BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

425 BARNESON AVENUE, SAN MATEO, CA 94402

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSTRUCTION DOCUMENTS

DSA FILE NUMBER	41-26
DSA APPLICATION NUMBER	01-119557
PTN	69039-106

ABBREVIATIONS

&	AND
@	AT
A.B.	ANCHOR BOLT
ABV.	ABOVE
A.C.	ASPHALTIC CONCRETE
ACT	ACOUSTIC TILE
ADJ.	ADJUSTABLE
A.F.F.	ABOVE FINISHED FLOOR
ALUM.	ALUMINUM
A.P.	ACCESS PANEL
APPROX.	APPROXIMATELY
ARCH.	ARCHITECT
BD.	BOARD
BLDG.	BUILDING
BLKG.	BLOCKING
BM	BEAM
B.M.	BENCH MARK
BOT.	BOTTOM
BTWN	BETWEEN
B.W.	BOTH WAYS
CAB.	CABINET
C.B.	CATCH BASIN
C.C or O.C.	CENTER TO CENTER
CEM.	CEMENT
CER. TILE	CERAMIC TILE
C.G.	CORNER GUARD
C.I.	CAST IRON
C.J.	CONTROL JOINT
CLG.	CEILING
CLKG.	CAULKING
CLR.	CLEAR
CMU	CONCRETE MASONRY UNIT
CNTR.	COUNTER
C.O.	CLEANOUT
COL.	COLUMN
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
C.P.	CONCRETE PIPE
CTR.	CENTER
CTSK.	COUNTER SUNK
C.W.	COLD WATER
D.A.	DISABLED ACCESS
DBL	DOUBLE
D.F.	DRINKING FOUNTAIN
D.FIR	DOUGLAS FIR
DTL.	DETAIL
DIA. or Ø	DIAMETER
DIM.	DIMENSION
DISP.	DISPOSAL
DN	DOWN
DO	DITTO
DR.	DOOR
DS.	DOWNSPOUT
DWG.	DRAWING
(E)	EXISTING
E.	EAST
EA.	EACH
E.J.	EXPANSION JOINT
ELEC.	ELECTRIC or ELECTRICAL
EL.	ELEVATION
ELEV.	ELEVATOR
ENCL.	ENCLOSE and/or ENCLOSURE
EQ.	EQUAL
EQUIP.	EQUIPMENT
E.W.	EACH WAY
E.W.C.	ELECTRIC WATER COOLER
EX.	EXPANSION
EXP.	EXPOSED
EXT.	EXTERIOR
F.A.	FIRE ALARM
F.D.	FLOOR DRAIN
FDN.	FOUNDATION
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER CABINET
F.H.	FIRE HYDRANT
F.H.C.	FIRE HOSE CABINET
F.H.S.M.S.	FLAT HEAD SHEET METAL SCREW
F.H.W.S.	FLAT HEAD WOOD SCREW
FIN.	FINISH
FL. or FLR.	FLOOR
F.O.C.	FACE OF CONCRETE
F.O.F.	FACE OF FINISH
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUD
F.S.	FINISH SLAB
FT.	FOOT OR FEET
FTG.	FOOTING
FURR.	FURRING
GA.	GAUGE
GALV.	GALVANIZED
G.B.	GRAB BAR
G.I.	GALVANIZED IRON
GL.	GLASS
GLU-LAM	GLUE-LAMINATED
GND.	GROUND
GR.	GRADE
GYP.	GYPSUM
H.B.	HOSE BIBB
H.C.	HOLLOW CORE
HDWD.	HARDWOOD
HDWR.	HARDWARE
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
HR.	HOUR
HT.	HEIGHT
I.D.	INSIDE DIAMETER
INSUL.	INSULATION
INT.	INTERIOR
INV.	INVERT
JAN.	JANITOR
JT	JOINT
K.D.	KILN DRIED

LAB.	LABORATORY
LAM.	LAMINATE
LAV.	LAVATORY
LKR.	LOCKER
LT.	LIGHT
MAX.	MAXIMUM
M.B.	MACHINE BOLT
MECH.	MECHANICAL
MFR.	MANUFACTURER
M.H.	MANHOLE
MIN.	MINIMUM
MIR.	MIRROR
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
M.S.	MACHINE SCREW
MTD.	MOUNTED
MTL.	METAL
MUL.	MULLION
(N)	NEW
N.	NORTH
N.I.C.	NOT IN CONTRACT
NO. or #	NUMBER
NOM.	NOMINAL
N.T.S.	NOT TO SCALE
OBS.	OBSCURE
O.C.	ON CENTER
OCC.	OCCUPANT(CY)
O.D.	OVERFLOW DRAIN and/or OUTSIDE DIAMETER
O.F.O.S.	OUTSIDE FACE OF STUD
O.F.C.I.	OWNER FURNISHED and CONTRACTOR INSTALLED
O.H.	OPPOSITE HAND
OPNG.	OPENING
OPP.	OPPOSITE
P.A.F.	POWDER ACTUATED FASTENER
PL	PLATE
P.L.	PROPERTY LINE
P. LAM	PLASTIC LAMINATE
PLAS.	PLASTER
PLYWD.	PLYWOOD
PR.	PAIR
PTD.	PAINTED
PTN.	PARTITION
Q.T.	QUARRY TILE
R. or RAD.	RADIUS
R.C.P.	REINFORCED CONCRETE PIPE
R.D.	ROOF DRAIN
R.E.	RIM ELEVATION
REF.	REFERENCE
REINF.	REINFORCING
REQ'D	REQUIRED
R.H.M.S.	ROUND HEAD METAL SCREW
R.H.W.S.	ROUND HEAD WOOD SCREW
RM.	ROOM
R.O.	ROUGH OPENING
RWD.	REDWOOD
R.W.L.	RAIN WATER LEADER
S	SOUTH
S.A.D.	SEE ARCHITECTURAL DRAWINGS
S.C.	SOLID CORE
S.C.D.	SEE CIVIL DRAWINGS
SCHED.	SCHEDULE
S.E.D.	SEE ELECTRICAL DRAWINGS
S.F.	SQUARE FEET
SHEATH.	SHEATHING
SHT.	SHEET
SIM.	SIMILAR
S.L.D.	SEE LANDSCAPE DRAWINGS
S.M.	SHEET METAL
S.M.D.	SEE MECHANICAL DRAWINGS
S.M.S.	SHEET METAL SCREW
S.O.V.	SHUT OFF VALVE
S.P.D.	SEE PLUMBING DRAWINGS
SPEC.	SPECIFICATIONS
SQ. or Ø	SQUARE
S.S.	STAINLESS STEEL
S.S.D.	SEE STRUCTURAL DRAWINGS
STAG.	STAGGERED
STD.	STANDARD
STL.	STEEL
STOR.	STORAGE
STRUCT.	STRUCTURAL
S.T.S.M.S.	SELF TAPPING SHEET METAL SCREW
SUSP.	SUSPENDED
T.& G.	TONGUE & GROOVE
TEL.	TELEPHONE
TERR.	TERRAZZO
THRES.	THRESHOLD
T.J.	TOOLED JOINT
T.O.B.	TOP OF BEAM
T.O.C.	TOP OF CURB or CONCRETE
T.O.S.	TOP OF STEEL or SLAB
T.O.W.	TOP OF WALL
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
VERT.	VERTICAL
V.C.P.	VITRIFIED CLAY PIPE
V.C.T.	VINYL COMPOSITION TILE
V.G.	VERTICAL GRAIN
V.I.F.	VERIFY IN FIELD
V.T.R.	VENT THROUGH ROOF
V.W.C.	VINYL WALL COVERING
W	WEST
W/	WITH
W.C.	WATER CLOSET
WD.	WOOD
W.H.	WATER HEATER
W/O	WITHOUT
W.O.	WHERE OCCURS
WP.	WATERPROOF / WEATHERPROOF
W. PT.	WORKING POINT
W.R.	WATER RESISTANT
WT.	WEIGHT

BOARD OF TRUSTEES

KENNETH CHIN (PRESIDENT)
ALISON PROCTOR (VICE PRESIDENT)
SHARA WATKINS (CLERK)
NOELIA CORZO (MEMBER)
LISA WARREN (MEMBER)

DISTRICT SUPERINTENDANT
DR. JOAN ROSAS

CONSULTANTS

MECHANICAL
CYPRESS ENGINEERING GROUP
8 HARRIS COURT, SUITE A8
MONTEREY, CA 93940
(831) 218 - 1802

ELECTRICAL
AMERICAN CONSULTING ENGINEERS ELECTRICAL, INC.
1590 THE ALAMEDA, SUITE 200
SAN JOSE, CA 95126
(408) 236 - 2312

STRUCTURAL
BASE DESIGN, INC.
582 MARKET STREET, SUITE 1042
SAN FRANSISCO, CA 94104
(415) 455-2997

REFERENCE STANDARDS

PARTIAL LIST OF APPLICABLE STANDARDS (AS REFERENCED IN 2019 CBC - CHAPTER 35 & CFC):

ADA STANDARDS FOR ACCESSIBLE DESIGN (APPENDIX A OF 28 CFR PART 36) — 2010 EDITION

APPLICABLE CODES

1 2019 BUILDING STANDARDS ADMINISTRATION CODE (PART 1, TITLE 24, CCR)
2 2019 CALIFORNIA BUILDING CODE (PART 2, VOLUMES 1 AND 2, TITLE 24, CCR)
3 2019 CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24, CCR)
4 2019 CALIFORNIA MECHANICAL CODE (PART 4, TITLE 24, CCR)
5 2019 CALIFORNIA PLUMBING CODE (PART 5, TITLE 24, CCR)
6 2019 CALIFORNIA ENERGY CODE (PART 6, TITLE 24, CCR)
7 2019 CALIFORNIA FIRE CODE (PART 9, TITLE 24, CCR)
8 2019 CALGREEN BUILDING STANDARDS CODE (PART 11, TITLE 24, CCR)
9 2019 CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24, CCR)
10 TITLE 19, CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

ADMINISTRATIVE REQUIREMENTS

1. A COPY OF PART 1 TO 5 CCR SHALL BE KEPT ON SITE AT ALL TIMES.
2. ALL CONSTRUCTION CHANGE DOCUMENTS AND ADDENDA TO BE SIGNED BY THE ARCHITECT, THE OWNER, AND APPROVED BY DSA. CONSTRUCTION CHANGE DOCUMENTS ARE NOT VALID UNTIL APPROVED BY DSA PER SECTION 4-338.
3. ALL TESTS TO CONFORM TO THE REQUIREMENTS OF SECTION 4-335.
4. TESTS OF MATERIALS AND TESTING LABORATORY SHALL BE IN ACCORDANCE WITH SECTION 4-335.
5. DSA SHALL BE NOTIFIED AT THE START OF CONSTRUCTION AND PRIOR TO PLACEMENT OF CONCRETE PER SECTION 4-331.
6. INSPECTOR SHALL BE APPROVED BY DSA. INSPECTOR SHALL BE IN ACCORDANCE WITH SECTION 4-333(b). THE DUTY OF THE INSPECTOR SHALL BE IN ACCORDANCE WITH SECTION 4-342.
7. SUPERVISION OF CONSTRUCTION BY DSA SHALL BE IN ACCORDANCE WITH 4-334.
8. CONTRACTOR, INSPECTOR, ARCHITECT, AND ENGINEERS SHALL SUBMIT VERIFIED REPORTS (FORM 6) IN ACCORDANCE WITH SECTION 4-336 AND 4-343.
9. THE ARCHITECT AND THE STRUCTURAL ENGINEERS SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTIONS 4-333(a) AND 4-341.
10. THE CONTRACTOR SHALL PERFORM HIS DUTIES IN ACCORDANCE WITH SECTION 4-343.
11. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS THE (RE)CONSTRUCTION OF A SCHOOL BUILDING(S) IN ACCORDANCE WITH TITLE 24, C.C.R. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH SAID C.C.R. A CONSTRUCTION CHANGE DOCUMENT DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK.
12. DSA IS NOT SUBJECT TO ARBITRATION.
13. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
14. A "DSA CERTIFIED" PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DSA SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CRR.
15. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.

SYMBOL LEGEND

REFER TO ARCHITECTURAL FLOR PLAN SHEETS AND CONSULTANT DRAWINGS FOR ADDITIONAL SYMBOLS AND REFERENCE DESIGNATIONS

DIMENSION REFERENCE
- 10" — FACE OF OBJECT
- 10" — CENTER LINE OF OBJECT

TAGS AND MARKERS
- 0 — PLAN REFERECE GRID
- STRUCTURAL GRID LINE
- 1 — REVISION MARKER
- 1 — PLAN KEY NOTES
- Room name / 101 — ROOM LABEL: ROOM NAME, ROOM NUMBER
- 1 — WALL TYPE MARKER
- 101a — DOOR ID: DOOR DESIGNATION, ROOM NUMBER
- ℄ — CENTER LINE
- XX-1 — FINISH TAG
- XX-1 — FLOOR FINISH TAG

MATERIALS REFERENCE
- EARTH
- GRAVEL / ROCK
- CONCRETE
- CONCRETE BLOCK (CMU)
- SAND, GROUT, OR PLASTER
- STEEL
- PLYWOOD
- WOOD, CONTINUOUS MEMBER
- WOOD, BLOCKING
- WOOD, FINISH GRADE

CABINET TYPES
- PC - PREFINISHED CABINETS
- PM - PREFINISHED MOBILE CABINETS
- PR - PREFINISHED MOVEABLE CABINETS
- PU - PREFINISHED UTILITY CABINETS
- PS - SCIENCE CABINETS

NOTE: REFER TO SPECIFICATIONS FOR SPECIFIC CABINET TYPE REQUIREMENTS.

SECTION REFERENCE
1 / A12.08, SIM — SECTION NUMBER; REFERENCE LABEL WHERE OCCURES; SHEET NUMBER

DETAIL REFERENCE
1 / A12.08, SIM — DETAIL NUMBER; REFERENCE LABEL WHERE OCCURES; SHEET NUMBER

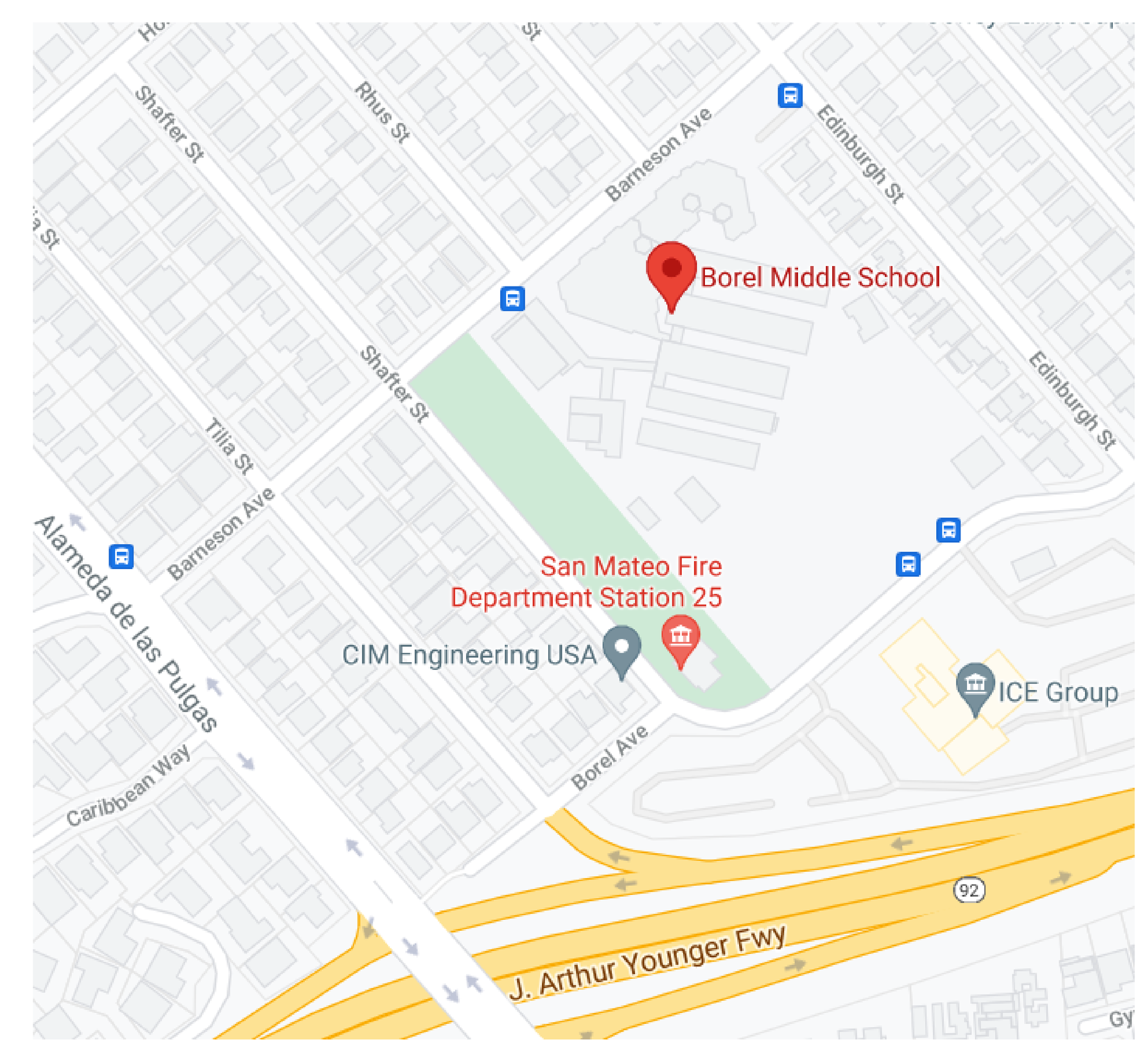
GENERAL NOTES

1. ITEMS OF A CIVIL, LANDSCAPE, STRUCTURAL, MECHANICAL, OR ELECTRICAL NATURE MAY NOT APPEAR ON THE ARCHITECTURAL DRAWINGS. SEE APPROPRIATE DRAWINGS FOR THESE ITEMS.
2. DIVISION OF THE STATE ARCHITECT (DSA) APPROVAL OF THIS APPLICATION DOES NOT INCLUDE FUTURE OR N.I.C. ITEMS.
3. ALL DEFERRED APPROVAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND THE APPROPRIATE CONSULTING ENGINEER FOR REVIEW & APPROVAL PRIOR TO SUBMITTING TO DSA FOR CHECKING & APPROVAL.
4. PRIOR TO BIDDING, THE GENERAL CONTRACTOR SHALL VISIT & INSPECT THE SITE TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AFFECTING THE NEW WORK. THE GENERAL CONTRACTOR SHALL NOT DISPUTE, COMPLAIN, OR ASSERT THAT THERE IS ANY MISUNDERSTANDING IN REGARDS TO LOCATION, EXTENT, NATURE, OR AMOUNT OF WORK TO BE PERFORMED UNDER THIS CONTRACT DUE TO THE CONTRACTOR'S FAILURE TO INSPECT THE SITE AND/OR FAILURE TO INSPECT THE CONTRACT DOCUMENTS.
5. THE GENERAL CONTRACTOR & SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATING & VERIFYING ALL EXISTING UNDERGROUND UTILITIES IN ALL AREAS OF THE NEW WORK PRIOR TO COMMENCEMENT OF EXCAVATION. EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE ROUTING LOCATIONS AS BEST DETERMINED FROM EXISTING DRAWINGS & BY THE SCHOOL DISTRICT, BUT SHOULD NOT BE CONSTRUED TO REPRESENT ALL EXISTING UTILITIES.
6. ANY ALTERATIONS OF EXISTING FACILITIES TO ACCOMMODATE THE INSTALLATION OF NEW WORK SHALL BE REVIEWED BY THE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
7. ALL EXISTING FINISHES OR MATERIALS DAMAGED OR DEMOLISHED DUE TO NEW CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL STATE OR REPLACED WITH NEW MATERIALS FINISHED TO MATCH EXISTING.
8. CONTRACTOR SHALL COORDINATE ALL WORK TO AVOID DISRUPTION OF STUDENTS OR TEACHERS DURING SCHOOL HOURS. ANY DISRUPTION OF POWER, TELEPHONE, OR HVAC SYSTEMS MUST BE COORDINATED AND APPROVED BY THE DISTRICT REPRESENTATIVE PRIOR TO ANY WORK COMMENCING.
9. COMPLIANCE WITH CFC CHAPTER 33 (FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION) AND CBC CHAPTER 33 (SAFEGUARDS DURING CONSTRUCTION) WILL BE ENFORCED.
10. ALL ITEMS ARE TO BE PROVIDED AS NEW, UNLESS OTHERWISE NOTED AS (E).

DEFERRED APPROVAL ITEMS

1. NONE

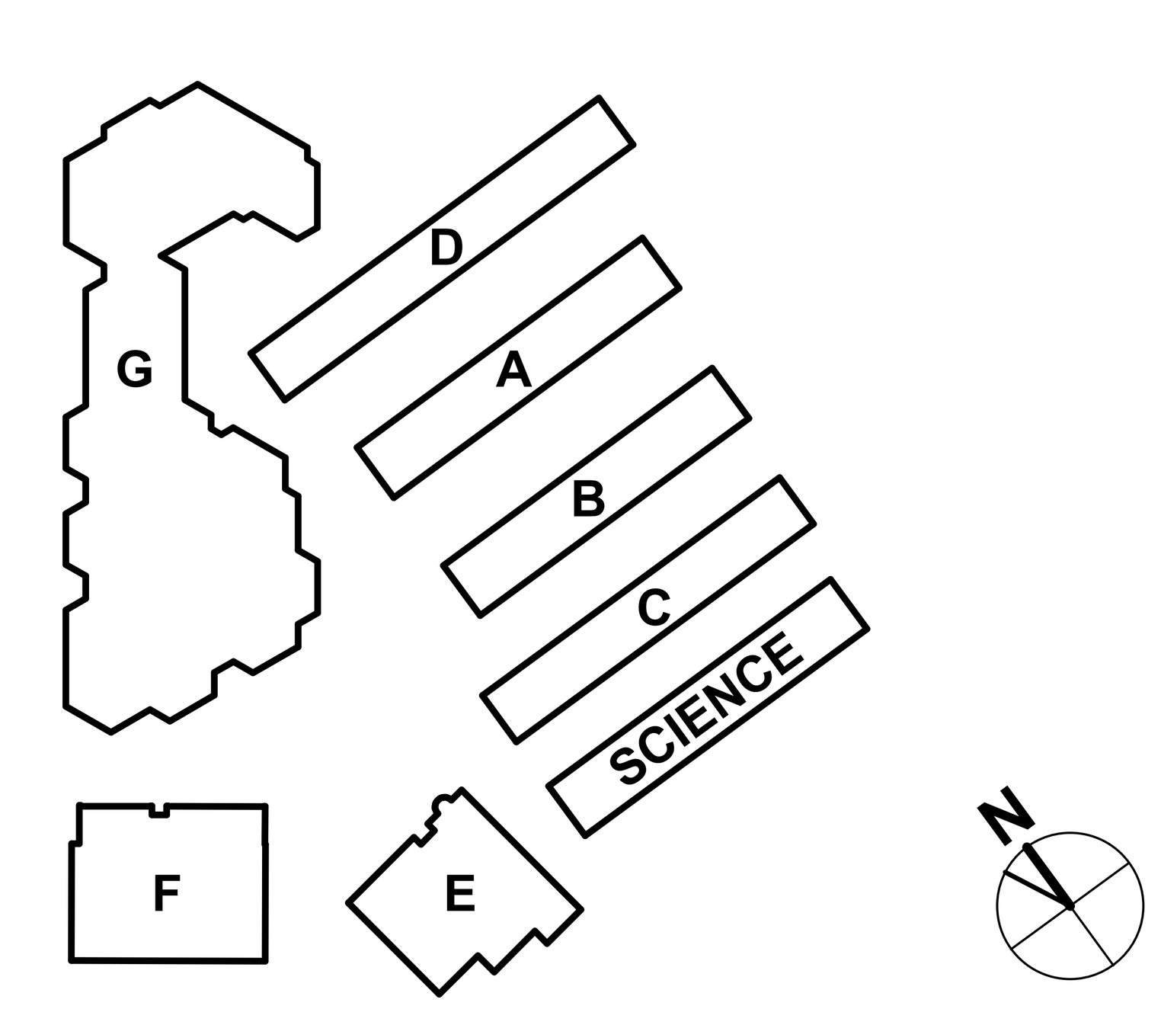
LOCATION MAP



SCOPE OF WORK

SCOPE OF WORK INCLUDES, BUT IS NOT LIMITED TO CAMPUS WIDE ELECTRICAL SERVICE UPGRADE AND REPLACEMENT OF HVAC EQUIPMENT AND ENCLOSURES. THIS PROJECT IS EXEMPT FROM PATH OF TRAVEL ALTERATION PER C.B.C. 11B-202.4, EXCEPTION 7.

BUILDING KEY



DRAWING INDEX

T1 TITLE SHEET

ARCHITECTURAL

A1.02 SITE PLAN
A2.01 DEMOLITION FLOOR PLANS - BLDGS A, B, C, & D
A2.02 DEMOLITION FLOOR PLAN - SCIENCE BLDG
A3.01 NEW FLOOR PLANS - BLDGS A, B, C, & D
A3.02 NEW FLOOR PLAN - SCIENCE BLDG & TYP. NEW REFLECTED CEILING PLANS
A4.01 REFLECTED CEILING PLAN - BUILDING G
A5.01 PARTIAL SITE ROOF PLAN
A8.10 EXTERIOR DETAILS
A9.10 INTERIOR DETAILS, WALL TYPES, AND INTERIOR ELEVATIONS
A11.01 FINISH SCHEDULE, OPENING SCHEDULE, LEGENDS, & DETAILS

STRUCTURAL

S1.01 ABBREVIATIONS AND GENERAL NOTES
S2.01 EXISTING ROOF FRAMING PLANS - BLDGS A, B & C
S2.02 EXISTING BLDG D ROOF FRAMING PLAN & EXISTING SCIENCE BLDG FOUNDATION PLAN
S2.03 EXISTING BLDG G ROOF FRAMING PLANS
S8.01 FRAMING DETAILS AND NAILING SCHEDULE

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MP0.01 SYMBOL LEGENDS, ABBREVIATIONS, NOTES - MECHANICAL
MP0.02 SCHEDULES - MECHANICAL
MP2.01 FLOOR PLAN - DEMO - BLDG A, B, C & D - MECHANICAL & PLUMBING
MP2.02 FLOOR PLAN - DEMO - SCIENCE BLDG - MECHANICAL & PLUMBING
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MP2.04 PARTIAL ROOF PLAN - DEMO - BLDG G - MECHANICAL & PLUMBING
MP2.05 FLOOR PLAN - NEW - BLDG A & D - MECHANICAL & PLUMBING
* MP2.06 FLOOR PLAN - NEW - BLDG B, BLDG C, & SCIENCE BLDG - MECHANICAL & PLUMBING
MP2.07 PARTIAL ROOF PLAN - NEW - BLDG G - MECHANICAL & PLUMBING
MP2.08 PARTIAL ROOF PLAN - NEW - BLDG G - MECHANICAL & PLUMBING
MP5.01 CONTROLS - MECHANICAL
MP6.01 DETAILS - MECHANICAL & PLUMBING
MP7.01 PARTIAL FLOOR PLANS - EXISTING - BLDG G - MECHANICAL / TAB WORK
MP7.02 PARTIAL FLOOR PLANS - EXISTING - BLDG G - MECHANICAL / TAB WORK
MP7.03 PARTIAL FLOOR PLANS - EXISTING - BLDG G - MECHANICAL / TAB WORK
MP8.01 TITLE 24 DOCUMENTS - MECHANICAL
MP8.02 TITLE 24 DOCUMENTS - MECHANICAL

ELECTRICAL

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E1.1 ELECTRICAL SITE PLAN
E2.1 ELECTRICAL DEMO FLOOR PLAN - BLDGS A, B, C, & D
E2.2 ELECTRICAL DEMO FLOOR PLAN - SCIENCE BLDG
E2.3 ELECTRICAL DEMO OVERALL FLOOR PLAN - BLDG G
E2.4 ELECTRICAL DEMO PARTIAL FLOOR PLAN - BLDG G
E3.1 ELECTRICAL NEW FLOOR PLAN - BLDGS A, B, C, & D
E3.2 ELECTRICAL NEW FLOOR PLAN - SCIENCE BLDG
E3.3 ELECTRICAL NEW OVERALL FLOOR PLAN - BLDG G
E3.4 ELECTRICAL NEW PARTIAL FLOOR PLAN - BLDG G
E4.1 DEMO SINGLE LINE DIAGRAM
E4.2 NEW SINGLE LINE DIAGRAM
E4.3 PANEL SCHEDULES
E4.4 PANEL SCHEDULES
E5.1 ELECTRICAL DETAILS
E5.2 ELECTRICAL DETAILS

TOTAL SHEET COUNT: 49

* These drawings, and/or specifications, and/or calculations for the items listed above have been prepared by other design professionals or consultants who are licensed and/or authorized to prepare such drawings in this state. It has been examined by me for:

1. design intent and appears to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications prepared by me.
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 4-344" of Title 24, Part 1. (Title 24, Part 1, Section 4-317(b))

THANG DO	10/06/21
PRINCIPAL IN CHARGE	**DATE -**
C-018127	11/30/21
CALIFORNIA LICENSE NUMBER	**EXPIRATION DATE**

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

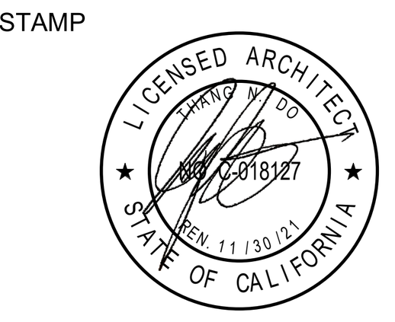
aedis architects
www.aedisarchitects.com
387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT
BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP



STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date
△		

MILESTONES

SD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET
TITLE SHEET

DATE 10/06/2021
JOB # 2021005.07
SHEET # T1

10/8/2021 11:12:30 AM
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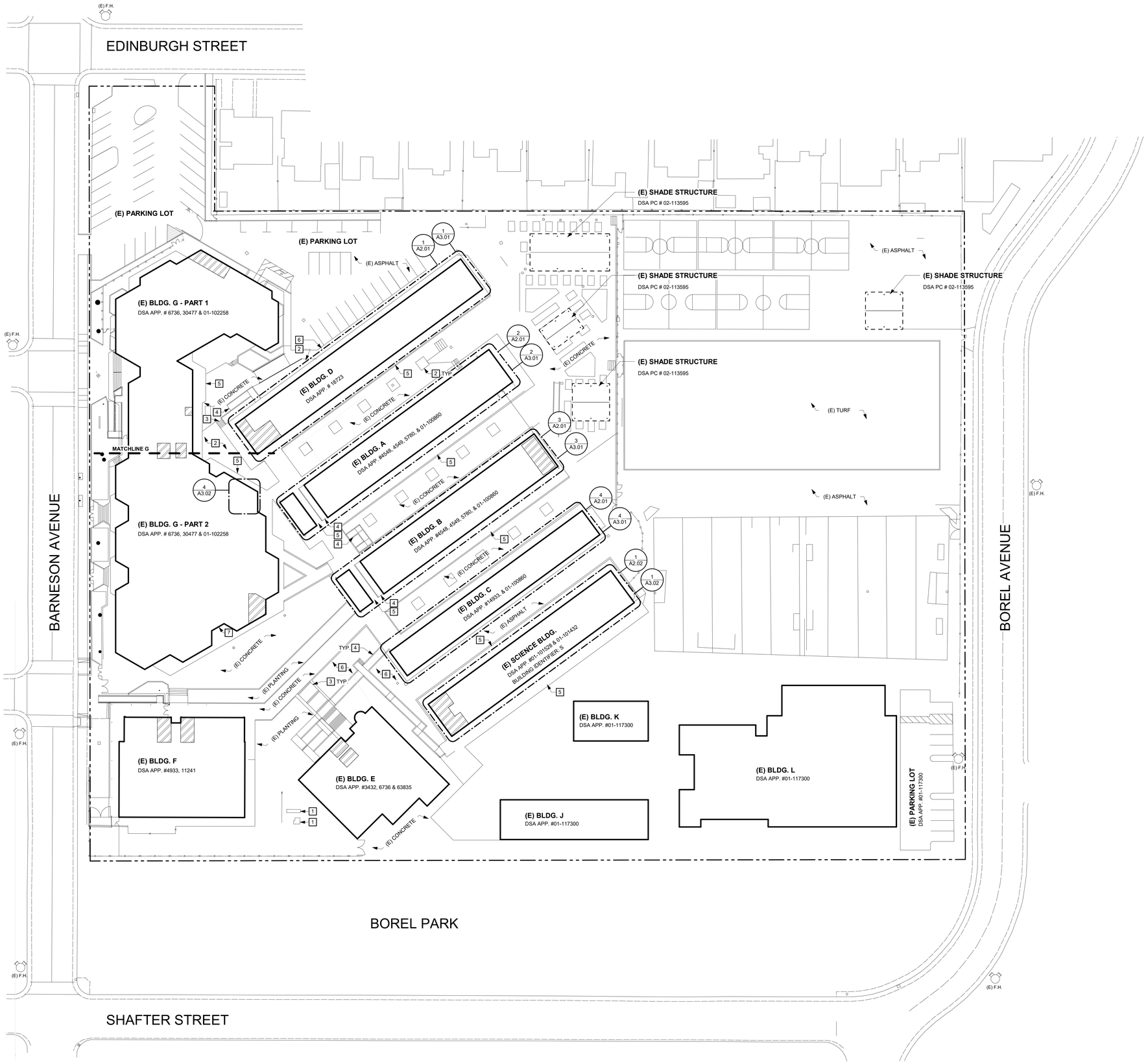

1 **SITE PLAN**
SCALE: 1/32" = 1'-0"

GENERAL SHEET NOTES

A BUILDINGS ARE UNSPRINKLERED, TYPE V-B CONSTRUCTION UNLESS OTHERIWSE NOTED.

B NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

C CONTRACTOR SHALL MAINTAIN FIRE LANE ACCESS THROUGHOUT PROJECT.

D DO NOT INTERRUPT EXISTING UTILITY SERVICES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AND COORDINATED WITH THE OWNER.

E PROTECT EXISTING & NEW STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, TREES AND SHRUBS FROM DAMAGE DURING CONSTRUCTION.

F REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK.

SITE PLAN KEYNOTES

1 (E) ELECTRICAL EQUIPMENT TO REMAIN, S.E.D.
2 (E) PLANTING TO REMAIN.
3 (E) CONC. STAIR TO REMAIN.
4 (E) CONC. RAMP TO REMAIN.
5 (E) CONC. PAVING TO REMAIN.
6 (E) ASPHALT PAVING TO REMAIN.
7 GAS SHUT OFF SIGN, SEE DETAIL 14/A9.10. LOCATE BETWEEN DOOR SWINGS, SUCH THAT SIGNAGE REMAINS VISIBLE WHEN DOORS ARE IN FULL OPEN POSITION.

GRAPHIC KEY

EXISTING TOILET ROOMS
EXISTING CONSTRUCTION TO REMAIN
EXISTING COVERED STRUCTURE
PROPERTY LINE
(E) F.H. EXISTING FIRE HYDRANT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

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PROJECT
BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP
LICENSED ARCHITECT 10/07/21 STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

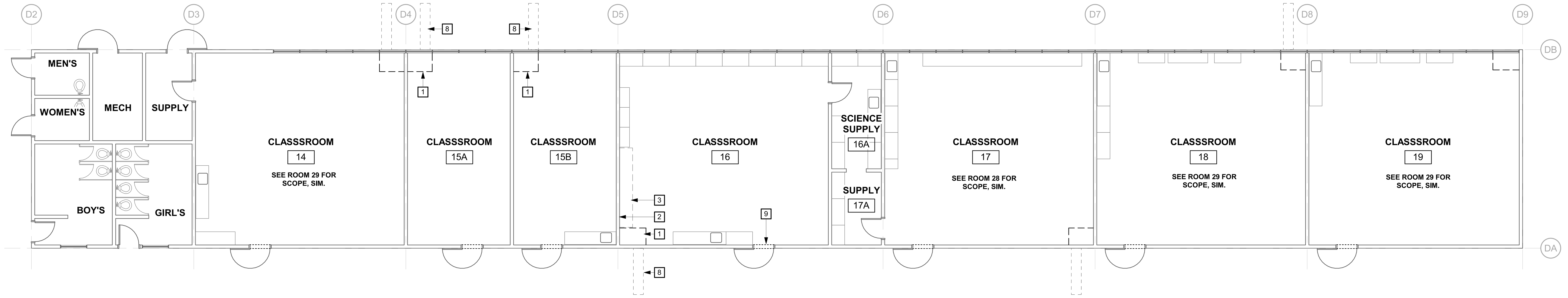
No.	Description	Date
△		

MILESTONES

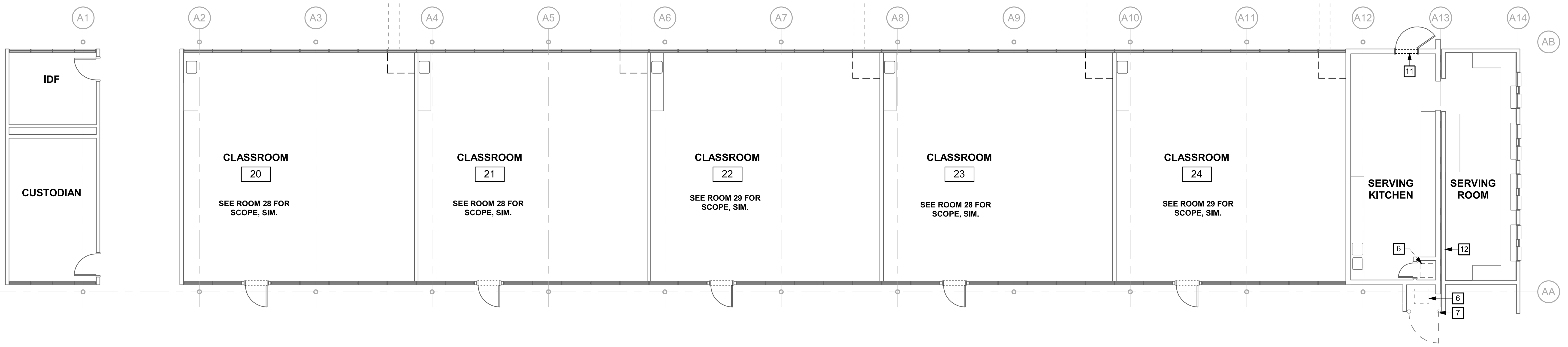
DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET
SITE PLAN

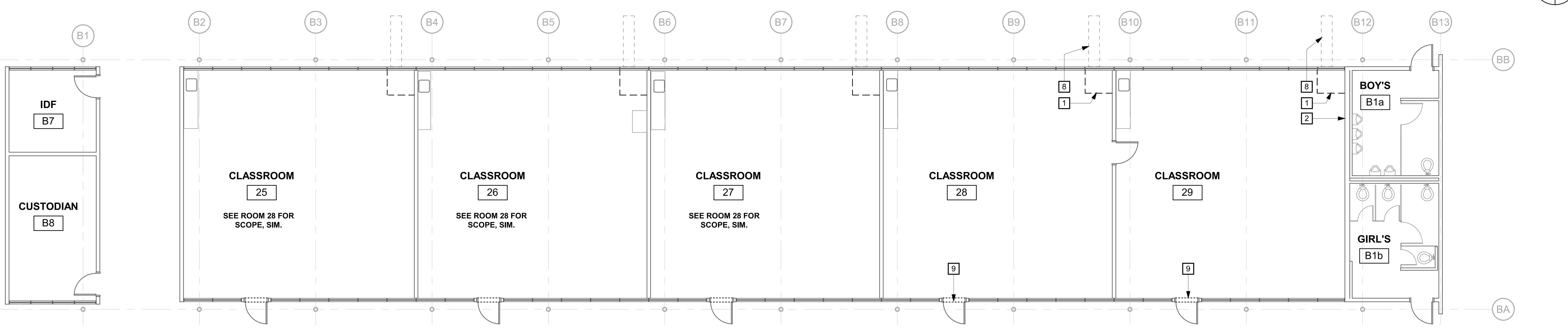
DATE 10/06/2021
JOB # 2021005.07
SHEET # A1.02



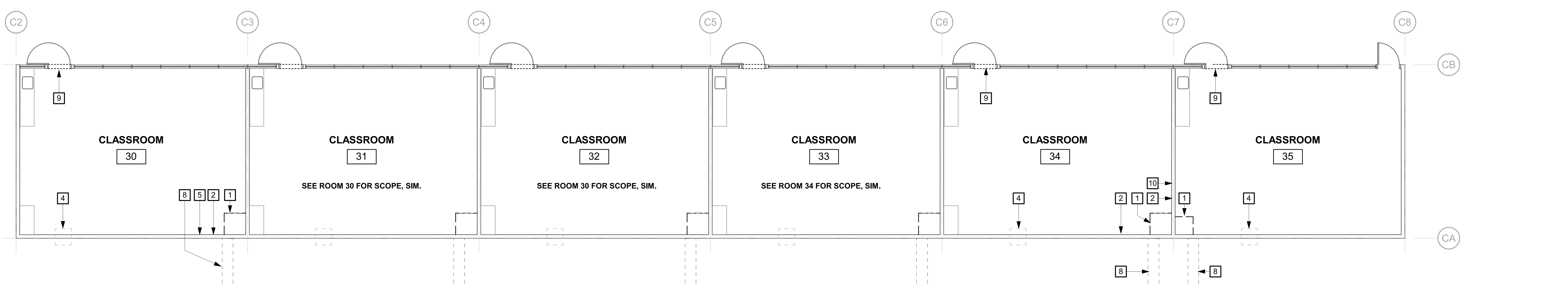
1 **DEMOLITION FLOOR PLAN - BLDG D**
SCALE: 1/8" = 1'-0"



2 **DEMOLITION FLOOR PLAN - BLDG A**
SCALE: 1/8" = 1'-0"



3 **DEMOLITION FLOOR PLAN - BLDG B**
SCALE: 1/8" = 1'-0"



4 **DEMOLITION FLOOR PLAN - BLDG C**
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

- A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND NEW FLOOR PLANS.
- B REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL AND ELECTRICAL DEMOLITION WORK.
- C VERIFY LIMITS OF DEMOLITION WITH SCOPE OF NEW WORK PRIOR TO COMMENCING WORK.
- D ALL ITEMS SHOWN DASHED ARE TO BE DEMOLISHED UNLESS OTHERWISE NOTED ON PLANS.
- E REMOVE ALL MISCELLANEOUS TRIM, CASEWORK, EQUIPMENT, CONDUIT, BASES, AND OTHER SURFACE MOUNTED ITEMS WHETHER SHOWN OR NOT, AS REQUIRED TO FACILITATE SCOPE OF WORK. REMOVE AND CAP ALL OUTLETS, SWITCHES, WIRES, THERMOSTATS, ETC. TO THEIR SOURCE AS REQUIRED. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND SCOPE OF WORK.
- F REMOVE ADJACENT FINISHES AS REQUIRED TO FACILITATE SCOPE OF WORK. PATCH BACK IN KIND.
- G EXISTING EQUIPMENT INDICATED TO BE RELOCATED PER NEW PLAN IS TO BE STORED AND PROTECTED DURING CONSTRUCTION.
- H NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA
- I DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

DEMOLITION FLOOR PLAN KEYNOTES

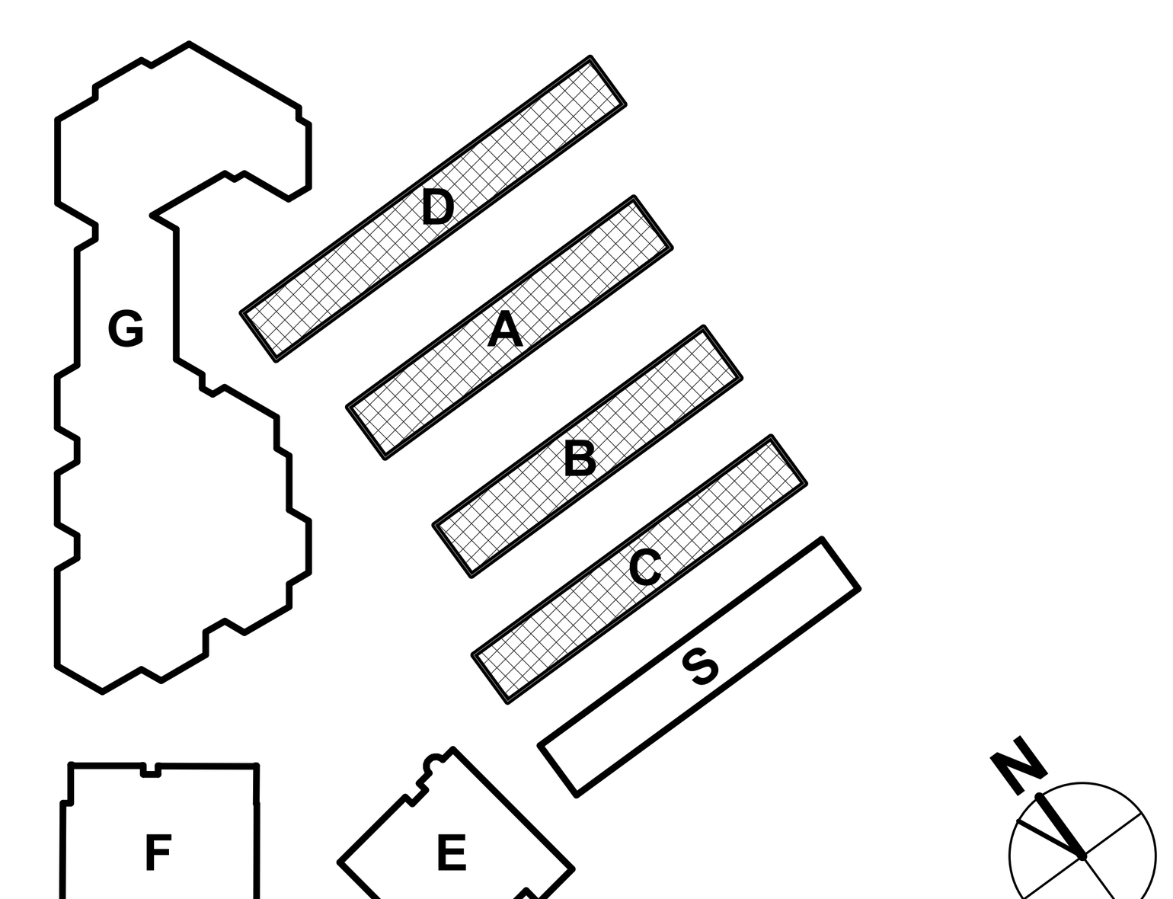
1. REMOVE (E) MECHANICAL UNIT AND METAL ENCLOSURE, S.M.D.
2. RECONFIGURE (E) WIREMOLD. SHORTEN CONFIGURATION TIGHT TO NEW ENCLOSURE AND PROVIDE END CAP.
3. REMOVE (E) 12' BASE CASEWORK.
4. REMOVE (E) A/C UNIT AND SURROUNDING (E) GLAZING. PREP FOR NEW WORK.
5. SALVAGE (E) 4' X 4' TACK PANEL AND TURN OVER TO DISTRICT.
6. REMOVE (E) MECHANICAL UNIT, S.M.D.
7. (E) CHAINLINK FENCE AND GATE TO BE REMOVED. GRIND DOWN POLE AND INFILL W/ CONCRETE, FLUSH TO ADJACENT.
8. REMOVE PAVING AND PREP FOR NEW WORK, S.M.D.
9. REMOVE (E) WINDOW GLAZING ABOVE AND PREP FOR NEW WORK, S.M.D
10. REMOVE (E) TACK PANEL AND TURN OVER TO DISTRICT
11. CUT AND PREP OPENING FOR NEW WORK, S.M.D. DO NOT OVERCUT.
12. PREP FOR NEW WORK, S.M.D.

GRAPHIC KEY

EXISTING WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

BUILDING KEY



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PROJECT

BORREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

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MILESTONES

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BACKCHECK	10/06/2021

SHEET

DEMOLITION FLOOR PLANS - BLDGS A, B, C, & D

DATE 10/06/2021
JOB # 2021005.07
SHEET # A2.01

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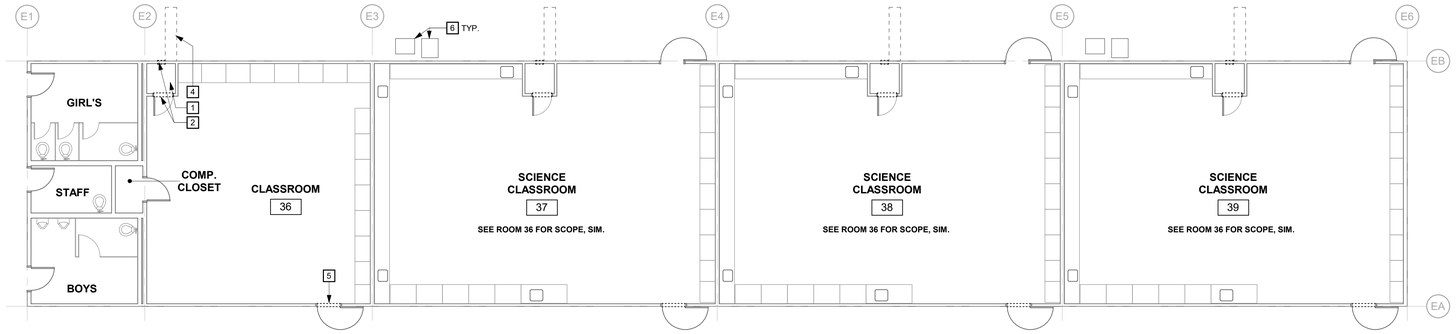


1 DEMOLITION FLOOR PLAN - SCIENCE BLDG

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

N

GENERAL SHEET NOTES

A ROOM NAMES OR NUMBERS MAY NOT BE CONSISTENT BETWEEN DEMOLITION AND NEW FLOOR PLANS.

B REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL AND ELECTRICAL DEMOLITION WORK.

C VERIFY LIMITS OF DEMOLITION WITH SCOPE OF NEW WORK PRIOR TO COMMENCING WORK.

D ALL ITEMS SHOWN DASHED ARE TO BE DEMOLISHED UNLESS OTHERWISE NOTED ON PLANS.

E REMOVE ALL MISCELLANEOUS TRIM, CASEWORK, EQUIPMENT, CONDUIT, BASES, AND OTHER SURFACE MOUNTED ITEMS WHETHER SHOWN OR NOT, AS REQUIRED TO FACILITATE SCOPE OF WORK. REMOVE AND CAP ALL OUTLETS, SWITCHES, WIRES, THERMOSTATS, ETC. TO THEIR SOURCE AS REQUIRED. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND SCOPE OF WORK.

F REMOVE ADJACENT FINISHES AS REQUIRED TO FACILITATE SCOPE OF WORK. PATCH BACK IN KIND.

G EXISTING EQUIPMENT INDICATED TO BE RELOCATED PER NEW PLAN IS TO BE STORED AND PROTECTED DURING CONSTRUCTION.

H NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA

I DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

DEMOLITION FLOOR PLAN KEYNOTES

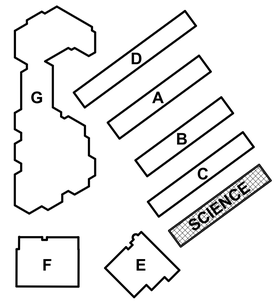
1 REMOVE (E) MECHANICAL UNIT, S.M.D.
2 CUT AND PREP OPENING FOR NEW WORK, S.M.D. DO NOT OVERCUT.
3 (E) MECHANICAL EQUIPMENT TO REMAIN.
4 REMOVE PAVING AND PREP FOR NEW WORK, S.M.D.
5 REMOVE (E) WINDOW GLAZING ABOVE AND PREP FOR NEW WORK, S.M.D.
6 (E) MECHANICAL EQUIPMENT TO BE REMOVED. PREP AREA FOR NEW WORK. S.M.D.

GRAPHIC KEY

EXISTING WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

BUILDING KEY



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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

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LICENSED ARCHITECT — STATE OF CALIFORNIA — 10/07/21

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DSA FILE NUMBER 41-26
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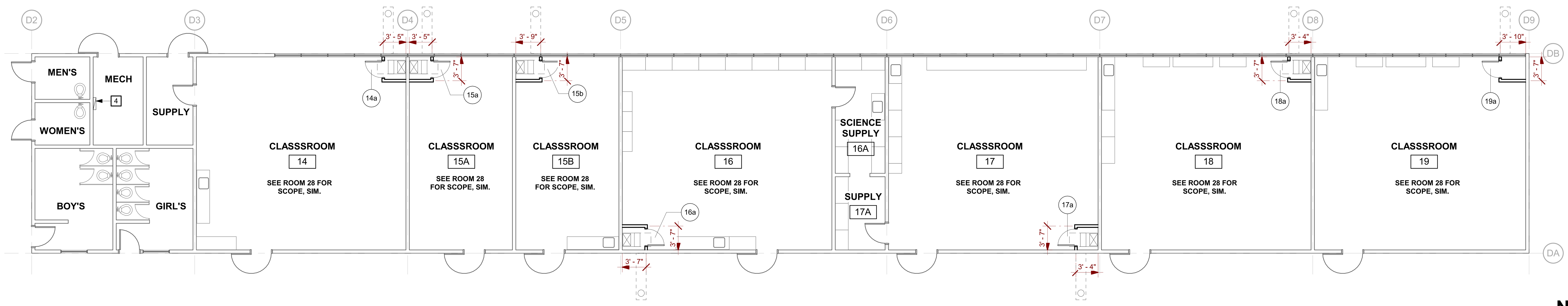
BACKCHECK	10/06/2021

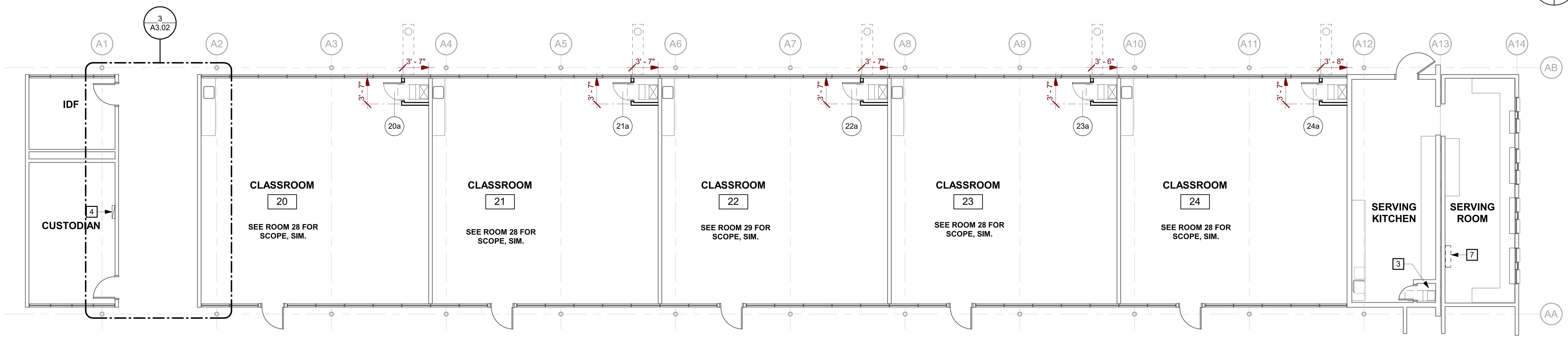
SHEET

DEMOLITION FLOOR PLAN - SCIENCE BLDG

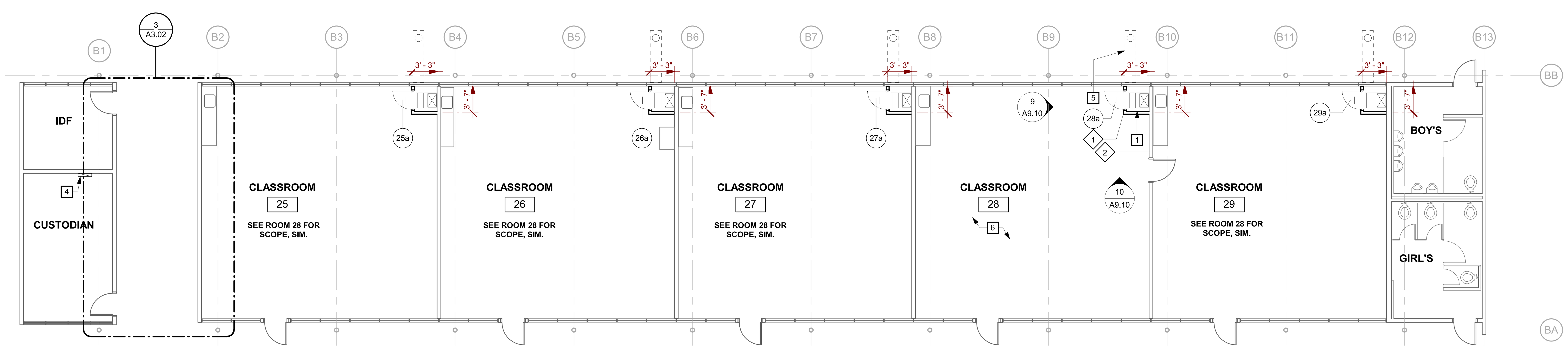
DATE 10/06/2021
JOB # 2021005.07
SHEET # A2.02



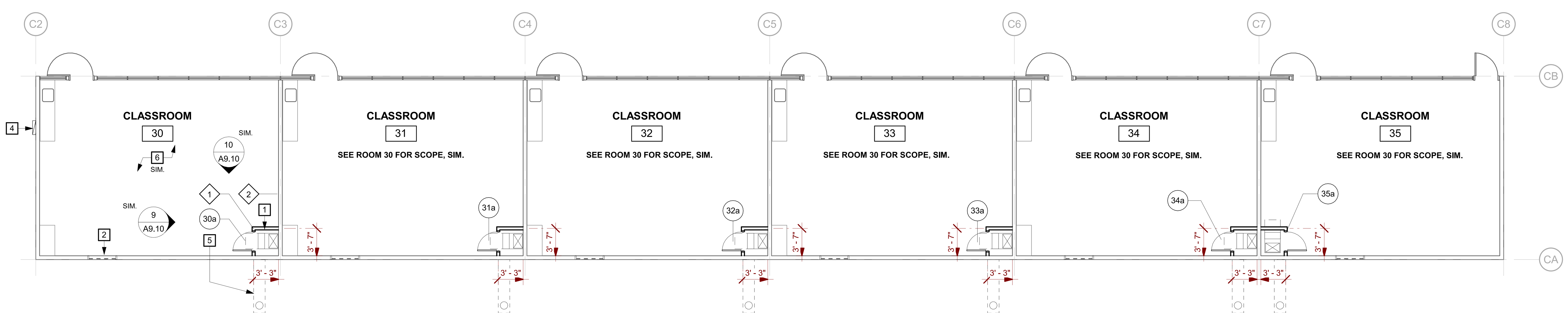
1 NEW FLOOR PLAN - BLDG D
SCALE: 1/8" = 1'-0"



2 NEW FLOOR PLAN - BLDG A
SCALE: 1/8" = 1'-0"



3 NEW FLOOR PLAN - BLDG B
SCALE: 1/8" = 1'-0"



4 NEW FLOOR PLAN - BLDG C
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK.

B DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

C PATCH AND PAINT WALL AT REMOVED CASEWORK, REMOVED WALL MOUNTED BOARDS, OR RECONFIGURED RACEWAY.

D SCRIBE FINISHES TIGHT TO ADJACENT CONDITIONS INCLUDING WALL FINISHES, WINDOWS, AND DUCTWORK.

E PROVIDE NEW WALL BASE AT ALL REMOVED CASEWORK, NEW PARTITION WALLS, OR PATCHED FLOORING.

F REFER TO FINISH SCHEDULE ON SHEET A11.01 FOR CEILING FINISHES NOT SHOWN.

G RECONFIGURE A.C.T. GRID TIGHT TO NEW MECHANICAL ENCLOSURE WALL FINISH. PROVIDE NEW LAY IN CEILING TILES AT RECONFIGURED AREA. AREA CUT OR ALTERED IN EACH ROOM SHALL NOT EXCEED 10 PERCENT OF THE ENTIRE CEILING AREA.

H PROVIDE NEW CEILING TILE MATCHING ADJACENT TILES WHERE EXISTING LIGHTS, SPEAKERS OR OTHER EQUIPMENT WERE REMOVED.

NEW FLOOR PLAN KEYNOTES

1 FULL HEIGHT FRAMED MECHANICAL ENCLOSURE. MAINTAIN MIN. INTERIOR CLR. PER DETAIL 16/A9.10. PATCH ADJACENT FINISHES INCLUDING BUT NOT LIMITED TO WALLS AND CEILINGS. RECONFIGURE A.C.T. GRID AND REPLACE ACOUSTICAL TILES. V.I.F. FREE AND FIXED END OF GRID AND REPLACE IN KIND, SEE DETAILS 8/A9.10, 11/A9.10, & 12/A9.10
2 INFILL 48" X 30" 1/4" TEMPERED GLASS AT (E) FRAMING, ABOVE. V.I.F. SIZING. SEE DETAIL 15/A9.10.
3 MECHANICAL EQUIPMENT, S.M.D.
4 ELECTRICAL PANEL, S.E.D.
5 PATCH PAVING AT DRY WELL. SEE A1.02, 2/A8.10, 9/A8.10, AND S.M.D.
6 REFER TO 2/A3.02 FOR TYPICAL CLASSROOM NEW REFLECTED CEILING PLAN
7 MECHANICAL EQUIPMENT, S.M.D. PATCH AND PAINT WALL TO MATCH ADJACENT.

GRAPHIC KEY

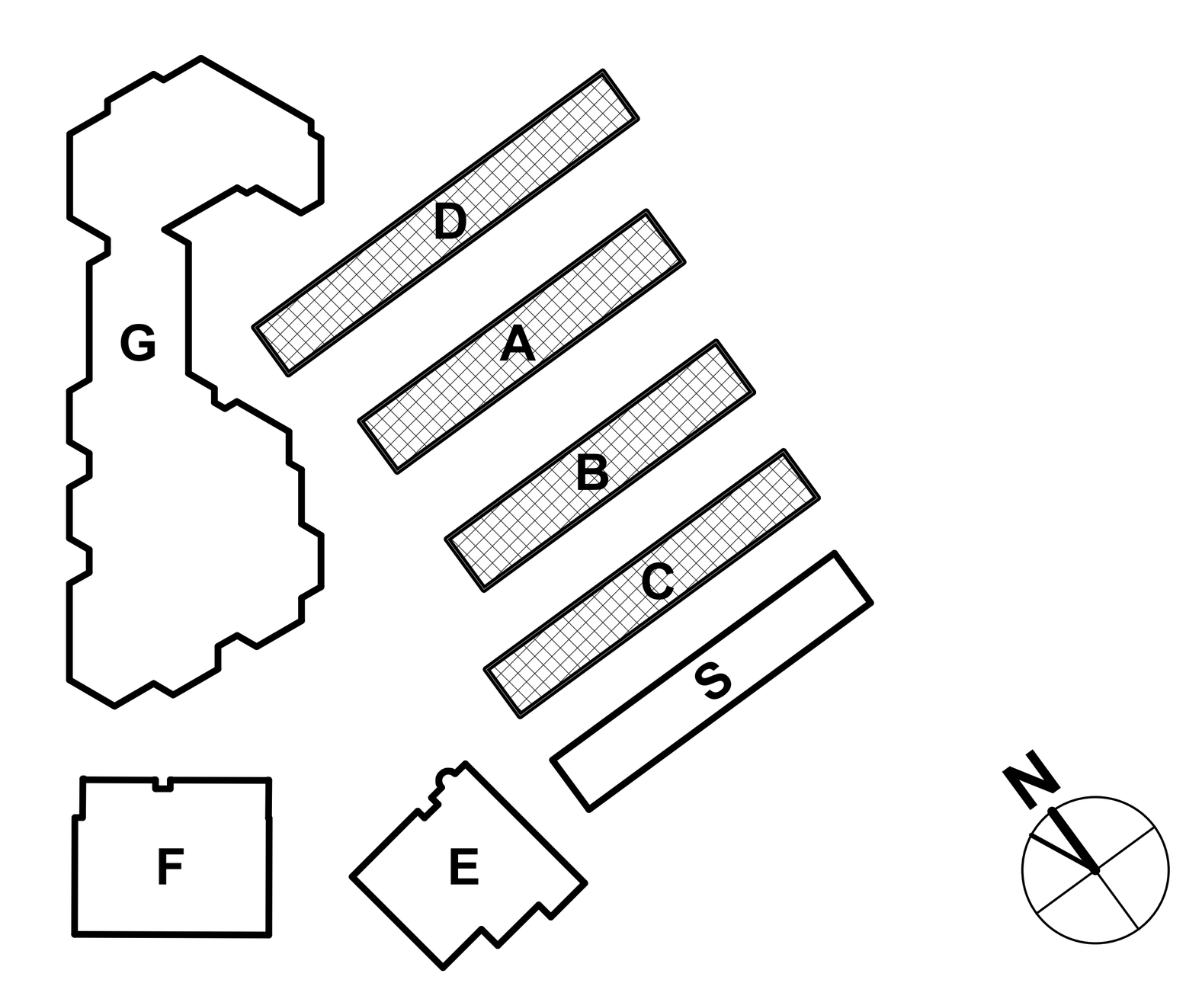
EXISTING NONRATED WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

WALL TYPE, REFER TO SHEET A9.10 FOR WALL TYPE DESCRIPTION, TYP.

STUD WALL

BUILDING KEY



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PROJECT
BORREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

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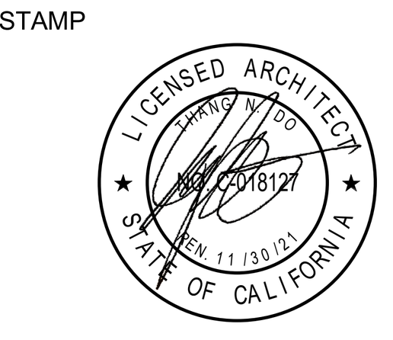

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DSA FILE NUMBER 41-26
APPL # 01-119557

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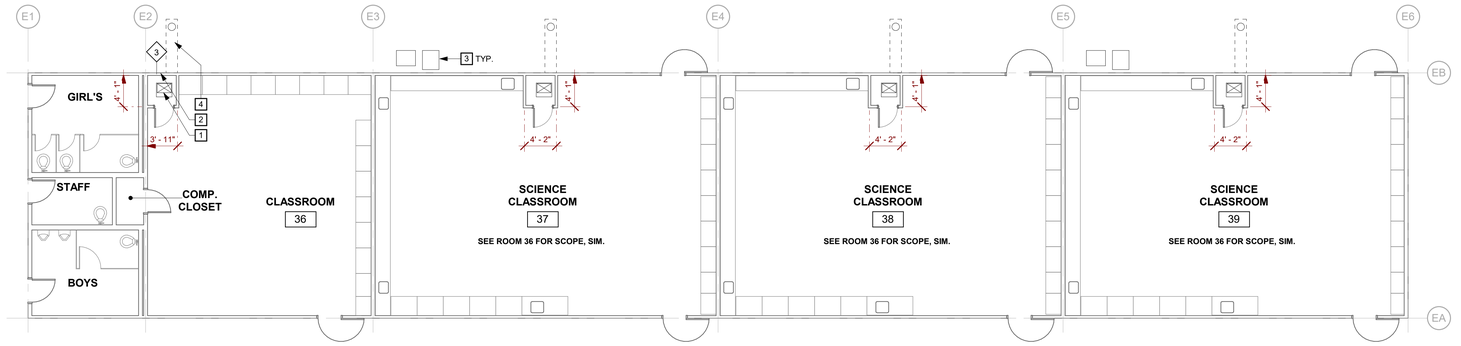
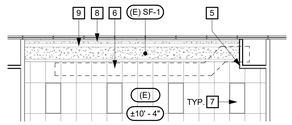
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET
NEW FLOOR PLANS - BLDGS A, B, C, & D

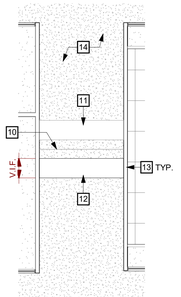
DATE 10/06/2021
JOB # 2021005.07
SHEET # A3.01



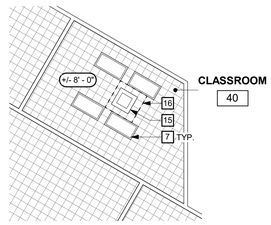
1 NEW FLOOR PLAN - SCIENCE BLDG
SCALE: 1/8" = 1'-0"



2 TYPICAL CLASSROOM NEW REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"



3 NEW REFLECTED CEILING PLAN - TYP. EXT. WALKWAY
SCALE: 1/8" = 1'-0"



4 NEW REFLECTED CEILING PLAN - CLASSROOM 40
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A REFER TO STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR EXTENT OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK.

B DIMENSIONS FOR EXISTING BUILDING ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO START OF CONSTRUCTION.

C PATCH AND PAINT WALL AT REMOVED CASEWORK, REMOVED WALL MOUNTED BOARDS, OR RECONFIGURED RACEWAY.

D SCRIBE FINISHES TIGHT TO ADJACENT CONDITIONS INCLUDING WALL FINISHES, WINDOWS, AND DUCTWORK.

E PROVIDE NEW WALL BASE AT ALL REMOVED CASEWORK, NEW PARTITION WALLS, OR PATCHED FLOORING.

F REFER TO FINISH SCHEDULE ON SHEET A11.01 FOR CEILING FINISHES NOT SHOWN.

G RECONFIGURE A.C.T. GRID TIGHT TO NEW MECHANICAL ENCLOSURE WALL FINISH. PROVIDE NEW LAY IN CEILING TILES AT RECONFIGURED AREA. AREA CUT OR ALTERED IN EACH ROOM SHALL NOT EXCEED 10 PERCENT OF THE ENTIRE CEILING AREA.

H PROVIDE NEW CEILING TILE MATCHING ADJACENT TILES WHERE EXISTING LIGHTS, SPEAKERS OR OTHER EQUIPMENT WERE REMOVED.

NEW FLOOR PLAN & RCP KEYNOTES

1 MECHANICAL EQUIPMENT, S.M.D.
2 AT REGISTER OR LOUVER, PATCH WALL TO MATCH ADJACENT.
3 MECHANICAL EQUIPMENT, S.M.D. LOCATE NEW HOUSEKEEPING PAD SO (E) R.W.L. DOES NOT DRAIN ONTO PAD. V.I.F.
4 PATCH PAVING AT DRY WELL. SEE A1.02, 2/A8.10, 9/A8.10, AND S.M.D.
5 REPLACE PERIMETER TRIM AND PROVIDE NEW CEILING TILE ADJACENT. REPLACE FREE AND FIXED ENDS IN KIND, SEE DETAILS 15/A9.10, 11/A9.10, & 12/A9.10.
6 EXPOSED SUSPENDED DUCTWORK OBSCURED FOR CLARITY, S.M.D.
7 (E) LIGHT FIXTURE
8 (E) CURTAIN TRACK; LOCATION VARIES, V.I.F.
9 (E) PAINTED METAL ENCLOSURE, WHERE OCCURS V.I.F.
10 (E) RIDGE.
11 (E) PAINTED SHEET METAL CONDUIT ENCLOSURE TO REMAIN.
12 PAINTED 18 GA. SHEET METAL CONDUIT ENCLOSURE. SEE DETAIL 13/A8.10 AND S.E.D.
13 S.E.D. FOR CONDUIT PENETRATION DETAIL.
14 (E) CEMENT PLASTER FINISH.
15 MECHANICAL EQUIPMENT, S.M.D.
16 REPLACE AND PAINT GLUE-UP A.C.T. AT REMOVED MECHANICAL UNIT PRIOR TO INSTALLATION OF NEW UNIT.

GRAPHIC KEY

EXISTING NONRATED WALL TO REMAIN.

EXISTING STOREFRONT OR WINDOW TO REMAIN.

WALL TYPE. REFER TO SHEET A9.10 FOR WALL TYPE DESCRIPTION, TYP.

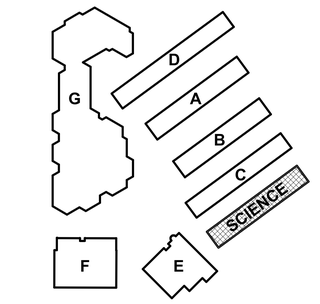
STUD WALL

(E) 2'-0" x 4'-0" A.C.T. SUSPENDED CEILING SYSTEM

SUSPENDED CEILING GRID
DIRECTION OF MAIN RUNNER
INSTALL CEILING GRID STARTING AT THE CENTER OF EACH ROOM AND WORK TO EXTERIOR WALLS. U.O.N.

(E) CEMENT PLASTER SOFFIT

BUILDING KEY



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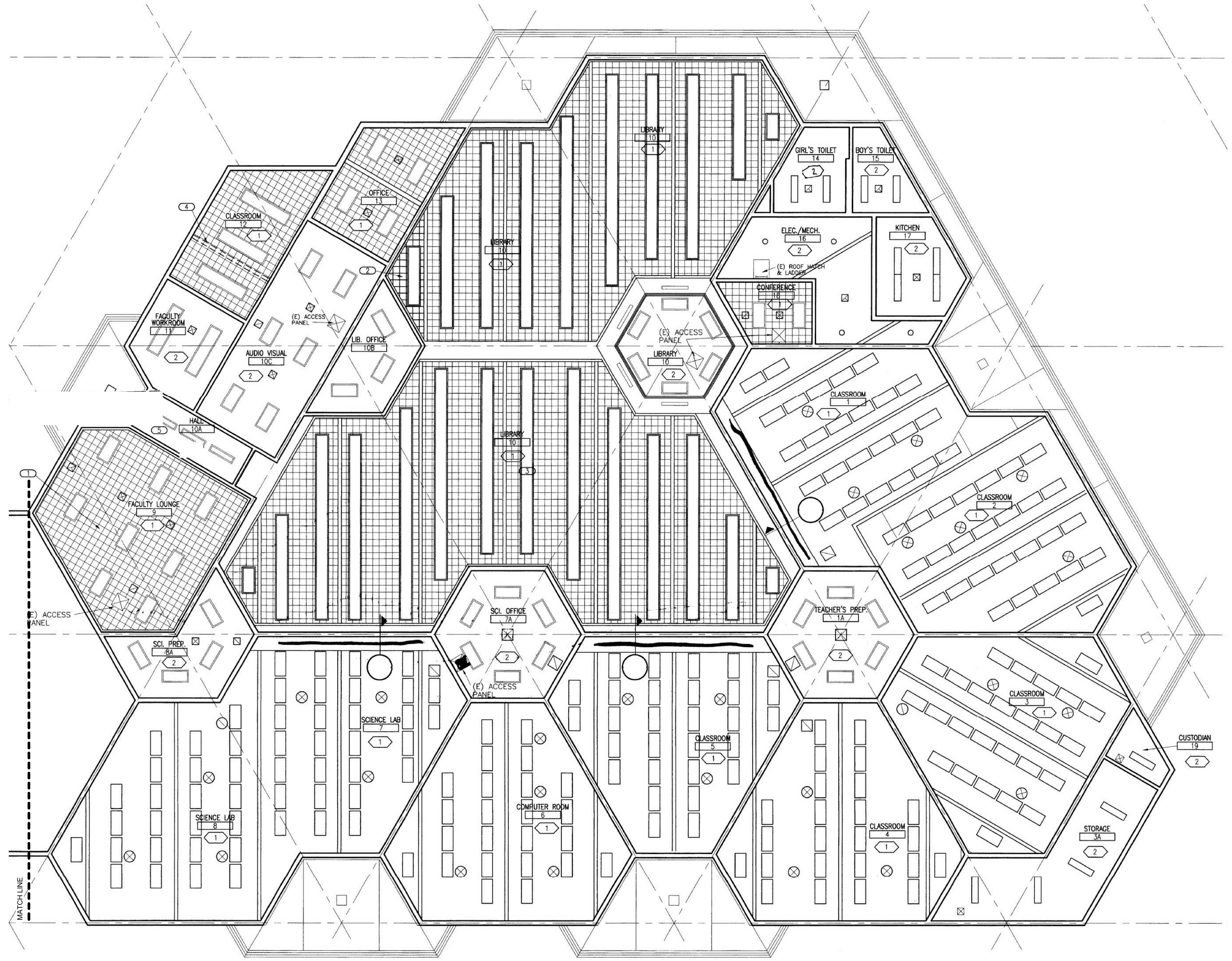
BACKCHECK	10/06/2021

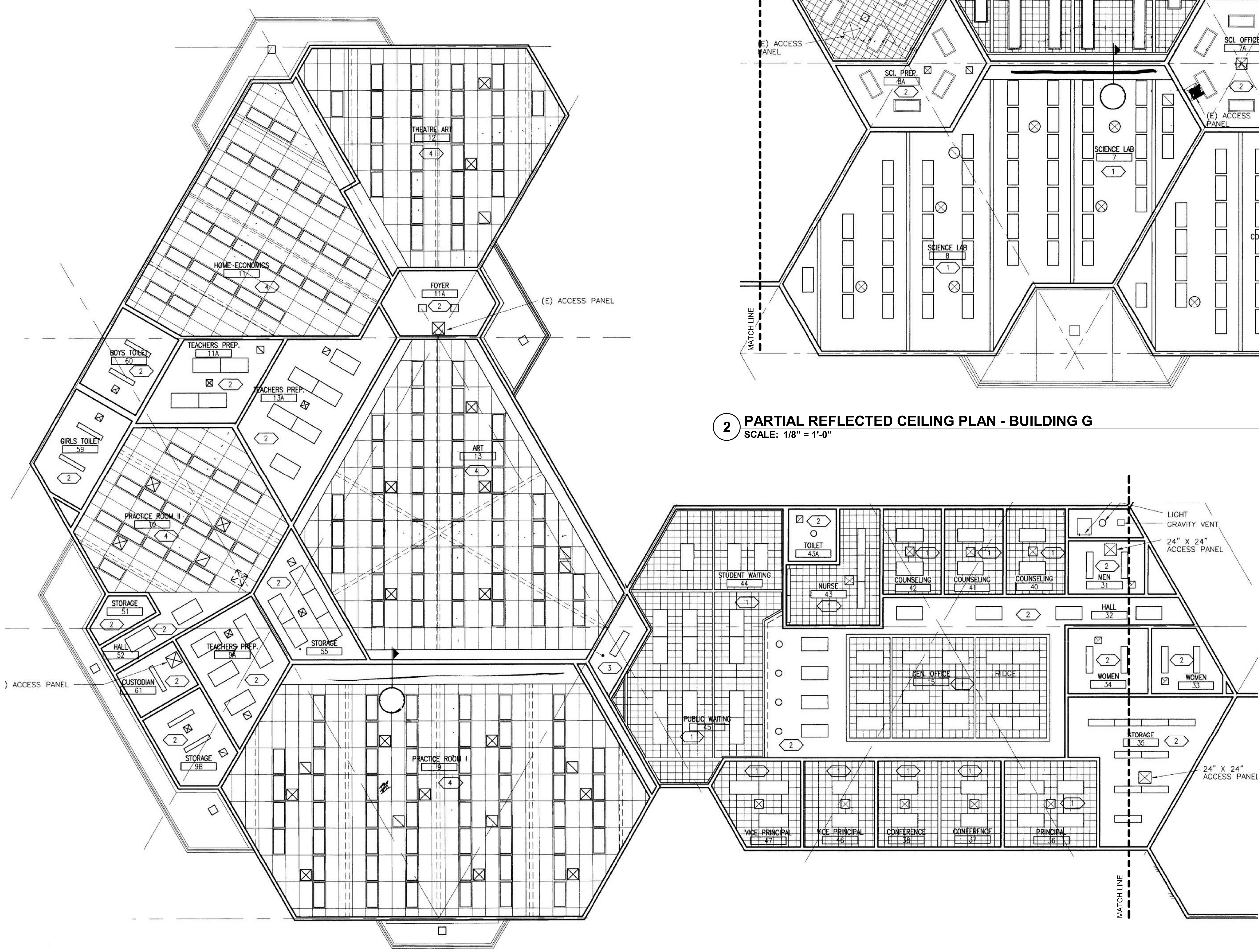
SHEET

NEW FLOOR PLAN - SCIENCE BLDG & TYP. NEW REFLECTED CEILING PLANS

DATE 10/06/2021
JOB # 2021005.07
SHEET # A3.02



2 PARTIAL REFLECTED CEILING PLAN - BUILDING G
SCALE: 1/8" = 1'-0"



1 PARTIAL REFLECTED CEILING PLAN - BUILDING G
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A 1/A4.01 AN 2/A4.01 ARE EXISTING FLOOR PLANS FROM RECORD DRAWINGS, APPROVED UNDER DSA APP # 01-102258, SHOWN FOR REFERENCE ONLY.

B ROOM NAMES AND NUMBERS MAY NOT BE CONSISTENT BETWEEN SHEET A4.01 AND DEMOLITION AND NEW FLOOR PLANS.

C S.E.D. AND S.M.D. FOR NEW WORK ABOVE (E) CEILINGS. ALL EXISTING FINISHES OR MATERIALS DAMAGED OR DEMOLISHED DUE TO NEW CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL STATE OR REPLACED WITH NEW MATERIALS FINISHED TO MATCH EXISTING.

