE)
BC	BARE COPPER
C	CONDUIT
CB	CIRCUIT BREAKER
CIR	CIRCUIT
CO	CONDUIT ONLY, WITH PULL LINE
CU	COPPER
EDF	ELECTRIC DRINKING FOUNTAIN
EM	EMERGENCY POWER
EMT	ELECTRICAL METALLIC TUBING
EX	EXISTING
EXP	EXPLOSION PROOF
F	FUSE
G	GROUND CONDUCTOR
GFI	GROUND FAULT INTERRUPT PROTECTION
GND	GROUND
I.G.	ISOLATED GROUND
IMC	INTERMEDIATE METALLIC CONDUIT
ISC	INTERRUPTING SHORT CIRCUIT
LCL	LONG CONTINUOUS LOAD
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NA	NON–AUTOMATIC
NEC	NATIONAL ELECTRICAL CODE
NKE	NO KNOWN EQUAL; NO SUBSTITUTES
NOM	NOMINAL
NTS	NOT TO SCALE
P	POLE
PH OR #	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
SFM	STATE FIRE MARSHAL
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TYP	TYPICAL, UNLESS NOTED OTHERWISE, OF MANY
U.O.N.	UNLESS OTHERWISE NOTED OR INDICATED
V	VOLTS
WP	WEATHERPROOF
X	EXISTING TO REMAIN
XL	EXISTING TO BE RELOCATED
XN	NEW LOCATION OF RELOCATED EQUIPMENT
XR	EXISTING TO BE REMOVED
XFMR	TRANSFORMER

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REGISTERED PROFESSIONAL ENGINEER EDWARD A. QUIROZ No. E18809 Exp. 6/30/23 ELECTRICAL STATE OF CALIFORNIA

Mountain Empire Unified
School District

Project No. 04-120521

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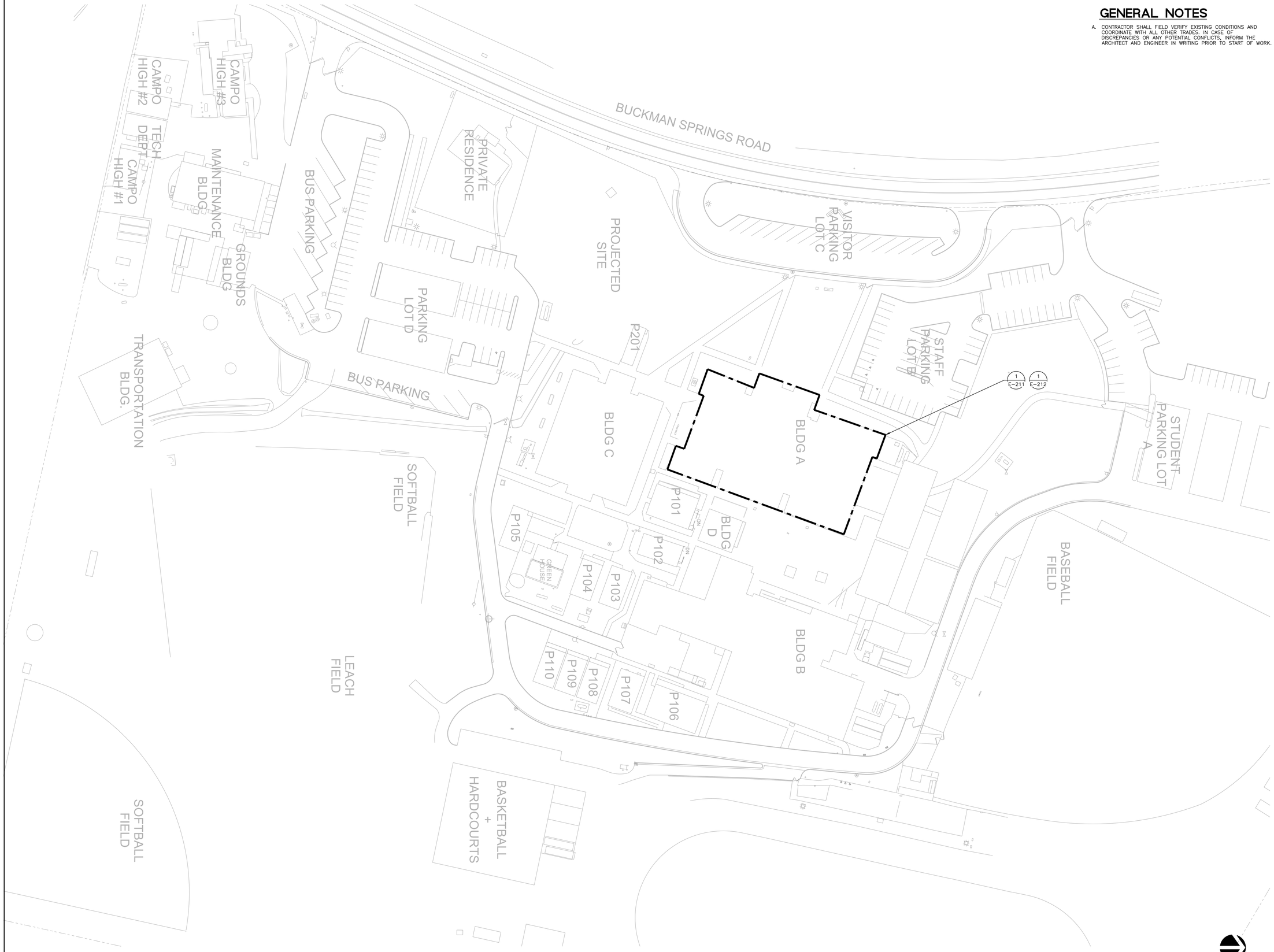
ELECTRICAL LEGEND AND GENERAL NOTES

E-001

GENERAL NOTES

A. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND COORDINATE WITH ALL OTHER TRADES. IN CASE OF DISCREPANCIES OR ANY POTENTIAL CONFLICTS, INFORM THE ARCHITECT AND ENGINEER IN WRITING PRIOR TO START OF WORK.



