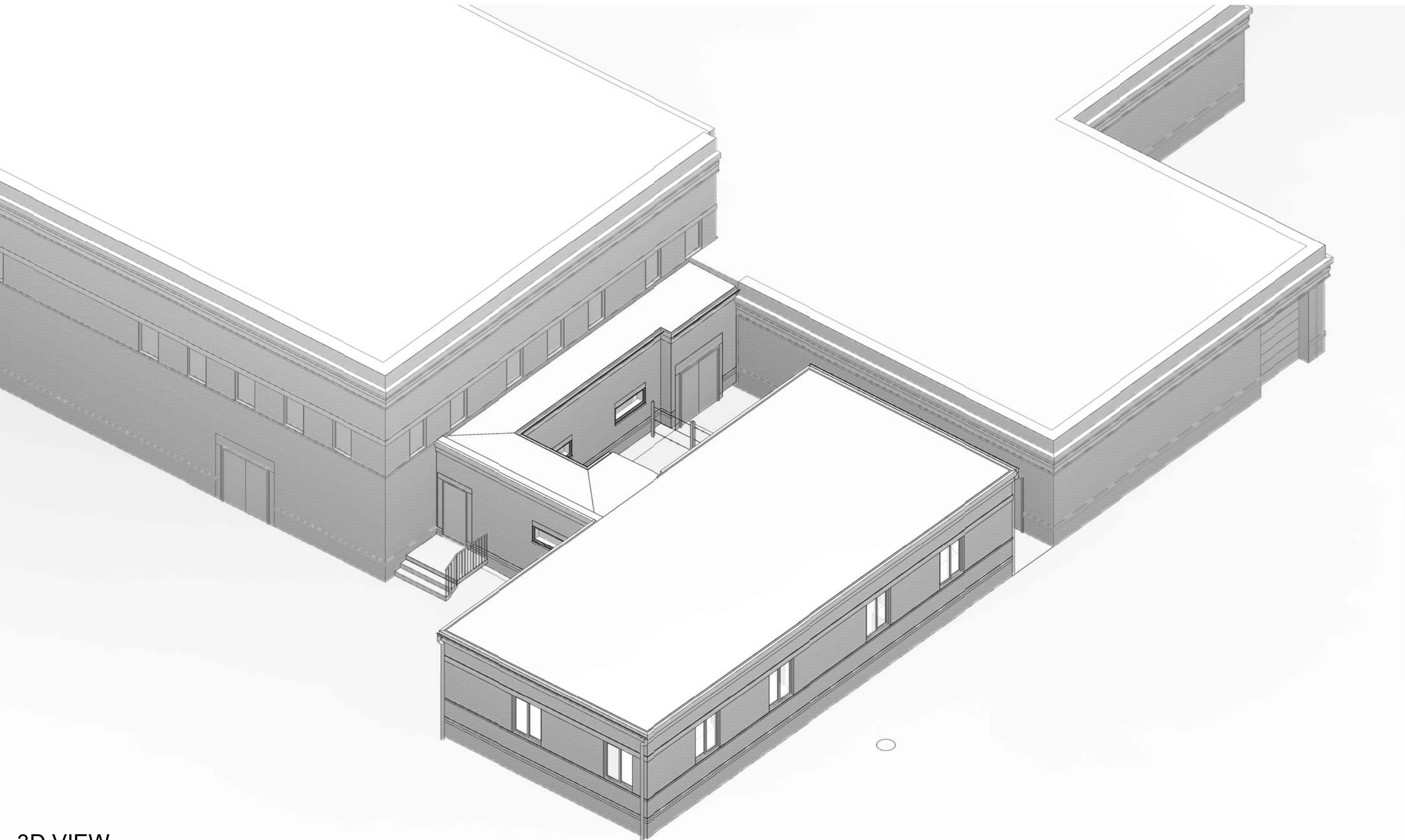
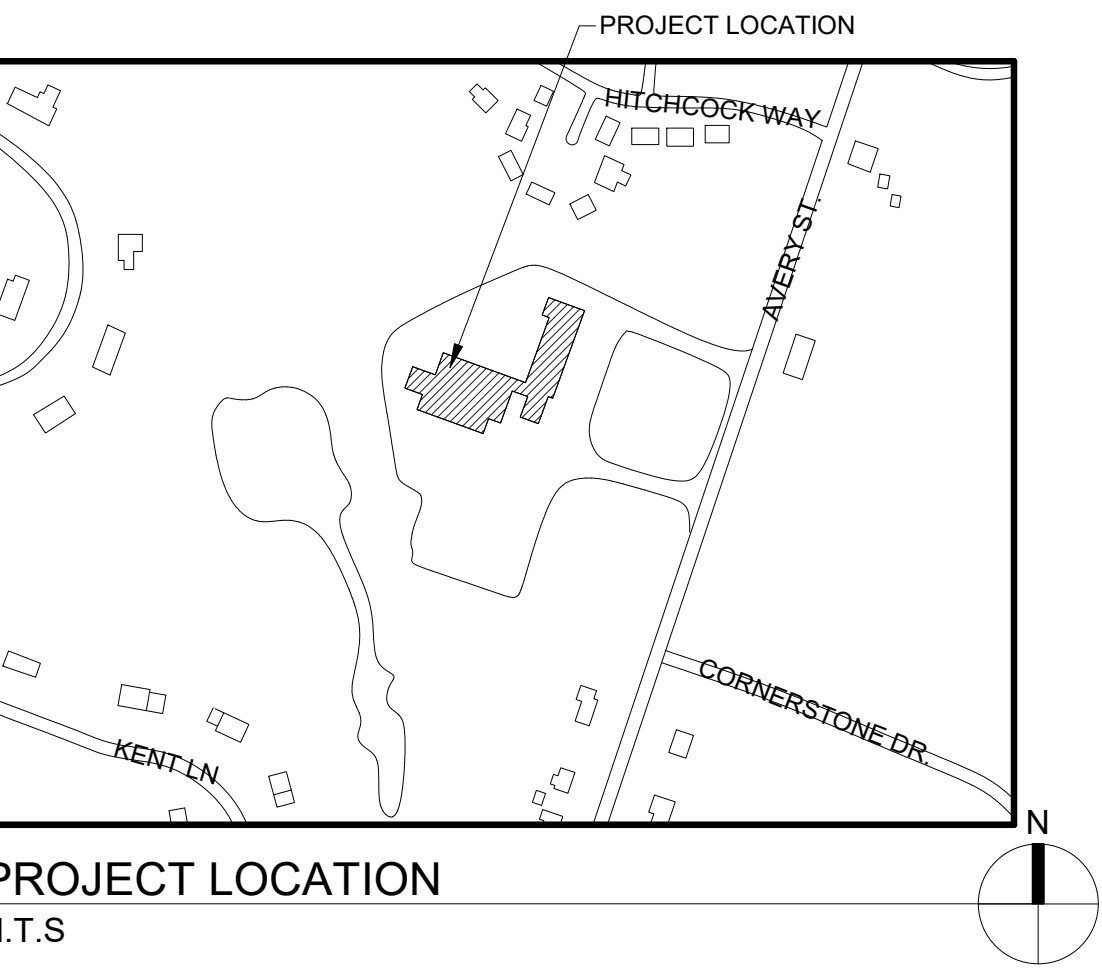


# PHILIP R. SMITH ELEMENTARY SCHOOL

949 AVERY STREET, SOUTH WINDSOR, CT 06074



3D VIEW  
N.T.S.



PROJECT LOCATION  
N.T.S.