GRAPHIC KEY, BUILDING G

(E) 2'-0" x 4'-0" SUSPENDED A.C.T. CEILING SYSTEM
ALSO INDICATED BY: 4

(E) PAINTED 12" x 12" GLUE UP A.C.T., PAINTED
ALSO INDICATED BY: 1

(E) PAINTED GYPSUM BOARD CEILING OR SOFFIT
ALSO INDICATED BY: 2

3 REFER TO GRAPHIC HATCH INDICATION IN GRAPHIC KEY, ABOVE.

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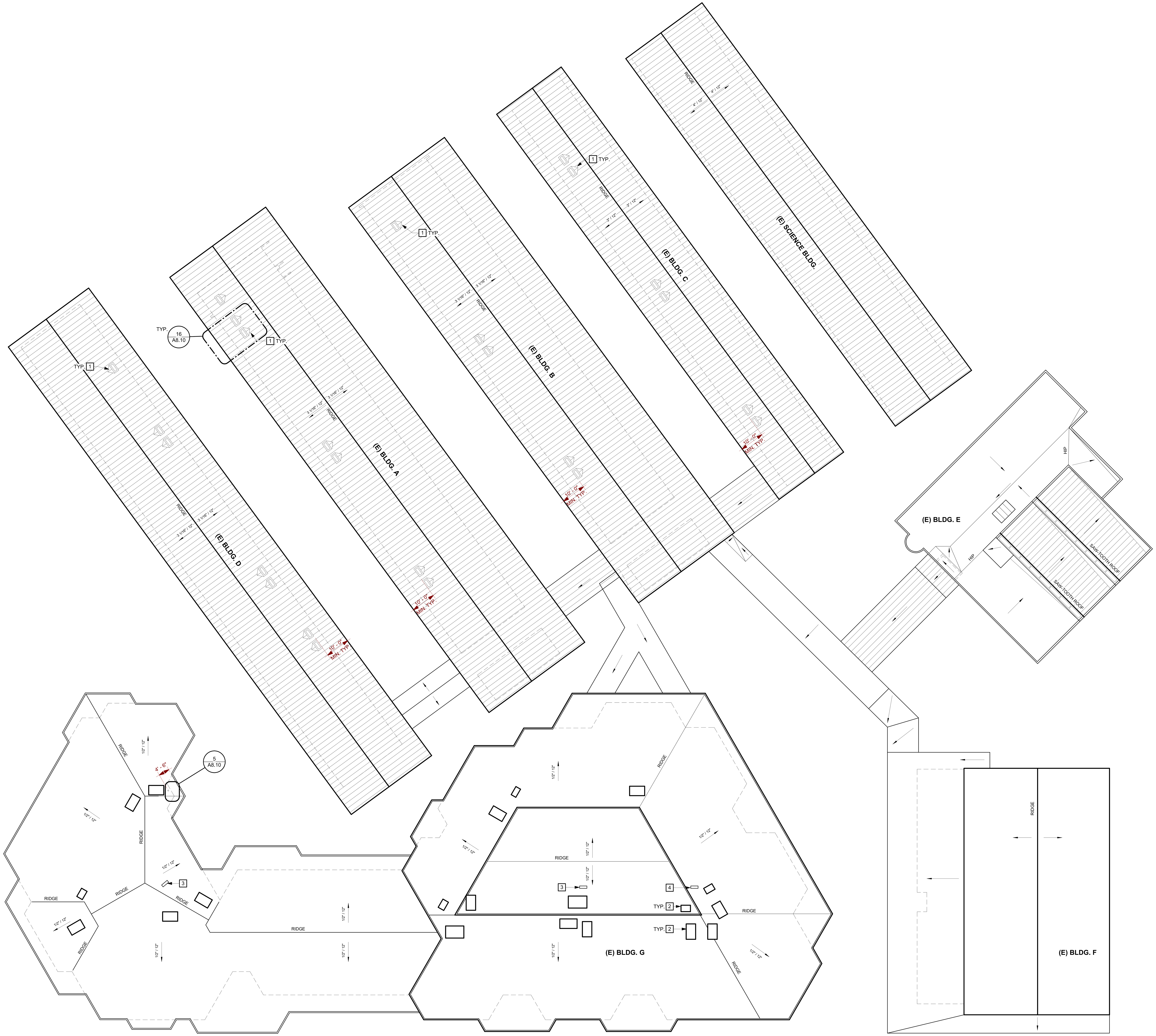
BACKCHECK	10/06/2021

SHEET
REFLECTED CEILING PLAN - BUILDING G

DATE 10/06/2021
JOB # 2021005.07
SHEET # A4.01



1 **PARTIAL SITE ROOF PLAN**
SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

A REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR EXTENT OF MECHANICAL AND ELECTRICAL WORK.

B SIZE OF MECHANICAL EQUIPMENT PADS ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY REQUIRED PAD DIMENSION WITH EQUIPMENT MANUFACTURER.

C (E) FLUES AND AIR INTAKES NOT SHOWN AT STANDING SEAM ROOFING. ABANDON IN PLACE. S.M.D.

ROOF PLAN KEYNOTES

1 MECHANICAL UNIT ON PLATFORM WITH CRICKET. S.M.D. AND SEE DETAIL 10/A8.10. PAINT MECHANICAL UNIT TO MATCH ROOF COLOR.
2 MECHANICAL UNIT, S.M.D. REMOVE EXISTING PLATFORM PRIOR TO PROVIDING NEW. PATCH ROOFING, SEE DETAIL 19/A8.10.
3 ELECTRICAL PANEL AT (E) MOUNT, S.E.D.
4 ELECTRICAL PANEL, S.E.D. AND SEE DETAIL 17/A8.10

GRAPHIC KEY

(E) STANDING SEAM, CLASS C MINIMUM

(E) SINGLE PLY ROOFING, CLASS C MINIMUM

OUTLINE OF WALL BELOW

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

aedis architects
www.aedisarchitects.com
387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT
BORREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP
LICENSED ARCHITECT THANG N. DO NO. C-018127 REN. 11/30/21 STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

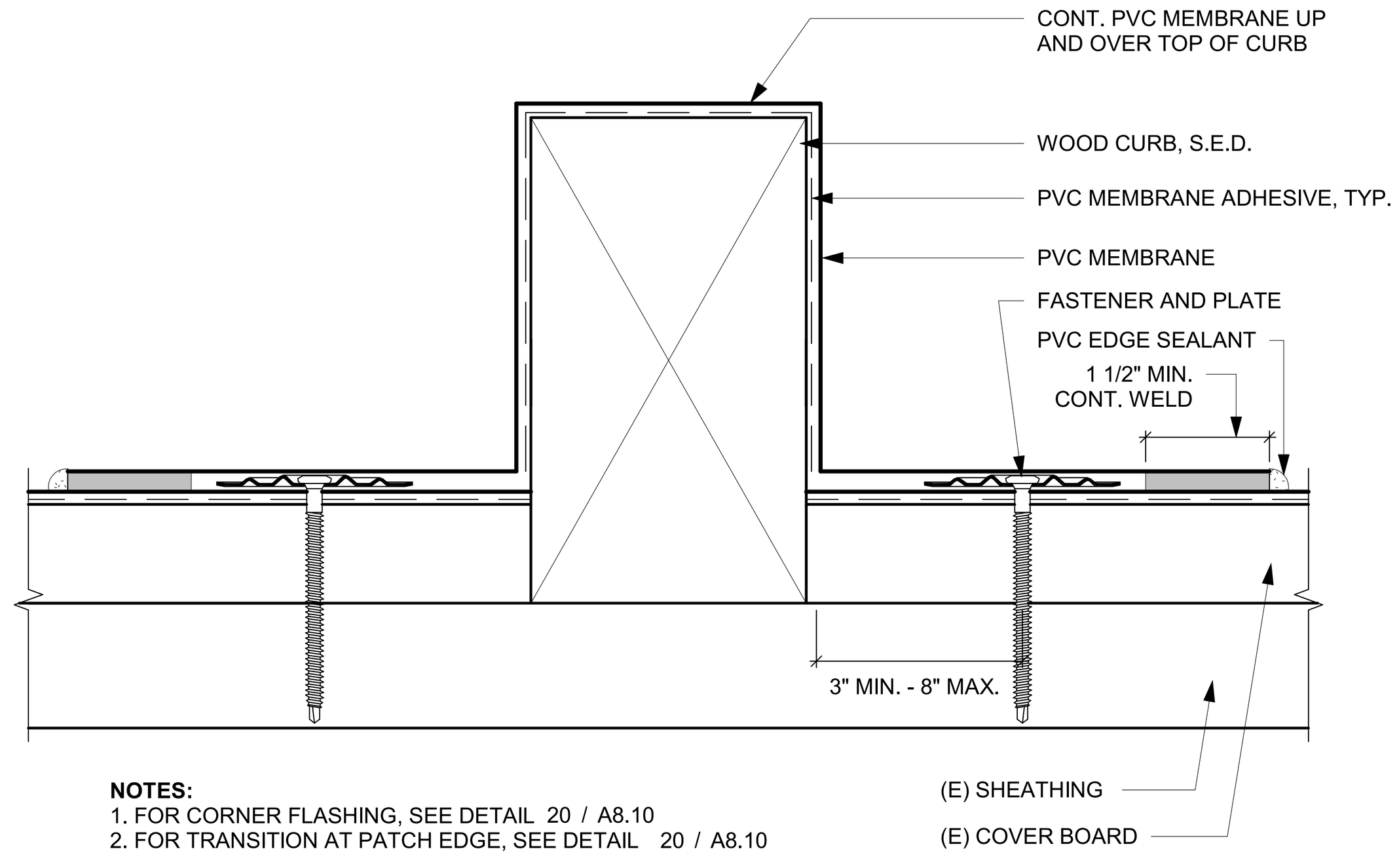
No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

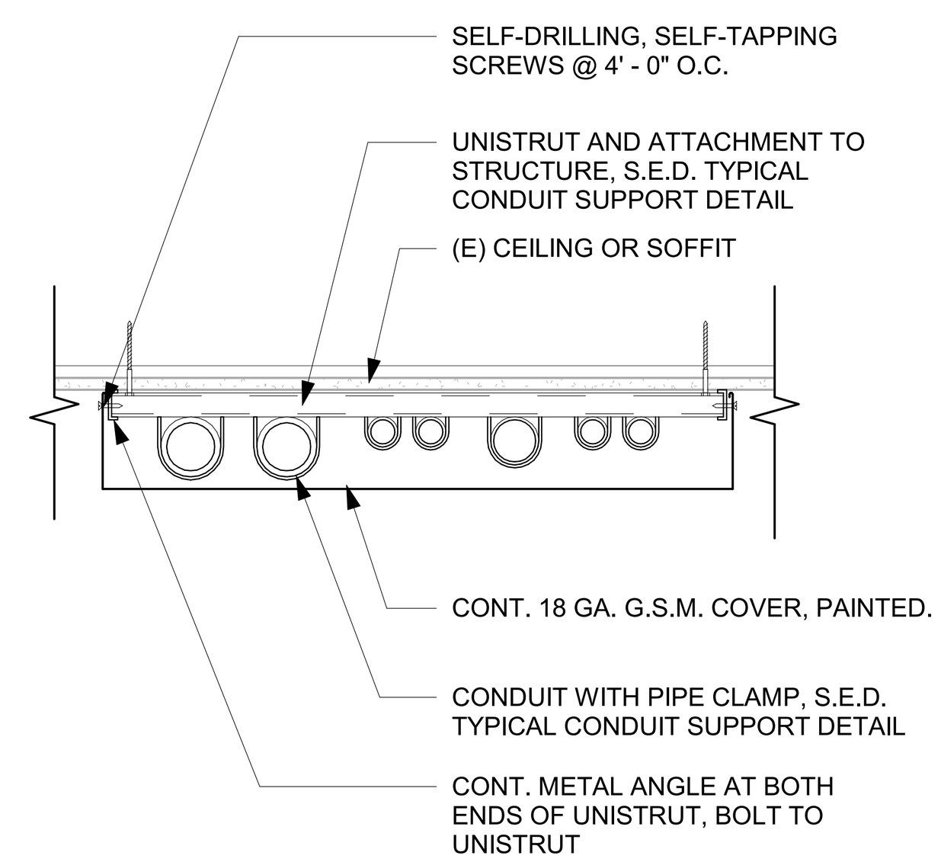
SHEET
PARTIAL SITE ROOF PLAN

DATE 10/06/2021
JOB # 2021005.07
SHEET #
A5.01

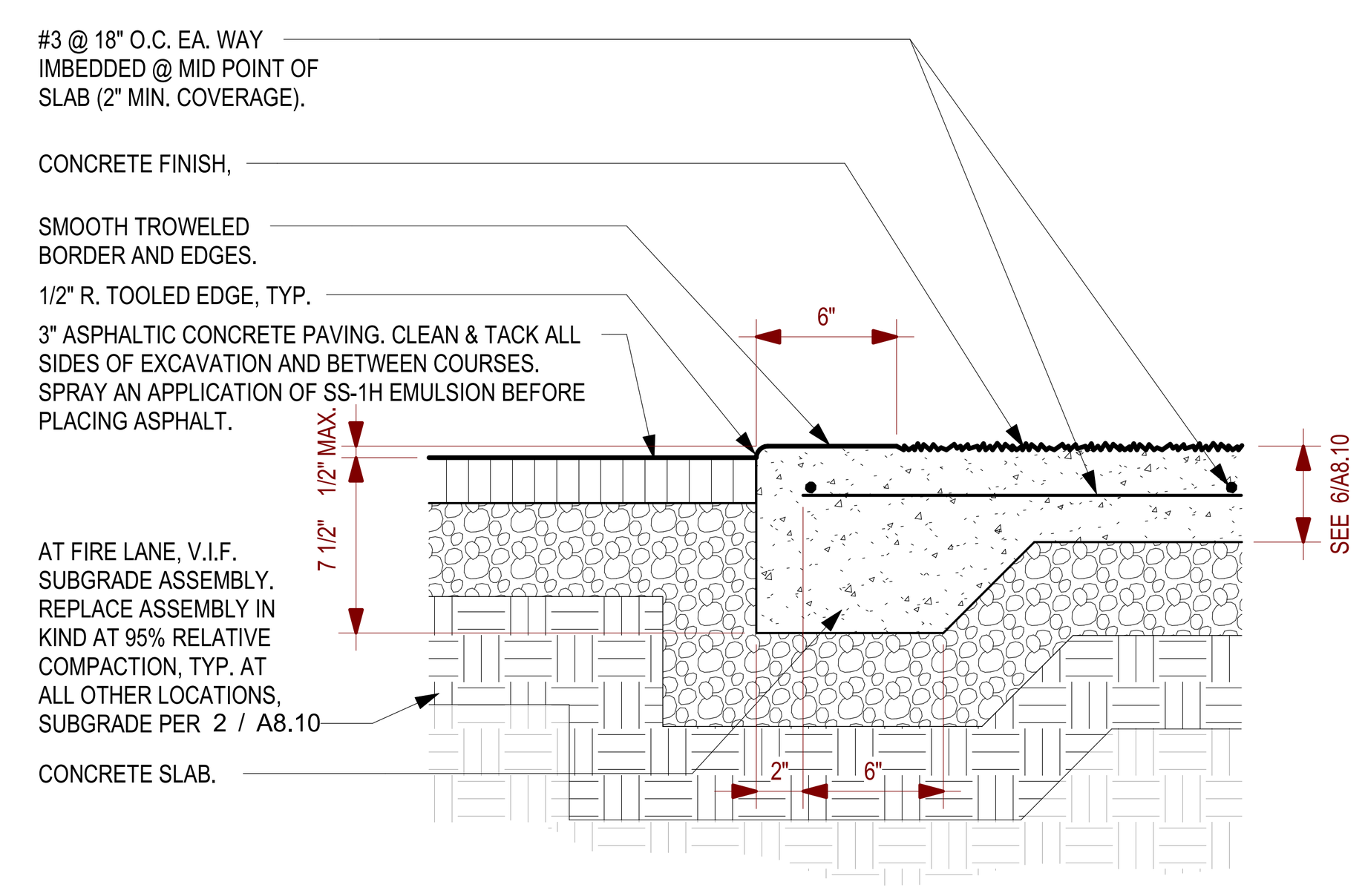


NOTES:
1. FOR CORNER FLASHING, SEE DETAIL 20 / A8.10
2. FOR TRANSITION AT PATCH EDGE, SEE DETAIL 20 / A8.10

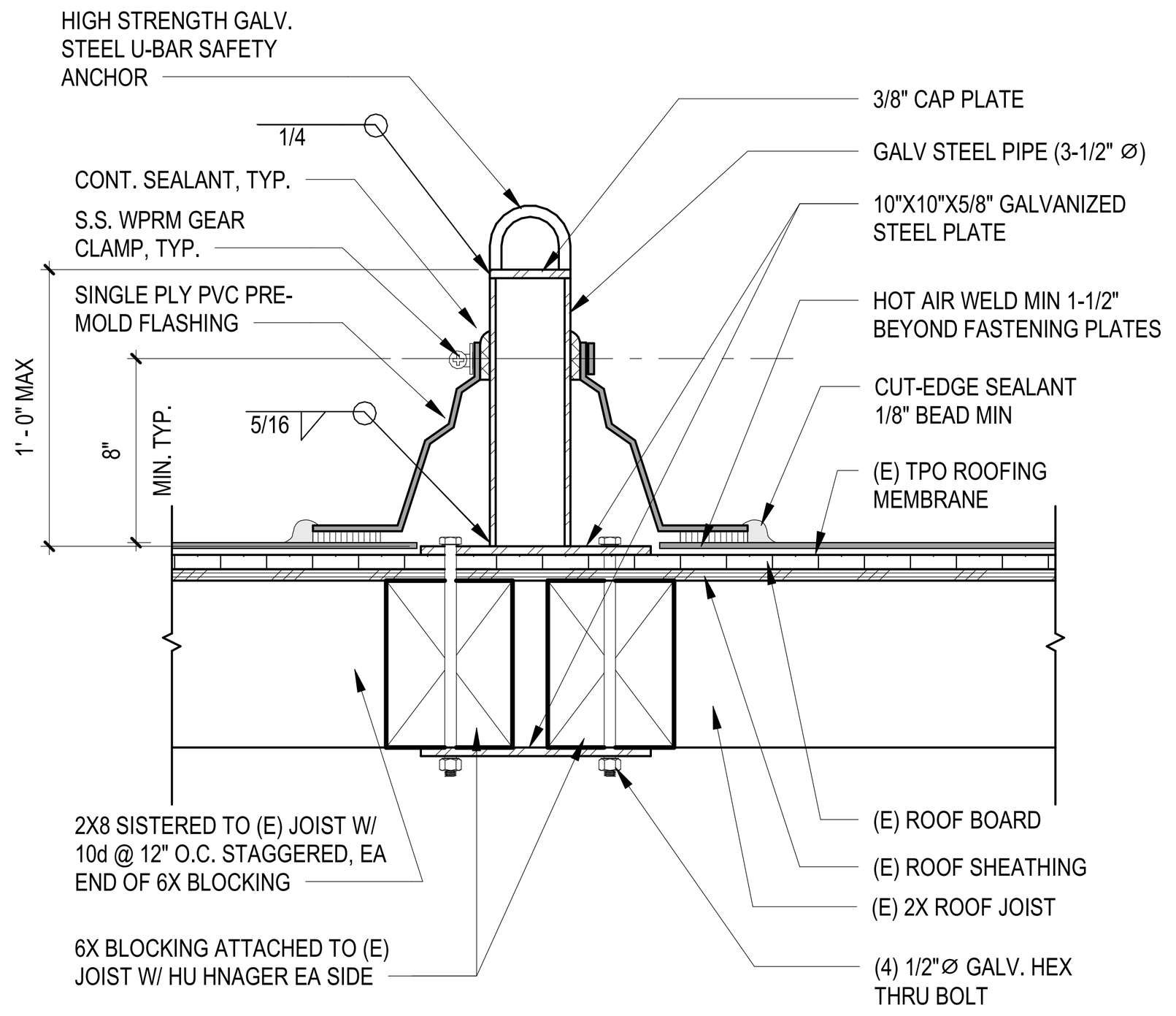
17 SINGLE PLY CURB FLASHING @ SLEEPER
SCALE: 6" = 1'-0"



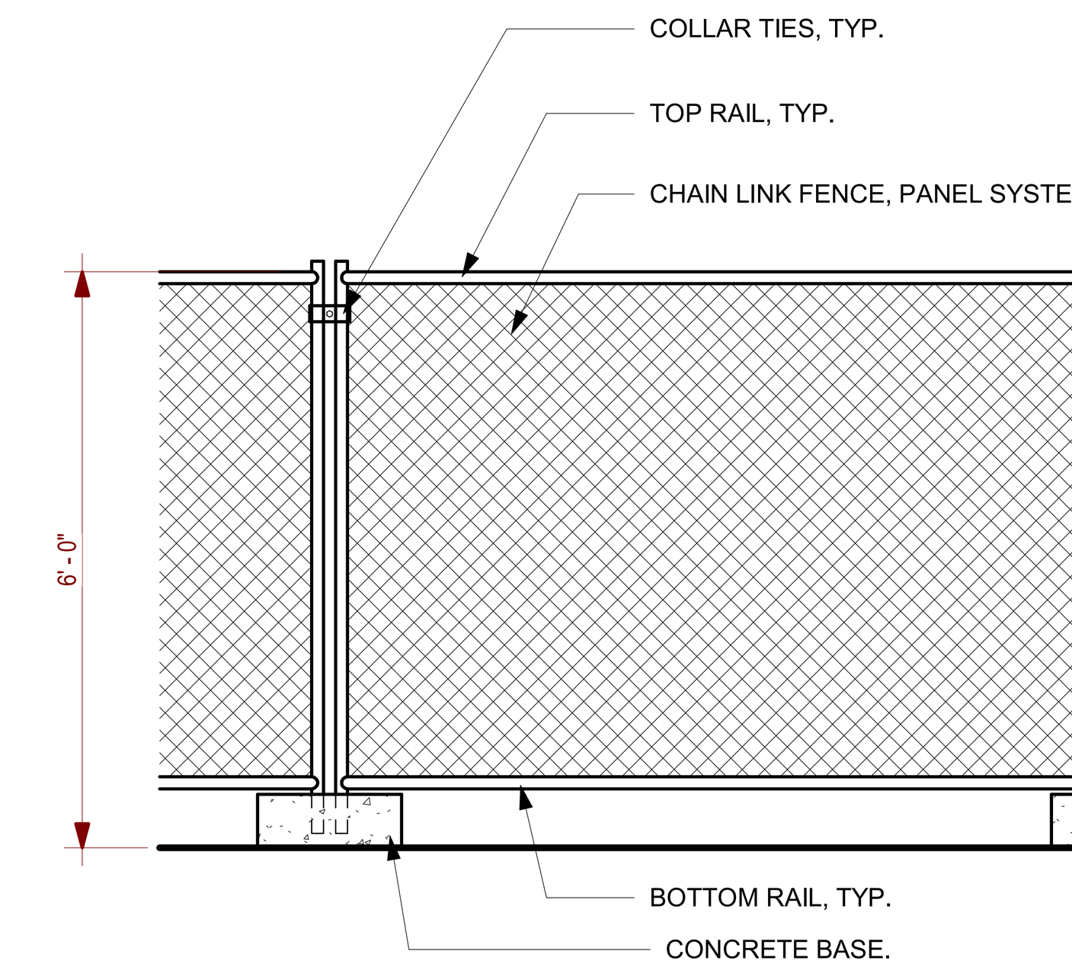
13 CONDUIT ENCLOSURE
SCALE: 1 1/2" = 1'-0"



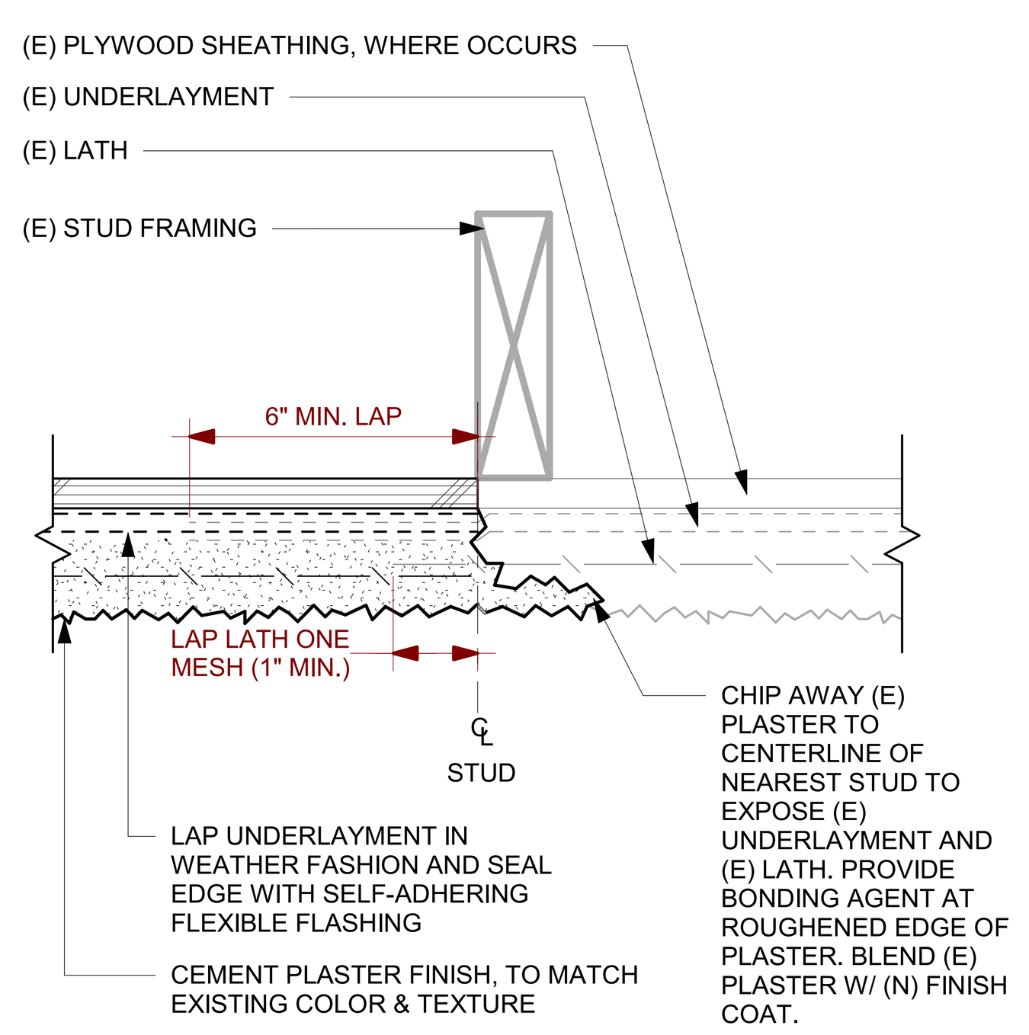
9 ASPHALT/CONCRETE JOINT
SCALE: 1 1/2" = 1'-0"



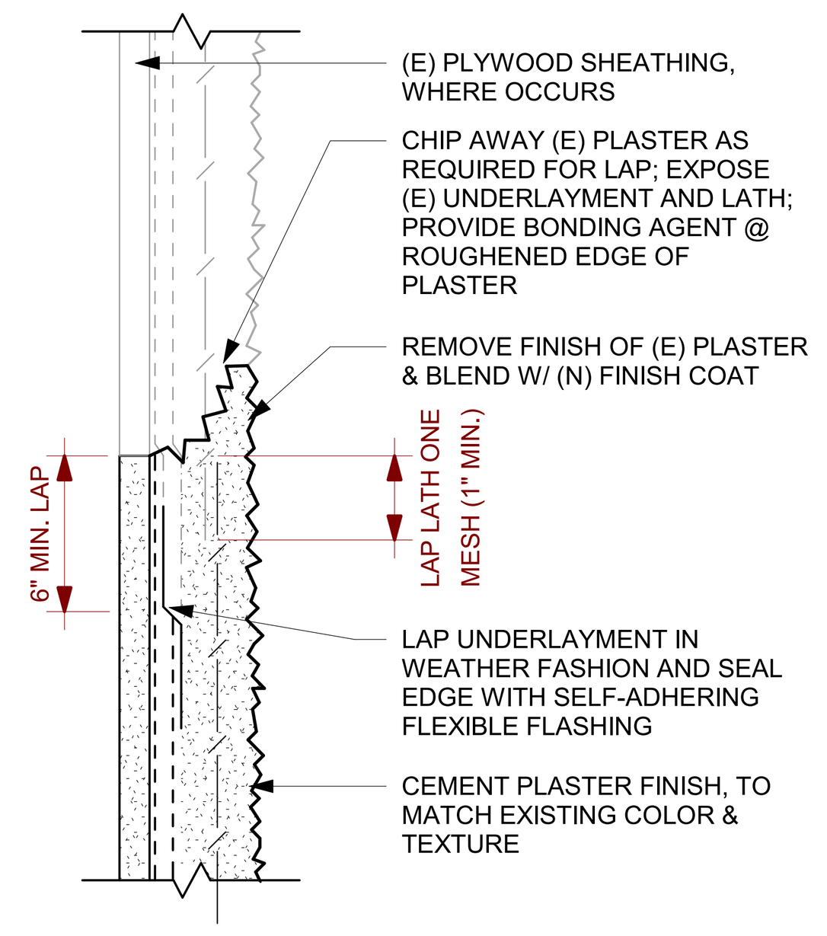
5 FALL PROTECTION ANCHOR DETAIL
SCALE: N.T.S.



1 REQ'D TEMPORARY CONSTRUCTION FENCE
SCALE: 1/2" = 1'-0"

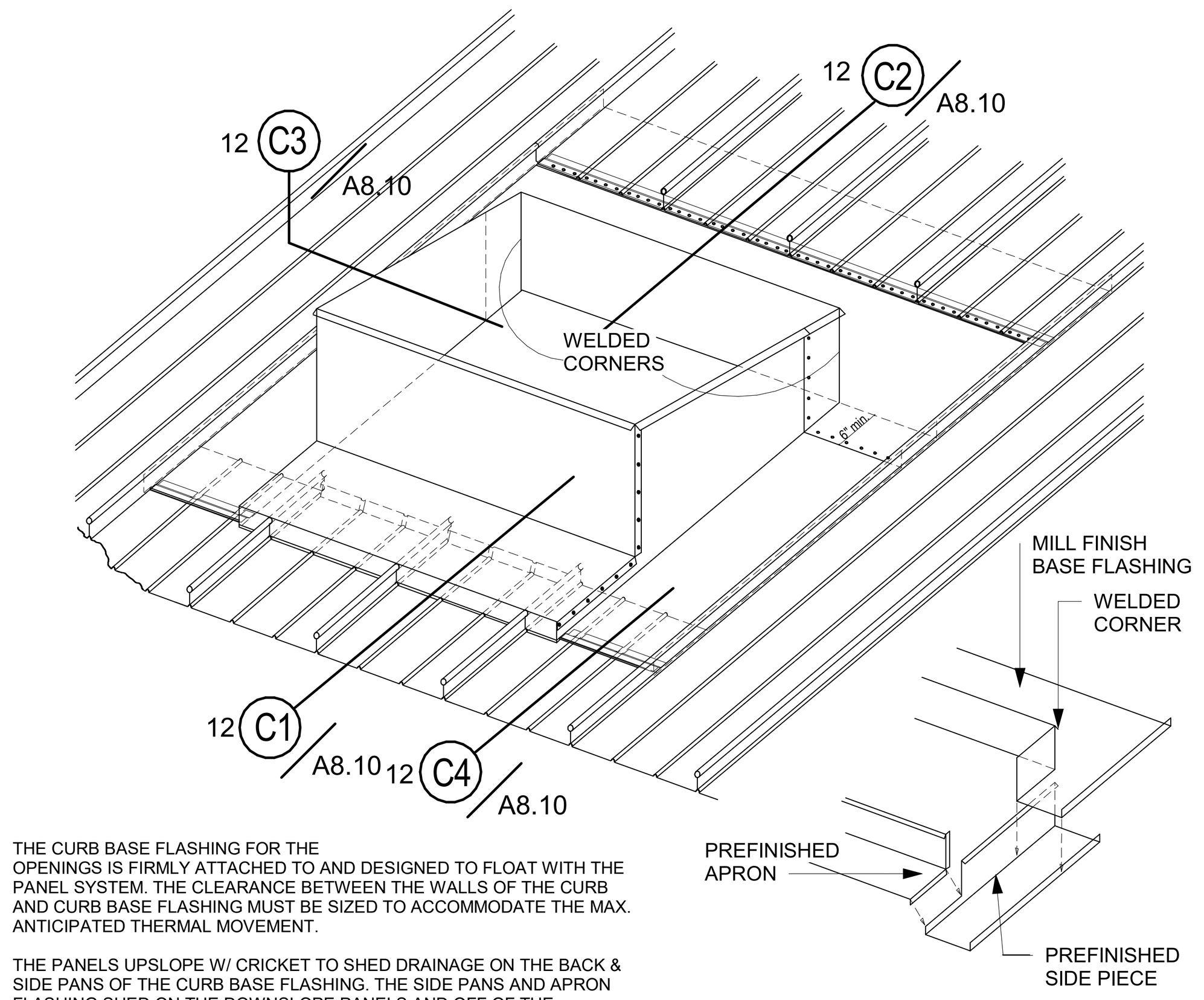


PLAN AT VERTICAL PATCH



SECTION AT HORIZONTAL PATCH

18 CEMENT PLASTER PATCHING
SCALE: 3" = 1'-0"

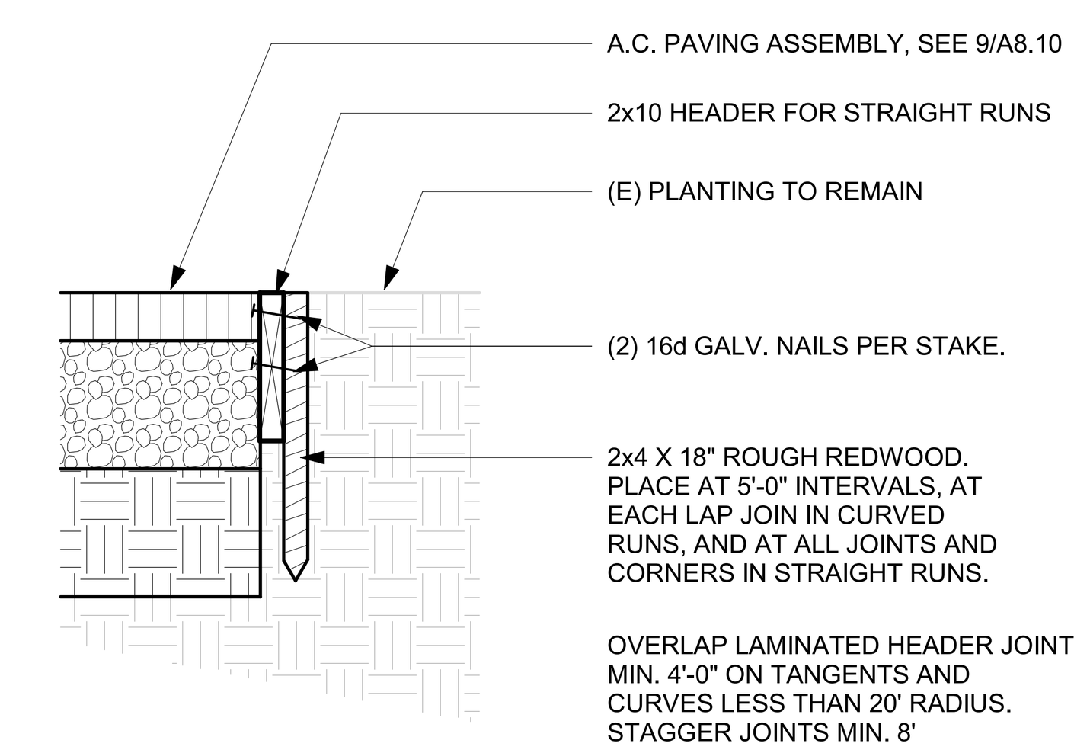


THE CURB BASE FLASHING FOR THE OPENINGS IS FIRMLY ATTACHED TO AND DESIGNED TO FLOAT WITH THE PANEL SYSTEM. THE CLEARANCE BETWEEN THE WALLS OF THE CURB AND CURB BASE FLASHING MUST BE SIZED TO ACCOMMODATE THE MAX. ANTICIPATED THERMAL MOVEMENT.

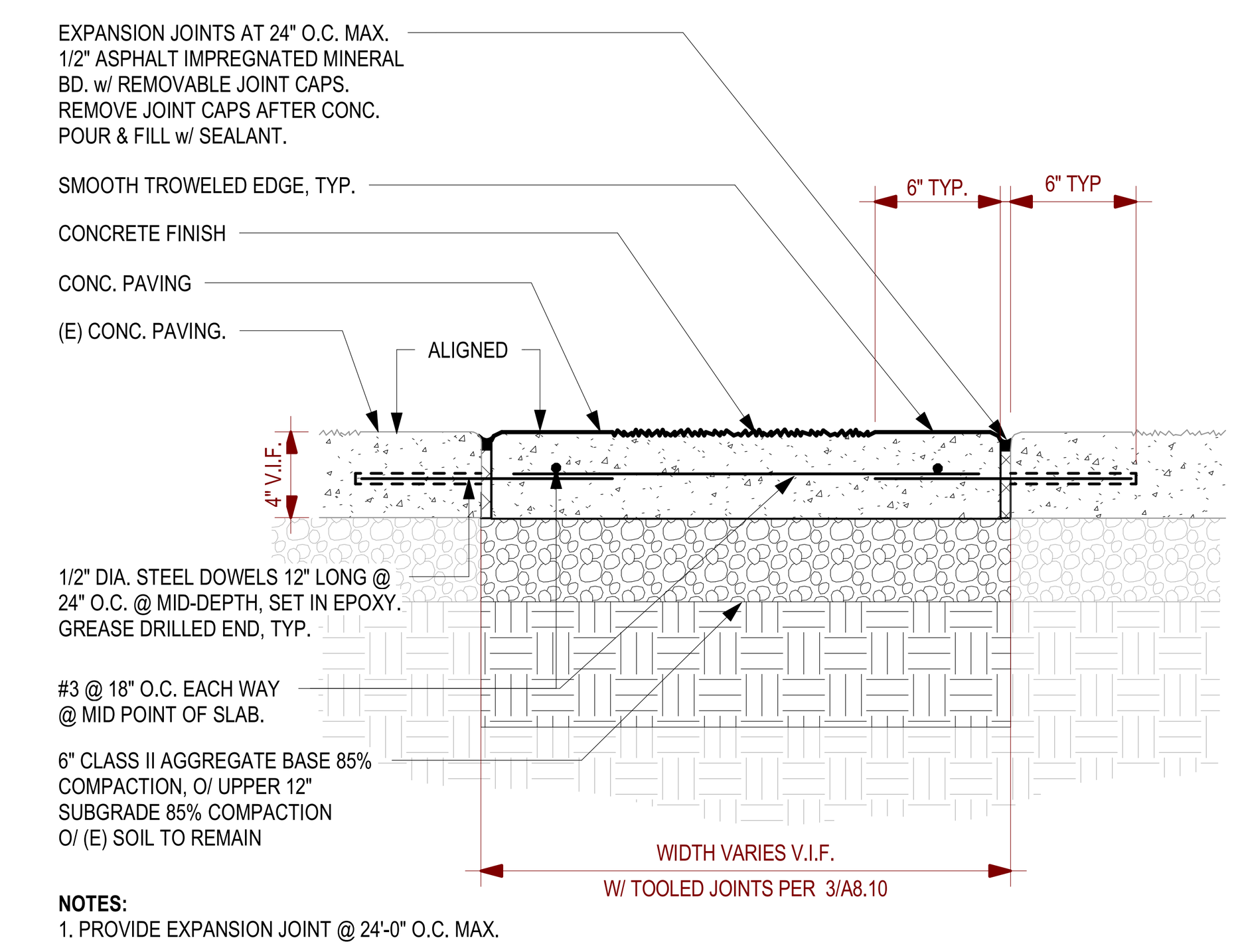
THE PANELS UPSLOPE W/ CRICKET TO SHED DRAINAGE ON THE BACK & SIDE PANS OF THE CURB BASE FLASHING. THE SIDE PANS AND APRON FLASHING SHED ON THE DOWNSLOPE PANELS AND OFF OF THE BUILDING.

FOR PROJECTS WITH A WEATHERTIGHT WARRANTY, THE CURB BASE FLASHING MUST BE INSTALLED AS INDICATED IN ORDER TO QUALIFY FOR THE MANUFACTURERS WARRANTY

10 PLATFORM FLASHING AT STANDING SEAM.
SCALE: 3" = 1'-0"

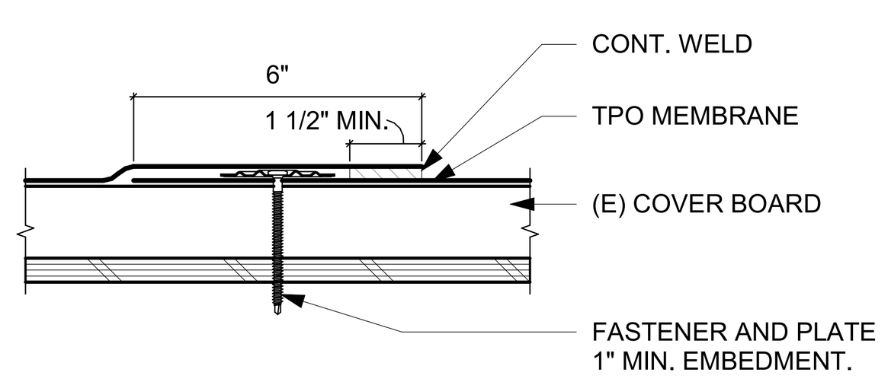


6 EDGE OF ASPHALT PAVING
SCALE: 1" = 1'-0"

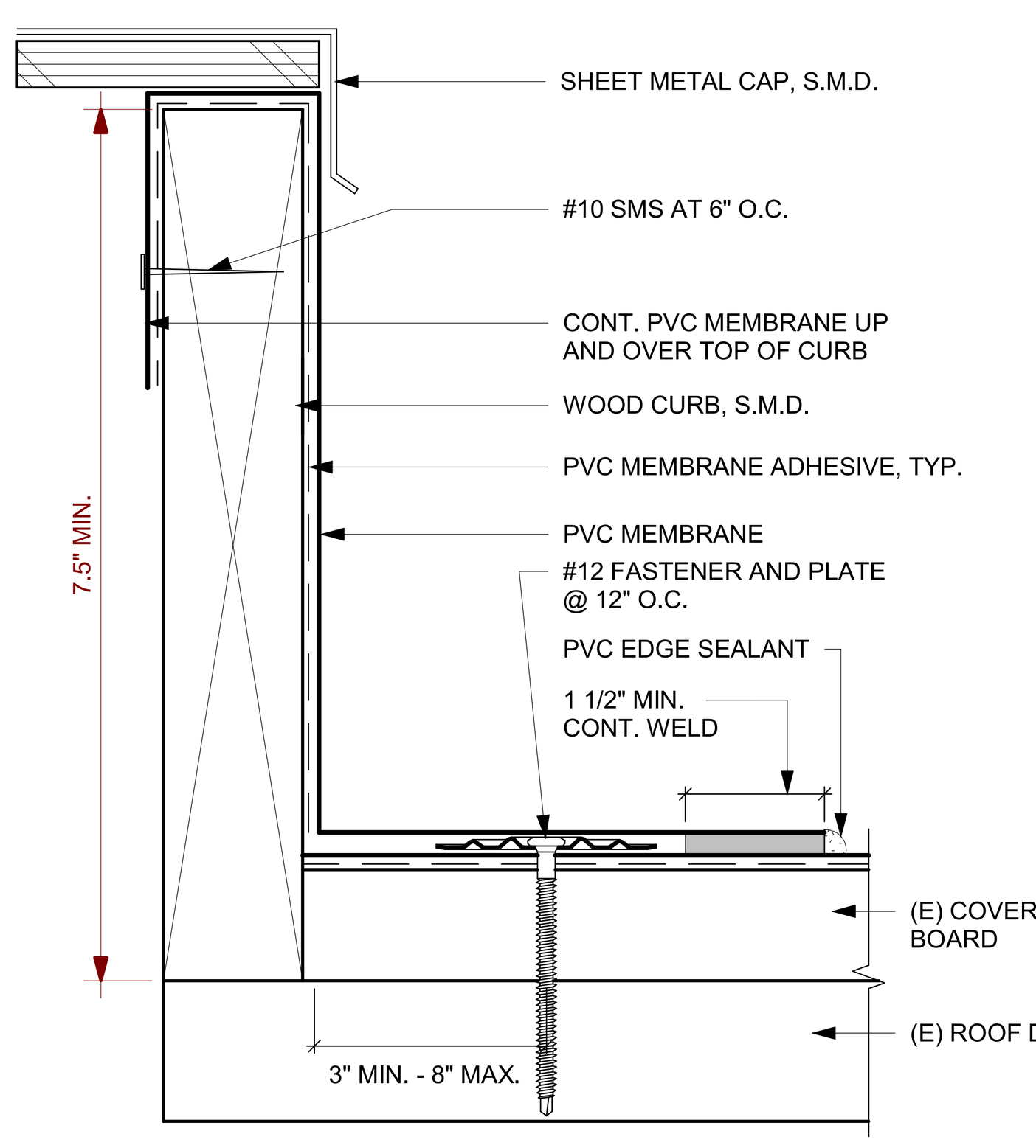


NOTES:
1. PROVIDE EXPANSION JOINT @ 24'-0" O.C. MAX.

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

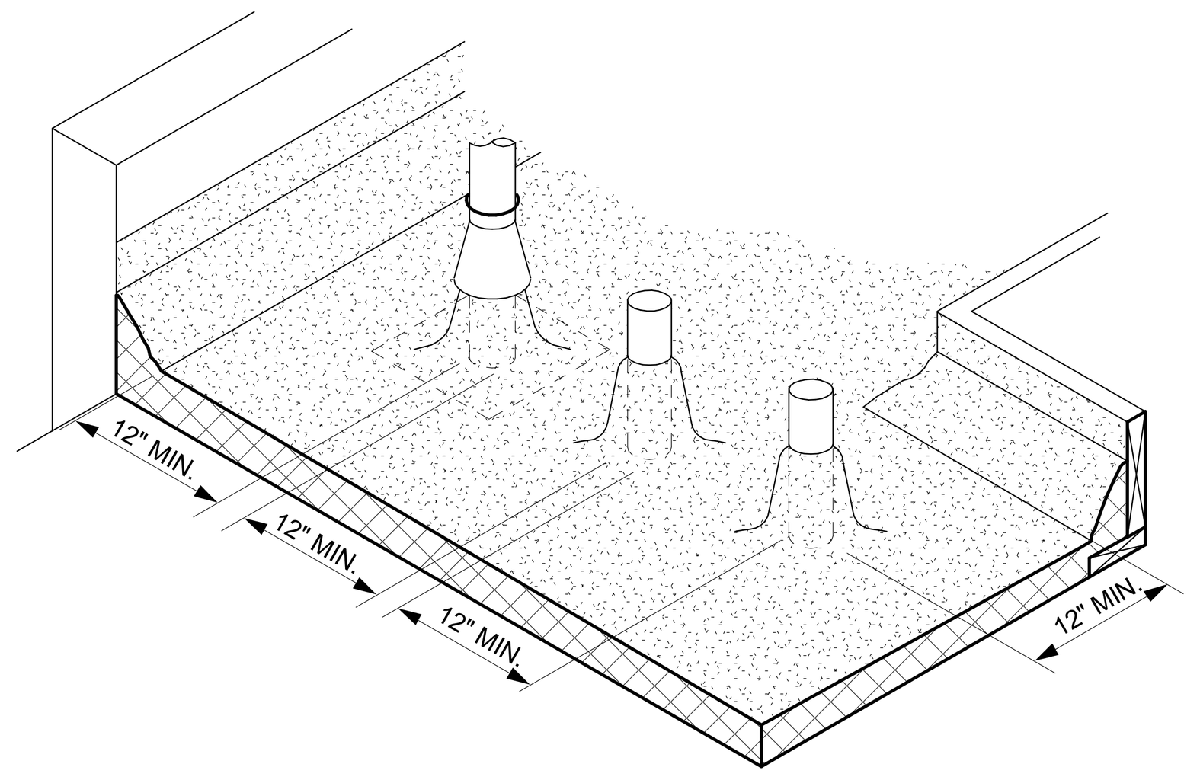


14 SINGLE PLY ROOFING PATCH EDGE
SCALE: 3" = 1'-0"

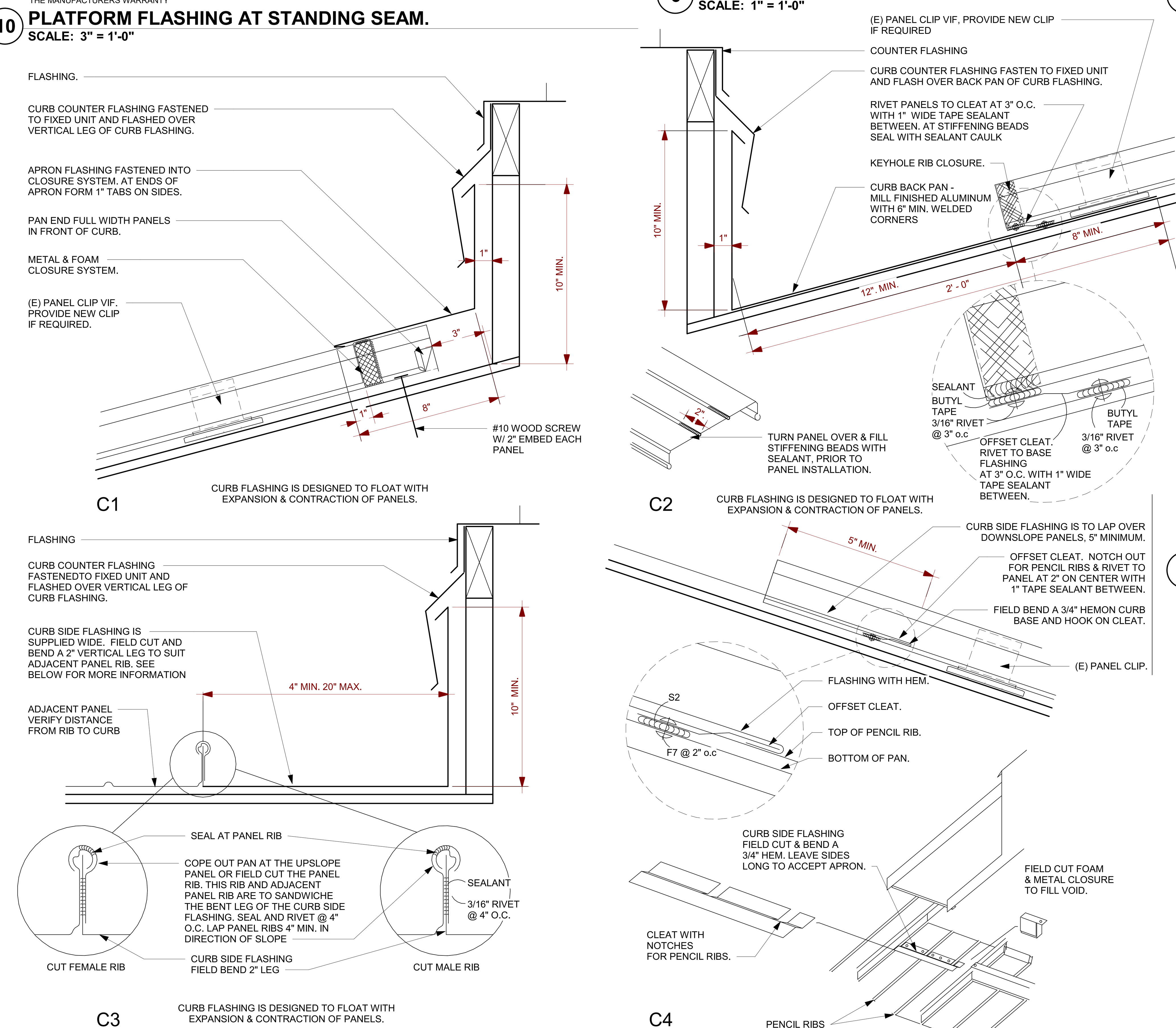


NOTES:
1. FOR CORNER FLASHING, SEE DETAIL 20 / A8.10
2. FOR TRANSITION AT PATCH EDGE, SEE DETAIL 20 / A8.10

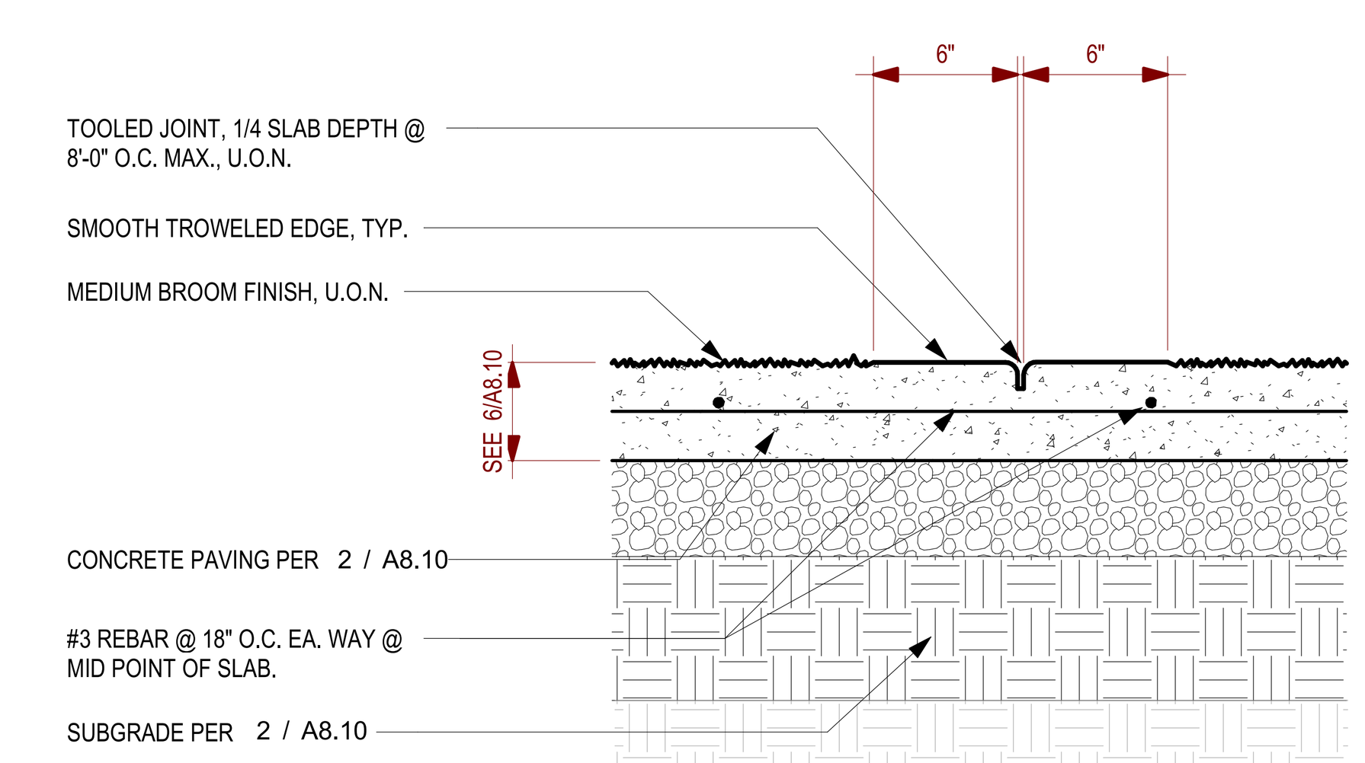
19 SINGLE PLY CURB FLASHING @ PLATFORM
SCALE: 6" = 1'-0"



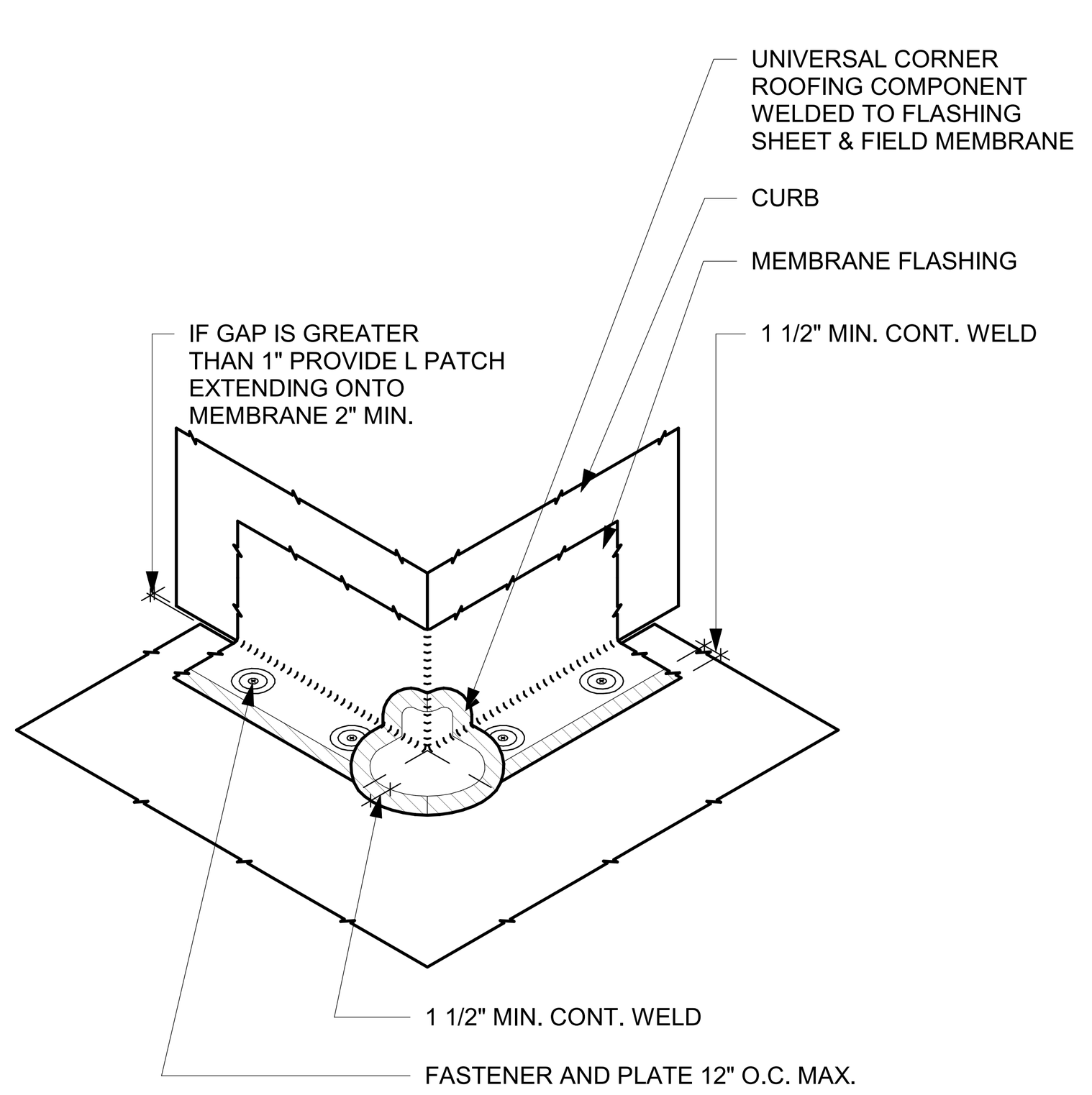
15 CLEARANCES BETWEEN PIPES, WALLS & CURBS
SCALE: 1" = 1'-0"



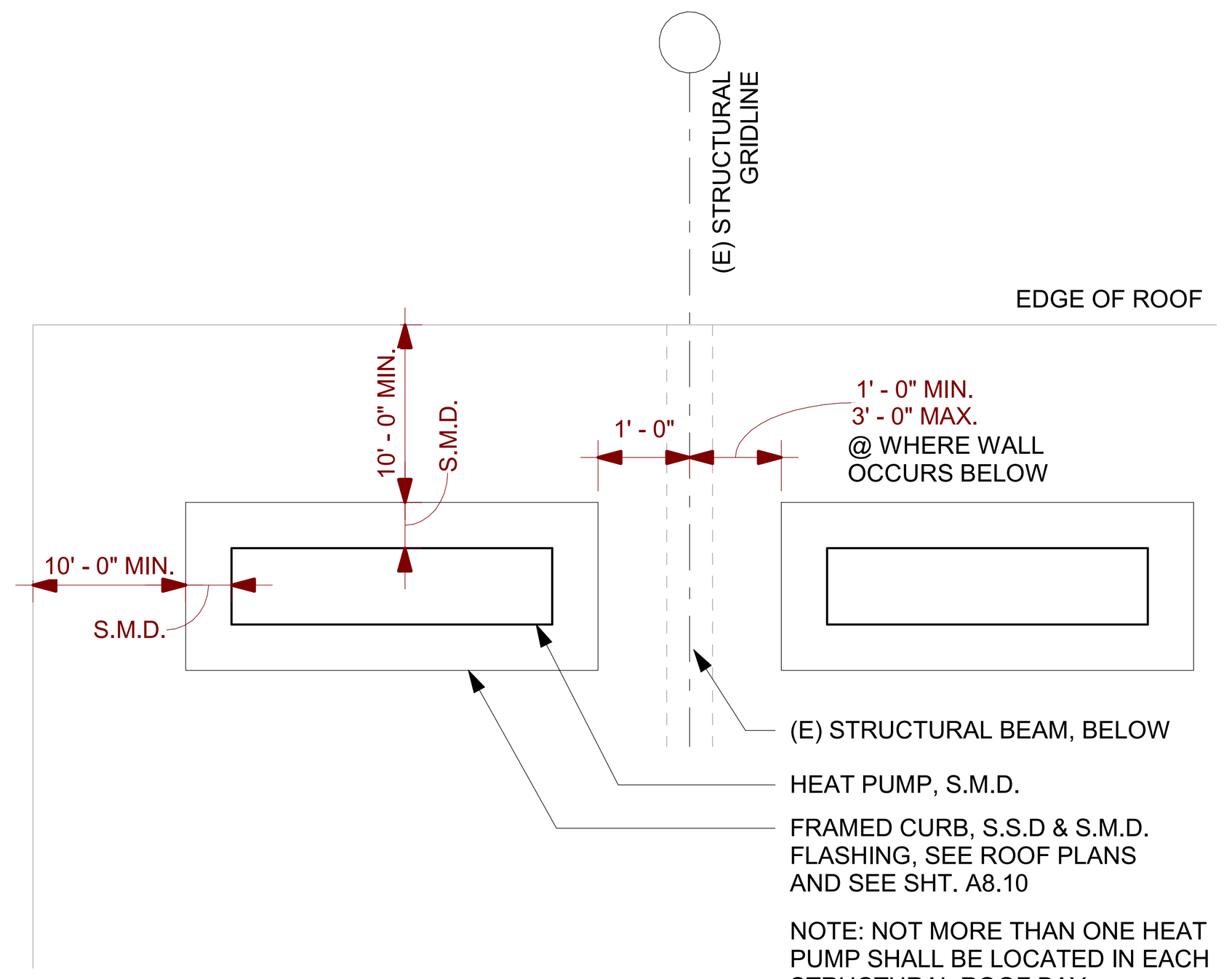
12 PLATFORM FLASHING AT STANDING SEAM DETAILS
SCALE: 3" = 1'-0"



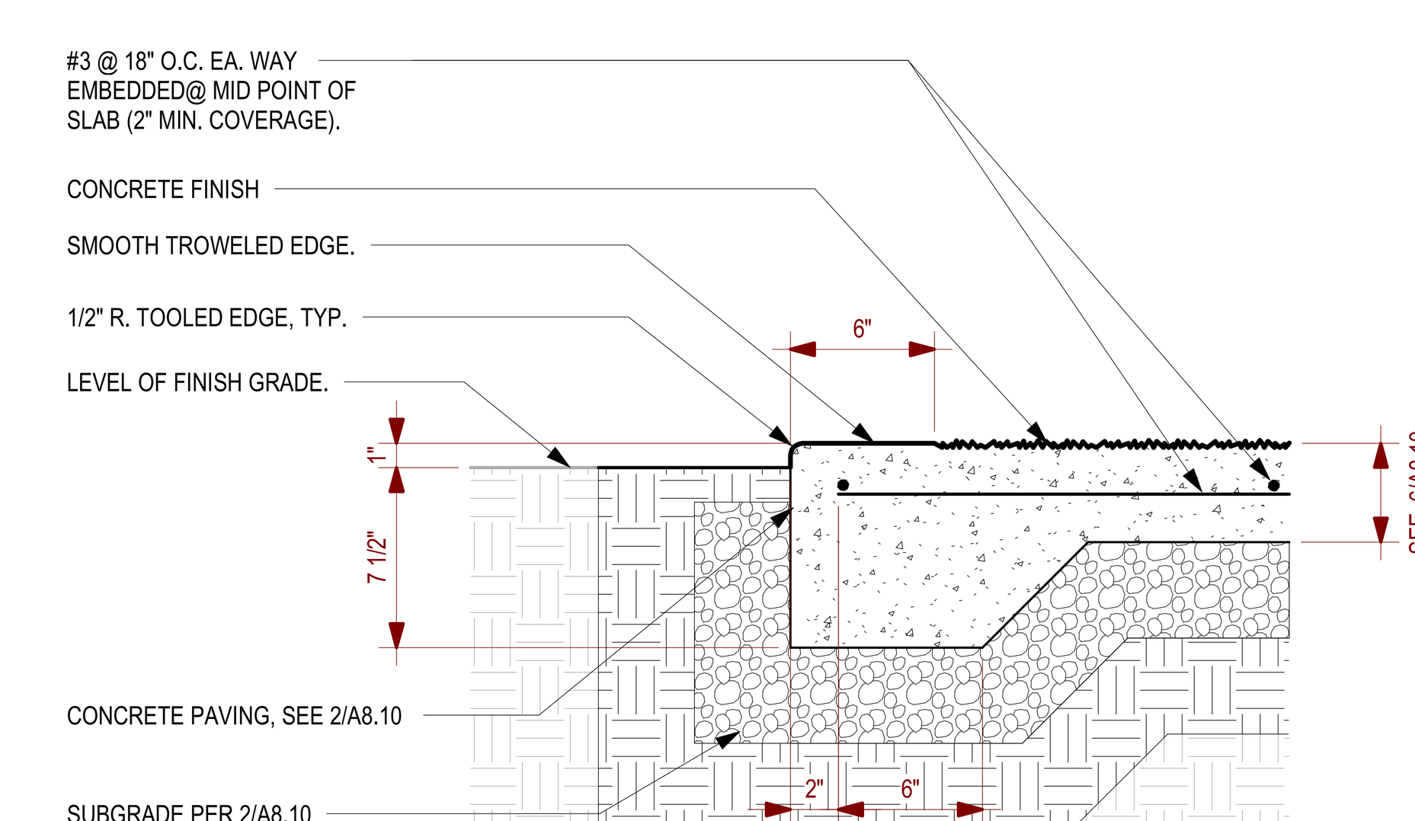
3 TOOLED JOINT (TJ)
SCALE: 1 1/2" = 1'-0"



20 SINGLE PLY CURB CORNER FLASHING
SCALE: 1" = 1'-0"



16 HEAT PUMP TYP. ROOF LAYOUT, N.T.S.
SCALE: 1/2" = 1'-0"



4 EDGE OF CONCRETE PAVING
SCALE: 1 1/2" = 1'-0"

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PROJECT
BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

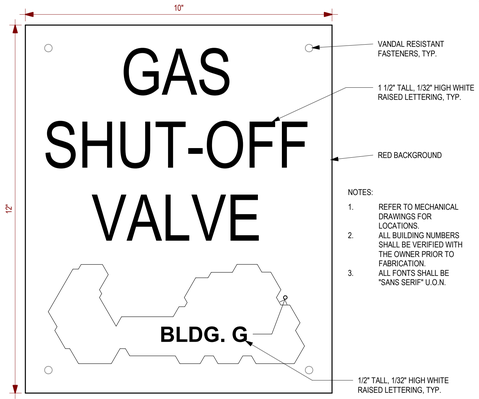
No.	Description	Date
△		

MILESTONES

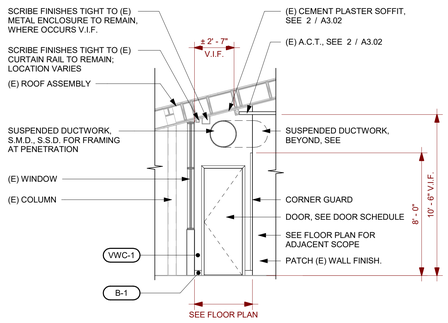
DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET
EXTERIOR DETAILS

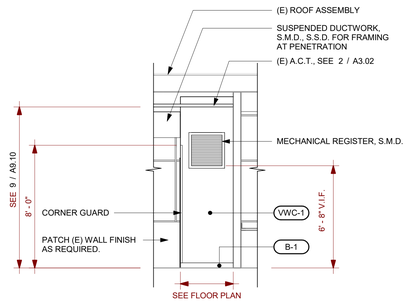
DATE 10/06/2021
JOB # 2021005.07
SHEET #
A8.10



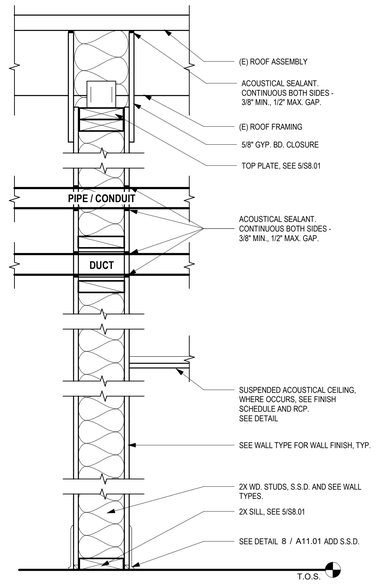
14 GAS SHUT OFF SIGNAGE
SCALE: 6" = 1'-0"



9 HVAC ENCLOSURE TYPICAL ELEVATION
SCALE: 1/4" = 1'-0"

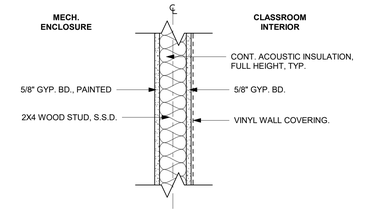


10 HVAC ENCLOSURE TYPICAL ELEVATION
SCALE: 1/4" = 1'-0"

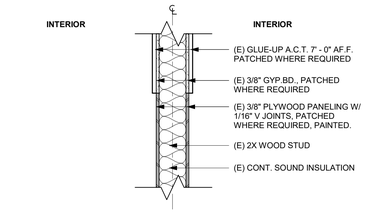


NOTES:
1. FOR RECESSED ACCESSORIES OR CABINETS, PROVIDE BLOCKING, GYPSUM BOARD AND ACOUSTICAL SEALANT SIMILAR TO DETAIL AT DUCT.

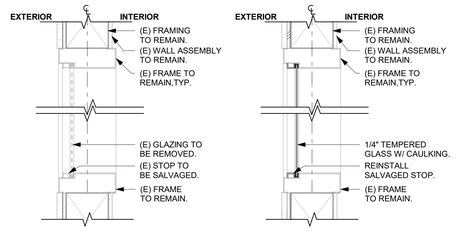
6 TYPICAL SOUND TREATED NONRATED WALL
SCALE: 1 1/2" = 1'-0"



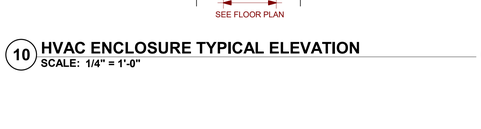
1 WALL TYPE 1 - MECH. ENCLOSURE
SCALE: 1 1/2" = 1'-0"



2 (E) WALL TYPE 2 - GLUE-UP A.C.T.
SCALE: 1 1/2" = 1'-0"

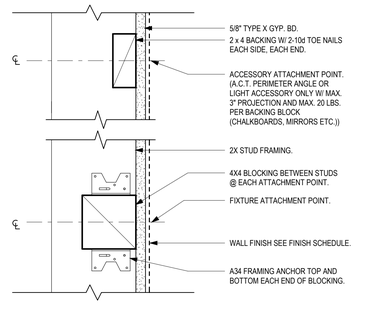


15 GLAZING REPLACEMENT
SCALE: 1 1/2" = 1'-0"

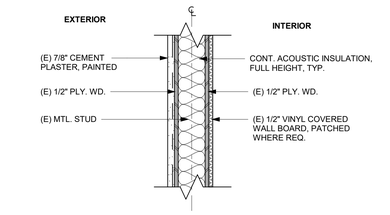


NOTE:
PERIMETER ANGLE TO BE MIN. 2" PER IR 25-2.13, OR, "SEISMIC RX CODE COMPLIANT SOLUTION" BERC 2 CLIP (ARMSTRONG SYSTEM ONLY).

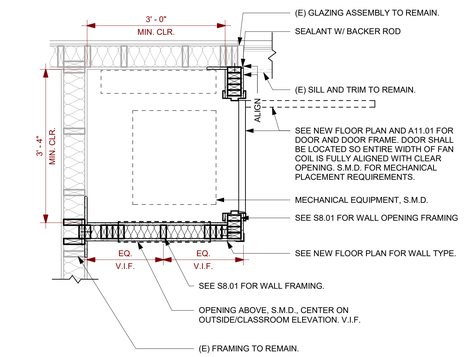
11 SUSPENDED CEILING FIXED END CONNECTION
SCALE: 1 1/2" = 1'-0"



7 TYPICAL WOOD WALL BACKING/ BLOCKING
SCALE: 3" = 1'-0"

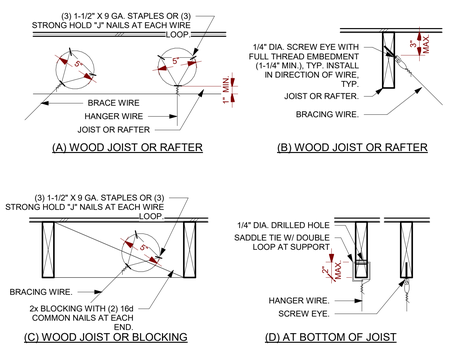


3 (E) WALL TYPE 3 - VINYL COVERED WALL BD.
SCALE: 1 1/2" = 1'-0"



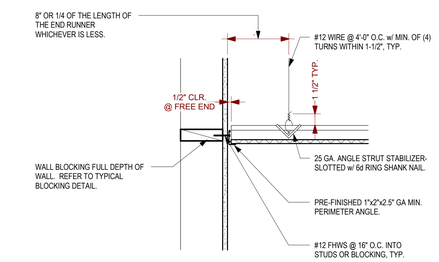
NOTE: NOT ALL MECHANICAL ELEMENTS SHOWN. S.M.D. FOR MORE INFORMATION.

16 MECH. ENCLOSURE CLEARANCES, TYP.
SCALE: 3/4" = 1'-0"



NOTE: HANGER WIRE AT WOOD FRAMING SHALL BE #12 GAGE WITH (3) TIGHT TURNS WITHIN 3",. AT BRACE WIRE PROVIDE (4) TIGHT TURNS AT 1 1/2"

12 WIRE ATTACHMENT AT WOOD FRAMING
SCALE: 1 1/2" = 1'-0"



NOTE:
PERIMETER ANGLE TO BE MIN. 2" PER IR 25-2.13, OR, "SEISMIC RX CODE COMPLIANT SOLUTION" BERC 2 CLIP (ARMSTRONG SYSTEM ONLY).

8 SUSP. CEILING FREE END CONNECTION
SCALE: 1 1/2" = 1'-0"

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PROJECT

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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT — STATE OF CALIFORNIA — 10/07/21

STATE

DSA FILE NUMBER 41-26

APPL # 01-119557

REVISIONS

No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

INTERIOR DETAILS, WALL TYPES, AND INTERIOR ELEVATIONS

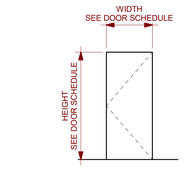
DATE 10/06/2021

JOB # 2021005.07

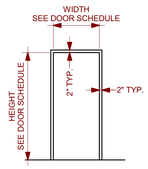
SHEET # A9.10

DOOR SCHEDULE

DOOR ID	OPENING SIZE		DOOR		FRAME		DETAILS (Sheet A11.01 U.O.N.)				HARDWARE GROUP
	WIDTH	HEIGHT	TYPE	FINISH	TYPE	FINISH	HEAD	JAMB-1	JAMB-2	SILL	
14a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
15a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
16a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
17a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
18a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
19a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
20a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
21a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
22a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
23a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
24a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
25a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
26a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
27a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
28a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
29a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
30a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
31a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
32a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
33a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
34a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01
35a	2' - 6"	7' - 0"	A	P-2	F1	P-3	11/A11.01	11/A11.01	11/A11.01	4/A11.01	01



A **WOOD**
RATED - 0 MIN



F1 **METAL**

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

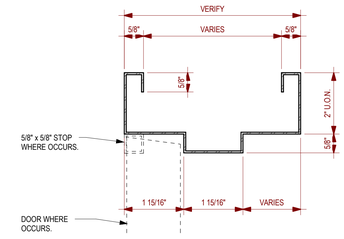
FRAME TYPES
SCALE: 1/4" = 1'-0"

DOOR SCHEDULE GENERAL NOTES

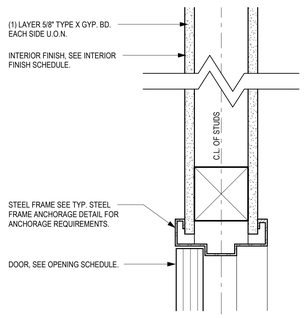
1 CONTRACTOR SHALL COORDINATE, PRIOR TO FABRICATION, DOOR FRAME DEPTH TO ACCEPT ALL WALL FINISHES AS DETAILED IN THE DRAWINGS.

FINISH LEGEND

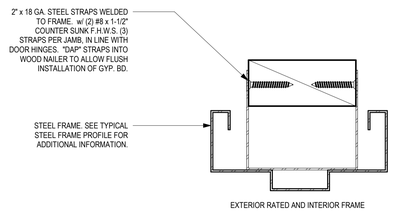
MARK	DESCRIPTION	MFR. / BRAND	COLOR / FINISH	COMMENTS
(E) CPT-1	(E) CARPET (SHEET)			
(E) SF-1	(E) CEMENT PLASTER SOFFIT			
(E) VCT-1	(E) VINYL COMPOSITION TILE			
(E) VSF-1	(E) VINYL SHEET FLOORING			
ACT-1	2'-0" X 4'-0" ACOUSTICAL CEILING TILES	SEE SPECS.		
ACT-2	1'-0" X 1'-0" ACOUSTICAL WALL TILES	SEE SPECS.		
B-1	4" RUBBER TOP SET BASE	SEE SPECS.		
GB-1	GYPSUM BOARD	SEE SPECS.		
P-1	PAINT			
P-2	PAINT			
P-3	PAINT			
VWC-1	VINYL WALL COVERING	SEE SPECS.		



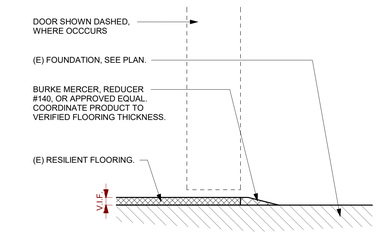
10 TYPICAL STEEL FRAME DOOR PROFILE
SCALE: 6" = 1'-0"



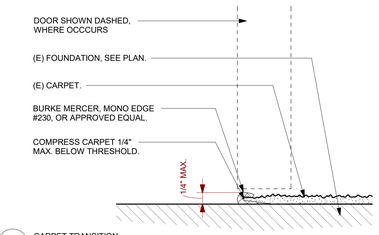
11 INTERIOR STEEL FRAME HEAD AND JAMB
SCALE: 3" = 1'-0"



7 TYPICAL STEEL FRAME ANCHORAGE1
SCALE: 6" = 1'-0"

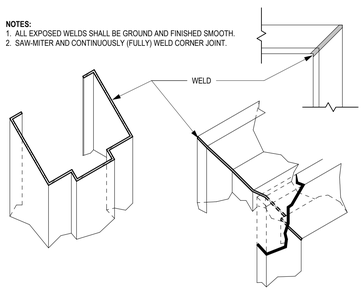


A RESILIENT FLOORING TRANSITION

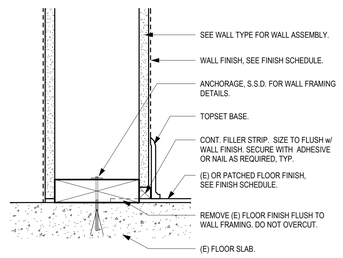


B CARPET TRANSITION

NOTES:
1. ALL EXPOSED WELDS SHALL BE GROUND AND FINISHED SMOOTH.
2. SAW-MITER AND CONTINUOUSLY (FULLY) WELD CORNER JOINT.



12 TYP. WELDING @ STEEL FRAME CORNER
SCALE: 1 : 1



8 INTERIOR WALL BASE
SCALE: 3" = 1'-0"

4 FLOORING TRANSITION
SCALE: 6" = 1'-0"

FINISH SCHEDULE

NUMBER	ROOM NAME	FLOOR FINISH	BASE FINISH	WALL FINISH	CEILING FINISH	COMMENTS
14	CLASSSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
15A	CLASSSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
15B	CLASSSROOM	(E) CPT-1	B-1	VWC-1, GB-1	ACT-1, (E) SF-1	
16	CLASSSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
17	CLASSSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
18	CLASSSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
19	CLASSSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
20	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
21	CLASSROOM	(E) CPT-1	B-1	VWC-1, GB-1	ACT-1, (E) SF-1	
22	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
23	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
24	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
25	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
26	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
27	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
28	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
29	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
30	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
31	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
32	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
33	CLASSROOM	(E) VSF-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
34	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
35	CLASSROOM	(E) CPT-1	B-1	VWC-1, ACT-2, GB-1	ACT-1, (E) SF-1	
36	CLASSROOM	(E) CPT-1	B-1	VWC-1, VWB-1, GB-1	ACT-1	
37	SCIENCE CLASSROOM	(E) VCT-1	B-1	VWC-1, VWB-1, GB-1	ACT-1	
38	SCIENCE CLASSROOM	(E) VCT-1	B-1	VWC-1, VWB-1, GB-1	ACT-1	
39	SCIENCE CLASSROOM	(E) VCT-1	B-1	VWC-1, VWB-1, GB-1	ACT-1	

GENERAL FINISH NOTES

A WHERE MULTIPLE FINISHES ARE CALLED OUT, REFER TO INTERIOR ELEVATIONS FOR LOCATIONS OF INDIVIDUAL FINISHES.