1 ELECTRICAL SITE PLAN

1"=40'-0"

0' 10' 20' 40' 80'

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-120521 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 10/04/2021

DAVY ARCHITECTURE
DISABLED VETERAN • EMPLOYEE OWNED
1053 TENTH AVENUE
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REGISTERED PROFESSIONAL ENGINEER
EDWARD A. QUIROZ
No. E18809
Exp. 6/30/23
ELECTRICAL
STATE OF CALIFORNIA

Mountain Empire Unified
School District

Project No. 04-120521

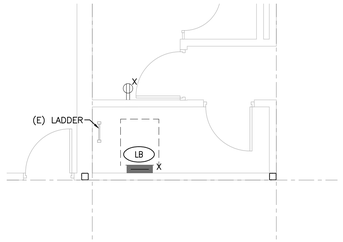
Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
01	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No:	2017
DRAWN BY:	SOBE
CHECKED BY:	SOBE

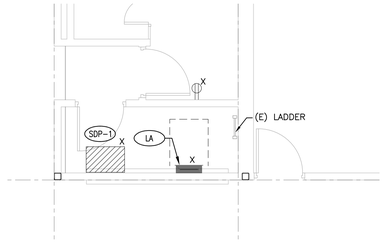
ELECTRICAL SITE PLAN

E-101



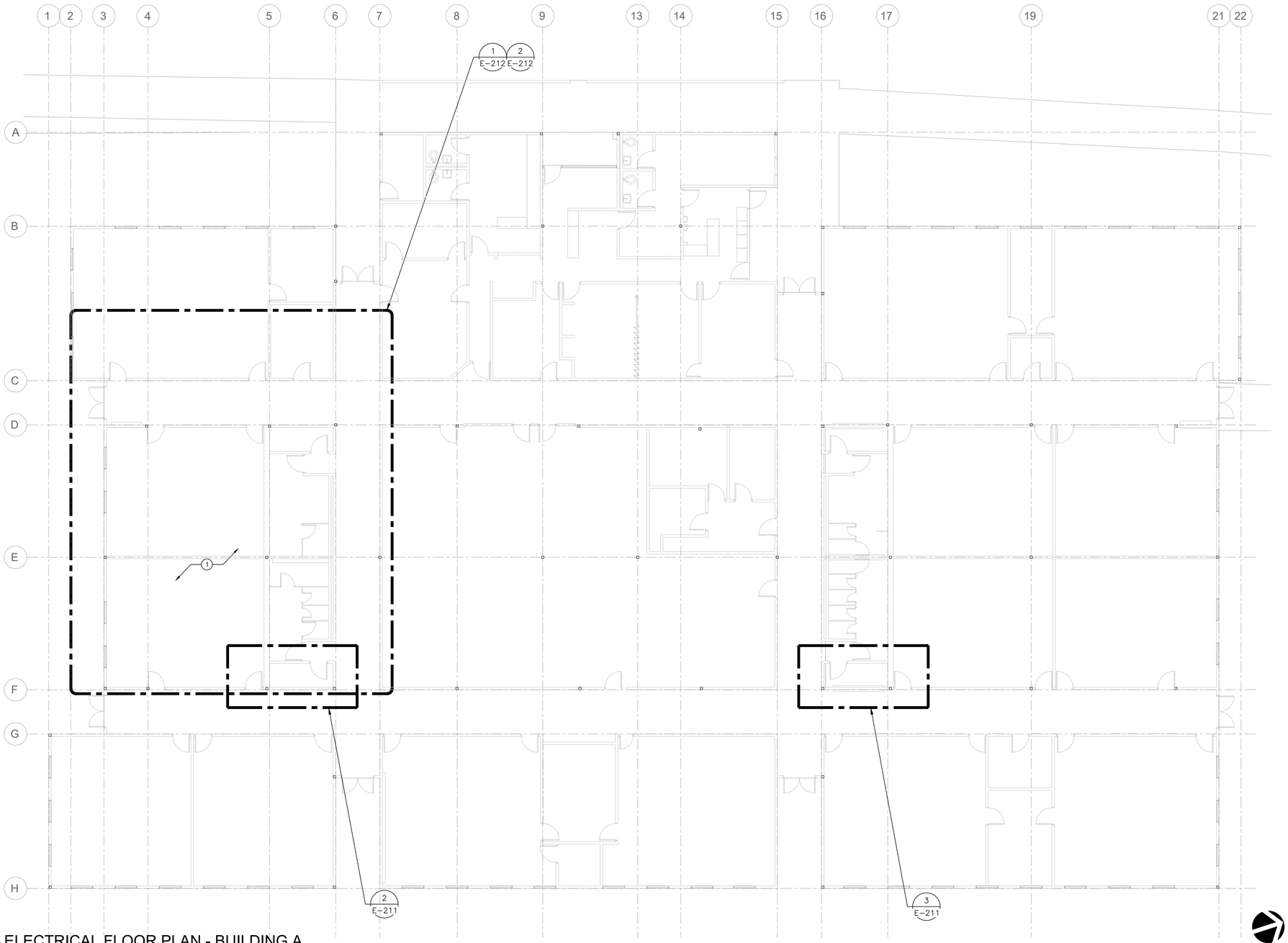
2 ENLARDED PLAN - ELEC RM A156

1/4"=1'-0"



3 ENLARDED PLAN - ELEC RM A143

1/4"=1'-0"



1 ELECTRICAL FLOOR PLAN - BUILDING A

1/8"=1'-0"

GENERAL NOTES

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B. CONTRACTOR SHALL VERIFY EXACT QUANTITIES, LOCATIONS AND HEIGHTS OF ALL OUTLETS WITH TENANT AND ARCHITECT PRIOR TO START OF WORK.

KEY NOTES

(1) AREA FOR THIS SCOPE OF WORK ONLY.