LIST OF PROFESSIONALS
ARCHITECTURE - STRUCTURE - MEP
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SCOPE OF WORK				
SCOPE OF WORK INCLUDES ADDITION OF TWO PORTABLE CLASSROOMS AND A PEDESTRIAN WALKWAY. SCOPE INCLUDES ARCHITECTURE, STRUCTURE, MECHANICAL, ELECTRICAL AND PLUMBING WORK.				
LIST OF SHEETS				
SHEET NO.	SHEET NAME	Project Issue Date	Current Revision	Current Revision Date
G-0	COVER SHEET	12/09/2022		
G-1	CODE ANALYSIS, SYMBOL LEGENDS & GENERAL NOTES	12/09/2022		
G-2	GENERAL NOTES	12/09/2022		
G-3	EGRESS PLAN	12/09/2022		
A-0	SITE PLAN	12/09/2022		
A-1	FIRST FLOOR PLAN & ROOF PLAN	12/09/2022		
A-2	ELEVATIONS, SECTIONS	12/09/2022		
A-3	ENLARGED ELEVATIONS	12/09/2022		
A-4	ENLARGED SECTIONS AND DETAILS	12/09/2022		
A-5	3D VIEWS	12/09/2022		
A-6	DOOR, WINDOW SCHEDULES AND DETAILS	12/09/2022		
A-7	DOOR HARDWARE SETS	12/09/2022		
S-0	GENERAL NOTES	12/09/2022		
S-1	FOUNDATION PLAN AND DETAILS	12/09/2022		
FP-1	FIRE PROTECTION GENERAL NOTES AND SCHEDULES	12/09/2022		
FP-2	SPECIFICATION FOR PIPE SPRINKLER SYSTEMS	12/09/2022		
FP-3	FIRE PROTECTION SPECIFICATION	12/09/2022		
FP-4	FIRE PROTECTION PLAN & SPECIFICATION	12/09/2022		
P-1	PLUMBING GENERAL NOTES, LEGENDS AND SCHEDULES	12/09/2022		
P-2	PLUMBING SPECIFICATIONS	12/09/2022		
P-3	PLUMBING PLAN & SCHEDULES	12/09/2022		
P-4	PLUMBING DETAILS	12/09/2022		
M-1	MECHANICAL NOTES, SCHEDULES AND LEGENDS	12/09/2022		
M-2	MECHANICAL SPECIFICATIONS	12/09/2022		
M-3	MECHANICAL SPECIFICATIONS	12/09/2022		
M-4	MECHANICAL PLAN & SCHEDULES	12/09/2022		
M-5	MECHANICAL DETAILS	12/09/2022		
E-1	ELECTRICAL NOTES & SPECIFICATIONS	12/09/2022		
E-2	EQUIPMENT SCHEDULES, NOTES AND LEGEND	12/09/2022		
E-3	POWER RISER DIAGRAM	12/09/2022		
E-4	LIGHTING & POWER PLAN	12/09/2022		

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FILE NO. 22126  
DATE: 12/09/2022  
REV :

ABBREVIATION	
Abbreviation	Description
&	AND
@	AT (THE RATE OF)
Ø	DIAMETER, PHASE, ROUND (IN CONTEXT)
~	DIFF (SAME AS ABOVE)
#	NUMBER
%	PERCENT
AB	ANCHOR BOLT
ABV	ABOVE
AC	AIR CONDITIONING
ACC	ACCESS
ACFL	ACCESS FLOOR
ACPL	ACOUSTICAL PLASTER
ACR	ACRYLIC PLASTIC
ACP	ACOUSTICAL PANEL
ACT	ACOUSTICAL TILE
ADH	ADHESIVE
ADJ	ADJACENT
ADJT	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ALUM	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE, AMPACITY
ANC	ANCHOR, ANCHORAGE
ANOD	ANODIZED
AP	ACCESS PANEL
APPL	APPLIANCE
APX	APPROXIMATE(LY)
ARCH	ARCHITECT(URAL)
ASB	ASBESTOS
ASC	ABOVE SUSPENDED CEILING
ASSM	ASSEMBLE, ASSEMBLY(Y), (IES)
ASPH	ASPHALT(IC)
ATM	AUTOMATIC TELLER MACHINE
AUTO	AUTOMATIC
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
BD	BOARD
BEL	BELOW
BET	BETWEEN
BFE	BOTTOM OF FOOTING ELEVATION
BHD	BULKHEAD
BIT	BITUMINOUS
BLK	BLOCK
BLKG	BLOCKING
BLDG	BUILDING
BM	BEAM
BN	BULLNOSE
BOT	BOTTOM
BPL	BEARING PLATE
BRG	BEARING
BRK	BRICK
BRZ	BRONZE
BS	BOTH SIDES
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
BUR	BUILT UP ROOFING
BW	BOTH WAYS
C	CHANNEL
C TO C	CENTER TO CENTER
CAB	CABINET
CAP	CAPACITY
CB	CATCH BASIN
CDX	C-D PLYWOOD W/ EXTERIOR GLUE
CEM	CEMENT
CF	CUBIC FOOT (FEET)
CFG	CONFIGURATION
CFL	COUNTERFLASHING
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CJ	CONTROL JOINT
CK	CAULK, CAULKING
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CLL	CONTRACT LIMIT LINE
CLO	CLOSET
CLR	CLEAR(ANCE)
CM	CENTIMETER(S)
CMT	CERAMIC MOSAIC TILE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPRESSIBLE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUE, CONTINUOUS
COR	CORRUGATED
CORR	CORRIDOR
CP	CONCRETE PIPE
CPT	CARPET
CRS	COURSE(S)
CS	COUNTERSINK
CSS	COUNTERSINK SCREW
CSFSC	CT STATE FIRE SAFETY CODE
CSMT	CASEMENT
CST	CAST STONE
CT	CERAMIC TILE, CONNECTICUT (IN CONTEXT)
CTR	COUNTER
CU	COPPER
CUH	CABINET UNIT HEATER
CY	CUBIC YARD
D	PENNY
DBL	DOUBLE
DEM	DEMOLISH, DEMOLITION
DEP	DEPRESSED
DF	DRINKING FOUNTAIN
DH	DOUBLE HUNG
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN

ABBREVIATION	
Abbreviation	Description
DP	DAMP-PROOFING
DR	DOOR
DS	DOWNSPOUT
DTA	DOVETAIL ANCHOR
DTL	DETAIL
DTS	DOVETAIL ANCHOR SLOT
DWG	DRAWING
DWR	DRAWER
E	EAST
EA	EACH
EB	EXPANSION BOLT
EIFS	EXT INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSE(D), ENCLOSURE
EQ	EQUAL
EOP	EQUIPMENT
EXH	EXHAUST
EXG	EXISTING
EXT	EXTERIOR
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FAS	FASTEN(ED), FASTENER
FB	FACE BRICK
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FACTORY FINISH
FFE	FINISHED FLOOR ELEVATION
FFL	FINISHED FLOOR LINE
FGL	FIBERGLASS
FIN	FINISH(ED)
FJT	FLUSH JOINT
FLG	FLASHING
FLR	FLOOR(ING)
FM	FACTORY MUTUAL
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOS	FACE OF MASONRY
FOS	FACE OF STUDS
FPM	FEET PER MINUTE
FR	FIRE-RESISTANCE RATED (ING)
FRM	FRAME (D), FRAMING
FRP	FIBERGLASS REINFORCED PLASTIC
FRT	FIRE RETARDANT
FT	FOOT, FEET
FTG	FOOTING
FUR	FURR, FURRED, FURRING
FXT	FIXTURE
GA	GAUGE
GAL	GALLON
GB	GRAB BAR
GCMU	GLAZED CONCRETE MASONRY UNIT
GENL	GENERAL
GD	GRADE, GRADING
GF	GROUND FACE
GKT	GASKET(ED)
GL	GLASS, GLAZING
GLB	GLASS BLOCK
GPL	GYPSUM LATH
GPPL	GYPSUM PLASTER
GT	GROUT
GV	GALVANIZED
GVL	GRAVEL
GWB	GYPSUM WALLBOARD
HB	HOSE BIB
HC	HOLLOW CORE
HD	HEAVY DUTY
HDGP	ACCESSIBLE TO AND USEABLE BY THE PHYSICALLY HANDICAPPED
HDR	HEADER
HDW	HARDWARE
HM	HOLLOW METAL
HOR	HORIZONTAL
HP	HIGH POINT
HPL	HIGH PRESSURE LAMINATE
HR	HOUR
HRAL	HANDRAIL(S)
HT	HEIGHT
HTG	HEATING
HVAC	HEATING/VENTILATING/AIR CONDITIONING
HWD	HARDWOOD
HWH	HOT WATER HEATER
ID	IDENTIFY, IDENTIFICATION
IEBC	INTERNATIONAL EXG BLDG CODE
IIC	IMPACT INSULATION CLASS
IMC	INTERNATIONAL MECHANICAL CODE
IN	INCH(ES)
INCL	INCLUDE(ED), (ING)
INS	INSULATE(D), INSULATION
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
IPC	INTERNATIONAL PLUMBING CODE
J	JOIST
JB	JUNCTION BOX
JC	JANITOR'S CLOSET
JT	JOINT