B PROVIDE FINISHES TO COMPLY WITH FLAME SPREAD & SMOKE DENSITY REQUIREMENTS OF CBC 803 and 804.

C PATCH FINISHES TO MATCH ADJACENT AT ALL SURFACES REMOVED TO FACILITATE CONSTRUCTION.

D EXISTING FINISHES THAT MIGHT OCCUR OUTSIDE OF THE AREA OF WORK HAVE BEEN OMITTED.

E (E) FLOORING INDICATED FOR REFERENCE ONLY

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

aedis architects
www.aedisarchitects.com
387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

STAMP

LICENSED ARCHITECT
STATE OF CALIFORNIA
10/10/21

STATE

DSA FILE NUMBER 41-26

APPL # 01-119557

REVISIONS

No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

FINISH SCHEDULE, OPENING SCHEDULE, LEGENDS, & DETAILS

DATE 10/06/2021

JOB # 2021005.07

SHEET #

A11.01

I. GENERAL REQUIREMENTS

A. THE STRUCTURAL DRAWINGS AND PROJECT SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THE MEANS, METHODS, PROCEDURES AND SEQUENCE OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.

B. DURING THE CONSTRUCTION PERIOD, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONNEL AND PROPERTY ON AND AROUND THE JOBSITE. THE CONTRACTOR SHALL PROVIDE SHORING, BRACING, GUYS, ETC. IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL STANDARDS.

C. ALL CONSTRUCTION, TESTING, AND INSPECTIONS SHALL CONFORM TO THE BUILDING CODE REFERENCED UNDER THE HEADING "BASIS OF DESIGN" BELOW.

D. STANDARDS REFERENCED IN THESE DRAWINGS SHALL BE THE LATEST EDITION, UNLESS OTHERWISE NOTED.

E. SEE DRAWINGS OTHER THAN STRUCTURAL FOR: FLOOR FINISHES; DEPRESSIONS IN FLOOR SLABS; OPENINGS IN WALLS AND FLOORS REQUIRED BY ARCHITECTURAL AND MEP FEATURES; EXTERIOR PAVING; CURBS; SLOPES; DRAINS; PADS; NON-STRUCTURAL PARTITIONS; EMBEDDED ITEMS; ETC. COORDINATE THESE ITEMS WITH THE STRUCTURAL DRAWINGS.

F. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AT THE JOB SITE BEFORE COMMENCING WORK AND SHALL REPORT ANY DISCREPANCIES TO THE ARCHITECT.

G. OMISSIONS OR DISCREPANCIES BETWEEN THE VARIOUS ELEMENTS OF THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.

H. DO NOT SCALE THE DRAWINGS; USE WRITTEN DIMENSIONS ONLY. WHERE NO DIMENSIONS ARE PROVIDED OR WHERE DIMENSIONS PROVIDED CONFLICT WITH OTHER DRAWINGS, CONSULT THE ARCHITECT AND SEOR BEFORE PROCEEDING WITH THE WORK.

I. WHERE MEMBER LOCATIONS ARE NOT DIMENSIONED, MEMBERS SHALL BE LOCATED ON COLUMN LINES OR EQUALLY SPACED BETWEEN MEMBERS ON COLUMN LINES OR BETWEEN MEMBERS OTHERWISE LOCATED. CENTERLINES OF COLUMNS, WALLS, FRAMING MEMBERS, AND FOUNDATIONS COINCIDE WITH GRIDLINES, UNLESS OTHERWISE NOTED.

J. TYPICAL DETAILS ARE INTENDED TO APPLY TO APPLICABLE SITUATIONS, UNLESS OTHERWISE NOTED. TYPICAL DETAILS MAY NOT BE SPECIFICALLY LOCATED.

K. DETAILS SHALL BE APPLIED TO EVERY LIKE CONDITION WHETHER OR NOT THEY ARE REFERENCED IN EVERY INSTANCE. FOR CONDITIONS NOT SPECIFICALLY SHOWN, USE DETAILS SIMILAR TO THOSE PROVIDED.

I. THE CONTRACTOR SHALL VERIFY THAT CONSTRUCTION LOADS DO NOT EXCEED THE CAPACITY OF THE STRUCTURE AT THE TIME THE LOADS ARE PLACED.

II. EXISTING CONSTRUCTION

A. WORK SHOWN IS NEW UNLESS OTHERWISE NOTED AS EXISTING, (E).

B. EXISTING CONSTRUCTION SHOWN IN THESE DRAWINGS WAS OBTAINED FROM AS-BUILT DRAWINGS AND INDICATED FOR REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS. REVIEW ALL AVAILABLE EXISTING DRAWINGS AND VERIFY DIMENSIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND SEOR OF ALL DISCREPANCIES AND EXCEPTIONS BEFORE PROCEEDING WITH THE WORK.

C. THE REMOVAL, CUTTING, DRILLING, ETC. OF EXISTING WORK SHALL BE PERFORMED WITH GREAT CARE AND SMALL TOOLS IN ORDER TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE BUILDING. IF EXISTING STRUCTURAL MEMBERS NOT INDICATED FOR REMOVAL INTERFERE WITH THE NEW WORK, THE SEOR SHALL BE NOTIFIED IMMEDIATELY. APPROVAL SHALL BE OBTAINED PRIOR TO REMOVAL OF THE EXISTING MEMBERS.

D. THE CONTRACTOR SHALL SAFELY SHORE EXISTING CONSTRUCTION WHEREVER EXISTING SUPPORTS ARE REMOVED TO ALLOW INSTALLATION OF THE NEW WORK. THE EXISTING CONSTRUCTION SHALL BE CONNECTED AND/OR EMBEDDED INTO THE NEW CONSTRUCTION AS SHOWN OR SPECIFIED.

E. ALL SHORING METHODS AND SEQUENCING OF DEMOLITION SHALL BE SPECIFIED BY A LICENSED CIVIL OR STRUCTURAL ENGINEERING IN THE STATE OF CALIFORNIA TO BE RETAINED BY THE CONTRACTOR. SEE SPECIFICATIONS FOR DETAILED REQUIREMENTS.

F. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES BEFORE BEGINNING WORK. SPECIAL CARE SHALL BE TAKEN TO PROTECT UTILITIES THAT ARE TO REMAIN IN SERVICE DURING CONSTRUCTION.

G. THE CONTRACTOR SHALL PROMPTLY REPAIR DAMAGE CAUSED DURING OPERATIONS WITH SIMILAR MATERIALS AND WORKMANSHIP.

H. THE CONTRACTOR SHALL LOCATE EXISTING REINFORCING STEEL WHERE EXISTING CONCRETE IS TO BE CUT, CORED OR SAWN. LOCATION SHALL BE DONE USING A NON-DESTRUCTIVE METHOD. DO NOT DAMAGE EXISTING REINFORCING WITHOUT NOTIFYING THE ARCHITECT AND SEOR.

III. BASIS OF DESIGN

A. THE STRUCTURAL DESIGN OF THIS PROJECT IS GOVERNED BY THE 2019 CALIFORNIA BUILDING CODE (CBC) WITH SS/DSA AMMENDMENTS.

B. RISK CATEGORY = III

D. LIVE LOADS:
1. ROOF = 20 PSF

E. WIND DESIGN DATA:
1. BASIC WIND SPEED = 100 mph (3 SECOND GUST)
2. EXPOSURE CATEGORY = C

F. SEISMIC DESIGN DATA:
1. I = 1.25
2. Fa = 1.2
3. Fv = N/A
4. Ss = 2.032
5. S1 = 0.84
6. SDS = 1.583
7. SD1 = N/A
8. SITE CLASS = D (DEFAULT)
9. SEISMIC DESIGN CATEGORY = D

IV. WOOD

A. ALL WOOD FRAMING SHALL CONFORM TO NATIONAL DESIGN SPECIFICATIONS (NDS) FOR WOOD CONSTRUCTION AND APA PDS, PLYWOOD DESIGN SPECIFICATION.

B. ALL WOOD FRAMING SHALL BE DOUGLAS FIR LARCH, UNLESS OTHERWISE NOTED. GRADE SHALL BE AS FOLLOWS:
1. WALL STUDS = NO 2
2. SILL PLATES = PRESSURE TREATED
3. BLOCKING AND MISCELLANEOUS = NO 2

C. REJECTION OF WOOD MEMBERS: THE PROVISION IN DOC PS 20 (AS REFERENCED BY CBC 2303.1.1) WHICH PERMITS FIVE PERCENT OF THE MATERIAL TO FALL BELOW GRADE SHALL NOT BE CONSTRUED TO PERMIT BELOW-GRADE MATERIAL TO BE USED AS LOAD-CARRYING MEMBERS WHICH HAVE BEEN DESIGNED FOR SPECIFIC ALLOWABLE STRESSES AND ACCEPTABLE SAFETY FACTORS. MATERIALS WHICH FALL BELOW GRADE SHALL BE REJECTED FOR LOAD-CARRYING USE. WOOD MEMBERS WHICH ARE REQUIRED TO CARRY DESIGN LOADS AND WHICH THE PROJECT ARCHITECT, SEOR OR INSPECTOR JUDGE TO BE MISGRADED SHALL BE REINSPECTED BY A QUALIFIED LUMBER GRADING INSPECTOR TO VERIFY THE PROPER GRADING OF THE MATERIAL. WOOD MEMBERS WHICH HAVE PERMISSIBLE GRADE CHARACTERISTICS OR DEFECTS IN SUCH COMBINATION AS TO AFFECT THE SERVICEABILITY OF THE MEMBER SHALL BE REJECTED BY THE PROJECT INSPECTOR WITH THE CONCURRENCE OF THE ARCHITECT OR SEOR.

D. ALL LUMBER IN CONTACT WITH CONCRETE OR CONCRETE MASONRY 0'-8" OR LESS ABOVE THE GROUND SHALL BE PRESSURE TREATED.

E. MAXIMUM MOISTURE CONTENT SHALL BE 15%AT TIME OF FRAMING FOR NEW WOOD MEMBERS ADJACENT TO EXISTING WOOD MEMBERS. ALL OTHER MEMBERS SHALL HAVE A MAXIMUM MOISTURE CONTENT OF 19% AT TIME OF FRAMING. REFER TO ARCHITECTURAL DRAWINGS, PROJECT SPECIFICATIONS AND CLADDING MANUFACTURERS' INFORMATION FOR MORE STRINGENT MOISTURE CONTENT REQUIREMENTS.

F. WOOD CONNECTORS SHALL BE AS MANUFACTURED BY SIMPSON STRONG TIE OR EQUAL PRODUCT IF APPROVED BY SEOR. SIMPSON DESIGNATIONS USED IN THESE DRAWINGS.

G. NAILS SHALL BE COMMON WIRE GAGE, UNLESS OTHERWISE NOTED AND CONFORM TO CBC TABLE 2304.10.1. USE OF MACHINE NAILING IS SUBJECT TO A SATISFACTORY JOBSITE DEMONSTRATION FOR EACH PROJECT AND THE APPROVAL OF THE PROJECT ARCHITECT, STRUCTURAL ENGINEER AND DSA.

H. LAG BOLTS AND UNFINISHED MACHINE BOLTS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD.

I. ANCHOR RODS SHALL CONFORM TO ASTM F1554 GR 36.

J. FASTENERS INSTALLED IN PRESSURE TREATED OR FIRE RETARDANT TREATED WOOD SHALL BE GALVANIZED.

K. PROVIDE LATERAL SUPPORT FOR BEAMS, JOISTS, AND RAFTERS PER CBC SECTION 2308.8.5.

V. POST-INSTALLED ANCHORS

A. POST-INSTALLED ANCHORS INCLUDE EXPANSION ANCHORS, EPOXY ANCHORS AND REINFORCING STEEL DOWELS, SCREW ANCHORS AND POWDER-ACTUATED FASTENERS. AS DETAILED IN THE DRAWINGS.

B. DO NOT DAMAGE OR CUT EXISTING REINFORCING STEEL WHILE INSTALLING POST-INSTALLED ANCHORS. NOTIFY SEOR IF EXISTING REINFORCING STEEL INTERFERES WITH INSTALLATION OF POST-INSTALLED ANCHORS.

C. ALL MIS-DRILLED OR UNACCEPTABLE HOLES SHALL NOT BE USED AND SHALL BE GROUTED SOLID.

D. ALL POST-INSTALLED ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE ICC-ES REPORT AND MANUFACTURER'S RECOMMENDATIONS.

E. PROVIDE SPECIAL INSPECTION FOR THE INSTALLATION OF ALL POST-INSTALLED ANCHORS, UNLESS OTHERWISE NOTED.

F. FIELD TEST POST-INSTALLED ANCHORS, UNLESS OTHERWISE NOTED. FIELD TESTING SHALL BE IN COMPLIANCE WITH THE FOLLOWING:
1. 10% OF POST-INSTALLED ANCHORS USED FOR SILL PLATE BOLTING SHALL BE TESTED; 100% OF ALL OTHER POST-INSTALLED ANCHORS USED FOR STRUTURAL APPLICATIONS SHALL BE TESTED.
2. 50% OF POST-INSTALLED ANCHORS USED FOR NON-STRUCTURAL APPLICATIONS SHALL BE TESTED, INCLUDING ONE HALF OF ALL ANCHORS IN EACH GROUP.
   a. IF ANY ANCHOR FAILS TESTING, ALL ANCHORS OF THE SAME TYPE THAT ARE UNTESTED SHALL BE TESTED UNTIL 20 CONSECUTIVE ANCHORS PASS.
   b. NO TESTING REQUIRED FOR POWDER-ACTUATED FASTENERS USED TO ATTACH TRACKS OF INTERIOR, NON-STRUCTURAL PARTITION WALLS WHERE THERE ARE AT LEAST THREE FASTENERS PER PIECE OF TRACK.
3. NO TESTING REQUIRED OF REINFORCING STEEL DOWELS ACROSS COLD JOINTS IN CONCRETE SLABS ON GRADE.
4. TORQUE TESTING MAY BE USED FOR TORQUE CONTROLLED POST-INSTALLED ANCHORS; TENSION TEST ALL OTHER POST-INSTALLED ANCHORS.
5. TORQUE TESTING SHALL BE IN ACCORDANCE WITH CBC SECTION 1910A.5.5.2.
6. TENSION TESTING SHALL BE IN ACCORDANCE WITH CBC SECTION 1910A.5.5.1.
7. ALL FIELD TESTING SHALL BE DONE UNDER THE OBSERVATION OF THE PROJECT INSPECTOR.
8. TESTING SHALL OCCUR AT LEAST 24 HOURS AFTER THE ANCHOR HAS BEEN INSTALLED.

G. EPOXY ANCHORS AND REINFORCING STEEL DOWELS
1. FOR INSTALLATION IN CONCRETE, EPOXY SHALL BE ONE OF THE FOLLOWING:
   a. SET-XP PER ICC-ES ESR-2508 AS MANUFACTURED BY SIMPSON STRONG TIE
   b. HIT-RE 500-SD PER ICC-ES ESR-2322 AS MANUFACTURED BY HILTI, INC.
   c. HY-200 MAX-SD PER ICC-ES ESR-2013 AS MANUFACTURED BY HILTI, INC.
2. FOR INSTALLATION IN FULLY-GROUTED MASONRY, EPOXY SHALL BE ONE OF THE FOLLOWING:
   a. SET-HIGH STRENGTH PER ICC-ES ESR-2508 AS MANUFACTURED BY SIMPSON STRONG TIE.
   b. HY-150 PER ICC-ES ESR-1967 AS MANUFACTURED BY HILTI, INC.
3. EPOXIED ANCHOR RODS SHALL BE CARBON STEEL THREADED RODS PER APPROPRIATE ICC-ES REPORT; EPOXIED REINFORCING STEEL DOWELS SHALL BE ASTM A615 GR 60 UNLESS OTHERWISE NOTED. MINIMUM ANCHOR EMBEDMENT AND TENSION TEST VALUES ARE AS FOLLOWS:

EPOXY ANCHORS IN NORMAL-WEIGHT CONCRETE (f'c = 3000 PSI MIN)				
THREADED ROD DIAMETER (IN)	EMBED (IN)	TENSION TEST VALUE (LBS)		
		HY-200 MAX-SD	HIT-RE 500-SD	SET-XP
3/8	3	3360	3510	3620
1/2	4	6010	6150	5690
5/8	5	9440	9330	7640
3/4	6	7120	12860	9770
7/8	7	15750	13620	12250
1	8	20670	16440	15430
1 1/4	10	32500	22060	24100

ANCHORS SHALL NOT BE INSTALLED INTO CONCRETE THAT IS LESS THAN 21 DAYS OLD.

H. EXPANSION ANCHORS
1. FOR INSTALLATION IN CONCRETE, EXPANSION ANCHORS SHALL BE ONE OF THE FOLLOWING:
   a. STRONG BOLT 2 PER ICC-ES ESR-3037 AS MANUFACTURED BY SIMPSON STRONG TIE.
   b. KWIK BOLT TZ2 PER ICC-ES ESR-4266 AS MANUFACTURED BY HILTI, INC.
2. USE STAINLESS STEEL AT EXTERIOR, WEATHER-EXPOSED OR DAMP LOCATIONS; CARBON STEEL EXPANSION ANCHORS MAY BE USED AT ALL OTHER LOCATION, UNLESS OTHERWISE NOTED.
3. MINIMUM ANCHOR EMBEDMENT AND TORQUE TEST VALUES ARE AS FOLLOWS:

KWIK BOLT TZ2 IN NORMAL WEIGHT CONCRETE (f'c = 3000 PSI MIN)			
ANCHOR DIAMETER	EMBED (IN)	MINIMUM HOLE	TORQUE TEST
(IN)		DEPTH (IN)	VALUE (FT-LBS)
3/8	2 5/16	2 5/8	30
1/2	2 3/8	2 5/8	50
5/8	4 1/16	4 3/4	60
3/4	5 9/16	5 3/4	125

STRONG BOLT 2 IN NORMAL WEIGHT CONCRETE (f'c = 3000 PSI MIN)			
ANCHOR DIAMETER	EMBED (IN)	MINIMUM HOLE	TORQUE TEST
(IN)		DEPTH (IN)	VALUE (FT-LBS)
3/8	1 7/8	2	30
1/2	2 3/4	3	60
5/8	5 3/8	5 3/8	90
3/4	5 1/4	6	150

4. WHERE EXPANSION ANCHORS ARE INSTALLED IN CONTACT WITH WOOD FRAMING, PROVIDE AN OVERSIZE WASHER IN ORDER TO ACHIEVE TORQUE REQUIRED BY ICC-ES REPORT. USE 1/4"x3"x3" WASHER, MINIMUM.
5. CONTRACTOR SHALL PROVIDE ANCHORS WITH SUFFICIENT TOTAL LENGTH FOR THE SPECIFIED EMBEDMENT LENGTH, THICKNESS OF FASTENED PART, WASHER AND NUT.

I. SCREW ANCHORS
1. FOR INSTALLATION IN CONCRETE, SCREW ANCHORS SHALL BE ONE OF THE FOLLOWING:
   a. TITEN HD PER ICC-ES ESR-2713 AS MANUFACTURED BY SIMPSON STRONG TIE.
   b. KWIK HUS-EZ PER ICC-ES ESR-3027 AS MANUFACTURED BY HILTI, INC.
2. MINIMUM ANCHOR EMBEDMENT AND TENSION TEST VALUES ARE AS FOLLOWS:

TITEN HD IN NORMAL WEIGHT CONCRETE (f'c = 3000 PSI MIN)			
ANCHOR DIAMETER	EMBED (IN)	MINIMUM HOLE	TENSION TEST
(IN)		DEPTH (IN)	VALUE (FT-LBS)
3/8	2 1/2	3	1200
1/2	3 1/4	3 3/4	2973
5/8	4	4 1/2	3935
3/4	5 1/2	6	5895

KWIK HUS-EZ IN NORMAL WEIGHT CONCRETE (f'c = 3000 PSI MIN)			
ANCHOR DIAMETER	EMBED (IN)	MINIMUM HOLE	TENSION TEST
(IN)		DEPTH (IN)	VALUE (FT-LBS)
1/4	2 1/2	2 7/8	1133
3/8	2 1/2	2 3/4	2093
1/2	2 1/4	2 5/8	1547
5/8	3 1/4	3 5/8	3049
3/4	4	4 3/8	4118

J. POWDER-ACTUATED FASTENERS
1. PAF SHALL BE ONE OF THE FOLLOWING:
   a. SIMPSON STRONG TIE POWDER-ACTUATED FASTENERS PER ICC-ES ESR-2138 FOR ANCHORAGE OF METAL TO CONCRETE, MASONRY OR STEEL.
   b. HILTI, INC. X-U PER ICC-ES ESR-2269 FOR ANCHORAGE OF METAL TO CONCRETE, MASONRY OR STEEL.
   c. HILTI, INC. X-CP 72 PER ICC-ES ESR-2379 FOR ANCHORAGE OF SILL PLATES TO CONCRETE
   d. DEWALT POWDER-ACTUATED FASTENERS PER ICC-ES ESR-2024 FOR ANCHORAGE OF METAL TO CONCRETE, MASONRY OR STEEL AND ANCHORAGE OF WOOD SILLS TO CONCRETE.
2. PROVIDE 0.08"x1.1"x1.1" SQUARE OR 0.08"x1.425" DIAMETER ROUND WASHER AT EACH PAF.
3. MINIMUM PAF EMBED INTO CONCRETE SHALL BE 1", UNLESS OTHERWISE NOTED.
4. MINIMUM PAF EMBED INTO STEEL SHALL BE PER MANUFACTURER.

VI. STRUCTURAL TESTS / SPECIAL INSPECTIONS

A. THE FOLLOWING ITEMS ARE EXEMPT FROM DSA REQUIREMENTS FOR STRUCTURAL TESTS / SPECIAL INSPECTION, SEE DSA FORM 103 AND SPECIFICATIONS:

1. TESTING OF REINFORCING BARS IS NOT REQUIRED SUBJECT TO THE REQUIREMENTS AND LIMITATIONS GIVEN IN CBC SECTION 1910A.2.

2. BATCH PLANT INSPECTION OF CONCRETE IS WAIVED IN COMPLIANCE WITH CBC SECTION 1705A.3.3.2. SEE SPECIFICATIONS FOR REQUIRED CERTIFICATION OF CEMENT AND REINFORCING, TAKING AND SAMPLING OF STRENGTH TEST, AND PROVISION OF WEIGHMASTER'S BATCH TICKETS.

ABBREVIATION

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
(E)	EXISTING	LLV	LONG LEG VERTICAL
(N)	NEW	LOC	LOCATION
AB	ANCHOR BOLT	LONG	LONGITUDINAL
ADDL	ADDITIONAL	LW	LIGHTWEIGHT
ALT	ALTERNATE	LWC	LIGHTWEIGHT CONCRETE
APPRX	APPROXIMATE	MATL	MATERIAL
AR	ANCHOR ROD	MAX	MAXIMUM
ARCH	ARCHITECT OR ARCHITECTURAL	MB	UNFINISHED MACHINE BOLT
AVG	AVERAGE	MECH	MECHANICAL
BLDG	BUILDING	MEP	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION
BLKG	BLOCKING	MEZZ	MEZZANINE
BM	BEAM	MFR	MANUFACTURER
BOT	BOTTOM	MID	MIDDLE
BRDG	BRIDGING	MIN	MINIMUM
BTWN	BETWEEN	MISC	MISCELLANEOUS
CIP	CAST-IN-PLACE	MTL	METAL
CJ	CONTROL/CONSTRUCTION JOINT	N/A	NOT APPLICABLE
CJP	COMPLETE JOINT PENETRATION	NIC	NOT IN CONTRACT
CL	CENTER LINE	NO	NUMBER
CLR	CLEAR OR CLEARANCE	NOM	NOMINAL
COL	COLUMN	NS	NEAR SIDE
CONC	CONCRETE	NTS	NOT TO SCALE
CONN	CONNECTION(S)	NW	NORMAL WEIGHT
CONST	CONSTRUCTION	NWC	NORMALWEIGHT CONCRETE
CONT	CONTINUOUS	OC	ON CENTER
CTR	CENTER	OD	OUTSIDE DIAMETER
CTRD	CENTERED	OF	OUTSIDE FACE
CTRSK	COUNTERSINK	OH	OPPOSITE HAND
db	DIAMETER OF BOLT OR REBAR	OPNG(S)	OPENING(S)
DBL	DOUBLE	OPP	OPPOSITE
DEMO	DEMOLISH	OSB	ORIENTED STRAND BOARD
DET	DETAIL	PAF	POWDER ACTUATED FASTENER
DF	DOUGLAS FIR	PERP	PERPENDICULAR
DIA	DIAMETER	PL	PLATE
DIAG	DIAGONAL	PLY	PLYWOOD
DIM(S)	DIMENSION(S)	PSF	POUNDS PER SQUARE FOOT
DL	DEAD LOAD	PSI	POUNDS PER SQUARE INCH
DWG(S)	DRAWING(S)	PSL	PARALLEL STRAND LUMBER
DWL	DOWEL(S)	RAD	RADIUS
EA	EACH	REF	REFERENCE
ECC	ECCENTRICITY	REINF	REINFORCE(D) (ING) OR (MENT)
EF	EACH FACE	REQD	REQUIRED
EJ	EXPANSION JOINT	REV	REVISION
EL	ELEVATION	RWD	REDWOOD
ELEC	ELECTRICAL	SAD	SEE ARCHITECTURAL DRAWINGS
EMBED	EMBEDMENT	SCD	SEE CIVIL DRAWINGS
EN	EDGE NAIL	SCHED	SCHEDULE(D)
ENGR	ENGINEER	SECT	SECTION
EOS	EDGE OF SLAB	SEOR	STRUCTURAL ENGINEER OF RECORD
EQ	EQUAL	SF	SQUARE FOOT (FEET)
EQUIP	EQUIPMENT	SHT	SHEET
ES	EACH SIDE	SIM	SIMILAR
EW	EACH WAY	SLRS	SEISMIC LOAD RESISTING SYSTEM
EXP	EXPANSION	SMD	SEE MECHANICAL DRAWINGS
EXT	EXTERIOR	SMS	SHEET METAL SCREW(S)
FF	FINISH FLOOR	SOG	SLAB ON GRADE
FIN	FINISH(ED)	SP	SPACE
FLR	FLOOR	SPEC(S)	SPECIFICATION(S)
FN	FIELD NAILING	SQ	SQUARE
FND	FOUNDATION	STAGG'D	STAGGERED
FO	FACE OF	STD	STANDARD
FRM'G	FRAMING	STIFF	STIFFENER
FS	FAR SIDE	STL	STEEL
FTG	FOOTING	STR	STRUCTURE
GA	GAGE, GAUGE	STRCTL	STRUCTURAL
GALV	GALVANIZED	SYMM	SYMMETRICAL
GB	GRADE BEAM	T&B	TOP AND BOTTOM
GEN	GENERAL	T&G	TONGUE AND GROOVE
GLB	GLUE-LAMINATED BEAM	TD	TIE DOWN
GR	GRADE	TEMP	TEMPERATURE OR TEMPORARY
GYP	GYPSUM	THK	THICK OR THICKNESS
HD	HOLDOWN	THRD'D	THREADED
HDR	HEADER	TO	TOP OF
HGR	HANGER	TRANSV	TRANSVERSE
HK	HOOK	TYP	TYPICAL
HORIZ	HORIZONTAL	UON	UNLESS OTHERWISE NOTED
HT	HEIGHT	VERT	VERTICAL
HVAC	HEATING VENTING AND AIR CONDITIONING	VIF	VERIFY IN FIELD
ID	INSIDE DIAMETER	W/	WITH
IF	INSIDE FACE	W/O	WITHOUT
INFO	INFORMATION	WD	WOOD
INT	INTERIOR	WF	WIDE FLANGE
JH	JOIST HANGER	WP	WORK POINT
JST(S)	JOIST(S)	WT	WEIGHT
JT	JOINT	WWR	WELDED WIRE REINFORCEMENT
LBS	POUNDS		
LL	LIVE LOAD		
LLH	LONG LEG HORIZONTAL		

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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

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STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	

SHEET

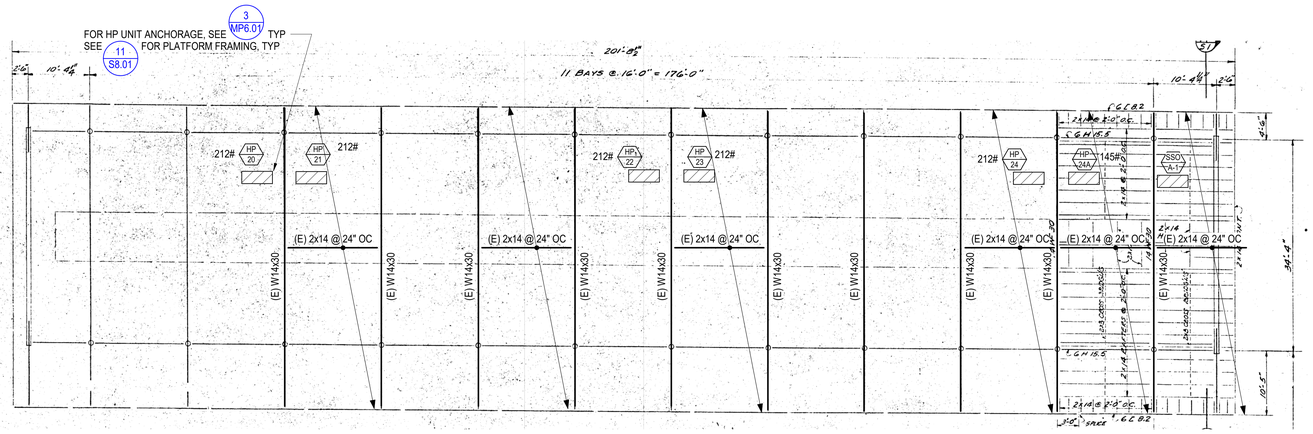
ABBREVIATIONS AND GENERAL NOTES

DATE 06/04/2021

JOB # 2021005.07

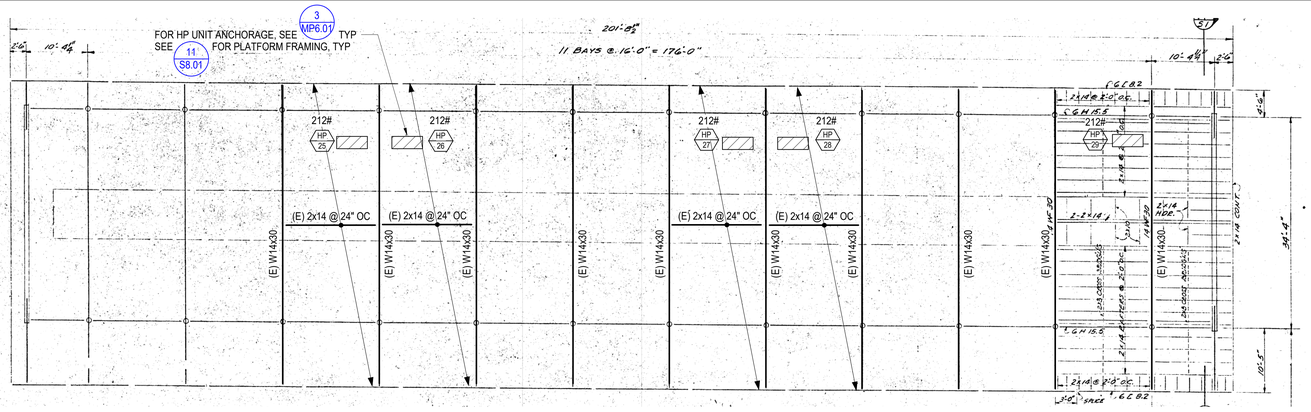
SHEET #

S1.01



1 EXISTING ROOF FRAMING PLAN - BLDG A

NTS



2 EXISTING ROOF FRAMING PLAN - BLDG B

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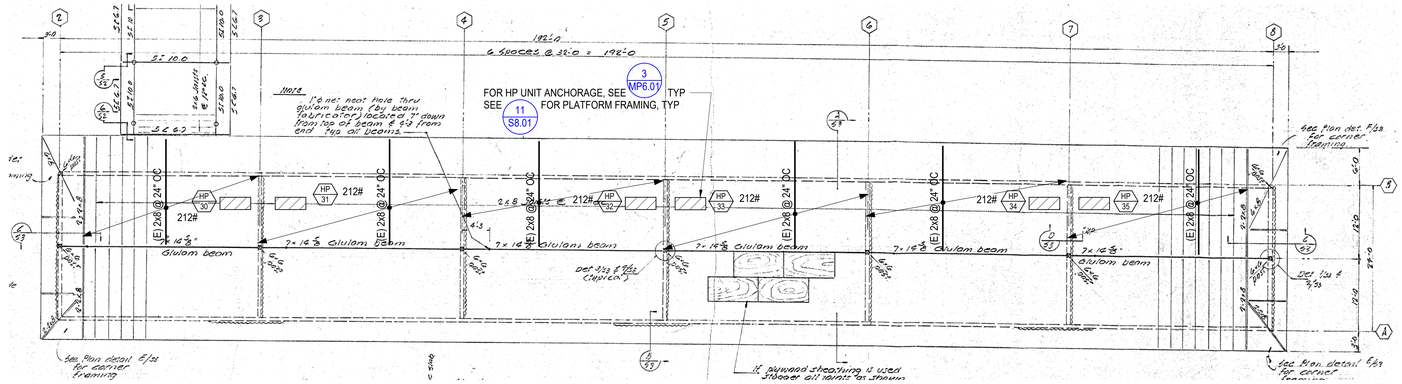

3 EXISTING ROOF FRAMING PLAN - BLDG C

NTS

SHEET NOTES:

1. LOCATIONS OF MECHANICAL UNITS ARE SHOWN FOR REFERENCE ONLY. FOR EXACT UNIT LAYOUT, SEE 16 A8.10
2. EXISTING STRUCTURAL FRAMING PLAN SHOWN IS TAKEN FROM DSA APPROVED AS-BUILT DRAWINGS AND IS SHOWN FOR REFERENCE ONLY.
3. SEE GENERAL NOTES ON SHEET S1.01.
4. SEE TYPICAL FRAMING DETAILS ON SHEET S8.01.

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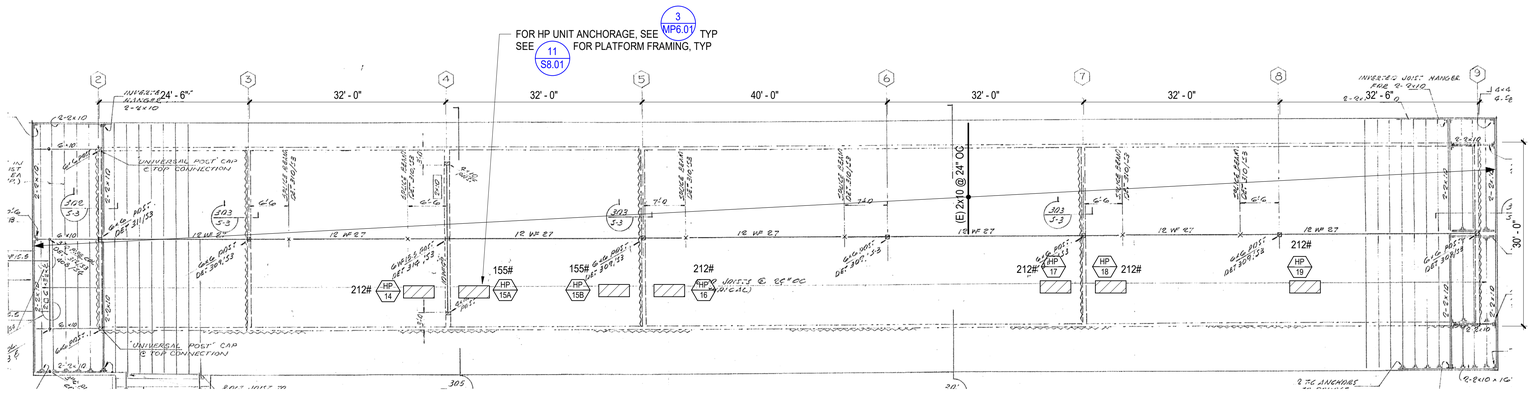
SHEET

EXISTING ROOF FRAMING PLANS - BLDGS A, B & C

DATE 06/04/2021

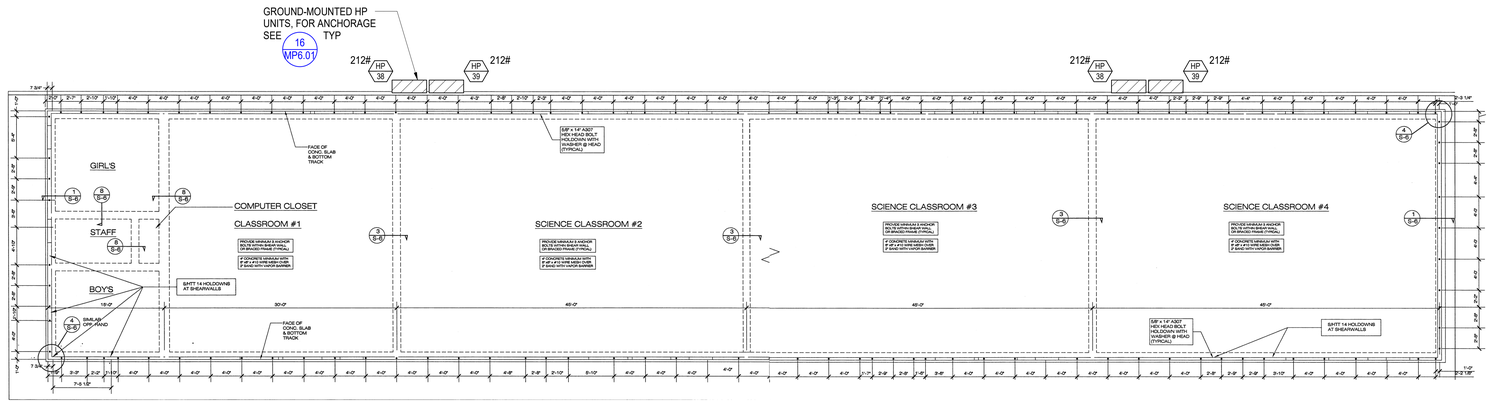
JOB # 2021005.07

SHEET # S2.01



1 EXISTING ROOF FRAMING PLAN - BLDG D

NTS



2 EXISTING FOUNDATION PLAN - SCIENCE BLDG

NTS

SHEET NOTES:

1. LOCATIONS OF MECHANICAL UNITS ARE SHOWN FOR REFERENCE ONLY. FOR EXACT UNIT LAYOUT, SEE 16 A8.10
2. EXISTING STRUCTURAL FRAMING PLAN SHOWN IS TAKEN FROM DSA APPROVED AS-BUILT DRAWINGS AND IS SHOWN FOR REFERENCE ONLY.
3. SEE GENERAL NOTES ON SHEET S1.01.
4. SEE TYPICAL FRAMING DETAILS ON SHEET S8.01.

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DSA SUB	06/04/2021
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SHEET

EXISTING BLDG D ROOF FRAMING PLAN AND EXISTING SCIENCE BLDG FOUNDATION PLAN

DATE 06/04/2021

JOB # 2021005.07

SHEET # S2.02

2 PARTIAL EXISTING ROOF FRAMING PLAN - BLDG Gb

NTS

1 PARTIAL EXISTING ROOF FRAMING PLAN - BLDG Ga

NTS

SHEET NOTES:

1. COORDINATE LOCATIONS OF MECHANICAL UNITS WITH MEP DRAWINGS.
2. EXISTING STRUCTURAL FRAMING PLAN SHOWN IS TAKEN FROM DSA APPROVED AS-BUILT DRAWINGS AND IS SHOWN FOR REFERENCE ONLY.
3. SEE GENERAL NOTES ON SHEET S1.01.
4. SEE TYPICAL FRAMING DETAILS ON SHEET S8.01.

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DSA FILE NUMBER 41-26
APPL # 01-119557

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SHEET

EXISTING BLDG G ROOF FRAMING PLANS

DATE 06/04/2021
JOB # 2021005.07
SHEET # S2.03

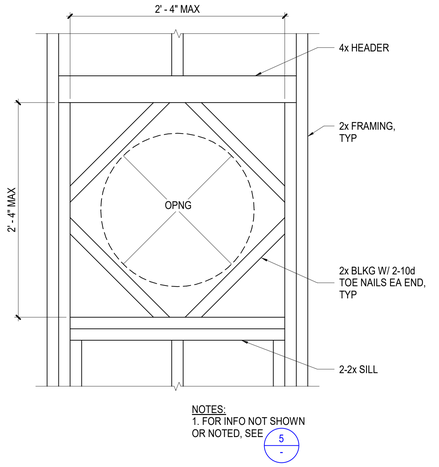
FASTENING SCHEDULE		
DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each end, toenail
Blocking between rafters or truss not at the wall top plate, to rafter or truss	2-8d common (2 1/2" × 0.131") 2-3" × 0.131" nails 2-3" 14 gage staples	Each end, toenail
	2-16 d common (3 1/2" × 0.162") 3-3" × 0.131" nails 3-3" 14 gage staples	End nail
Flat blocking to truss and web filler	16d common (3 1/2" × 0.162") @ 6" o.c. 3" × 0.131" nails @ 6" o.c. 3" × 14 gage staples @ 6" o.c	Face nail
2. Ceiling joists to top plate	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Each joist, toenail
3. Ceiling joist not attached to parallel rafter, laps over partitions (no thrust)	3-16d common (3 1/2" x 0.163") 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
4. Ceiling joist attached to parallel rafter (heel joint)	Per Table 2308.7.3.1, CBC 2019	Face nail
5. Collar tie to rafter	3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Face nail
6. Rafter or roof truss to top plate	3-10 common (3" × 0.148"); or 3-16d box (3 1/2" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131 nails; or 4-3" 14 gage staples, 7/16" crown	Toenail[c]
7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2-inch ridge beam	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3"14 gage staples, 7/16" crown; or	End nail
	3-10d common (3 1/2" × 0.148"); or 4-16d box (3 1/2" × 0.135"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	Toenail
WALL		
8. Stud to stud (not at braced wall panels)	16d common (3 1/2" × 0.162");	24" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	16" o.c. face nail
9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common (3 1/2" × 0.162"); or	16" o.c. face nail
	16d box (3 1/2" × 0.135"); or	12" o.c. face nail
	3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	12" o.c. face nail
10. Built-up header (2" to 2" header)	16d common (3 1/2" × 0.162"); or	16" o.c. each edge, face nail
	16d box (3 1/2" × 0.135")	12" o.c. each edge, face nail
11. Continuous header to stud	4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128")	Toenail
12. Top plate to top plate	16d common (3 1/2" × 0.162"); or	16" o.c. face nail
	10d box (3" × 0.128"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
13. Top plate to top plate, at end joints	8-16d common (3 1/2" × 0.162"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails; or 12-3" 14 gage staples, 7/16" crown	Each side of end joint, face nail (minimum 24" lap splice length each side of end joint)
14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3 1/2"x0.163"); or	16" o.c. face nail
	16d box (3 1/2" × 0.135"); or 3" × 0.131" nails; or 3" 14 gage staples, 7/16" crown	12" o.c. face nail
15. Bottom plate to joist, rim joist, band joist or blocking at braced wall panels	2-16d common (3 1/2 " × 0.162"); or 3-16d box (3 1/2" × 0.135"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown	16" o.c. face nail
16. Stud to top or bottom plate	4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails; or 4-3" 14 gage staples, 7/16" crown; or	Toenail
	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	End nail
17. Top plates, laps at corners and intersections	2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails; or 3-3" 14 gage staples, 7/16" crown	Face nail
18. 1" brace to each stud and plate	2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2-3" × 0.131" nails; or 2-3" 14 gage staples, 7/16" crown	Face nail
19. 1" × 6" sheathing to each bearing	2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128")	Face nail
20. 1" × 8" and wider sheathing to each bearing	3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128")	Face nail

For SI: 1 inch = 25.4 mm.

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. Nails for wall sheathing are permitted to be common, box or casing.
b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).
c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.
d. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

12 NAILING SCHEDULE

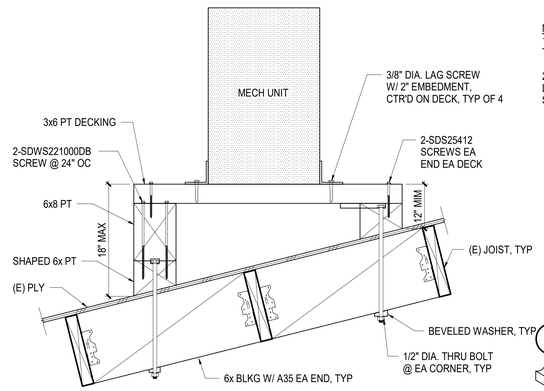
NTS



NOTES:
1. FOR INFO NOT SHOWN OR NOTED, SEE 5

9 FRAMING DETAIL AT ROUND OPENING

1 1/2" = 1'-0"



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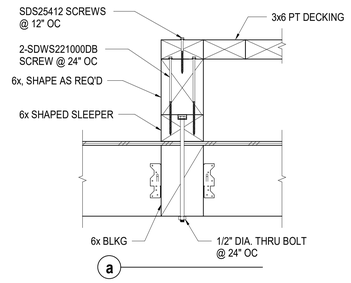

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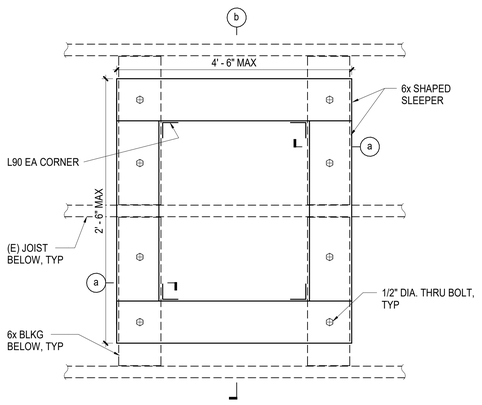
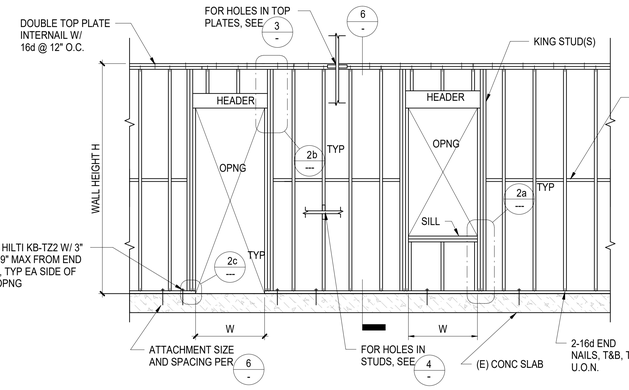


PLAN VIEW

11 MECH UNIT PLATFORM FRAMING DETAIL

1 1/2" = 1'-0"



NON-BEARING WALL STUD SCHEDULE		
WALL HEIGHT	STUD SIZE	SPACING
H < 13'-0"	2x4	16"

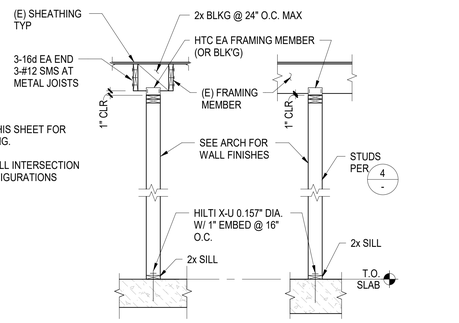
b

NON-BEARING WALL SCHEDULE AT OPENINGS				
OPENING WIDTH	KING STUD(S)	HEADER DEPTH	BEARING STUD(S)	SILL
W< 4'-6"	2x	4x	1-2x	2-2x

a

NOTE:
STUD, SILL, AND HEADER WIDTHS TO MATCH WALL FRAMING SIZE.

5 TYPICAL INTERIOR NON-BEARING WALL FRAMING



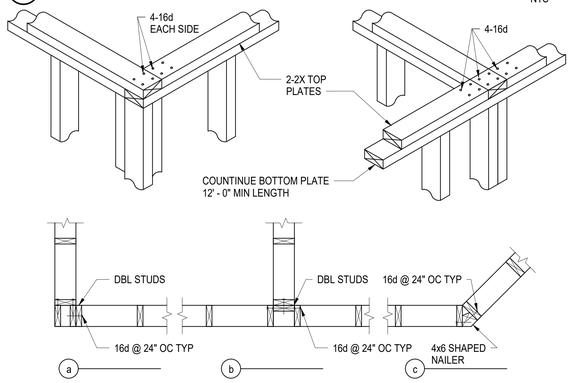
NOTES:
1. SEE DETAIL 5 ON THIS SHEET FOR TYPICAL WALL FRAMING.
2. FOR PARTITION WALL INTERSECTION DETAILS & STUD CONFIGURATIONS SEE 7

a PARTITION PARALLEL TO JOIST

b PARTITION PERPENDICULAR TO JOIST

6 NON-BEARING WALL PARTITION

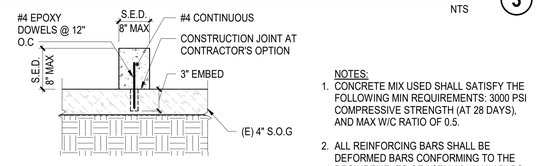
NTS



a b c

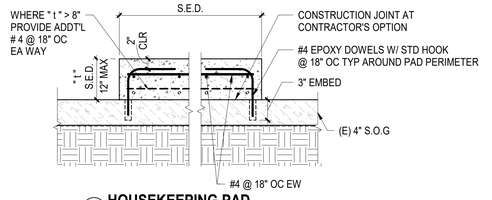
7 WALL INTERSECTIONS

NTS



NOTES:
1. CONCRETE MIX USED SHALL SATISFY THE FOLLOWING MIN REQUIREMENTS: 3000 PSI COMPRESSIVE STRENGTH (AT 28 DAYS), AND MAX W/C RATIO OF 0.5.
2. ALL REINFORCING BARS SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF ASTM A615; ALL BARS TO BE GRADE 60.

B CURB AT SLAB-ON-GRADE

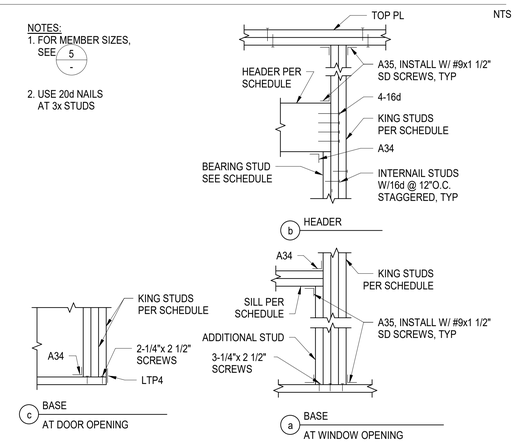


A HOUSEKEEPING PAD

8 CURBS AND HOUSEKEEPING PADS AT (E) S.O.G

NTS

NOTES:
1. FOR MEMBER SIZES, SEE 5
2. USE 20d NAILS AT 3x STUDS

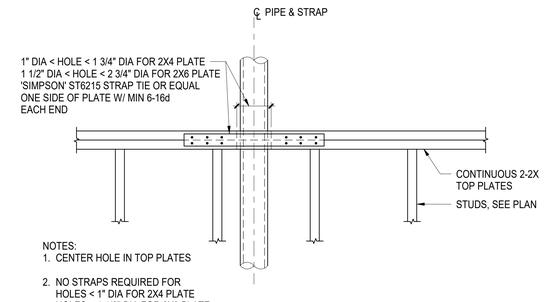


c BASE AT DOOR OPENING

a BASE AT WINDOW OPENING

2 WALL OPENING

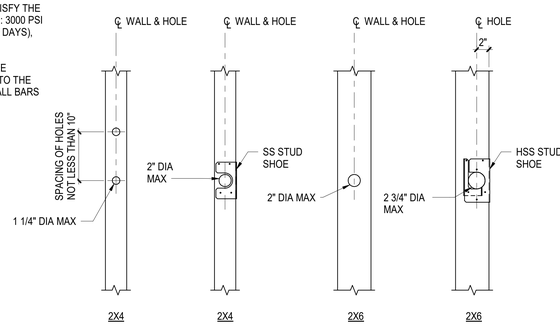
NTS



NOTES:
1. CENTER HOLE IN TOP PLATES
2. NO STRAPS REQUIRED FOR HOLES < 1" DIA FOR 2X4 PLATE HOLES < 1 1/2" DIA FOR 2X6 PLATE

3 TOP PLATE PENETRATIONS

NTS



4 PENETRATIONS IN STUDS

NTS

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387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

BASE DESIGN
582 MARKET ST. STE. 1402
SAN FRANCISCO, CA 94104
Office:(415) 466-2997
www.BASEdesigninc.com

STAMP

STATE

DSA FILE NUMBER 41-26

APPL # 01-119557

REVISIONS

No.	Description	Date

MILESTONES

DD

90% CD

DSA SUB 06/04/2021

BACKCHECK

SHEET

FRAMING DETAILS AND NAILING SCHEDULE

DATE 06/04/2021

JOB # 2021005.07

SHEET # S8.01

ABBREVIATIONS

&	AND	ESP	EXTERNAL STATIC PRESSURE	PH	PHASE
°F	DEGREES FAHRENHEIT	EW	ENTERING WATER	POC	POINT OF CONNECTION
AAV	AUTOMATIC AIR VENT	EWB	ENTERING WET BULB	PRV	PRESSURE REDUCING VALVE
AC	AIR CONDITIONER	EWT	ENTERING WATER TEMPERATURE	PSI (G) (A)	POUNDS PER SQUARE INCH (GAUGE) (ABSOLUTE)
AD	ACCESS DOOR	EXT	EXTERIOR	P/T	PRESSURE/TEMPERATURE
AFF	ABOVE FINISH FLOOR	FD	FLOOR DRAIN	QTY	QUANTITY
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	FFE	FINISHED FLOOR ELEVATION	RA	RETURN AIR
AL	ACOUSTICALLY LINED	FLA	FULL LOAD AMPS	RAD	RETURN AIR DAMPER
AMP	AMPERE	FLEX	FLEXIBLE	RH	RELATIVE HUMIDITY
AP	ACCESS PANEL	FPM	FEET PER MINUTE	RL	REFRIGERANT LIQUID
APPROX	APPROXIMATE	FS	FLOOR SINK	RM	ROOM
ARCH	ARCHITECT/ARCHITECTURAL	FT	FEET	RPM	REVOLUTIONS PER MINUTE
BDD	BACK DRAFT DAMPER	FT HD	FEET HEAD	RS	REFRIGERANT SUCTION
BFP	BACK FLOW PREVENTER	FTR	FLUE THRU ROOF	RV	RELIEF VALVE
BHP	BRAKE HORSEPOWER	GA	GAUGE	SA	SUPPLY AIR
BLDG	BUILDING	GAL	GALLON	SC	SENSIBLE COOLING
BOD	BOTTOM OF DUCT	GPM	GALLONS PER MINUTE	SEER	SEASONAL ENERGY EFFICIENCY RATIO
BOP	BOTTOM OF PIPE	HP	HORSEPOWER	SD	SMOKE DAMPER
BTU	BRITISH THERMAL UNIT	HR	HOUR	SM	SHEET METAL
BTUH	BRITISH THERMAL UNITS PER HOUR	HTG	HEATING	SOV	SHUT-OFF VALVE
CA	COMBUSTION AIR	HZ	HERTZ	SP	STATIC PRESSURE
CFH	CUBIC FEET PER HOUR	IE	INVERT ELEVATION	SPEC	SPECIFICATION
CFM	CUBIC FEET PER MINUTE	IN	INCH	SQ	SQUARE
CHWR	CHILLED WATER RETURN	INV	INVERT	SQFT, FT^2	SQUARE FEET
CHWS	CHILLED WATER SUPPLY	KW	KILOWATTS	SQIN, IN^2	SQUARE INCHES
CIRC	CIRCULATING	KWH	KILOWATT HOUR	STRUCT	STRUCTURAL
CLG	COOLING, CEILING	LAT	LEAVING AIR TEMPERATURE	T	THERMOSTAT, "X" INDICATES DEVICE CONTROLLED. 48" AFF (TO TOP OF STAT)
CLR	CLEAR	LBS	POUNDS	TC	TOTAL COOLING
CONC	CONCRETE	LVR	LOUVER	TDH	TOTAL DYNAMIC HEAD
CONN	CONNECTION	LWT	LEAVING WATER TEMPERATURE	TEMP	TEMPERATURE
CONT	CONTINUED, CONTINUATION	LWB	LEAVING WET BULB	THRU	THROUGH
COOL	COOLING	MAD, MD	MANUAL AIR DAMPER	TSP	TOTAL STATIC PRESSURE
COP	COEFFICIENT OF PERFORMANCE	MAV	MANUAL AIR VENT	TV	TURNING VANES
DB	DRY BULB	MAX	MAXIMUM	TYP	TYPICAL
DF	DRINKING FOUNTAIN	MBH	1000 BTU PER HOUR	UL	UNDERWRITER'S LABORATORIES
D/L	DOOR LOUVER	MCA	MINIMUM CIRCUIT AMPS	UON	UNLESS OTHERWISE NOTED
DN	DOWN	MCP	MECHANICAL CONTROL PANEL	V	VOLT
DP	DIFFERENTIAL PRESSURE	MECH	MECHANICAL	VFD	VARIABLE FREQUENCY DRIVE
DWGS	DRAWINGS	MFR	MANUFACTURER	VTR	VENT THROUGH ROOF
(E)	EXISTING	MIN	MINIMUM	W	WATTS
EA	EXHAUST AIR	MOCP	MAXIMUM OVERCURRENT PROTECTION	W/	WITH
EAD	EXHAUST AIR DAMPER	(N)	NEW	WB	WET BULB
EAT	ENTERING AIR TEMPERATURE	NC	NORMALLY CLOSED	WC	WATER COLUMN
EDB	ENTERING DRY BULB	NIC	NOT IN CONTRACT	WH	WATER HEATER
EER	ENERGY EFFICIENCY RATIO	NO	NORMALLY OPEN	WT	WEIGHT
EFF	EFFICIENCY	NTS	NOT TO SCALE		
ELEC	ELECTRICAL	OA	OUTSIDE AIR		
ELEV	ELEVATION	OAD	OUTSIDE AIR DAMPER		
ENT	ENTERING	OC	ON CENTER		
EQ	EQUAL	OD	OUTSIDE DIAMETER		
EQUIP	EQUIPMENT	PD	PRESSURE DROP		

LIST OF GOVERNING CODES

2019 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24, C.C.R.
2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24, C.C.R.
2019 CALIFORNIA ELECTRICAL CODE, 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 GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24, C.C.R.
2019 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24, C.C.R.
TITLE 19, C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

ALL SECTION NUMBERS BELOW REFER TO GROUP 1, CHAPTER 4, PART 1, TITLE 24, C.C.R.

1. ADDENDA, CONSTRUCTION CHANGES PER SECTION 4-338.
2. INSPECTOR APPROVED BY DSA. INSPECTOR AND CONTINUOUS INSPECTION OF WORK PER SECTION 4-333(b) AND 4-342.
3. TESTS AND TESTING LABORATORY PER SECTION 4-335.
4. SPECIAL INSPECTION PER SECTION 4-333(c).
5. CONTRACTOR SHALL SUBMIT VERIFIED REPORTS PER SECTION 4-336 AND 4-343(c).
6. ADMINISTRATION OF CONSTRUCTION PER PART 1, TITLE 24, C.C.R. - DUTIES OF ARCHITECT, STRUCTURAL ENGINEER OR PROFESSIONAL ENGINEER PER SECTION 4-333(a) AND 4-341.
7. GOVERNING CODES: TITLE 24.
8. A COPY OF PARTS 1, 2, 3, 4, AND 5 OF TITLE 24 SHALL BE KEPT AVAILABLE IN THE FIELD DURING CONSTRUCTION.
9. DSA SHALL BE NOTIFIED OF START OF CONSTRUCTION PER SECTION 4-331.
10. SUPERVISION BY THE DIVISION OF THE STATE ARCHITECT PER SECTION 4-334.

DSA GENERAL NOTES

1. THE INTENT OF THE CONTRACT DOCUMENTS IS TO MODERNIZE THE SCHOOL'S CAMPUS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS, A CONSTRUCTION CHANGE DOCUMENT DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK.
2. THE SEISMIC SUPPORT AND ANCHORAGE OF THE EQUIPMENT DESCRIBED ON THESE DRAWINGS HAVE BEEN ENGINEERED BY THE ENGINEER OF RECORD FOR CONFORMANCE WITH APPROPRIATE BUILDING CODES. THE ENGINEER OF RECORD WAS NOT RESPONSIBLE FOR THE EQUIPMENT DESIGN.
3. ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE CRITERIA FROM CHAPTER 16A CALIFORNIA BUILDING CODE (CBC) 2019.
4. WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT.
5. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON 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 CHAPTER 13, 26 AND 30.

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

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

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

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

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 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.

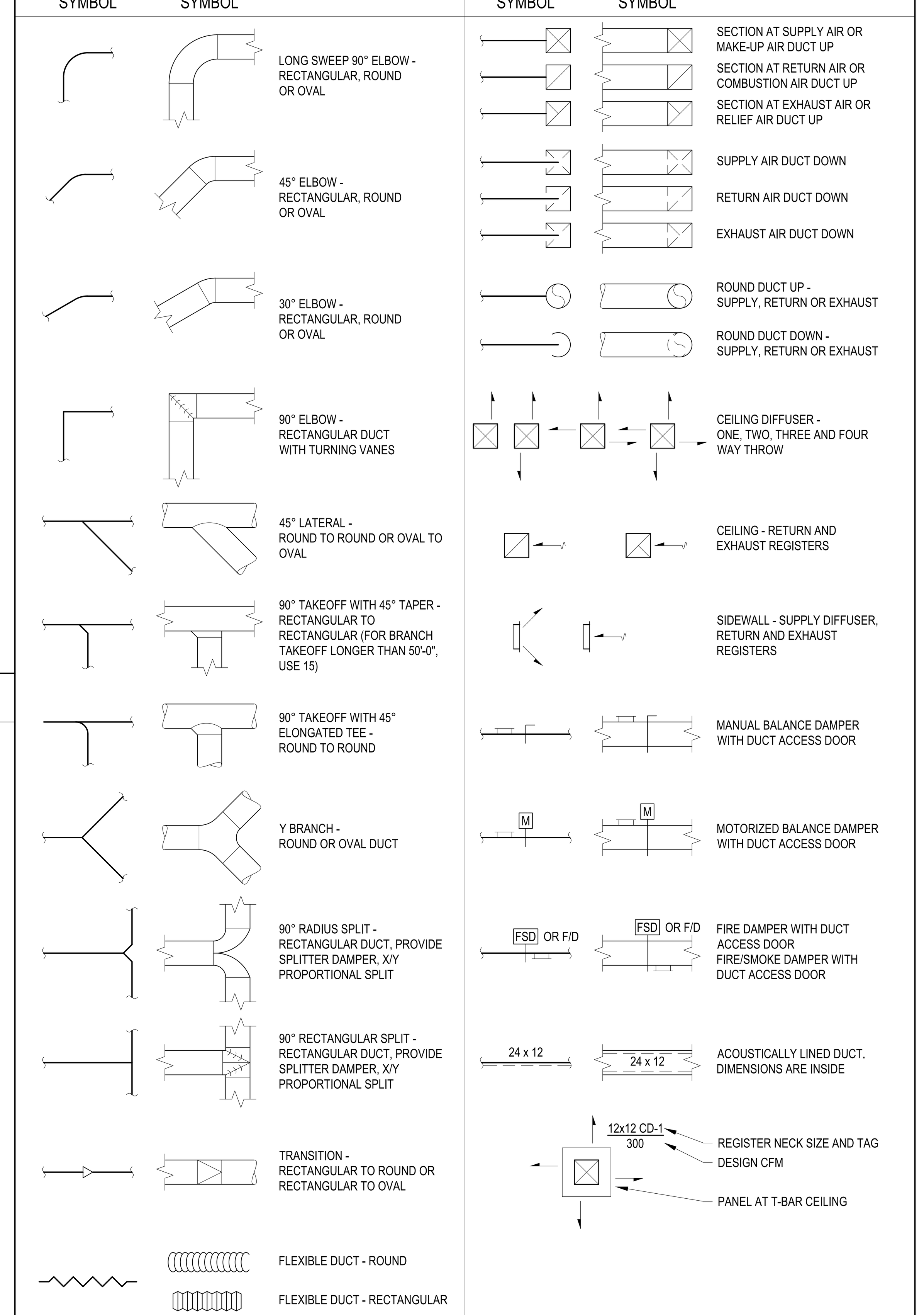
THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR 2013 BC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL 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):

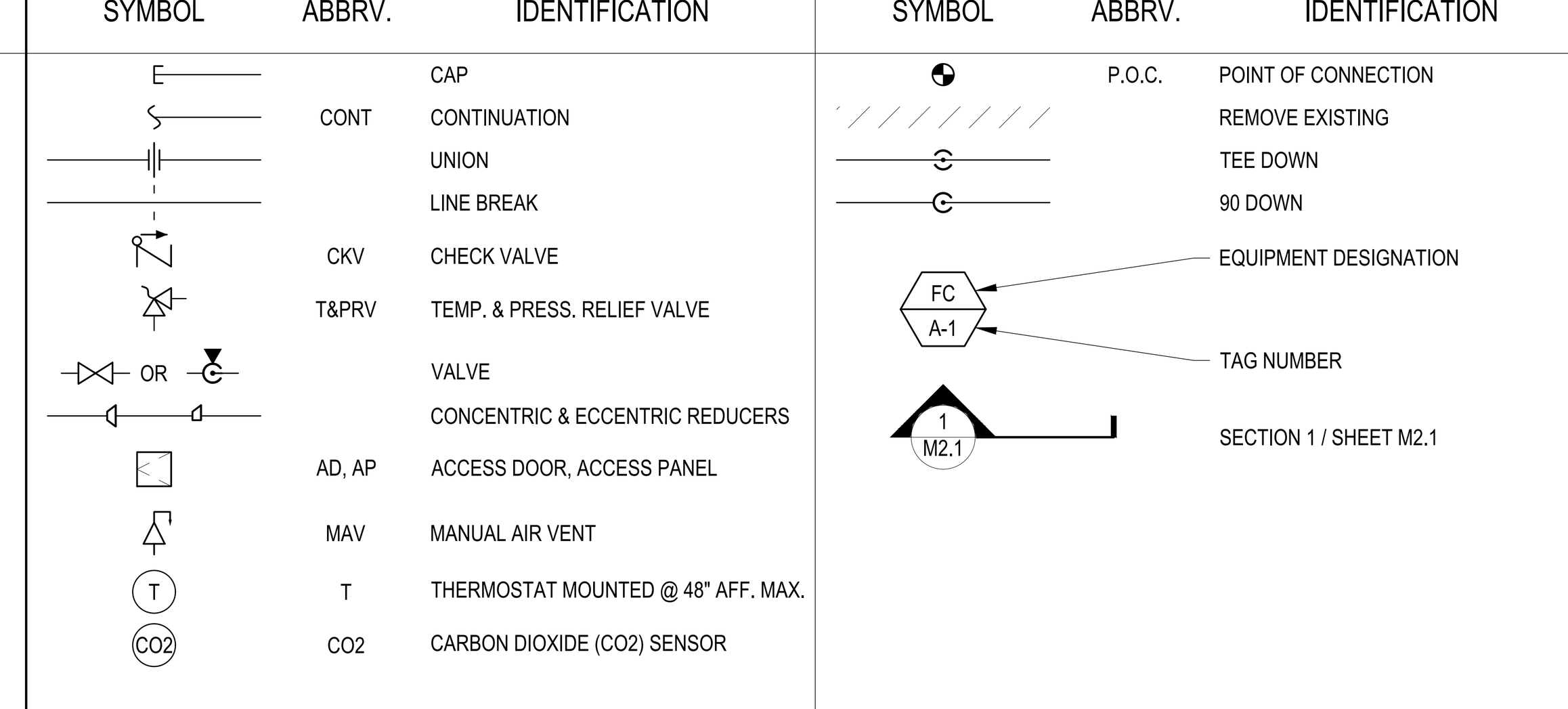
MP [ ] MD [ ] PP [ ] E [ ] - OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP [X] MD [X] PP [ ] E [ ] - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) #0043-13, "MASON WEST, INC. SEISMIC RESTRAINT GUIDELINES FOR SUSPENDED DISTRIBUTION SYSTEMS" OR #0052-13, "B-LINE/TOLCO SEISMIC RESTRAINT SYSTEMS GUIDELINES"

SYMBOL LEGEND



SINGLE LINE SYMBOL
DOUBLE LINE SYMBOL
DESCRIPTION
LONG SWEEP 90° ELBOW - RECTANGULAR, ROUND OR OVAL
45° ELBOW - RECTANGULAR, ROUND OR OVAL
30° ELBOW - RECTANGULAR, ROUND OR OVAL
90° ELBOW - RECTANGULAR DUCT WITH TURNING VANES
45° LATERAL - ROUND TO ROUND OR OVAL TO OVAL
90° TAKEOFF WITH 45° TAPER - RECTANGULAR TO RECTANGULAR (FOR BRANCH TAKEOFF LONGER THAN 50'-0", USE 15)
90° TAKEOFF WITH 45° ELONGATED TEE - ROUND TO ROUND
Y BRANCH - ROUND OR OVAL DUCT
90° RADIUS SPLIT - RECTANGULAR DUCT, PROVIDE SPLITTER DAMPER, X/Y PROPORTIONAL SPLIT
90° RECTANGULAR SPLIT - RECTANGULAR DUCT, PROVIDE SPLITTER DAMPER, X/Y PROPORTIONAL SPLIT
TRANSITION - RECTANGULAR TO ROUND OR RECTANGULAR TO OVAL
FLEXIBLE DUCT - ROUND
FLEXIBLE DUCT - RECTANGULAR
SECTION AT SUPPLY AIR OR MAKE-UP AIR DUCT UP
SECTION AT RETURN AIR OR COMBUSTION AIR DUCT UP
SECTION AT EXHAUST AIR OR RELIEF AIR DUCT UP
SUPPLY AIR DUCT DOWN
RETURN AIR DUCT DOWN
EXHAUST AIR DUCT DOWN
ROUND DUCT UP - SUPPLY, RETURN OR EXHAUST
ROUND DUCT DOWN - SUPPLY, RETURN OR EXHAUST
CEILING DIFFUSER - ONE, TWO, THREE AND FOUR WAY THROW
CEILING - RETURN AND EXHAUST REGISTERS
SIDEWALL - SUPPLY DIFFUSER, RETURN AND EXHAUST REGISTERS
MANUAL BALANCE DAMPER WITH DUCT ACCESS DOOR
M
MOTORIZED BALANCE DAMPER WITH DUCT ACCESS DOOR
FSD OR F/D
FIRE DAMPER WITH DUCT ACCESS DOOR
FIRE/SMOKE DAMPER WITH DUCT ACCESS DOOR
24 x 12
ACOUSTICALLY LINED DUCT, DIMENSIONS ARE INSIDE
12x12 CD-1
300
REGISTER NECK SIZE AND TAG
DESIGN CFM
PANEL AT T-BAR CEILING



SYMBOL
ABBRV.
IDENTIFICATION
CAP
CONT
CONTINUATION
UNION
LINE BREAK
CKV
CHECK VALVE
T&PRV
TEMP. & PRESS. RELIEF VALVE
OR
VALVE
CONCENTRIC & ECCENTRIC REDUCERS
AD, AP
ACCESS DOOR, ACCESS PANEL
MAV
MANUAL AIR VENT
T
THERMOSTAT MOUNTED @ 48" AFF. MAX.
CO2
CARBON DIOXIDE (CO2) SENSOR
P.O.C.
POINT OF CONNECTION
REMOVE EXISTING
TEE DOWN
90 DOWN
FC
A-1
EQUIPMENT DESIGNATION
TAG NUMBER
M2.1
SECTION 1 / SHEET M2.1

GENERAL NOTES

1. CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMISSION OF FINAL BID TO VERIFY ALL EXISTING SITE CONDITIONS WHICH MAY AFFECT THE COMPLETION OF THE INSTALLATION. ALL METHODS AND REQUIREMENTS FOR INSTALLATION SHALL BE DETERMINED PRIOR TO BID DATE. CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF RECORD OF ANY REQUIRED MODIFICATIONS WHICH ARE NOT REFERENCED ON THESE PLANS PRIOR TO SUBMITTING BID. SUBMITTAL OF THE CONTRACTOR'S BID DEMONSTRATES THE CONTRACTOR'S AWARENESS OF ALL SITE CONDITIONS AND REQUIRED WORK TO BE PERFORMED.
2. CONTRACTOR SHALL INCLUDE AND PROVIDE IN BID ALL LABOR AND MATERIALS NECESSARY FOR A COMPLETE AND OPERATIONAL INSTALLATION OF ALL SYSTEMS.
3. THE DRAWINGS INCLUDED IN THIS SET ARE DIAGRAMMATIC. THEY ARE REPRESENTATIVE OF THE ENGINEER OF RECORD'S DESIGN INTENT FOR ALL EQUIPMENT AND RELATED PIPING ETC. INDIVIDUAL POWER NEEDS, CONTROLS AND OTHER CONNECTIONS SHALL BE COORDINATED AND COMPLETED/ PROVIDED FOR COMPLETE SYSTEM OPERATION BY CONTRACTOR.
4. EVERYTHING IS NEW UNLESS OTHERWISE NOTED.
5. EQUIPMENT LOCATIONS AND PIPE ROUTING ARE NOT PRECISE AND SHALL BE COORDINATED, VERIFIED, AND DETERMINED IN THE FIELD. CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND ROUTE PIPING IN LOCATIONS WHICH MEET CODE REQUIREMENTS AND DO NOT INTERFERE WITH ANY BUILDING STRUCTURES, UTILITIES, OR OTHER TRADE EQUIPMENT.
6. (E) DUCTWORK, PIPING AND ITEMS TO BE REMOVED ARE SHOWN HATCHED. SEE LEGEND. COORDINATE CLOSELY WITH (N) DUCTWORK AND P.O.C.'S SHOWN. ALL OTHER (E) DUCTWORK, ETC. TO REMAIN.
7. REMOVE ALL ABANDONED PIPING, DUCTWORK, EQUIPMENT, WIRING, EQUIPMENT, AND FIXTURES INTERFERING WITH NEW WORK WHETHER NEW WORK IS ARCHITECTURAL, STRUCTURAL, MECHANICAL, OR ELECTRICAL
8. ABANDON IN PLACE BEHIND NEW FINISHES ALL PIPING, WIRING, AND DUCTWORK NOT INTERFERING WITH NEW WORK UNLESS REQUIRED FOR CONTINUED SERVICE.
9. ALL EQUIPMENT, EQUIPMENT CONNECTIONS, PIPING, MOUNTING LOCATIONS ETC. ARE TO BE VERIFIED WITH OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO BEGINNING OF THE ROUGH-IN.
10. ALL WORK SHALL BE PERFORMED TO STATE, LOCAL, NATIONAL AND DISTRICT STANDARDS AND CODES. COORDINATE SPECIFIC REQUIREMENTS WITH DISTRICT STANDARDS AND AUTHORITY HAVING JURISDICTION.
11. ALL EQUIPMENT SHALL BE NEW AND CLEARLY LABELED AND IDENTIFIED. LABELS SHALL NOT BE COVERED BY OTHER CONSTRUCTION ELEMENTS.
12. UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS, CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT AND WORK FOR A PERIOD OF ONE YEAR.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAW CUTTING, CORE DRILLING, PATCHING, REFINISHING, ETC. AS REQUIRED FOR INSTALLATION OF SYSTEMS. ANY PENETRATIONS OR OPENINGS MADE IN WALLS OR STRUCTURES SHALL BE PATCHED AND/OR SEALED AS REQUIRED TO MAINTAIN THE INTEGRITY OF THE WALL OR STRUCTURE.
14. CONTRACTOR IS RESPONSIBLE FOR COMPLETING ALL FINAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT AND SHALL INCLUDE THE PRICE OF INSTALLING ALL CONNECTIONS AS REQUIRED IN THEIR BIDS.
15. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE APPROVAL OF THE ENGINEER OF RECORD . ALL APPROVALS BY THE ENGINEER OF RECORD MUST BE SECURED PRIOR TO COMPLETION OF ANY PURCHASE ORDERS OR ROUGH-IN WORK.
16. THESE DRAWINGS AND ASSOCIATED SPECIFICATIONS ARE TO BE CONSIDERED CONTRACT DOCUMENTS FOR AGENCY REVIEW/ APPROVAL AND CONTRACTOR BIDDING PURPOSES.
17. AT THE COMPLETION OF THE PROJECT THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A COMPLETE SET OF AS-BUILT DRAWINGS.
18. ANY AND ALL WORK THAT REQUIRES AN INTERRUPTION TO BUILDING SERVICES(S) (ELECTRICAL/ HVAC/ PLUMBING ETC.) MUST BE COORDINATED WITH THE DISTRICT A MINIMUM OF 48 HOURS IN ADVANCE. ANY SERVICE DOWNTIME SHALL NOT OCCUR DURING SCHOOL OPERATION HOURS.
19. IN INSTANCES WHERE A CONFLICT BETWEEN THE DRAWINGS AND THE SPECIFICATIONS AND INSTALLATION MANUALS FOR THE PROJECT EXISTS, THE CONTRACTOR SHALL ADHERE TO THE MORE STRINGENT REQUIREMENT.
20. ANY EXISTING BUILDING STRUCTURES OR SURFACES DAMAGED BY DEMOLITION OR DURING INSTALLATION ACTIVITIES SHALL BE REPAIRED, PATCHED, AND/OR REFINISHED TO THE SATISFACTION OF THE OWNER.
21. FURNISH AND INSTALL MANUAL AIR DAMPERS AT ALL DUCT BRANCH TAKEOFFS TO A SINGLE SUPPLY DIFFUSER.
22. FOR ALL VOLUME DAMPERS LOCATED ABOVE CEILINGS, PROVIDE 12" LONG 1/2" WIDE FLUORESCENT ORANGE TAPE TO MARK DAMPER LOCATIONS.
23. ALL DUCTWORK, CONDUITS, BOXES, SURFACE MOUNTED RACEWAYS, SUPPORT DEVICES, AND ASSOCIATED FITTINGS SHALL BE MOUNTED IN CONCEALED LOCATIONS ABOVE CEILINGS, DUCTS, TRUSSES, BEAMS, ETC. WHERE WORK HAS TO BE INSTALLED IN EXPOSED LOCATIONS, IT SHALL BE PAINTED TO MATCH THE ADJACENT SURFACES OR PER ARCHITECT'S DIRECTION.
24. CONTRACTOR SHALL PREPARE AND SUBMIT THE CALIFORNIA ENERGY COMMISSION TITLE 24 CERTIFICATE OF ACCEPTANCE FORMS RELATED TO INSTALLED EQUIPMENT AND SYSTEMS.
25. SAFETY: IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
26. CONTRACTOR'S EQUIPMENT: COORDINATE WITH OWNER'S REPRESENTATIVE FOR APPROVED LOCATION OF JOB SITE ACCESS, PARKING, AND LOCATION OF CONTRACTOR'S EQUIPMENT AND MATERIAL STORAGE AREA. COORDINATE WITH OWNER FOR LOCATION AND PROCEDURES.
27. ALL BUILDING MATERIALS MUST BE ASBESTOS FREE.
28. CONSTRUCTION SCHEDULING: CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION OPERATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO SCHEDULING AND START OF THE WORK. CONTRACTOR SHALL PROVIDE PROTECTION TO ALL EXISTING SPACES AND SYSTEMS WHICH ARE IN USE, ADJOINING THE PROJECT, AND NOT PART OF THE PROJECT.
29. TITLE 24 COMPLIANCE: THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS (2019 CBC). SHOULD ANY CONDITIONS BE DISCOVERED NOT COVERED BY THE CONTRACT DOCUMENTS WHERE IN THE FINISHED WORK DOES NOT COMPLY WITH 2019 CBC, A CONSTRUCTION CHANGE DOCUMENT OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK, SHALL BE SUBMITTED TO AND APPROVED BY THE DSA BEFORE PROCEEDING WITH THE WORK.

DRAWING INDEX

MP0.01 SYMBOL LEGENDS, ABBREVIATIONS, NOTES - MECHANICAL
MP0.02 SCHEDULES - MECHANICAL
MP2.01 FLOOR PLANS - DEMO - BLDG A, B, C & D - MECHANICAL & PLUMBING
MP2.02 FLOOR PLAN - DEMO - SCIENCE BLDG - MECHANICAL & PLUMBING
MP2.03 PARTIAL ROOF PLAN - DEMO - BLDG G - MECHANICAL & PLUMBING
MP2.04 PARTIAL ROOF PLAN - DEMO - BLDG G - MECHANICAL & PLUMBING
MP2.05 FLOOR PLANS - NEW - BLDGS A & D - MECHANICAL & PLUMBING
MP2.06 FLOOR PLANS - NEW - BLDG B, BLDG C, & SCIENCE BLDG - MECHANICAL & PLUMBING
MP2.07 PARTIAL ROOF PLAN - NEW - BLDG G - MECHANICAL & PLUMBING
MP2.08 PARTIAL ROOF PLAN - NEW - BLDG G - MECHANICAL & PLUMBING
MP5.01 CONTROLS - MECHANICAL
MP6.01 DETAILS - MECHANICAL & PLUMBING
MP7.01 PARTIAL FLOOR PLAN - EXISTING - BLDG G - MECHANICAL / TAB WORK
MP7.02 PARTIAL FLOOR PLAN - EXISTING - BLDG G - MECHANICAL / TAB WORK
MP7.03 PARTIAL FLOOR PLAN - EXISTING - BLDG G - MECHANICAL / TAB WORK
MP8.01 TITLE 24 DOCUMENTS - MECHANICAL
MP8.02 TITLE 24 DOCUMENTS - MECHANICAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

aedis architects
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PROJECT

BORIL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

CEG JOB NO: 21038
CYPRESS Engineering Group
HVAC, Plumbing, Fire Protection, Building Commissioning, Industrial Refrigeration, Environmental Compliance, Training & Technical Support

STAMP

REGISTERED PROFESSIONAL ENGINEER
No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS
No. Description Date

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

SYMBOL LEGENDS, ABBREVIATIONS, NOTES - MECHANICAL

DATE 10/06/2021
JOB # 2021005.07
SHEET #
MP0.01

AIR DISTRIBUTION SCHEDULE

TAG	MANUFACTURER	MODEL NO.	DESCRIPTION	BORDER TYPE	MOUNTING DETAIL	NOTES
HSS-1	TITUS	S300FL	HIGH SIDEWALL SUPPLY	TYPE 1	17/MP6.01	1, 2, 4
HSS-2	TITUS	272FS	HIGH SIDEWALL SUPPLY	TYPE 1	13/MP6.01	1,2
HSR-1	TITUS	350RL	HIGH SIDEWALL RETURN	TYPE 1	13/MP6.01	2, 3
LSR-1	TITUS	350RL	LOW SIDEWALL RETURN	TYPE 1	13/MP6.01	2, 3
RG-1	TITUS	30RL	RELIEF GRILLE	TYPE 1	13/MP6.01	2, 5

1. SET BLADES AT 22.5° DEFLECTION.
2. PRIME AND PAINT PER ARCHITECT'S INSTRUCTIONS. REGISTER COLOR SELECTED BY ARCHITECT.
3. PROVIDE WITH AIRSAN COMPACT DUCT SILENCER.
4. PROVIDE WITH ASD AIR SCOOP DEVICE.
5. CONTRACTOR TO FIELD VERIFY (E) DIMENSIONS PRIOR TO ORDERING.