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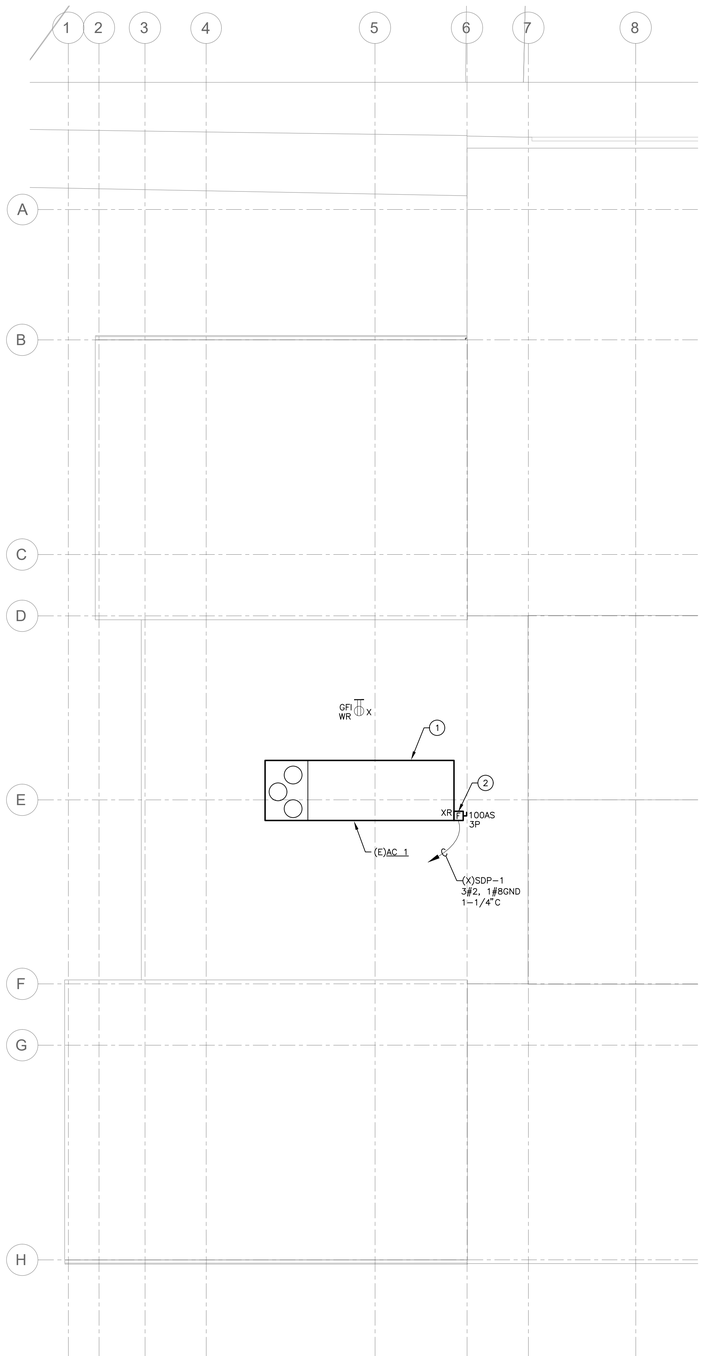
ELECTRICAL ROOF PLAN BUILDING A

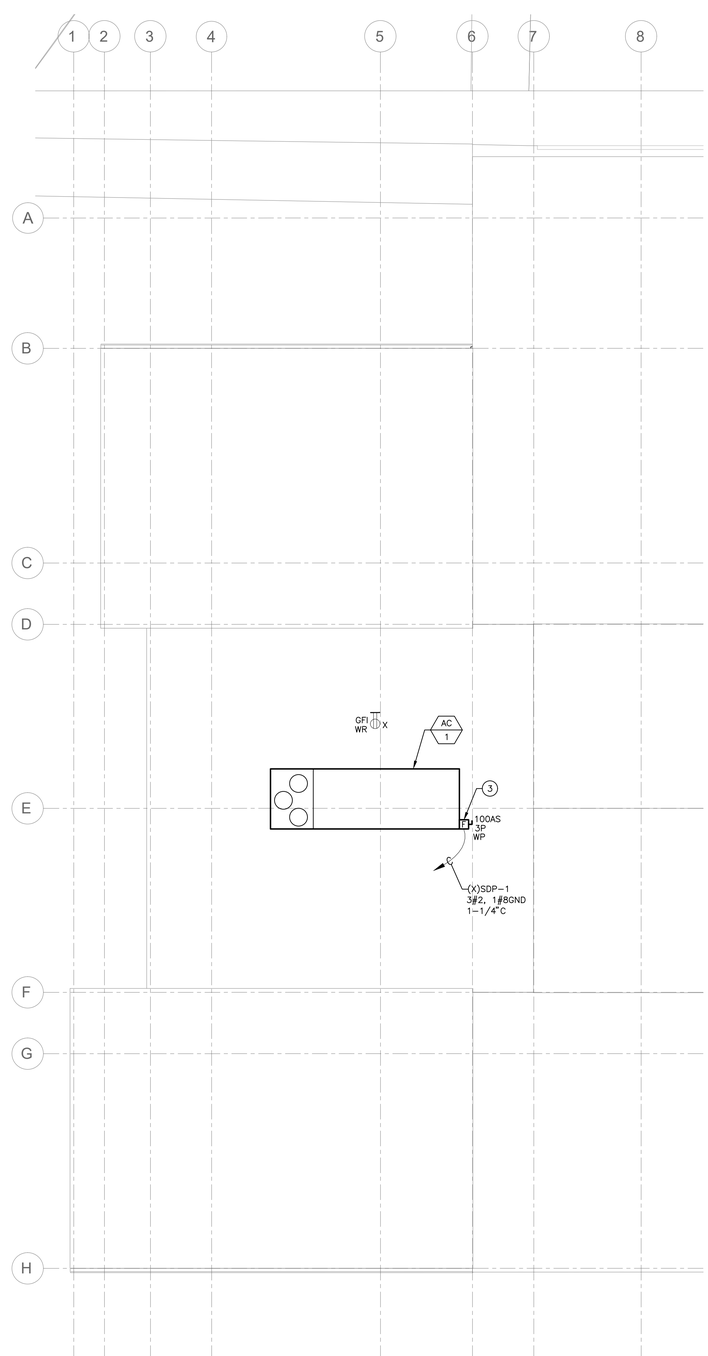
E-211



1 ELECTRICAL ROOF PLAN - BUILDING A DEMO

1/8"=1'-0"

0' 2' 4' 8' 16'



2 ELECTRICAL ROOF PLAN - BUILDING A NEW

1/8"=1'-0"

0' 2' 4' 8' 16'

GENERAL NOTES

A. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND COORDINATE WITH ALL OTHER TRADES. IN CASE OF DISCREPANCIES OR ANY POTENTIAL CONFLICTS, INFORM THE ARCHITECT AND ENGINEER IN WRITING PRIOR TO START OF WORK.

B. CONTRACTOR SHALL VERIFY EXACT QUANTITIES, LOCATIONS AND HEIGHTS OF ALL OUTLETS WITH TENANT AND ARCHITECT PRIOR TO START OF WORK.

C. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH MECHANICAL DRAWINGS FOR EXACT EQUIPMENT LOCATIONS AND REQUIREMENTS PRIOR TO START OF WORK.

D. MECHANICAL EQUIPMENT FUSE SIZE RATINGS PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

E. ALL MECHANICAL EQUIPMENT FUSIBLE DISCONNECTS AND MOTOR RATED SWITCHES EXPOSED TO WEATHER SHALL BE WEATHERPROOF RATED IN STAINLESS STEEL ENCLOSURE.