ABBREVIATION	
Abbreviation	Description
K	1,000
KD	KNOCKED DOWN
KG	KILOGRAM
KIP	1,000 POUNDS
KO	KNOCKOUT
KPL	KICKPLATE
L	ANGLE
LAV	LAVATORY
LB	POUND(S)
LF	LINEAL FEET
LG	LONG, LENGTH
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LL	LIVE LOAD
LLV	LONG LEG VERTICAL
LOA	LENGTH OVERALL
LP	LOW POINT
LTG	LIGHTING
LTL	LINTEL
LUM	LUMINAIRE
LVR	LOUVER
LW	LIGHTWEIGHT
LWC	LIGHTWEIGHT CONCRETE
M	METER(S)
MAX	MAXIMUM
MC	MEDICINE CABINET
MDO	MEDIUM DENSITY OVERLAY
MET	METAL
MEZZ	MEZZANINE
MFD	MANUFACTURED
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MIN.	MINUTE
MIR	MIRROR
MISC	MISCELLANEOUS
MLD	MOLDING
MM	MILLIMETER
MMB	MEMBRANE
MO	MASONRY OPENING
MT	MOUNT(ED), MOUNTING
MTL	MATERIAL(S)
MULL	MULLION
MWK	MILLWORK
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OCC	OCCUPANT(S), OCCUPANCY
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIMENSION
OH	OVERHEAD
OJ	OPEN-WEB JOIST
OPG	OPENING
OPH	OPPOSITE HAND
OPP	OPPOSITE
OR EQ	OR EQUAL AS APPROVED BY THE ARCHITECT
OZ	OUNCE
P.T.	PRESSURE TREATED TO RESIST MOISTURE/DECAY
PBD	PARTICLE BOARD
PCC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PERF	PERFORATE(D)
PERI	PERIMETER
PERP	PERPENDICULAR
PFB	PREFABRICATE(D)
PFN	PREFINISHED
PH	PHASE
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PNL	PANEL
PNL	PAINT(ED)
POLY	POLYETHYLENE
PR	PAIR
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
PTD	PAPER TOWEL DISPENSER
PTDW	PTD/WASTE RECEPTACLE
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWD	PLYWOOD
QT	QUARRY TILE
QTY	QUANTITY
R	RISER
RAD	RADIUS
RD	ROOF DRAIN
RE	REINFORCE(D), (ING)
REF	REFERENCE
REM	REMOVE
REQD	REQUIRED
RET	RETURN
REV	REVISE(D), REVISION(S)
RFG	ROOFING
RFH	ROOF HATCH
RFL	REFLECT(ED), (IVE), (OR)

ABBREVIATION	
Abbreviation	Description
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
RL	RAIL(ING)
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RVS	REVERSE
RWL	RAINWATER LEADER
S	SOUTH
SBC	STATE BUILDING CODE (CT)
SC	SOLID CORE
SCH	SCHEDULE
SCN	SCREEN
SCT	STRUCTURAL CLAY TILE
SD	STORM DRAIN
SEC	SECTION
SEPN	SEPARATION
SF	SQUARE FOOT (FEET)
SFGL	SAFETY GLASS
SG	SHEET GLASS
SGAP	SUSPENDED GRID ACOUSTIC PANEL
SH	SHELF, SHELVING
SHIT	SHEET
SHTH	SHEATHING
SHW	SHOWER
SIM	SIMILAR
SK	SINK
SKL	SKYLIGHT
SL	SLEEVE
SND	SANITARY NAPKIN DISPENSER
SNDL	SANITARY NAPKIN DISPOSAL
SPD	SOAP DISPENSER
SPH	SOAP DISH
SPKR	SPRINKLER(ED)
SQ	SQUARE
SS	SERVICE SINK
SST	STAINLESS STEEL
ST	STEEL
STC	SOUND TRANSMISSION COEFFICIENT
STD	STANDARD
STO	STORAGE
STR	STRUCTURAL
SY	SQUARE YARD(S)
T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE-AND-GROOVE
T&T	TONGUE AND GROOVE
T&T	TONGUE AND GROOVE
TEL	TELEPHONE
TEMP	TEMPERATURE
TF	TOP OF FRAME
TFD	TENANT FITOUT DWG
TGL	TEMPERED GLASS
THK	THICK(NESS)
THR	THRESHOLD
TPD	TOILET PAPER DISPENSER
TPTN	TOILET PARTITION
TSL	TOP OF SLAB
TOS	TOP OF STEEL
TV	TELEVISION
TW	TOP OF WALL
TWE	TOP OF WALL ELEVATION
TYP	TYPICAL
UC	UNDERCUT
UL	UNDERWRITER'S LABORATORIES
UNF	UNFINISHED
UR	URINAL
VBS	VINYL BASE
VCT	VINYL COMPOSITION TILE
VENT	VENTILATE(D), (ING)
VERT	VERTICAL
VIF	VERIFY IN THE FIELD
VNR	VENEER
VOL	VOLUME
VTR	VENT THROUGH ROOF
VWC	VINYL WALLCOVERING
W	WEST
W/	WITH
WIN	WITHIN
WO	WITHOUT
WBS	WOOD BASE
WC	WATER CLOSET
WD	WOOD
WG	WIRED GLASS
WH	WALL HUNG
WIN	WINDOW
WM	WIRE MESH
WP	WATERPROOFING
WPT	WORKING POINT
WS	WATERSTOP
WSCOT	WAINSCOT
WT	WEIGHT
WWF	WELDED WIRE FABRIC
X	BY
X#	EXCEPTION NUMBER
YD	YARD

APPLICABLE CODES	
<u>2022 CONNECTICUT STATE BUILDING CODE</u> INTERNATIONAL CODE COUNCIL, INC. • 2021 INTERNATIONAL BUILDING CODE • 2017 A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES • 2021 INTERNATIONAL EXISTING BUILDING CODE • 2021 INTERNATIONAL PLUMBING CODE • 2021 INTERNATIONAL MECHANICAL CODE • 2021 INTERNATIONAL ENERGY CONSERVATION CODE • 2021 INTERNATIONAL SWIMMING POOL & SPA CODE • 2021 INTERNATIONAL RESIDENTIAL CODE  NATIONAL FIRE PROTECTION ASSOCIATION, INC. • 2020 NFPA 70 NATIONAL ELECTRICAL CODE  ALL AS AMENDED AND ADOPTED BY THE OCTOBER 1, 2022 CONNECTICUT AMENDMENTS CONSTITUTE THE 2022 CONNECTICUT STATE BUILDING CODE.  <u>2022 CONNECTICUT STATE FIRE SAFETY CODE</u> INTERNATIONAL CODE COUNCIL, INC. • 2021 NFPA 101 LIFE SAFETY CODE  NATIONAL FIRE PROTECTION ASSOCIATION, INC. • 2021 NFPA 1 FIRE CODE (INCLUDING ANNEXES A, C, AND F)  AS AMENDED AND ADOPTED BY THE OCTOBER 1, 2022 CONNECTICUT AMENDMENTS CONSTITUTE THE 2022 CONNECTICUT STATE FIRE SAFETY CODE.  <u>2022 CONNECTICUT STATE FIRE PREVENTION CODE</u> NATIONAL FIRE PROTECTION ASSOCIATION, INC. • 2021 NFPA 1 FIRE CODE (INCLUDING ANNEXES A, C, AND F)  AS AMENDED AND ADOPTED BY THE OCTOBER 1, 2022 CONNECTICUT AMENDMENTS CONSTITUTE THE 2022 CONNECTICUT STATE FIRE PREVENTION CODE.	