CLASSROOM SPLIT SYSTEM HEAT PUMPS SCHEDULE - CONTINUED

TAG	MANUFACTURER	MODEL	BUILDING	LOCATION	COOLING	HEATING	AIRFLOW CFM	OUTSIDE AIR CFM	REFRIGERANT PIPING		SEER	HSPF	ELECTRICAL			WEIGHT LBS	MOUNTING DETAIL	NOTES
					TOTAL MBH	TOTAL MBH			LIQUID	GAS			V / PH	MCA	MOCP			
FC-36	SAMSUNG	AC054KNZDCH/AA	SCIENCE BLDG	CLASSROOM 36	54	60	1200	450	3/8"	3/4"	-	-	NOTE 8			164	12/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-36	SAMSUNG	AC054KXADCH/AA		SLAB			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	16/MP6.01	1
FC-37	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 37	54	60	1600	450	3/8"	3/4"	-	-	NOTE 8			164	12/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-37	SAMSUNG	AC054KXADCH/AA		SLAB			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	16/MP6.01	1
FC-38	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 38	54	60	1600	450	3/8"	3/4"	-	-	NOTE 8			164	12/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-38	SAMSUNG	AC054KXADCH/AA		SLAB			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	16/MP6.01	1
FC-39	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 39	54	60	1600	450	3/8"	3/4"	-	-	NOTE 8			164	12/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-39	SAMSUNG	AC054KXADCH/AA		SLAB			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	16/MP6.01	1

1. SPLIT SYSTEM SHALL BE ABLE TO OPERATE AT 94% HEATING CAPACITY DOWN TO 32°F OUTDOOR AMBIENT TEMPERATURE.
2. CFM BASED ON 0.55 ESP.
3. PROVIDE WITH SAMSUNG MIM-A60UN 24VAC THERMOSTAT ADAPTER AND 24VAC TRANSFORMER.
4. PROVIDE WITH DELTA CONTROLS THERMOSTAT WITH CO2 SENSOR. SEE MP5.01 FOR CONTROLS.
5. PROVIDE WITH CONDENSATE PUMP.
6. PROVIDE WITH 4" MERV- 13 FILTERS WITH FILTER ACCESS PANEL.
7. FAN COIL SHALL BE ADJUSTED TO OPERATE AT CONSTANT SPEED AT INDICATED CFM.
8. INDOOR UNIT POWERED BY OUTDOOR UNIT.

PACKAGED ROOFTOP AIR CONDITIONING UNITS SCHEDULE

TAG	MANUFACTURER	MODEL NO.	COOLING MBH		GAS HEATING MBH		AIRFLOW CFM	ESP IN. W.G.	OUTSIDE AIR CFM	FAN RPM	MOTOR BHP	SEER	AFUE %	ELECTRICAL			WEIGHT LBS	MOUNTING DETAIL	NOTES
			TOTAL	SENSIBLE	INPUT	OUTPUT								V / PH	MCA	MOCP			
AC-1	CARRIER	48JCDV05	49.3	45.7	50 67	40 54	1600	1.0	450	2883	1.46	20	81	208 / 3	25	30	695	2/MP6.01	1, 2, 3, 4, 9
AC-2	CARRIER	48JCDV05	49.3	45.7	50 67	40 54	1600	1.0	450	2883	1.46	20	81	208 / 3	25	30	695	2/MP6.01	1, 2, 3, 4, 9
AC-3	CARRIER	48VGNE24	23.0	21.9	40	33	850	0.8	350	1050	0.36	15	81	208 / 1	19.4	30	350	14/MP6.01	1, 2, 3, 7, 8, 9
AC-4	CARRIER	48JCDV05	49.3	45.7	50 67	40 54	1600	1.0	450	2883	1.46	20	81	208 / 3	25	30	695	2/MP6.01	1, 2, 3, 4, 9
AC-5	CARRIER	48JCDV05	49.3	45.7	50 67	40 54	1600	1.0	450	2883	1.46	20	81	208 / 3	25	30	695	2/MP6.01	1, 2, 3, 4, 9
AC-6	CARRIER	48JCDV04	36.3	32.8	50 67	40 54	1200	1.0	450	2059	0.64	20	81	208 / 3	22	30	670	2/MP6.01	1, 2, 3, 4, 9
AC-8	CARRIER	48VGNA30	29.1	27.3	40	32	850	0.8	350	1050	0.36	15	78	208 / 3	16.2	20	355	14/MP6.01	1, 2, 3, 7, 8, 9
AC-9	CARRIER	48JCDV04	36.3	32.8	50 67	40 54	1200	1.0	450	2059	0.64	20	81	208 / 3	22	30	670	2/MP6.01	1, 2, 3, 4, 9
AC-10	CARRIER	48HCDD08	93.3	85.2	90 125	73 103	3000	1.2	450	939	1.79	13.8	82	208 / 3	41	50	1100	2/MP6.01	1, 2, 3, 6, 9
AC-11	CARRIER	48HCDD08	93.3	85.2	90 125	73 103	3000	1.2	450	939	1.79	13.8	82	208 / 3	41	50	1100	2/MP6.01	1, 2, 3, 6, 9
AC-12	CARRIER	48VGNA30	29.1	27.3	40	32	850	0.8	350	1050	0.36	15	78	208 / 3	16.2	20	355	14/MP6.01	1, 2, 3, 7, 8, 9
AC-13	CARRIER	48JCDV05	49.3	45.7	50 67	40 54	1600	1.0	450	2883	1.46	20	81	208 / 3	25	30	695	2/MP6.01	1, 2, 3, 4, 9
AC-14	CARRIER	48VGNA30	29.1	27.3	40	32	850	0.8	350	1050	0.36	15	78	208 / 3	16.2	20	355	14/MP6.01	1, 2, 3, 7, 8, 9
AC-15	CARRIER	48JCDV04	36.3	32.8	50 67	40 54	1200	1.0	450	2059	0.64	20	81	208 / 3	22	30	670	2/MP6.01	1, 2, 3, 4, 9
AC-16	CARRIER	48JCDV05	49.3	45.7	50 67	40 54	1600	1.0	450	2883	1.46	20	81	208 / 3	25	30	695	2/MP6.01	1, 2, 3, 4, 9
AC-17	CARRIER	48JCDV04	36.3	32.8	50 67	40 54	1200	1.0	450	2059	0.64	20	81	208 / 3	22	30	670	2/MP6.01	1, 2, 3, 4, 9
AC-18	CARRIER	48VGNA30	29.1	27.3	40	32	850	0.8	350	1050	0.36	15	78	208 / 3	16.2	20	355	14/MP6.01	1, 2, 3, 7, 8, 9
AC-19	CARRIER	48FCDM07	72.4	67.3	67	54	2400	1.0	450	2589	1.86	15	81	208 / 3	30	45	710	2/MP6.01	1, 2, 3, 5, 9
AC-20	CARRIER	48JCDV04	36.3	32.8	50 67	40 54	1200	1.0	450	2059	0.64	20	81	208 / 3	22	30	670	2/MP6.01	1, 2, 3, 4, 9

1. WEIGHT INCLUDES ALL OPTIONS AND ACCESSORIES.
2. PROVIDE WITH DELTA CONTROLS THERMOSTAT WITH CO2 SENSOR. SEE MP5.01 FOR CONTROLS.
3. PROVIDE WITH MERV 13 FILTERS.
4. PROVIDE WITH LOW LEAK ECONOMIZER WITH BAROMETRIC RELIEF, VARIABLE SPEED COOLING CAPACITY, HIGH STATIC DIRECT DRIVE FAN, LOUVERED HAIL GUARDS, HINGED ACCESS PANELS, UNPOWERED CONVENIENCE OUTLET, PHASE MONITOR, AND E-COAT COILS.
5. PROVIDE WITH LOW LEAK ECONOMIZER WITH BAROMETRIC RELIEF, TWO STAGE COOLING, HIGH STATIC DIRECT DRIVE FAN, LOUVERED HAIL GUARDS, HINGED ACCESS PANELS, UNPOWERED CONVENIENCE OUTLET, PHASE MONITOR, AND E-COAT COILS.
6. PROVIDE WITH LOW LEAK ECONOMIZER WITH BAROMETRIC RELIEF, TWO STAGE COOLING, MEDIUM STATIC BELT DRIVE FAN, LOUVERED HAIL GUARDS, HINGED ACCESS PANELS, UNPOWERED CONVENIENCE OUTLET, PHASE MONITOR, TWO-SPEED INDOOR FAN MOTOR VFD CONTROLLER, AND E-COAT COILS.
7. PROVIDE WITH LOW NOX, TIN-PLATED INDOOR COIL HAIRPINS, CRANKCASE HEATER, AND TIME GUARD II.
8. PROVIDE WITH MICROMETL CURB ADAPTOR. CONTRACTOR TO FIELD VERIFY ALL EXISTING CURB DIMENSIONS.
9. PROVIDE MICROMETL ROOF CURB TO MATCH EXISTING.

SPLIT SYSTEM AIR CONDITIONERS SCHEDULE

TAG	MANUFACTURER	MODEL	WING / BUILDING	LOCATION	COOLING	HEATING	AIRFLOW CFM	REFRIGERANT PIPING		SEER	ELECTRICAL			WEIGHT LBS	MOUNTING DETAIL	NOTES
					TOTAL MBH	TOTAL MBH		LIQUID	GAS		V / PH	MCA	MOCP			
SSO-A-1	SAMSUNG	AR24TSFYBWKXCV	BUILDING A	ROOF	22	24	—	1/4"	5/8"	18	208 / 1	20	30	125	3/MP6.01	
SSI-A-1	SAMSUNG	AR24TSFYBWKNCV		SERVING ROOM			657	1/4"	5/8"	—	NOTE 1			30	6/MP6.01	2, 3, 4, 5

1. INDOOR UNITS ARE POWERED BY OUTDOOR UNIT.
2. PROVIDE WITH WALL MOUNTING BRACKET.
3. PROVIDE WITH SAMSUNG WALL MOUNTED THERMOSTAT.
4. PROVIDE WITH BACNET INTERFACE CARD. SEE MP5.01 FOR CONTROLS.
5. PROVIDE WITH CONDENSATE PUMP.

SPLIT SYSTEM HEAT PUMPS SCHEDULE

TAG	MANUFACTURER	MODEL	WING / BUILDING	LOCATION	COOLING	HEATING	AIRFLOW CFM	REFRIGERANT PIPING		SEER	HSPF	ELECTRICAL			WEIGHT LBS	MOUNTING DETAIL	NOTES
					TOTAL MBH	TOTAL MBH		LIQUID	GAS			V / PH	MCA	MOCP			
SSO-G-1	SAMSUNG	AC018JXADCH/AA	BUILDING G	ROOF	18	20	—	1/4"	1/2"	20.1	10	208 / 1	8.1	15	100	3/MP6.01	
SSI-G-1	SAMSUNG	AC018NN4DCH/AA		CLASSROOM 40			580	1/4"	1/2"	—	—	NOTE 1			35	10/MP6.01	2, 3, 4, 5

1. INDOOR UNITS ARE POWERED BY OUTDOOR UNIT.
2. VERIFY REFRIGERANT PIPE SIZES AND ROUTING LIMITATIONS WITH MANUFACTURER PRIOR TO INSTALLATION.
3. PROVIDE WITH SAMSUNG WALL MOUNTED THERMOSTAT.
4. PROVIDE WITH BACNET INTERFACE CARD. SEE MP5.01 FOR CONTROLS.
5. WITH BUILT-IN CONDENSATE PUMP.

CLASSROOM SPLIT SYSTEM HEAT PUMPS SCHEDULE

TAG	MANUFACTURER	MODEL	BUILDING	LOCATION	COOLING	HEATING	AIRFLOW CFM	OUTSIDE AIR CFM	REFRIGERANT PIPING		SEER	HSPF	ELECTRICAL			WEIGHT LBS	MOUNTING DETAIL	NOTES
					TOTAL MBH	TOTAL MBH			LIQUID	GAS			V / PH	MCA	MOCP			
FC-14	SAMSUNG	AC054KNZDCH/AA	BLDG D	CLASSROOM 14	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-14	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-15A	SAMSUNG	AC030JXADCH/AA		CLASSROOM 15A	33	36	650	200	3/8"	3/4"	-	-	NOTE 8			125	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-15A	SAMSUNG	AC030KNZDCH/AA		ROOF			-	-	3/8"	3/4"	19.6	3.33	208 / 1	21.7	35	155	3/MP6.01	1
FC-15B	SAMSUNG	AC030JXADCH/AA		CLASSROOM 15B	33	36	650	200	3/8"	5/8"	-	-	NOTE 8			125	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-15B	SAMSUNG	AC030KNZDCH/AA		ROOF			-	-	3/8"	5/8"	19.6	3.33	208 / 1	21.7	35	155	3/MP6.01	1
FC-16	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 16	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-16	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-17	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 17	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-17	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-18	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 18	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-18	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-19	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 19	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-19	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-20	SAMSUNG	AC054KNZDCH/AA	BLDG A	CLASSROOM 20	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-20	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-21	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 21	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-21	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-22	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 22	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-22	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-23	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 23	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-23	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-24	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 24	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-24	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-24A	SAMSUNG	AC024KNZDCH/AA		KITCHEN	24	27	760	150	1/4"	5/8"	-	-	NOTE 8			100	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-24A	SAMSUNG	AC024JXADCH/AA		ROOF			-	-	1/4"	5/8"	19.5	11.5	208 / 1	13.58	20	145	3/MP6.01	1
FC-25	SAMSUNG	AC054KNZDCH/AA	BLDG B	CLASSROOM 25	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-25	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-26	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 26	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-26	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-27	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 27	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-27	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-28	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 28	54	60	650	200	3/8"	5/8"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-28	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	5/8"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-29	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 29	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-29	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-30	SAMSUNG	AC054KNZDCH/AA	BLDG C	CLASSROOM 30	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-30	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-31	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 31	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-31	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-32	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 32	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-32	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-33	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 33	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-33	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-34	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 34	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-34	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1
FC-35	SAMSUNG	AC054KNZDCH/AA		CLASSROOM 35	54	60	1150	450	3/8"	3/4"	-	-	NOTE 8			164	1/MP6.01	2, 3, 4, 5, 6, 7, 8
HP-35	SAMSUNG	AC054KXADCH/AA		ROOF			-	-	3/8"	3/4"	17.1	9.0	208 / 1	42	70	212	3/MP6.01	1

1. SPLIT SYSTEM SHALL BE ABLE TO OPERATE AT 94% HEATING CAPACITY DOWN TO 32°F OUTDOOR AMBIENT TEMPERATURE.
2. CFM BASED ON 0.55 ESP.
3. PROVIDE WITH SAMSUNG MIM-A60UN 24VAC THERMOSTAT ADAPTER AND 24VAC TRANSFORMER.
4. PROVIDE WITH DELTA CONTROLS THERMOSTAT WITH CO2 SENSOR. SEE MP5.01 FOR CONTROLS.
5. PROVIDE WITH CONDENSATE PUMP.
6. PROVIDE WITH 4" MERV- 13 FILTERS WITH FILTER ACCESS PANEL.
7. FAN COIL SHALL BE ADJUSTED TO OPERATE AT CONSTANT SPEED AT INDICATED CFM.
8. INDOOR UNIT POWERED BY OUTDOOR UNIT.

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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT
CEG JOB NO: 21038
CYPRESS Engineering Group
HVAC, Plumbing, Fire Protection
Building Commissioning
Industrial Refrigeration
Environmental Compliance
Training & Technical Support
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REGISTERED PROFESSIONAL ENGINEER
METIN SERTTUNC
No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No. Description Date

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

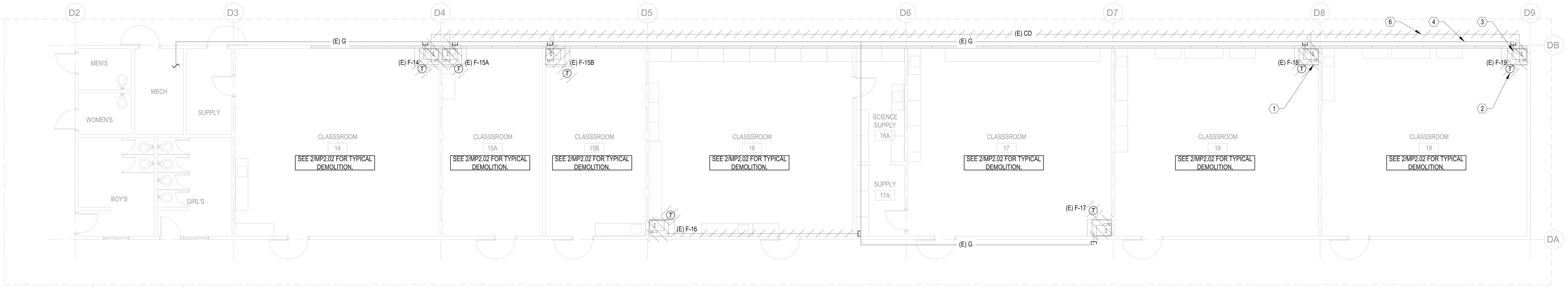
SHEET

SCHEDULES-MECHANICAL

DATE 10/06/2021
JOB # 2021005.07

SHEET #

MP0.02

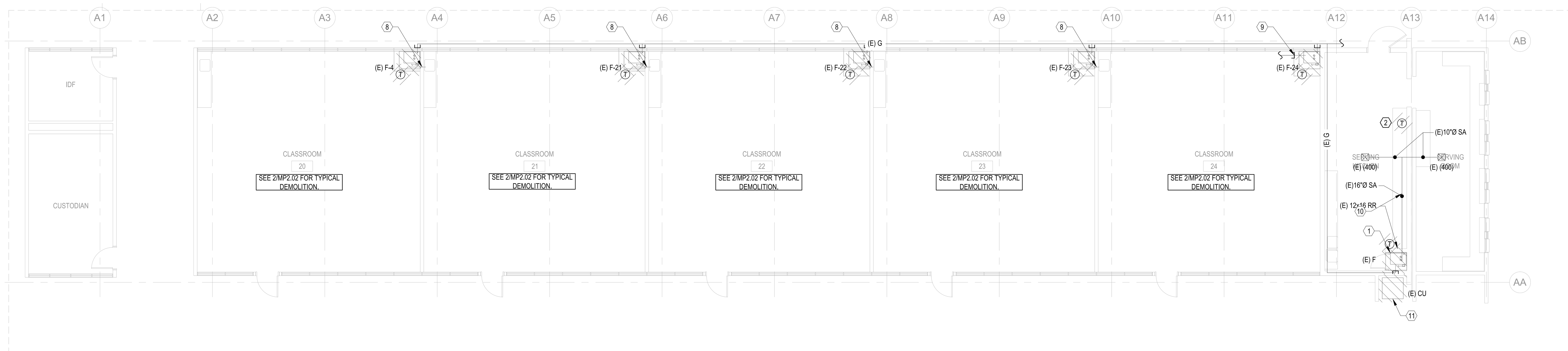


1
MP2.01

FLOOR PLAN - BLDG D - DEMO - MECHANICAL & PLUMBING

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

NORTH

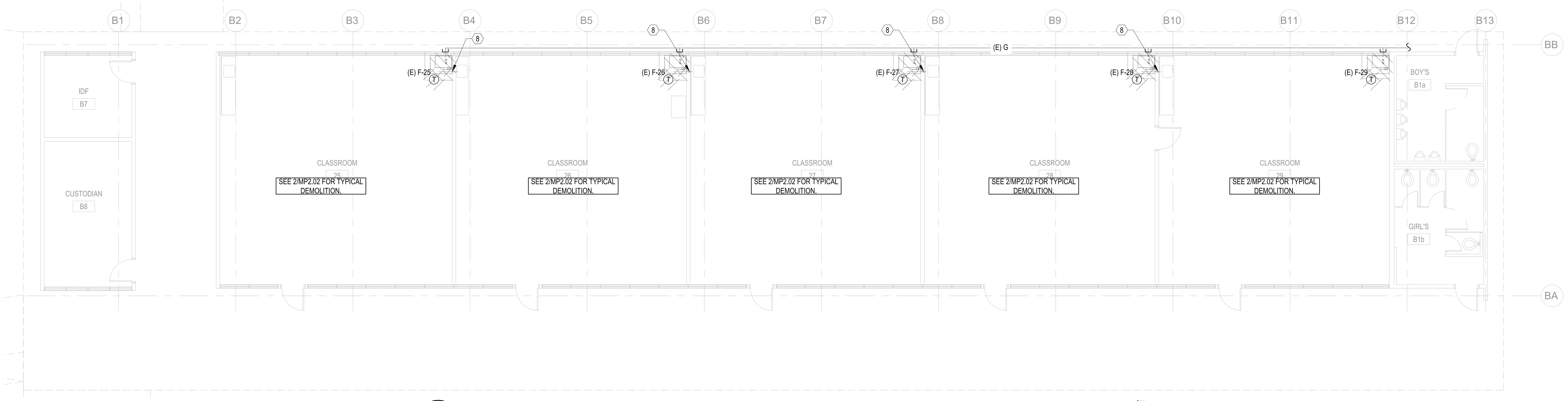


2
MP2.01

FLOOR PLAN - BLDG A - DEMO - MECHANICAL & PLUMBING

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

NORTH

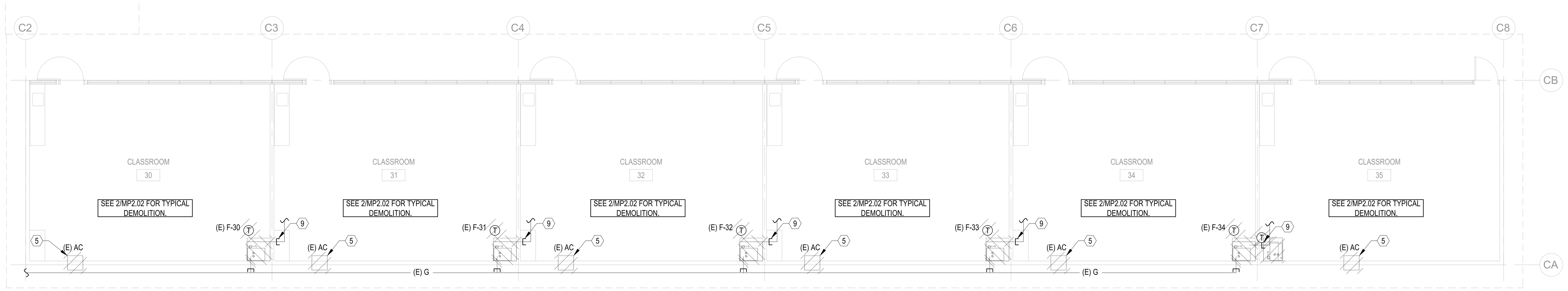


3
MP2.01

FLOOR PLAN - BLDG B - DEMO - MECHANICAL & PLUMBING

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

NORTH



4
MP2.01

FLOOR PLAN - BLDG C - DEMO - MECHANICAL & PLUMBING

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

NORTH

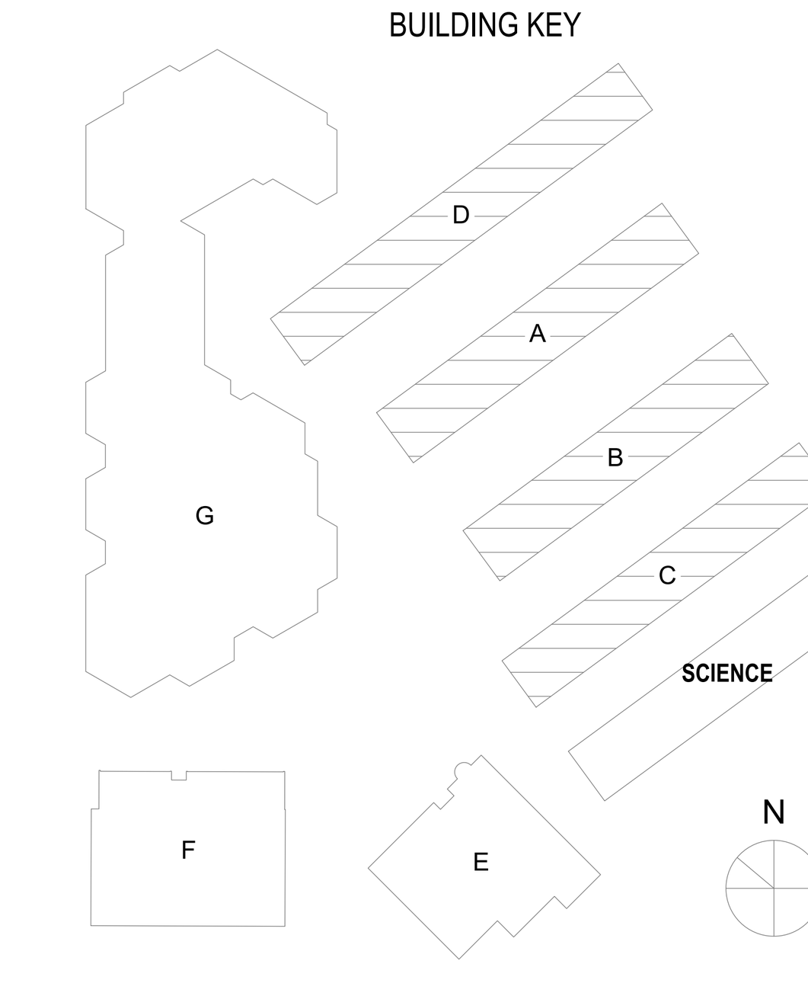
GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW BUILDING STRUCTURES, SERVICES AND OWNER'S PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION.
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.

⟨#⟩ DEMOLITION SHEET NOTES

1. REMOVE (E) FURNACE ENCLOSURE AND FURNACE, COMPLETE. SEE 3/MP2.02 FOR TYPICAL FURNACE DEMO.
2. REMOVE (E) THERMOSTAT AND WIRING BACK TO (E) FURNACE, TYP. SALVAGE (E) THERMOSTATS AND CONTROLLERS, AND RETURN 30% OF THE EQUIPMENT TO THE DISTRICT.
3. REMOVE (E) GAS BRANCH PIPE FROM FURNACE BACK TO (E) GAS MAIN. CAP (E) BRANCH LINE AT MAIN, TYP. PATCH AND REPAIR CEILING TILES / ROOF PER ARCHITECT'S DRAWINGS.
4. (E) GAS MAIN TO REMAIN, TYP.
5. REMOVE (E) WINDOW AC UNIT. SEE ARCHITECT'S DRAWINGS FOR WINDOW REPLACEMENT.
6. REMOVE (E) CD MAIN.
7. REMOVE (E) CONDENSING UNIT.
8. REMOVE (E) CD PIPE THAT DRAINS TO SINK TAILPIECE.
9. REMOVE (E) CONDENSATE DRAIN BRANCH PIPE BACK ABOVE CEILING. CAP AND ABANDON (E) CD MAIN ABOVE CEILING. PATCH AND REPAIR CEILING PER ARCHITECT'S DRAWINGS.
10. (E) DUCTWORK TO REMAIN.
11. REMOVE (E) CONDENSING UNIT AND REFRIGERANT PIPING.

BUILDING KEY



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BACKCHECK	10/06/2021

SHEET

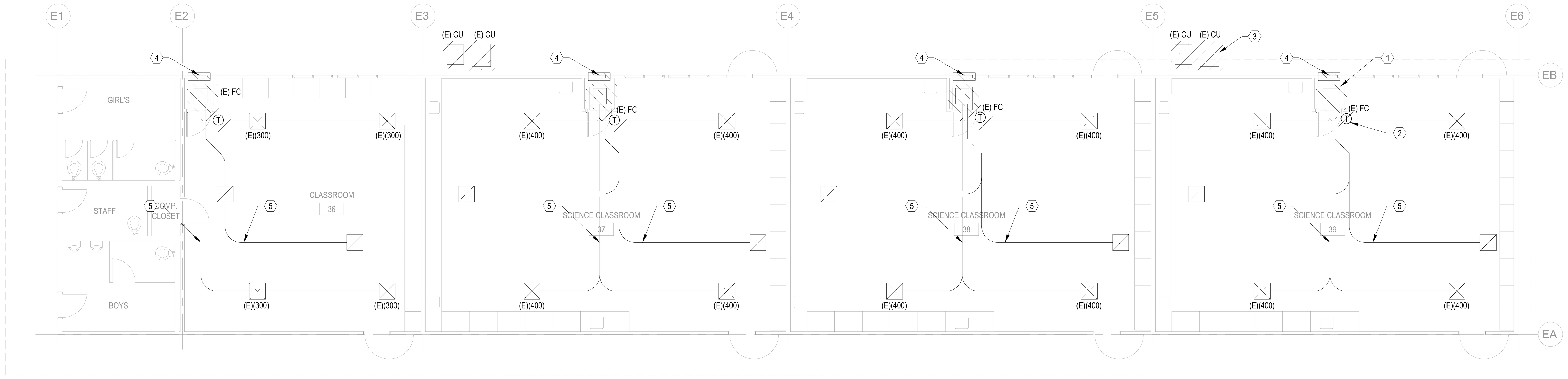
FLOOR PLANS - DEMO - BLDGS A, B, C & D - MECHANICAL & PLUMBING

DATE 10/06/2021

JOB # 2021005.07

SHEET #

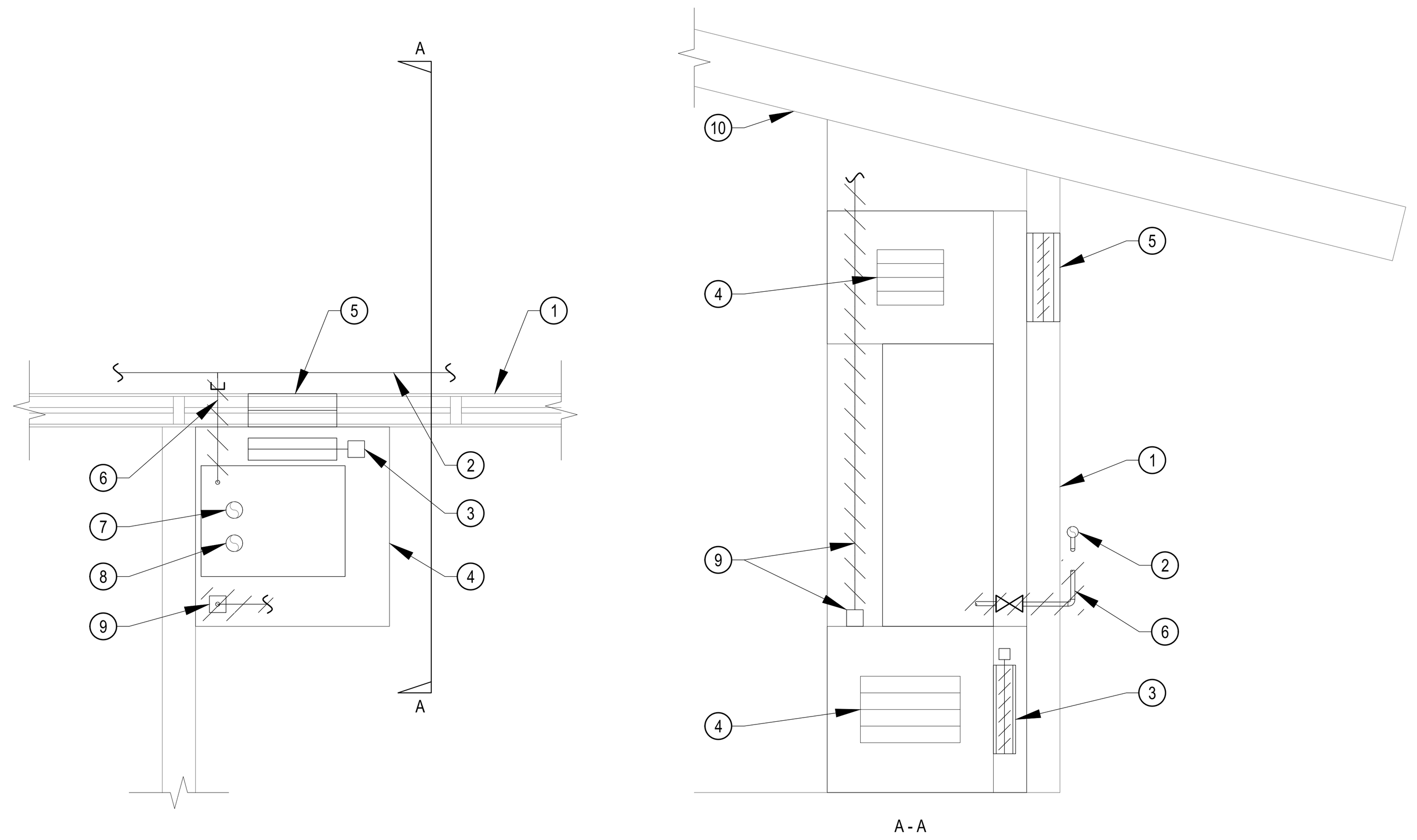
MP2.01



1 MP2.02 FLOOR PLAN - SCIENCE BLDG - DEMO - MECHANICAL & PLUMBING

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

NORTH



DETAIL NOTES:

1. (E) EXTERIOR WALL.
2. (E) GAS MAIN TO REMAIN, ELEVATION HEIGHT VARIES.
3. REMOVE (E) OUTSIDE AIR DAMPER AND ACTUATOR. SALVAGE 30% OF (E) ACTUATORS AND CONTROLLERS AND RETURN TO DISTRICT.
4. REMOVE (E) FURNACE ENCLOSURE, REGISTERS, AND ACCESS PANELS, COMPLETE.
5. (E) OUTSIDE AIR LOUVER TO REMAIN UNLESS NOTED OTHERWISE ON PLANS. HEIGHT VARIES.
6. REMOVE (E) GAS BRANCH LINE AND SHUT OFF VALVE. CAP AT (E) GAS MAIN. SEE DETAIL 8/MP6.01.
7. (E) COMBUSTION AIR INTAKE TO BE ABANDONED IN PLACE.
8. (E) FLUE TO BE ABANDONED IN PLACE.
9. REMOVE (E) CONDENSATE PUMP. REMOVE (E) CONDENSATE DRAIN PIPING WITHIN ENCLOSURE.
10. (E) CEILING.

2 MP2.02 TYPICAL FURNACE - DEMO - MECHANICAL & PLUMBING

SCALE: NO SCALE

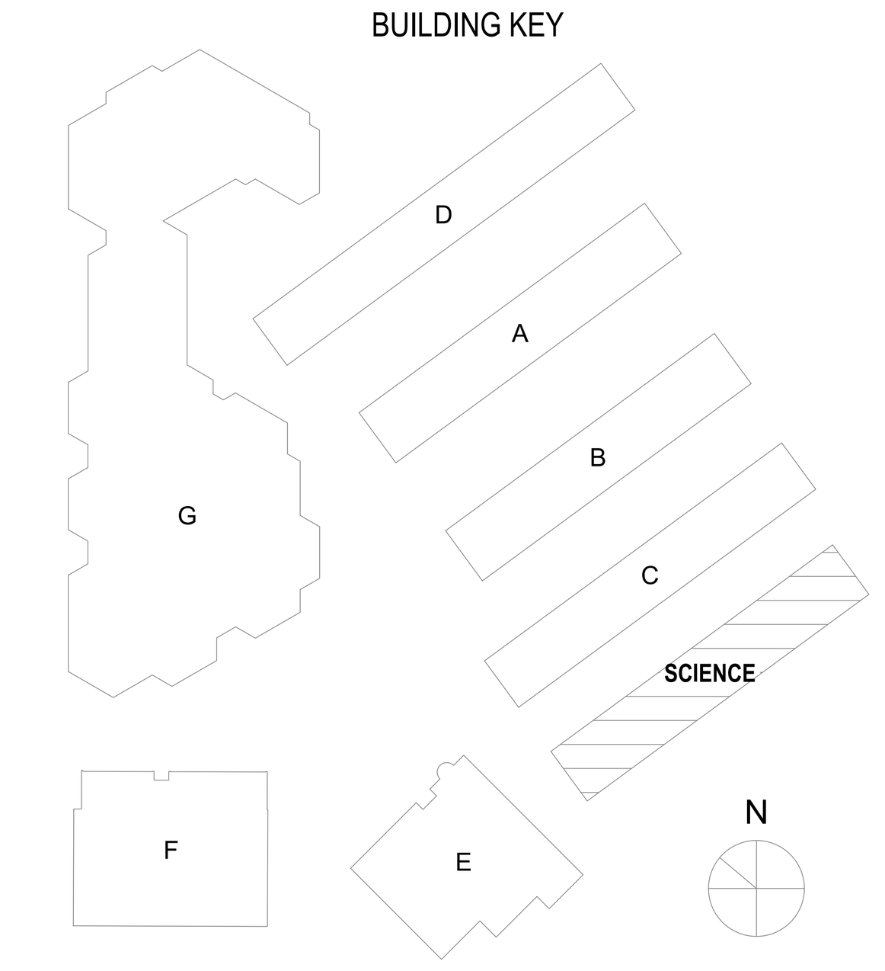
GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW BUILDING STRUCTURES, SERVICES AND OWNER'S PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION.
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.

DEMOLITION SHEET NOTES

1. REMOVE (E) FAN COIL, COMPLETE. TYP OF (4).
2. REMOVE (E) THERMOSTAT AND WIRING BACK TO (E) FURNACE, TYP. SALVAGE (E) THERMOSTATS AND CONTROLLERS, AND RETURN 30% OF THE EQUIPMENT TO THE DISTRICT. TYP OF (4).
3. REMOVE (E) CONDENSING UNIT AND REFRIGERANT PIPING, TYP OF (4).
4. REMOVE (E) OA LOUVER.
5. (E) DUCTWORK TO REMAIN.

BUILDING KEY



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PROJECT

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CONSULTANT

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DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

FLOOR PLAN - DEMO - SCIENCE BLDG - MECHANICAL & PLUMBING

DATE 10/06/2021

JOB # 2021005.07

SHEET # MP2.02

GENERAL NOTES

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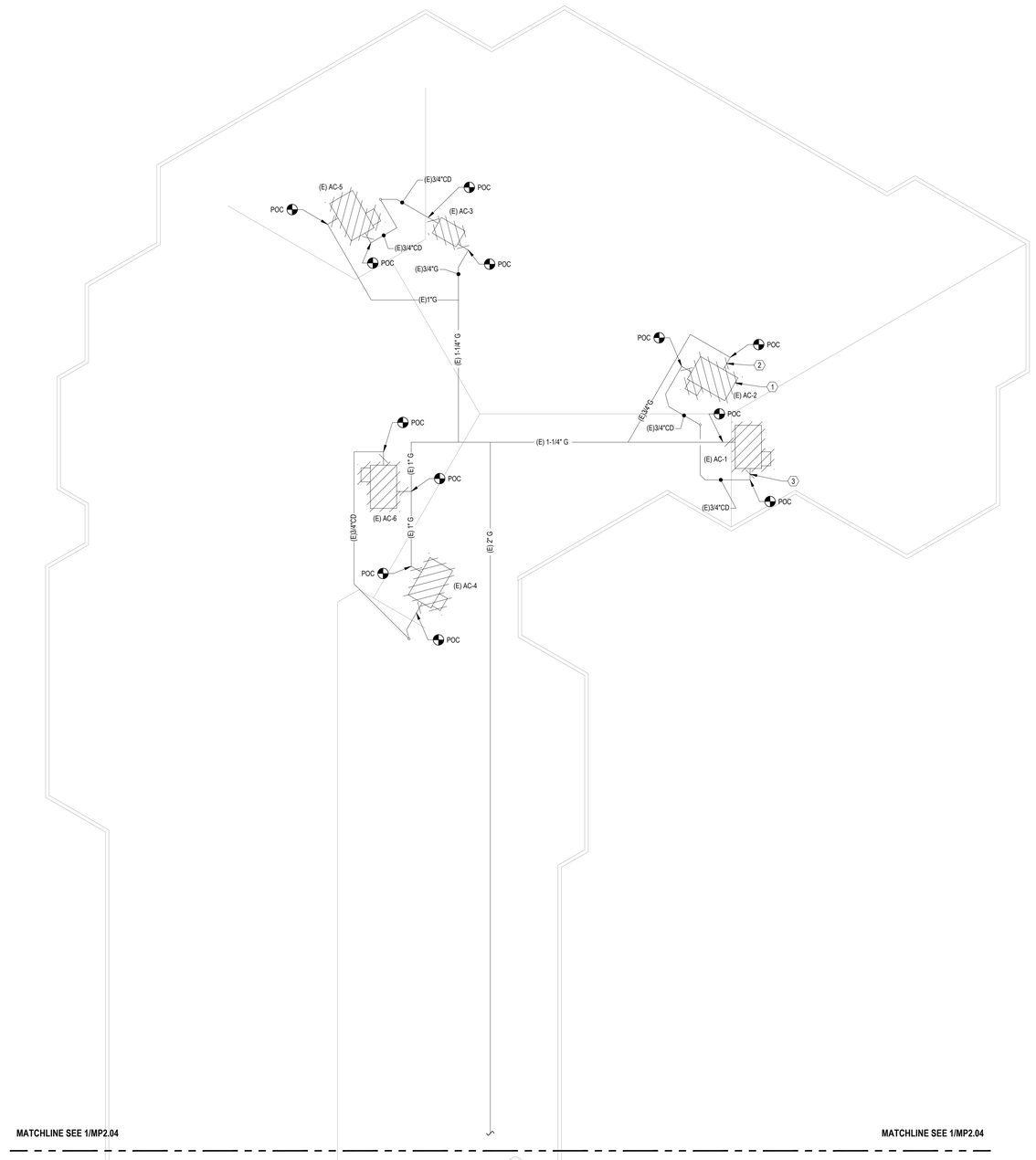
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.
3. REMOVE (E) THERMOSTATS AND INSTALL NEW THERMOSTATS IN SAME LOCATION. WIRE NEW THERMOSTATS TO NEW AC UNITS. SEE RECORD DRAWINGS ON SHEETS MP7.01, MP7.02, AND MP7.03 FOR (E) THERMOSTAT LOCATIONS.

(#) DEMOLITION SHEET NOTES

1. REMOVE (E) ROOFTOP AC UNITS AND (E) ROOF CURBS, TYP OF (6). PROTECT ROOF OPENINGS FOR CONNECTION TO NEW AC UNITS.
2. DISCONNECT (E) GAS PIPE FROM (E) AC UNIT. REMOVE (E) GAS PIPE UP TO SHUTOFF VALVE. KEEP (E) SHUTOFF VALVE FOR CONNECTION TO NEW AC UNIT. TYP. FOR ALL AC UNITS BEING REMOVED ON BUILDING G.
3. DISCONNECT (E) CD PIPE FROM (E) AC UNIT. REMOVE (E) CD PIPE UP TO AND INCLUDING TRAP. TYP. FOR ALL AC UNITS BEING REMOVED ON BUILDING G.

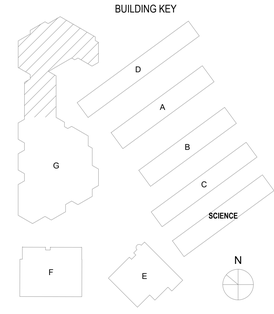


1 MP2.03 PARTIAL ROOF PLAN - BLDG G - DEMO - MECHANICAL & PLUMBING

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

NORTH

BUILDING KEY



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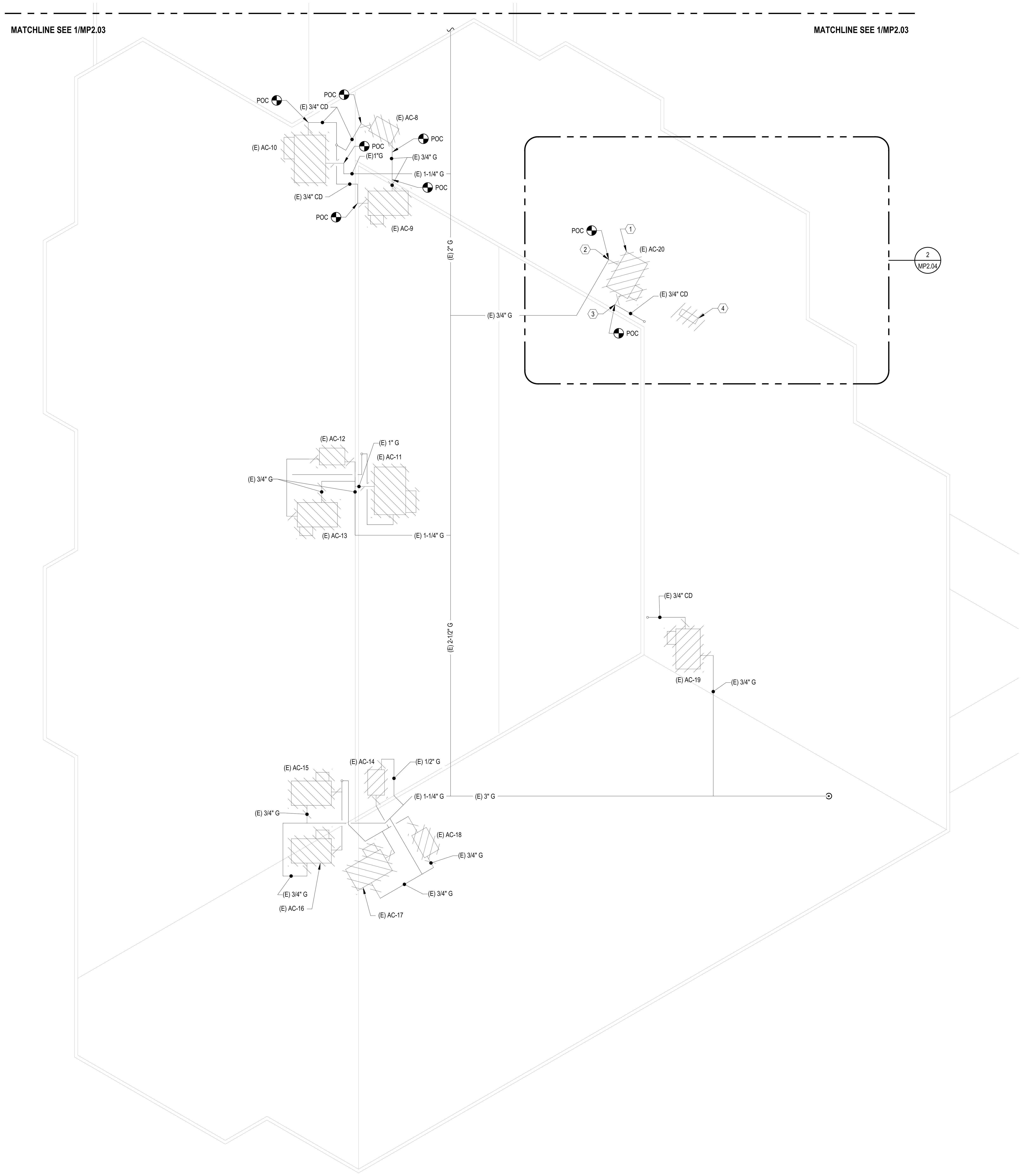
SHEET

PARTIAL ROOF PLAN - DEMO - BLDG G - MECHANICAL & PLUMBING

DATE 10/06/2021

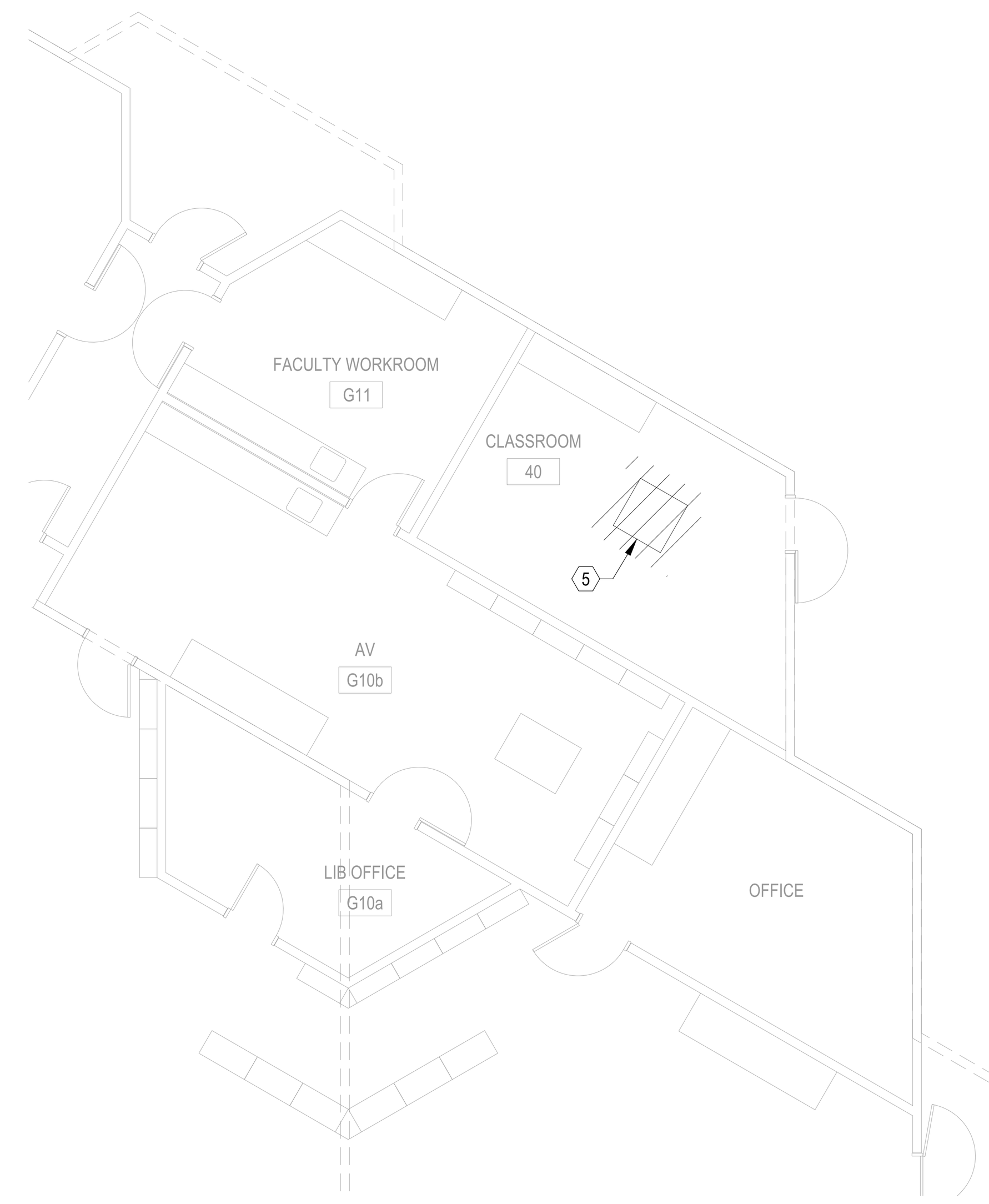
JOB # 2021005.07

SHEET # MP2.03



1 MP2.04 PARTIAL ROOF PLAN - BLDG G - DEMO - MECHANICAL & PLUMBING
SCALE: 1/8" = 1'-0"

NORTH



2 MP2.04 BLDG G CLASSROOM 40 PARTIAL FLOOR PLAN - DEMO
SCALE: 1/8" = 1'-0"

NORTH

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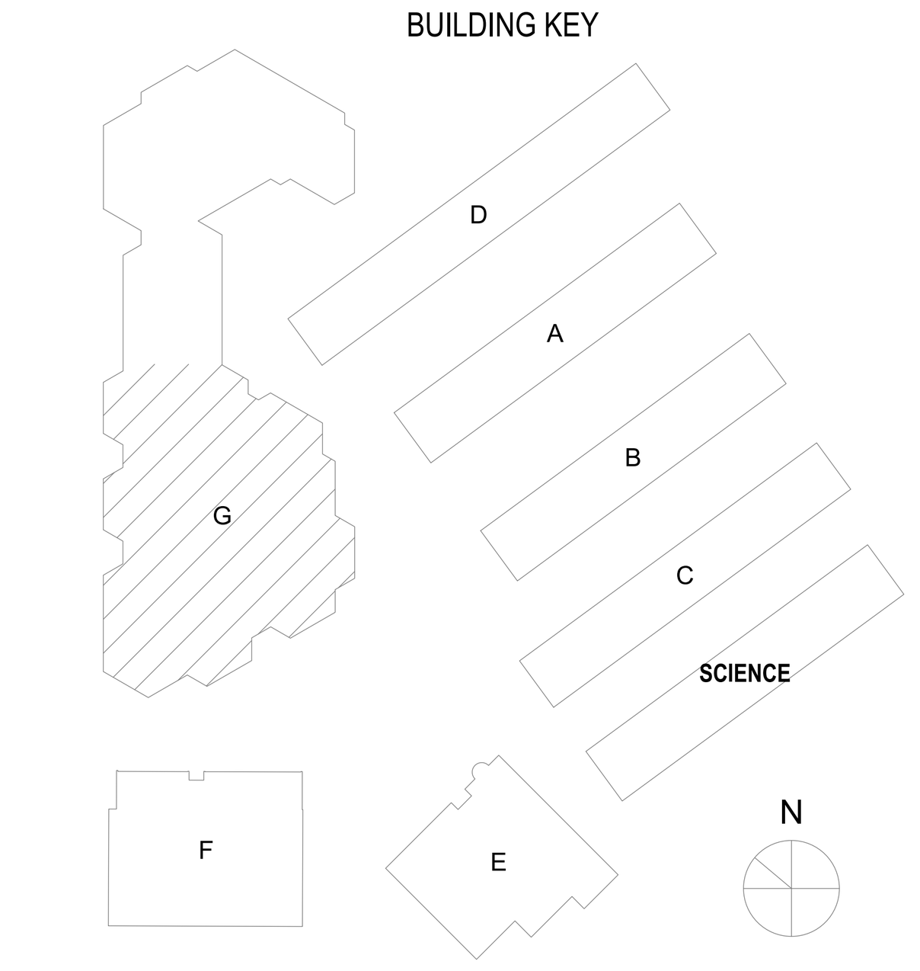
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.
3. REMOVE (E) THERMOSTATS AND INSTALL NEW THERMOSTATS IN SAME LOCATION. WIRE NEW THERMOSTATS TO NEW AC UNITS. SEE RECORD DRAWINGS ON SHEETS MP7.01, MP7.02, AND MP7.03 FOR (E) THERMOSTAT LOCATIONS.

DEMOLITION SHEET NOTES

1. REMOVE (E) ROOFTOP AC UNITS AND (E) ROOF CURBS, TYP OF (13). PROTECT ROOF OPENINGS FOR CONNECTION TO NEW AC UNITS.
2. DISCONNECT (E) GAS PIPE FROM (E) AC UNIT. REMOVE (E) GAS PIPE UP TO SHUTOFF VALVE. KEEP (E) SHUTOFF VALVE FOR CONNECTION TO NEW AC UNIT. TYP. FOR ALL AC UNITS BEING REMOVED ON BUILDING G.
3. DISCONNECT (E) CD PIPE FROM (E) AC UNIT. REMOVE (E) CD PIPE UP TO AND INCLUDING TRAP. TYP. FOR ALL AC UNITS BEING REMOVED ON BUILDING G.
4. REMOVE (E) CONDENSING UNIT AND REFRIGERANT PIPING BETWEEN CONDENSING UNIT AND FAN COIL. PROTECT ROOF OPENINGS FOR NEW REFRIGERANT PIPING.
5. REMOVE (E) FAN COIL INSIDE CLASSROOM. DISCONNECT (E) CONDENSATE PIPING AND PROTECT FOR RECONNECTION TO NEW FAN COIL. REMOVE (E) THERMOSTAT AND WIRING.

BUILDING KEY



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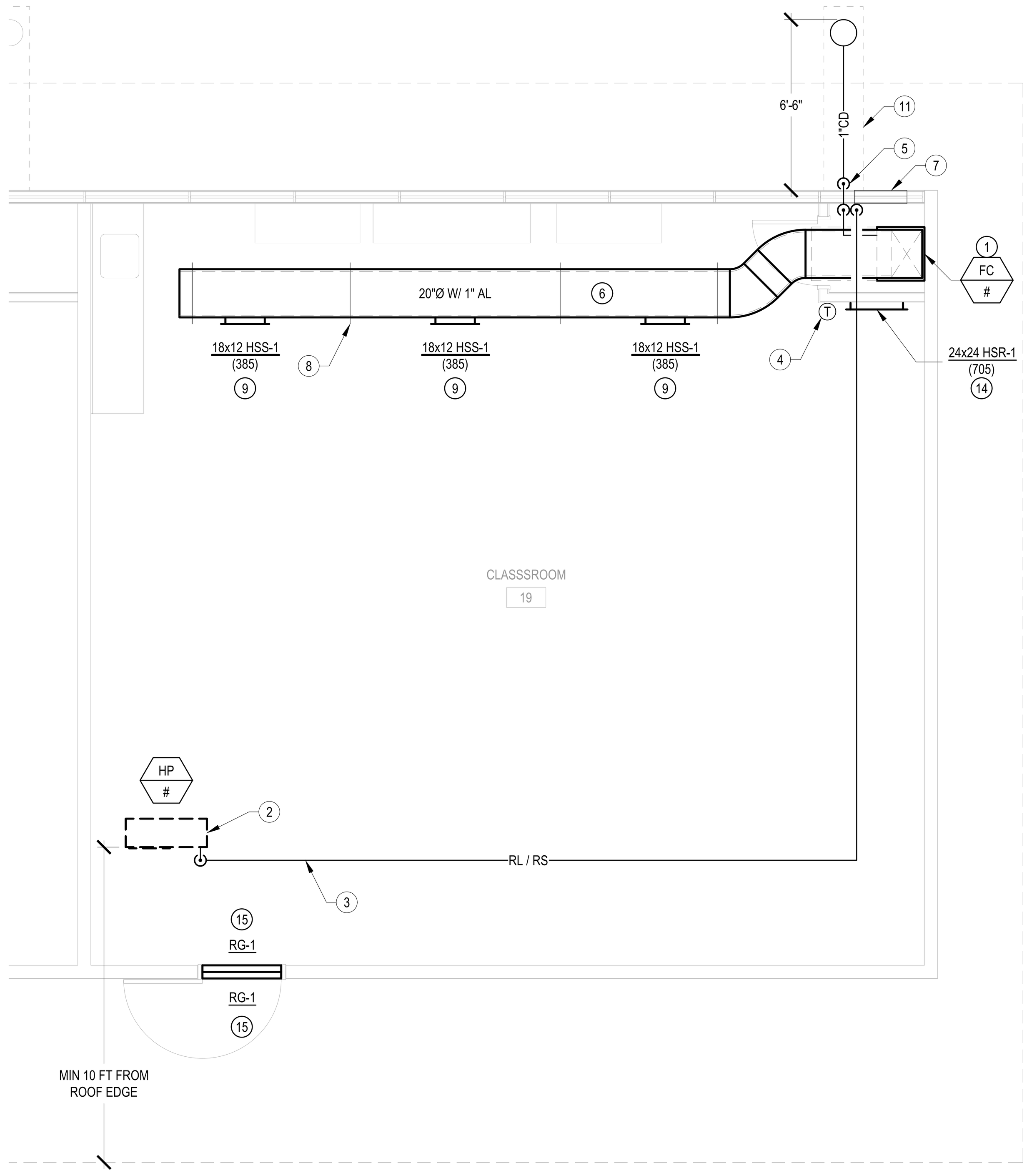
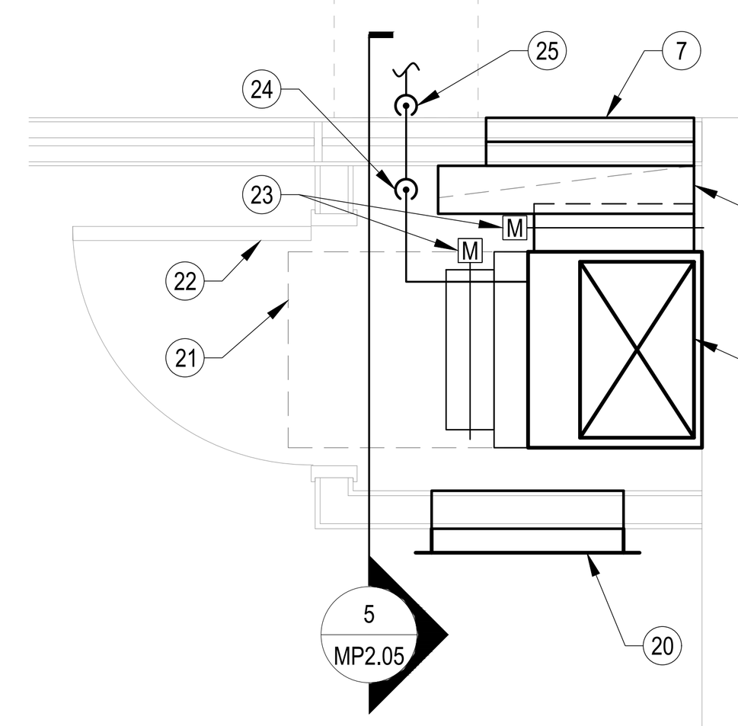
SHEET
PARTIAL ROOF PLAN - DEMO - BLDG G - MECHANICAL & PLUMBING

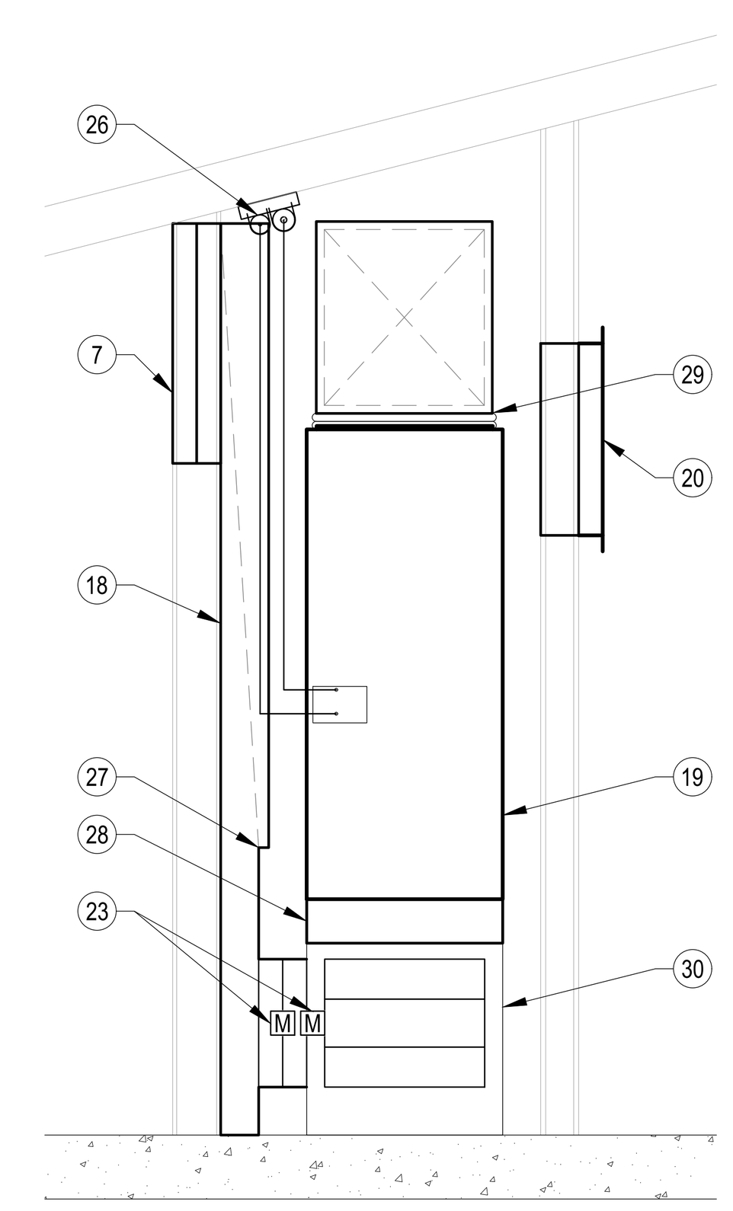
DATE 10/06/2021
JOB # 2021005.07
SHEET # MP2.04



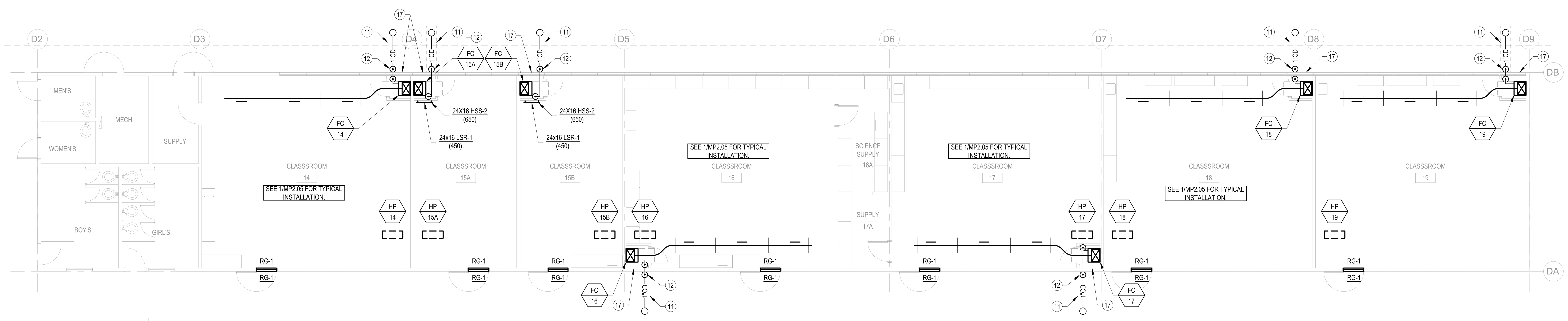
1 MP2.05 **ENLARGED PLAN - TYPICAL CLASSROOM**
SCALE: 1/4" = 1'-0"



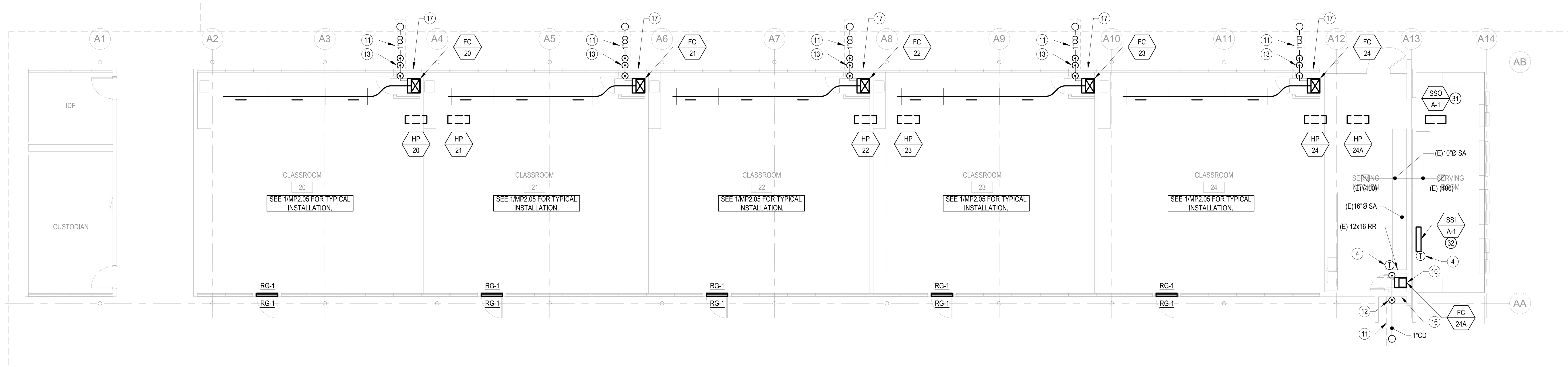
4 MP2.05 **FLOOR PLAN - ENCLOSURE**
SCALE: NONE



5 MP2.05 **SECTION - ENCLOSURE**
SCALE: NONE



2 MP2.05 **FLOOR PLAN - BLDG D - NEW - MECHANICAL & PLUMBING**
SCALE: 1/8" = 1'-0"



3 MP2.05 **FLOOR PLAN - BLDG A - NEW - MECHANICAL & PLUMBING**
SCALE: 1/8" = 1'-0"

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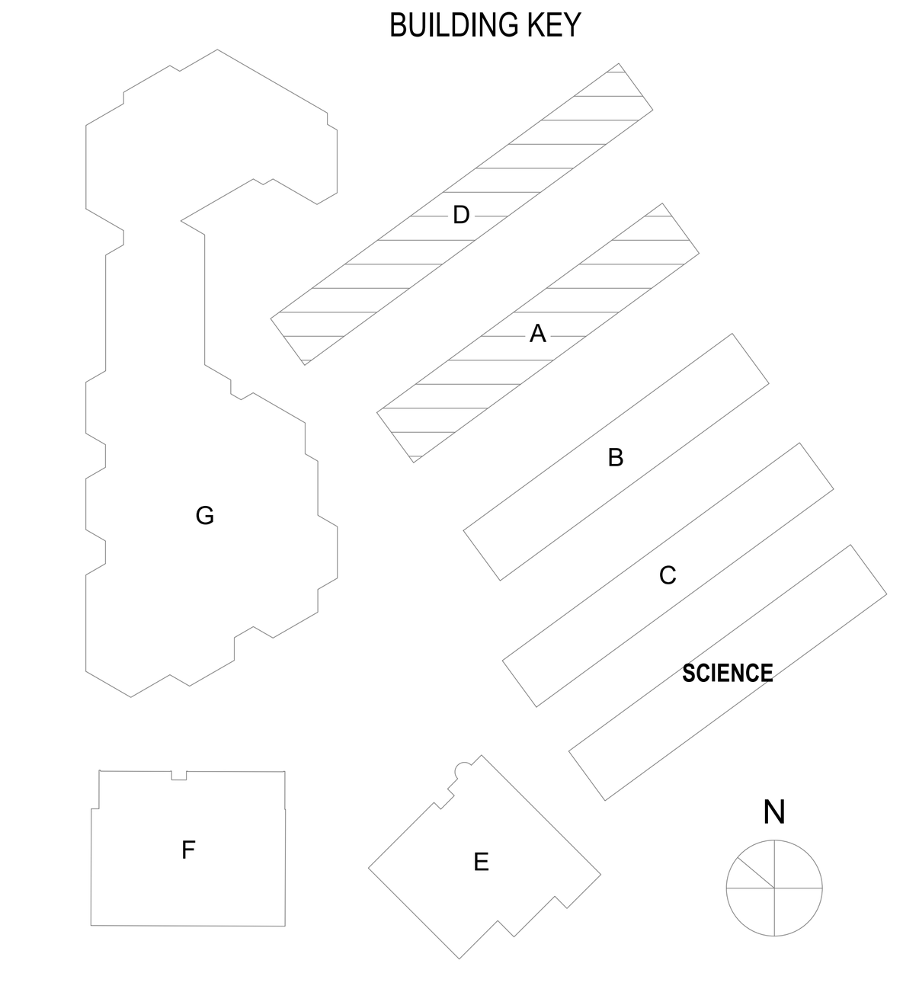
3. EQUIPMENT MOUNTING DETAIL REFERENCES SHOWN ON SCHEDULES ON SHEET MP0.02.
4. FOR CLARITY, ABANDONED CD PIPING AND (E) GAS MAINS ARE NOT SHOWN ON THIS PLAN. SEE MP2.01.
5. PAINT ALL EXPOSED DUCTWORK, SUPPORTS, AND REGISTERS.
6. SEE DETAIL 7/MP6.01 FOR PIPE SUPPORT ON ROOF.
7. CONTRACTOR TO PROVIDE AND INSTALL THERMOSTAT WIRING AND ASSOCIATED CONDUITS FOR ALL NEW HVAC EQUIPMENT AND CONNECTIONS.
8. CLEAN ALL (E) DUCTWORK AND REGISTERS PER SPECIFICATION 23 01 30.
9. PAINT HEAT PUMPS ON ROOF TO MATCH (E) ROOF COLOR.

(#) NEW SHEET NOTES

1. INSTALL FAN COIL, TYP. SEE 4/MP2.05 AND 5/MP2.05 FOR TYPICAL FAN COIL INSTALLATION. SEE 1/MP6.01 FOR TYPICAL FAN COIL MOUNTING.
2. INSTALL HEAT PUMP ON ROOF, MIN 10 FT AWAY FROM EDGE OF ROOF, TYP. SEE FLOOR PLANS FOR ACTUAL LOCATION OF EACH UNIT.
3. INSTALL REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL, TYP. MINIMIZE EXPOSED PIPING ON ROOF. PENETRATE ROOF WITHIN 36" OF HEAT PUMP. RUN PIPE CONCEALED ABOVE T-BAR CEILING TO FAN COIL ENCLOSURE. PENETRATE FAN COIL ENCLOSURE WALL ABOVE CEILING. DROP DOWN TO FAN COIL AT LEFT SIDE OF UNIT. ENSURE REFRIGERANT PIPING DOES NOT BLOCK FILTER ACCESS.
4. INSTALL THERMOSTAT ON WALL, 48" MAX AFF, AND WIRE TO NEW FAN COIL, TYP.
5. CD FROM FAN COIL. DROP CD TIGHT TO EXTERIOR WALL TO BELOW GRADE, AND ROUTE TO CD DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE DETAILS 9/MP6.01 FOR CD CONNECTION TO EQUIPMENT AND 15/MP6.01 FOR CD DRYWELL.
6. INSTALL EXPOSED SUPPLY DUCT. PAINT ALL EXPOSED DUCTWORK AND REGISTERS.
7. (E) OUTSIDE AIR LOUVER, TYP.
8. INSTALL DUCT SUPPORTS, TYP. SEE DETAIL 5/MP6.01.
9. INSTALL FACE OPERABLE KEY EXTRACTOR, TYP. FOR ALL SUPPLY REGISTERS.
10. INSTALL FAN COIL. CONNECT TO (E) SUPPLY DUCT ABOVE UNIT.
11. SAWCUT, REPAIR, AND PATCH TO MATCH EXISTING. SEE SHEET A8.10 ON ARCHITECT'S DRAWINGS FOR PATCHING AT GRADE.
12. CD FROM FAN COIL. DROP CD TIGHT TO EXTERIOR WALL TO BELOW GRADE, AND ROUTE TO CD DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE DETAILS 9/MP6.01 FOR CD CONNECTION TO EQUIPMENT AND 15/MP6.01 FOR CD DRYWELL.
13. CD FROM FAN COIL. DROP CD TIGHT TO EXTERIOR WALL TO ABOVE CONCRETE FOOTING. DROP CD TIGHT TO EXTERIOR CONCRETE FOOTING TO BELOW GRADE, AND ROUTE TO CD DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE DETAILS 9/MP6.01 FOR CD CONNECTION TO EQUIPMENT AND 18/MP6.01 FOR CD DRYWELL.
14. RETURN REGISTER WITH GRILLE SILENCER.
15. MOTORIZED RELIEF DAMPER AND RETURN GRILLE (RG-1) MOUNTED ON BOTH SIDES OF RELIEF OPENING. DAMPER AND GRILLE TO MATCH (E) FRAME. VERIFY IN FIELD, TYP.
16. (E) OUTSIDE AIR LOUVER.
17. INSTALL OUTSIDE AIR LOUVER. SIZE TO MATCH FULL WIDTH AND HEIGHT OF (E) WINDOW PANEL (46" x 26" NOMINAL). FIELD VERIFY EXACT FRAME SIZE BEFORE ORDERING LOUVER.
18. 6"x32" OUTSIDE AIR DUCT DOWN TO MIXING PLENUM.
19. FAN COIL. SEE PLANS FOR LOCATION.
20. 24"x24" RETURN REGISTER HSR-1 WITH GRILLE SILENCER.
21. CLEARANCE REQUIRED FOR FILTER REPLACEMENT.
22. 30" FULL HEIGHT DOOR. SEE ARCHITECTS DRAWINGS.
23. 20"X16" MOTORIZED DAMPER (LOW VOLTAGE).
24. CD FROM FAN COIL. DROP PIPE DOWN TO ENCLOSURE FLOOR AT LEFT SIDE OF UNIT, ENSURING PIPE DOES NOT BLOCK FILTER ACCESS. THEN RUN ALONG FLOOR TO EXTERIOR WALL TO DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE 9/MP6.01 FOR CONNECTION TO UNIT.
25. DROP CD TIGHT TO EXTERIOR WALL. ROUTE ABOVE AND OVER CONCRETE FOOTING IF THERE IS ONE. DO NOT PENETRATE FOOTING. SEE NOTE REGARDING CONDENSATE DRAIN AT EACH INDIVIDUAL FAN COIL. ROUTE TO CONDENSATE DRYWELL.
26. REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL. SEE 15/MP6.01 FOR PIPE SUPPORT.
27. DUCT TRANSITION TO ALLOW DAMPER CONNECTION.
28. FILTER BOX THAT CAN FIT 4" OR 2" FILTER.
29. FLEX DUCT AT CONNECTION TO UNIT.
30. MIXING PLENUM BELOW FAN COIL.
31. INSTALL HEAT PUMP ON ROOF. INSTALL REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL.
32. INSTALL FAN COIL ON WALL. COORDINATE EXACT HEIGHT WITH DISTRICT.

BUILDING KEY



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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT
CEG JOB NO: 21038
CYPRESS Engineering Group
HVAC, Plumbing, Fire Protection
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No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

FLOOR PLANS - NEW - BLDGS A & D - MECHANICAL & PLUMBING

DATE 10/06/2021

JOB # 2021005.07

SHEET #

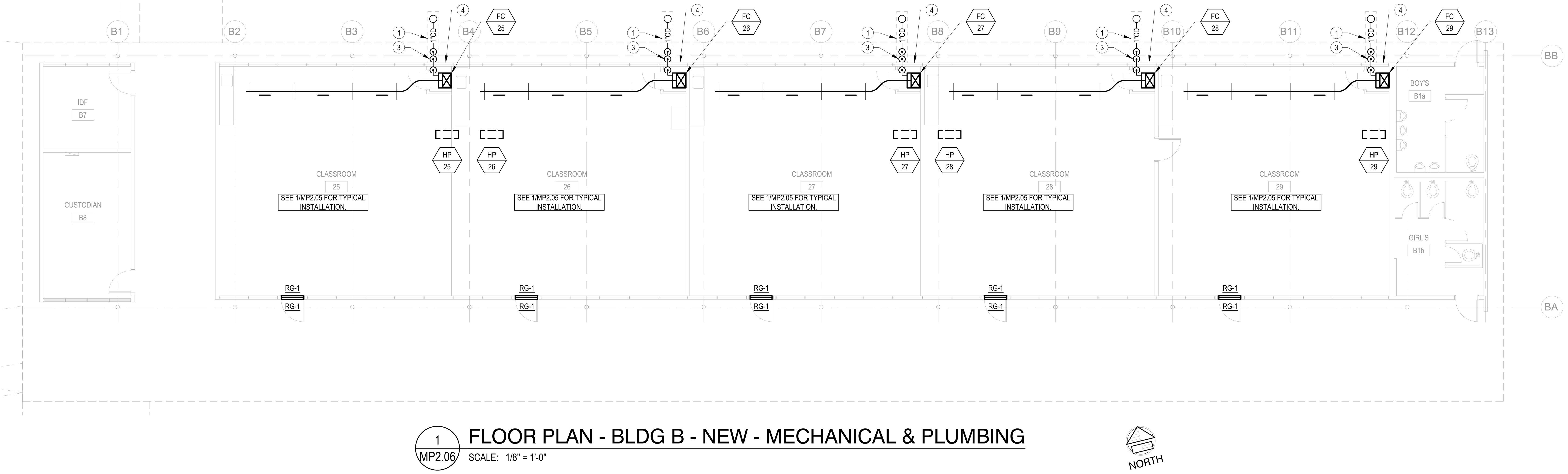
MP2.05

GENERAL NOTES

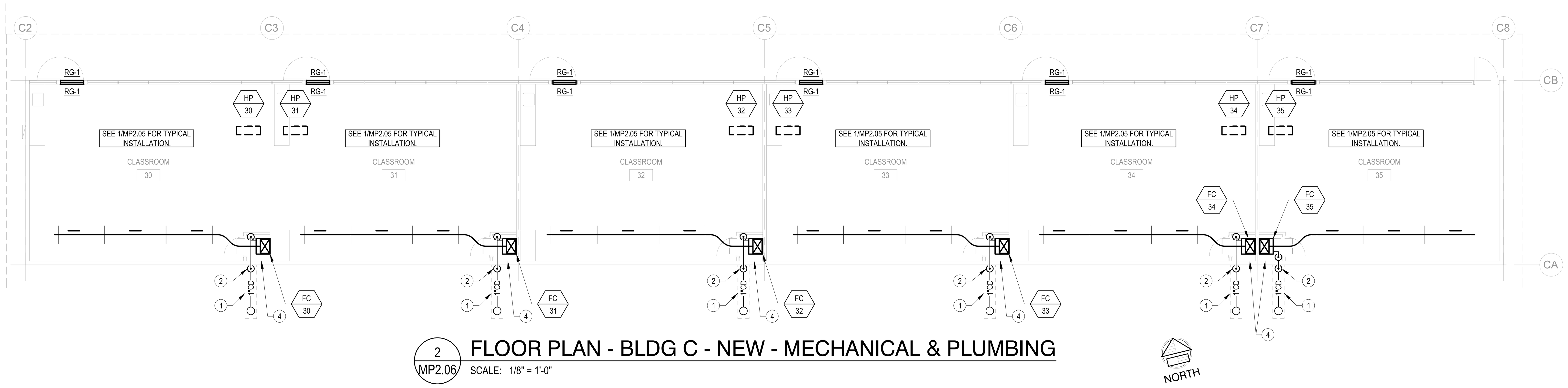
1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW BUILDING STRUCTURES, SERVICES AND OWNER'S PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION.
2. COORDINATE THE LOCATIONS OF ROOF/ WALL OPENINGS, PENETRATIONS, DUCTWORK AND ALL MECHANICAL EQUIPMENT WITH RESPECT TO BUILDING STRUCTURE AND OTHER BUILDING SERVICES TO AVOID CONFLICT.
3. EQUIPMENT MOUNTING DETAIL REFERENCES SHOWN ON SCHEDULES ON SHEET MP0.02.
4. FOR CLARITY, ABANDONED CD PIPING AND (E) GAS MAINS ARE NOT SHOWN ON THIS PLAN. SEE MP2.01.
5. PAINT ALL EXPOSED DUCTWORK, SUPPORTS, AND REGISTERS. SEE ARCHITECT'S DRAWINGS.
6. SEE DETAIL 7/MP6.01 FOR PIPE SUPPORT ON ROOF.
7. CONTRACTOR TO PROVIDE AND INSTALL THERMOSTAT WIRING AND ASSOCIATED CONDUITS FOR ALL NEW HVAC EQUIPMENT AND CONNECTIONS.
8. CLEAN ALL (E) DUCTWORK AND REGISTERS PER SPECIFICATION 23 01 30.
9. PAINT HEAT PUMPS ON ROOF TO MATCH (E) ROOF COLOR.