F. REFER TO DEMOLITION NOTES ON 'ELECTRICAL NOTES AND LEGEND' SHEET PRIOR TO START OF WORK.

KEY NOTES

1. DISCONNECT EXISTING MECHANICAL EQUIPMENT.
2. DISCONNECT AND REMOVE EXISTING FUSIBLE DISCONNECT. EXISTING CONDUCTORS AND CONDUIT TO REMAIN FOR RECONNECTION TO NEW MECHANICAL EQUIPMENT.
3. PROVIDE NEW FUSIBLE DISCONNECT IN WEATHERPROOF ENCLOSURE. EXTEND EXISTING CONDUCTORS AND CONDUIT TO NEW DISCONNECT AND RECONNECT TO NEW MECHANICAL EQUIPMENT. USE EXISTING MOUNTING HARDWARE.

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DRAWN BY:	SOBE
CHECKED BY:	SOBE

ELECTRICAL
ROOF PLAN
BUILDING A

E-212

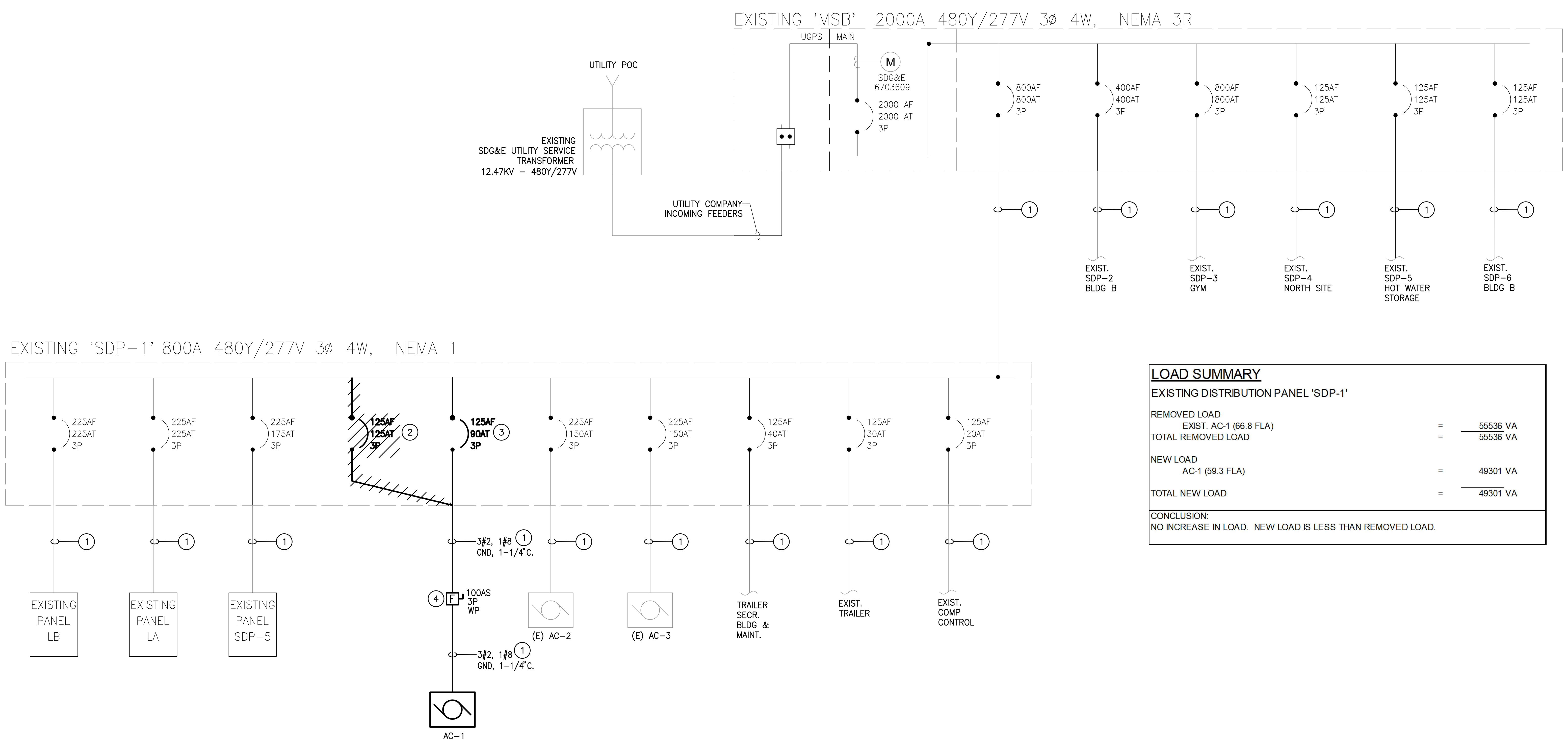
GENERAL NOTES

A. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND COORDINATE WITH ALL OTHER TRADES. IN CASE OF DISCREPANCIES OR ANY POTENTIAL CONFLICTS, INFORM THE ARCHITECT AND ENGINEER IN WRITING PRIOR TO START OF WORK.

B. ALL WORK SHOWN LIGHT IS EXISTING, ALL WORK SHOWN DARK IS NEW UNLESS NOTED OTHERWISE.

KEY NOTES

1. EXISTING TO REMAIN.
2. DISCONNECT AND REMOVE EXISTING CIRCUIT BREAKER (125A/3P).
3. PROVIDE NEW CIRCUIT BREAKER WITH SAME TYPE, STYLE AND AIC RATING AS EXISTING AND MOUNT TO SPACE VACATED BY REMOVAL OF THE EXISTING CIRCUIT BREAKER.
4. PROVIDE NEW FUSIBLE DISCONNECT IN WEATHERPROOF ENCLOSURE. EXTEND EXISTING CONDUCTORS AND CONDUIT TO NEW DISCONNECT AND RECONNECT TO NEW MECHANICAL EQUIPMENT. USE EXISTING MOUNTING HARDWARE.



LOAD SUMMARY		
EXISTING DISTRIBUTION PANEL 'SDP-1'		
REMOVED LOAD		
EXIST. AC-1 (66.8 FLA)	=	55536 VA
TOTAL REMOVED LOAD	=	55536 VA
NEW LOAD		
AC-1 (59.3 FLA)	=	49301 VA
TOTAL NEW LOAD	=	49301 VA
CONCLUSION: NO INCREASE IN LOAD. NEW LOAD IS LESS THAN REMOVED LOAD.		