NO	NOTES
1	THESE GENERAL NOTES SHALL APPLY TO ALL SHEETS IN THE SET.
2	DO NOT SCALE THE DRAWINGS. USE DIMENSIONS SHOWN ON PLANS, SECTIONS, & DETAILS.
3	THE CONTRACTOR SHALL VERIFY & BE RESPONSIBLE FOR ALL DIMENSIONS & OTHER CONDITIONS IN THE FIELD.
4	NOT EVERY MATERIAL OR ELEMENT IS NOTED AT EVERY CONDITION. SEE SIM CONDITIONS FOR APPROPRIATE NOTES.
5	CONSULT W/ THE ARCHITECT IMMEDIATELY UPON DISCOVERING ANY CONFLICTS IN THESE PLANS.
6	IF DRAWINGS AND TEXT CONFLICT, THE TEXT SHALL GOVERN. IF NOTES & SPECIFICATIONS CONFLICT, THE NOTES SHALL GOVERN. IF THE DRAWINGS CONFLICT WITH ONE ANOTHER, THAT AT LARGEST SCALE SHALL GOVERN.
7	MECHANICAL & STRUCTURAL ELEMENTS ARE SHOWN ON ARCHITECTURAL DRAWINGS TO INDICATE THE EXTENT OF THE WORK ONLY. IT IS NOT THE INTENT OF THE ARCHITECTURAL DWGS TO SHOW ENGINEERING WORK EACH OTHERS WORK.
8	TRADES SHALL COORDINATE THEIR WORK W/ OTHER TRADES.
9	REMOVE ALL MATERIAL AS REQ'D TO REACH CONFIGURATION SHOWN, WHETHER OR NOT SHOWN ON DEMO PLANS. SUPPORT, BRACE, OR SHORE ALL EXG CONST AS REQ'D DURING INSTALLATION OF NEW MATERIAL.

CODE NOTES	
1. THIS PROJECT CONSISTS OF THE FOLLOWING: 1.1. NEW CONSTRUCTION OF TWO MODULAR CLASSROOMS IN A SEPARATE BUILDING CONNECTED TO AN EXISTING EDUCATIONAL OCCUPANCY ON THE SAME SITE BY A PEDESTRIAN WALKWAY. 1.2. THIS IS NOT AN ADDITION, SO ANALYSIS DOES NOT BEGIN IN THE IBCB	24. RAMPS AND HANDRAILS PER 1012 AND 1014: SEE FLOOR PLAN AND DETAILS 25. EXIT SIGNS PER 1013.1: SEE [FLOOR] ELECTRICAL LIGHTING PLAN 25.1. 1013.5. INTERNALLY ILLUMINATED EXIT SIGNS: SEE ELECTRICAL LIGHTING PLAN 25.2. 1013.6.3 POWER SOURCE: SEE ELECTRICAL SPECIFICATIONS
2. 107.3.4.1 LIST OF DEFERRED SUBMITTALS: 2.1. SPRINKLER SHOP DRAWINGS AND CALCULATIONS 2.2. FIRE ALARM SHOP DRAWINGS 2.3. PLUMBING SHOP DRAWINGS 2.4. HVAC SHOP DRAWINGS 2.5. PORTABLE CLASSROOM SHOP DRAWINGS 2.6. DEFERRED SUBMITTALS WILL BE SUBMITTED TO THE BUILDING OFFICIAL BY RUSSELL AND DAWSON INC. 2.7. WORK SHOWN ON DEFERRED SUBMITTALS SHALL NOT BE INSTALLED UNTIL APPROVED BY THE BUILDING OFFICIAL	26. GUARDS PER 1015:SEE FLOOR PLAN AND DETAILS 27.1. SPRINKLER SHOP DRAWINGS AND CALCULATIONS 28. EXIT ACCESS TRAVEL PER TABLE 1017.2 28.1. MAXIMUM PERMITTED: 200 FEET PROPOSED: 195 FEET [SEE EGRESS PLAN] 29. CORRIDOR CONSTRUCTION PER 1020.1 29.1. ENCLOSURE REQUIRED: 1-HOUR PROPOSED: SEE FLOOR PLAN AND DETAILS 29.2. TABLE 1020.2 MINIMUM WIDTH 6 FEET PROPOSED: SEE FLOOR PLANS 30. LUMINOUS EGRESS PATH MARKINGS PER 1025 (HIGH RISE ONLY) 31. EXIT DISCHARGE PER 1028: SEE SITE PLAN 31.1. 1028.5 ACCESS TO A PUBLIC WAY 32. ACCESSIBILITY PER 1103.1: SEE FLOOR PLANS AND DETAILS 33. NATURAL VENTILATION 33.1. CRAWLSPACES PER 1203.4 33.2. OCCUPIED SPACES PER 1203.5 34. MECHANICAL VENTILATION 34.1. OCCUPIED SPACES PER IMC 403.2: SEE MECHANICAL DRAWINGS 35. TEMPERATURE CONTROL PER 1204.1 35.1. REQUIRED: 68°F 36°F AFF PROPOSED: SEE MECHANICAL DRAWINGS 36. NATURAL LIGHT PER 1205.2 36.1. REQUIRED: CLEAR OPG = 8% OF THE FLOOR AREA 36.2. PROVIDED: 37. ARTIFICIAL LIGHT PER 1205.3 37.1. REQUIRED: 10 FOOT CANDLES 30" ABOVE THE FLOOR 37.2. PROVIDED: SEE ELECTRICAL LIGHTING PLANS 37.2.1. IF REQUESTED, PHOTOMETRIC SHOP DRAWINGS WILL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. 38. HABITABLE AND OCCUPABLE SPACES 38.1. MINIMUM ROOM WIDTHS PER 1208.1: NA PROVIDED: SEE FLOOR PLANS 38.2. MINIMUM CEILING HEIGHT PER 1208.2: 7'-6" PROVIDED: SEE FINISH SCHEDULE 39. ENERGY EFFICIENCY PER 1301.1.1 39.1. SEE COMCHECK