(#) NEW SHEET NOTES

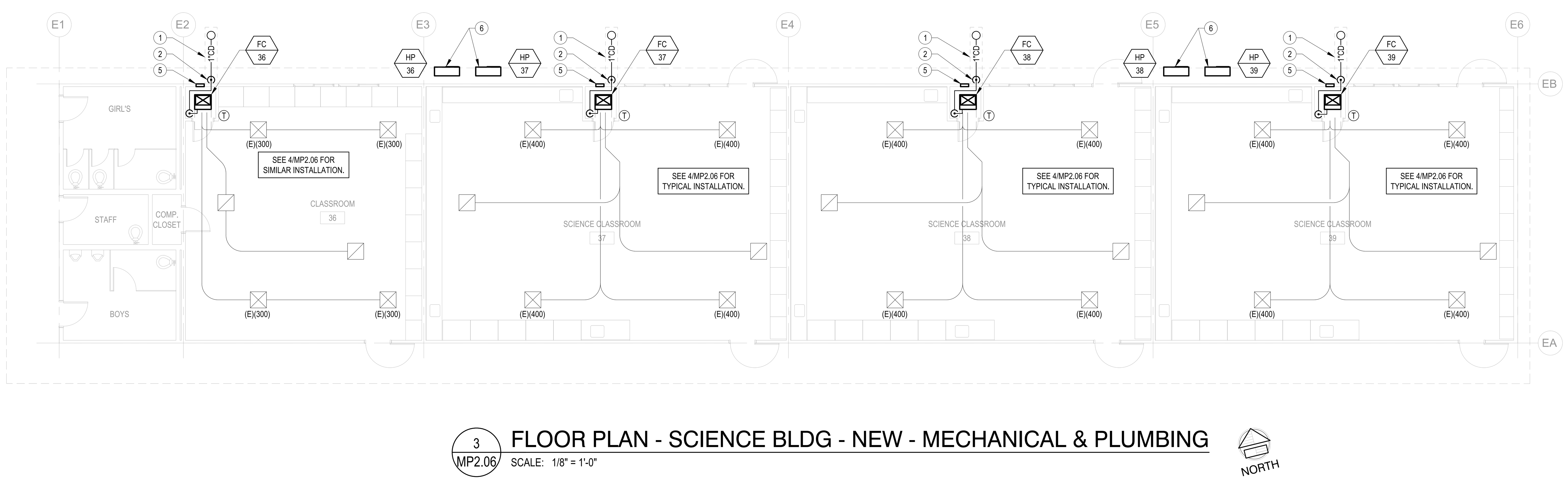
1. SAWCUT, REPAIR, AND PATCH TO MATCH EXISTING. SEE SHEET A8.10 ON ARCHITECT'S DRAWINGS FOR PATCHING AT GRADE.
2. CD FROM FAN COIL. DROP CD TIGHT TO EXTERIOR WALL TO BELOW GRADE, AND ROUTE TO CD DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE DETAILS 9/MP6.01 FOR CD CONNECTION TO EQUIPMENT AND 15/MP6.01 FOR CD DRYWELL.
3. CD FROM FAN COIL. DROP CD TIGHT TO EXTERIOR WALL TO ABOVE CONCRETE FOOTING. DROP CD TIGHT TO EXTERIOR CONCRETE FOOTING TO BELOW GRADE, AND ROUTE TO CD DRYWELL. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°. SEE DETAILS 9/MP6.01 FOR CD CONNECTION TO EQUIPMENT AND 18/MP6.01 FOR CD DRYWELL.
4. (E) OUTSIDE AIR LOUVER.
5. INSTALL 12"x42" OUTSIDE AIR LOUVER.
6. INSTALL HEAT PUMP ON NEW HOUSEKEEPING PAD. INSTALL REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL. TYP. OF (4).



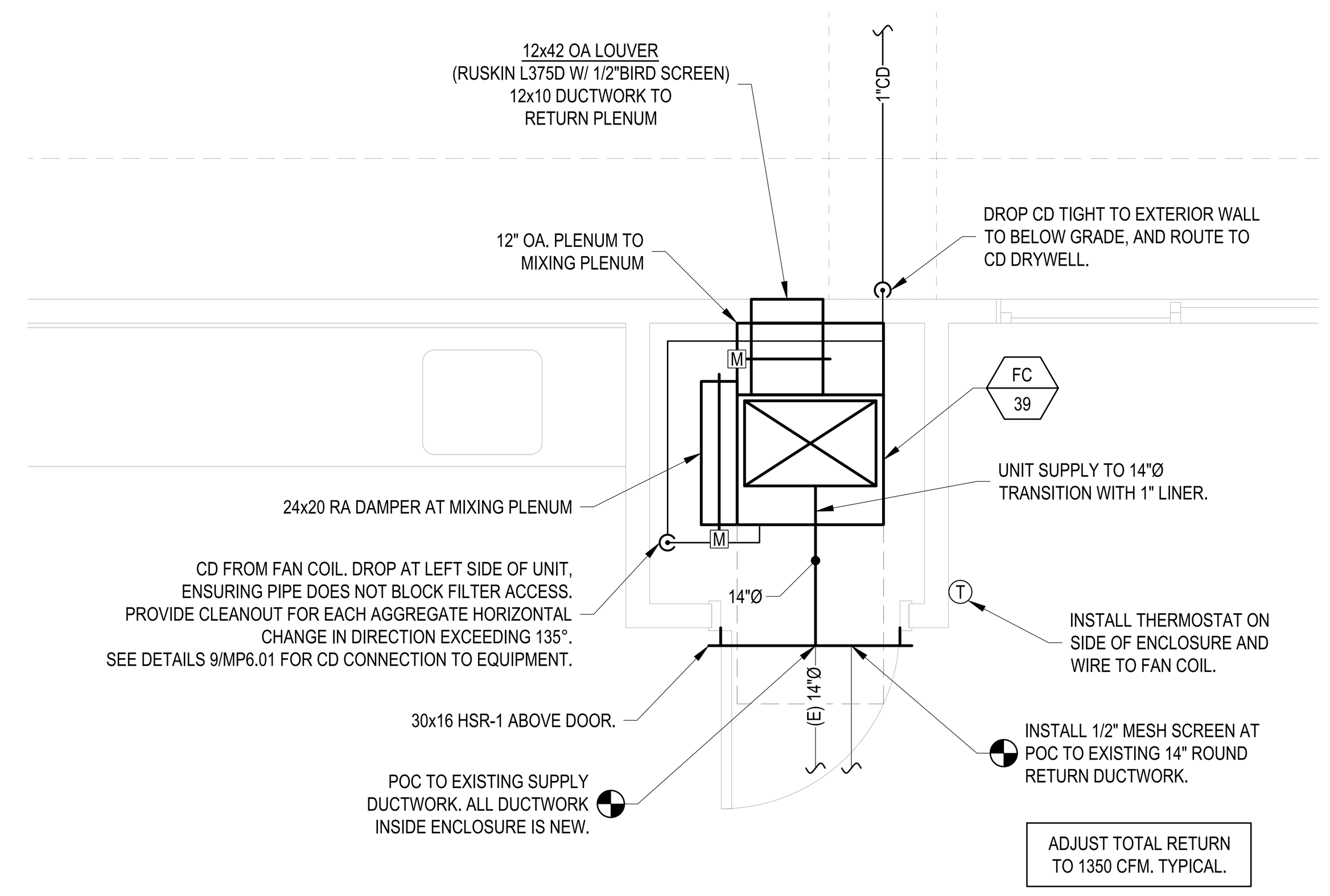
1 / MP2.06 FLOOR PLAN - BLDG B - NEW - MECHANICAL & PLUMBING
SCALE: 1/8" = 1'-0"



2 / MP2.06 FLOOR PLAN - BLDG C - NEW - MECHANICAL & PLUMBING
SCALE: 1/8" = 1'-0"

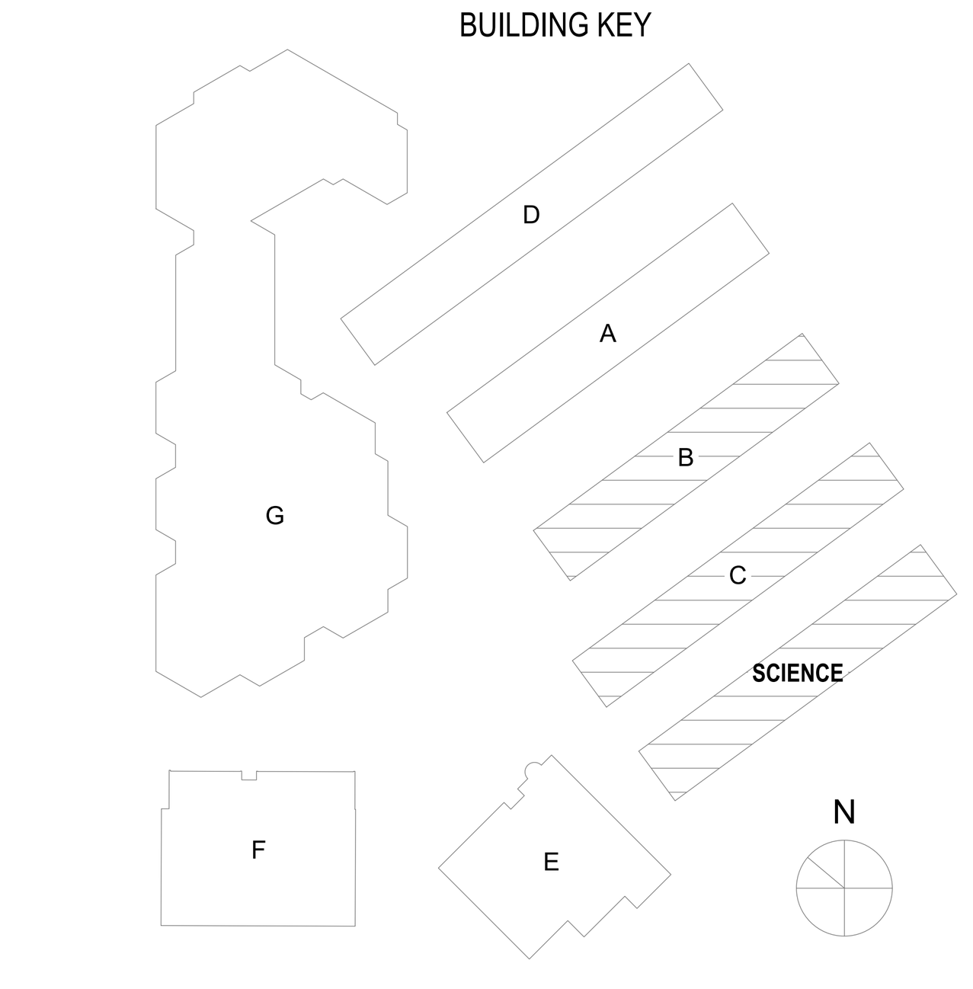


3 / MP2.06 FLOOR PLAN - SCIENCE BLDG - NEW - MECHANICAL & PLUMBING
SCALE: 1/8" = 1'-0"



4 / MP2.06 PARTIAL FLOOR PLAN - SCIENCE CLASSROOM
SCALE: 1/2" = 1'-0"

BUILDING KEY



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BACKCHECK	10/06/2021

SHEET

FLOOR PLAN - NEW - BLDG B, BLDG C, & SCIENCE BLDG - MECHANICAL & PLUMBING

DATE 10/06/2021
JOB # 2021005.07
SHEET # MP2.06

GENERAL NOTES

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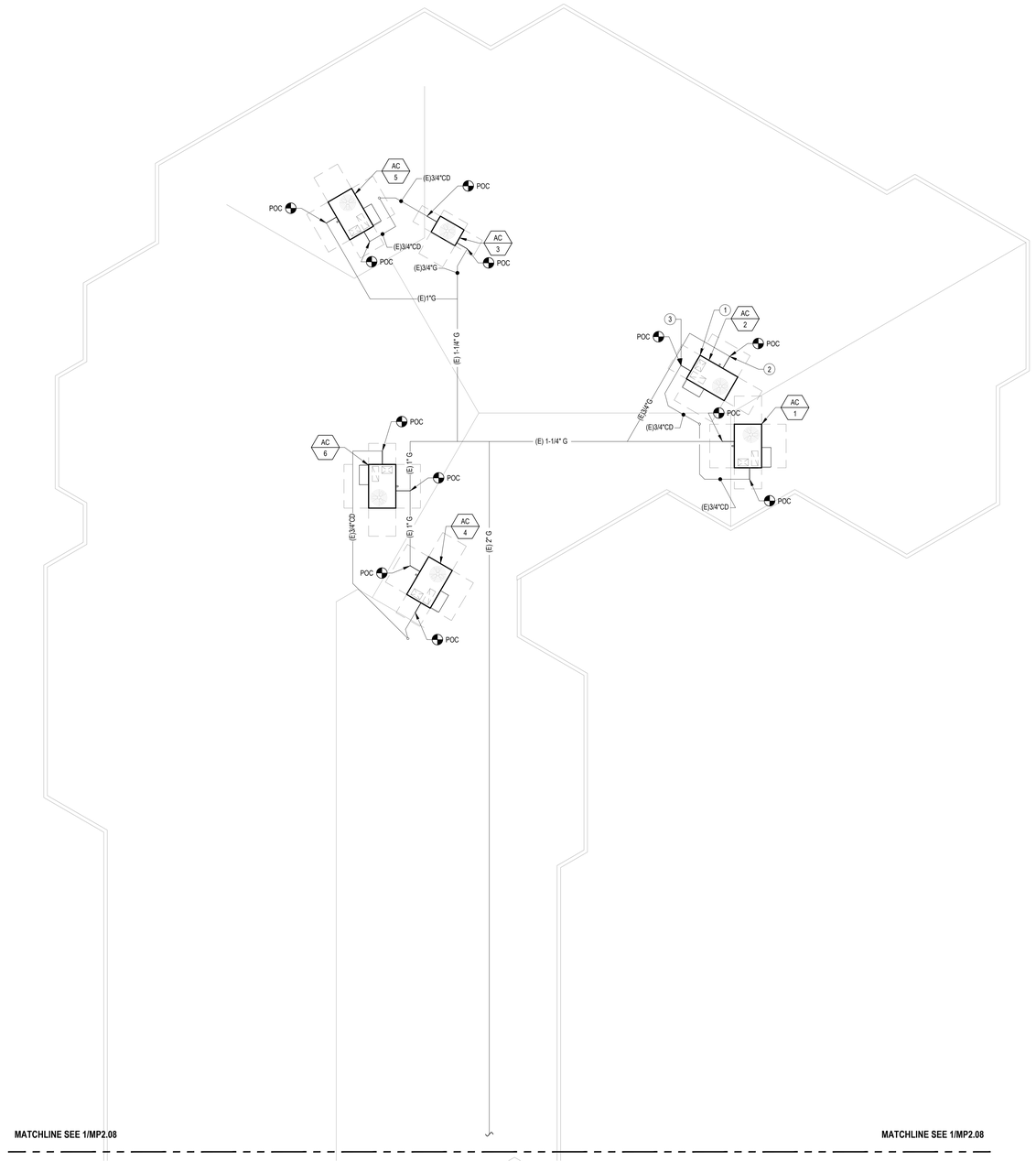
3. EQUIPMENT MOUNTING DETAIL REFERENCES SHOWN ON SCHEDULES ON SHEET MP0.02.
4. INSTALL NEW THERMOSTATS IN SAME LOCATION AS (E) THERMOSTATS. WIRE NEW THERMOSTATS TO NEW AC UNITS. SEE RECORD DRAWINGS ON SHEETS MP7.01, MP7.02, AND MP7.03 FOR (E) THERMOSTAT LOCATIONS.
5. SEE DETAIL 7/MP6.01 FOR PIPE SUPPORT ON ROOF.
6. CLEAN ALL (E) DUCTWORK AND REGISTERS PER SPECIFICATION 23 01 30. SEE RECORD DRAWINGS ON SHEETS MP7.01, MP7.02, AND MP7.03 FOR (E) DUCTWORK.
7. PROVIDE SIGNAGE, SEE DETAIL 14/A9.10 FOR GAS SHUT-OFF SIGNAGE WITH THE LOCATION OF GAS SHUT-OFF VALVE.

(#) NEW SHEET NOTES

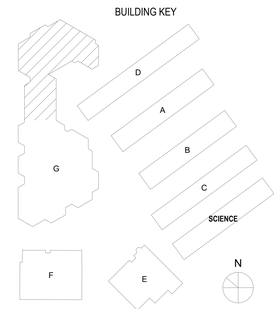
1. INSTALL NEW ROOFTOP AC UNIT ON (E) ROOF CURB. ENSURE CORRECT UNIT ORIENTATION AND CONNECT TO (E) SUPPLY AND RETURN DUCTWORK, TYP. OF (6).
2. INSTALL NEW GAS PIPING FROM POC, TYP. (DOWNSTREAM OF SHUTOFF VALVE) AND CONNECT TO NEW AC UNIT. INSTALL NEW GAS PIPING WITH DIRT LEG AND FLEX CONNECTION AT NEW AC UNIT. CONNECT TO AC UNIT PER 9/MP6.01.
3. INSTALL NEW CONDENSATE DRAIN PIPING WITH NEW TRAP AND CONNECT TO (E) CD PIPE, TYP. CONNECT TO AC UNIT PER 9/MP6.01.



1 MP2.07 PARTIAL ROOF PLAN - BLDG G - NEW - MECHANICAL & PLUMBING

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

NORTH



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PROJECT

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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

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CYPRESS Engineering Group
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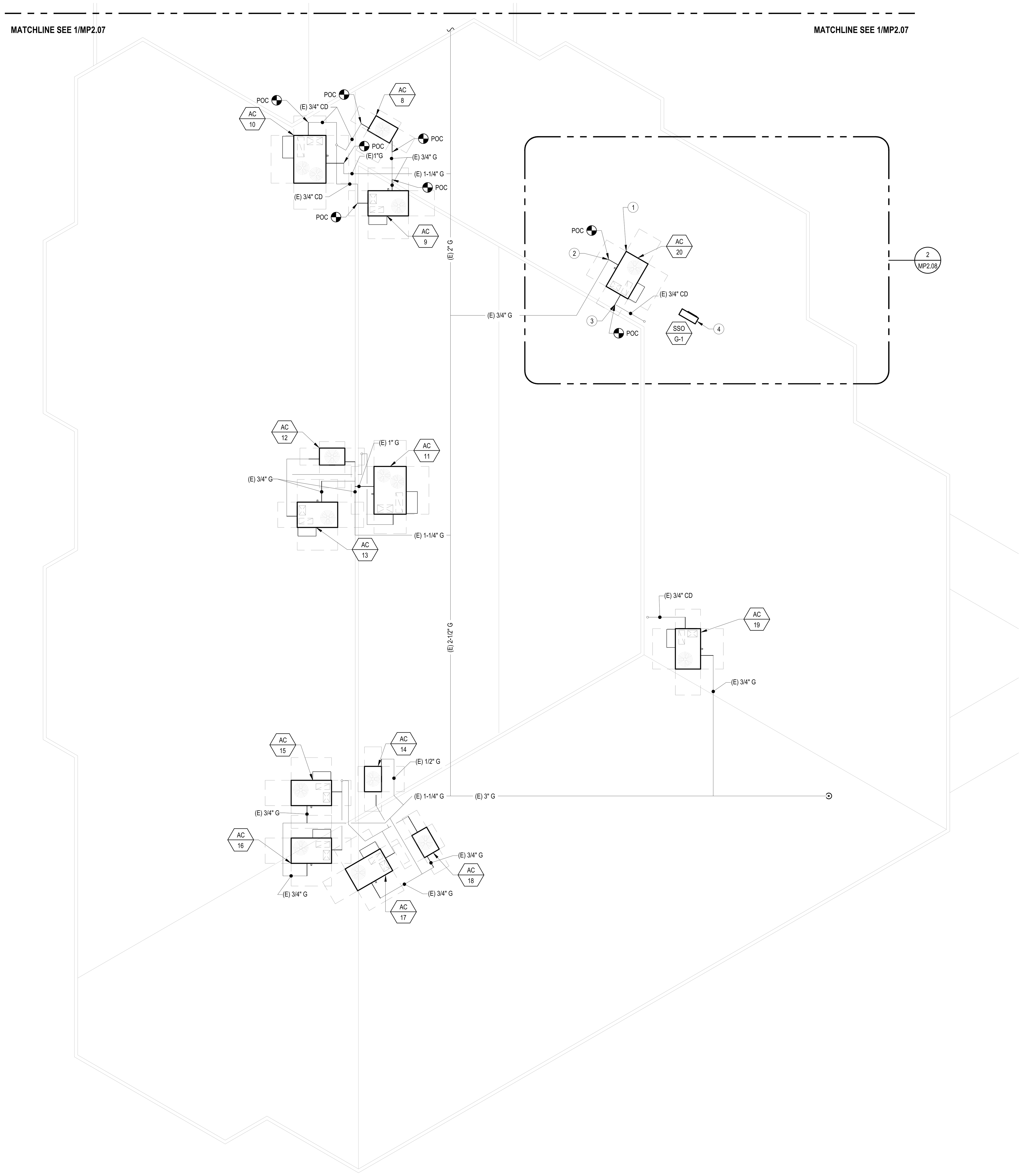
SHEET

PARTIAL ROOF PLAN - NEW - BLDG G - MECHANICAL & PLUMBING

DATE 10/06/2021

JOB # 2021005.07

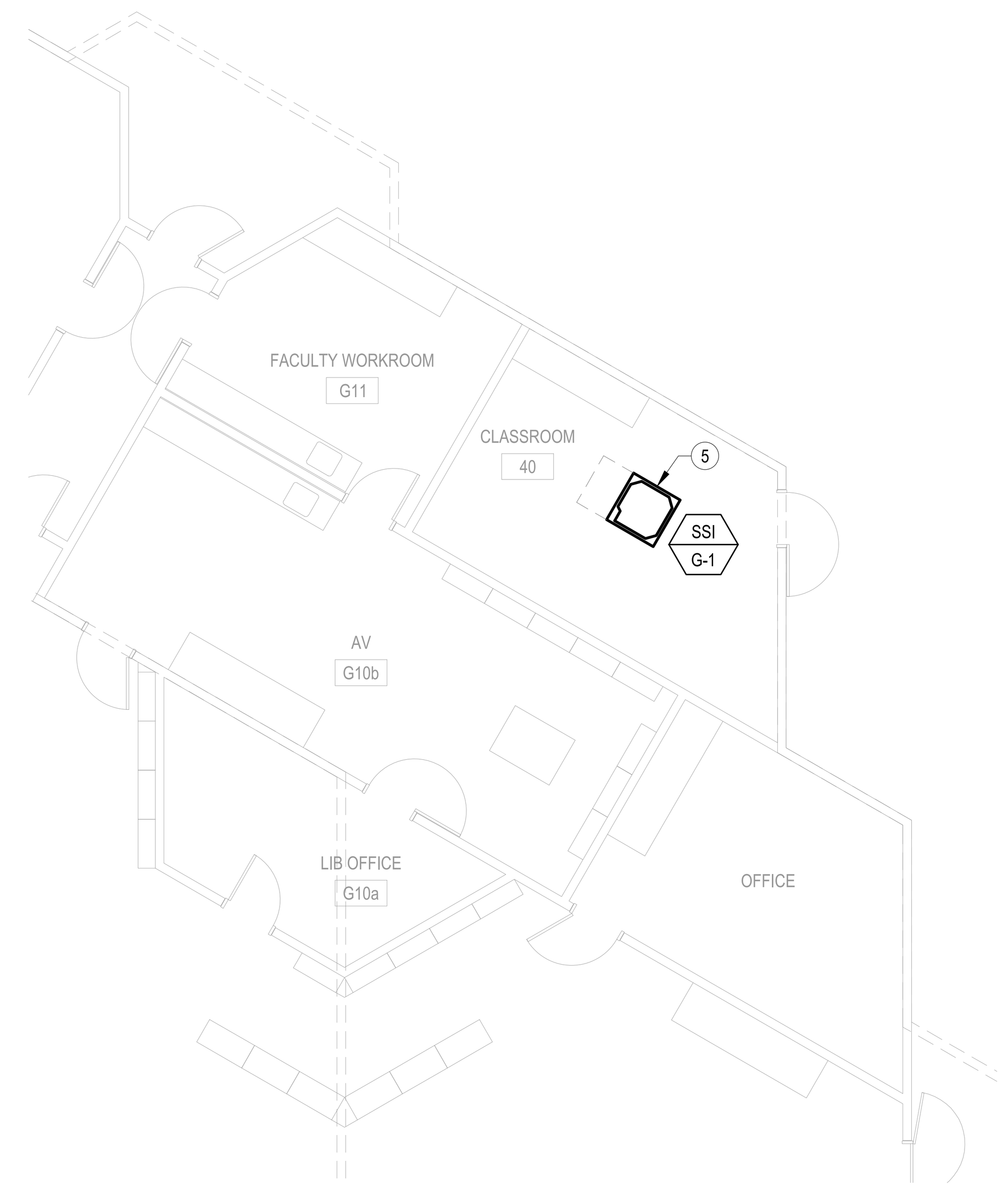
SHEET # MP2.07



1 MP2.08 PARTIAL ROOF PLAN - BLDG G - NEW - MECHANICAL & PLUMBING

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

NORTH



2 MP2.08 BLDG G CLASSROOM 40 PARTIAL FLOOR PLAN - NEW

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

NORTH

GENERAL NOTES

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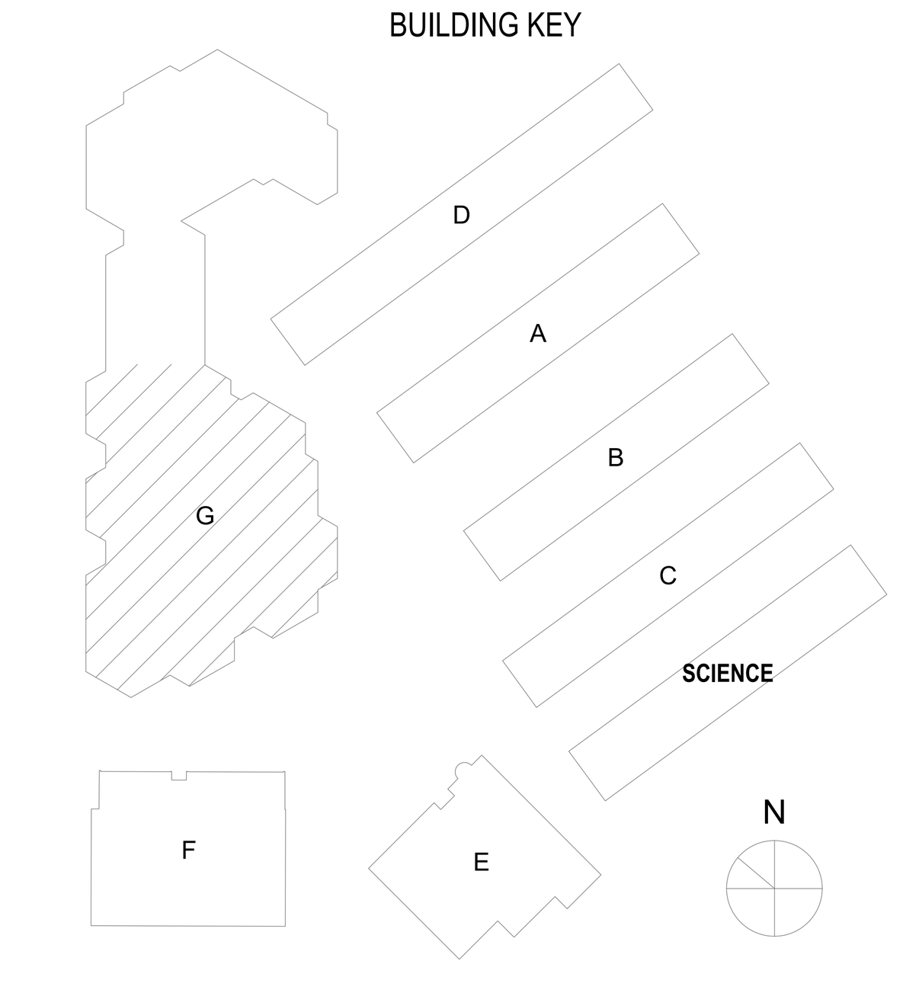
5. SEE DETAIL 7/MP6.01 FOR PIPE SUPPORT ON ROOF.
6. CLEAN ALL (E) DUCTWORK AND REGISTERS PER SPECIFICATION 23 01 30. SEE RECORD DRAWINGS ON SHEETS MP7.01, MP7.02, AND MP7.03 FOR (E) DUCTWORK.
7. PROVIDE SIGNAGE, SEE DETAIL 14/A9.10 FOR GAS SHUT-OFF SIGNAGE WITH THE LOCATION OF GAS SHUT-OFF VALVE.

NEW SHEET NOTES

1. INSTALL NEW ROOFTOP AC UNIT ON (E) ROOF CURB. ENSURE CORRECT UNIT ORIENTATION AND CONNECT TO (E) SUPPLY AND RETURN DUCTWORK, TYP OF (13).
2. INSTALL NEW GAS PIPING FROM POC, TYP. (DOWNSTREAM OF SHUTOFF VALVE) AND CONNECT TO NEW AC UNIT. INSTALL NEW GAS PIPING WITH DIRT LEG AND FLEX CONNECTION AT NEW AC UNIT. CONNECT TO AC UNIT PER 9/MP6.01.
3. INSTALL NEW CONDENSATE DRAIN PIPING WITH NEW TRAP AND CONNECT TO (E) CD PIPE, TYP. CONNECT TO AC UNIT PER 9/MP6.01.
4. INSTALL HEAT PUMP CONDENSING UNIT ON (E) CURB. INSTALL REFRIGERANT PIPING FROM HEAT PUMP TO FAN COIL. USE EXISTING ROOF PENETRATIONS.
5. INSTALL FAN COIL INSIDE CLASSROOM. CONNECT TO (E) CD PIPING. INSTALL THERMOSTAT IN SAME LOCATION AS EXISTING THERMOSTAT AND WIRE TO NEW FAN COIL.

BUILDING KEY



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PARTIAL ROOF PLAN - NEW - BLDG G - MECHANICAL & PLUMBING

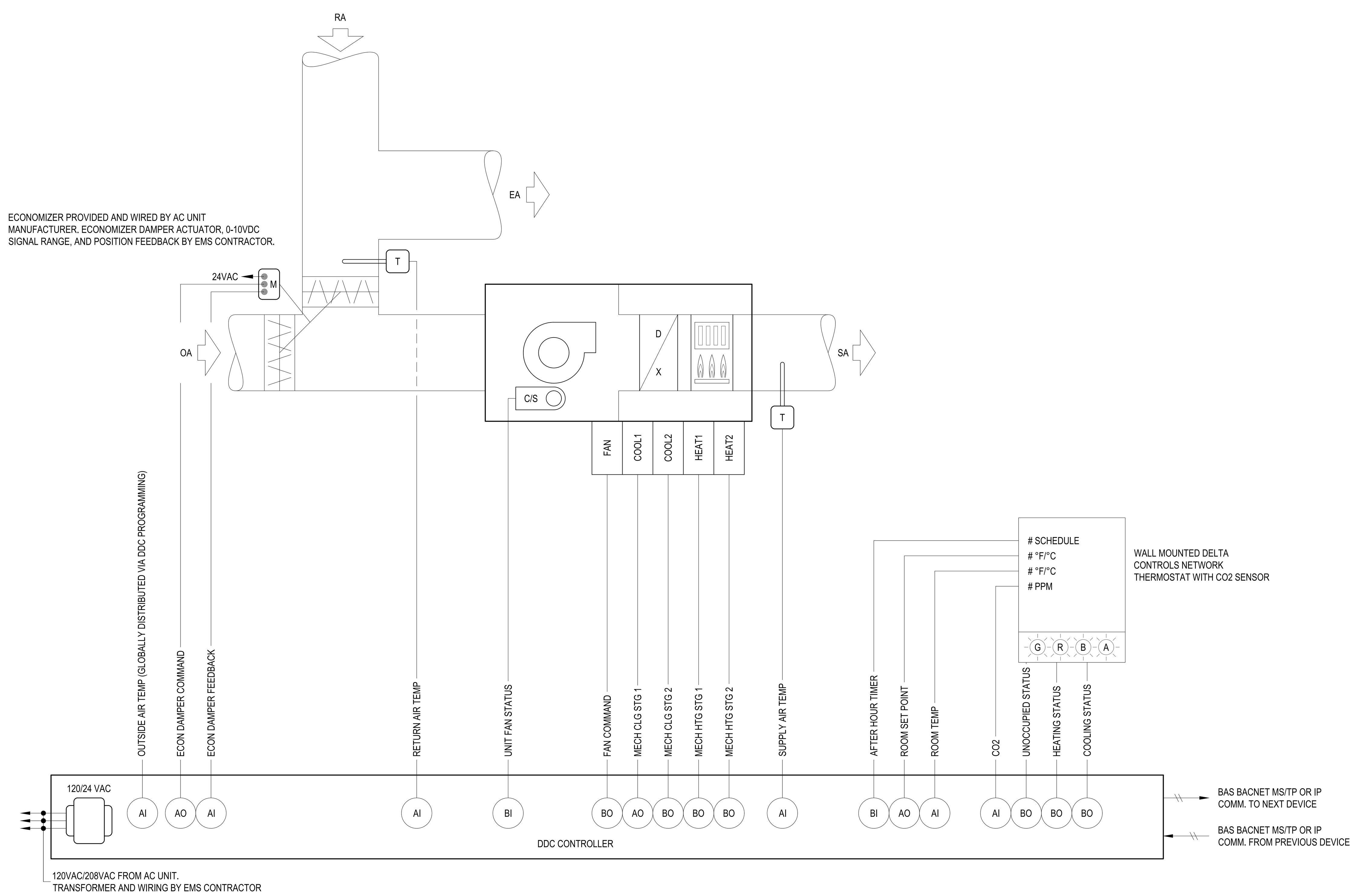
DATE 10/06/2021

JOB # 2021005.07

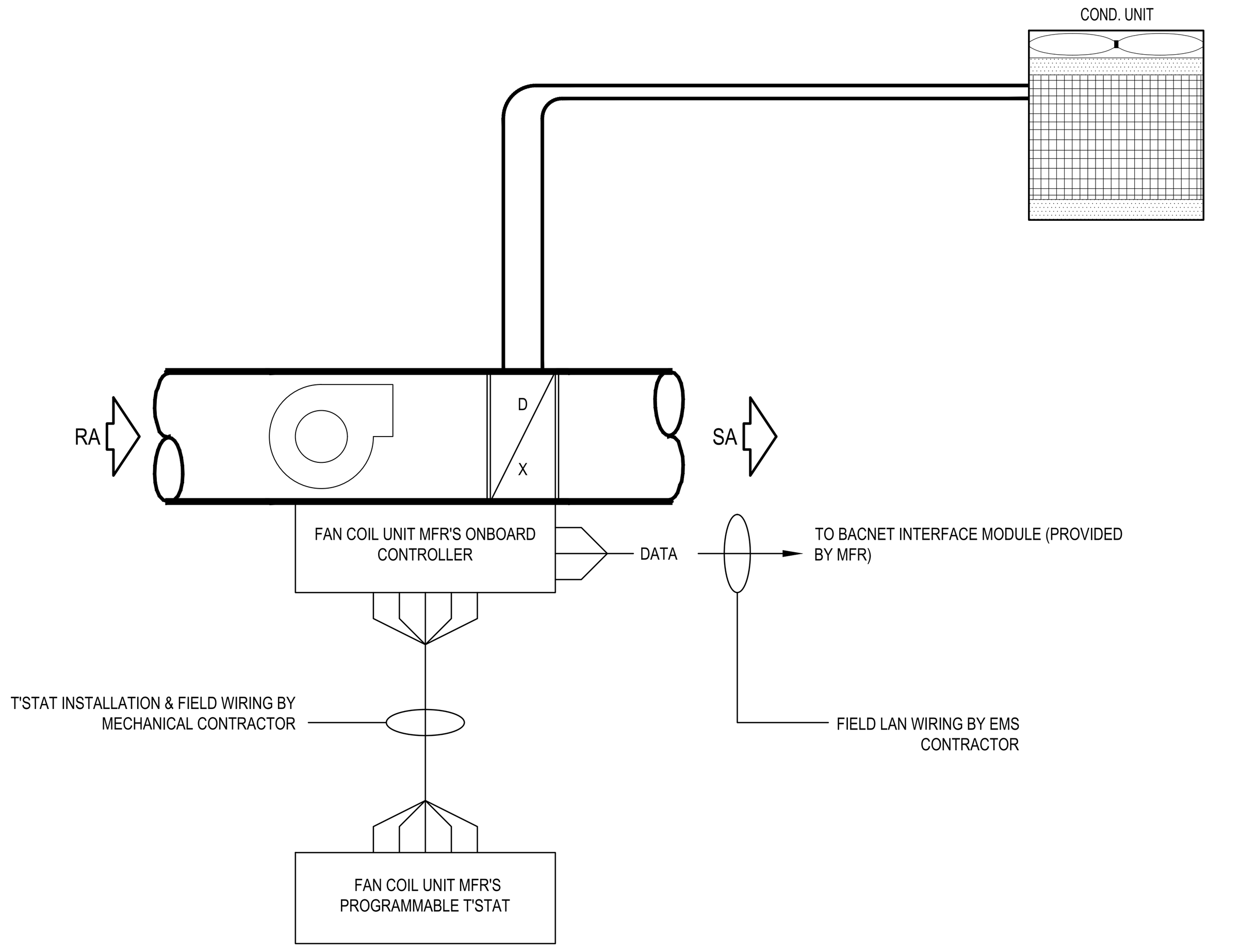
SHEET # MP2.08

SEQUENCE OF OPERATION

1. SYSTEM OVERVIEW
   A. AC UNIT WILL BE DIRECTLY CONTROLLED BY ITS OWN DEDICATED EMS (ENERGY MANAGEMENT SYSTEM) UNITARY CONTROLLER.
   B. EMS UNITARY CONTROLLER WILL BE CONNECTED TO A WALL MOUNTED ELECTRONIC ZONE TEMPERATURE SENSOR WITH INTEGRAL CO2 SENSOR.
   C. ELECTRONIC ZONE TEMPERATURE SENSOR SHALL HAVE A TOUCH SCREEN LCD INTERFACE WHICH INCLUDES: 1) PUSHBUTTONS FOR WARMER/COOLER SETPOINT CONTROL; 2) VISUAL DISPLAY OF ROOM TEMPERATURE, ROOM CO2 AND AMBIENT OSA TEMPERATURE; AND 3) PUSHBUTTON AFTER-HOURS OVERRIDE TIMER CONTROL, WITH USER ADJUSTABLE DURATION. THE AFTER-HOURS OVERRIDE DURATION SHALL HAVE THE ABILITY TO BE LIMITED FROM THE FRONT-END.
2. UNIT FAN OPERATION
   A. WHEN THE ZONE IS IN OCCUPIED MODE OR IN AFTER-HOURS MODE, THE FAN SHALL RUN CONTINUOUSLY.
   B. DURING THE UNOCCUPIED MODE AS DETERMINED BY EMS TIME SCHEDULE, THE UNIT FAN CYCLES WITH DEMAND AND THE TEMPERATURE IS CONTROLLED BY THE UNOCCUPIED SPACE TEMPERATURE HEATING AND COOLING SETPOINTS.
3. MINIMUM OUTDOOR AIR VENTILATION
   A. WITH REFERENCE TO MECHANICAL EQUIPMENT SCHEDULE OSA DESIGN REQUIREMENTS, THE AIR BALANCER SHALL PROVIDE THE EMS SYSTEM WITH INFORMATION FOR TWO (2) SEPARATE MINIMUM OUTDOOR AIR (DESIGN OA CFM) DAMPER SETPOINTS: ONE FOR LOW FAN SPEED AND ANOTHER FOR HIGH FAN SPEED. DESIGN OSA CFM IS LISTED ON EQUIPMENT SCHEDULE.
4. DEMAND CONTROL VENTILATION
   A. EMS UNITARY CONTROLLER WILL BE CONNECTED TO A WALL MOUNTED CO2 SENSOR TO MONITOR ZONE CO2 CONCENTRATION.
   B. DURING OCCUPIED MODE A PROPORTIONAL CONTROL LOOP SHALL BE USED TO MAINTAIN THE CO2 CONCENTRATION BELOW 1,000 PPM (ADJUSTABLE). AS CO2 CONCENTRATION VARIES BETWEEN 800 PPM (ADJUSTABLE) AND 1,000 PPM (ADJUSTABLE), THE OUTSIDE AIR DAMPER SHALL MODULATE BETWEEN MINIMUM OSA SETPOINT AND FULLY OPEN.
   C. SHOULD THE CO2 SENSOR FAIL TO OPERATE WITHIN ACCEPTABLE RANGE, THE OUTSIDE AIR DAMPER SHALL BE SET TO 30% (ADJUSTABLE) MORE THAN MINIMUM OUTSIDE AIR SETPOINT.
5. AUTOMATIC DEMAND SHED CONTROLS
   A. EMS SHALL BE PROGRAMMED WITH CAPABILITY TO IMPLEMENT CENTRALIZED DEMAND SHED FOR ALL NON-CRITICAL ZONES. CRITICAL ZONES SHALL NOT BE IMPACTED BY DEMAND SHED CONSERVATION MEASURES.
   B. UPON THE ACTIVATION OF A DEMAND SHED COMMAND FROM THE EMS SERVER, THE THERMOSTAT'S OCCUPIED COOLING AND HEATING SETPOINTS SHALL BE OFFSET UP AND DOWN BY 4°F OR MORE.
   C. IN ADDITION TO THE IMPLEMENTATION OF AUTOMATIC DEMAND SHED CONTROL STRATEGIES, THE EMS SHALL ALLOW FOR SYSTEM-WIDE GLOBAL ADJUSTMENT TO ALL COOLING AND HEATING SETPOINTS FROM MAIN EMS SERVER APART FROM DEMAND SHED CONSERVATION MEASURES AND SHALL ALLOW FOR ALL GLOBAL SETPOINT CHANGE COMMANDS TO BE DEACTIVATED.
6. ZONE PRE-OCCUPANCY PURGE
   A. THE EMS SHALL SCHEDULE THE ZONE TO BE IN OCCUPIED MODE ONE HOUR PRIOR TO THE ACTUAL TIME OF ANTICIPATED OCCUPANCY.
7. ECONOMIZER CONTROL
   A. EMS UNITARY CONTROLLER SHALL BE DIRECTLY CONNECTED TO DISCHARGE AIR AND RETURN AIR TEMPERATURE SENSORS. GLOBAL DDC PROGRAMMING SHALL BE USED TO BROADCAST CENTRALIZED AMBIENT OUTSIDE AIR TEMPERATURE.
   B. EMS UNITARY CONTROLLER SHALL ALSO BE DIRECTLY CONNECTED TO ECONOMIZER (OUTSIDE/RETURN AIR) DAMPER ACTUATOR, INCLUDING POSITION FEEDBACK SIGNAL.
   C. SEE MINIMUM OUTDOOR AIR VENTILATION FOR OUTSIDE AIR DAMPER MINIMUM CFM SETPOINT.
   D. THE EMS UNITARY CONTROLLER SHALL CONTINUOUSLY COMPARE THE CURRENT OSA TEMPERATURE TO THE ESTABLISHED AIR ECONOMIZER HIGH LIMIT SHUT OFF (ECON LOCK OUT) TEMPERATURE SET POINT (ADJUSTABLE) AND RETURN AIR TEMPERATURE.
   E. WHEN CURRENT OSA TEMP IS LESS THAN OR EQUAL TO ECON LOCK OUT TEMP AND THE RETURN AIR TEMPERATURE, EMS UNITARY CONTROLLER SHALL USE THE OUTSIDE AIR FOR FREE COOLING.
   F. WHEN THE OUTDOOR AIR DAMPER IS OPEN 100% FOR MORE THAN 5 MINUTES (ADJUSTABLE) AND THE NEED-COOLING SIGNAL CONTINUES TO INCREASE OR REACHES A MAXIMUM OF 100%, MECHANICAL COOLING WILL BE ACTIVATED.
   G. THE ECONOMIZER WILL REMAIN IN USE DURING MECHANICAL COOLING AS LONG AS DISCHARGE AIR TEMPERATURE REMAINS ABOVE 55°F (ADJUSTABLE) AND CURRENT OSA TEMP IS LESS THAN ECON LOCK OUT TEMP AND RETURN AIR TEMP.
   H. WHEN OSA TEMP IS ABOVE ECON LOCK OUT TEMP OR RETURN AIR TEMP, ECONOMIZER WILL BE DEACTIVATED AND ECONOMIZER SHALL BE COMMANDED TO MINIMUM CFM SETPOINT.
   I. ECONOMIZER WILL BE COMMANDED TO MINIMUM CFM SETPOINT WHEN UNIT IS IN HEATING MODE.
   J. WHEN UNIT FAN IS NOT OPERATING, OUTSIDE AIR DAMPER SHALL BE COMMANDED CLOSED.
8. HEATING OPERATION
   A. THE CONTROLLER COMPARES THE HEATING SETPOINT WITH THE SPACE TEMPERATURE AND DETERMINES A NEED-HEATING CONTROL SIGNAL TO STAGE A GAS REGULATING VALVE ON THE UNIT.
   B. ECONOMIZER SHALL BE COMMANDED TO MINIMUM CFM SETPOINT AND MECHANICAL COOLING SHALL BE LOCKED OUT DURING HEATING MODE.
9. COOLING OPERATION
   A. THE CONTROLLER COMPARES THE COOLING SETPOINT WITH THE SPACE TEMPERATURE AND DETERMINES A NEED-COOLING SIGNAL.
   B. THE FIRST STAGE OF COOLING WILL ENABLE THE ECONOMIZER TO PROVIDE FREE COOLING FOR AS LONG AS POSSIBLE.
   C. THE SECOND STAGE WILL ENABLE THE COMPRESSOR(S).
   D. MECHANICAL HEATING SHALL BE LOCKED OUT DURING COOLING MODE.
10. FAULT DETECTION DIAGNOSTICS
   A. THE EMS DDC CONTROLLER SHALL MONITOR FAULT STATUS OF THE FOLLOWING FAULT DETECTION DIAGNOSTIC CONDITIONS AND BROADCAST RESULTS VIA EMS NETWORK.
   B. UNIT NOT ECONOMIZING WHEN ENABLED - IF ECONOMIZER DAMPER ACTUATOR FEEDBACK STATUS DOES NOT MATCH THE COMMANDED ECONOMIZER SETPOINT WHEN THE ECONOMIZER IS ENABLED FOR MORE THAN 3 MINUTES (ADJUSTABLE), AN ALARM SHALL BE GENERATED AND BROADCAST.
   C. UNIT ECONOMIZING WHEN DISABLED - IF ECONOMIZER DAMPER ACTUATOR FEEDBACK STATUS INDICATES THAT THE ECONOMIZER DAMPER IS OPEN BEYOND THE MIN CFM SETPOINT WHEN THE ECONOMIZER IS NOT ENABLED FOR MORE THAN 3 MINUTES (ADJUSTABLE), AN ALARM SHALL BE GENERATED AND BROADCAST.
   D. DAMPER MODULATION FAULT - IF ECONOMIZER DAMPER ACTUATOR FEEDBACK PERCENT DOES NOT MATCH THE COMMANDED ECONOMIZER DAMPER PERCENT FOR MORE THAN 3 MINUTES (ADJUSTABLE), AN ALARM SHALL BE GENERATED AND BROADCAST.
   E. EXCESS OUTDOOR AIR - IF ECONOMIZER DAMPER ACTUATOR FEEDBACK STATUS INDICATES THAT THE ECONOMIZER DAMPER IS OPEN BEYOND MIN CFM SETPOINT IN HEATING MODE, AN ALARM SHALL BE GENERATED AND BROADCAST.
11. SETPOINTS
   A. OCCUPIED HOURS SETPOINTS SHALL BE 68°F TO 74°F. (USER ADJUSTABLE AT THERMOSTAT WITHIN THIS RANGE).
   B. UNOCCUPIED HOURS SETPOINTS SHALL BE 60°F HEATING AND 90°F COOLING.
   C. DEADBAND SHALL BE 2°F.
12. MONITORING - THE FOLLOWING CONDITIONS SHALL BE MONITORED AND DISPLAYED AT BMS OPERATOR WORKSTATION/GRAPHICAL USER INTERFACE:
   A. SUPPLY, RETURN AND OUTSIDE AIR TEMPERATURES.
   B. ROOM TEMPERATURE.
   C. ROOM CO2 CONCENTRATION.
   D. CURRENT MODE (HEATING/COOLING/FAN).
   E. CURRENT COMMAND STATUS OF FAN, ECONOMIZER, COMPRESSOR AND GAS VALVE.
   F. FAN STATUS THRU CURRENT SWITCH.
   G. ECONOMIZER ACTUATOR FEEDBACK STATUS.
13. ALARMS - AT A MINIMUM THE FOLLOWING ALARMS SHALL BE DISPLAYED ON THE GRAPHICAL USER INTERFACE:
   A. ROOM TEMPERATURE OUT OF BOUNDS.
   B. ROOM CO2 TOO HIGH.
   C. FAN NOT RUNNING.
   D. DAMPER POSITION DOES NOT MATCH COMMAND.



3 | PACKAGED AC UNIT CONTROL SCHEMATIC

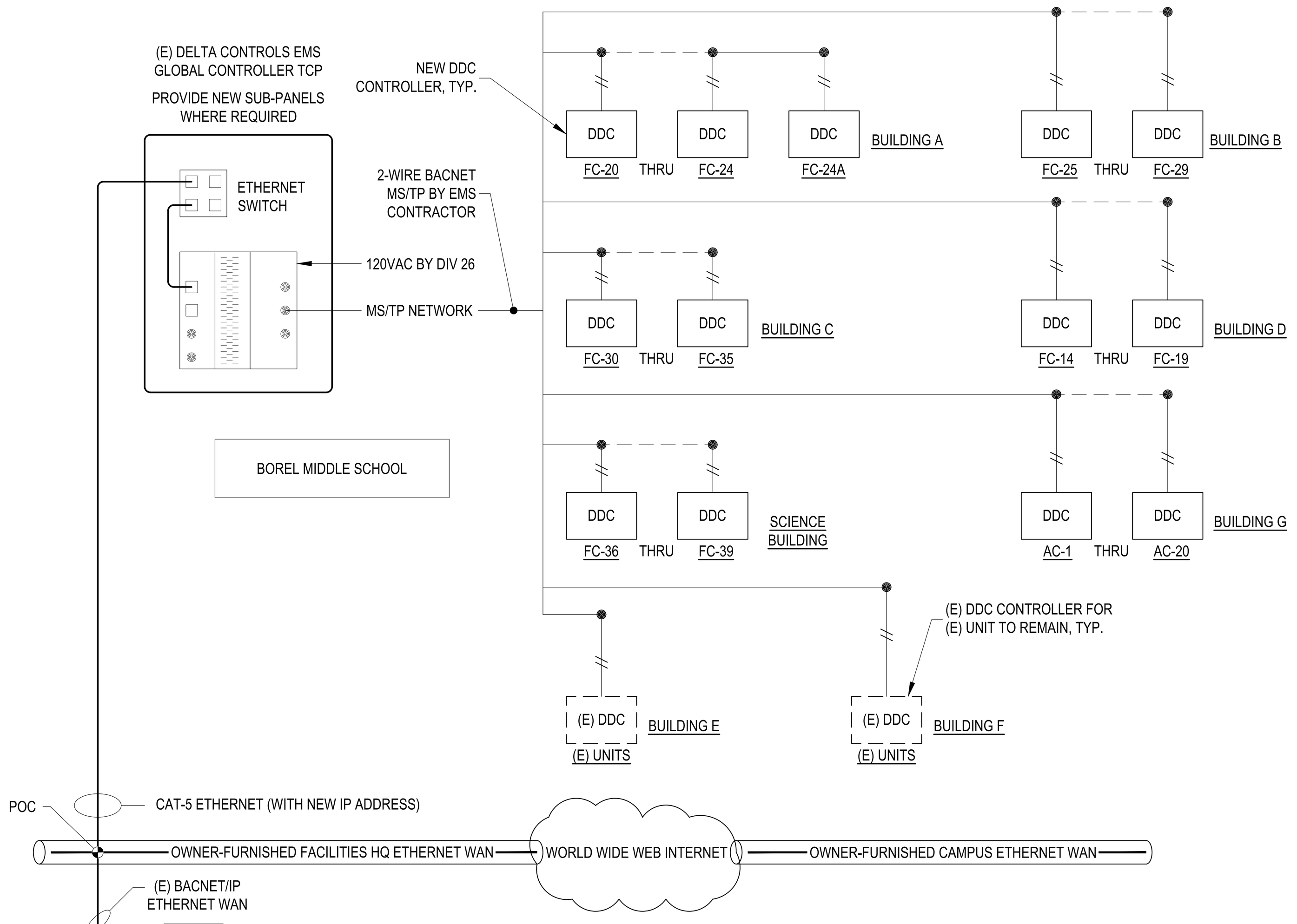


SEQUENCE OF OPERATION:

1. EACH INDOOR FAN COIL SHALL BE CONTROLLED BY SAMSUNG WALL MOUNTED THERMOSTAT AND OPERATE UNDER OWN INTERNAL CONTROL TO MAINTAIN ROOM SETPOINT.
2. EACH FAN COIL SHALL BE CONNECTED TO DELTA CONTROLS EMS THROUGH BACNET INTEGRATION CARD.
3. FAN COIL OCCUPANCY SCHEDULES, OCCUPIED SETPOINTS, AND UNOCCUPIED SETPOINTS SHALL BE SET BY THE EMS. COORDINATE SCHEDULES AND SETPOINTS WITH DISTRICT REPRESENTATIVE.
4. EMS SYSTEM SHALL DISPLAY FAN COIL GRAPHIC AND AS A MINIMUM SHALL DISPLAY STATUS OF POINTS LISTED IN INTEGRATION TABLE BELOW.
5. THERMOSTATS SHALL ALLOW MANUAL LOCAL OVERRIDE AFTER-HOURS.
6. THERMOSTATS SHALL BE PROGRAMMED TO RESTRICT RANGE OF HEATING AND COOLING SETPOINT ADJUSTABLE AT THE THERMOSTAT. COORDINATE ALLOWABLE RANGE WITH DISTRICT REPRESENTATIVE.

BACNET POINT INTEGRATION POINTS PER ZONE			
OPERATION	ON/OFF MODE FAN SPEED AIR DIRECTION SET TEMP. FORCED OFF	STATE MONITORING	ON/OFF MODE FAN SPEED AIR DIRECTION SET TEMP. INDOOR TEMPERATURE ALARM SIGNAL ERROR CODE COMMUNICATION STATE

4 | WALL MOUNT SPLIT SYSTEM CONTROL SCHEMATIC



GLOBAL UNIT OPERATION:

1. EMS SYSTEM FRONT END SHALL HAVE A TOGGLE BUTTON THAT SHALL TURN OFF ALL HVAC UNITS AT THE CAMPUS WHEN BUTTON IS ACTIVATED.
2. EMS SYSTEM FRONT END SHALL HAVE A TOGGLE BUTTON (LABELED COVID MODE) THAT SHALL LOCK ECONOMIZER IN ON POSITION (100% OPEN) FOR ALL HVAC UNITS AT THE CAMPUS WHEN BUTTON IS ACTIVATED.
3. EMS SYSTEM FRONT END SHALL HAVE A TOGGLE BUTTON (LABELED WILD FIRE MODE) THAT SHALL LOCK THE OUTSIDE AIR DAMPER AT A USER ADJUSTABLE SETPOINT FOR ALL HVAC UNITS AT THE CAMPUS WHEN BUTTON IS ACTIVATED.
4. EMS SHALL BE PROGRAMMED WITH CAPABILITY TO IMPLEMENT CENTRALIZED DEMAND SHED UPON CALL FOR DEMAND REDUCTION. HEATING/COOLING SETPOINTS SHALL BE ADJUSTED BY +/-4°F. CRITICAL ZONES SHALL NOT BE IMPACTED BY DEMAND SHED MEASURES.
5. EMS SHALL SCHEDULES UNITS TO BE IN OCCUPIED MODE ONE HOUR (ADJ.) PRIOR TO THE ACTUAL TIME OF ANTICIPATED OCCUPANCY.
6. PER PUC 1625, CLASSROOM CO2 SENSOR SHALL PROVIDE VISUAL OR EMAIL NOTIFICATION IF CO2 LEVELS RISE ABOVE 1,100 PPM IN A ROOM.

SCOPE OF WORK:

NEW GRAPHICS, FLOOR PLAN, SEQUENCE OF OPERATION AND SYSTEM INFORMATION TO BE DEVELOPED ON DELTA CONTROLS SERVER. NEW GRAPHICS SHALL INCLUDE INTERACTIVE BUILDING FLOOR PLANS. ROOMS SHALL BE COLOR CODED BASED ON ROOM TEMPERATURES, AND WHETHER UNITS ARE IN NORMALLY OCCUPIED VS OVERRIDE MODE.

CONTROLS FOR (E) UNITS SHALL REMAIN ACTIVE AND OPERATIONAL. IF (E) CONTROLS NEED TO BE DISCONNECTED FOR NEW WORK, THEY SHALL BE RECONNECTED AND VERIFIED FOR PROPER OPERATION.

CONTRACTOR SHALL PROVIDE NEW CONTROLLERS, THERMOSTATS, AND WIRING FOR CONTROLS WORK. REMOVE (E) CONTROLLERS AND THERMOSTATS. SALVAGE AND TURNOVER (+/- 30%) (E) CONTROLLERS AND THERMOSTATS TO DISTRICT. DISTRICT TO SELECT FIXTURES TO BE TURNED OVER. PROVIDE AS-BUILT WIRING DIAGRAM AND LABEL ALL INSTALLED WIRING AT EACH END OF CABLE.

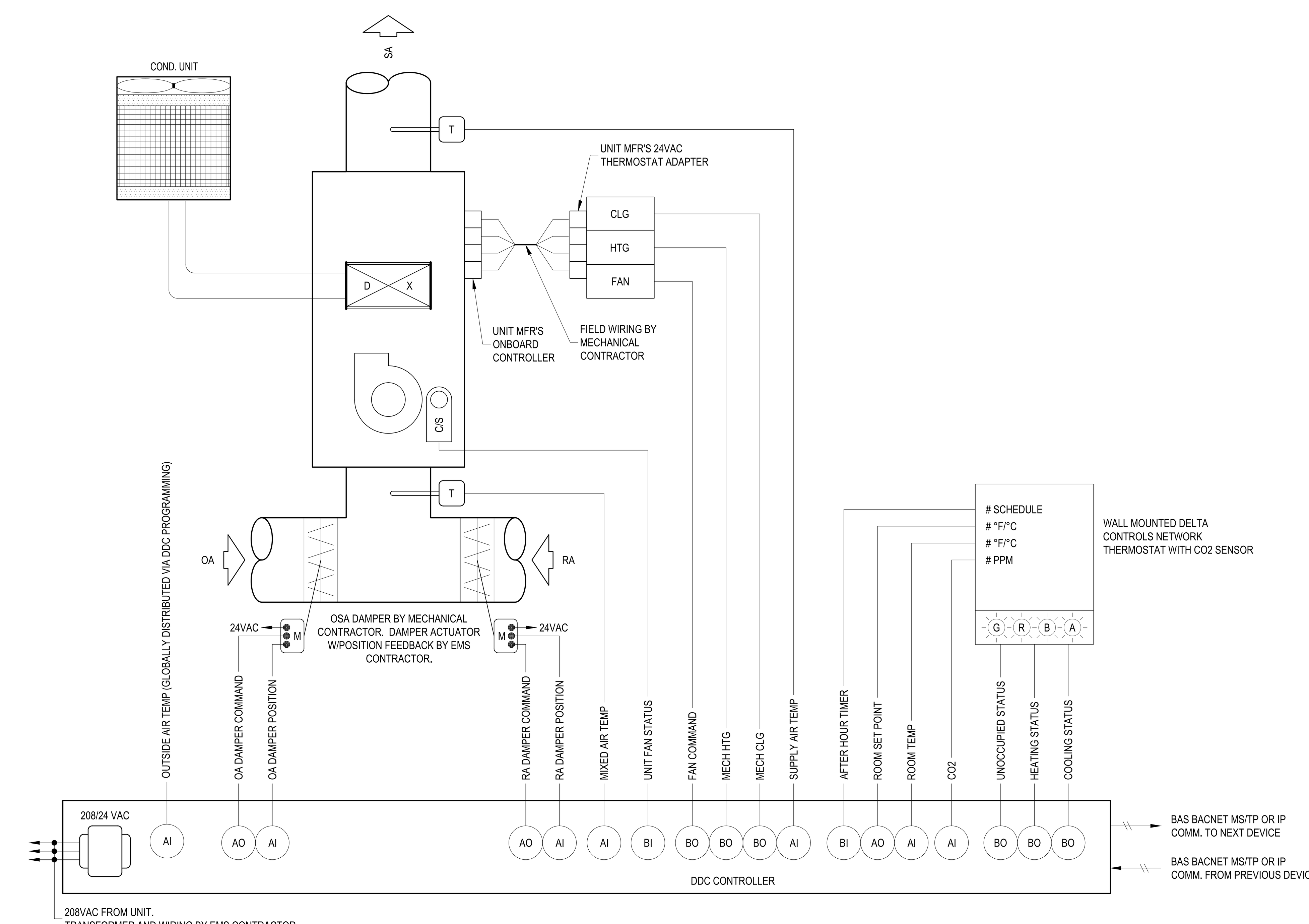
GENERAL NOTES

1. THE CONTROLS CONTRACTOR SHALL HAVE THE RESPONSIBILITY AS THE EXPERT IN THE PROPER APPLICATION OF CONTROL COMPONENTS AND DDC SYSTEMS. THE FINAL DESIGN, INSTALLATION, AND OPERATION OF THE CONTROL SYSTEM IS THE RESPONSIBILITY OF THE CONTROLS CONTRACTOR. CONTROLS CONTRACTOR SHALL VISIT THE SITE BEFORE BIDDING AND DETERMINE THE REQUIRED NUMBER OF CONTROL PANELS AND OPTIMAL LOCATION FOR EACH.
2. THE CONTROLS CONTRACTOR SHALL MAKE ADDITIONS AND/OR MODIFICATIONS TO THE DESIGN AS REQUIRED AT NO ADDITIONAL COST. CONTROLS CONTRACTOR SHALL WORK WITH THE MECHANICAL ENGINEER AND OBTAIN APPROVAL FOR ANY NECESSARY REVISIONS.
3. CONTROLS CONTRACTOR SHALL COORDINATE EXACT REQUIREMENT FOR CONTROL HARDWARE WITH ALL ASSOCIATED TRADES AND OWNER. REFER TO DRAWINGS FOR PRELIMINARY OPERATING SEQUENCES.
4. CONTROLS CONTRACTOR SHALL SUBMIT DETAILED SEQUENCES FOR ENGINEER'S REVIEW AND APPROVAL.
5. CONTROLS CONTRACTOR SHALL PROVIDE ALL CONTROLS, WIRING DIAGRAMS, "AS-BUILT" DRAWINGS, SYSTEM START-UP, AND PROGRAMMING.
6. CONTROLS CONTRACTOR TO WIRE COMMUNICATION BUS FROM NETWORK ROUTER TO ALL LOCAL BACNET CONTROLLERS.
7. CONTROLS CONTRACTOR TO PROVIDE THE NETWORK ROUTER, TEMPERATURE CONTROL PANELS, AND ALL LOCAL CONTROL PANELS FOR ALL EQUIPMENT AS REQUIRED.
8. CONTROLS CONTRACTOR TO PROVIDE ALL TEMPERATURE WIRING FOR ALL TEMPERATURE CONTROL WORK.
9. PROVIDE EMT CONDUIT AND JUNCTION BOXES FOR ALL TEMPERATURE CONTROL WORK RUNNING IN WALL SPACES.
10. PROVIDE RIGID CONDUIT FOR ALL EXTERIOR TEMPERATURE CONTROL WORK.
11. USE PLENUM RATED CABLE AND "J" HOOKS FOR ALL ABOVE CEILING AND FURRED SPACE TEMPERATURE CONTROL WORK.
12. ELECTRICAL CONTRACTOR TO PROVIDE ALL POWER WIRING FOR TEMPERATURE CONTROL PANELS AND LINE VOLTAGE THERMOSTATS. CONTROLS CONTRACTOR SHALL COORDINATE REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
13. MECHANICAL/CONTROLS CONTRACTOR TO COORDINATE WITH ELECTRICAL AND VERIFY CIRCUITS ARE CORRECT BEFORE WIRING CONTROLS.
14. MECHANICAL/CONTROLS CONTRACTOR TO PROVIDE ALL CONTROL COMPONENTS NECESSARY TO FULFILL THE DESIGN INTENT OF THE DRAWINGS.

1 | EMS SYSTEM ARCHITECTURE

SEQUENCE OF OPERATION

1. SYSTEM OVERVIEW
   A. EACH FAN COIL /HEAT PUMP UNIT UNIT WILL BE DIRECTLY CONTROLLED BY ITS OWN DEDICATED EMS (ENERGY MANAGEMENT SYSTEM) UNITARY CONTROLLER.
   B. EMS UNITARY CONTROLLER WILL BE CONNECTED TO A WALL MOUNTED ELECTRONIC THERMOSTAT.
   C. ELECTRONIC THERMOSTAT SHALL HAVE AN INTERFACE WHICH INCLUDES: 1) PUSHBUTTONS FOR WARMER/COOLER SETPOINT CONTROL; 2) VISUAL DISPLAY OF ROOM TEMPERATURE & CO2, AND 3) AFTER-HOURS OVERRIDE TIMER CONTROL, WITH USER ADJUSTABLE DURATION (2 HOURS MAX). THE AFTER-HOURS OVERRIDE DURATION SHALL HAVE THE ABILITY TO BE LIMITED FROM THE FRONT-END.
   D. EMS UNITARY CONTROLLER SHALL BE WIRED TO MANUFACTURER'S THERMOSTAT ADAPTER.
3. UNIT FAN OPERATION
   A. WHEN THE ZONE IS IN OCCUPIED MODE OR IN OVERRIDE MODE, THE FAN SHALL RUN CONTINUOUSLY
   B. DURING THE UNOCCUPIED MODE AS DETERMINED BY EMS TIME SCHEDULE, THE UNIT FAN CYCLES WITH DEMAND AND THE TEMPERATURE IS CONTROLLED BY THE UNOCCUPIED SPACE TEMPERATURE HEATING AND COOLING SETPOINTS.
4. MINIMUM OUTDOOR AIR VENTILATION
   A. DURING OCCUPIED MODE OR AFTERHOURS MODE, THE OUTSIDE AIR DAMPER SHALL BE COMMANDED BY THE EMS UNITARY CONTROLLER TO MAINTAIN A POSITION WHICH SATISFIES THE MINIMUM (DESIGN) OUTDOOR AIR VENTILATION REQUIREMENTS FOR THE ZONE. DESIGN OA CFM IS LISTED ON EQUIPMENT SCHEDULE. DAMPER POSITION(S) DETERMINED BY AIR BALANCING CONTRACTOR. RETURN AIR DAMPER SHALL BE ADJUSTED TO BE INVERSE OF OUTSIDE AIR DAMPER.
5. DEMAND CONTROL VENTILATION
   A. IF ROOM CO2 LEVELS RISE ABOVE 1000 PPM (ADJ.), THE OUTSIDE AIR DAMPER SHALL BE MODULATED OPEN TO MAXIMUM POSITION UNTIL CO2 LEVELS DROP BELOW 800 PPM (ADJ.).
6. HEATING OPERATION
   A. THE CONTROLLER COMPARES THE HEATING SETPOINT WITH THE SPACE TEMPERATURE AND DETERMINES A NEED-HEATING CONTROL SIGNAL TO MAINTAIN SETPOINT.
   B. MECHANICAL COOLING TO BE LOCKED OUT DURING HEATING MODE.
7. ECONOMIZER CONTROL
   A. EMS UNITARY CONTROLLER SHALL BE DIRECTLY CONNECTED TO DISCHARGE AIR AND RETURN AIR TEMPERATURE SENSORS. GLOBAL DDC PROGRAMMING SHALL BE USED TO BROADCAST CENTRALIZED AMBIENT OUTSIDE AIR TEMPERATURE.
   B. EMS UNITARY CONTROLLER SHALL ALSO BE DIRECTLY CONNECTED TO ECONOMIZER (OUTSIDE/RETURN AIR) DAMPER ACTUATOR, INCLUDING POSITION FEEDBACK SIGNAL.
   C. SEE MINIMUM OUTDOOR AIR VENTILATION FOR OUTSIDE AIR DAMPER MINIMUM CFM SETPOINT.
   D. THE EMS UNITARY CONTROLLER SHALL CONTINUOUSLY COMPARE THE CURRENT OSA TEMPERATURE TO THE ESTABLISHED AIR ECONOMIZER HIGH LIMIT SHUT OFF (ECON LOCK OUT) TEMPERATURE SET POINT (ADJUSTABLE) AND RETURN AIR TEMPERATURE.
   E. WHEN CURRENT OSA TEMP IS LESS THAN OR EQUAL TO ECON LOCK OUT TEMP AND THE RETURN AIR TEMPERATURE, EMS UNITARY CONTROLLER SHALL USE THE OUTSIDE AIR FOR FREE COOLING.
   F. WHEN THE OUTDOOR AIR DAMPER IS OPEN 100% FOR MORE THAN 5 MINUTES (ADJUSTABLE) AND THE NEED-COOLING SIGNAL CONTINUES TO INCREASE OR REACHES A MAXIMUM OF 100%, MECHANICAL COOLING WILL BE ACTIVATED.
   G. THE ECONOMIZER WILL REMAIN IN USE DURING MECHANICAL COOLING AS LONG AS DISCHARGE AIR TEMPERATURE REMAINS ABOVE 55°F (ADJUSTABLE) AND CURRENT OSA TEMP IS LESS THAN ECON LOCK OUT TEMP AND RETURN AIR TEMP.
   H. WHEN OSA TEMP IS ABOVE ECON LOCK OUT TEMP OR RETURN AIR TEMP, ECONOMIZER WILL BE DEACTIVATED AND ECONOMIZER SHALL BE COMMANDED TO MINIMUM CFM SETPOINT.
   I. ECONOMIZER WILL BE COMMANDED TO MINIMUM CFM SETPOINT WHEN UNIT IS IN HEATING MODE.
   J. WHEN UNIT FAN IS NOT OPERATING, OUTSIDE AIR DAMPER SHALL BE COMMANDED CLOSED
8. COOLING OPERATION
   A. THE CONTROLLER COMPARES THE COOLING SETPOINT WITH THE SPACE TEMPERATURE AND DETERMINES A NEED-COOLING SIGNAL.
   B. FREE COOLING (ECONOMIZER) WILL BE USED FIRST WHEN POSSIBLE. MECHANICAL COOLING SHALL BE ENGAGED IF SETPOINT IS UNABLE TO BE MET WITH ECONOMIZING.
   C. THE CONTROLLER WILL ENABLE THE COMPRESSOR(S) TO MAINTAIN THE ROOM SET POINT.
   D. MECHANICAL HEATING TO BE LOCKED OUT DURING COOLING MODE.
9. ROOM PRESSURE CONTROL
   A. EMS UNITARY CONTROLLER SHALL BE CONNECTED TO STATIC PRESSURE PROBE LOCATED IN EACH ROOM. CONTROLS CONTRACTOR SHALL INSTALL AND CONNECT PRESSURE SENSOR.
   B. EMS UNITARY CONTROLLER SHALL MODULATE RELIEF LOUVER OPEN TO MAINTAIN ROOM STATIC PRESSURE SETPOINT OF +0.03" WC MAXIMUM.
10. SETPOINTS
   A. OCCUPIED HOURS SETPOINTS SHALL BE 68°F TO 74°F. (USER ADJUSTABLE AT THERMOSTAT WITHIN THIS RANGE).
   B. UNOCCUPIED HOURS SETPOINTS SHALL BE 60°F HEATING AND 90°F COOLING.
   C. DEADBAND SHALL BE 2°F.
11. FAULT DETECTION DIAGNOSTICS
   A. THE EMS DDC CONTROLLER SHALL MONITOR FAULT STATUS OF THE FOLLOWING FAULT DETECTION DIAGNOSTIC CONDITIONS AND BROADCAST RESULTS VIA EMS NETWORK.
   B. UNIT NOT ECONOMIZING WHEN ENABLED - IF ECONOMIZER DAMPER ACTUATOR FEEDBACK STATUS DOES NOT MATCH THE COMMANDED ECONOMIZER SETPOINT WHEN THE ECONOMIZER IS ENABLED FOR MORE THAN 3 MINUTES (ADJUSTABLE), AN ALARM SHALL BE GENERATED AND BROADCAST.
   C. UNIT ECONOMIZING WHEN DISABLED - IF ECONOMIZER DAMPER ACTUATOR FEEDBACK STATUS INDICATES THAT THE ECONOMIZER DAMPER IS OPEN BEYOND THE MIN CFM SETPOINT WHEN THE ECONOMIZER IS NOT ENABLED FOR MORE THAN 3 MINUTES (ADJUSTABLE), AN ALARM SHALL BE GENERATED AND BROADCAST.
   D. DAMPER MODULATION FAULT - IF ECONOMIZER DAMPER ACTUATOR FEEDBACK PERCENT DOES NOT MATCH THE COMMANDED ECONOMIZER DAMPER PERCENT FOR MORE THAN 3 MINUTES (ADJUSTABLE), AN ALARM SHALL BE GENERATED AND BROADCAST.
   E. EXCESS OUTDOOR AIR - IF ECONOMIZER DAMPER ACTUATOR FEEDBACK STATUS INDICATES THAT THE ECONOMIZER DAMPER IS OPEN BEYOND MIN CFM SETPOINT IN HEATING MODE, AN ALARM SHALL BE GENERATED AND BROADCAST.
12. MONITORING - THE FOLLOWING CONDITIONS SHALL BE MONITORED AND DISPLAYED AT EMS OPERATOR WORKSTATION/GRAPHICAL USER INTERFACE:
   A. SUPPLY AIR TEMPERATURE.
   B. MIXED AIR TEMPERATURE.
   C. OUTSIDE AIR TEMPERATURE.
   D. ROOM TEMPERATURE.
   E. ROOM CO2 LEVEL.
   F. CURRENT MODE (HEATING/COOLING/FAN).
   G. FAN STATUS THRU CURRENT SWITCH.
   H. RETURN AIR DAMPER POSITION.
   I. OUTSIDE AIR DAMPER POSITION.
13. ALARMS - AT A MINIMUM THE FOLLOWING ALARMS SHALL BE DISPLAYED ON THE GRAPHICAL USER INTERFACE:
   A. ROOM TEMPERATURE OUT OF BOUNDS.
   B. ROOM CO2 TOO HIGH.
   C. FAN NOT RUNNING.
   D. DAMPER POSITION DOES NOT MATCH COMMAND.



2 | CLASSROOM SPLIT SYSTEM HEAT PUMP / FAN COIL UNIT CONTROL SCHEMATIC

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

CEG JOB NO: 21038
CYPRESS Engineering Group
HVAC, Plumbing, Fire Protection
Building Commissioning
Industrial Refrigeration
Environmental Compliance
Training & Technical Support

STAMP

REGISTERED PROFESSIONAL ENGINEER
No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS
No. Description Date

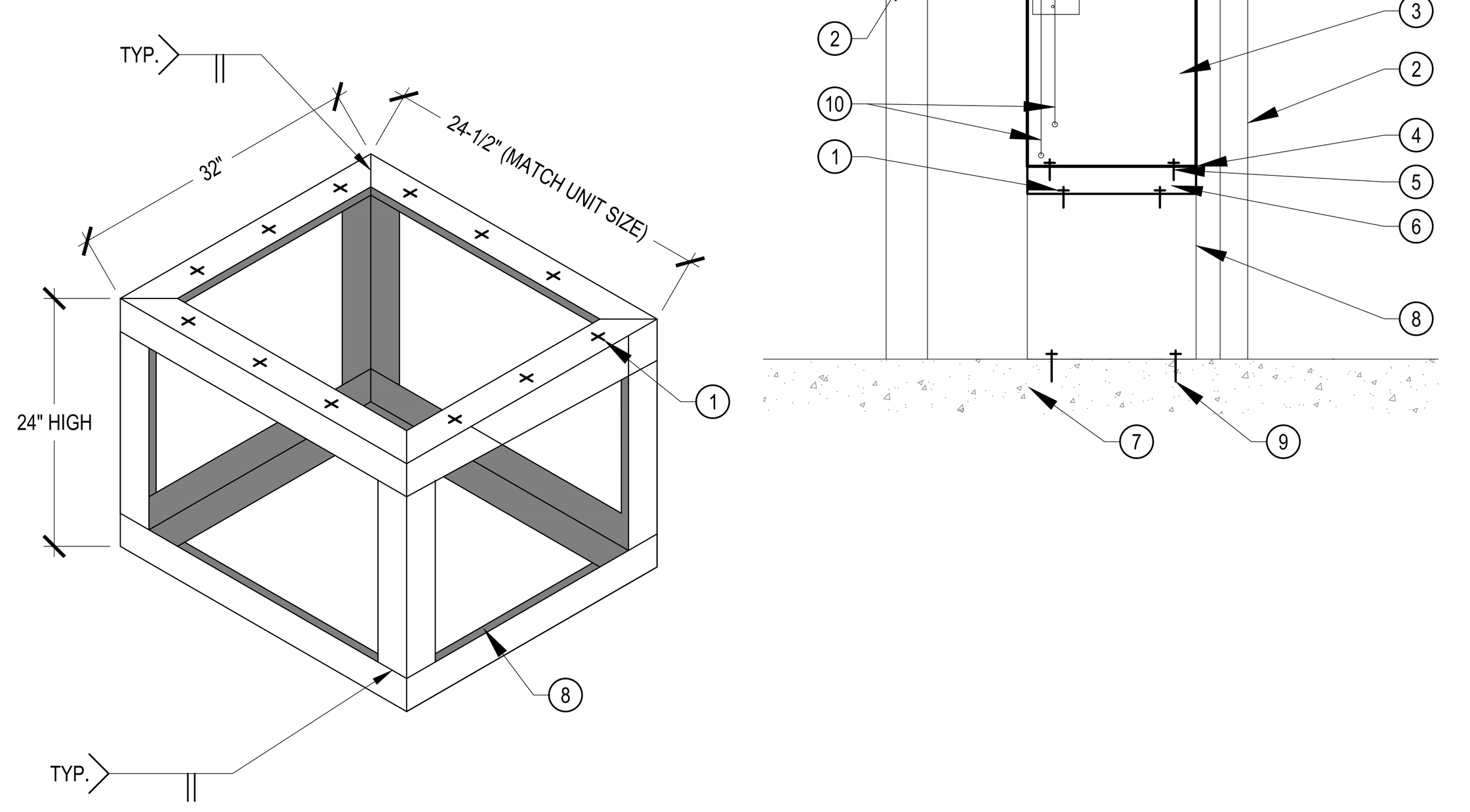
MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

CONTROLS-MECHANICAL

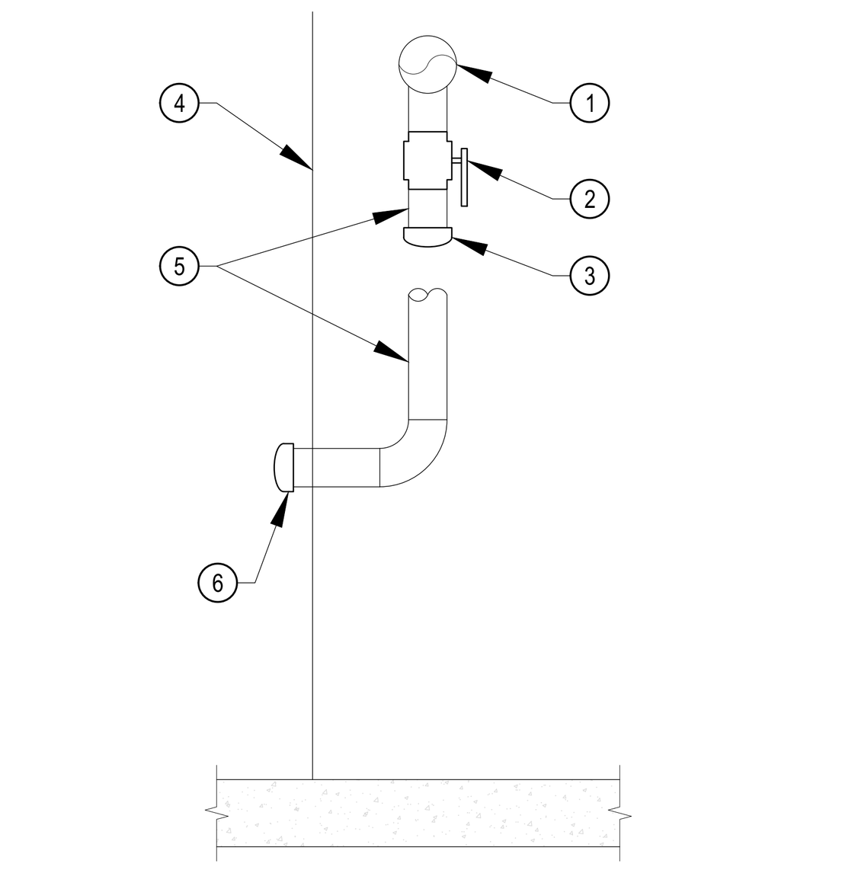
DATE 10/06/2021
JOB # 2021005.07
SHEET # MP5.01



DETAIL NOTES:

1. SECURE FILTER BOX TO STAND W/ 1/4" x 1" BOLT, NUT, AND LOCK WASHER AT 8" O.C. ALL AROUND.
2. (E) WALL.
3. FAN COIL. SEE PLANS FOR LOCATIONS.
4. SEAL ALL AROUND FAN COIL AND FILTER BOX WITH 1/2" THICK NEOPRENE GASKET.
5. SECURE FAN COIL TO FILTER BOX WITH #14 x 3/4" SM SCREWS AT 4" O.C. ALL AROUND.
6. 4" FILTER BOX THAT CAN FIT EITHER 2" OR 4" FILTERS.
7. (E) CONCRETE FLOOR
8. FAN COIL STAND / RETURN / OUTSIDE AIR MIXING PLENUM W/ 2"x/2"x1/4" ANGLE IRON FRAME (ASTM A36), ALL WELDED WITH ELECTRODE E70XX, MITERED CORNERS. COVER W/ 20 GA SHEET METAL. LINE W/ 1" ACOUSTIC MATERIAL.
9. SECURE STAND / MIXING PLENUM TO CONCRETE FLOOR WITH (4) 3/8" HILTI KB-TZ2 3/8Ø"x2-1/2", 2" MIN EMBEDMENT ESR-4266.
10. DRAIN CONNECTIONS WITH P-TRAP PER MANUFACTURER'S RECOMMENDATIONS. ROUTE TO CONDENSATE PUMP. INSTALL P-TRAPS OFF TO SIDE OF UNIT SUCH THAT THEY DO NOT BLOCK ACCESS TO THE FILTER BOX. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°.