1 SINGLE LINE DIAGRAM
NO SCALE

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Mountain Empire Unified School District

Project No. 04-120521

Mountain Empire High School - HVAC Unit Replacement

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CHECKED BY:	SOBE

SINGLE LINE DIAGRAM

E-401

DIVISION 26 00 00 – ELECTRICAL SPECIFICATIONS

PART 1 – GENERAL CONDITIONS

1.01 SUMMARY

A. Work Included: All labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this Division, complete, as shown on the drawings and/or specified herein. The work includes, but is not limited to:

1. Examine all divisions for related work required to be included as work under this Division.

2. General provisions and requirements for electrical work.

1.02 REFERENCES

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01, apply to these Specifications.

B. In addition, the products covered in this Specification, except as noted, shall be designed, manufactured, and tested in accordance with the latest revisions of the applicable standards of:

1. ANS – American National Standards Institute
2. ASTM – American Society for Testing and Materials
3. IEEE – Institute of Electrical and Electronics Engineers
4. NEC – National Electrical Code (NFPA 70)
5. NECA – National Electrical Contractors Association: "Standard of Installation"
6. NEMA – National Electrical Manufacturers Association
7. NFPA – National Fire Protection Association
8. UL – Underwriters Laboratories, Inc.

1.03 SUBMITTALS (ADDITIONAL REQUIREMENTS)

A. General: Submit the following in accordance with the Conditions of the Contract and Division 01 Specification Sections, and these Specifications.

B. Product Data: Submit product data for each type of product specified.

1.04 QUALITY ASSURANCE

A. Qualifications of Manufacturer: Company specializing in manufacturing products specified in these Specifications with minimum five years documented experience.

B. Electrical Component Standard: Components and installation shall comply with NFPA 70, "National Electrical Code."

C. NEMA and UL Compliance: Products shall comply with applicable requirements of NEMA and UL standards. Provide products and components listed and labeled by UL.

D. NECA Installation Standards: Perform work in accordance with NECA "Standard of Installation."

E. Source Quality Control: Quality control testing shall meet applicable Underwriters' Laboratories Inc. Standards.

F. Electrical contractor shall perform all work in strict accordance with all local, state, and national governing codes.

1.05 DELIVERY, STORAGE AND HANDLING

A. General: Deliver, store, protect, and handle products to the site in accordance with the General and Supplementary Conditions, Division 01 Specification Sections, and these Specifications.

B. Store and protect product in accordance with manufacturer's instructions, and in a manner to prevent damage from the elements, personnel, equipment, and moisture.

1.06 PROJECT CONDITIONS OR SITE CONDITIONS

A. Verify that field measurements are as shown prior to commencing the work.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials, equipment, and devices shall, as a minimum, meet requirements of UL, where UL standards are established for those items, and requirements of NFPA 70.

2.02 RACEWAYS

A. Metal Conduit and Tubing:

1. Rigid Metal Conduit: Steel, hot–dipped galvanized including the threads, with an outer coating of zinc bichromate, complete with one coupling and one end thread protector, manufactured in accordance with ANSI C80.1 and UL 6. Fittings: threaded, hot–dipped galvanized, manufactured in accordance with ANSI C80.4.

a. Where indicated, provide galvanized rigid steel conduit and fittings with polyvinyl chloride (PVC) coating of nominal .020 inch (20 mil) thickness conforming to NEMA RN–1, Type A, Robroy Industries, or equal.

2. Intermediate Metal Conduit: Hot–dipped galvanized steel including the threads, manufactured in accordance with UL 1242.

3. Electrical Metallic Tubing: Welded, electro–galvanized thin wall steel tubing, manufactured in accordance with ANSI C80.3 and UL 797. Maximum size: 2". Fittings: compression type (indenter or setscrew type not allowed); gland compression type, zinc plated steel body, cadmium plated malleable iron nut, O–Z/Gedney.

4. Flexible Metal Conduit: Hot–dipped galvanized steel interlocking, single strip type manufactured in accordance with UL1. Connectors: squeeze type, malleable iron, cadmium plated, straight and angle connectors for all sizes and twist–in connectors for 1/2" and 3/4" flexible metal conduit.

5. Liquidtight Flexible Conduit: Hot–dipped galvanized steel strip core with extruded liquid–tight polyvinyl jacket. Use O–Z/Gedney Type UAG, or equal. Liquid–tight fittings. ANSI/NEMA FB 1. Connectors: Cadmium plated malleable iron body and nut, cadmium plated steel ferrule, insulated throat, integral cast external ground lug, O–Z/Gedney.

B. Conduit Bodies: Provide types, shapes, and sizes as required to suit individual applications and NEC requirements. Provide matching gasketed covers secured with corrosion resistant screws. For metallic conduit and tubing, use metallic conduit bodies. Use bodies with threaded hubs for threaded raceways.

C. Wireways and Auxiliary Gutters: Provided electrical wireways and gutters shall be of types, sizes, and number of channels as indicated. Fittings and accessories including but not limited to couplings, offsets, elbows, expansion joints, adapters, hold–down straps, and end caps shall match and mate with wireway or gutter as required for complete system. Where specifications are not indicated, select to fulfill wiring requirements compling with applicable provisions of NEC. Use sheet steel wireways with screw–on covers and corrosion resistant hardware. For dry locations coat with rust inhibitor and finish with gray baked enamel. For wet locations use hot–dipped galvanized material finished with gray baked enamel, provide gaskets for covers.

D. Accessories:

1. General: Reducers, bushings, washers, etc., shall be cadmium plated malleable iron of the shape and dimension best suited for the application.

2. Seals for Walls and Floor Penetrations: Malleable iron body, oversize sleeve, sealing ring, pressure clamp and rings and sealing grommet, hex head cap screws, O–Z/Gedney Type FSK, or equal.

3. Fire Seals: Heat activated intumescent material, elastomeric sealing ring, socket head cap screws, steel pressure discs and flange, O–Z/Gedney Type CFSF, Nelson Flame Seal, or equal.

4. Locknuts 1–1/2" and smaller: Zinc plated heavy stock steel, O–Z/Gedney, or equal. Locknuts 2" and larger: Cadmium plated malleable iron, O–Z/Gedney, or equal.

5. Hubs: Cadmium plated malleable iron, tapered threads, neoprene "O" ring, insulated throat, O–Z/Gedney, or equal.

6. Expansion Fittings: Hot–dipped galvanized malleable iron with bonding jumpers. Linear: O–Z/Gedney Type AX and TX, or equal. Linear, with deflection: O–Z/Gedney Type AXDX, or equal.