3. USE AND OCCUPANCY CLASSIFICATION 3.1. 305.1 EDUCATIONAL GROUP E 4. CONSTRUCTION TYPE PER TABLE 601 4.1. VB 5. FULLY SPRINKLERED PER 903.3.1.1: YES 6. BUILDING HEIGHT 6.1. PROPOSED STORIES: 1 FEET: 18 6.2. ALLOWABLE IN FEET PER TABLE 504.3: 60 6.3. ALLOWABLE STORIES PER TABLE 504.4: 2 7. BUILDING AREA 7.1. PROPOSED 7.1.1. PROJECTED AREA IN SQUARE FEET: 1,553 7.1.2. TOTAL AREA IN SQUARE FEET: 1,553 7.2. IN SQUARE FEET PER TABLE 506.2: 38,000 7.3. AREA DETERMINATION PER 506.2.1 7.3.1. TOTAL AREA ALLOWABLE: 38,000 8. FIRE SEPARATION DISTANCE PER TABLE 602 8.1. PROPOSED: 6 FEET MINIMUM FROM EXISTING BUILDING TO IMAGINARY LINE, 0 FEET FROM NEW CONSTRUCTION TO IMAGINARY LINE 9. FIRE RESISTANCE RATED EXTERIOR WALLS PER TABLE 602 9.1. EXISTING BUILDING 2-HOUR EXTERIOR WALL [SEE ITEM 10.7 BELOW] 9.2. NEW CONSTRUCTION 1-HOUR EXTERIOR WALL AT IMAGINARY LINE PER WALL TYPE INDICATED 10. FIRE RESISTANCE AND FIRE TESTS: SEE DETAILS 10.1. 705 EXTERIOR WALLS 10.1.1. 705.3 BUILDINGS ON THE SAME SITE: SEE FLOOR PLAN FOR LOCATION OF IMAGINARY LINE 10.2. 707 FIRE BARRIERS 10.3. 711 HORIZONTAL ASSEMBLIES 10.4. 716 OPENING PROTECTIVES 10.4.1. SMOKE AND DRAFT CONTROL DOORS REQUIRED AT RATED CORRIDORS 10.5. 718 CONCEALED SPACES 10.6. 720 INSULATING MATERIALS 10.6.1. 720.2 CONCEALED INSULATION: CONCEALED INSULATION SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 & A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450. 10.6.2. 720.7 PIPE AND TUBING: INS & COVERING ON PIPE & TUBE SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 & A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450. 10.7. 721 PRESCRIPTIVE FIRE RESISTANCE: SEE ITEM 1-2.1 FOR 2-HOUR RATING OF EXTERIOR WALL OF EXISTING BUILDING 11. INTERIOR FINISHES PER TABLE 903.9 11.1. SEE FINISH SCHEDULE 12. AUTOMATIC SPRINKLER SYSTEM PER 903.2 12.1. REQUIRED:NO PER PROPOSED: YES 12.2. STANDARD: NFPA 13 PER SUBMITTAL 13. STANDPIPE SYSTEMS PER 906.3 13.1. REQUIRED: NO PROPOSED: NO 13.2. STANDARD: NFPA 14 14. PORTABLE FIRE EXTINGUISHERS PER 906.1: PORTABLE FIRE EXTINGUISHERS SHALL BE SIZED AND LOCATED PER SHOP DWG SUBMITTED BY THE SUPPLIER 15. FIRE ALARM AND DETECTION SYSTEMS PER 907.2 15.1. 907.2.7 MANUAL FIRE ALARM BOXES BY OCCUPANCY 15.2. 907.2.7 ACTIVATION 15.3. 907.2.7 FIRE DETECTION 15.4. 907.2.11 SMOKE ALARMS 15.5. 907.2.17 ATRIUMS CONNECTING > TWO STORIES 15.6. 907.3 FIRE SAFETY FUNCTIONS 15.7. 907.3.1 DUCT SMOKE DETECTORS 15.8. 907.4 INITIATING DEVICES 15.9. 907.5 OCCUPANT NOTIFICATION SYSTEMS 15.10. 907.5.2 ALARM-NOTIFICATION APPLIANCES 15.11. 907.6.6 MONITORING 15.12. 907.7 ACCEPTANCE TESTS AND COMPLETION PER NFPA 72 16. OCCUPANT LOAD PER TABLE 1004.1.2 USE FACTOR AREA IN SF OCCUPANTS	29.2.1. 1028.5 ACCESS TO A PUBLIC WAY 29.2.2. 1028.5 ACCESS TO A PUBLIC WAY 29.2.3. 1028.5 ACCESS TO A PUBLIC WAY 29.2.4. 1028.5 ACCESS TO A PUBLIC WAY 29.2.5. 1028.5 ACCESS TO A PUBLIC WAY 29.2.6. 1028.5 ACCESS TO A PUBLIC WAY 29.2.7. 1028.5 ACCESS TO A PUBLIC WAY 29.2.8. 1028.5 ACCESS TO A PUBLIC WAY 29.2.9. 1028.5 ACCESS TO A PUBLIC WAY 29.2.10. 1028.5 ACCESS TO A PUBLIC WAY 29.2.11. 1028.5 ACCESS TO A PUBLIC WAY 29.2.12. 1028.5 ACCESS TO A PUBLIC WAY 29.2.13. 1028.5 ACCESS TO A PUBLIC WAY 29.2.14. 1028.5 ACCESS TO A PUBLIC WAY 29.2.15. 1028.5 ACCESS TO A PUBLIC WAY 29.2.16. 1028.5 ACCESS TO A PUBLIC WAY 29.2.17. 1028.5 ACCESS TO A PUBLIC WAY 29.2.18. 1028.5 ACCESS TO A PUBLIC WAY 29.2.19. 1028.5 ACCESS TO A PUBLIC WAY 29.2.20. 1028.5 ACCESS TO A PUBLIC WAY 29.2.21. 1028.5 ACCESS TO A PUBLIC WAY 29.2.22. 1028.5 ACCESS TO A PUBLIC WAY 29.2.23. 1028.5 ACCESS TO A PUBLIC WAY 29.2.24. 1028.5 ACCESS TO A PUBLIC WAY 29.2.25. 1028.5 ACCESS TO A PUBLIC WAY 29.2.26. 1028.5 ACCESS TO A PUBLIC WAY 29.2.27. 1028.5 ACCESS TO A PUBLIC WAY 29.2.28. 1028.5 ACCESS TO A PUBLIC WAY 29.2.29. 1028.5 ACCESS TO A PUBLIC WAY 29.2.30. 1028.5 ACCESS TO A PUBLIC WAY 29.2.31. 1028.5 ACCESS TO A PUBLIC WAY 29.2.32. 1028.5 ACCESS TO A PUBLIC WAY 29.2.33. 1028.5 ACCESS TO A PUBLIC WAY 29.2.34. 1028.5 ACCESS TO A PUBLIC WAY 29.2.35. 1028.5 ACCESS TO A PUBLIC WAY 29.2.36. 1028.5 ACCESS TO A PUBLIC WAY 29.2.37. 1028.5 ACCESS TO A PUBLIC WAY 29.2.38. 1028.5 ACCESS TO A PUBLIC WAY 29.2.39. 1028.5 ACCESS TO A PUBLIC WAY