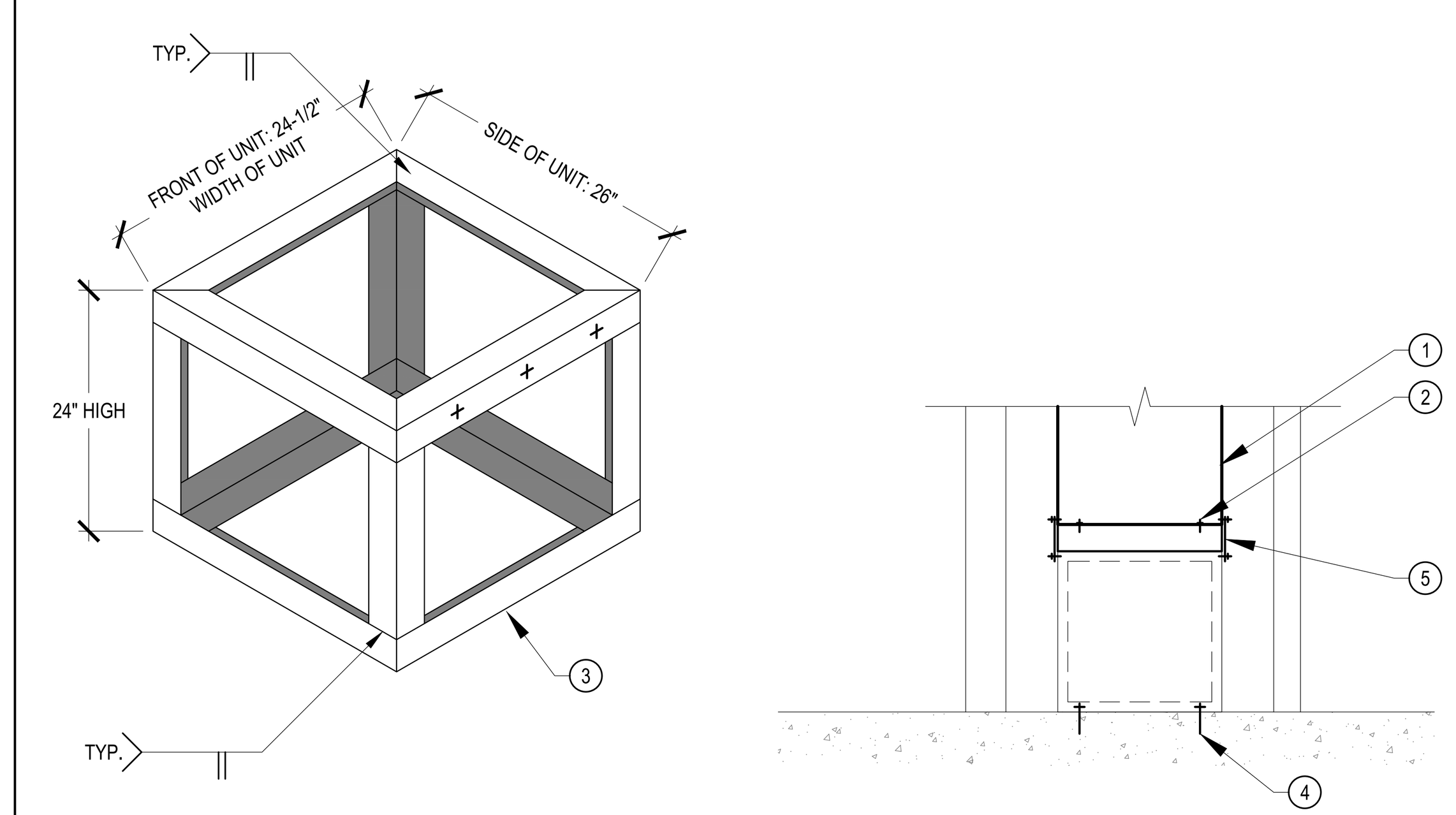
12 FAN COIL MOUNTING IN SCIENCE CLASSROOM N.T.S.



DETAIL NOTES:

1. (E) GAS MAIN. SEE PLANS FOR LOCATIONS.
2. FOR CONDITIONS WHERE (E) ISOLATION / SHUT-OFF VALVE IS ON (E) BRANCH LINE, CAP TIGHT TO VALVE.
3. CAP (E) GAS BRANCH LINE TIGHT TO GAS MAIN.
4. (E) WALL.
5. (E) GAS BRANCH LINE.
6. CAP BRANCH LINE TIGHT TO WALL. PATCH EXTERIOR FINISH IN KIND. IF (E) BRANCH PIPE IS TOO CLOSE TO THE BUILDING TO CAP OUTSIDE THE BUILDING, CAP THE BRANCH INSIDE THE BUILDING, TIGHT TO THE WALL.

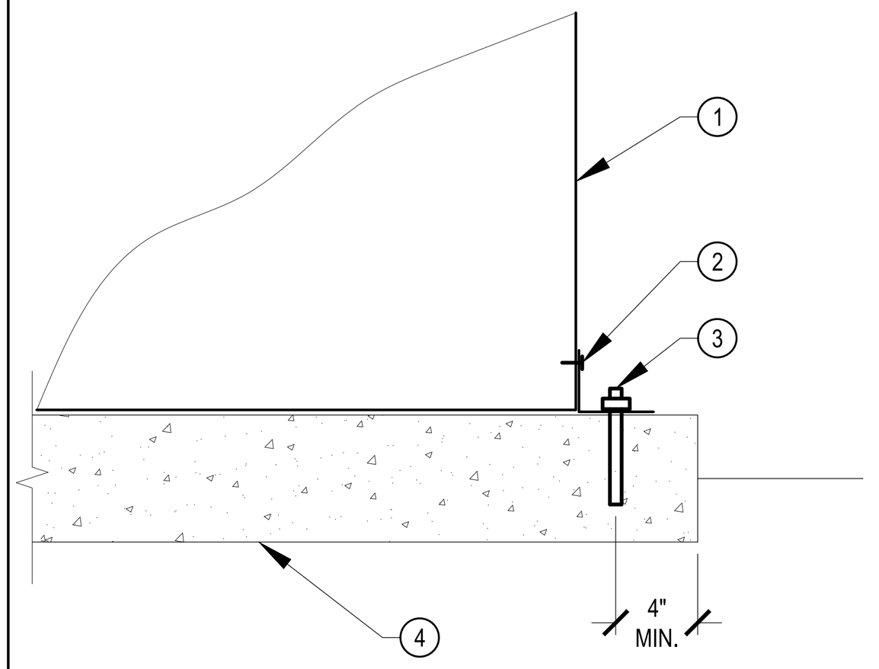
8 CAPPING EXISTING GAS BRANCH N.T.S.



DETAIL NOTES:

1. FAN COIL. SEE PLANS FOR LOCATIONS.
2. SECURE FAN COIL TO FILTER BOX WITH #14 x 3/4" SM SCREWS AT 4" O.C. ALL AROUND.
3. FAN COIL STAND / RETURN / OUTSIDE AIR MIXING PLENUM W/ 2"x2"x1/4" ANGLE IRON FRAME (ASTM A36), ALL WELDED WITH ELECTRODE E70XX, MITERED CORNERS. COVER W/ 20 GA SHEET METAL. LINE W/ 1" ACOUSTIC MATERIAL.
4. SECURE STAND / MIXING PLENUM TO CONCRETE FLOOR WITH (4) HILTI KB-TZ2 3/8Ø"x2-1/2", 2" MIN EMBEDMENT ESR-4266 .
5. SECURE FAN COIL TO STAND W/ 1/4" x 1" BOLT, 7"x24" 16 GA PLATE, NUT, AND LOCK WASHER AT 8" O.C. (3) SIDES. FILTER BOX ACCESS TO REMAIN CLEAR. ENSURE REFRIGERANT AND CONDENSATE PIPES DO NOT BLOCK FILTER BOX ACCESS.

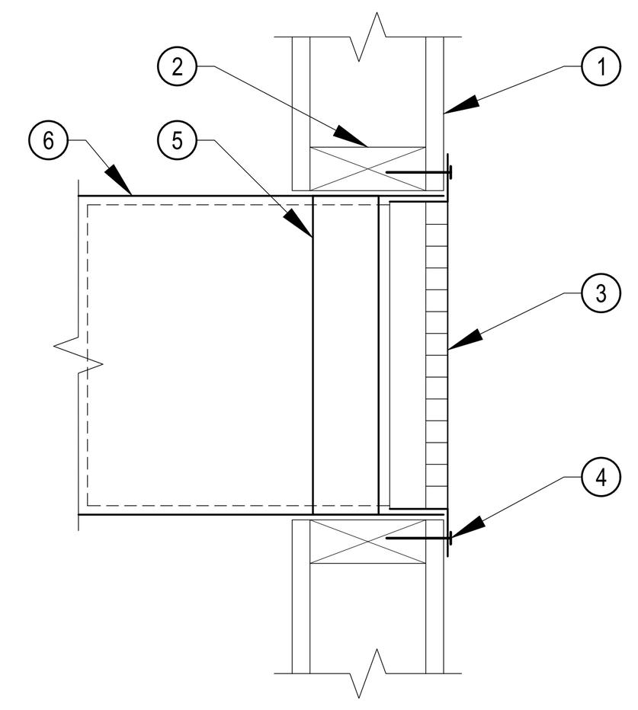
1 FAN COIL AND STAND MOUNTING N.T.S.



DETAIL NOTES:

1. HEAT PUMP. FOR LOCATION, SEE PLANS.
2. 2"X2"X1/8" THICK METAL BRACKET, 2" LONG. ATTACH TO UNIT WITH (2) #10 SHEET METAL SCREWS AT EACH BRACKET. TOTAL OF 4 BRACKETS.
3. PRE-INSTALLED 3/8"Ø HILTI KWIK BOLT TZ WEDGE ANCHOR. MINIMUM 3" EMBEDMENT. TYP OF 4.
4. 6" CONCRETE HOUSEKEEPING PAD, SEE 8/ S8.01.

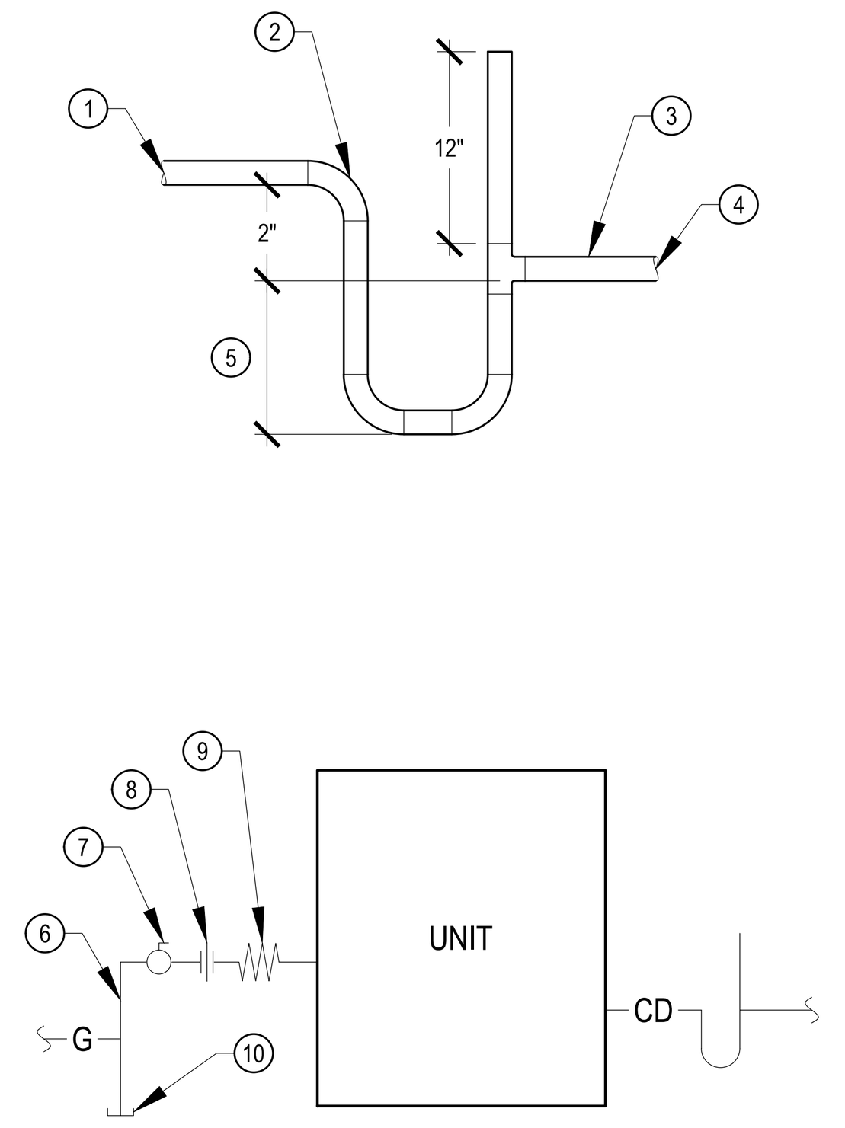
16 HEAT PUMP ANCHORAGE N.T.S.



DETAIL NOTES:

1. WALL.
2. 2x BLOCKING ALL AROUND.
3. REGISTER.
4. #8 WOOD SCREWS, TYP. OF 4.
5. AIRSAN COMPACT SILENCER BEHIND REGISTER.
6. SHEET METAL DUCT WITH 1/2" ACOUSTIC LINING.

13 REGISTER DETAIL - SIDEWALL MOUNTED N.T.S.



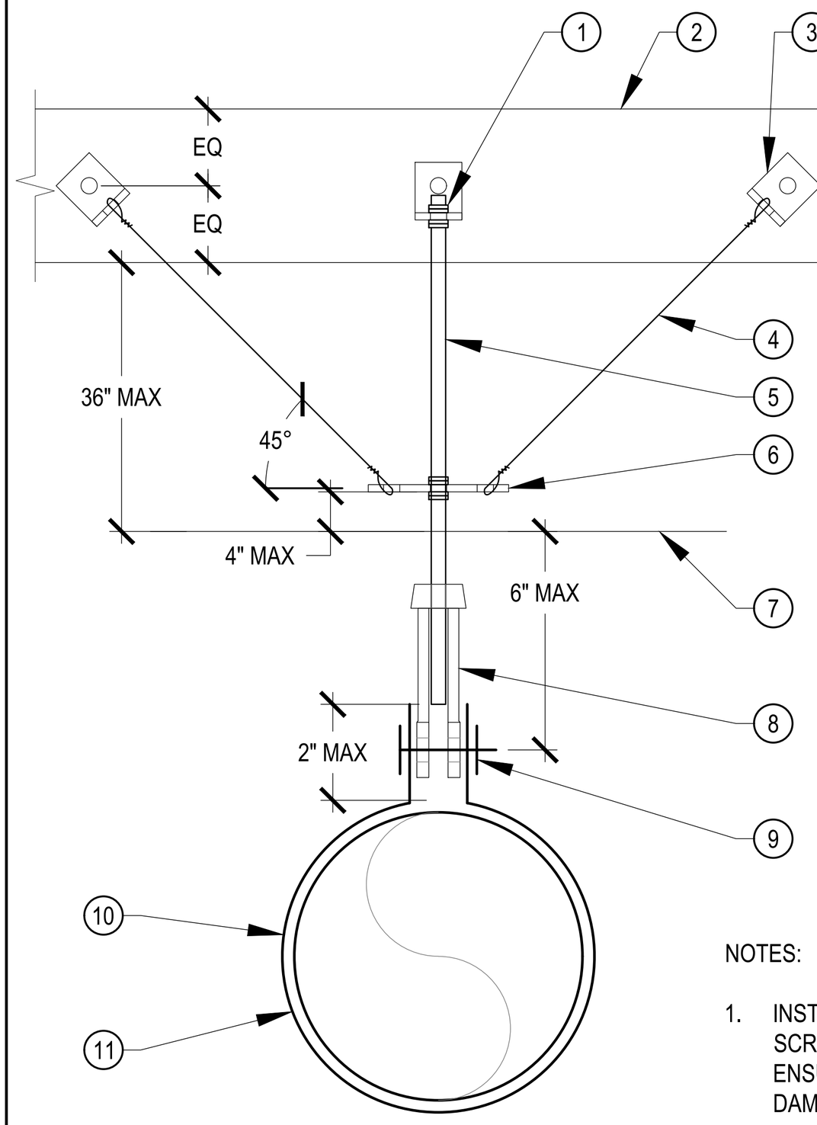
DETAIL NOTES:

1. CONNECT CD TO UNIT PER MANUFACTURER'S INSTALLATION REQUIREMENTS.
2. LONG RADIUS ELBOW, TYP.
3. PITCH MINIMUM 1/8" PER FOOT TO DRAIN.
4. ROUTE TO ROOF DRAIN.
5. UNIT TOTAL INCHES STATIC PRESSURE ±2".
6. NATURAL GAS PIPE.
7. GAS SHUTOFF VALVE TYP AT EACH UNIT.
8. UNION.
9. FLEXIBLE CONNECTOR.
10. DIRT LEG.

NOTES:

1. CD PIPE SIZE SHALL NOT BE SMALLER THAN UNIT DRAIN CONNECTION SIZE.
2. FOR PIPE SIZES AND LOCATIONS, SEE PLANS.

9 GAS AND CONDENSATE DRAIN CONNECTION TO EQUIPMENT N.T.S.



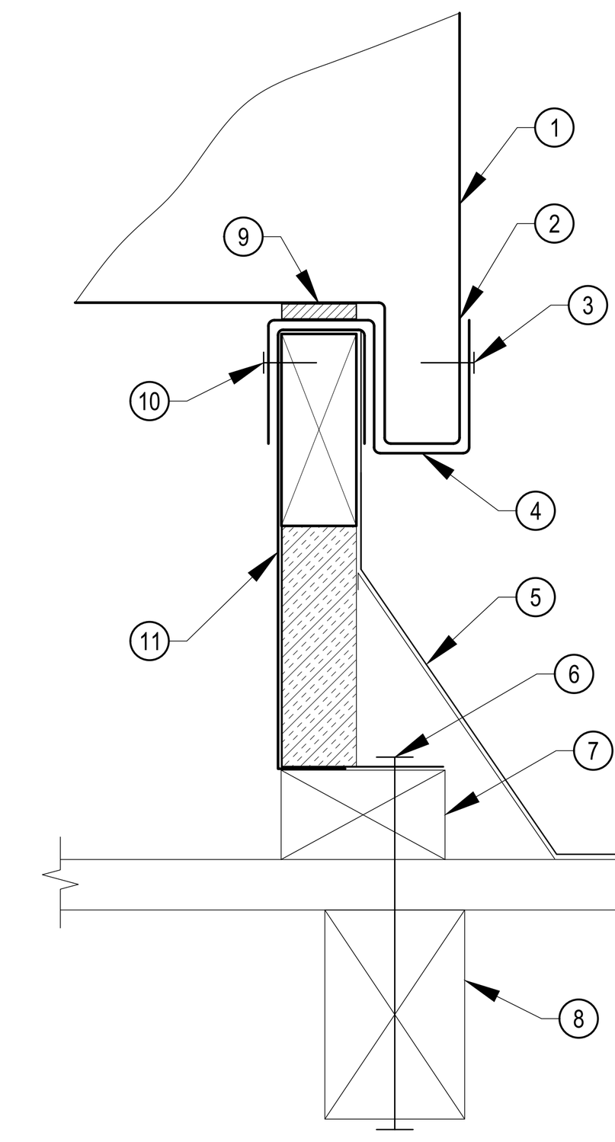
DETAIL NOTES:

1. PROVIDE DOUBLE NUT AT FITTINGS, TYP AT ROD.
2. (E) FRAMING.
3. UNISTRUT P1026 W/ 3/8" THRU BOLT, TYP.
4. 12 GA WIRE W/ (3) TIGHT TURNS WITHIN 3", TYP.
5. 3/8"Ø HANGER ROD.
6. UNISTRUT P1925.
7. (E) T-BAR CEILING.
8. GRINNELL FORGED STEEL CLEVIS END.
9. 3/8"Ø THRU BOLT W/ LOCKWASHER AND NUT.
10. DUCT. MAX WEIGHT OF DUCT = 10 LB/FT. SEE PLANS FOR SIZES AND LOCATIONS.
11. 1" x 16 GAUGE CONTINUOUS COLLAR DRAWN TIGHT AROUND DUCT.

NOTES:

1. INSTALL HANGER ROD AT EDGE OF T-BAR CEILING TILE. SCRIBE HOLE TIGHT TO ROD. DO NOT OVERCUT. ENSURE T-BAR CEILING CAN BE REPLACED WITHOUT DAMAGING THE CEILING TILE.
2. HANGER ROD & WIRE BRACING ASSEMBLY SPACING 10 FT OC MAX.

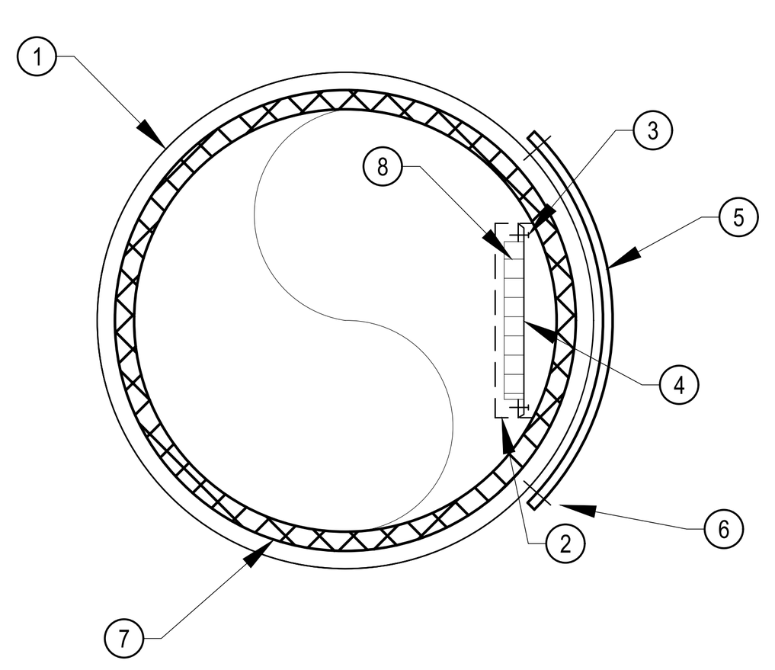
5 ROUND DUCT HANGER N.T.S.



DETAIL NOTES:

1. UNIT. FOR LOCATION, SEE PLANS.
2. UNIT BASE RAIL.
3. SECURE HOLD DOWN TO UNIT BASE RAIL WITH (4) #10 x1/2" TEK SCREWS.
4. MICROMETL UNIT HOLD DOWNS, TYPICAL OF 2 PER SIDE.
5. (E) ROOFING.
6. (E) 5/8"Ø THRU BOLT @ 36" O.C. VERIFY IN FIELD, RE-ATTACH TO CURB.
7. (E) LEVELING RAIL.
8. (E) 4X6 BLOCKING.
9. SEALING GASKET.
10. SECURE HOLD DOWN TO UNIT CURB WITH (4) #10 x 1/2" TEK SCREWS, TYP.
11. NEW MICROMETL ROOF CURB. MATCH EXISTING CURB.

2 ROOFTOP AIR CONDITIONER MOUNTING ON NEW CURB N.T.S.



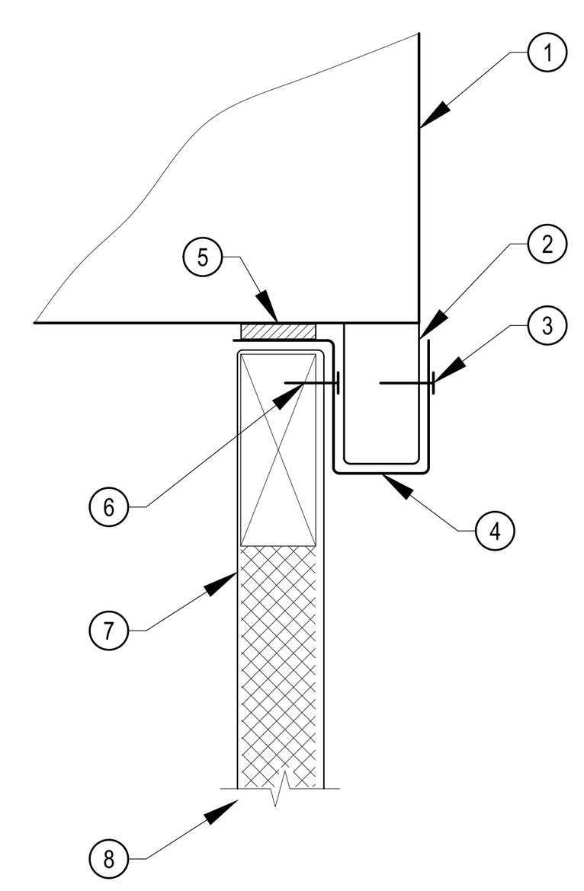
DETAIL NOTES:

1. EXPOSED METAL DUCT.
2. REGISTER BOX.
3. SELF TAPPING SHEET METAL SCREWS. 12" ON CENTER MAX. (TYP.).
4. REGISTER.
5. REGISTER BOX SHALL BE 1/4" WIDER THAN OUTSIDE EDGE OF REGISTER MOUNTING FRAME.
6. POP RIVET AT 6" ON CENTER ALL AROUND. CAULK AND SEAL FOR FINISH (TYP.).
7. INSULATION.
8. FACE OPERABLE, KEYED AIR EXTRACTOR.

NOTES:

1. PRIME AND PAINT EXPOSED DUCTS, SUPPORTS, AND REGISTERS.

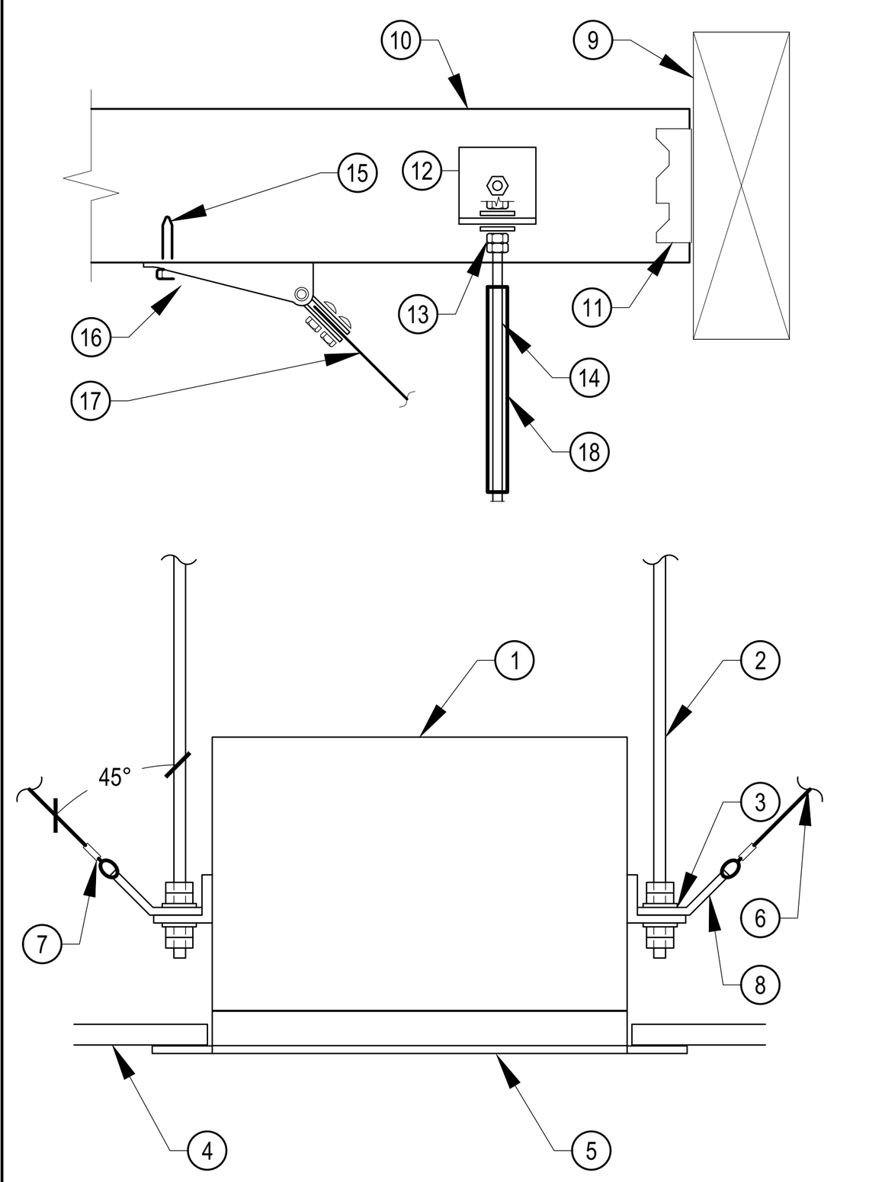
17 REGISTER DETAIL - DUCT MOUNTED N.T.S.



DETAIL NOTES:

1. UNIT. FOR LOCATION, SEE PLANS.
2. UNIT BASE RAIL.
3. SECURE HOLD DOWN TO UNIT BASE RAIL WITH (4) #10 x1/2" TEK SCREWS, TYP OF (4) LOCATIONS.
4. MICROMETL UNIT HOLD DOWN, 16 GAUGE STEEL, TYP (2) PER SIDE.
5. NEOPRENE GASKET.
6. SECURE HOLD DOWN TO CURB ADAPTER WITH (4) #10 x 1/2" TEK SCREWS, TYP.
7. CURB ADAPTER.
8. ATTACH CURB ADAPTER TO (E) CURB WITH #10 TEK SCREWS 12" ON CENTER, MIN. (4) PER SIDE.

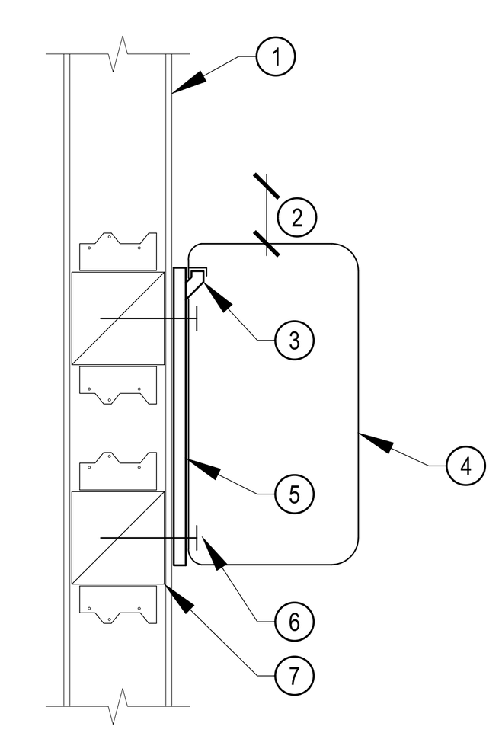
14 ROOFTOP AIR CONDITIONER MOUNTING WITH CURB ADAPTER N.T.S.



DETAIL NOTES:

1. CEILING CASSETTE UNIT. FOR LOCATION, SEE PLANS.
2. 3/8" THREADED ROD, (TYP. OF 4).
3. FACTORY-SUPPLIED BRACKETS. PROVIDE DOUBLE NUTS WITH LOCKWASHER AT TOP AND BOTTOM OF FLANGE. REFER TO AND FOLLOW MANUFACTURER INSTALLATION INSTRUCTIONS AND PROVIDE ALL NECESSARY HARDWARE.
4. CEILING ASSEMBLY. SEE ARCHITECT'S DRAWINGS.
5. FACTORY GRILLE.
6. 3/16"Ø CABLE, PRETENSIONED AT 5 LBS, TYP.
7. CABLE CLAMP, EACH END.
8. UNISTRUT LS500 PIVOT FITTING, TYP.
9. (E) WOOD FRAMING.
10. 4x6 BLOCKING.
11. SIMPSON A35 CLIP, EACH SIDE, EACH END.
12. 3"x3" x 10 GAUGE ANGLE. ATTACH TO BLOCKING WITH 5/8"Ø MACHINE BOLT. BOLT THROUGH CENTER OF MEMBER.
13. ATTACH ROD TO ANGLE WITH DOUBLE NUTS AND WASHER, TOP AND BOTTOM.
14. 3/8"Ø HANGER ROD.
15. 3/8"Ø LAG SCREW. MINIMUM 1-1/2" EMBEDMENT.
16. TOLCO FIG. 990 CABLE SWAY BRACE ATTACHMENT.
17. BRACING CABLE.
18. ROD STIFFENER IF LENGTH > 12". P100T CHANNEL WITH P2485 CRADLE CLIPS AT 12" ON CENTER.

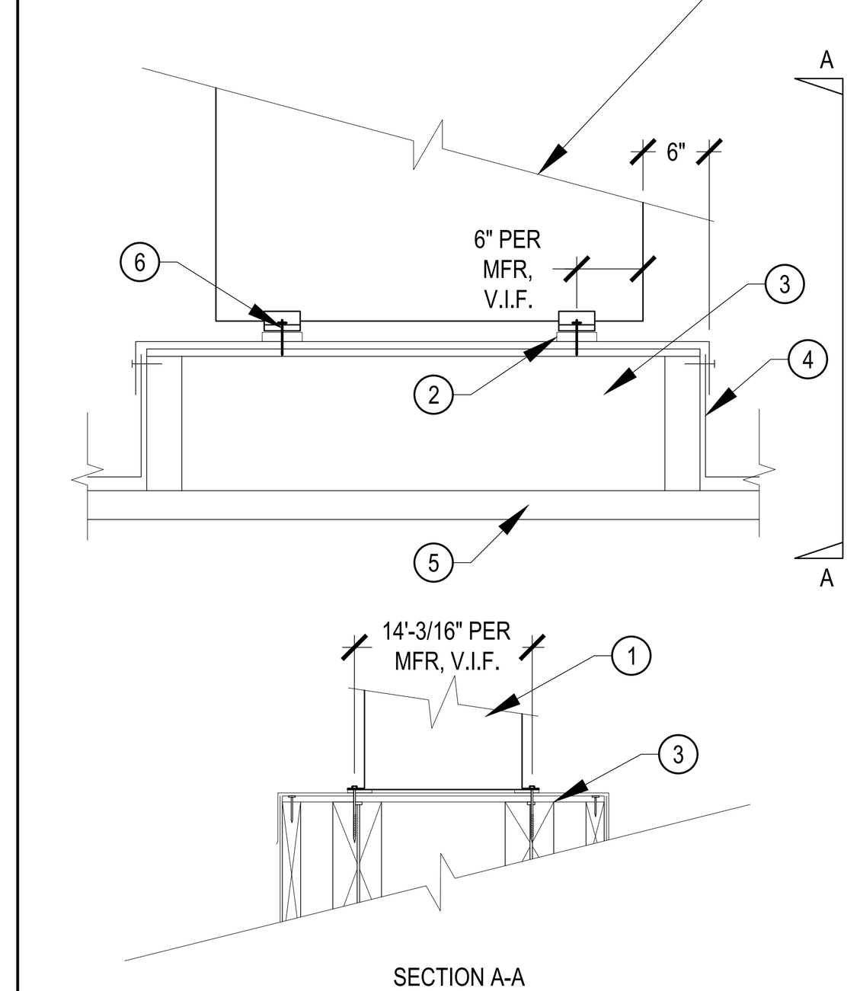
10 CEILING CASSETTE FAN COIL DETAIL N.T.S.



DETAIL NOTES:

1. EXISTING WALL.
2. MAINTAIN FACTORY REQUIRED CLEARANCES ALL AROUND UNIT.
3. INSTALL THE UNIT TO MOUNTING PLATE PER MANUFACTURER INSTALLATION AND OPERATION MANUAL.
4. INDOOR UNIT, SEE PLANS FOR LOCATIONS AND MOUNTING HEIGHTS.
5. MANUFACTURER'S MOUNTING PLATE.
6. 1/4" Ø LAG SCREW INTO BLOCKING, 3" MIN EMBEDMENT. TYP. OF 4 LOCATIONS.
7. BLOCKING, SEE 7/A9.10.

6 FAN COIL MOUNTING N.T.S.

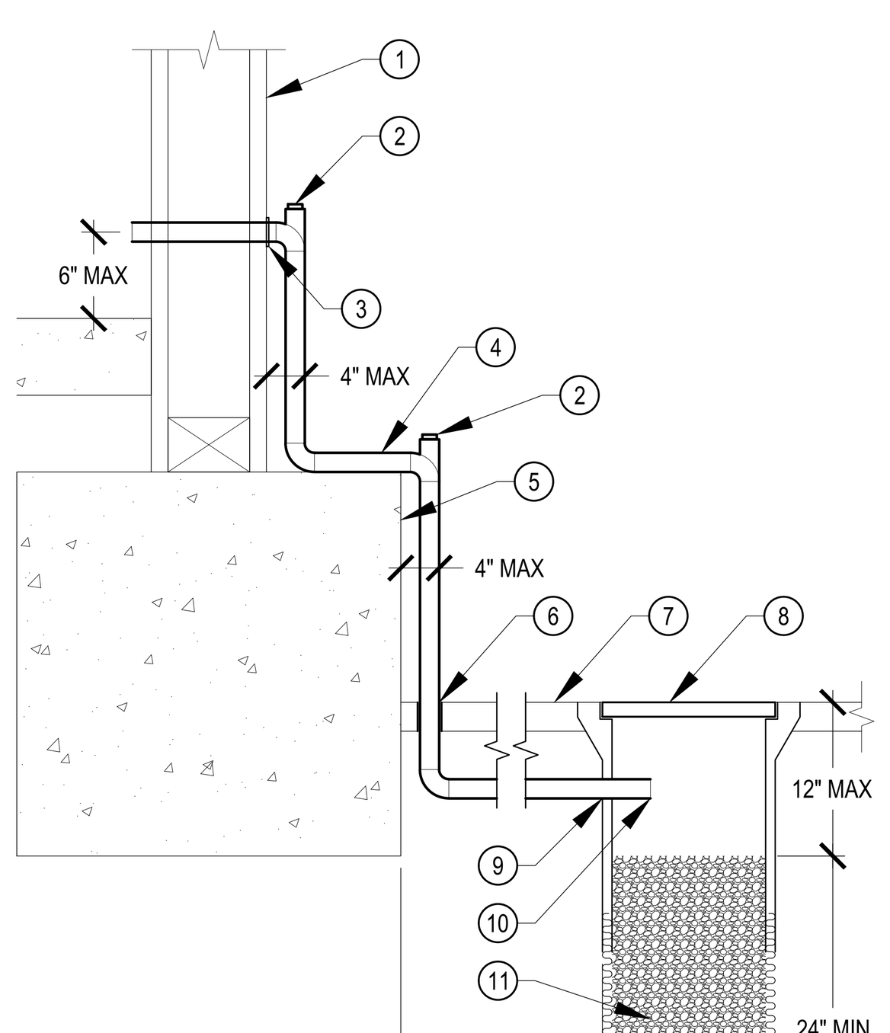


SECTION A-A

DETAIL NOTES:

1. HEAT PUMP. FOR LOCATION, SEE PLANS.
2. 4"x4"x1/4" NEOPRENE PADS SET IN SEALANT. TYP. OF 4.
3. LEVEL BUILT UP PLATFORM WITH SHEET METAL CAP. SEE 11/S8.01 FOR PLATFORM DETAIL AND ATTACHMENT TO ROOF STRUCTURE. SEE ARCHITECTS DRAWINGS FOR PLATFORM CAP.
4. FOR FLASHING, SEE ARCHITECT'S DRAWINGS.
5. (E) ROOF.
6. 3/8"Ø LAG SCREW THRU MOUNTING HOLE AND ISOLATOR PAD TO PLATFORM. MINIMUM 2" EMBEDMENT. TYP. OF 4.

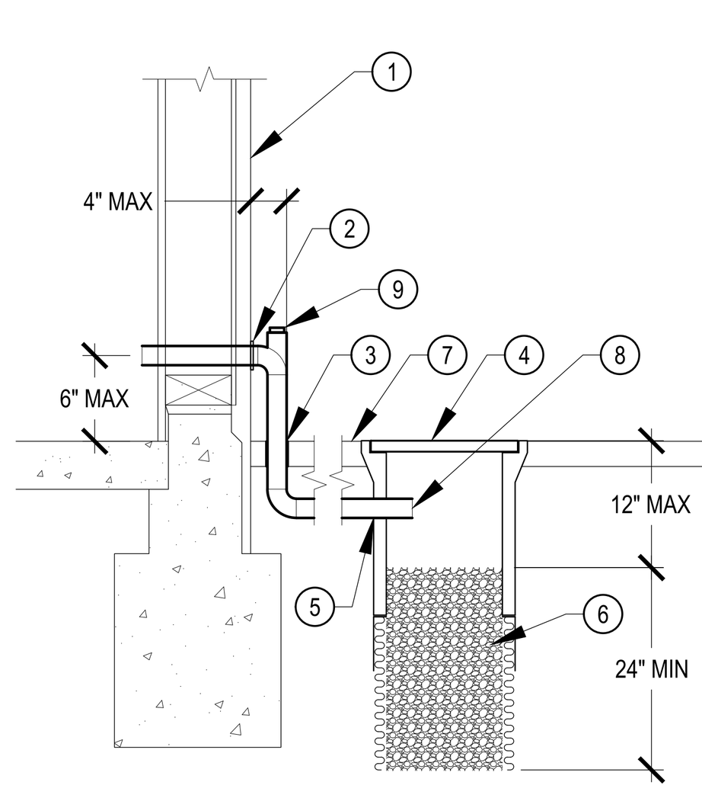
3 SPLIT SYSTEM HEAT PUMP UNIT ON PLATFORM N.T.S.



DETAIL NOTES:

1. (E) EXTERIOR WALL.
2. PROVIDE CLEANOUT FOR EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135.
3. SEAL PENETRATION WATERTIGHT. PROVIDE ESCUTCHEON AT EXTERIOR.
4. RUN PIPE ON TOP OF (E) BUILDING FOOTING. DO NOT PENETRATE THROUGH FOOTINGS. OFFSET PIPE IF NECESSARY TO CLEAR (E) BRACE FOOTING.
5. (E)BUILDING FOOTING.
6. DROP PIPE BELOW GRADE.
7. GRADE. UNLESS DRYWELL IS IN LANDSCAPE AREA, SEE A8.10 FOR PATCHING.
8. CHRISTY F22 CURB VALVE BOX WITH ADS SNAP ADAPTER AND 18" ADS EXTENSION. WITH F08R REINFORCED CONCRETE LID. FLUSH WITH GRADE.
9. CORE DRILL BOX FOR PIPE TO PASS THROUGH.
10. SPILL WITH 1" AIR GAP.
11. FILL WITH WASHED PEA GRAVEL.

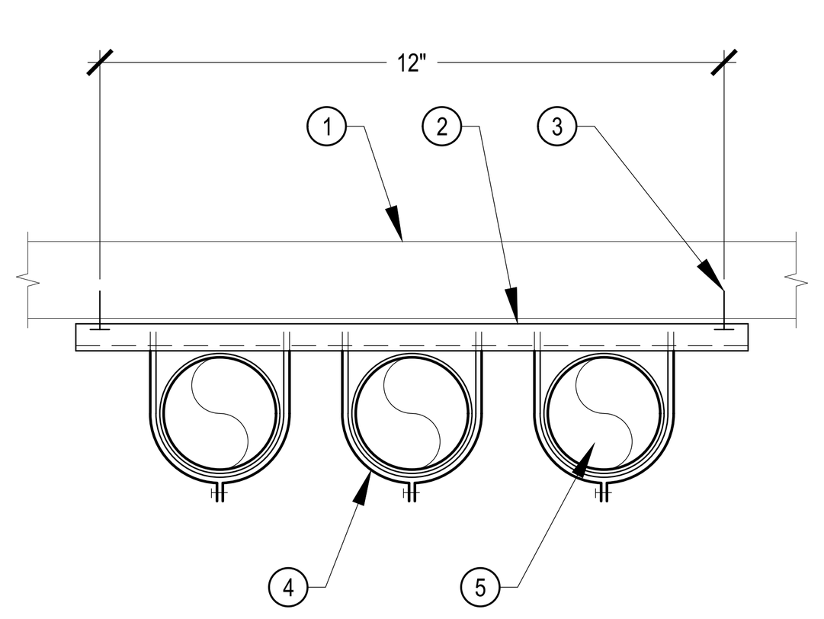
18 CONDENSATE DRYWELL AROUND BUILDING FOOTING N.T.S.



DETAIL NOTES:

1. (E) EXTERIOR WALL.
2. SEAL PENETRATION WATERTIGHT. PROVIDE ESCUTCHEON AT EXTERIOR.
3. DROP PIPE BELOW GRADE.
4. CHRISTY F22 CURB VALVE BOX WITH ADS SNAP ADAPTER AND 18" ADS EXTENSION. WITH F08R REINFORCED CONCRETE LID. FLUSH WITH GRADE.
5. CORE DRILL BOX FOR PIPE TO PASS THROUGH.
6. FILL WITH WASHED PEA GRAVEL.
7. GRADE. UNLESS DRYWELL IS IN LANDSCAPE AREA, SEE A8.10 FOR PATCHING.
8. SPILL WITH 1" AIR GAP.
9. CLEANOUT.

15 CONDENSATE DRYWELL N.T.S.



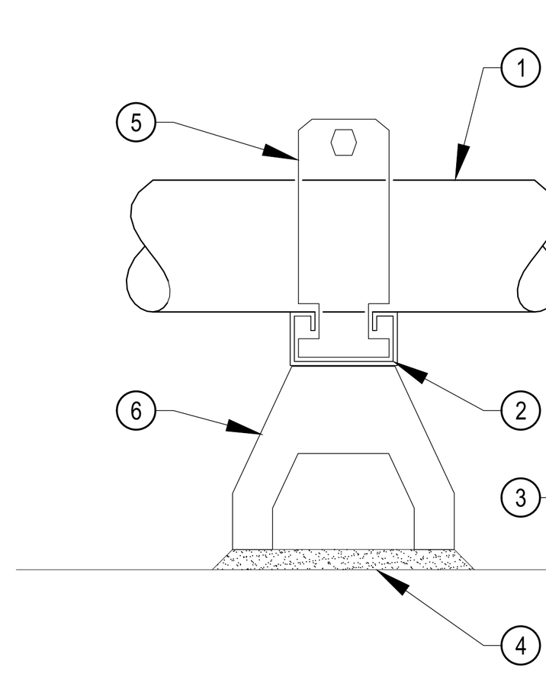
DETAIL NOTES:

1. (E) JOIST.
2. COPPER B-LINE B22 CHANNEL.
3. SCREW CHANNEL INTO (E) JOIST W/ 2-3/8"x2" LAG SCREWS.
4. B-LINE VIBRA-CLAMP PIPE CLAMP.
5. PIPE(S). SEE PLANS FOR TYPES AND SIZES.

NOTES:

1. 6 FT MAX SPACING BETWEEN SUPPORT

11 PIPE SUPPORT N.T.S.



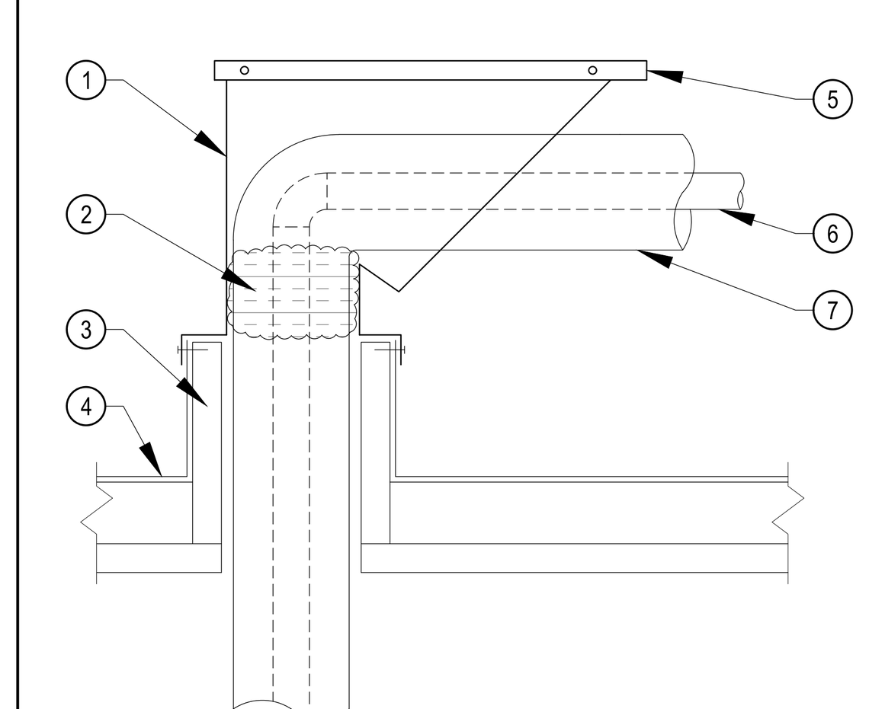
DETAIL NOTES:

1. FOR PIPE SIZES AND TYPES, SEE PLANS.
2. PROVIDE GAP BETWEEN INTEGRAL STRUT CHANNEL AND HARDWARE USED TO SECURE PIPE TO ALLOW FOR MOVEMENT OF SYSTEM.
3. (E) ROOF.
4. SET SUPPORT IN MASTIC COMPATIBLE WITH ROOF SURFACE.
5. PROVIDE STANDARD STRUT CLAMPS.
6. B-LINE DURA-BLOCK WITH INTEGRAL CHANNEL AND PIPE BRACKETS, WIDTH AS REQUIRED FOR NUMBER OF PIPES.

NOTES:

1. REFER TO 22 05 00 PLUMBING SPECIFICATIONS FOR SPACING BETWEEN SUPPORT BLOCKS. ADDITIONALLY PROVIDE BLOCK WITHIN 2'-0" OF ANY CHANGE OF DIRECTION.

7 PIPE SUPPORT ON ROOF N.T.S.



DETAIL NOTES:

1. GALVANIZED SHEET METAL ROOF JACK WITH CAP.
2. FILL OPENING WITH FOAM.
3. ROOF OPENING. SEE STRUCTURAL DRAWING FOR CURB, SEE ARCHITECT'S DRAWINGS FOR FLASHING.
4. ROOFING.
5. REMOVABLE SHEET METAL COVER ATTACHED WITH TWO (2) #8 SELF TAPPING SCREWS EACH SIDE, PAINTED.
6. PIPE.
7. PIPE INSULATION.

NOTES:

1. EXPOSED PIPING SHALL HAVE ALUMINUM JACKET.

4 PIPING ROOF JACK N.T.S.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

aedis architects
www.aedisarchitects.com
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PROJECT

BORE L MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

CEG JOB NO: 21038
CYPRESS Engineering Group
HVAC, Plumbing, Fire Protection
Building Commissioning
Industrial Refrigeration
Environmental Compliance
Training & Technical Support
831.218.1602
8 Harris Court, Suite A6
Monterey, CA 93940
cypresseg.com

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STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No. Description Date

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

DETAILS-MECHANICAL & PLUMBING

DATE 10/06/2021

JOB # 2021005.07

SHEET # MP6.01

GENERAL NOTES

1. EXISTING FLOOR PLANS FROM RECORD DRAWINGS, APPROVED UNDER DSA APPL #102258, SHOWN FOR REFERENCE ONLY.
2. ADJUST AND BALANCE AIR FLOW TO CFMS SHOWN ON AIR BALANCE SCHEDULE FOR EACH BUILDING.
3. REMOVE (E) THERMOSTATS AND INSTALL NEW THERMOSTAT IN SAME LOCATION. WIRE NEW THERMOSTAT TO NEW AC UNITS.

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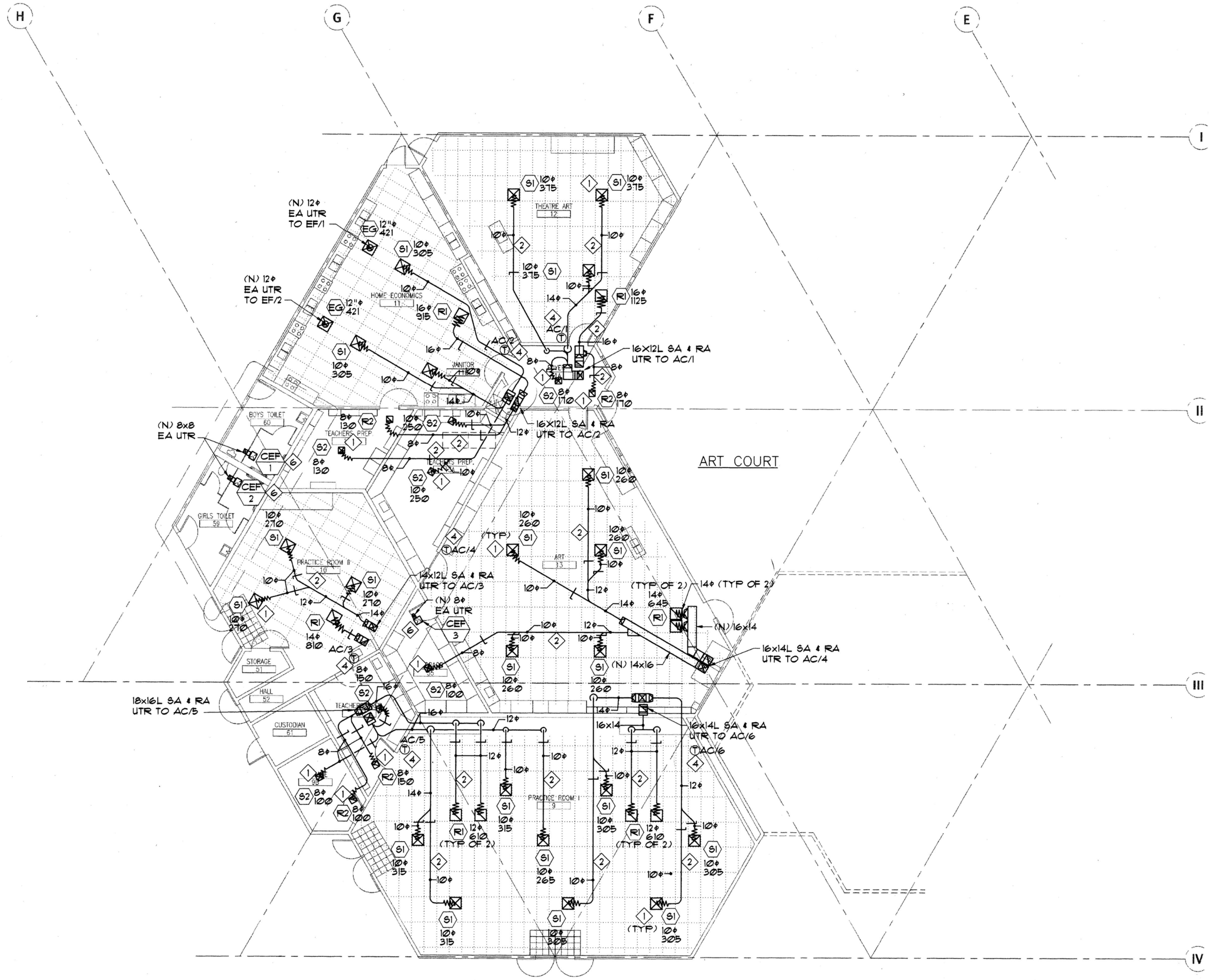

1 / MP8.01 — PARTIAL FLOOR PLAN - BLDG G - EXISITNG - MECHANICAL/TAB WORK

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

NORTH

AIR BALANCE SCHEDULE - BLDG G			
UNIT NUMBER	LOCATION SERVED	SUPPLY CFM	RETURN CFM
AC-1	THEATER ART G42	(3) 375	1125
	FOYER G41	170	170
AC-2	HOME ECON G40	(3) 305	915
	TEACHERS PREP G40A	130	130
	TEACHERS PREP G38A	250	250
AC-3	PRACTICE ROOM II G44	(3) 270	810
AC-4	ART G38	(5)260	(2) 645
	STORAGE G43	100	—
AC-5	TEACHERS PREP G37A	150	150
	STORAGE G37B	100	100
	PRACTICE ROOM I G37	(3) 315 (1) 265	(2) 610
AC-6	PRACTICE ROOM I G37	(4) 305	(2) 610

(E) ROOFTOP UNIT DSA APPL #102258	
UNIT NUMBER	WEIGHT
AC-1	697
AC-2	697
AC-3	445
AC-4	697
AC-5	697
AC-6	687

PROJECT

BORFL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

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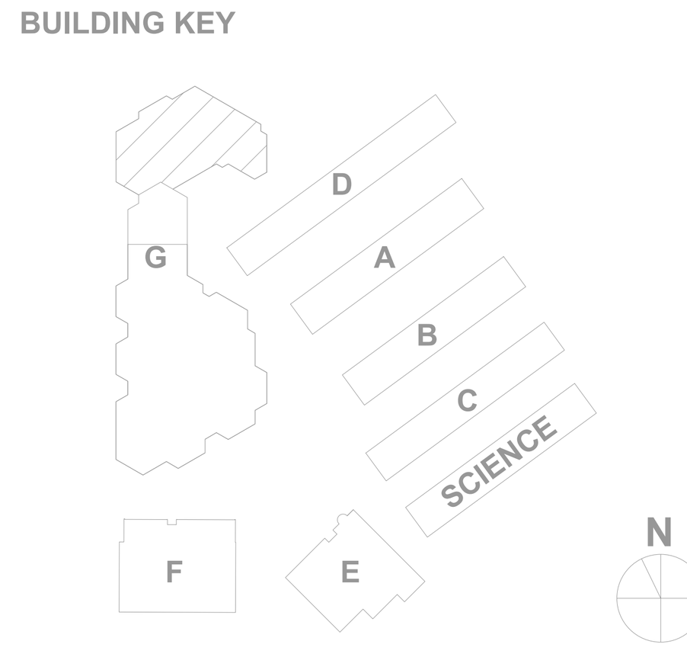
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

PARTIAL FLOOR PLAN - EXISTING - BLDG G - MECHANICAL/ TAB WORK

BUILDING KEY



DATE 10/06/2021

JOB # 2021005.07

SHEET # MP7.01

GENERAL NOTES

1. EXISTING FLOOR PLANS FROM RECORD DRAWINGS, APPROVED UNDER DSA APPL #102258, SHOWN FOR REFERENCE ONLY.
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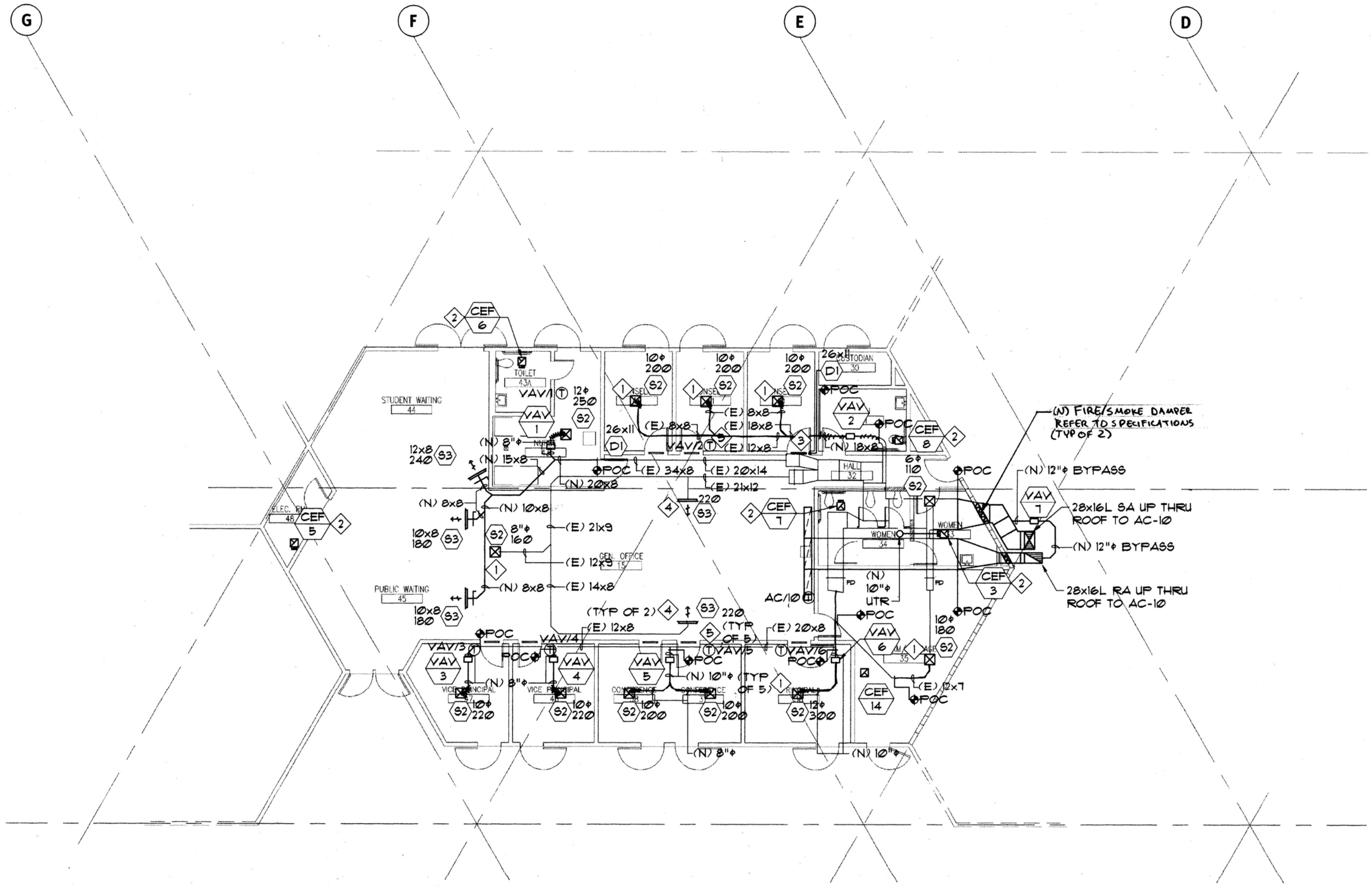
AIR BALANCE SCHEDULE - BLDG G

UNIT NUMBER	LOCATION SERVED	SUPPLY CFM	RETURN CFM
AC-10	PRINCIPAL G29	300	2550
	CONFERENCE G30	200	
	CONFERENCE G31	200	
	VICE PRINCIPAL G32	220	
	VICE PRINCIPAL G33	220	
	WORK RM / STORAGE G28	180	
	WOMENS TOILET G20	110	
	COUNSELING G23	200	
	COUNSELING G24	200	
	COUNSELING G25	200	
	GEN OFFICE G27	(5) 220 (1) 160	
	NURSE G26	250	
	STUDENT WAITING G34	240	
	PUBLIC WAITING G35	(2) 180	

(E) ROOFTOP UNIT
DSA APPL #102258

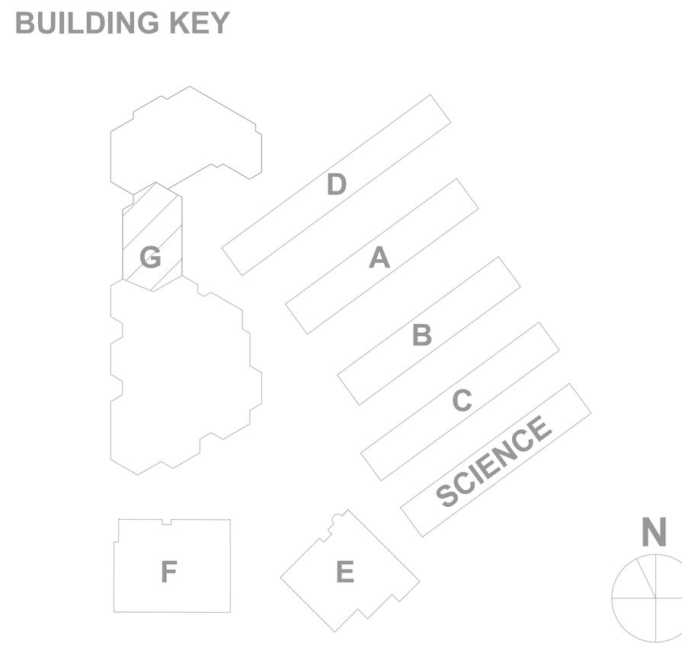
UNIT NUMBER	WEIGHT
AC-10	1075



1 PARTIAL FLOOR PLAN - BLDG G - EXISITNG - MECHANICAL/TAB WORK
MP8.02 SCALE: 1/8" = 1'-0"

NORTH

BUILDING KEY



PROJECT
BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

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DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET
PARTIAL FLOOR PLAN - EXISTING - BLDG G - MECHANICAL/ TAB WORK

DATE 10/06/2021
JOB # 2021005.07
SHEET # MP7.02

GENERAL NOTES

1. EXISTING FLOOR PLANS FROM RECORD DRAWINGS, APPROVED UNDER DSA APPL #102258, SHOWN FOR REFERENCE ONLY.
2. ADJUST AND BALANCE AIR FLOW TO CFMS SHOWN ON AIR BALANCE SCHEDULE FOR EACH BUILDING.
3. REMOVE (E) THERMOSTATS AND INSTALL NEW THERMOSTAT IN SAME LOCATION. WIRE NEW THERMOSTAT TO NEW AC UNITS.

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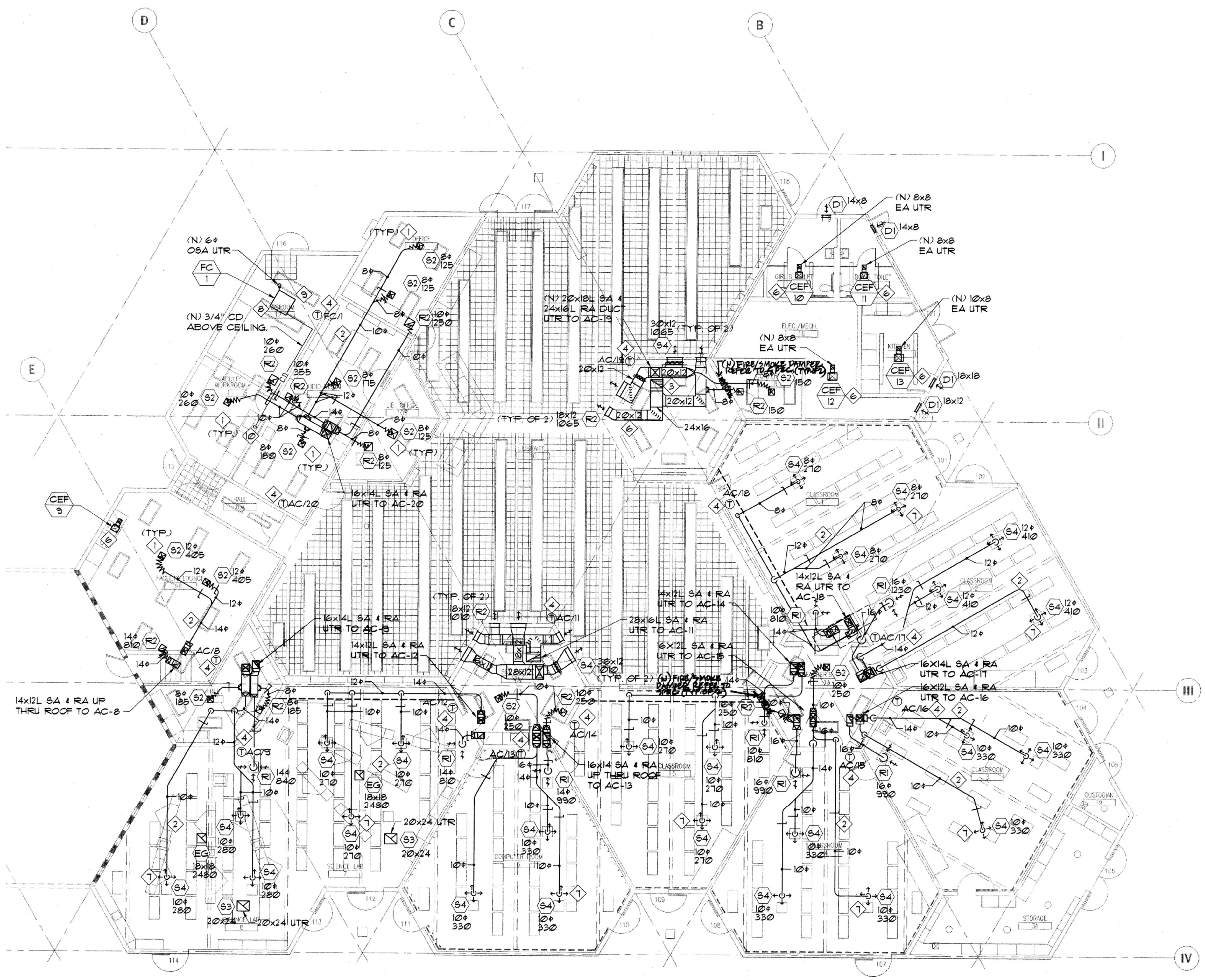


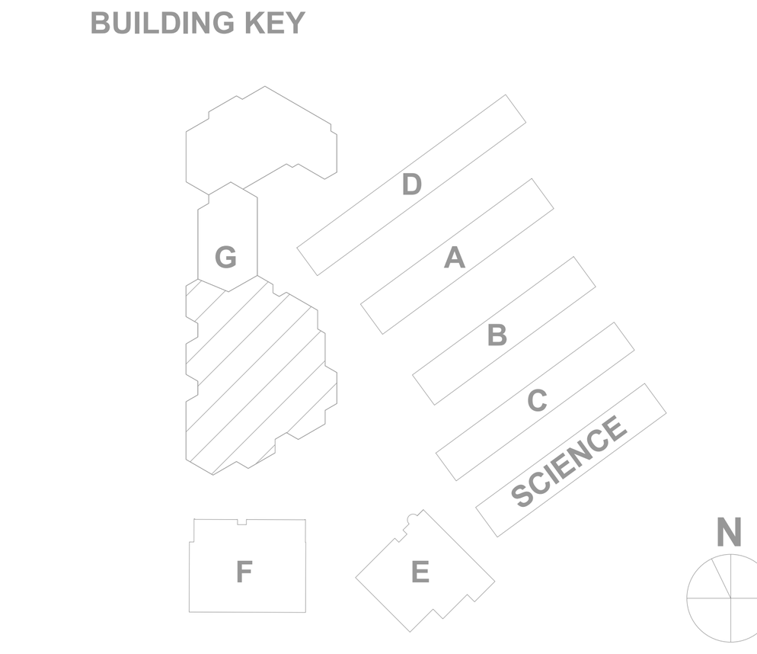
1 / MP8.03 PARTIAL FLOOR PLAN - BLDG G - EXISITNG - MECHANICAL/TAB WORK
SCALE: 1/8" = 1'-0"

NORTH

AIR BALANCE SCHEDULE - BLDG G			
UNIT NUMBER	LOCATION SERVED	SUPPLY CFM	RETURN CFM
AC-8	FACULTY LOUNGE G9	(2) 405	810
AC-9	SCIENCE PREP G8A	185	185
	SCIENCE LAB G8	(3) 280	840
AC-11	LIBRARY G10	(2) 1010 (1) ?	(2) 1010 (1) ?
AC-12	SCIENCE LAB G7	(3) 270	810
AC-13	COMP ROOM G6	(3) 330	990
	SCI OFFICE G7A	250	250
AC-14	CLASSROOM G5	(3) 270	810
AC-15	TEACHERS PREP G1A	250	250
	CLASSROOM G4	(3) 330	990
AC-16	CLASSROOM G3	(3) 330	990
AC-17	CLASSROOM G2	(3) 410	1230
AC-18	CLASSROOM G1	(3) 270	810
AC-19	CONFERENCE G18	150	150
	LIBRARY G10	(2) 1065	(2) 1065
AC-20	AV G10B	(1) 180 (1) 175	335
	FACULTY WORKROOM G11	260	—
	LIB OFFICE G10A	125	125
	CLASSROOM G12	—	260
	OFFICE G13	(2) 125	250

(E) ROOFTOP UNIT DSA APPL #102258	
UNIT NUMBER	WEIGHT
AC-8	468
AC-9	687
AC-11	1075
AC-12	468
AC-13	697
AC-14	468
AC-15	687
AC-16	697
AC-17	687
AC-18	468
AC-19	775
AC-20	687

BUILDING KEY



PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

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BACKCHECK	10/06/2021

SHEET

PARTIAL FLOOR PLAN - EXISTING - BLDG G - MECHANICAL/ TAB WORK

DATE 10/06/2021
JOB # 2021005.07
SHEET # **MP7.03**

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.4, or §141.0(b)2 for alterations.			
Project Name:	Borel Middle School- HVAC Replacement	Report Page:	Page 1 of 11
Project Address:	425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

A. GENERAL INFORMATION

01	Project Location (city)	San Mateo	04	Total Conditioned Floor Area	
02	Climate Zone	3	05	Total Unconditioned Floor Area	
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):

[1] *FOOTNOTES: Climate zone can be determined on the California Energy Commission's website at http://www.energy.ca.gov/maps/renewable/building_climate_zones.html*

B. PROJECT SCOPE

Table Instructions: Include any 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.

My project consists of (check all that apply)

01	02	03
Air System(s)	Wet System Components	Dry System Components
☑ Heating Air System	☐ Water Economizer	☐ Air Economizer
☑ Cooling Air System	☐ Pumps	☐ Electric Resistance Heat
Mechanical Controls	☐ Hydronic System Piping	☐ Fan Systems
☑ Mechanical Controls (existing to remain, altered or new)	☐ Cooling Towers	☑ Ductwork (existing to remain, altered or new)
	☐ Chillers	☑ Ventilation
	☐ Boilers	☐ Zonal Systems/ Terminal Boxes

C. COMPLIANCE RESULTS

Table Instructions: If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

01		02		03		04		05		06		07		08	09
System Summary §110.1, §110.2, §140.4	AND	Pumps §140.4(k)	AND	Fans/ Economizers §140.4(c), §140.4(e)	AND	System Controls §110.2, §120.2, §140.4(f)	AND	Ventilation §120.1	AND	Terminal Box Controls §140.4(d)	AND	Distribution §120.3, §140.4(l)	AND	Cooling Towers §110.2(e)2	**Compliance Results**
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND		AND		AND	Yes	AND	Yes	AND		AND	Yes	AND		**COMPLIES**
Mandatory Measures Compliance (See Table Q for Details)															**COMPLIES**

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
Project Name:	Borel Middle School- HVAC Replacement	Report Page:	Page 2 of 11
Project Address:	425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

D. EXCEPTIONAL CONDITIONS

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

Selections made in Table O have been changed by the permit applicant. See Table E. Additional Remarks for permit applicant's explanation.

E. ADDITIONAL REMARKS

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

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Table Instructions: Complete the following equipment schedules to show compliance with mandatory requirements found in §110.1 and §110.2(a) and prescriptive requirements found in §140.4(a), §140.4(b) and §140.4(k) or §141.0(b)2 for alterations.

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

01	02	03	04	05	06	07	08	09	10	11
				Equipment Sizing per Mechanical Schedule (kBtu/h) §140.4 (a&b)						
				Heating Output[2,3]			Cooling Output[2,3]		Load Calculations[3,4]	
Name or Item Tag	Equipment Category per Tables 110.2	Equipment Type per Tables 110.2 & Title 20	Smallest Size Available[1] §140.4(a)	Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
HP/FC	Unitary heat pumps (no elec. resistance)	Air cooled, split (1 phase)	Yes	60	60	0	54	54		
AC	Unitary AC/ Condensers	AC, air cooled, package (3 phase)	Yes	110	88	0	38	48		

[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).*

Table Continued

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
Project Name:	Borel Middle School- HVAC Replacement	Report Page:	Page 3 of 11
Project Address:	425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

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

01	02	03	04	05	06	07	08	09
		Heating Mode				Cooling Mode		
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Min Efficiency Required per Tables 110.2/ Title 20	Design Efficiency	Efficiency Unit	Min Efficiency Required per Tables 110.2/ Title 20	Design Efficiency
HP/FC	<65,000		HSPF	8.2	9	SEER	14	17.1
AC	<65,000				0.8	SEER	13	20

G. PUMPS

This Section Does Not Apply

H. FAN SYSTEMS & AIR ECONOMIZERS

This Section Does Not Apply

I. SYSTEM CONTROLS

Table Instructions: Complete the following Table 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	02	03	04	05	06	07	08	09
System Name	System Zoning	Conditioned Floor Area Being Served (ft²)	Thermostats §110.2(b) & (c)[1], §120.2(a) or §141.0(b)2E	Shut-Off Controls §120.2(e)	Isolation Zone Controls §120.2(g)	Demand Response §110.12 and §120.2(b)	Supply Air Temp. Reset §140.4(f)	Window Interlocks per §140.4(n)
HP/FC	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: Alteration project
AC	single zone	≤ 25,000 ft²	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: Alteration project

Table Continued

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
Project Name:	Borel Middle School- HVAC Replacement	Report Page:	Page 4 of 11
Project Address:	425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

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

[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

Table Instructions: Complete the following Table 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 includes Nonresidential or Hotel/Motel spaces
	☐ Check this box if the project includes new or altered high-rise residential dwelling units
03	☐ Check the box if the project is using natural ventilation in any spaces to meet required ventilation rates per §120.1(c)2.