7. Escutcheons: Chrome plated sectional floor and ceiling plates, Crane No. 10, or equal.

2.03 WIRE AND CABLE

A. Provide wire and cable suitable for the temperature, conditions, and location where installed, except as otherwise indicated.

3. Conductor: Copper. Provide solid conductor for #10 AWG and smaller. Provide stranded conductors for sizes #8 AWG and larger.

a. Use stranded conductors at motors and other applications where subject to vibration, and for control circuits.

4. Minimum Size Conductor: #12 AWG, except as otherwise indicated.

a. Control circuits: #14 AWG.

3. Insulation voltage rating: 600 volts.

B. Building wire and cable: Single conductor insulated wire. Insulation: ANSI/NFPA 70, Type THHN/THWN, rated 75°C or Type XHHW, rated 90°C.

C. Connectors: Provide UL Listed factory fabricated, solderless metal connectors of sizes, ampacity ratings, materials, types and classes for applications and for services indicated. Use connectors with temperature ratings equal to or greater than those of the wires upon which used.

D. Pull Cord: 1/8" polypropylene or nylon.

2.04 BOXES AND FITTINGS

A. Provide indicated types, sizes, and NEMA enclosure classes. Where not indicated, provide units of types, sizes, and classes appropriate for the use and location. Provide all items complete with covers and accessories required for the intended use. Provide gaskets for units in damp or wet locations.

1. Materials and Finishes:

a. Sheet steel: Flat rolled, code gauge, galvanized steel.

b. Fasteners for general use: Corrosion resistant screws and hardware, including cadmium and zinc plated items.

c. Fasteners for wet or damp locations: Stainless steel screws and hardware.

d. Cast metal for boxes, enclosures and covers: Copper–free aluminum except as otherwise indicated.

e. Exterior finish: Gray–baked enamel for items exposed in finished locations except as otherwise indicated.

f. Painted interior finish: Where indicated, white baked enamel.

g. Fittings for boxes, cabinets, and enclosures: Conform to UL 514B. Malleable iron or zinc–plated steel for conduit hubs, bushings and box connectors.

B. Pull and junction boxes:

1. General: Conform to UL 50, for boxes over 100 cubic inches in volume. Boxes shall have bolted–on covers of material same as box, and shall be of the size and shape to suit the application.

2. Steel Boxes: Sheet steel with welded seams. Where necessary to provide a rigid assembly, construct with internal structural steel bracing.

3. Hot–Dip Galvanized Steel Boxes: Sheet steel with welded seams. Where necessary to provide a rigid assembly, construct with internal structural steel bracing. Hot–dip galvanize after fabrication. Cover shall be gasketed.

2.05 GROUNDING AND BONDING

A. Materials: All materials shall be copper. Provide types indicated and sizes and ratings required to comply with NEC. Where types, sizes, ratings, and quantities indicated are in excess of NEC requirements, the more stringent requirements and the greater size, rating, and quantity indications govern.

B. Wire and cable conductors shall be as follows, except as otherwise indicated:

1. Equipment grounding conductor: Green insulated copper.

2. Grounding electrode conductor: Stranded copper cable.

3. Bare copper conductors: Shall conform to the following:

a. Solid Conductors: ASTM B 3.

b. Assembly of Stranded Conductors: ASTM B 8.

c. Tinned Conductors: ASTM B 33.

2.06 SUPPORTING DEVICES

A. Supports: Individual conduits shall be rigidly supported and clamped with one hole malleable iron conduit clamps, conduit beam clamps, conduit hangers, or wall brackets, as necessary for the type of construction and as indicated. The use of perforated flat steel straps or wire for supporting conduits will not be permitted.

B. Support Attachments: Kwik–bolt, sleeve anchors, wedge anchors, toggle bolts, and hollow all anchors, as manufactured by Hilti or Red Head.

C. Light steel framing: Light steel framing members for conduit hangers and other supports shall be formed from 12 gauge (minimum) steel, unless otherwise indicated.

1. Finish: Hot–dipped galvanized steel for light steel framing members and fittings and all hardware, such as hanger rods, couplings, bolts, nuts, etc., shall be electro–galvanized, unless otherwise indicated.

2. Acceptable manufacturers: B–Line, Superstrut, Unistrut, or equal.

2.07 ELECTRICAL IDENTIFICATION

A. Manufacturers: Brady, Ideal Industries, Markal, Panduit, Thomas & Betts.

B. Electrical identification products:

1. Adhesive Marking Labels for Raceway and Metal–clad Cable: Pre–printed, flexible, self–adhesive labels with legend indicating voltage and service (Emergency, Power, Lighting, Air Conditioning, Voice and Data Communications, Control, Fire Alarm and Detection, Public Address (Paging), Electronic Security).

2. Label Size, as follows:

a. Raceways 1" and Smaller: 1–1/8" high by 4" long.

b. Raceways Larger than 1": 1–1/8" high by 8" long.

3. Color: Black legend on orange background.

4. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self–adhesive vinyl tape not less than 3 mils thick by 1" to 2" in width.

5. Pretensioned Flexible Wraparound Colored Plastic Sleeves for Raceway and Cable Identification: Flexible acrylic bands sized to suit the raceway diameter and arranged to stay in place by pre– tensioned gripping action when coiled around the raceway or cable.

6. Wire/cable designation tape markers: Vinyl or vinyl–cloth, self–adhesive, wraparound, cable/conductor markers with preprinted numbers and letters

7. Engraved, plastic–laminated labels, signs, and instruction plates: Engraving stock melamine plastic laminate, 1/16" minimum thick for signs up to 20 square inches, or 8" in length; 1/8" thick for larger sizes. Engraved legend in white letter on black face and punched for mechanical fasteners.

8. Warning and caution signs for indoor use: Shall be minimum 18 gauge steel, white porcelain enamel finish, with red lettering, punched for fasteners, with colors, legend, and size appropriate to the location. Lettering to read, "Danger – High Voltage", unless otherwise indicated.

9. Exterior metal–backed butyrate warning and caution signs: Weather–resistant, nonfading, preprinted cellulose acetate butyrate signs with 20–gauge, galvanized steel backing, with colors, legend, and size appropriate to the location. Provide 1/4" grommets in corners for mounting.

10. Fasteners for plastic–laminated and metal signs: Self–tapping stainless steel screws or #10–32 stainless steel machine screws with nuts and flat lock washers.