01001. GENERAL CONDITIONS		1	IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL CONDITIONS, WHEN THE CONTRACTOR CONSIDERS THE WORK TO BE SUBSTANTIALLY COMPLETE, HE SHALL NOTIFY THE ARCHITECT IN WRITING THAT THE WORK WILL BE READY FOR FINAL INSPECTION ON A DEFINITE DATE WHICH SHALL BE STATED IN THE NOTICE. SUCH NOTICE SHALL BE GIVEN AT LEAST 5 DAYS PRIOR TO THE DATE STATED FOR FINAL INSPECTION.	1	THE WORK INCLUDES ACOUSTICAL AND BATT INSULATION AS INDICATED IN PARTITION DETAILS AND SETIONS.	1	THE WORK INCLUDES ALL DRYWALL AND METAL STUD FRAMING AS INDICATED ON THE DRAWINGS.
2	THESE GENERAL NOTES, SPECIFICATIONS, KEYS AND LEGENDS ARE TO BE USED IN CONJUNCTION WITH THE APPLICABLE DRAWINGS.	2	AT THE "SUBSTANTIAL COMPLETION STAGE" OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING ITEMS TO THE ARCHITECT PACKAGED IN SUITABLE CONTAINERS, AND MUST BE PROPERLY INDEXED:	2	PROVIDE SOUND CONTROL BATTS OR BLANKETS OF INORGANIC, NON ASBESTOS FIBERS AND BINDERS COMPLYING WITH ASTM C665 AND AS MANUFACTURED BY CERTAIN TEED CORP. OR ARCHITECT APPROVED EQUAL.	2	ALL MATERIALS SHALL BE STANDARD GAGE & THICKNESS AS MANUFACTURED BY.
3	SEE ALL DRAWINGS FOR FURTHER GENERAL NOTES.			A)	THICKNESS: AS SHOWN ON DWGS.	A)	U.S.G.
SUBMITTALS				B)	DENSITY: 0.5 LB./FT3 OR GREATER.	B)	NATIONAL GYPSUM
1	SUBMIT SHOP DRAWINGS, PROJECT DATA AND SAMPLES OF ALL ITEMS INDICATED FOR THE REVIEW OF THE ARCHITECT OR ENGINEER.	A)	SPECIFIED WARRANTIES FOR ALL EQUIPMENT, WORKMANSHIP/MAINTENANCE BONDS, MAINTENANCE AGREEMENTS, CERTIFICATES OF INSPECTION, FINAL CERTIFICATIONS AND SIMILAR DOCUMENTS.	C)	TYPE: UNFACED.	C)	OR EQUAL
2	THE CONSTRUCTION MANAGER (CM) SHALL REVIEW ALL SHOP DRAWINGS, DATA OR SAMPLES PRIOR TO SUBMISSION, VERIFYING FIELD MEASUREMENTS FIELD CONSTRUCTION CRITERIA, CATALOG NUMBERS OR SIMILAR DATA.	B)	ALL GUARANTEES FOR EQUIPMENT AND MATERIALS AS OFFERED BY THE MANUFACTURERS, AND AS REQUIRED BY THIS CONTRACT.	D)	SIZE: COORDINATE WIDTHS WITH SPACES TO BE INSULATED FOR FRICTION FIT.	3	PROVIDE AND INSTALL IN STRICT COMPLIANCE W/ MANUFACTURER'S WRITTEN SPECIFICATIONS & DETAILS
3	THE CONTRACTOR IS RESPONSIBLE FOR DEVIATION IN SUBMITTALS AND IS NOT RELIEVED BY THE ARCHITECT/ENGINEER'S REVIEW AND APPROVAL OF SUBMITTALS, UNLESS THE ARCHITECT/ENGINEER GIVES WRITTEN ACCEPTANCE OF SPECIFIC DEVIATIONS.	C)	LIST OF ALL CONTRACTORS AND MAJOR MATERIAL SUPPLIERS (SHALL INCLUDE ADDRESS, TELEPHONE AND CONTACT PERSON).	E)	FLAME SPREAD: MAXIMUM FLAME SPREAD OF 25; ASTM E84.	4	PROVIDE ALL ACCESSCRIES AS REQUIRED FOR A COMPLETE INSTALLATION.
4	SUBMISSIONS OF ALL CUTS, DRAWINGS AND PRINTED MATERIAL MAY BE MADE ELECTRONICALLY AND WILL BE RETURNED ELECTRONICALLY. SUBMIT 2 SETS OF PHYSICAL SAMPLES OF ALL FINISH MATERIALS.	D)	THREE PAPER & ONE DIGITAL COPIES OF ALL MAINTENANCE AND OPERATION BROCHURE, MANUALS ETC., OF EQUIPMENT AS OFFERED BY THE MANUFACTURER, OR AS SPECIFIED FOR THE CONTRACTOR TO SUBMIT.	F)	ST. RATING: 50.	ACOUSTICAL CEILINGS	
5	SUBMITTALS SHALL BE STAMPED WITH THE CONTRACTORS STAMP AND INITIALED OR SIGNED, CERTIFYING THE REVIEW OF SUBMITTAL, VERIFICATION OF FIELD MEASUREMENTS AND COMPLIANCE WITH CONTRACT DOCUMENTS.	E)	RECORD DRAWINGS, MARKED AS NOTED BELOW WITH CHANGES MADE DURING CONSTRUCTION, SHALL BE SUBMITTED TO THE ARCHITECT. SCANNED ELECTRONIC CD OF THE RECORD DRAWINGS IN PDF FORMAT SHALL BE PROVIDED TO THE ARCHITECT. SEE BIM REQUIREMENTS.	3	COMPLY WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.	1	THE WORK INCLUDES CEILING TILE AND GRID AS INDICATED ON THE DRAWINGS.
6	CM TO PROVIDE COMPLETE COORDINATION DRAWINGS FOR ALL MEP & SPRINKLER SYSTEMS INTEGRATION IN CEILINGS. CM IS RESPONSIBLE FOR COORDINATION OF ALL TRADES.	F)	A PUNCH LIST OF ITEMS & REPAIRS WHICH ARE NOT COMPLETE AT THE TIME OF INSPECTION WITH TIME OF COMPLETION AND VALUED INCOMPLETE WORK. NO WORK REMAINING MAY BE LIFE SAFETY RELATED. ALL LIFE SAFETY WORK MUST BE COMPLETE.	1	FIRE STOPPING AND FIRE CAULKING (SUBMITTAL REQUIRED)	2	AT MATERIALS SHALL BE:
7	PAY APPLICATIONS: SUBMIT MARK UP PAY APPLICATIONS ONE DAY PRIOR TO MONTHLY SITE OBSERVATION MEETINGS. SUBMIT FINAL PAY APPLICATION ONE DAY AFTER MEETING. PAY APPLICATIONS SHALL BE RETURNED ONE WEEK AFTER FINAL SUBMITTAL.	3	THE CONTRACTOR SHALL PROVIDE FREE INSTRUCTION IN THE PROPER USE OF ALL INSTALLED EQUIPMENT, AND IN THE PROPER METHODS OF CLEANING AND MAINTAINING ALL OF THE FINISHED SURFACES AND THE PROPER METHOD OF REPLACEMENT OF THE CONSUMABLE ITEMS, TO DESIGNATED REPRESENTATIVES OF THE OWNER.	2	PROVIDE MATERIAL TESTED, LISTED, AND LABELED BY UL IN DESIGN SIMILAR TO APPLICATIONS INDICATED. PROVIDE SEMI-RIGID, NON-ASBESTOS MINERAL FIBERBOARD, RATED NON COMBUSTIBLE WHEN TESTED ACCORDING TO ASTM E184, COMPLYING WITH FS-HH-4-559B FORM A.	3	PROVIDE & INSTALL PER MANUFACTURER'S WRITTEN SPECIFICATIONS & DETAILS
8	LOW VOC EMISSION REQUIREMENTS	4	FINAL CLEANING:	3	PROVIDE FIRE STOPPING MATERIAL AND THICKNESS AS REQUIRED TO PROVIDE INDICATED RATINGS, WHERE NOT OTHERWISE INDICATED, COMPLY WITH UL STANDARD DESIGN. INSTALL MATERIAL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.	4	PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION
A)	SUBMIT MSDS SHEETS FOR ALL:	A)	EMPLOY SKILLED WORKMEN FOR FINAL CLEANING.	HOLLOW METAL FRAMES (SUBMITTAL REQUIRED)		SPECIFICATION AND SPECIFIC DETAILS NOTED BY MODEL & BRAND	
A-1)	ADHESIVES FIELD APPLIED INSIDE WEATHERPROOFING	B)	REMOVE GREASE, MASTIC, ADHESIVES, DUST, DIRT, STAINS, FINGERPRINTS, LABELS AND OTHER FOREIGN MATERIALS FROM SIGHT, EXPOSED INTERIOR AND EXTERIOR SURFACES.	1	THIS WORK INCLUDES NEW INTERIOR HOLLOW METAL DOOR FRAMES, INTERIOR DOOR FRAMES - 16 GA. EXTERIOR HM DOOR FRAMES - 14 GA A60 GALVANIZED. EXTERIOR DOORS TO CONFORM TO A924 & A653 ASTM STANDARDS.	1	PRODUCT SPECIFICATIONS ARE NOTED THROUGHOUT THE DOCUMENTS. WHERE NOTED, PRODUCTS ARE "BASIS OF DESIGN", HOWEVER SOME ITEMS ARE REQUIRED TO BE SPECIFIC PER THE CLIENT'S SPECIFICATIONS. SEE ID DRAWINGS FOR REQUIRED BRANDS, MODELS & VENDERS.
A-2)	PRODUCTS CONTAINING ADHESIVES	C)	WASH AND SHINE GLAZING.	2	PROVIDE WELDED METAL FRAMES FOR DOORS AS INDICATED. USE CONCEALED FASTNERS WHEREVER POSSIBLE		
A-3)	EXTERIOR FIELD APPLIED ADHESIVES, VERIFY ADHESIVES	D)	POLISH GLOSSY SURFACES TO A CLEAR SHINE.	A)	PROVIDE FACTORY FINISH TO MATCH BUILDING STANDARD, OR INDICATED REQUIRED FINISH.		