Nonresidential and Hotel/ Motel Ventilation Systems

04		05		06		07
System Name:	HP/FC	System Design OA CFM Air Flow[1]:	450	System Design Transfer Air CFM:	0	Air Filtration per §120.1(c) and §141.0(b)2[2]: Provided per §120.1(c) (NR & Hotel/Motel)

08	09	10	11	12	13	14	15	16	
	Mechanical Ventilation Required per §120.1(c)3[3]					Exh. Vent. per §120.1(c)4			
Space Name or Item Tag	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of showerheads / toilets	# of people[5]	Required Min OA CFM	Required Minimum CFM	Provided per Design CFM	DCV or Occupant Sensor Controls per §120.1(d)3, §120.1(d)5 & §120.2(e)3[6]	
HP/FC	Classroom (age 5-18)	1,000			150		0	DCV	Provided per §120.1(d)4
								Occ Sensor	NA: Not required space type

Table Continued

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
Project Name:	Borel Middle School- HVAC Replacement	Report Page:	Page 5 of 11
Project Address:	425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

Table Continued

17	Total System Required Min OA CFM	150	18	Ventilation for this System Complies?	Yes

Nonresidential and Hotel/ Motel Ventilation Systems

04		05		06		07
System Name:	AC	System Design OA CFM Air Flow[1]:	450	System Design Transfer Air CFM:	0	Air Filtration per §120.1(c) and §141.0(b)2[2]: Provided per §120.1(c) (NR & Hotel/Motel)

08	09	10	11	12	13	14	15	16	
	Mechanical Ventilation Required per §120.1(c)3[3]					Exh. Vent. per §120.1(c)4			
Space Name or Item Tag	Occupancy Type[4]	Conditioned Floor Area (ft²)	# of showerheads / toilets	# of people[5]	Required Min OA CFM	Required Minimum CFM	Provided per Design CFM	DCV or Occupant Sensor Controls per §120.1(d)3, §120.1(d)5 & §120.2(e)3[6]	
AC	Classroom (age 5-18)	1,000			150		0	DCV	Provided per §120.1(d)4
								Occ Sensor	NA: Not required space type

17	Total System Required Min OA CFM	150	18	Ventilation for this System Complies?	Yes

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

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
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L. DISTRIBUTION (DUCTWORK AND PIPING)

Table Instructions: Complete the following tables 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

The answers to the questions below apply to the following duct system(s):		Duct leakage testing triggered for these systems?	No
11	No	The scope of the project includes only duct systems serving healthcare facilites.	
12	Yes	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 crawlspace	
		☐ 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 accordance with the California Mechanical Code.	

M. COOLING TOWERS

This Section Does Not Apply

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Table Instructions: 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/

YES	NO	Form/Title	Systems To Be Field Verified	Field Inspector Pass	Field Inspector Fail
(●)		NRCI-MCH-01-E - Must be submitted for all buildings.		☐	☐

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
Project Name:	Borel Middle School- HVAC Replacement	Report Page:	Page 7 of 11
Project Address:	425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

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

YES	NO	Form/Title	Systems To Be Field Verified	Field Inspector Pass	Field Inspector Fail
(●)	(○)	NRCA-MCH-02-A Outdoor Air must be submitted for all newly installed HVAC units. *Note: MCH02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.*		☐	☐
(●)	(○)	NRCA-MCH-03-A Constant Volume Single Zone HVAC *NOTE: This form does not automatically move to "Yes". If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".*		☐	☐
(○)	(●)	NRCA-MCH-04-A Air Distribution Duct Leakage		☐	☐
(○)	(●)	NRCA-MCH-05-A Air Economizer Controls		☐	☐
(●)	(○)	NRCA-MCH-06-A Demand Control Ventilation Systems Acceptance must be submitted for all systems required to employ demand controlled ventilation (refer to §120.1(c)3) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO2) concentration setpoints.		☐	☐
(○)	(●)	NRCA-MCH-07-A Supply Fan Variable Flow Controls		☐	☐
(○)	(●)	NRCA-MCH-08-A Valve Leakage Test		☐	☐
(○)	(●)	NRCA-MCH-09-A Supply Water Temperature Reset Controls		☐	☐
(○)	(●)	NRCA-MCH-10-A Hydronic System Variable Flow Controls		☐	☐
(○)	(●)	NRCA-MCH-11-A Automatic Demand Shed Controls		☐	☐

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
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Project Address:	425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

(○)	(●)	NRCA-MCH-12-A FDD for Packaged Direct Expansion Units		☐	☐
(○)	(●)	NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance		☐	☐
(○)	(●)	NRCA-MCH-14-A Distributed Energy Storage DX AC Systems Acceptance *NOTE: This form does not automatically move to "Yes". If Distributed Energy Storage DX AC Systems are included in the scope, permit applicant should move this form to "Yes".*		☐	☐
(○)	(●)	NRCA-MCH-15-A Thermal Energy Storage (TES) System Acceptance *NOTE: This form does not automatically move to "Yes". If Chilled Water Storage, Ice-on-Coil Internal Melt, Ice-on-Coil External Melt, Ice Harvester, Brine, Ice-Slurry, Eutectic Salt, Clathrate Hydrate Slurry (CHS), Cryogenic or Encapulated (Ice Ball) Systems are included in the scope, permit applicant should move this form to "Yes".*		☐	☐
(○)	(●)	NRCA-MCH-16-A Supply Air Temperature Reset Controls		☐	☐
(○)	(●)	NRCA-MCH-17-A Condenser Water Temperature Reset Controls		☐	☐
(●)	(○)	NRCA-MCH-18 Energy Management Control Systems		☐	☐
(○)	(●)	NRCA-MCH-19 Occupancy Sensor Controls		☐	☐
(○)	(●)	NRCA-MCH-20 Multi-Family Ventilation		☐	☐
(○)	(●)	NRCA-MCH-21 Multi-Family Envelope Leakage		☐	☐

CERTIFICATE OF COMPLIANCE			NRCC-MCH-E
Project Name:	Borel Middle School- HVAC Replacement	Report Page:	Page 9 of 11
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P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

Table Instructions: 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 completed by a HERS Rater and provided to the building inspector during construction. The final documents must be created by a HERS Providers registry, but drafts can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCV/

YES	NO	Form/Title	Field Inspector Pass	Field Inspector Fail
(○)	(●)	NRCV-MCH-04-H Duct Leakage Test *NOTE: Must be completed by a HERS Rater*	☐	☐
(○)	(●)	NRCV-MCH-24 Enclosure Air Leakage Worksheet *NOTE: Must be completed by a HERS Rater*	☐	☐
(○)	(●)	NRCV-MCH-27 High-rise Residential *NOTE: Must be completed by a HERS Rater*	☐	☐
(○)	(●)	NRCV-MCH-32 Local Mechanical Exhaust *NOTE: Must be completed by a HERS Rater*	☐	☐

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

aedis architects
www.aedisarchitects.com
387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT
BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT
CEG JOB NO: 21038
CYPRESS Engineering Group
HVAC, Plumbing, Fire Protection
Building Commissioning
Industrial Refrigeration
Environmental Compliance
Training & Technical Support
831.218.1802
8 Harris Court, Suite A8
Monterey, CA 93940
cypresseg.com

STAMP
REGISTERED PROFESSIONAL ENGINEER
METIN SERTTUNC
No. M31059
EXP. JUNE 30, 2023
MECHANICAL
STATE OF CALIFORNIA

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET
TITLE 24 DOCUMENTS-MECHANICAL

DATE 10/06/2021
JOB # 2021005.07
SHEET #
MP8.01

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Borel Middle School- HVAC Replacement	Report Page:	Page 10 of 11
Project Address: 425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

Table Instructions: Indicate where mandatory measures are documented in the plan set or construction documentation. For any mandatory measures that do not apply, mark the plan sheet or construction document location as "N/A", any active cells that are left blank will result in non-compliance in Table C.

01		02
		Plan sheet or construction document location
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block:	No	
03		04
Mandatory Measure		Plan sheet or construction document location
Heating Equipment Efficiency per §110.1		MP0.02
Cooling Equipment Efficiency per §110.1		MP0.02
Furnace Standby Loss Control per §110.2(d)		NA
Duct Insulation per §120.4		23 05 00
Heating Hot Water Equipment Efficiency per §110.1		NA
Cooling Chilled and Condenser Water Equipment Efficiency per §110.1		NA
Open and Closed Circuit Cooling Towers conductivity of flow-based controls per §110.2(e)1		NA
Open and Closed Circuit Cooling Towers Flow Meter with analog output per §110.2(e)3		NA
Open and Closed Circuit Cooling Towers Overflow Alarm per §110.2(e)4		NA
Open and Closed Circuit Cooling Towers Efficient Drift Eliminators per §110.2(e)5		NA
Pipe Insulation per §120.3(b)		NA
Combustion air shutoff, combustion air fan controls and stack design and controls for boilers per §120.9		NA
Heat Pump with Supplementary Electric Resistance Heater Controls per §110.2(b)		NA
The air duct and plenum system is designed per §120.4(a)-(f)		Yes
Kitchen range hoods shall be rated for sound in accordance with Section 7.2 of ASHRAE 62.2		NA

STATE OF CALIFORNIA
Mechanical Systems
NRCC-MCH-E (Created 09/2020) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Borel Middle School- HVAC Replacement	Report Page:	Page 11 of 11
Project Address: 425 Barneson Avenue, San Mateo, CA 94402	Date Prepared:	2021-05-08

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:	Chahan Shah	Documentation Author Signature:	Chahan S. Shah
Company:	Cypress Engineering Group	Signature Date:	5/8/21
Address:	8 Harris Court, Suite A8	CEA/ HERS Certification Identification (if applicable):	
City/State/Zip:	Monterey, CA 93940	Phone:	8312181802

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:	Metin Serttunc	Responsible Designer Signature:	Metin Serttunc
Company :	Cypress Engineering Group	Date Signed:	5/8/21
Address:	8 Harris Court, Suite A8	License:	M31059
City/State/Zip:	Monterey, CA 93940	Phone:	8312181802

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DIV. OF THE STATE ARCHITECT
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PROJECT

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DSA FILE NUMBER 41-26
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REVISIONS

No.	Description	Date

MILESTONES

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90% CD	
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BACKCHECK	10/06/2021

SHEET

TITLE 24 DOCUMENTS-MECHANICAL

DATE 10/06/2021

JOB # 2021005.07

SHEET # MP8.02

SYMBOL LIST:

Symbol	Description
1 / E1.1	PLAN, DETAIL OR SECTION DESIGNATION.
201	ROOM NUMBER.
1	SHEET REFERENCE SYMBOL - SEE ASSOCIATED NOTE ON SAME SHEET.
3	FEEDER SCHEDULE SYMBOL.
CH / 1	MECHANICAL EQUIPMENT TAG.
A	INDICATES FIXTURE TYPE

LUMINAIRE SYMBOLS

Symbol	Description
	LUMINAIRE - SEE SCHEDULE.
	LUMINAIRE - SEE SCHEDULE.
	LUMINAIRE - SEE SCHEDULE.
	LUMINAIRE - SEE SCHEDULE.
	POLE MOUNTED LUMINAIRE - SEE SCHEDULE.
	POLE MOUNTED LUMINAIRE - SEE SCHEDULE.
	LUMINAIRE - SEE SCHEDULE.
	LUMINAIRE - SEE SCHEDULE.
	LUMINAIRE WALL MOUNTED-SEE SCHEDULE.
	EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
EM	EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
	EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
	EMERGENCY LUMINAIRE - PROVIDE EMERGENCY BATTERY BALLAST
	EMERGENCY LUMINAIRE WALL MOUNTED- PROVIDE EM. BATTERY BALLAST
	EXIT LIGHT SINGLE FACE - SEE SCHEDULE.
	EXIT LIGHT SINGLE FACE (WITH ARROW)- SEE SCHEDULE.
	EXIT LIGHT (DOUBLE FACED WITH ARROW)- SEE SCHEDULE.
	EMERGENCY BATTERY PACK EXIT LIGHT INSTALL AS DIRECTED.

TYPICAL LUMINAIRE NOMENCLATURE

3a — INDICATES SWITCHING DESIGNATION

INDICATES CIRCUIT NUMBER

SWITCH SYMBOLS

Symbol	Description
$	SINGLE POLE SWITCH, + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
$a	SINGLE POLE SWITCH, + 48" AFF TO THE TOP OF THE OUTLET BOX, a = CIRCUIT CONTROLLED.
$3	THREE WAY SWITCH + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
$4	FOUR WAY SWITCH + 48" AFF TO THE TOP OF THE OUTLET BOX UON.
	MOTOR RATED SWITCH
LVS a	WALL MOUNTED LOW VOLTAGE "DATALINE SWITCH =48" FROM TOP OF BOX, UON, a = CIRCUIT CONTROLLED
OS	LIGHTING OCCUPANCY SENSOR
P	MOTION DETECTOR POWER PACK
OS	ONE CIRCUIT WALL SWITCH WITH BUILT IN OCCUPANCY SENSOR. CONNECT SWITCHING TO LIGHTING FIXTURES AS REQUIRED. MOUNT AT +48"AFF TO THE TOP OF THE SWITCH BOX, UON.

RECEPTACLE SYMBOLS

Symbol	Description
	CONVENIENCE RECEPTACLE - DUPLEX AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
	GFCI CONVENIENCE RECEPTACLE - DUPLEX AT +18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
	RECEPTACLE - DOUBLE DUPLEX AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
	SINGLE RECEPTACLE - NEMA 5-20R UON, AT + 18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
	SINGLE RECEPTACLE - NEMA L21 - 208 VOLT, THREE PHASE, 5 WIRE, AT + 18" AFF UON AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
C	DOUBLE DUPLEX RECEPTACLE WITH (1) CONTROLLED DUPLEX AND (1) UNCONTROLLED DUPLEX, AT +18" AFF AND NOT LESS THAN 15" FROM BOTTOM OF BOX U.O.N.
	3-CHANNEL SURFACE RACEWAY, INSTALL AT +36" AFF UON. RACEWAY SHALL BE WIREMOLD #5500.
	FLOOR BOX WITH (2) DUPLEX RECEPTACLES AND DATA OUTLETS. QUANTITY OF DATA OUTLETS AS INDICATED ON THE FLOOR PLANS.

POWER DISTRIBUTION SYMBOLS

Symbol	Description
	PANELBOARD - SURFACE OR FLUSH MOUNTED.
LCP	LIGHTING CONTROL CABINET.
EM	EMERGENCY POWER INVERTER.
J	JUNCTION BOX - CEILING OR WALL MOUNTED, SIZE PER CEC, TAPE AND TAG WIRES.
	MAIN SWITCHBOARD OR DISTRIBUTION PANEL.
M	MOTOR
30	RATING AS INDICATED.
60	UNFUSED DISCONNECT SWITCH - RATING AS INDICATED.
100	FUSED DISCONNECT SWITCH - SIZE FUSES PER MOTOR MANUFACTURER'S RECOMMENDATIONS. RATING AS INDICATED.
II	MAGNETIC STARTER - NEMA SIZE INDICATED.
T	TRANSFORMER - SEE SINGLE LINE FOR REQUIREMENTS.
	GROUND ROD.
P	IN-GRADE ELECTRICAL PULL BOX WITH TRAFFIC RATED LID.
L	IN-GRADE LIGHTING PULL BOX WITH TRAFFIC RATED LID.
C	IN-GRADE COMMUNICATION PULL BOX WITH TRAFFIC RATED LID.
EV1	SINGLE EV CHARGER FOR BUS
EV2	DOUBLE EV CHARGER FOR CAR

POWER DISTRIBUTION SINGLE LINE SYMBOLS

Symbol	Description
	DRAW-OUT CIRCUIT BREAKER.
	CIRCUIT BREAKER.
	FUSED SWITCH.
M	"PG&E" METER W/ CURRENT TRANSFORMER.
	TRANSFORMER.
	NORMALLY OPENED, AUXILIARY CONTACT.
	NORMALLY CLOSED, AUXILIARY CONTACT.
	AUTOMATIC TRANSFER SWITCH.
	EMERGENCY GENERATOR.

WIRING & CONDUIT RUN SYMBOLS

Symbol	Description
	CONDUIT - CONCEALED IN WALLS OR CEILING.
	CONDUIT - EXPOSED.
	CONDUIT - IN OR BELOW FLOOR: 3/4"MIN.
	EXISTING CONDUIT, CABLES OR DEVICE
#10 G	CONDUIT - HOME RUN TO PANEL, TERMINAL CABINET, ETC. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF #12 AWG WIRES. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. CROSSHATCHES WITH "#10" INDICATES WIRE SIZE OTHER THAN #12'S.
	FLEX CONDUIT WITH CONNECTION.
	CONDUIT - STUB UP.
	CONDUIT - STUB DOWN.
	CONDUIT EMERGENCY SYSTEM.
	CAPPED CONDUIT.
	CONDUIT CONTINUATION.

WATTSTOPPER DIGITAL LIGHTING MANAGEMENT CONTROLS

Symbol	Description
LCP	WATTSTOPPER LMCP24
LMRC 101	WATTSTOPPER LMRC-101
LMRC 211	WATTSTOPPER LMRC-211
LMRC 212	WATTSTOPPER LMRC-212
LMRC 213	WATTSTOPPER LMRC-213
PC	WATTSTOPPER LMDC-100, CEILING MOUNT
101	WATTSTOPPER LMDW-101, + 48" AFF TO TOP OF THE BOX, UON.
DL	WATTSTOPPER LMLS-500, CEILING/WALL MOUNT
$101	WATTSTOPPER LMSW-101, + 48" AFF TO TOP OF THE BOX, UON.
$102	WATTSTOPPER LMSW-102, + 48" AFF TO TOP OF THE BOX, UON.

COMMUNICATIONS SYMBOLS

Symbol	Description
	19" FLOOR MOUNTED DATA RACK.
	DATA/TEL STATION AT +18" AFF UON WITH (1) DATA OUTLET. CONNECT DATA/TEL OUTLETS OUTLETS PER THE DATA/TEL RISER DIAGRAM. STUB CONDUIT INTO AVAILABLE CEILING SPACE.
(2)	DATA/TEL STATION AT +18" AFF UON WITH (2) DATA OUTLETS. CONNECT DATA/TEL OUTLETS OUTLETS PER THE DATA/TEL RISER DIAGRAM. STUB CONDUIT INTO AVAILABLE CEILING SPACE.
WAP	(2) DATA OUTLETS FOR WIRELESS ACCESS POINT EQUIPMENT TO BE MOUNTED IN CEILING CHASE.
S	INTERIOR SPEAKER WALL MOUNTED AT + 8'-0" AFF UON. CONNECT SPEAKER PER THE PA/CLOCK RISER DIAGRAM
S	CEILING MOUNTED SPEAKER. CONNECT SPEAKER PER THE PA/CLOCK RISER DIAGRAM
S	FLUSH MOUNTED EXTERIOR SPEAKER AT +8'-0" AFF UON. CONNECT EXTERIOR SPEAKER PER THE PA/CLOCK RISER DIAGRAM.
	COMBINATION FLUSH MOUNTED CLOCK/SPEAKER DEVICE AT +8'-0" AFF UON. CONNECT CLOCK/SPEAKER PER THE PA/CLOCK RISER DIAGRAM. PROVIDE 3/4"C TO ACCESSIBLE CEILING.
	HDMI DEVICE. CONNECT PER A 4 11/16" EXTRA DEEP BOX WITH A 2 GANG RING THROUGH 1 1/4"C TO CEILING.

FIRE ALARM SYMBOLS

Symbol	Description
FACP	FIRE ALARM CONTROL PANEL.
RPS	REMOTE POWER SUPPLY.
AMP	EVAC SPEAKER AMPLIFIER.
FATC	FIRE ALARM TERMINAL CABINET.
ANN	REMOTE FIRE ALARM ANNUNCIATOR.
	SMOKE DETECTOR
F	PULL STATION
	HORN STROBE

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 BEANCHORED 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 CHAPTER 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLE HAVING A FLEIXBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 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 LINGITUDINAL DIRECTIONS:

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

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

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 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 PREAPPROVED INSTALLATION GUIDE (E.G., SMACNA OR 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 SYSTEM. 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-APPROVED (OPM #) #

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE LICENSED BY THE STATE OF CALIFORNIA C-10 AND SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE U.L. LISTED AND LABELED FOR THE APPLICATION.
2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTION FEES REQUIRED BY THIS CONTRACT WORK.
3. PRIOR TO SUBMITTING A BID THE CONTRACTOR SHALL VISIT THE SITE, REVIEW THE EXISTING CONDITIONS AND ALLOW FOR LABOR, MATERIAL AND COORDINATION THAT IS NECESSARY TO PROVIDE A COMPLETE INSTALLATION OF EACH SYSTEM. THE CONTRACTOR SHALL OBTAIN AND BE FAMILIAR WITH ALL OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK NOTED AND CALLED OUT ON ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN OTHER TRADES ON PROJECT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY, PERSONAL, PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
5. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL AT THE CONCLUSION OF THE PROJECT PROVIDE ACCURATE "AS-BUILT" DRAWINGS. "AS-BUILT" DRAWINGS SHALL SHOW ACTUAL CHANGES TO ORIGINAL ELECTRICAL DRAWING, SHOW LOCATIONS OF PULL BOXES, CONDUIT RUNS AND WIRING CHANGES. THE CONTRACTOR SHALL PROVIDE ONE (1) HARDCOPY SET OF DOCUMENT DRAWINGS AND ONE (1) SET OF DOCUMENT DRAWINGS IN ELECTRONIC CAD FILE THAT REPRESENTS THE ACTUAL "AS-BUILTS". CAD FILES SHALL BE AUTOCAD 2010 FORMAT.
6. ALL MATERIALS PROVIDED TO THE PROJECT SHALL BE NEW. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL INCIDENTAL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.
7. THE CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.
8. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED "CUTTING, PATCHING, EXCAVATION, BACKFILL AND REPAIRS" NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT START OF WORK. THE CONTRACTOR SHALL CONTACT "UNDERGROUND SERVICES ALERT" FOR LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF UNDERGROUND WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ALL EXPOSED CONDUITS AND ELECTRICAL EQUIPMENT. REFER TO ARCHITECTS PAINTING SECTION FOR REQUIREMENTS.
10. ALL ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE WEATHERPROOF. EXTERIOR CONDUITS RUN INTO BUILDINGS SHALL BE INSTALLED WITH FLASHING, CAULKED AND SEALED. CONDUITS FOR EXTERIOR ELECTRICAL DEVICES SHALL BE RUN INSIDE BUILDING UNLESS OTHERWISE NOTED ON DRAWINGS. ALL EXTERIOR CONDUITS SHALL BE "RSG" UNLESS OTHERWISE NOTED ON DRAWINGS.
11. ALL CONDUITS UNLESS OTHERWISE NOTED ON DRAWINGS SHALL HAVE AS A MINIMUM: TWO (2) #12'S WITH ONE (1) #12 GROUND. "TICK" MARKS SHOWN ON CIRCUITRY ARE FOR "ROUGH" ESTIMATING ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRES AND WIRE SIZES REQUIRED BY LATEST CODE.
12. COORDINATE ALL CONDUIT RUNS, ELECTRICAL EQUIPMENT AND PANELS WITH ALL OTHER WORK TO AVOID CONFLICTS.
13. SEE ARCHITECTURAL DOCUMENTS FOR EXACT PLACEMENT OF LIGHTING FIXTURES AND DEVICES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF CEILING TYPES FROM ARCHITECTURAL DOCUMENTS AND PROVIDE AND INSTALL ALL REQUIRED FIXTURE MOUNTING HARDWARE. PROVIDE AND INSTALL U.L. LISTED FIRE STOP ENCLOSURES FOR ALL RECESSED FIXTURES IN FIRE RATED CEILINGS.
14. THE CONTRACTOR SHALL PROVIDE IN EVERY CONDUIT A DRAW STRING FOR USE IN FUTURE CONSTRUCTION.
15. POWER FEEDERS MAY NOT BE SHOWN ON THE DRAWINGS, REFER TO THE SINGLE LINE DIAGRAM FOR CONDUIT AND FEEDER INFORMATION. ALL DRAWINGS ARE DIAGRAMMATIC INDICATING LOCATION OR POSITION OF EQUIPMENT. FIELD VERIFY CONDITIONS PRIOR TO INSTALLATION OF ANY WORK.
16. MANUFACTURER'S RECOMMENDATIONS FOR CONDUCTOR SIZING, CIRCUIT BREAKER OR FUSE PROTECTION OF ELECTRICALLY OPERATED EQUIPMENT MAY DIFFER FROM THOSE INDICATED ON DRAWINGS. CONTRACTOR SHALL CONFIRM RATINGS PRIOR TO ORDERING EQUIPMENT. PROVIDE ELECTRICAL PROTECTION TO EQUIPMENT IN ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS AND PER NATIONAL ELECTRICAL CODE REQUIREMENTS.
17. CONTRACTOR SHALL REVIEW EQUIPMENT REQUIREMENTS OF OTHER TRADES AND PROVIDE POWER CIRCUITS AND CONNECTIONS TO ELECTRICALLY OPERATED EQUIPMENT.
18. EFFECTIVELY BOND ELECTRICAL CABINETS, ENCLOSURES AND CONDUIT RACEWAYS TO CODE APPROVED GROUND AS PART OF THE CONTINUOUS GROUNDING SYSTEM.
19. MEASEURE THE 3-PHASE AND PHASE TO NEUTRAL SERVICE VOLTAGE FOR 208/120V PANELS PRIOR TO ENERGIZING ANY PANELS OR EQUIPMENT. AVOID ENERGIZING 208/120V PANELS PHASE TO NEUTRAL VOLTAGE ABOVE 130 VOLTS. TRANSFORMER TAP SETTING MAY REQUIRE CHANGING.
20. MEASURE THE 1-PHASE AND PHASE TO NEUTRAL SERVICE VOLTAGE FOR 240/120V PANELS PRIOR TO ENERGIZING ANY PANELS OR EQUIPMENT. AVOID ENERGIZING 240/120V PANELS PHASE TO NEUTRAL VOLTAGE ABOVE 130 VOLTS.
21. DO NOT SUBSTITUTE SPECIFIED MATERIAL OR EQUIPMENT WITHOUT FIRST OBTAINING APPROVAL FROM THE OWNER OR HIS REPRESENTATIVE.
22. IDENTIFY ALL ABOVE CEILING JUNCTION BOXES COVERS WITH PANEL AND CIRCUITS IN LEGIBLE PRINT USING BLACK INDELIBLE INK. ABOVE CEILING JUNCTION BOXES SHALL ALSO BE LABELED AT THE REAR INTERIOR BOX WITH AN INDELIBLE BLACK MARKER.
23. LABEL ALL WALL AND/OR WIREMOLD MOUNTED OUTLET DEVICES WITH PANEL CIRCUIT IDENTIFICATION WITH BOLD TYPE-PRINTED LABELING. BLACK LETTERING ON WHITE BACKGROUND PREFERRED.
24. DERATE CONDUCTORS IN RACEWAYS IN ACCORDANCE WITH NEC CODE REQUIREMENTS. PANEL FEEDERS TO WIREMOLDS CAN ENTER AT VARIOUS LOCATIONS TO LIMIT CONDUCTOR CIRCUITS PER WIREMOLD CAPACITIES.

DRAWING INDEX

SHEET NO.	SHEET TITLE
E0.1	ELECTRICAL COVER SHEET
E1.1	ELECTRICAL SITE PLAN
E2.1	ELECTRICAL DEMO FLOOR PLANS - BUILDINGS A, B, C & D
E2.2	ELECTRICAL DEMO FLOOR PLANS - SCIENCE BUILDING
E2.3	ELECTRICAL DEMO PARTIAL FLOOR PLAN - BUILDING G
E2.4	ELECTRICAL DEMO PARTIAL FLOOR PLAN - BUILDING G
E3.1	ELECTRICAL NEW FLOOR PLANS - BUILDINGS A, B, C & D
E3.2	ELECTRICAL NEW FLOOR PLANS - SCIENCE BUILDING
E3.3	ELECTRICAL NEW PARTIAL FLOOR PLAN - BUILDING G
E3.4	ELECTRICAL NEW PARTIAL FLOOR PLAN - BUILDING G
E4.1	DEMO SINGLE LINE DIAGRAM
E4.2	NEW SINGLE LINE DIAGRAM
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E4.4	PANEL SCHEDULES
E5.1	ELECTRICAL DETAILS
E5.2	ELECTRICAL DETAILS

ABBREVIATIONS

A	AMPERE
ABV	ABOVE
AF	AMP FRAME OR AMP FUSE
AFF	ABOVE FINISHED FLOOR
ARCH	ARCHITECTURAL
AS	AMP SWITCH
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CD	CANDELAS
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CO	CONDUIT ONLY
CTR	CENTER
(D)	DEMOLISH
DET	DETAIL
DIM	DIMENSION
DISTR	DISTRIBUTION
DWG	DRAWING
(E)	EXISTING
EM	EMERGENCY
EQPT	EQUIPMENT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
(F)	FUTURE
FIN	FINISH
FL	FLOOR
G , GND	GROUND
HGT	HEIGHT
HP	HORSEPOWER
IC	INTERCOM
IDF	INTERMEDIATE DISTRIBUTION FRAME
JB	JUNCTION BOX
KAIC	KILOAMPERE INTERRUPTING CAPACITY
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LTG	LIGHTING
MCM	THOUSAND CIRCULAR MILS
MDF	MAIN DISTRIBUTION FRAME
MECH	MECHANICAL
MH	MANHOLE
MTD	MOUNTED
MTG	MOUNTING
(N)	NEW
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NIEC	NOT IN ELECTRICAL CONTRACT
NO	NUMBER/ NORMALLY OPEN
NTS	NOT TO SCALE
O.C.	ON CENTER
P	POLE CIRCUIT BREAKER
PA	PUBLIC ADDRESS
PB	PULL BOX
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
(R)	EXISTING TO BE RELOCATED
REQD	REQUIRED
REQT	REQUIREMENT(S)
RM	ROOM
RSC	RIGID STEEL CONDUIT
SHT	SHEET
SW	SWITCH
SWBD	SWITCHBOARD
TC	TERMINAL CABINET
TEL	TELEPHONE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT
W	WATT
WP	WEATHERPROOF
XFMR	TRANSFORMER

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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER
E16890
Exp. 06/30/22
ELECTRICAL
STATE OF CALIFORNIA

American Consulting Engineers Electrical, Inc.

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

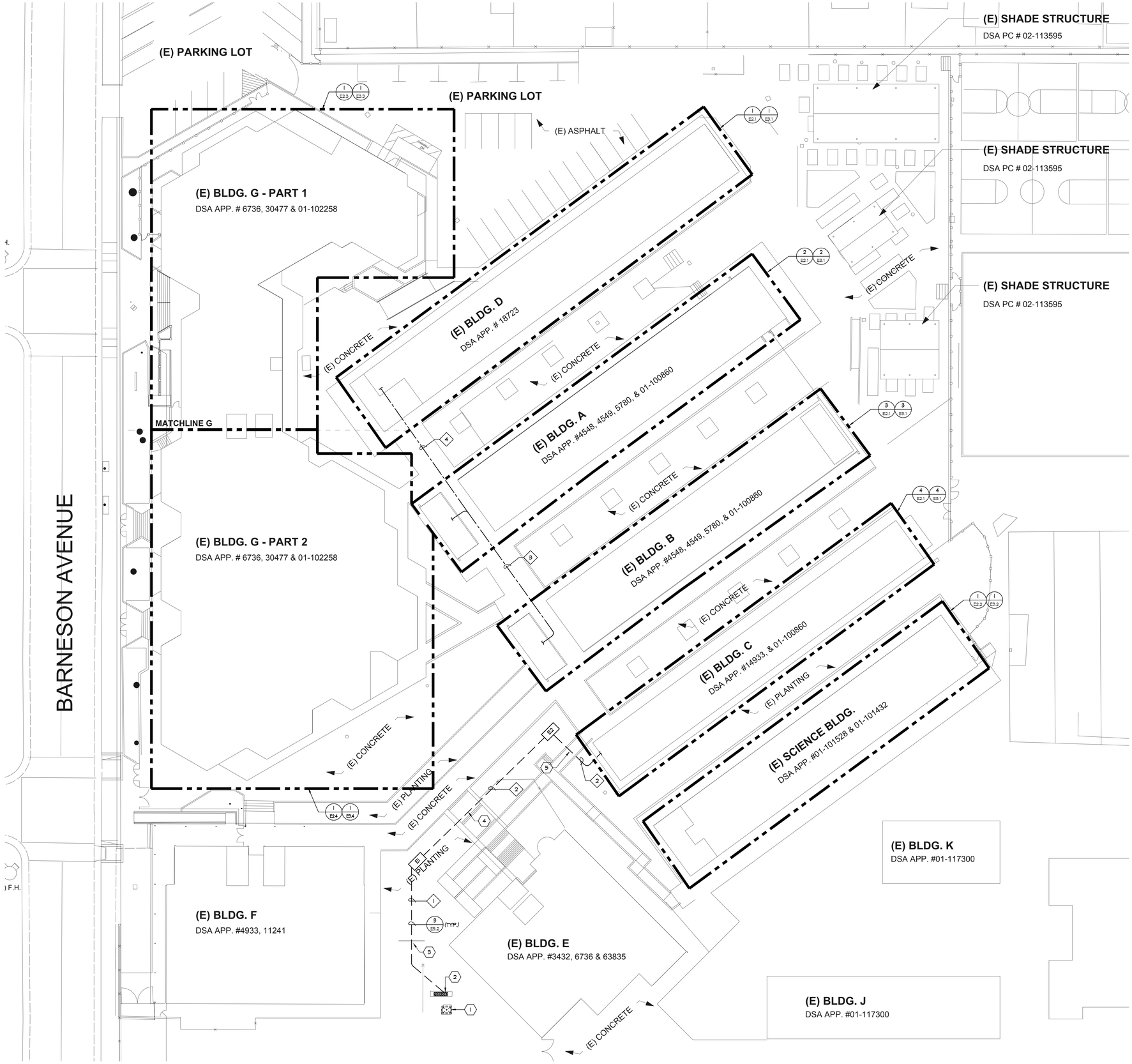
ELECTRICAL COVER SHEET

DATE 10/06/2021

JOB # 2021005.07

SHEET #

E0.1



GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE UNDERGROUND REQUIREMENTS WITH ALL OTHER TRADES TO AVOID CONFLICTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SAW CUTTING AND REMOVAL OF EXISTING SURFACES TO FACILITATE UNDERGROUND SYSTEMS. THE CONTRACTOR SHALL PATCH AND REPAIR ALL DAMAGED AND CUT SURFACES TO MATCH ADJACENT.
3. CONTRACTOR TO SITE SURVEY EXISTING CONDITIONS AND LOCATIONS OF EXISTING UNDERGROUND SYSTEMS, WHERE NEW TRENCH WORK OCCURS PRIOR TO BIDDING. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO ENSURE EXISTING UNDERGROUND SYSTEMS/CONDUIT/PIPES ARE NOT DAMAGED DURING INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIRS REQUIRED IN THE EVENT THE EXISTING UNDERGROUND SYSTEMS ARE DAMAGED AS A RESULT OF THE NEW ELECTRICAL TRENCH WORK.
4. ALL ON SITE TRENCH SHALL BE INSTALLED PER 5/ E5.2.
5. SEE DEMO SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
6. SEE NEW SINGLE LINE DIAGRAM FOR FEEDER CABLE AND CONDUIT REQUIREMENTS.

SHEET NOTES:

1. EXISTING PG&E TRANSFORMER TO REMAIN.
2. EXISTING MAIN SWITCHBOARD. STUB NEW CONDUIT INTO EXISTING SWITCHBOARD AS REQUIRED.
3. EXISTING RETAINING WALL AT THIS LOCATION. ROUTE NEW CONDUIT AS REQUIRED.
4. EXISTING STAIRS AT THIS LOCATION. ROUTE NEW CONDUIT AS REQUIRED.
5. EXISTING RAMP AT THIS LOCATION. ROUTE NEW CONDUIT AS REQUIRED.

CONDUIT SCHEDULE:

1. (N) (2) 2"C - FNL 'GM'
   (N) (2) 4"C - FUTURE BLDG 'F'
2. (N) (2) 2"C - FNL 'GM'
3. (N) (2) 3"C - FNL 'AM'
   (N) (2) 3"C - FNL 'DM'
4. (N) (2) 3"C - FNL 'DM'

PULLBOX SCHEDULE:

E1 - NEW B3048 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.

E2 - NEW B2436 ELECTRIC / POWER PULLBOX WITH TRAFFIC RATED LID. LABEL LID 'POWER'.

1 E1.1 **ELECTRICAL SITE PLAN**
SCALE: 1"=20'-0"

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SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER
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APPL # 01-119557

REVISIONS

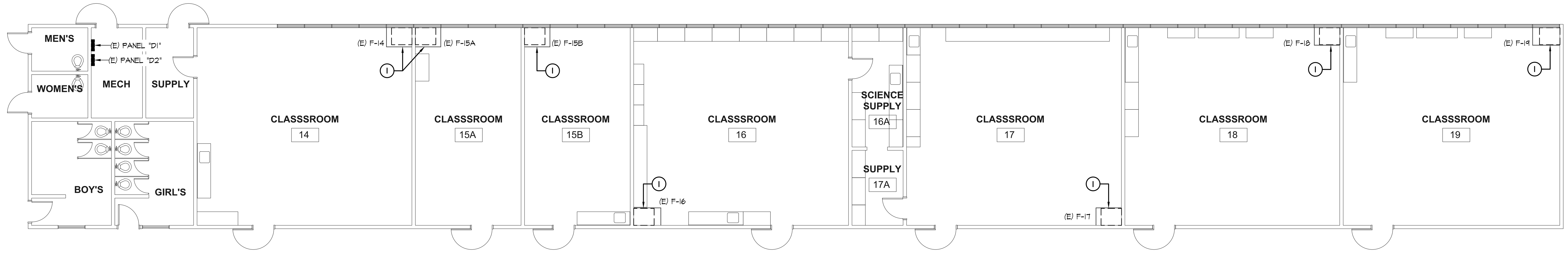
No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET
ELECTRICAL SITE PLAN

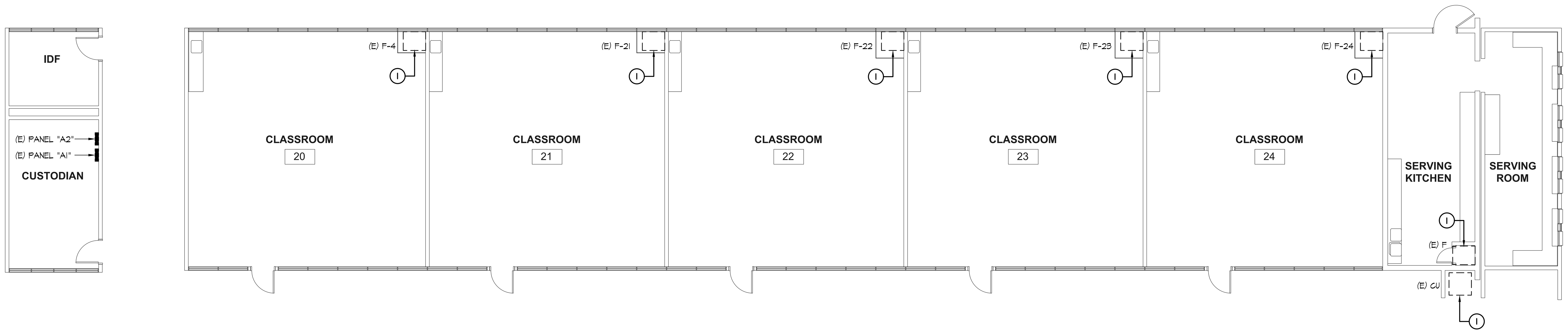
DATE 10/06/2021
JOB # 2021005.07
SHEET # E1.1



1 E2.1 **ELECTRICAL DEMO FLOOR PLAN - BLDG D**

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

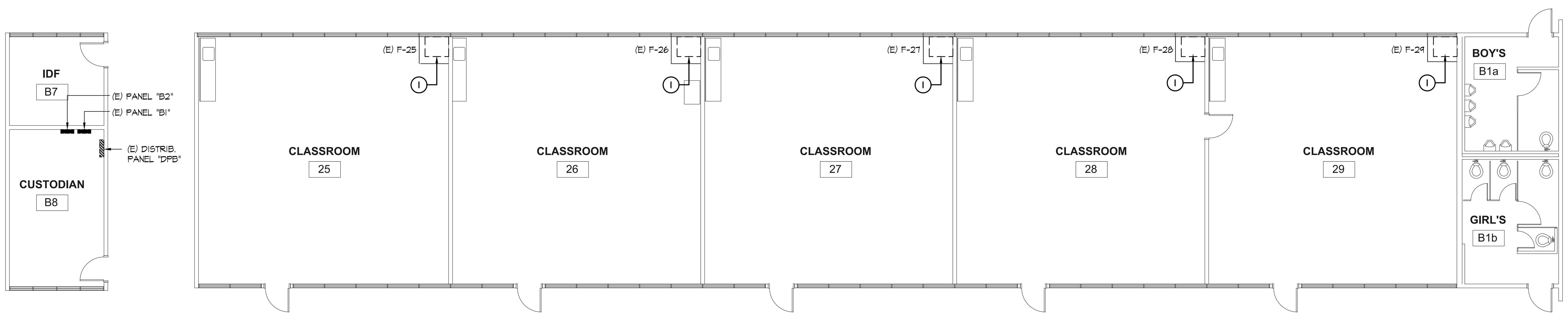
N



2 E2.1 **ELECTRICAL DEMO FLOOR PLAN - BLDG A**

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

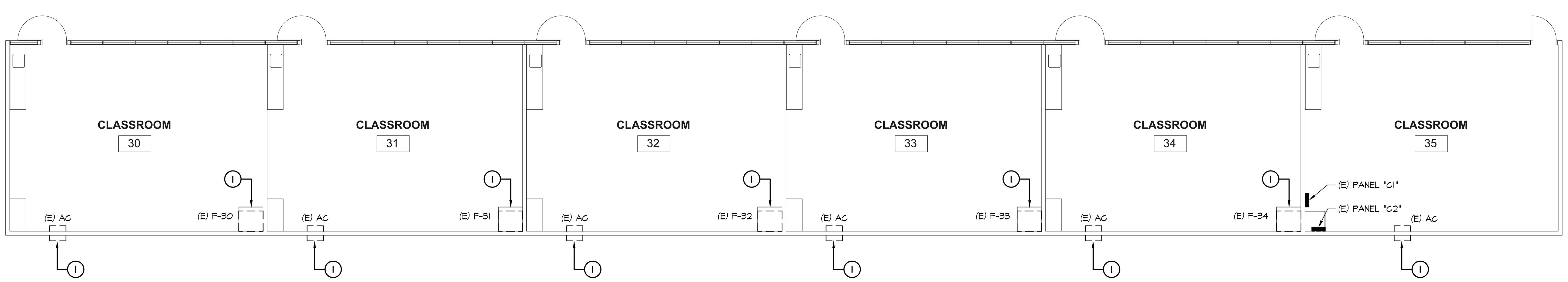
N



3 E2.1 **ELECTRICAL DEMO FLOOR PLAN - BLDG B**

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

N



4 E2.1 **ELECTRICAL DEMO FLOOR PLAN - BLDG C**

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

N

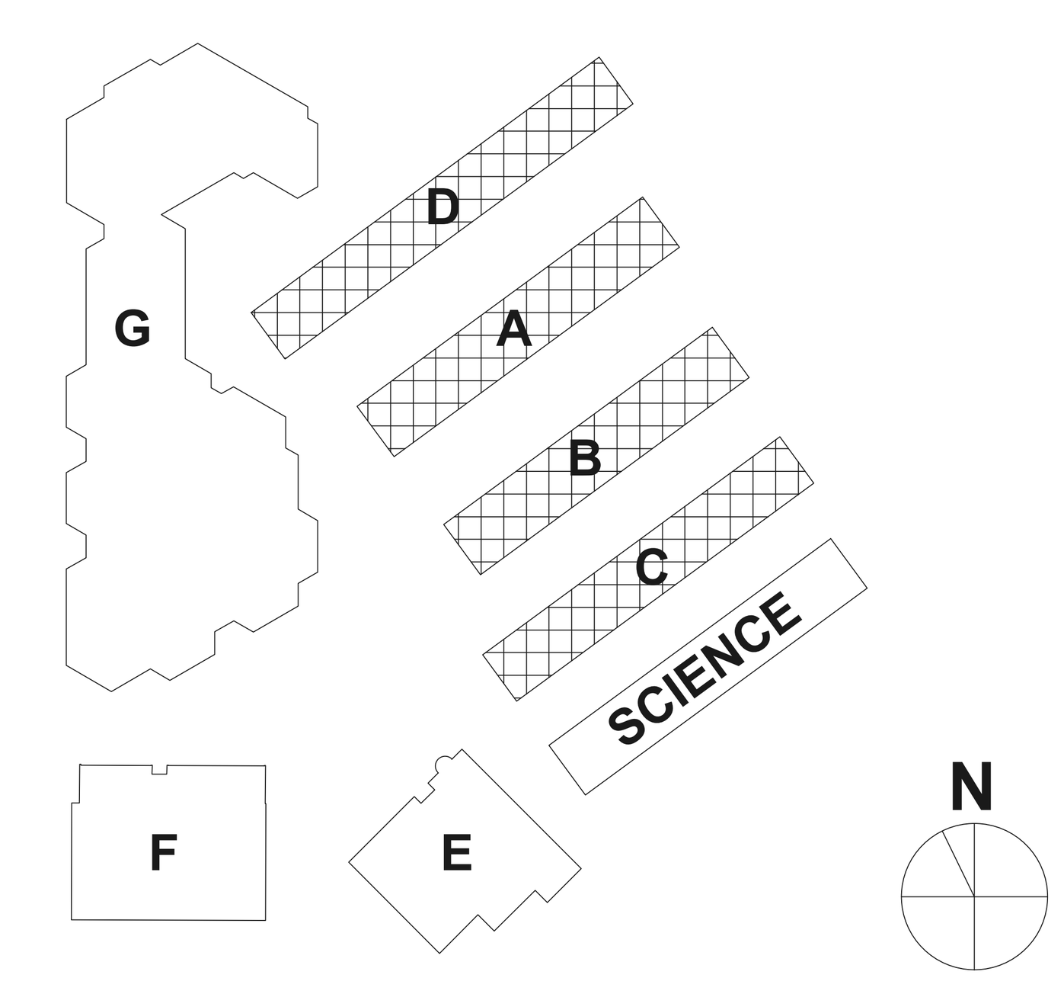
GENERAL NOTES:

1. CONTRACTOR SHALL REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL DEMO REQUIREMENTS.
2. EXISTING ELECTRICAL PANELS ARE TO REMAIN.
3. SEE NEW ELECTRICAL FLOOR PLANS FOR ADDTIONAL REQUIREMENTS.
4. SEE DEMO AND NEW SINGLE LINE DIAGRAMS FOR ADDTIONAL REQUIREMENTS.

DEMOLITION SHEET NOTES:

(1) EXISTING MECHANICAL UNIT TO BE DEMOLISHED. PULL EXISTING ELECTRICAL CIRCUITRY BACK TO SOURCE AND REMOVE. REMOVE ALL CONDUITS, J-BOXES AND DISCONNECT SWITCH ASSOCIATED WITH THE DEMOLISHED UNIT.

BUILDING KEY



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MILESTONES

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SHEET

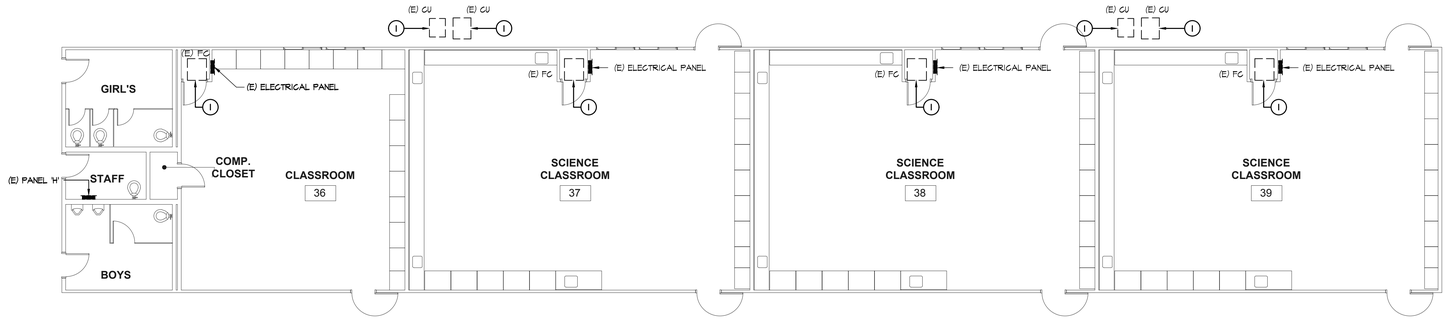
ELECTRICAL DEMO FLOOR PLANS - BLDGS A, B, C & D

DATE 10/06/2021

JOB # 2021005.07

SHEET #

E2.1



1 E2.2 **ELECTRICAL DEMO FLOOR PLAN - SCIENCE BLDG**

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

N

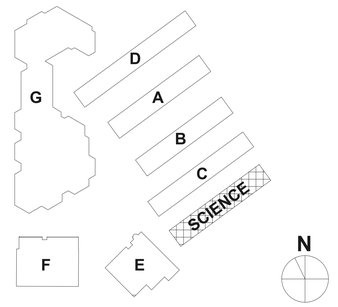
GENERAL NOTES:

1. CONTRACTOR SHALL REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL DEMO REQUIREMENTS.
2. EXISTING ELECTRICAL PANELS ARE TO REMAIN.
3. SEE NEW ELECTRICAL FLOOR PLANS FOR ADDTIONAL REQUIREMENTS.
4. SEE DEMO AND NEW SINGLE LINE DIAGRAMS FOR ADDTIONAL REQUIREMENTS.

DEMOLITION SHEET NOTES:

(1) EXISTING MECHANICAL UNIT TO BE DEMOLISHED. PULL EXISTING ELECTRICAL CIRCUITRY BACK TO SOURCE AND REMOVE. REMOVE ALL CONDUITS, J-BOXES AND DISCONNECT SWITCH ASSOCIATED WITH THE DEMOLISHED UNIT.

BUILDING KEY



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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER
GARY S. FERRARO
E16890
Exp. 06/30/23
ELECTRICAL
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San Jose, CA 95126 Fax: 408/236-2316
JOB # EX21030.00

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ELECTRICAL DEMO FLOOR PLAN - SCIENCE BLDG

DATE 10/06/2021
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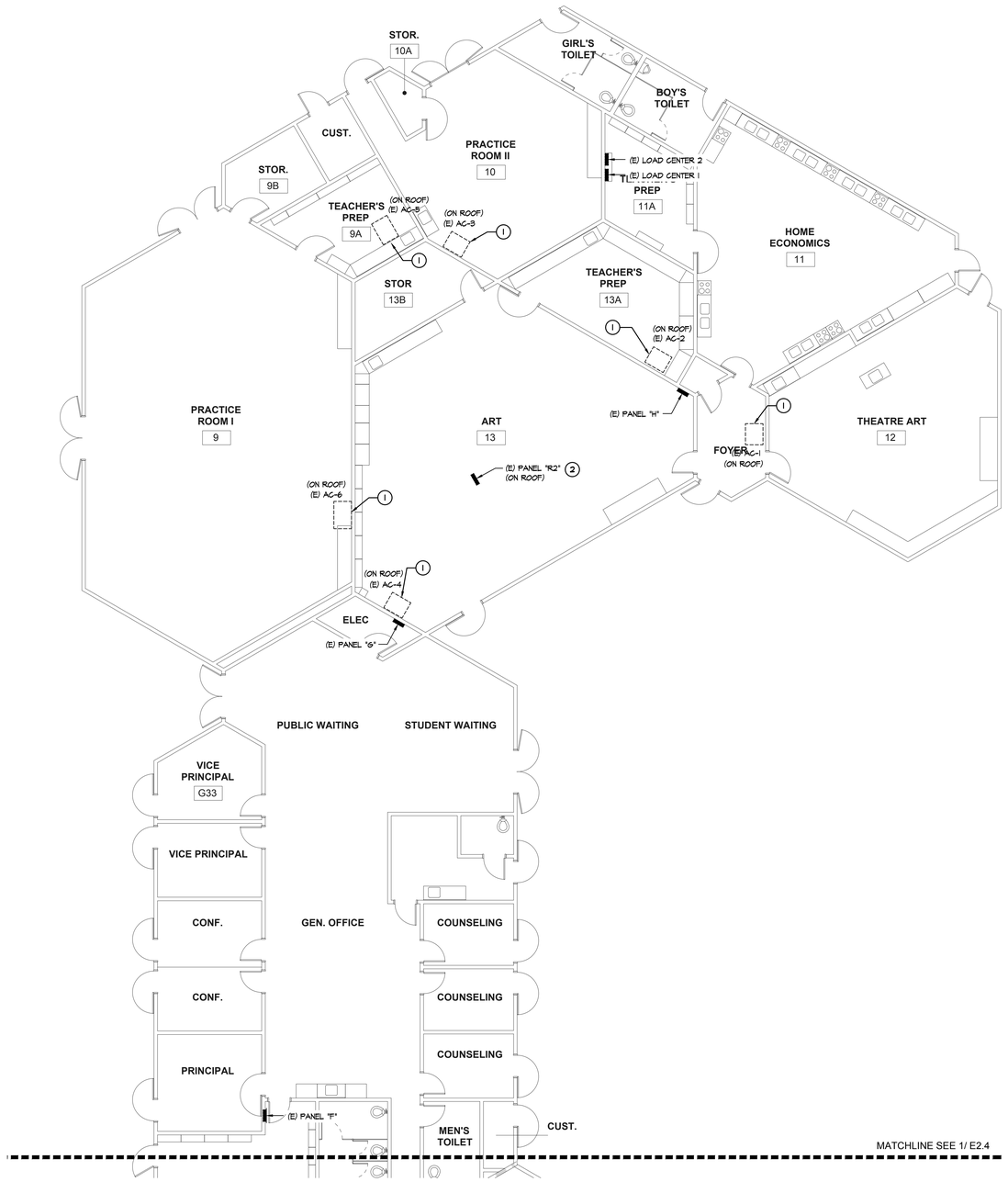
SHEET # E2.2



1 E2.3 **ELECTRICAL DEMO PARTIAL FLOOR PLAN - BLDG G**

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

N

GENERAL NOTES:

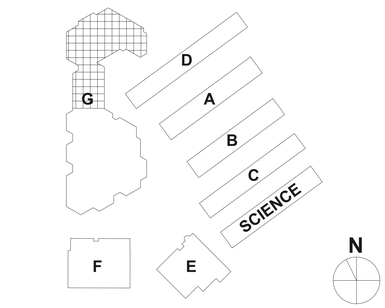
1. CONTRACTOR SHALL REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL DEMO REQUIREMENTS.
2. EXISTING ELECTRICAL PANELS ARE TO REMAIN.
3. SEE NEW ELECTRICAL FLOOR PLANS FOR ADDTIONAL REQUIREMENTS.
4. SEE DEMO AND NEW SINGLE LINE DIAGRAMS FOR ADDTIONAL REQUIREMENTS.

DEMOLITION SHEET NOTES:

(1) EXISTING MECHANICAL UNIT TO BE DEMOLISHED. PULL EXISTING ELECTRICAL CIRCUITRY BACK TO SOURCE AND REMOVE. REMOVE ALL CONDUITS, J-BOXES AND DISCONNECT SWITCH ASSOCIATED WITH THE DEMOLISHED UNIT.

(2) EXISTING ROOF MOUNTED ELECTRICAL PANEL IS TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW. EXISTING UNISTRUT MOUNTING SUPPORTS AND ARE TO REMAIN FOR REUSE.

BUILDING KEY



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ELECTRICAL DEMO PARTIAL FLOOR PLAN - BLDG G

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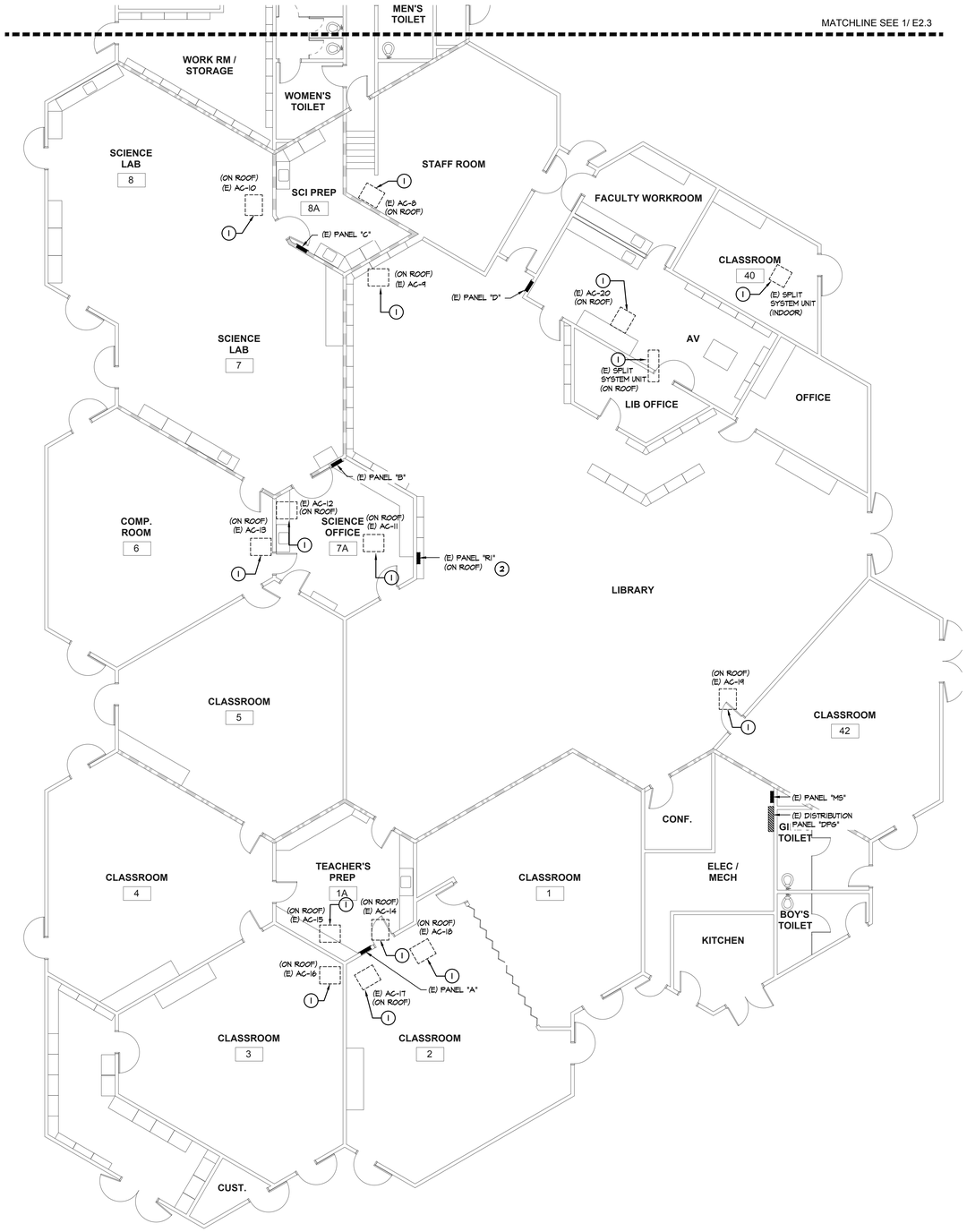


1 / E2.4 **ELECTRICAL DEMO PARTIAL FLOOR PLAN - BLDG G**

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

N

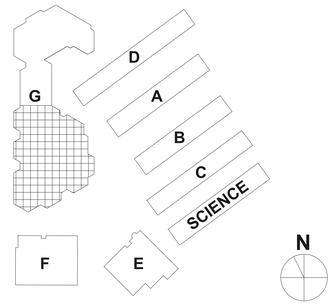
GENERAL NOTES:

1. CONTRACTOR SHALL REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL DEMO REQUIREMENTS.
2. EXISTING ELECTRICAL PANELS ARE TO REMAIN.
3. SEE NEW ELECTRICAL FLOOR PLANS FOR ADDTIONAL REQUIREMENTS.
4. SEE DEMO AND NEW SINGLE LINE DIAGRAMS FOR ADDTIONAL REQUIREMENTS.

DEMOLITION SHEET NOTES:

1. EXISTING MECHANICAL UNIT TO BE DEMOLISHED. PULL EXISTING ELECTRICAL CIRCUITRY BACK TO SOURCE AND REMOVE. REMOVE ALL CONDUITS, J-BOXES AND DISCONNECT SWITCH ASSOCIATED WITH THE DEMOLISHED UNIT.
2. EXISTING ELECTRICAL PANEL IS TO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW. EXISTING UNISTRUT MOUNTING SUPPORTS AND ARE TO REMAIN FOR REUSE.

BUILDING KEY



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ELECTRICAL DEMO PARTIAL FLOOR PLAN - BLDG G

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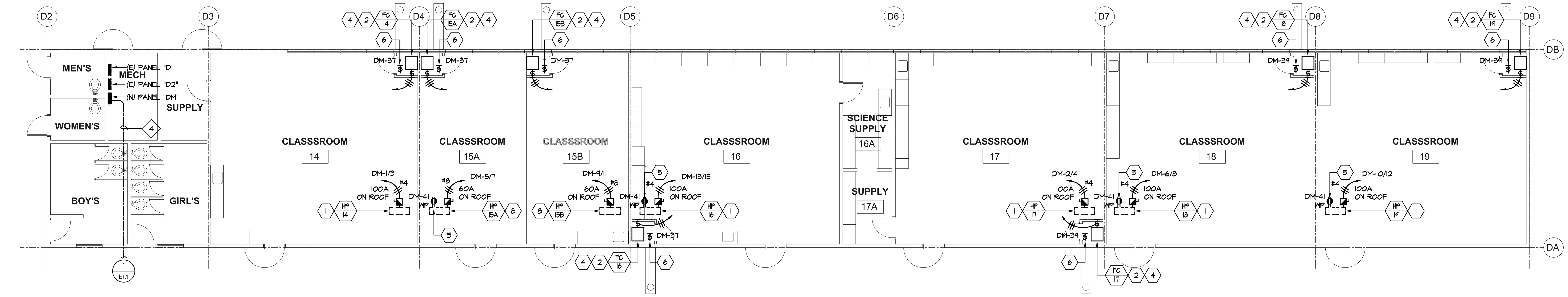
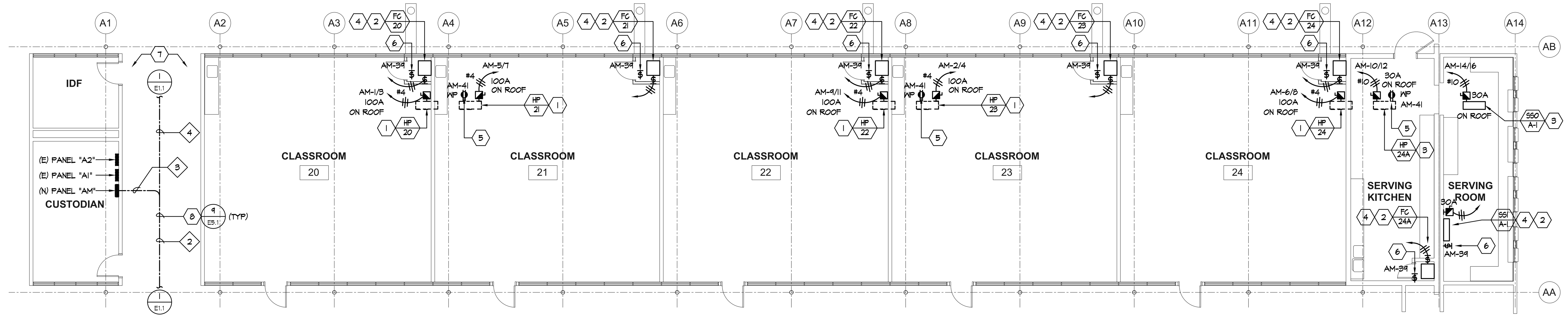
SHEET # E2.4



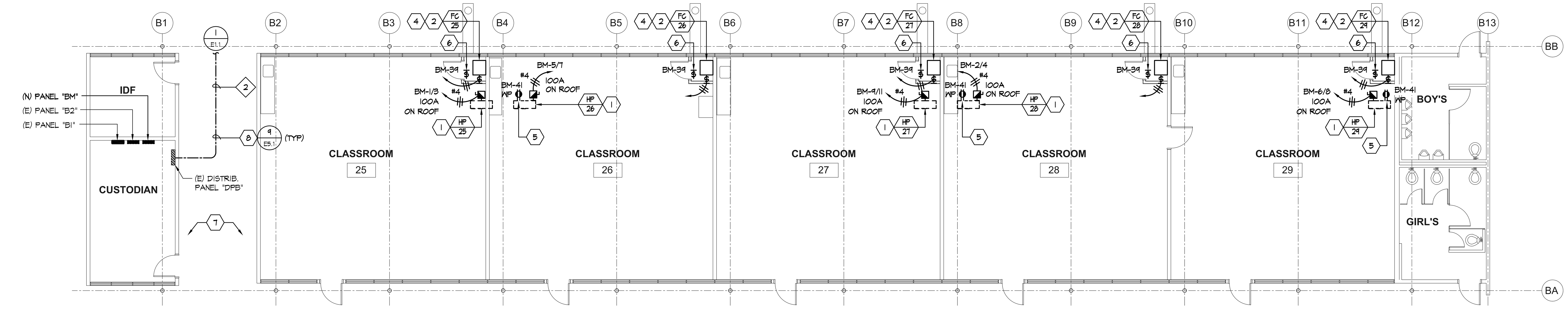
1 E3.1 **ELECTRICAL NEW FLOOR PLAN - BLDG D**

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



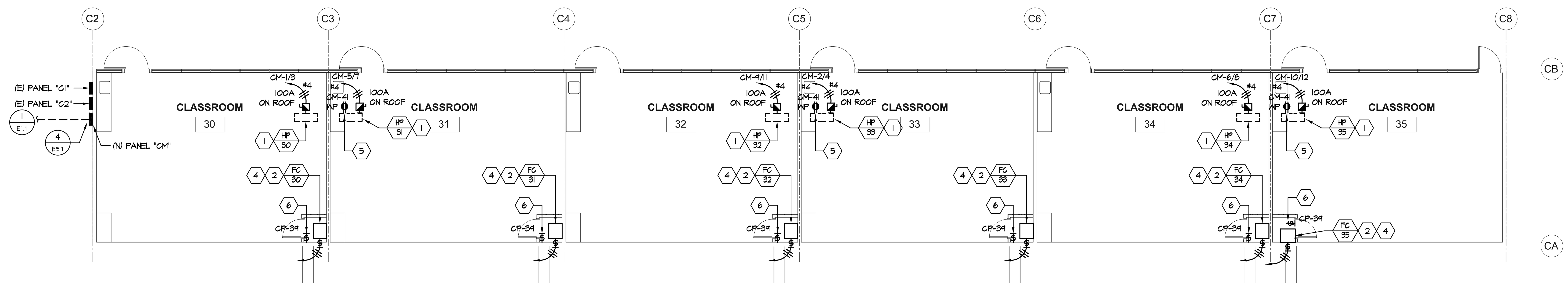
2 E3.1 **ELECTRICAL NEW FLOOR PLAN - BLDG A**

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



3 E3.1 **ELECTRICAL NEW FLOOR PLAN - BLDG B**

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



4 E3.1 **ELECTRICAL NEW FLOOR PLAN - BLDG C**

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

GENERAL NOTES:

1. ALL CONDUITS SHALL BE ROUTED CONCEALED IN CEILING BELOW WHERE POSSIBLE. ALL EXPOSED CONDUITS SHALL BE PAINTED.
2. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND POINTS OF CONNECTION FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR. ADJUST LOCATION AND CONNECTION POINTS AS NEEDED.
3. SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM FOR POWER CONNECTION REQUIREMENTS.
4. COORDINATE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL REQUREMENTS.
5. FUSED AND UNFUSED DISCONNECT SWITCHES SHALL BE 600V RATED, HEAVY DUTY CYCLE. FUSES FOR MECHANICAL UNITS SHALL BE SIZED PER THE MANUFACTURER'S RECOMMENDATION.

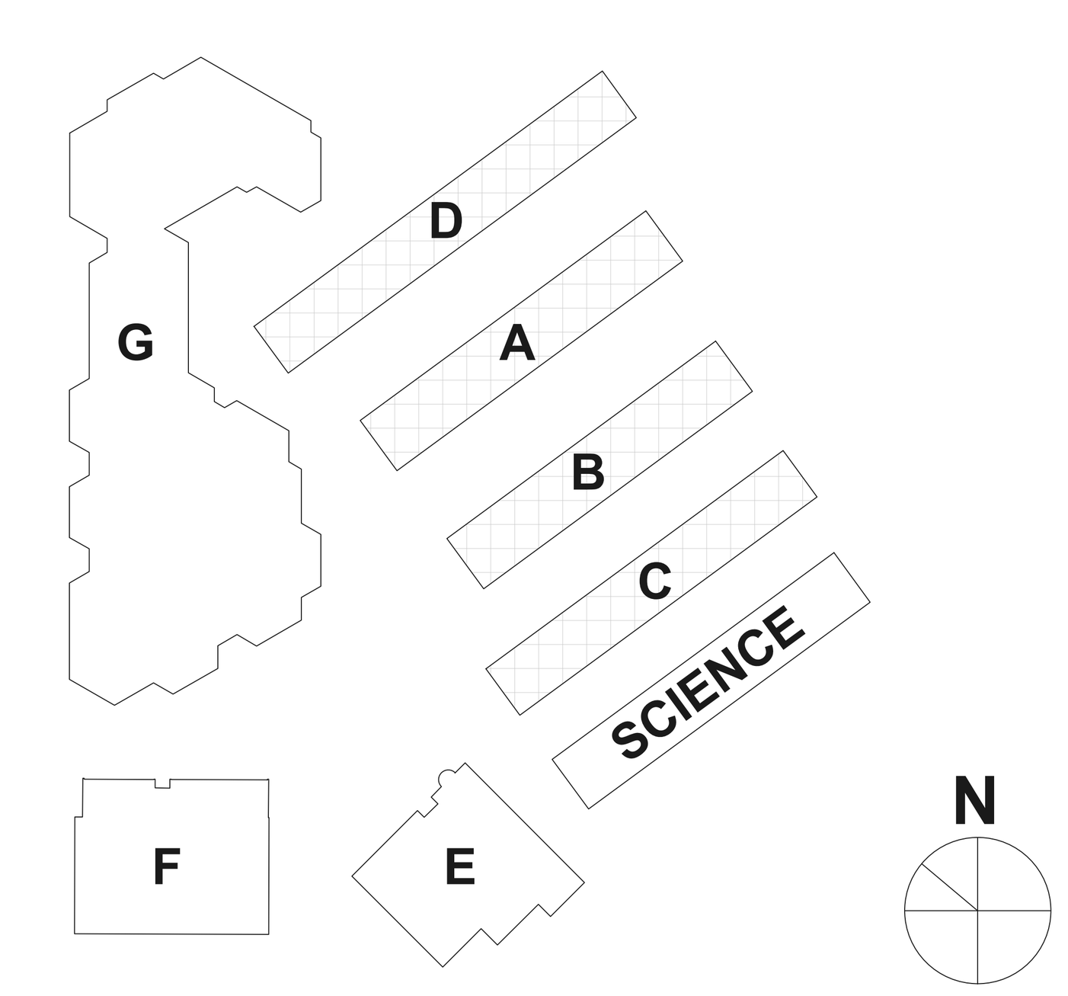
SHEET NOTES:

1. NEW 100A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
2. NEW 30A-2P, NEMA-1, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
3. NEW 30A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
4. INDOOR UNIT IS POWER BY THE OUTDOOR UNIT. ROUTE HOMERUN CIRCUIT TO ASSOCIATED OUTDOOR UNIT. REFER TO MECHANICAL SCHEDULE MP0.02 FOR ADDITIONAL REQUIREMENTS.
5. PROVIDE NEW WEATHERPROOF GFCI RECEPTACLE. RECEPTACLE SHALL BE MOUNTED ON A WEATHERPROOF BOX WITH WHILE-IN-USE COVER. COVER SHALL BE INTERMATIC WP1010MXD "BOSS".
6. PROVIDE MOTOR RATED SWITCH AND 120V POWER FOR CONDENSATION PUMP.
7. MOUNT CONDUIT ADJACENT TO CHASE AND ROUTE ACROSS THE HALLWAY.
8. NEW 60A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
9. ROUTE CONDUIT BELOW CANOPY.

CONDUIT SCHEDULE:

1. (N) (2) 2"C - PNL 'CM'
2. (N) (2) 3"C - PNL 'AM'
   (N) (2) 3"C - PNL 'DM'
3. (N) (2) 3"C - PNL 'AM'
4. (N) (2) 3"C - PNL 'DM'

BUILDING KEY



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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER SAMMY S. FERNANDEZ E16890 Exp. 06/30/23 ELECTRICAL STATE OF CALIFORNIA

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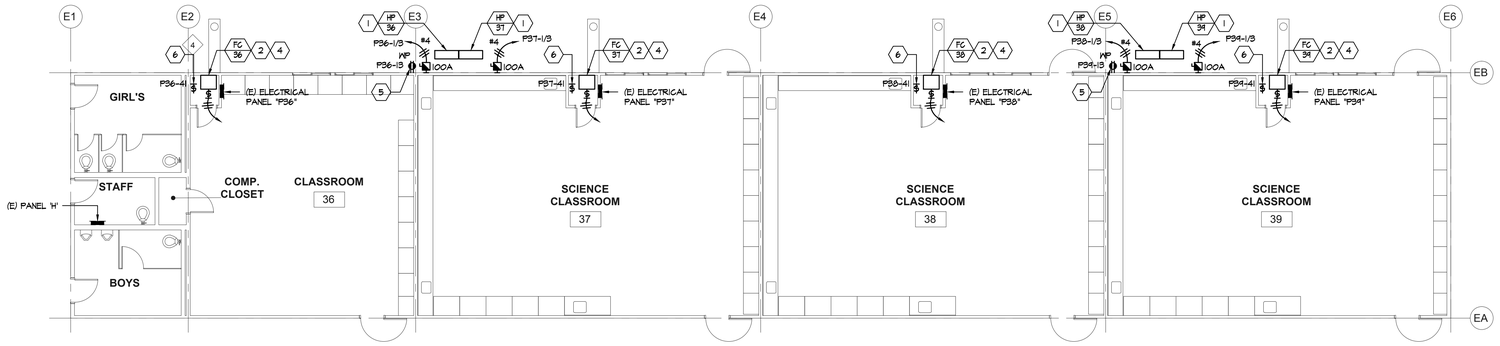
ELECTRICAL NEW FLOOR PLANS - BLDGS A, B, C & D

DATE 10/06/2021
JOB # 2021005.07
SHEET # E3.1



1 / E3.2 **ELECTRICAL NEW FLOOR PLAN - SCIENCE BLDG**

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

N

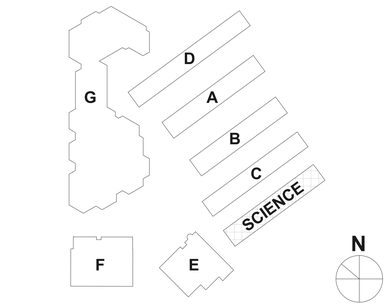
GENERAL NOTES:

1. ALL CONDUITS SHALL BE ROUTED CONCEALED IN CEILING BELOW WHERE POSSIBLE. ALL EXPOSED CONDUITS SHALL BE PAINTED.
2. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND POINTS OF CONNECTION FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR. ADJUST LOCATION AND CONNECTION POINTS AS NEEDED.
3. SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM FOR POWER CONNECTION REQUIREMENTS.
4. COORDINATE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
5. FUSED AND UNFUSED DISCONNECT SWITCHES SHALL BE 600V RATED, HEAVY DUTY CYCLE. FUSES FOR MECHANICAL UNITS SHALL BE SIZED PER THE MANUFACTURER'S RECOMMENDATION.

SHEET NOTES:

1. NEW 100A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
2. NEW 30A-2P, NEMA-1, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
3. NEW 30A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
4. INDOOR UNIT IS POWER BY THE OUTDOOR UNIT. ROUTE HOMERUN CIRCUIT TO ASSOCIATED OUTDOOR UNIT. REFER TO MECHANICAL SCHEDULE MP0.02 FOR ADDITIONAL REQUIREMENTS.
5. PROVIDE NEW WEATHERPROOF GFCI RECEPTACLE. RECEPTACLE SHALL BE MOUNTED ON A WEATHERPROOF BOX WITH WHILE-IN-USE COVER. COVER SHALL BE INTERMATIC MPKIMMD "BOSS". PROVIDE NEW 20A, 1 POLE CIRCUIT BREAKER FOR RECEPTACLE IN (E) PANEL.
6. PROVIDE MOTOR RATED SWITCH AND 120V POWER FOR CONDENSATION PUMP.

BUILDING KEY



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ELECTRICAL NEW FLOOR PLANS - SCIENCE BLDG

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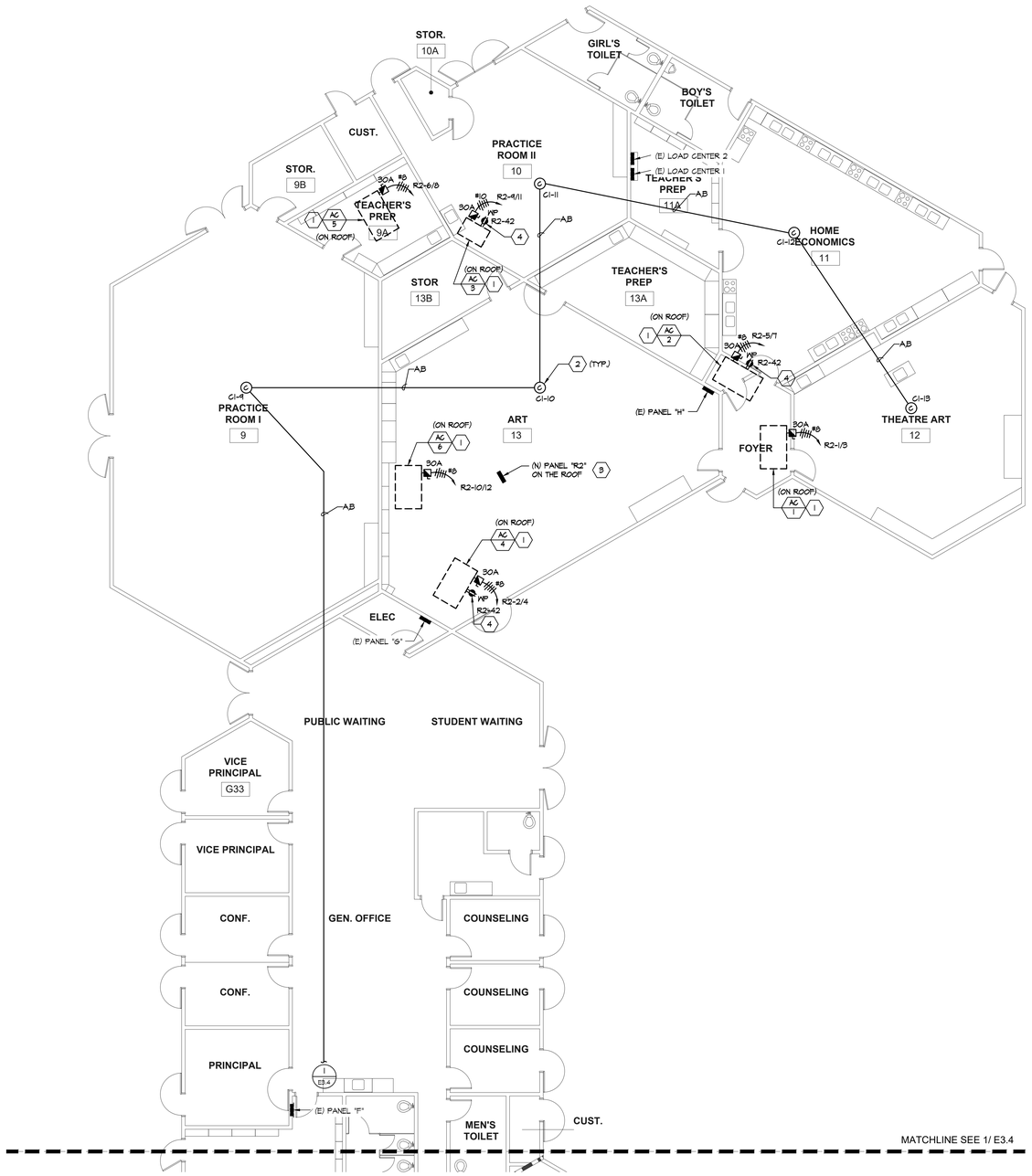


1 E3.3 ELECTRICAL NEW PARTIAL FLOOR PLAN - BLDG G

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

N

GENERAL NOTES:

1. ALL CONDUITS SHALL BE ROUTED CONCEALED IN CEILING BELOW WHERE POSSIBLE. ALL EXPOSED CONDUITS SHALL BE PAINTED.
2. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND POINTS OF CONNECTION FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR. ADJUST LOCATION AND CONNECTION POINTS AS NEEDED.
3. SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM FOR POWER CONNECTION REQUIREMENTS.
4. COORDINATE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
5. FUSED AND UNFUSED DISCONNECT SWITCHES SHALL BE 600V RATED, HEAVY DUTY CYCLE. FUSES FOR MECHANICAL UNITS SHALL BE SIZED PER THE MANUFACTURER'S RECOMMENDATION.
6. SEE DETAIL 2/E5.1 FOR ROOF CONDUIT SUPPORT DETAIL.
7. SEE DETAIL 3/E5.1 FOR NEMA-4 PULL BOX ON ROOF DETAIL.
8. VISUAL NOTIFICATION IS NOT REQUIRED FOR CO DETECTION PER CBC 11B-215.1.

SHEET NOTES:

1. NEW 30A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
2. NEW CARBON MONOXIDE DETECTOR. ROUTE NEW SLC CONNECTION BACK TO EXISTING FIRE ALARM CONTROL PANEL NOTIFIER NFS2-3030 AS REQUIRED.
3. INSTALL NEW PANEL IN THE EXISTING LOCATION ON THE EXISTING ROOF MOUNTED SUPPORTS. NEW PANEL IS THE SAME SIZE AND WEIGHT AS THE PREVIOUS PANEL. CONNECT NEW FEEDERS AND BRANCH CIRCUITS TO PANEL.
4. PROVIDE NEW WEATHERPROOF GFCI RECEPTACLE. RECEPTACLE SHALL BE MOUNTED ON A WEATHERPROOF BOX WITH WHILE-IN-USE COVER. COVER SHALL BE INTERMATIC WP1011MXD "BOSS".