11. Cable ties: Fungus–inert, self–extinguishing, one–piece, self–locking nylon cable ties, 0.18" minimum width, 50 lb minimum tensile strength, and suitable for a temperature range from minus 50Y to 350Y. Provide ties in specified colors when used for color coding.

2.08 DISCONNECT (SAFETY) SWITCHES

A. Disconnect switches shall be rated 600 volts A.C., NEMA Type HD heavy duty, horsepower–rated, quick–make/quick–break, non–fusible or fusible, Class "R", with the number of poles and ampere rating as shown. Enclosure shall be NEMA Type 1, lockable. Maximum voltage, current and horsepower rating shall be clearly marked on the switch enclosure. Switches equipped with dual–element time–delay fuses shall be permanently labeled with fuse type and rating.

1. For outdoor locations, or shown as "WP" (weatherproof), the enclosure shall be NEMA Type 3R, unless otherwise indicated.

2.09 OVERCURRENT PROTECTIVE DEVICES

1. Fuses, as follows, unless otherwise indicated:

j. Class RK1:

1) 250V; LPN–RK, Lowpeak

2) 600V; LPS–RK

b. Class L: KRP–C, Hi–Cap

PART 3 – EXECUTION

3.01 INSTALLATION

A. General: The electrical installation shall conform to the requirements of NFPA 70, "National Electrical Code," and to the requirements specified herein.

B. Wiring Method: The wiring method shall be as follows, except as otherwise noted.

1. Exterior:

a. Exposed: Rigid steel conduit.

b. Concealed: Rigid steel conduit.

1) In or under slab on grade: Nonmetallic conduit, Schedule 40 PVC. Conduit leaving the slab (including exposed conduit riser) shall be rigid steel conduit.

c. Connection to vibrating equipment, including transformers and hydraulic, pneumatic, or electric solenoid or motor–driven equipment: Liquidtight flexible metal conduit, maximum length 18".

2. Interior:

a. Exposed: Electrical metallic tubing.

1) Areas where exposed conduit may be subject to physical damage: Rigid metal conduit.

2) Damp or wet locations: Rigid metal conduit.

b. Concealed: Electrical metallic tubing.

1) In or under slab on grade: Nonmetallic conduit, Schedule 40 PVC. Conduit leaving the slab (including exposed conduit riser) shall be rigid steel conduit.

2) In slab, above grade: Rigid nonmetallic conduit Schedule 40 PVC. Maximum size conduit in slab: 1".

c. Connection to vibrating equipment, including transformers and hydraulic, pneumatic, or electric solenoid or motor–driven equipment: Flexible metal conduit, maximum length 18".

1) For moist or humid locations or corrosive atmosphere, or where subject to water spray or dripping oil, grease, or water: Liquidtight flexible metal conduit.

C. Grounding and Bonding:

1. General: Grounding shall be provided in accordance with all applicable codes and regulations and the local authorities having jurisdiction.

2. An equipment grounding conductor shall be provided in all raceway containing phase conductors.

D. Raceway Installation:

1. General Requirements: Install electrical raceways in accordance with manufacturer's written installation instructions, applicable requirements of NEC, and as follows.

a. Minimum size: 3/4" unless otherwise indicated.

b. Size conduits as indicated on the drawings and as required by the NEC for the number and sizes of wires to be installed into the conduit.

c. Make conduit field cuts square with saw and ream out to full size. Shoulder conduits in couplings. Remove burrs, and swab inside conduits before conductors are pulled in.

d. Make all conduit joints mechanically tight, electrically continuous, and watertight. Pitch conduits in a manner to avoid creating moisture traps.

e. Install minimum 1/8" polypropylene pull cords from end–to–end in all empty raceways, tagged with the identification of service intended and location of opposite end. Leave at least 24" of pull cord at each end.

f. Restore wall, ceiling, and floor penetrations to the requirements of the Authority Having Jurisdiction.

g. Provide code sized green grounding conductor in all conduit.

2. Complete installation of electrical raceways before starting installation of conductors within raceways.

a. Protect inside of conduit from dirt and rubbish during construction by capping all openings with plastic caps intended for the purpose. Cap or plug conduits with standard manufactured accessories as soon as the conduits have been permanently installed in place.

4. Install all conduits at elevations and locations to avoid interference with grading or other work, the structure, finished ceilings, walls. Avoid causing cutting of masonry structural members.

a. Do not place conduits in close proximity to equipment, systems, and service lines, such as hot water supply and return lines, which could be detrimental to the conduit and its contents. Maintain a minimum 3" separation, except in crossing, which shall be a minimum 1".

1) Minimum separation from uninsulated hot water pipes, steam pipes, heater flues or vents: 6". Avoid running conduit directly under water lines.

2) Elevation of Raceway: Where possible, install horizontal raceway runs above water and steam piping.

5. Conceal conduit, unless indicated otherwise, within finished walls, ceilings, and floors. Keep raceways at least six 6" away from parallel runs of flues and steam or hot water pipes. Install raceway level and square and at proper evaluations.

a. To prevent displacement, securely support and hold in place all conduits installed in advance of other work and to be concealed in the building structure. Carefully lay out conduits run within the structure, such as floors, beams, walls, to avoid densities excessive for the construction. Relocate those conduits when excessive densities occur.

b. Run conduits embedded in structural slabs in the middle of the slab below the top and above the bottom reinforcing steel. Minimum cover for conduit in concrete floors, walls or roof: 1/3 thickness of slab, but in no case less than 1–1/2" cover except where penetration is made. Do not install conduit larger than 1" in slabs. Tie raceways to reinforcing rods or otherwise secure them to prevent sagging or shifting during concrete placement. Space raceways laterally to prevent voids in the concrete. Where nonmetallic conduit is used, raceways must be converted to Schedule 80 or rigid steel conduit before rising above the floor.

c. Run concealed raceways with a minimum of bends in the shortest practical distance considering the type of building construction and obstructions except as otherwise indicated. This does not apply to conduits in crawl spaces.

6. Install and neatly rack exposed conduits parallel with and perpendicular to building walls. Do not install exposed diagonal conduit runs.

a. Run exposed, parallel, or banked raceways together. Make bends in parallel or banked runs from the same center line so that the bends are parallel. Factory elbows may be used in banked runs only where they can be installed parallel. This requires that there be a change in the plane of the run such as from wall to ceiling and that the raceways be of the same size. In other cases provide field bends for parallel raceways.

b. Use blockouts for concentrations of conduits in a confined area.

c. Route and suspend conduits crossing expansion joints to permit expansion, contraction, and deflection utilizing approved fittings to prevent damage to the building, conduits, and supporting devices.

d. Install exposed raceways parallel and perpendicular to nearby surfaces of structural members and follow the surface contours as much as practical.

e. Provide conduit bodies for exposed conduit runs at junctions, bends or offsets where required. Do not use elbows or bends around outside corners of beams, walls or equipment. Make conduit body covers accessible.