A-4)	FIELD APPLIED PAINTS, COATING AND SEALANTS	E)	CLEAN PERMANENT FILTERS AND REPLACE DISPOSABLE FILTERS IF UNITS WERE OPERATED DURING CONSTRUCTION. PROVIDE 3 SETS OF REPLACEBLE FILTERS FOR ATTIC STOCK.	3	FRAME INSTALLATION: WHERE POSSIBLE PLACE FRAMES PRIOR TO WALLS AND CEILINGS.		
A-5)	INTERIOR FINISH CARPETING AND FLOORING MATERIALS	5	BUILDING MANAGEMENT WILL ASSUME RESPONSIBILITY FOR CLEANING AS OF THE DATE CERTIFIED ON THE CERTIFICATE OF SUBSTANTIAL COMPLETION FOR THE ACCEPTANCE OF PROJECT OR PORTION THEREOF.	WOOD DOORS (SUBMITTAL REQUIRED)			
B)	SEE TABLE ON FINISH SCHEDULE FOR LOW EMISSION VOC REQUIREMENTS	PROJECT	RECORD REQUIREMENTS	1	THIS WORK INCLUDES FLUSH WOOD DOORS AS INDICATED.		
GENERAL PRODUCT REQUIREMENTS:		1	MAINTAIN AT THE SITE, FOR THE OWNER, ARCHITECT AND LOCAL BUILDING OFFICIALS, ONE RECORD COPY OF SIGNED AND SEALED DRAWINGS, SPECIFICATIONS, ADDENDA, CHANGE ORDERS AND OTHER MODIFICATIONS TO THE CONTRACT, ARCHITECTS FIELD ORDERS AND WRITTEN INSTRUCTIONS, APPROVED SUBMITTALS AND ALL PERTINENT PROJECT DATA.	2	PROVIDE DOORS AS A COMPLETE ASSEMBLY, 80" TALL BY 1 3/4" THICK (OR AS INDICATED ON DOOR SCHEDULE) FLUSH, STRUCTURAL COMPOSITE LUMBER (SCL) CORE, WOOD VENEER OF A/WI PREMIUM QUALITY. OTHER DOOR CORE MATERIALS SUCH AS PARTICLE BOARD OR HOLLOW CORE SHALL NOT BE ACCEPTABLE.		
SECURITY AND PROTECTION:		A)	LOCATION OF INTERNAL UTILITIES AND APPURTENANCES CONCEALED IN CONSTRUCTION, REFERENCED TO VISIBLE AND ACCESSIBLE FEATURES OF STRUCTURE.	A)	PROVIDE NEW DOORS.		
1	THE TYPES OF SECURITY AND PROTECTION PROVISIONS REQUIRED INCLUDE, BUT ARE NOT LIMITED TO, GUARD RAILS, FIRE PROTECTION, BARRICADES, WARNING SIGNS/LIGHTS, PERSONNEL SECURITY PROGRAM (THEFT PROTECTION), AND SIMILAR PROVISIONS INTENDED TO MINIMIZE PROPERTY LOSSES, PERSONAL INJURIES, AND CLAIMS FOR DAMAGES AT THE PROJECT SITE. PROVIDE SECURITY/PROTECTION SERVICES AND SYSTEMS IN COORDINATION WITH ACTIVITIES AND IN SUCH A MANNER TO ACHIEVE 24 HOUR, 7 DAY PER WEEK EFFECTIVENESS.	2	RECORD INFORMATION CONCURRENTLY WITH CONSTRUCTION PROGRESS. LEGIBLY MARK TO RECORD ACTUAL CONSTRUCTION:	A-1)	MANUFACTURER: ALGOMA HARDWOODS, EGGERS HARDWOOD PRODUCTS OR EQUAL.		
2	PROVIDE FIRE EXTINGUISHERS OF TYPES, SIZES, NUMBERS, AND LOCATIONS AS REQUIRED BY LOCAL CODE OR NFPA AND SUCH AS NOT TO EXCEED 75'-0" TRAVEL DISTANCE FROM ANY POINT. FIRE EXTINGUISHERS SHALL BE REQUIRED REGARDLESS OF LOCAL CODE AND SHALL BE AVAILABLE AT THE JOB SITE DURING CONSTRUCTION AS WELL AS AFTER COMPLETION (MINIMUM OF TWO PER FLOOR). PROVIDE TYPE A EXTINGUISHERS AT LOCATIONS OF LOW POTENTIAL FOR EITHER ELECTRICAL OR GREASE/OIL/FLAMMABLE LIQUIDS FIRES. PROVIDE TYPE ABC DRY CHEMICAL EXTINGUISHERS AT OTHER LOCATIONS. COMPLY WITH RECOMMENDATIONS OF NFPA NO. 10. POST WARNING AND QUICK INSTRUCTIONS AT EACH EXTINGUISHER LOCATION, AND INSTRUCT ALL PERSONNEL AT THE PROJECT SITE, AT THE TIME OF THEIR FIRST ARRIVAL, ON PROPER USE OF EXTINGUISHERS AND OTHER AVAILABLE FACILITIES AT THE PROJECT SITE. POST LOCAL FIRE DEPARTMENT CALL NUMBERS ON EACH TELEPHONE INSTRUMENT AT THE PROJECT SITE.	A)	FIELD CHANGES OF DIMENSIONS AND DETAIL.	A-2)	STYLE: SOLID CORE FLUSH.		
3	PERFORM TORCH CUTTING AND WELDING OPERATIONS ONLY WHEN APPROVED BY THE OWNER'S REP. AND THE LOCAL FIRE DEPARTMENT. PROVIDE CHEMICAL EXTINGUISHERS AT ALL LOCATIONS WHERE SUCH WORK IS IN PROGRESS.	B)	CHANGES MADE BY FIELD ORDER OR BY CHANGE ORDER.	A-3)	GRADE: A/WI PREMIUM GRADE, BOOK MATCHED VENEERS AND PARTICLE BOARD CORE 3 PLY.		
4	THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL MATTERS RELATING TO HAZARDOUS OR TOXIC MATERIALS AND LAWFUL REMOVAL OF SAME FROM THE SITE. IF HAZARDOUS OR TOXIC MATERIALS ARE INDICATED OR DISCOVERED, PROPERLY INFORM LOCAL GOVERNING OFFICIALS AND ABIDE BY THEIR REQUIREMENTS.	C)	DETAILS NOT ON ORIGINAL CONTRACT DRAWINGS.	A-4)	FACE: LAMINATE		
PERSONNEL SECURITY AND HUMAN RESOURCES		3	AT CONTRACT CLOSE-OUT, DELIVER RECORD DOCUMENTS TO ARCHITECT, ACCOMPANY SUBMITTAL WITH TRANSMITTAL LETTER IN DUPLICATE, CONTAINING: DATE, TITLE, AND NUMBER OF EACH RECORD DOCUMENT AND SIGNATURE OF THE CONSTRUCTION PROJECT MANAGER.	B)	PROVIDE FIRE RATED SOLID CORE DOORS IF/WHERE INDICATED. PROVIDE FACES, GRADE, AND QUALITY TO MATCH NON-RATED DOORS, UNLESS NOTED OTHERWISE. PROVIDE MANUFACTURERS STANDARD MINERAL CORE CONSTRUCTION TO OBTAIN AND MAINTAIN THE FIRE RATING INDICATED OR REQUIRED. PROVIDE NEW DOORS IN NEW PARTITIONS WHERE UL LABELS ARE REQUIRED.		
1	REVIEW REQUIREMENTS FOR BADGES SIGN IN OR ANY OTHER SECURITY REQUIREMENTS WITH OWNER'S REP.	D)	CHANGES MADE BY FIELD ORDER OR BY CHANGE ORDER.	3	INSTALL WOOD DOORS TO COMPLY WITH MANUFACTURERS INSTRUCTIONS AND A/WI STANDARDS AS INDICATED.		
2	REVIEW PARKING AND LOADING REQUIREMENTS, BUILDING ACCESS AND TIMES WITH OWNER'S REP.	DIV 2. SITE - SEE SITE DWGS		HARDWARE (SUBMITTAL REQUIRED)			
CONTRACT CLOSE OUT		DIV 3. CONCRETE - SEE STRUCTURAL NOTES S001		1	THE INSTALLATION OF ALL HARDWARE SHALL BE IN COMPLIANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.		
		DIV 4. MASONRY - SEE GENERAL NOTES		VCT, RESILIENT FLOORING, BASE AND STAIR TREADS - SEE FINISH SCHEDULE			
		DIV 5. STRUCTURAL METALS - SEE STRUCTURAL NOTES S001		CARPET - SEE FINISH PLAN			
		EXTERIOR WALL CLADDING		PAINTING - PER INTERIOR DESIGN DRAWING			
		1	SUPPLY AND INSTALL THIN BRICK EXTERIOR WALL CLADDING ON TABS 2 SYSTEM.	1	THE WORK INCLUDES BUT IS NOT LIMITED TO THE PAINTING AND FINISHING OF ALL EXPOSED SURFACES WHICH ENTAILS NEW CONSTRUCTION. REFER TO FINISH DRAWINGS AND ELEVATIONS FOR TYPE AND LOCATION.		
		2	PROVIDE SUBMITTALS TO THE ARCHITECT FOR REVIEW.	2	PROVIDE PRODUCTS AS INDICATED TO BE ACCEPTABLE FOR APPLICATION TO NEW SURFACES. SUBMIT SAMPLES FOR THOSE ITEMS NOT IDENTIFIED FOR ARCHITECTS APPROVAL.		
		3	THE INSTALLER IS REQUIRED TO HAVE CERTIFICATION STATING THAT SAID INSTALLER IS EXPERIENCED IN THE INSTALLATION OF THE SPECIFIED PRODUCTS. THE INSTALLER IS ALSO REQUIRED TO HAVE COMPLETED INSTALLATIONS SIMILAR IN EXTENT AND DESIGN WITH A RECORD OF SUCCESSFUL PERFORMANCE.	3	PAIN SURFACES IN COMPLIANCE WITH MANUFACTURERS INSTRUCTIONS. PROPERLY PREPARE AND CLEAN ALL SURFACES IN ACCORDANCE WITH FINISH MANUFACTURERS REQUIREMENTS PRIOR TO COMMENCING PAINTING.		
		4	DELIVER AND STORE MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION IN UNOPENED PACKAGING UNTIL READY FOR INSTALLATION. STORE MATERIALS IN A COVERED AREA, AWAY FROM WATER, ON A FLAT, LEVEL SURFACE WITH ADEQUATE SUPORT TO PREVENT SAGGING.	ELECTRICAL SYSTEM - SEE ELECTRICAL DRAWINGS			
				HEATING VENTILATION AND AIR CONDITIONING SYSTEM - SEE MECHANICAL DRAWINGS			