CABLE SCHEDULE:

A - (1) #14 UNSHIELDED TWISTED PAIR FOR SIGNALING LINE CIRCUITS.
B - (2) #12 FOR 24V POWER (BEAM SMOKE DETECTOR)

EQUIPMENT SCHEDULE:

C	FIRE ALARM: (N) CARBON MONOXIDE DETECTOR W/ BASE MODEL: NOTIFIER FSCO-451/B200S CSFM: 5218-0028:511/7300-1655:104
APS	FIRE ALARM: (N) AUXILIARY POWER SUPPLY MODEL: NOTIFIER FCPS 24S8 CSFM: 7315-0028:225

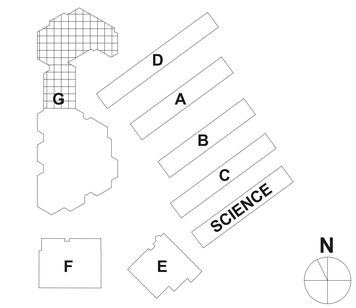
(E) FIRE ALARM CONTROL PANEL NFS 320 - BATTERY CALCULATION

QUANTITY	MODEL #	DEVICE	SUPV. CURRENT PER	TOTAL SUPV. CURRENT	ALARM ALARM CURRENT	TOTAL ALARM CURRENT
		FIRE ALARM CONTROL PANEL				
1	CPU-NFS 320	FACP CENTRAL PROCESSING UNIT	0.6600	0.66	0.8600	0.86
		(E) SLC DEVICES				
37		SMOKE DETECTOR/BASE	0.0000	0.0000	0.0040	0.1480
13		HEAT DETECTOR/BASE	0.0000	0.0000	0.0040	0.0520
2		DUCT DETECTOR/DNR HOUSING	0.0000	0.0000	0.0010	0.0020
68		PULL STATION	0.0000	0.0000	0.0010	0.0680
4		RELAY MODULE	0.0010	0.0000	0.0010	0.0040
5		MONITOR MODULE	0.0010	0.0000	0.0010	0.0050
5		CONTROL MODULE	0.0010	0.0000	0.0010	0.0050
6		CO DETECTOR	0.0000	0.0000	0.0010	0.0060
		(E) NOTIFICATION DEVICES				
4		HORN/STROBE 75CD - 0.50 WATT	0.00	0.00	0.236	0.944
2		HORN/STROBE 30CD - 0.50 WATT	0.00	0.00	0.154	0.308
1		HORN/STROBE 15CD - 0.50 WATT	0.00	0.00	0.134	0.134
4		STROBE 15CD - 0.25 WATT	0.00	0.00	0.078	0.312
		(N) SLC DEVICES				
12	FSCO-451	CARBON MONOXIDE	0.0002	0.0008	0.0045	0.018
			Max. Supv. Current		Max. Alarm Current	2.87

Maximum Supervisory Current:	0.66
Standby Period 24 hour:	24
Total Supervisory Reserve:	15.86 (A)
Maximum Alarm Current:	2.87
Alarm Period (15 minute)	0.249
Total Alarm Reserve:	0.71 (B)
Total Reserve Current: (A + B)	16.57
Safety Margin (20%)	1.2
Total Ampere Hours Required:	19.84

(E) Battery: 2- 12V 35 Ampere Hour

UILDING KEY



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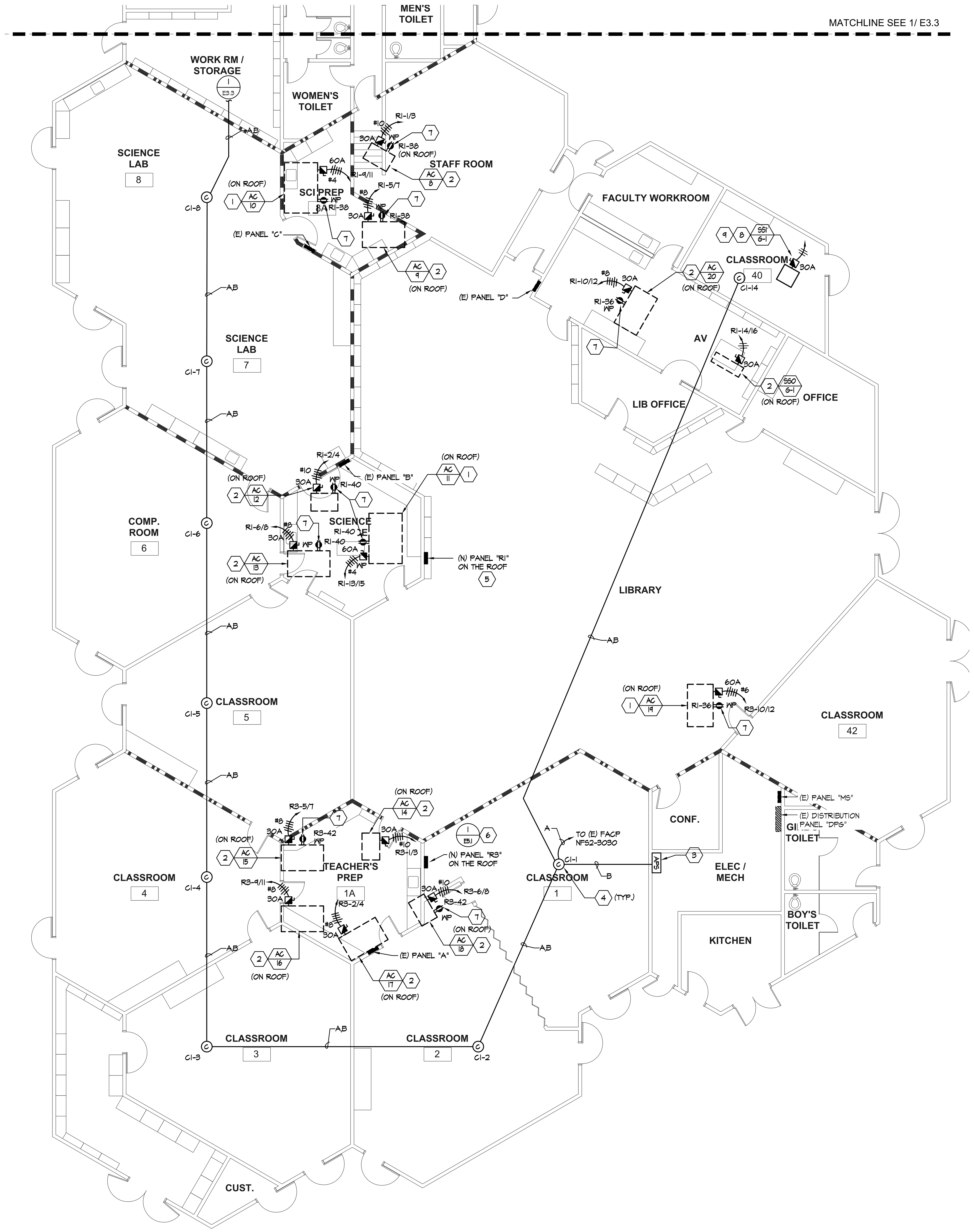


1 / E3.4 **ELECTRICAL NEW PARTIAL FLOOR PLAN - BLDG G**

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

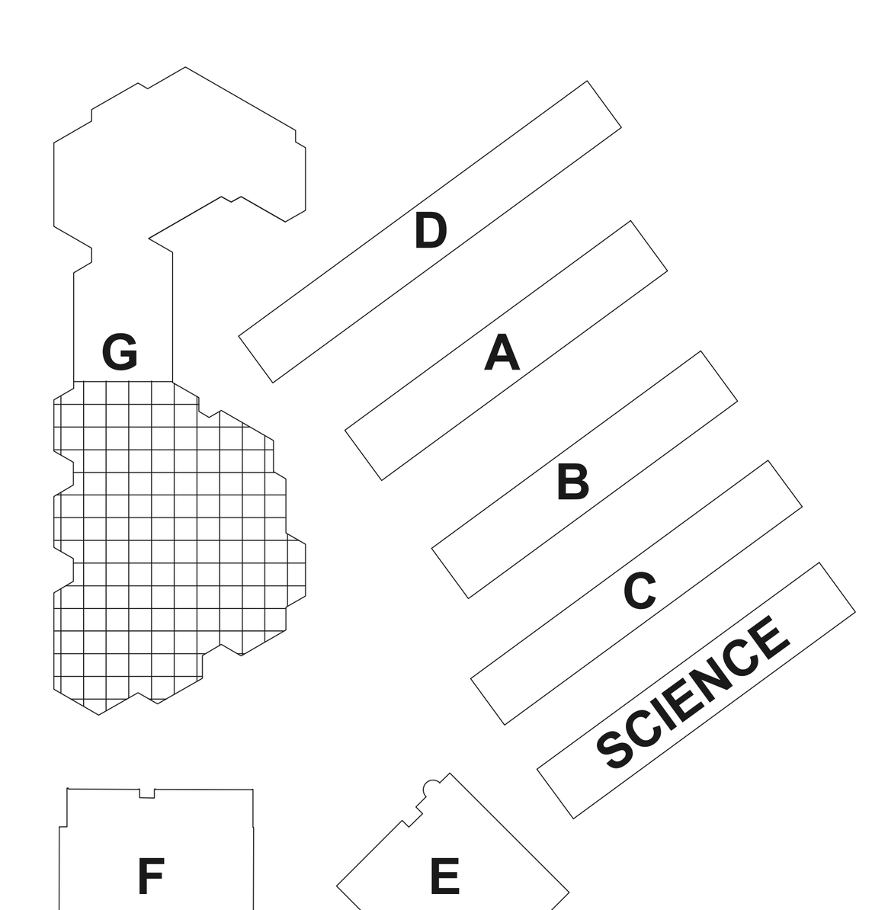
GENERAL NOTES:

1. ALL CONDUITS SHALL BE ROUTED CONCEALED IN CEILING BELOW WHERE POSSIBLE. ALL EXPOSED CONDUITS SHALL BE PAINTED.
2. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND POINTS OF CONNECTION FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR. ADJUST LOCATION AND CONNECTION POINTS AS NEEDED.
3. SEE PANEL SCHEDULES AND SINGLE LINE DIAGRAM FOR POWER CONNECTION REQUIREMENTS.
4. COORDINATE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL REQUREMENTS.
5. FUSED AND UNFUSED DISCONNECT SWITCHES SHALL BE 600V RATED, HEAVY DUTY CYCLE. FUSES FOR MECHANICAL UNITS SHALL BE SIZED PER THE MANUFACTURER'S RECOMMENDATION.
6. SEE DETAIL 2/E5.1 FOR ROOF CONDUIT SUPPORT DETAIL.
7. SEE DETAIL 3/E5.1 FOR NEMA-4 PULL BOX ON ROOF DETAIL.
8. VISUAL NOTIFICATION IS NOT REQUIRED FOR CO DETECTION PER CBC 11B-215.1.

SHEET NOTES:

1. NEW 60A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
2. NEW 30A-2P, NEMA-3R, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
3. NEW AUXILIARY 24V POWER SUPPLY FOR CARBON MONOXIDE DETECTORS.
4. NEW CARBON MONOXIDE DETECTOR. ROUTE NEW SLC CONNECTION BACK TO EXISTING FIRE ALARM CONTROL PANEL NOTIFIER NFS2-3030 AS REQUIRED.
5. INSTALL NEW PANEL IN THE EXISTING LOCATION ON THE EXISTING ROOF MOUNTED SUPPORTS. NEW PANEL IS THE SAME SIZE AND WEIGHT AS THE PREVIOUS PANEL. CONNECT NEW FEEDERS AND BRANCH CIRCUITS TO PANEL.
6. INSTALL NEW PANEL ON NEW ROOF MOUNTED SUPPORTS. CONNECT NEW FEEDERS AND BRANCH CIRCUITS TO PANEL.
7. PROVIDE NEW WEATHERPROOF GFCI RECEPTACLE. RECEPTACLE SHALL BE MOUNTED ON A WEATHERPROOF BOX WITH WHILE-IN-USE COVER. COVER SHALL BE INTERMATIC WP1OIMXD "BOSS".
8. NEW 30A-2P, NEMA-1, FUSED DISCONNECT SWITCH FOR MECHANICAL UNIT.
9. INDOOR UNIT IS POWER BY THE OUTDOOR UNIT. ROUTE HOMERUN CIRCUIT TO ASSOCIATED OUTDOOR UNIT. REFER TO MECHANICAL SCHEDULE MP0.02 FOR ADDITIONAL REQUIREMENTS.

BUILDING KEY



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PROJECT
BORAL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

American Consulting Engineers Electrical, Inc.

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

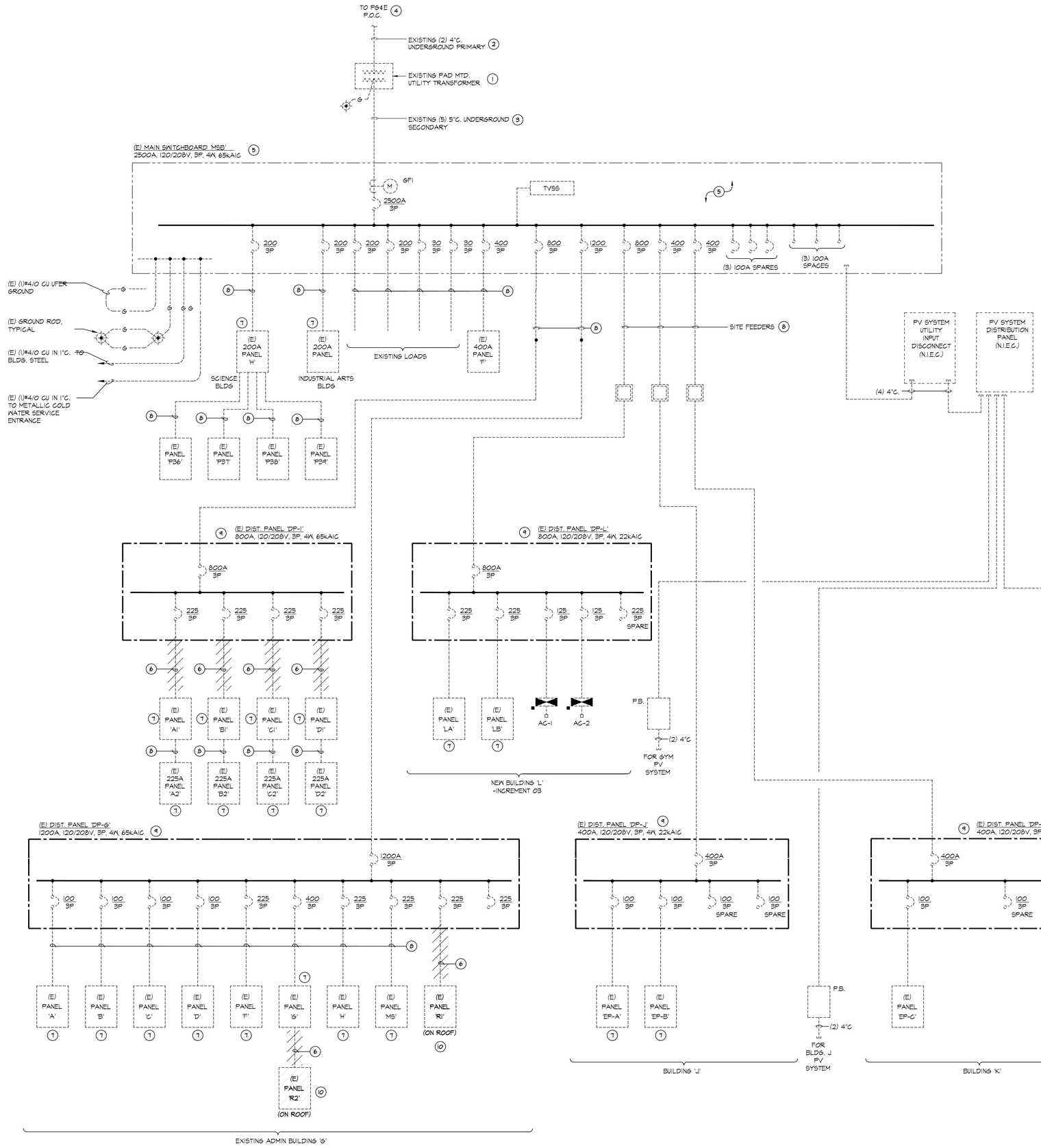
No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET
ELECTRICAL NEW PARTIAL FLOOR PLAN - BLDG G

DATE 10/06/2021
JOB # 2021005.07
SHEET # E3.4



1 E4.1 **DEMO SINGLE LINE DIAGRAM**

NOT TO SCALE

GENERAL NOTES:

1. SEE ELECTRICAL SITE PLAN FOR ADDITIONAL REQUIREMENTS.
2. SEE NEW SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.

DEMOLITION SHEET NOTES:

1. EXISTING PG&E TRANSFORMER TO REMAIN.
2. EXISTING PG&E PRIMARY CONDUCTORS TO REMAIN.
3. EXISTING PG&E SECONDARY CONDUCTORS TO REMAIN.
4. EXISTING PG&E UTILITY POLE TO REMAIN.
5. EXISTING MAIN SWITCHBOARD "MSB" TO REMAIN.
6. EXISTING FEEDERS CABLES TO BE DISCONNECTED FROM EXISTING PANEL. PULL BACK TO SOURCE AND REMOVE.
7. EXISTING ELECTRICAL PANEL TO REMAIN.
8. EXISTING FEEDER CABLES TO REMAIN.
9. EXISTING DISTRIBUTION PANEL TO REMAIN.
10. EXISTINGPANELTO BE DISCONNECTED, REMOVED AND REPLACED WITH NEW.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER GARY S. FERRARO E16890 Exp. 06/30/23 ELECTRICAL STATE OF CALIFORNIA

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JOB # EX21030.00

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DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date
△		

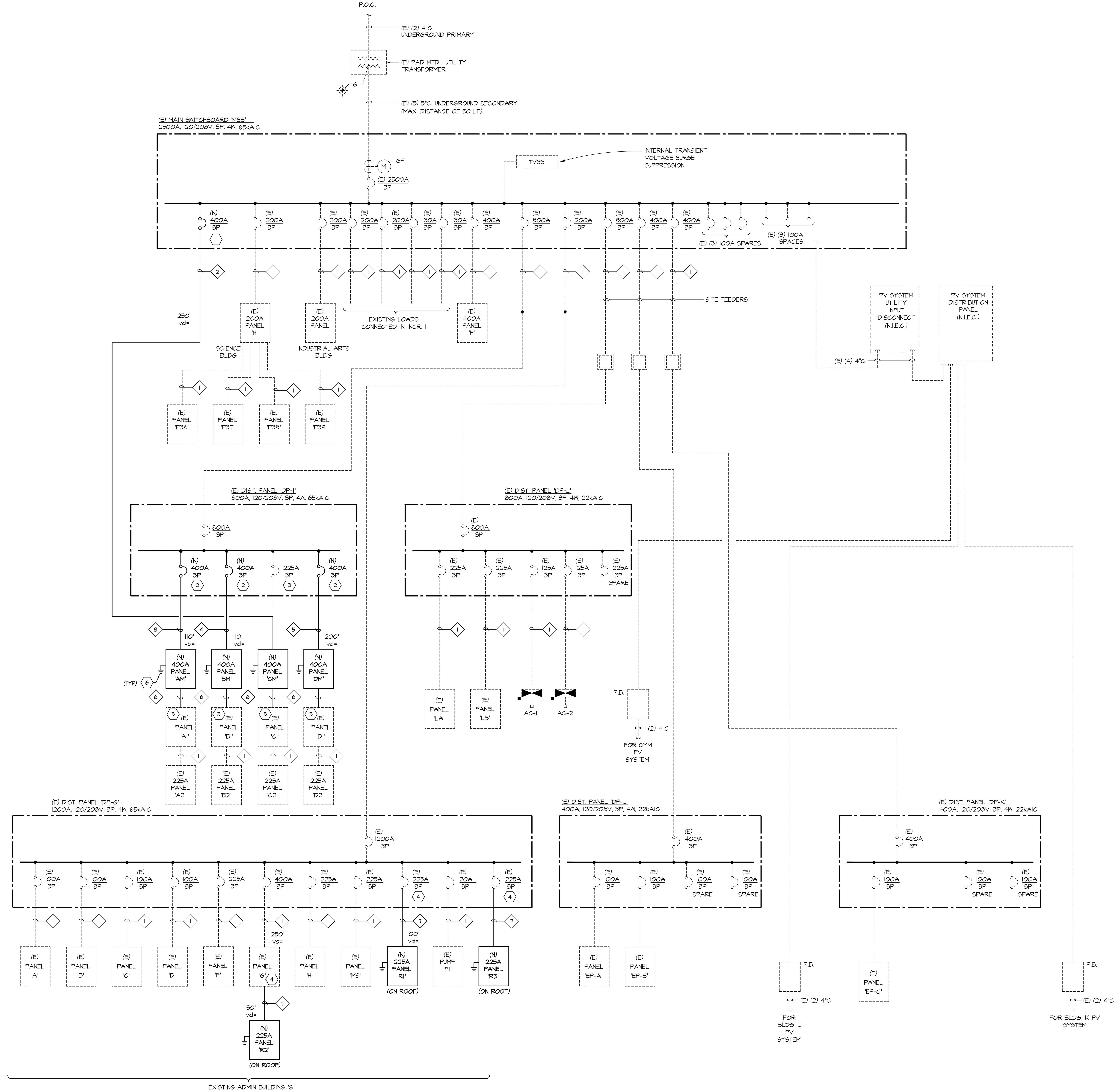
MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

DEMO SINGLE LINE DIAGRAM

DATE 10/06/2021
JOB # 2021005.07
SHEET # E4.1



1 E4.2 **NEW SINGLE LINE DIAGRAM**

NOT TO SCALE

GENERAL NOTES:

1. SEE SITE PLAN FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE THE REQUIRED ARC FLASH HAZARD WARNING LABEL TO MEET THE REQUIREMENTS OF CEC 110.16. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE MAINTENANCE SWITCH FOR ARC ENERGY REDUCTION TO MEET THE REQUIREMENTS OF CEC 240.87.

SHEET NOTES:

1. INSTALL NEW CIRCUIT BREAKER IN AVAILABLE SPACE. MATCH EXISTING FRAME STYLE AND AIC. PROVIDE ALL HARDWARE FOR A COMPLETE INSTALLATION.
2. REMOVE EXISTING 225A-3P CIRCUIT BREAKER AND REPLACE WITH NEW BREAKER. MATCH EXISTING FRAME STYLE AND AIC. PROVIDE ALL HARDWARE FOR A COMPLETE INSTALLATION.
3. DISCONNECT EXISTING FEEDER FROM CIRCUIT BREAKER, TURN OFF BREAKER AND LABEL AS SPARE.
4. CONNECT NEW FEEDER TO EXISTING CIRCUIT BREAKER AS REQUIRED.
5. CONNECT NEW FEEDER TO EXISTING PANEL AS REQUIRED.
6. PROVIDE GROUNDING PER CEC.

CABLE SCHEDULE:

1. EXISTING FEEDER TO REMAIN.
2. 2 SETS - (N) 2"C - (N) 4#3/0 + 1#1 GND.
3. 2 SETS - (N) 3"C - (N) 4#350 + 1#1 GND.
4. (N) 4"C - (N) 4#500 + 1#3 GND.
5. 2 SETS - (N) 3"C - (N) 4#300 + 1#1 GND.
6. (N) 2.5"C - (N) 4#4/0 + 1#4 GND.
7. (N) 2.5"C - (N) 4#4/0 + 1#4 GND.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
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DD
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DSA SUB 06/04/2021
BACKCHECK 10/06/2021

SHEET
NEW SINGLE LINE DIAGRAM

DATE 10/06/2021
JOB # 2021005.07
SHEET # E4.2

PANEL AM

PANEL NAME:	AM	FED FROM:	PNL. DP-1
VOLTAGE:	208/120V	MAIN C/B:	400A-3P
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	22,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

CIRCUIT DESCRIPTION	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CB AMP/P	CKT #	PH	CKT #	CB AMP/P	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 20, FAN COIL 20 - CLASSROOM 20				**4.37**	**70A**	1	A	2	**70A**				**4.37**	**(N) HEAT PUMP 23, FAN COIL 23 - CLASSROOM 23**
" " " " "				**4.37**	**2P**	3	B	4	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 21, FAN COIL 21 - CLASSROOM 21				**4.37**	**70A**	5	C	6	**70A**				**4.37**	**(N) HEAT PUMP 24, FAN COIL 24 - CLASSROOM 24**
" " " " "				**4.37**	**2P**	7	A	8	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 22, FAN COIL 22 - CLASSROOM 22				**4.37**	**70A**	9	B	10	**25A**				**4.37**	**(N) HEAT PUMP 24A, FAN COIL 24A - KITCHEN**
" " " " "				**4.37**	**2P**	11	C	12	**2P**				**4.37**	" " " " "
SPARE					20A/1P	13	A	14	**30A**				1.87	**(N) SSO-A-1 / SSI-A-1 - SERVING ROOM**
SPARE					20A/1P	15	B	16	**2P**				1.87	" " " " "
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	225A					(E) PNL. 'A1'
(N) MOTOR RATED SWITCH FOR COND PUMP			**0.72**		20A/1P	39	B	40						" " " " "
(N) GFCI WP REC MOUNT ON ROOF - BLDG A		**0.54**			20A/1P	41	C	42	3P					" " " " "
	0	0.5	0.7	26.2						0	0	0	29.9	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.5	1.00	0.5
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.7	1.25	0.9
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	56.2	1.00	56.2

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	19.3
KVA PHASE B (CONNECTED)	20.1
KVA PHASE C (CONNECTED)	18.0
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	57.6
TOTAL LOAD AMPERES	160.0

PANEL BM

PANEL NAME:	BM	FED FROM:	PNL. DP-1
VOLTAGE:	208/120V	MAIN C/B:	400A-3P
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	22,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

CIRCUIT DESCRIPTION	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CB AMP/P	CKT #	PH	CKT #	CB AMP/P	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 25, FAN COIL 25 - CLASSROOM 25				**4.37**	**70A**	1	A	2	**70A**				**4.37**	**(N) HEAT PUMP 28, FAN COIL 28 - CLASSROOM 28**
" " " " "				**4.37**	**2P**	3	B	4	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 26, FAN COIL 26 - CLASSROOM 26				**4.37**	**70A**	5	C	6	**70A**				**4.37**	**(N) HEAT PUMP 29, FAN COIL 29 - CLASSROOM 29**
" " " " "				**4.37**	**2P**	7	A	8	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 27, FAN COIL 27 - CLASSROOM 27				**4.37**	**70A**	9	B	10	20A/1P					SPARE
" " " " "				**4.37**	**2P**	11	C	12	20A/1P					SPARE
SPARE					20A/1P	13	A	14	20A/1P					SPARE
SPARE					20A/1P	15	B	16	20A/1P					SPARE
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	225A					(E) PNL. 'B1'
(N) MOTOR RATED SWITCH FOR COND PUMP-BLDG B			**0.60**		20A/1P	39	B	40						" " " " "
(N) GFCI WP REC MOUNT ON ROOF-BLDG B		**0.54**			20A/1P	41	C	42	3P					" " " " "
	0	0.5	0.6	26.2						0	0	0	17.5	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.5	1.00	0.5
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.6	1.25	0.8
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	43.7	1.00	43.7

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	17.5
KVA PHASE B (CONNECTED)	13.7
KVA PHASE C (CONNECTED)	13.6
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	45.0
TOTAL LOAD AMPERES	124.9

PANEL CM

PANEL NAME:	CM	FED FROM:	PNL. DP-1
VOLTAGE:	208/120V	MAIN C/B:	400A-3P
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	22,000
TYPE:	NEMA 3R	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

CIRCUIT DESCRIPTION	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CB AMP/P	CKT #	PH	CKT #	CB AMP/P	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 30, FAN COIL 30 - CLASSROOM 30				**4.37**	**70A**	1	A	2	**70A**				**4.37**	**(N) HEAT PUMP 33, FAN COIL 33 - CLASSROOM 33**
" " " " "				**4.37**	**2P**	3	B	4	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 31, FAN COIL 31 - CLASSROOM 31				**4.37**	**70A**	5	C	6	**70A**				**4.37**	**(N) HEAT PUMP 34, FAN COIL 34 - CLASSROOM 34**
" " " " "				**4.37**	**2P**	7	A	8	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 32, FAN COIL 32 - CLASSROOM 32				**4.37**	**70A**	9	B	10	**70A**				**4.37**	**(N) HEAT PUMP 35, FAN COIL 35 - CLASSROOM 35**
" " " " "				**4.37**	**2P**	11	C	12	**2P**				**4.37**	" " " " "
SPARE					20A/1P	13	A	14	20A/1P					SPARE
SPARE					20A/1P	15	B	16	20A/1P					SPARE
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	225A					(E) PNL. 'C1'
(N) MOTOR RATED SWITCH FOR COND PUMP - BLDG C			**0.72**		20A/1P	39	B	40						" " " " "
(N) WEATHERPROOF GFCI RECEPTACLE - BLDG C		**0.54**			20A/1P	41	C	42	3P					" " " " "
	0	0.5	0.7	26.2						0	0	0	26.2	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.5	1.00	0.5
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.7	1.25	0.9
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	52.4	1.00	52.4

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	17.5
KVA PHASE B (CONNECTED)	18.2
KVA PHASE C (CONNECTED)	18.0
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	53.9
TOTAL LOAD AMPERES	149.6

PANEL DM

PANEL NAME:	DM	FED FROM:	PNL. DP-1
VOLTAGE:	208/120V	MAIN C/B:	400A-3P
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	22,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

CIRCUIT DESCRIPTION	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CB AMP/P	CKT #	PH	CKT #	CB AMP/P	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 14, FAN COIL 14 - CLASSROOM 14				**4.37**	**70A**	1	A	2	**70A**				**4.37**	**(N) HEAT PUMP 17, FAN COIL 17 - CLASSROOM 17**
" " " " "				**4.37**	**2P**	3	B	4	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 15A, FAN COIL 15A - CLASSROOM 15A				**4.37**	**35A**	5	C	6	**70A**				**4.37**	**(N) HEAT PUMP 18, FAN COIL 18 - CLASSROOM 18**
" " " " "				**4.37**	**2P**	7	A	8	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 15B, FAN COIL 15B - CLASSROOM 15B				**4.37**	**35A**	9	B	10	**70A**				**4.37**	**(N) HEAT PUMP 19, FAN COIL 19 - CLASSROOM 19**
" " " " "				**4.37**	**2P**	11	C	12	**2P**				**4.37**	" " " " "
(N) HEAT PUMP 16, FAN COIL 16 - CLASSROOM 16				**4.37**	**70A**	13	A	14	20A/1P					SPARE
" " " " "				**4.37**	**2P**	15	B	16	20A/1P					SPARE
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
(N) MOTOR RATED SWITCH FOR COND PUMP - BLDG D			**0.48**		20A/1P	37	A	38	225A					(E) PNL. 'D1'
" " " " "			**0.36**		20A/1P	39	B	40						" " " " "
(N) WEATHERPROOF GFCI RECEPTACLE - BLDG D		**0.72**			20A/1P	41	C	42	3P					" " " " "
	0	0.7	0.8	34.9						0	0	0	26.2	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.7	1.00	0.7
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.5	1.25	0.6
+ REMAINING MOTORS x 100%	0.4	1.00	0.4
(NCL) NON CONTINOUS LOAD x 100%	61.2	1.00	61.2

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	22.3
KVA PHASE B (CONNECTED)	22.2
KVA PHASE C (CONNECTED)	18.2
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	62.8
TOTAL LOAD AMPERES	174.5

PANEL (E) P36

PANEL NAME:	(E) P36	FED FROM:	PNL. DP-H
VOLTAGE:	208/120V	MAIN C/B:	MLO
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

CIRCUIT DESCRIPTION	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CB AMP/P	CKT #	PH	CKT #	CB AMP/P	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 36, FAN COIL 36 - CLASSROOM 36				**4.37**	**(N) 70A**	1	A	2	(E) 20A/1P		0.72			EXISTING LOAD
" " " " "				**4.37**	**2P**	3	B	4	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	5	C	6	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	7	A	8	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	9	B	10	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	11	C	12	(E) 20A/1P		0.72			EXISTING LOAD
(N) WEATHERPROOF GFCI RECEPTACLE - SCIENCE BLDG		**0.36**			(N) 20A/1P	13	A	14	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						15	B	16	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						17	C	18	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						19	A	20						SPACE
SPACE						21	B	22						SPACE
SPACE						23	C	24						SPACE
SPACE						25	A	26						SPACE
SPACE						27	B	28						SPACE
SPACE						29	C	30						SPACE
SPACE						31	A	32						SPACE
SPACE						33	B	34						SPACE
SPACE						35	C	36						SPACE
SPACE						37	A	38						SPACE
SPACE						39	B	40						SPACE
(N) MOTOR RATED SWITCH FOR COND PUMP - RM 36			**0.12**		(N) 20A/1P	41	C	42						SPACE
	0	3.2	0.1	8.7						0	6.5	0	0	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	9.7	1.00	9.7
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.1	1.25	0.2
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	8.7	1.00	8.7

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	7.6
KVA PHASE B (CONNECTED)	7.2
KVA PHASE C (CONNECTED)	3.7
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	18.6
TOTAL LOAD AMPERES	51.7

PANEL (E) P37

PANEL NAME:	(E) P37	FED FROM:	PNL. DP-H
VOLTAGE:	208/120V	MAIN C/B:	MLO
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

CIRCUIT DESCRIPTION	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CB AMP/P	CKT #	PH	CKT #	CB AMP/P	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 37, FAN COIL 37 - CLASSROOM 37				**4.37**	**(N) 70A**	1	A	2	(E) 20A/1P		0.72			EXISTING LOAD
" " " " "				**4.37**	**2P**	3	B	4	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	5	C	6	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	7	A	8	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	9	B	10	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	11	C	12	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						13	A	14	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						15	B	16	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						17	C	18	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						19	A	20						SPACE
SPACE						21	B	22						SPACE
SPACE						23	C	24						SPACE
SPACE						25	A	26						SPACE
SPACE						27	B	28						SPACE
SPACE						29	C	30						SPACE
SPACE						31	A	32						SPACE
SPACE						33	B	34						SPACE
SPACE						35	C	36						SPACE
SPACE						37	A	38						SPACE
SPACE						39	B	40						SPACE
(N) MOTOR RATED SWITCH FOR COND PUMP - RM 37			**0.12**		(N) 20A/1P	41	C	42						SPACE
	0	2.9	0.1	8.7						0	6.5	0	0	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	9.4	1.00	9.4
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.1	1.25	0.2
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	8.7	1.00	8.7

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	7.2
KVA PHASE B (CONNECTED)	7.2
KVA PHASE C (CONNECTED)	3.7
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	18.2
TOTAL LOAD AMPERES	50.7

PANEL (E) P38

PANEL NAME:	(E) P38	FED FROM:	PNL. DP-H
VOLTAGE:	208/120V	MAIN C/B:	MLO
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

CIRCUIT DESCRIPTION	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CB AMP/P	CKT #	PH	CKT #	CB AMP/P	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 38, FAN COIL 38 - CLASSROOM 38				**4.37**	**(N) 70A**	1	A	2	(E) 20A/1P		0.72			EXISTING LOAD
" " " " "				**4.37**	**2P**	3	B	4	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	5	C	6	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	7	A	8	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	9	B	10	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	11	C	12	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						13	A	14	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						15	B	16	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						17	C	18	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						19	A	20						SPACE
SPACE						21	B	22						SPACE
SPACE						23	C	24						SPACE
SPACE						25	A	26						SPACE
SPACE						27	B	28						SPACE
SPACE						29	C	30						SPACE
SPACE						31	A	32						SPACE
SPACE						33	B	34						SPACE
SPACE						35	C	36						SPACE
SPACE						37	A	38		1.00				SPACE
SPACE						39	B	40						SPACE
(N) MOTOR RATED SWITCH FOR COND PUMP - RM 38			**0.12**		(N) 20A/1P	41	C	42						SPACE
	0	2.9	0.1	8.7						1.0	6.5	0	0	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	1.0	1.25	1.3
(REC) RECEPTS PER 220.44;	9.4	1.00	9.4
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.1	1.25	0.2
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	8.7	1.00	8.7

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	8.2
KVA PHASE B (CONNECTED)	7.2
KVA PHASE C (CONNECTED)	3.7
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	19.5
TOTAL LOAD AMPERES	54.2

PANEL (E) P39

PANEL NAME:	(E) P39	FED FROM:	PNL. DP-H
VOLTAGE:	208/120V	MAIN C/B:	MLO
PHASE:	3	BUSSING:	400 AMP
WIRE:	4	MIN. AIC:	10,000
TYPE:	NEMA 1	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

CIRCUIT DESCRIPTION	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CB AMP/P	CKT #	PH	CKT #	CB AMP/P	LOAD TYPE (KVA) LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) HEAT PUMP 39, FAN COIL 39 - CLASSROOM 39				**4.37**	**(N) 70A**	1	A	2	(E) 20A/1P		0.72			EXISTING LOAD
" " " " "				**4.37**	**2P**	3	B	4	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	5	C	6	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	7	A	8	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	9	B	10	(E) 20A/1P		0.72			EXISTING LOAD
EXISTING LOAD		0.72			(E) 20A/1P	11	C	12	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						13	A	14	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						15	B	16	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						17	C	18	(E) 20A/1P		0.72			EXISTING LOAD
SPACE						19	A	20						SPACE
SPACE						21	B	22						SPACE
SPACE						23	C	24						SPACE
SPACE						25	A	26						SPACE
SPACE						27	B	28						SPACE
SPACE						29	C	30						SPACE
SPACE						31	A	32						SPACE
SPACE						33	B	34						SPACE
SPACE						35	C	36						SPACE
SPACE						37	A	38						SPACE
SPACE						39	B	40						SPACE
(N) MOTOR RATED SWITCH FOR COND PUMP - RM 39			**0.12**		(N) 20A/1P	41	C	42						SPACE
	0	2.9	0.1	8.7						0	6.5	0	0	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	9.4	1.00	9.4
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0.1	1.25	0.2
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	8.7	1.00	8.7

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	7.2
KVA PHASE B (CONNECTED)	7.2
KVA PHASE C (CONNECTED)	3.7
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	18.2
TOTAL LOAD AMPERES	50.7

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 01-119557 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/21/2021

aedis architects
www.aedisarchitects.com
387 S. 1st Street, Suite 300
San Jose, CA 95113
tel: (408)-300-5160
fax: (408)-300-5121

PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER
SAMMY S. FERNANDEZ
E16890
Exp. 06/30/23
ELECTRICAL
STATE OF CALIFORNIA

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1590 The Alameda, Suite 200
San Jose, CA 95126
JOB # EK21030.00
408/236-2312
Fax: 408/236-2316

STAMP

STATE
DSA FILE NUMBER 41-26
APPL # 01-119557

REVISIONS

No.	Description	Date
△		

MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

PANEL SCHEDULES

DATE 10/06/2021

JOB # 2021005.07

SHEET # E4.3

PANEL NAME:	R1	FED FROM:	DP-G
VOLTAGE:	208/120V	MAIN C/B:	225A-3P
PHASE:	3	BUSSING:	225 AMP
WIRE:	4	MIN. AIC:	22,000
TYPE:	NEMA 3R	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) AC 8 - BLDG G ROOF				**1.68**	**30A**	1	A	2	**30A**				**1.68**	**(N) AC 12 - BLDG G ROOF**
" " " " "				**1.68**	**2P**	3	B	4	**2P**				**1.68**	**" " " " "**
(N) AC 9 - BLDG G ROOF				**2.60**	**35A**	5	C	6	**40A**				**2.60**	**(N) AC 13 - BLDG G ROOF**
" " " " "				**2.60**	**2P**	7	A	8	**2P**				**2.60**	**" " " " "**
(N) AC 10 - BLDG G ROOF				**4.26**	**70A**	9	B	10	**35A**				**1.68**	**(N) AC 20 - BLDG G ROOF**
" " " " "				**4.26**	**2P**	11	C	12	**2P**				**1.68**	**" " " " "**
(N) AC 11 - BLDG G ROOF				**4.26**	**70A**	13	A	14	**20A**				**1.68**	**(N) SSO-G-1 / SSI-G-1 (SPLIT SYSTEM UNIT)**
" " " " "				**4.26**	**2P**	15	B	16	**2P**				**1.68**	**" " " " "**
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	20A/1P					SPARE
SPARE					20A/1P	39	B	40	20A/1P					SPARE
SPARE					20A/1P	41	C	42	20A/1P					SPARE
	0	0	0	25.6						0	0	0	15.3	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0	1.00	0.0
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0	1.25	0.0
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	40.9	1.00	40.9

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	14.5
KVA PHASE B (CONNECTED)	15.3
KVA PHASE C (CONNECTED)	11.1
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	40.9
TOTAL LOAD AMPERES	113.7

PANEL NAME:	R2	FED FROM:	(E) PNL. G
VOLTAGE:	208/120V	MAIN C/B:	225A-3P
PHASE:	3	BUSSING:	225 AMP
WIRE:	4	MIN. AIC:	22,000
TYPE:	NEMA 3R	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) AC 1 - BLDG G ROOF				**2.60**	**40A**	1	A	2	**40A**				**2.60**	**(N) AC 4 - BLDG G ROOF**
" " " " "				**2.60**	**2P**	3	B	4	**2P**				**2.60**	**" " " " "**
(N) AC 2 - BLDG G ROOF				**2.60**	**40A**	5	C	6	**40A**				**2.60**	**(N) AC 5 - BLDG G ROOF**
" " " " "				**2.60**	**2P**	7	A	8	**2P**				**2.60**	**" " " " "**
(N) AC 3 - BLDG G ROOF				**2.60**	**30A**	9	B	10	**40A**				**2.60**	**(N) AC6 - BLDG G ROOF**
" " " " "				**2.60**	**2P**	11	C	12	**2P**				**2.60**	**" " " " "**
SPARE					20A/1P	13	A	14	20A/1P					SPARE
SPARE					20A/1P	15	B	16	20A/1P					SPARE
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	20A/1P					SPARE
SPARE					20A/1P	39	B	40	20A/1P					SPARE
SPARE					20A/1P	41	C	42	20A/1P		0.18			REC - ROOFTOP WP OUTLET
	0	0	0	15.6						0	0.2	0	15.6	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0.2	1.00	0.2
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0	1.25	0.0
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	31.2	1.00	31.2

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	10.4
KVA PHASE B (CONNECTED)	10.4
KVA PHASE C (CONNECTED)	10.6
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	31.4
TOTAL LOAD AMPERES	87.2

PANEL NAME:	R3	FED FROM:	DP-G
VOLTAGE:	208/120V	MAIN C/B:	225A-3P
PHASE:	3	BUSSING:	225 AMP
WIRE:	4	MIN. AIC:	22,000
TYPE:	NEMA 3R	SUB-FEED C/B:	
MOUNTING:	SURFACE	FEED THRU LUGS:	YES

	LOAD TYPE (KVA)				CB	CKT	PH	CKT	CB	LOAD TYPE (KVA)				
CIRCUIT DESCRIPTION	LTG	REC	MTR	NCL	AMP/P	#		#	AMP/P	LTG	REC	MTR	NCL	CIRCUIT DESCRIPTION
(N) AC 14 - BLDG G ROOF				**1.68**	**30A**	1	A	2	**35A**				**2.29**	**(N) AC 17 - BLDG G ROOF**
" " " " "				**1.68**	**2P**	3	B	4	**2P**				**2.29**	**" " " " "**
(N) AC 15 - BLDG G ROOF				**2.29**	**35A**	5	C	6	**30A**				**1.68**	**(N) AC 18 - BLDG G ROOF**
" " " " "				**2.29**	**2P**	7	A	8	**2P**				**1.68**	**" " " " "**
(N) AC 16 - BLDG G ROOF				**2.60**	**40A**	9	B	10	**50A**				**3.12**	**(N) AC 19 - BLDG G ROOF**
" " " " "				**2.60**	**2P**	11	C	12	**2P**				**3.12**	**" " " " "**
SPARE					20A/1P	13	A	14	20A/1P					SPARE
SPARE					20A/1P	15	B	16	20A/1P					SPARE
SPARE					20A/1P	17	C	18	20A/1P					SPARE
SPARE					20A/1P	19	A	20	20A/1P					SPARE
SPARE					20A/1P	21	B	22	20A/1P					SPARE
SPARE					20A/1P	23	C	24	20A/1P					SPARE
SPARE					20A/1P	25	A	26	20A/1P					SPARE
SPARE					20A/1P	27	B	28	20A/1P					SPARE
SPARE					20A/1P	29	C	30	20A/1P					SPARE
SPARE					20A/1P	31	A	32	20A/1P					SPARE
SPARE					20A/1P	33	B	34	20A/1P					SPARE
SPARE					20A/1P	35	C	36	20A/1P					SPARE
SPARE					20A/1P	37	A	38	20A/1P					SPARE
SPARE					20A/1P	39	B	40	20A/1P					SPARE
SPARE					20A/1P	41	C	42	20A/1P					SPARE
	0	0	0	13.1						0	0	0	14.2	

LOAD SUMMARY	CONNECTED KVA	DEMAND FACTOR	DEMAND KVA
(LTG) LIGHTING X 125%	0	1.25	0.0
(REC) RECEPTS PER 220.44;	0	1.00	0.0
10KVA x 100% + REMAINDER x 50%	0	0.50	0.0
(MTR) LARGEST MOTOR X 125%	0	1.25	0.0
+ REMAINING MOTORS x 100%	0	1.00	0.0
(NCL) NON CONTINOUS LOAD x 100%	27.3	1.00	27.3

	Yes/No
FULL RATED AIC	Y
SERIES RATED AIC	N
SPD	N
COPPER BUSSING	Y
ALUMINUM BUSSING	N

KVA PHASE A (CONNECTED)	7.9
KVA PHASE B (CONNECTED)	9.7
KVA PHASE C (CONNECTED)	9.7
SUB FEED CONNECTED LOAD	
TOTAL DEMAND KVA	27.3
TOTAL LOAD AMPERES	75.9

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PROJECT

BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

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DSA FILE NUMBER 41-26

APPL # 01-119557

REVISIONS

No.	Description	Date
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MILESTONES

DD	
90% CD	
DSA SUB	06/04/2021
BACKCHECK	10/06/2021

SHEET

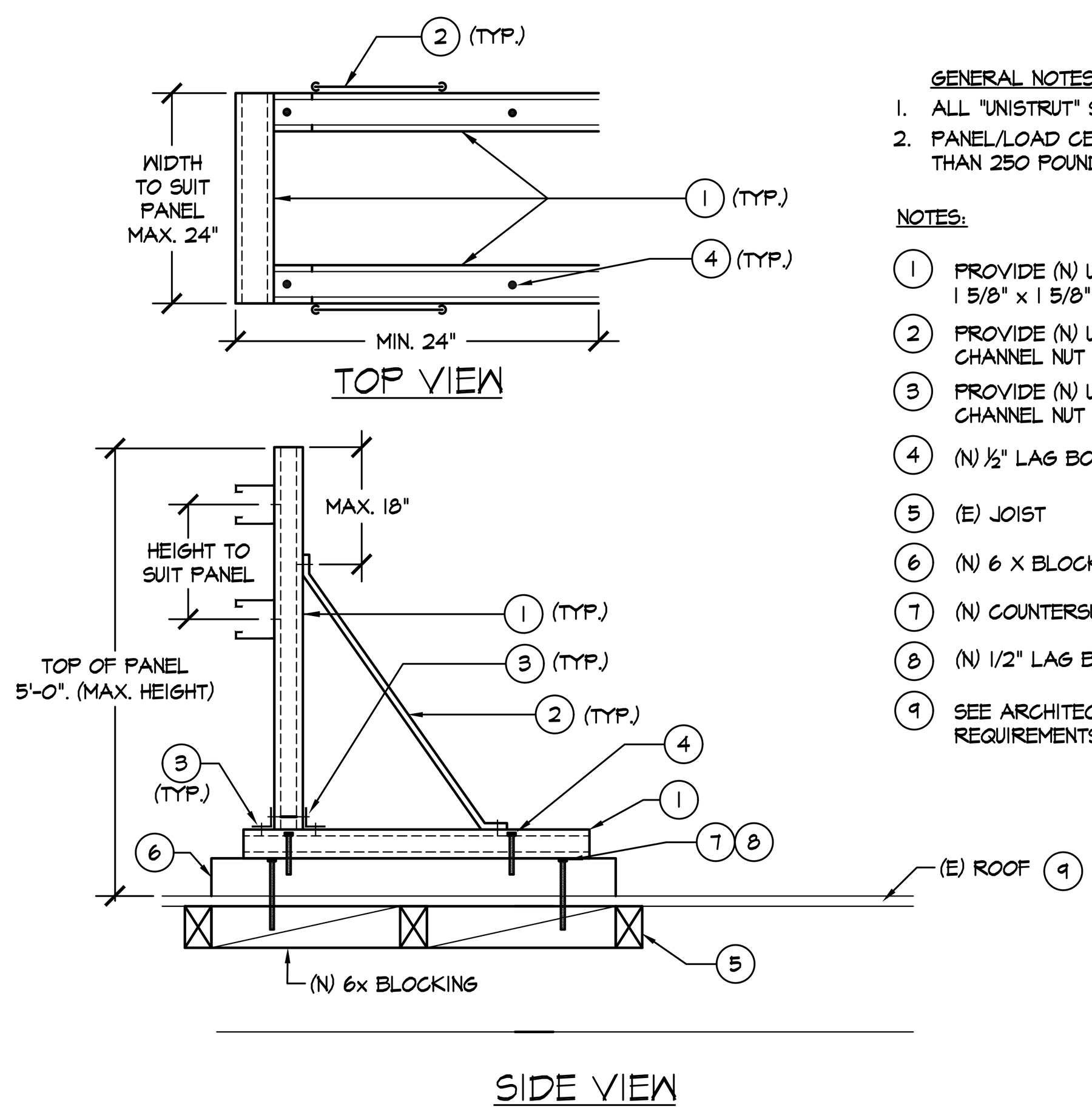
PANEL SCHEDULES

DATE 10/06/2021

JOB # 2021005.07

SHEET #

E4.4



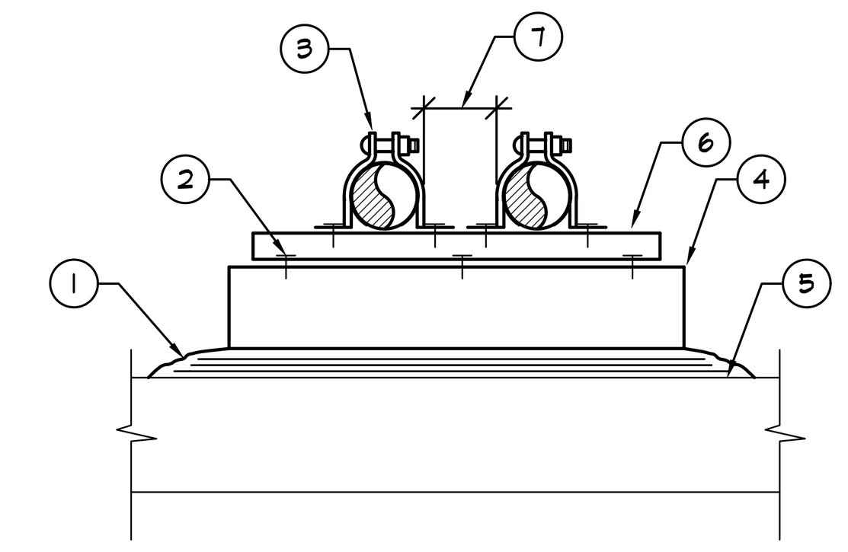
GENERAL NOTES:

1. ALL "UNISTRUT" SHALL HAVE PERMA-GREEN FINISH.
2. PANEL/LOAD CENTER MAXIMUM WEIGHT SHALL NOT BE GREATER THAN 250 POUNDS.

NOTES:

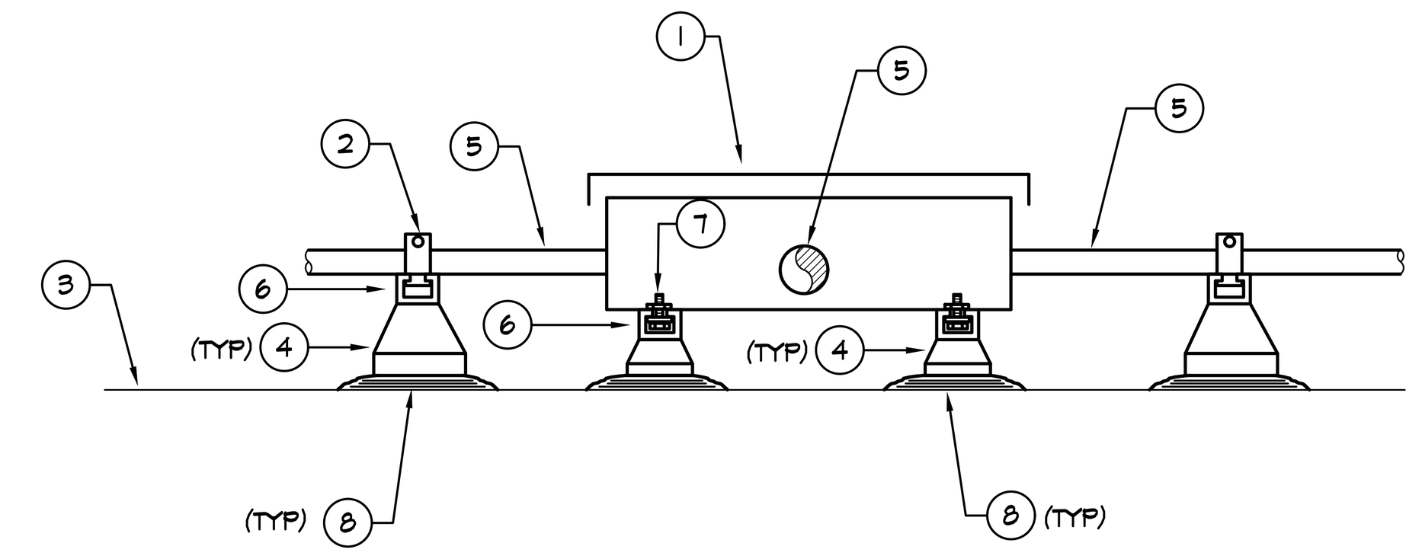
1. PROVIDE (N) UNISTRUT P1000-HS MINIMUM 12 GA GALV STEEL 1 5/8" x 1 5/8".
2. PROVIDE (N) UNISTRUT P2452 BRACE WITH ½"Φ SCREW WITH CHANNEL NUT IN STRUT. ONE BRACE PER POST.
3. PROVIDE (N) UNISTRUT P1026 90° FITTING WITH ½"Φ SCREW WITH CHANNEL NUT IN STRUT. TWO 90° FITTING PER POST.
4. (N) ½" LAG BOLTS WITH 3 1/2" MINIMUM EMBEDMENT AT 18" O.C.
5. (E) JOIST
6. (N) 6 X BLOCKING ROOF CURB
7. (N) COUNTERSUNK LAG BOLT
8. (N) 1/2" LAG BOLTS W/ 3 1/2" MIN EMBEDMENT AT 18" O.C.
9. SEE ARCHITECTURAL DRAWINGS FOR ROOF REPAIR REQUIREMENTS

1 PANEL SUPPORT ON ROOF STRUCTURE
E5.1 NOT TO SCALE



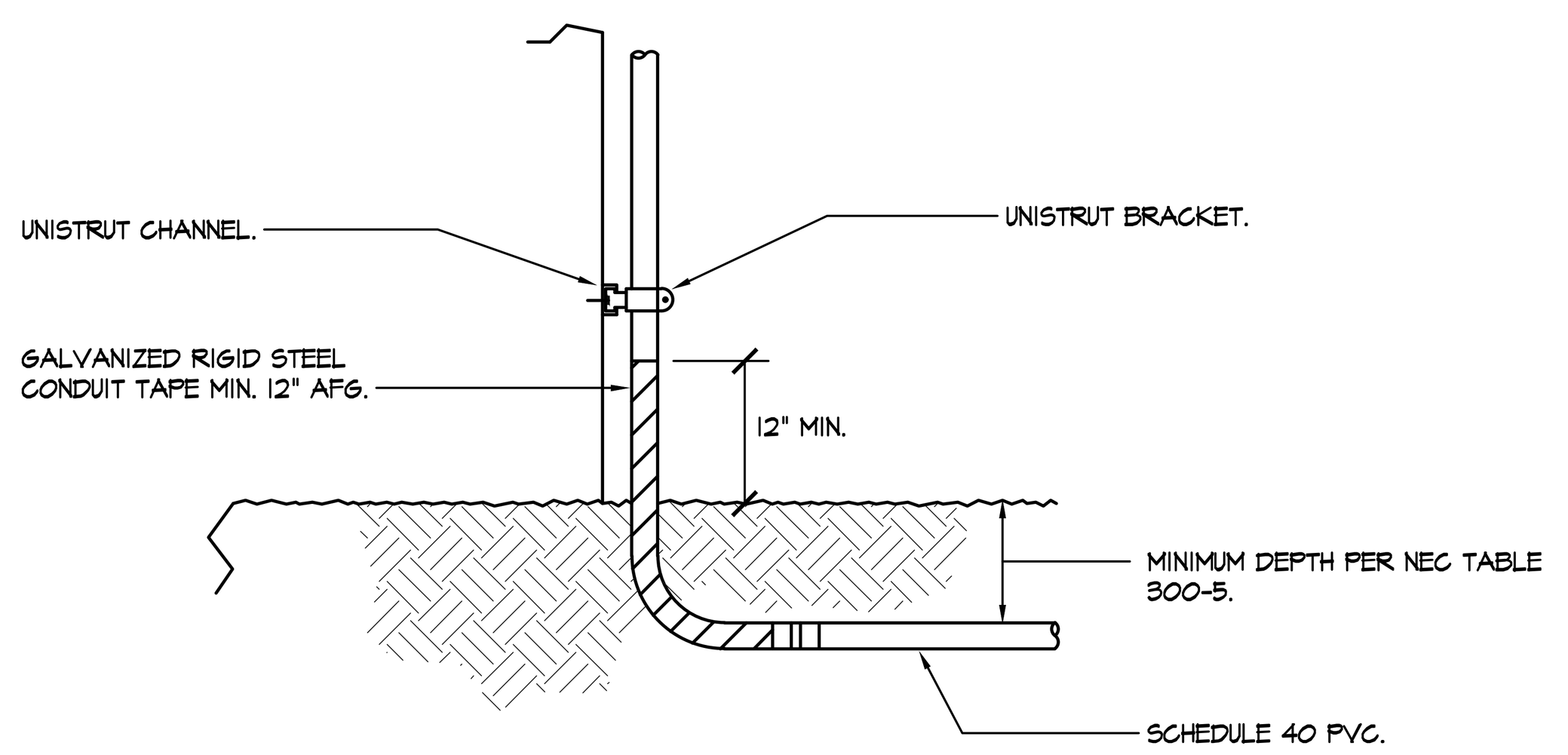
1. CLEAN OFF ROOF AREA. APPLY (1) LAYER OF CAP SHEET & SET IN COLD MASTIC.
2. LAG BOLTS; ¼ " x 2 ½ " LONG.
3. PIPE CLAMP, UNISTRUT # P-1109 SERIES OR EQUAL.
4. COOPER B-LINE DURA-BLOK, DURA-BLOK ROOFTOP SUPPORT SYSTEM OR EQUAL. MINIMUM 22" LONG.
5. (E) ROOF. SUPPORT CHANNEL MINIMUM 18" LONG.
6. GALVANIZED UNISTRUT # P-1000 PROVIDED WITH COOPER B-LINE DURA-BLOK AND ATTACHED WITH GALVANIZED THRU-BOLTS. SUPPORT CHANNEL MINIMUM 18" LONG. UNISTRUT SHALL BE SPACED AT NO MORE THAN 10' APART AND WITHIN 3' OF EVERY JUNCTION BOX.
7. 4" MAXIMUM SEPARATION BETWEEN CONDUITS.

2 ROOF CONDUIT SUPPORT DETAIL
E5.1 NOT TO SCALE



1. PULLBOX, NEMA 4 LOCKABLE.
2. PIPE CLAMP, UNISTRUT #P-1109 OR EQUAL, TYPICAL.
3. FINISHED ROOF.
4. COOPER B-LINE C-PORT ROOFTOP SUPPORT SYSTEM OR EQUAL.
5. RIGID STEEL CONDUITS.
6. SUPPORT CHANNEL MINIMUM 18" LONG. UNISTRUT #P1000 SERIES OR EQUAL, TYPICAL.
7. CHANNEL NUT UNISTRUT SERIES P3016 OR EQUAL WITH HEX HEAD CAP SCREW AND NUT AS REQUIRED.
8. CLEAN OFF ROOF AREA. APPLY (1) LAYER OF CAP SHEET & SET IN COLD MASTIC.

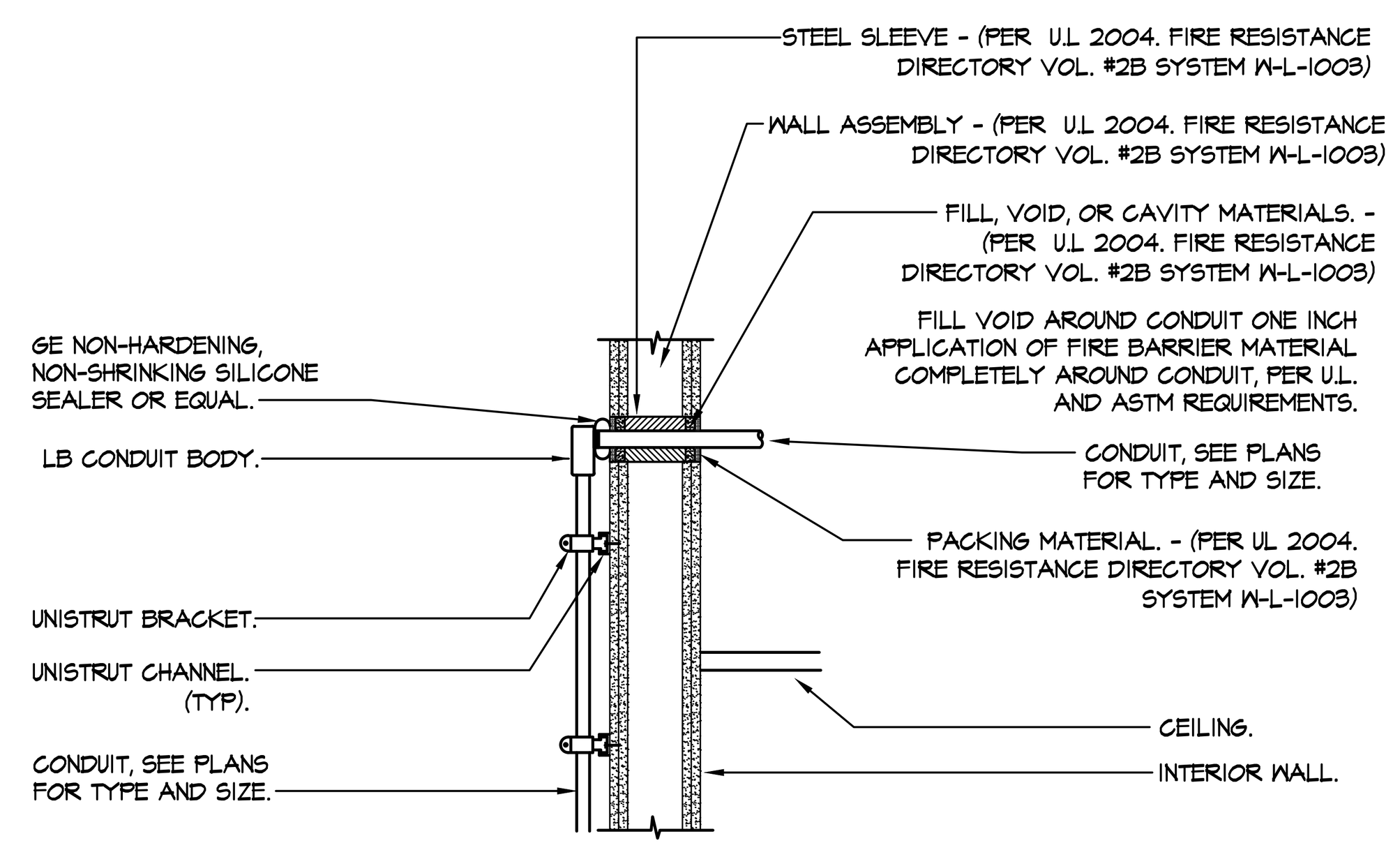
3 NEMA-4 PULLBOX ON ROOF DETAIL
E5.1 NOT TO SCALE



NOTE:

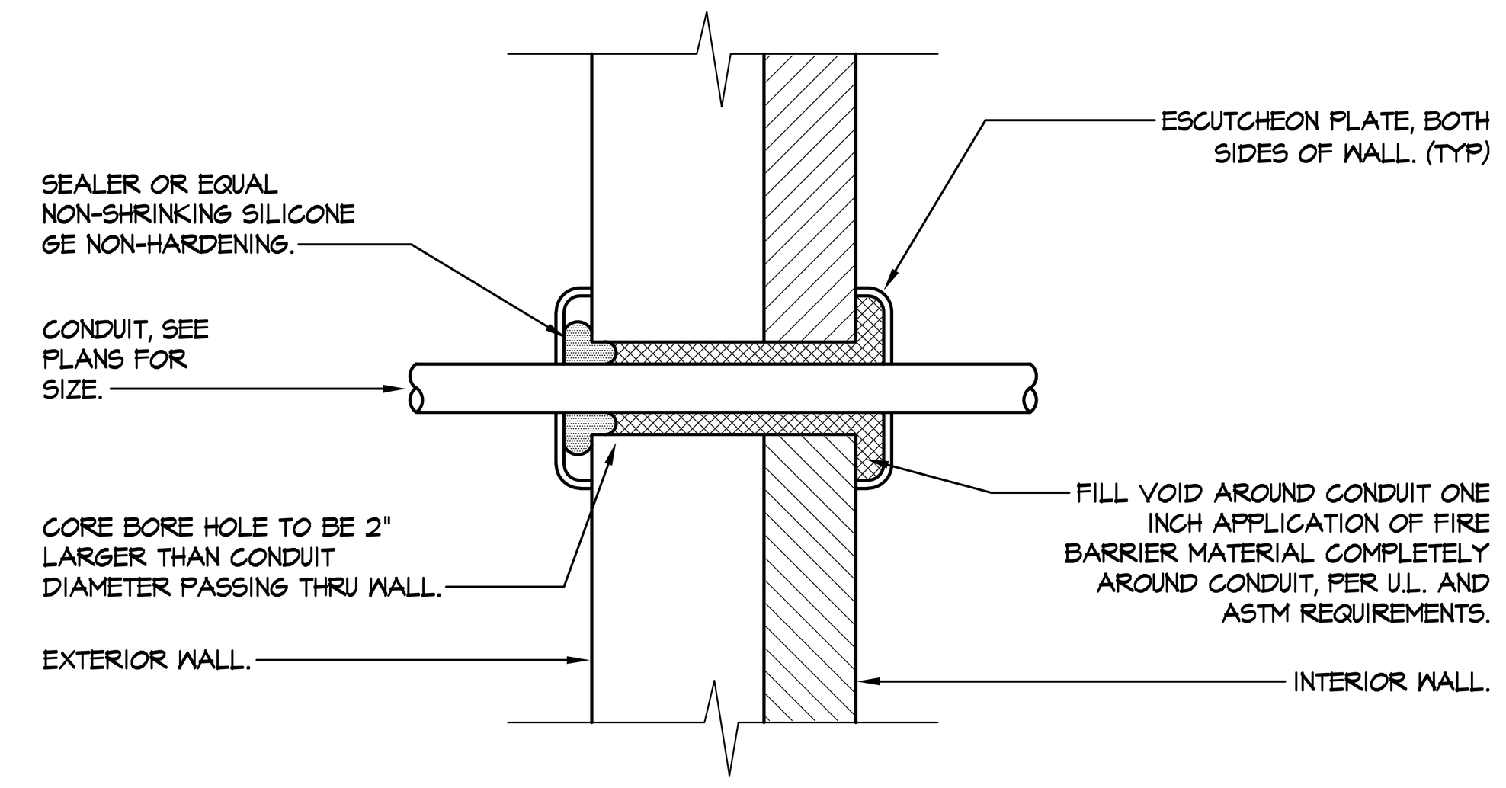
1. FOR WOOD STUD WALL: USE ⅜" LAG BOLT WITH MIN. ¾" EMBEDMENT INTO STUDS. (ONE AT EACH END OF BRACKET)
2. FOR CONCRETE WALL: USE ⅜" WEDGE ANCHOR WITH MIN. 2 ½" EMBEDMENT INTO CONCRETE WALL. (ONE AT EACH END OF BRACKET).

4 UNDERGROUND CONDUIT RISER DETAIL
E5.1 NOT TO SCALE

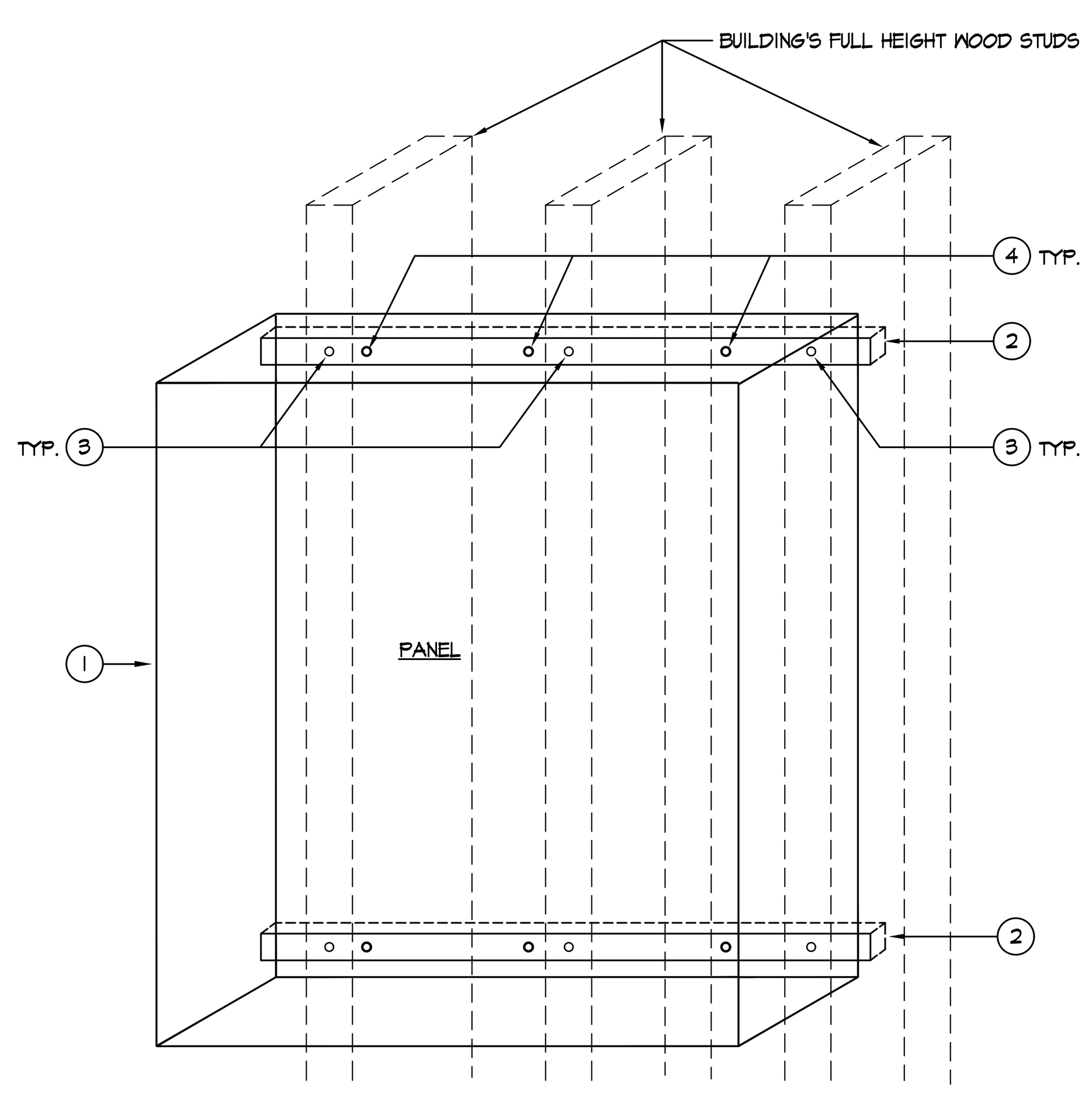


NOTE:
REFERENCE U.L 2004. FIRE RESISTANCE DIRECTORY VOL. #2B SYSTEM W-L-1003.

5 CONDUIT RISER AND WALL PENETRATION - POWER
E5.1 NOT TO SCALE

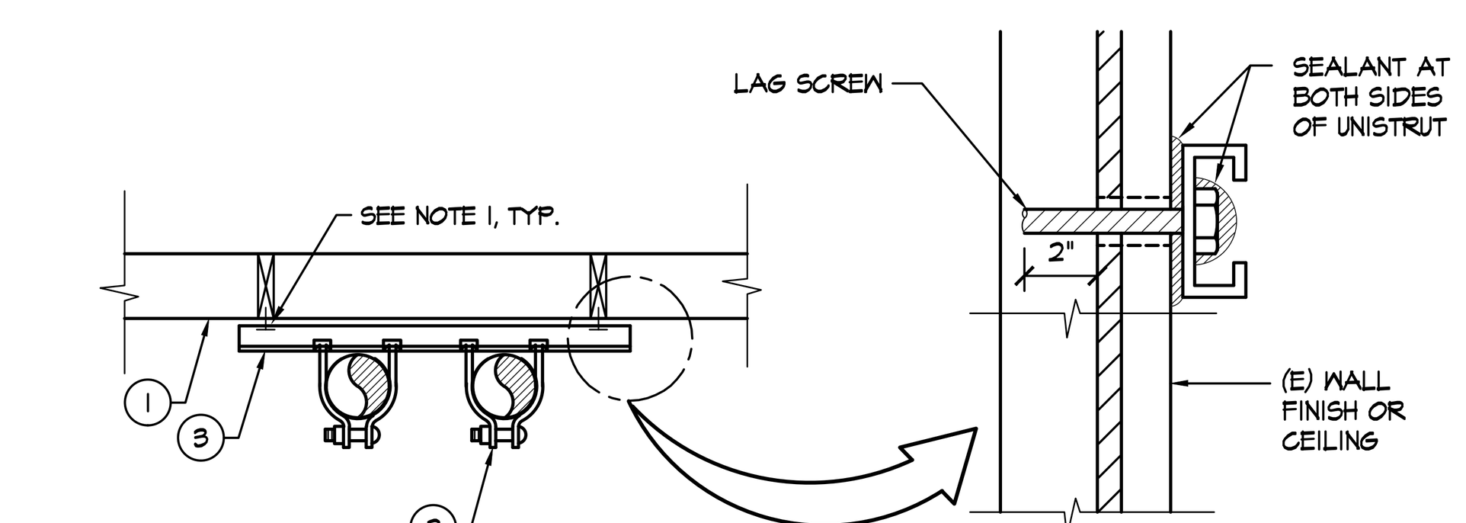


6 CONDUIT WALL PENETRATION DETAIL
E5.1 NOT TO SCALE



1. NEMA-1 ELECTRICAL PANEL (200 LBS).
2. UNISTRUT P1000 MIN. 50" SPANNING OVER 3 STUDS.
3. ⅜" LAG SCREW. SCREW SHALL PENETRATE MINIMUM 3". CENTER ON STUDS.
4. PROVIDE 3/8" HEX HEAD CAP SCREW (MIN. OF 3) WITH 3/8" CHANNEL NUT.

8 WALL MOUNTED PANEL INSTALLATION (100A-600A)
E5.1 NOT TO SCALE



1. WALL OR CEILING
2. PROVIDE PIPE CLAMP MAXIMUM EVERY 10', TYP. UNISTRUT # P-3411 SERIES OR EQUAL FOR CEILING MOUNTED. UNISTRUT # P1109 SERIES OR EQUAL FOR WALL MOUNTED.
3. UNISTRUT # P-1000 OR EQUAL. TO SPAN BETWEEN MIN. OF 2 JOIST / STUD BAYS.

* MAXIMUM CONDUIT TO BE INSTALL SHALL NOT BE GREATER THAN 4" IN SIZE AND MORE THAN 100 LBS IN WEIGHT PER 10'.

NOTE:

1. FOR WOOD STUD WALL OR WOOD ROOF JOIST: USE 3/8" DIA. X MIN. 3" LONG LAG SCREW WITH MIN. 2" EMBEDMENT INTO STUDS. (ONE AT EACH END OF BRACKET)

9 TYPICAL CONDUIT SUPPORT DETAIL
E5.1 SCALE: NOT TO SCALE

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PROJECT
BOREL MIDDLE SCHOOL - HVAC REPLACEMENT

SAN MATEO-FOSTER CITY SCHOOL DISTRICT

CONSULTANT

REGISTERED PROFESSIONAL ENGINEER
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Exp. 06/30/23
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MILESTONES

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90% CD	
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BACKCHECK	10/06/2021

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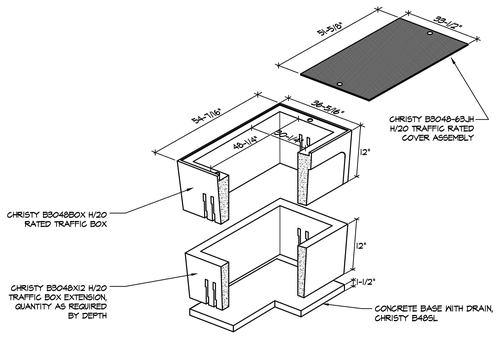
ELECTRICAL DETAILS

DATE 10/06/2021
JOB # 2021005.07
SHEET # E5.1

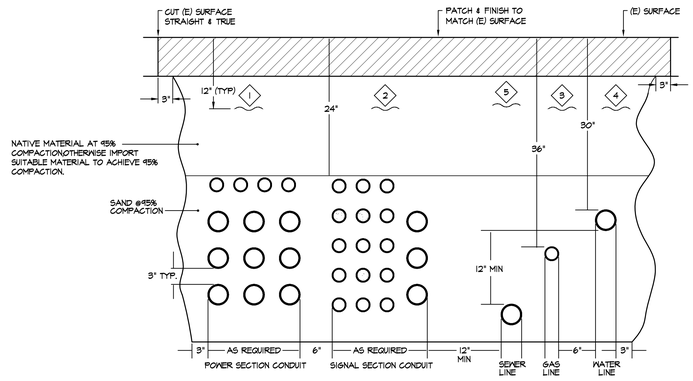


NOTES:

1. HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.
2. ALL CONDUITS SHALL ENTER FROM SIDES OF PULL BOX. CONTRACTOR SHALL PROVIDE PULL BOX EXTENSION AS REQUIRED. NO CONDUITS SHALL BE ALLOWED FROM THE BOTTOM OF THE PULL BOX.
3. CONTRACTOR SHALL STACK CONDUITS AS REQUIRED TO MEET THE NEC CODE REQUIREMENTS.
4. PROVIDE BELL ENDS ON ALL CONDUIT.
5. ALL PENETRATIONS INTO BOXES SHALL BE SEALED WITH GROUT.
6. PROVIDE BASE WITH DRAIN. PROVIDE DRAIN ROCK.

2 30" X 48" TRAFFIC BOX DETAIL

E5.2 NOT TO SCALE (FULL TRAFFIC COVER)



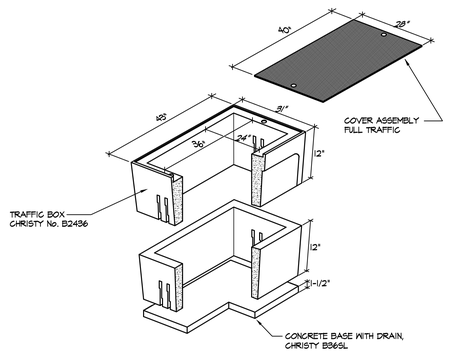
1. WARNING TAPE MARKED "POWER"
2. WARNING TAPE MARKED "SIGNAL"
3. WARNING TAPE MARKED "GAS"
4. WARNING TAPE MARKED "WATER"
5. WARNING TAPE MARKED "SEWER"

NOTES:

1. ALL ELECTRICAL TRENCH WORK SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
2. MINIMUM SPACING BETWEEN CONDUITS IS 3".
3. SEE SITE/FLOOR PLANS AND SPECIFICATIONS FOR CONDUIT REQUIREMENTS.
4. ALL UNDERGROUND CONDUITS TO BE IN CONFORMANCE WITH DETAIL 1/S5.1

3 TYPICAL JOINT TRENCH & DUCT BANK DETAIL

E5.2 NOT TO SCALE



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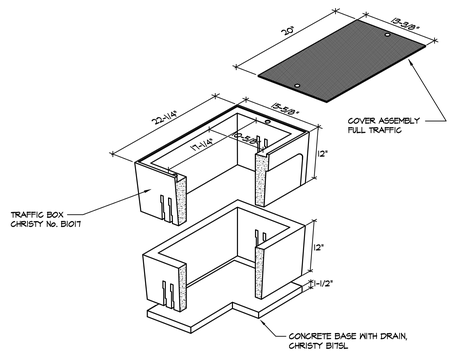
4 B2436 ELECTRICAL VAULT

E5.2 NOT TO SCALE (FULL TRAFFIC COVER)



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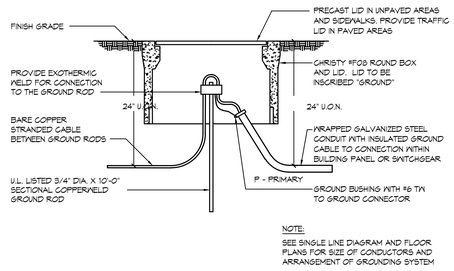
5 B1017 ELECTRICAL VAULT

E5.2 NOT TO SCALE (FULL TRAFFIC COVER)



NOTE:
SEE SINGLE LINE DIAGRAM AND FLOOR PLANS FOR SIZE OF CONDUCTORS AND ARRANGEMENT OF GROUNDING SYSTEM

6 GROUND ROD INSPECTION WELL FOR MULTIPLE GROUND RODS

E5.2 NOT TO SCALE

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