7. Join raceways with fittings designed and approved for the purpose and make joints tight. Where joints cannot be made tight, use bonding jumpers to provide electrical continuity of the raceway system. Make raceway terminations tight. Where terminations are subject to vibration, use bonding bushings or wedges to assure electrical continuity. Where subject to vibration or dampness, use insulating bushings to protect conductors.

8. Make bends and offsets so the inside diameter is not effectively reduced. Unless otherwise indicated, keep the legs of a bend in the same plane and the straight legs of offsets parallel.

f. Make no bends with a radius less than 12 times the diameter of the cable it contains nor more than 90°. Make field bends with tools designed for conduit bending. Heating of metallic conduit to facilitate bending is not permitted.

g. Bends and offsets in 1" and smaller conduits may be done with approved bending devices. Do not install conduits which have had their walls crushed and deformed and their surface finish damaged due to bending.

c Run conduits parallel to and at right angles to building lines.

d. Where space conditions prohibit the use of standard ells, elbows, and conduits, use cast ferrous alloy fittings of such forms and dimensions as best required for application.

9. Do not run conduits exposed on the roof unless approval is obtained from the Owner prior to installation.

10. Other Requirements:

a. Connect motors, equipment containing motors, equipment mounted on an isolated foundation, transformers, and other equipment and devices which are subject to vibration and which require adjustment with liquidtight flexible metallic conduit from the device to the conduit serving it. Size the flexible conduit length more than 12 diameters, but less than 18 diameters. Rigidly support the points of attachment on each side of the connection. Use external bonding jumpers on sizes 1–1/2" and above.

b. Install escutcheons on all exposed conduits passing through interior floors, walls, or ceilings. Install fire seals on all conduits passing through fire rated partitions. Install wall and floor fire seals on all conduits passing through exterior walls and floors, or use standard galvanized steel pipe sleeves; diameters 12" greater than the outside diameter of the sleeved conduit and fill the annular space with mastic or caulk with lead.

c. Make conduit projections from covered areas to areas exposed to the weather watertight by proper flashing. Extend flashing a minimum of 6" in all directions from conduit.

d. Cap conduits indicated to be stubbed–out underground using glued on PVC caps intended for this purpose.

e. Install a coupling flush with the floor on all conduits stubbed–up through the floor slab.

f. Do not penetrate walls with flexible conduit where subject to physical damage. Use recessed box with extension ring for transition from interior to exterior of wall.

g. Terminations:

1) Where raceways are terminated with locknuts and bushings, align the raceway to enter squarely and install the locknuts with dished part against the box. Where terminations cannot be made secure with one locknut, use two locknuts, one inside and one outside the box.

2) Where terminating in threaded hubs, screw the raceway or fitting tight into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align the raceway so the coupling is square to the box, and tighten the chase nipple so no threads are exposed.

3) At switchboards, manholes and floor standing distribution panelboards, provide insulated throat bushings or bell ends on all non–metallic conduit entries and bushings on all metallic conduit entries.

4) Install insulated throat threaded hubs on conduits entering enclosures without threaded hubs.

5) Install end bells on conduits stubbed through slabs and foundations into electrical enclosures.

h. Install raceway sealing fittings in accordance with the manufacturer's written instructions. Locate fittings at suitable, approved, accessible locations and fill them with UL Listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points and elsewhere as indicated:

1) Where conduits enter or leave hazardous locations.

2) Where conduits pass from warm locations to cold locations, such as the boundaries of refrigerated spaces and air conditioned spaces.

3) Where required by the NEC.

i. Flexible Connections: Use short length (maximum of 6'–0") of flexible conduit for recessed and semi–recessed lighting fixtures, for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquidtight flexible conduit in wet locations. Install separate ground conductor across flexible connections.

j. Use raceway fittings that are of types compatible with the associated raceway and suitable for the use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings except as otherwise indicated.

E. Installation of boxes and fittings:

1. Pull and Junction Boxes: Install pull and junction boxes of materials and NEMA types as follows, except as otherwise indicated:

a. Interior dry locations: NEMA type 1, sheet steel.

b. Locations exposed to weather or dampness: NEMA type 3R, sheet steel.

c. Wet locations: NEMA type 4 enclosures.

d. Corrosive locations: NEMA type 4X enclosures.

e. Hazardous (Classified) locations: Cast metal, UL 886, NEMA type listed and labeled for the location and class of hazard indicated.

3.02 FIELD QUALITY CONTROL

A. Examine surfaces to which conduits are to be secured for:

1. Defects which will adversely affect the execution and quality of work.

2. Deviations from allowable tolerances for the building material.

B. Do not start work until defects and deviations are corrected.

3.03 CLEANING

A. Upon completion of installations of raceways, inspect interiors of raceways; clear all blockages and remove burrs, dirt, and construction debris.

3.04 PROTECTION OF FINISHED WORK

A. Protect inside of conduit from dirt and rubbish during construction by capping all openings with plastic caps intended for the purpose.

B. Protect stub–ups from damage where conduits rise from floor slabs. Arrange so curved portion of bends is not visible above the finished slab.

3.05 GROUNDING

A. Electrically ground metallic cabinets, boxes, and enclosures. Where wiring to item includes a grounding conductor, provide a grounding terminal in the interior of the cabinet, box, or enclosure.

3.06 CLEANING AND FINISH REPAIR

A. Upon completion of installation, inspect components. Remove burrs, dirt, and construction debris and repair damaged finish including chips, scratches, abrasions and weld marks. Clean surfaces to be painted.

B. Galvanized finish: Repair damage using a zinc–rich paint recommended by the manufacturer.

C. Painted finish: Repair damage using matching corrosion–inhibiting touch–up coating.

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ELECTRICAL
STATE OF CALIFORNIA

Mountain Empire Unified
School District

Project No. 04-120521

Mountain Empire High School - HVAC Unit Replacement

MARK	DATE	DESCRIPTION
01	09.24.2021	DSA SUBMITTAL

DAVY PROJECT No:	2017
DRAWN BY:	SOBE
CHECKED BY:	SOBE

ELECTRICAL SPECIFICATIONS

E-601