GENERAL CONSTRUCTION NOTES

A. GENERAL: THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO SATISFY THE INTENT OF THIS PROJECT. DRAWINGS ARE SCHEMATIC ONLY AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSPECT THE PREMISES PRIOR TO SUBMITTING HIS BID PRICE TO ENSURE THAT HE IS AWARE OF ALL JOB AND SITE CONDITIONS AND HAS INCLUDED IN HIS PRICE EVERYTHING REQUIRED.

B. EXAMINATION OF SITE:

1. BEFORE COMMENCING THE WORK, EACH CONTRACTOR IS HELD TO HAVE FULLY INFORMED HIMSELF AS TO ALL CONDITIONS UNDER WHICH THE WORK IS TO BE CARRIED ON, OF WHAT WILL IN ANY WAY AFFECT THE WORK UNDER HIS CONTRACT, AND TO HAVE COMPARED SAME WITH THE DRAWINGS AND SPECIFICATIONS BEFORE SUBMITTING HIS PROPOSAL.

2. COMMENCING OF WORK WILL BE CONSIDERED AS EVIDENCE THAT AN EXAMINATION HAS BEEN MADE. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF ANY ERROR ON HIS PART, DUE TO HIS NEGLECT TO COMPLY WITH REQUIREMENTS OF THIS CLAUSE.

3. COMMENCING OF WORK WILL BE CONSIDERED PRESUMPTIVE EVIDENCE THAT THE CONTRACTOR IS CONVERSANT WITH LOCAL FACILITIES AND DIFFICULTIES, THE REQUIREMENTS OF THE DOCUMENTS, AND OF PERTINENT STATE OR LOCAL CODES. STATE LABOR AND MATERIAL MARKETS, AND HAS MADE DUE ALLOWANCE IN HIS BID FOR ALL CONTINGENCIES. NO COMPENSATION WILL BE ALLOWED BY REASON OF ANY DIFFICULTIES WHICH THE BIDDER COULD HAVE DISCOVERED OR REASONABLY ANTICIPATED PRIOR TO BIDDING.

C. SUBSTITUTIONS & PRODUCT OPTIONS: IF ANY CONTRACTOR FINDS THAT ANY MATERIAL OR METHOD OF CONSTRUCTION SPECIFIED OR SHOWN ON THE PLANS CANNOT BE OBTAINED OR USED AT THIS TIME, OR IF HE WISHES TO PROPOSE AN ALTERNATE NOT LISTED IN THE SPECIFICATIONS, HE IS REQUESTED TO STATE WITH HIS PROPOSAL WHAT ALTERNATE MATERIAL OR METHOD OF CONSTRUCTION HE PROPOSES TO USE. HIS BASE BID SHALL BE FIGURED ON THE SPECIFICATION DATA AS ISSUED BY RUSSELL AND DAWSON AND ANY LIST OF PROPOSED SUBSTITUTIONS SHALL INCLUDE THE AMOUNT TO BE ADDED TO OR DEDUCTED FROM BID, WHERE MULTIPLE PRODUCTS ARE SPECIFIED OR SUBSTITUTIONS ARE PROPOSED THE CM SHALL INCLUDE ALL OPTIONS & ACCESSORIES FOR A COMPLETE OR FUNCTIONAL CONSTRUCT. INCLUDING RELATED WORK OF OTHER TRADES

D. MATERIALS AND WORKMANSHIP: ALL MATERIALS USED THROUGHOUT THE JOB SHALL BE NEW, FIRST QUALITY, AND OF HIGH GRADES SATISFACTORY TO THE OWNER. ALL WORKMANSHIP SHALL BE HIGH GRADE IN ACCORDANCE WITH THE TEST PRACTICE FOR THE TYPE OF WORK PERFORMED. THE OWNER SHALL HAVE THE RIGHT TO REJECT ANY PORTION OF THE WORK IN CASE THE MATERIAL OR WORKMANSHIP IS NOT OF SATISFACTORY QUALITY AND THE CONTRACTOR SHALL REPLACE SAME WITH ACCEPTABLE WORK AT HIS OWN EXPENSE.

E. CODE CONFORMANCE: ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS, DEPARTMENT OF BUILDING OF THE CITY, OSHA AND ALL OTHER LOCAL, STATE, AND NATIONAL CODES WHICH APPLY. NOTHING ON THIS DRAWING SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES.

F. GUARANTEE:

1. THIS CONTRACTOR SHALL GUARANTEE THAT THE INSTALLATION SHALL FULFILL EACH AND EVERY REQUIREMENTS OF THESE SPECIFICATIONS, AND SHOULD THEY FAIL IN ANY WAY TO DO SO, THAT HE WILL, WITHOUT ADDITIONAL COST TO THE OWNER, PROVIDE WHATEVER ADDITIONAL MATERIAL AND/OR LABOR AS NECESSARY TO CORRECT THE FAULT AND TO COMPLY WITH THESE REQUIREMENTS.

2. ALL WORK FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED AGAINST DEFECTS IN WORKMANSHIP OF MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE WORK.

3. NOTHING IN THIS SPECIFICATION SHALL BE CONSTRUED TO RELIEVE THIS CONTRACTOR FROM MAKING GOOD AND PERFECT WORK IN ALL USUAL DETAILS OF CONSTRUCTION AND HE WILL BE HELD RESPONSIBLE TO PROVIDE ALL MATERIAL AND BEAR ALL EXPENSE INCIDENT TO THE SATISFACTORY COMPLETION OF THE WORK EMBRACED HEREIN.

G. CLEANING UP: AFTER COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL WASTE, RUBBISH, AND OTHER MATERIALS LEFT AS A RESULT OF HIS OPERATIONS, AND LEAVE THE PREMISES IN CLEAN CONDITION.

H. AS BUILT DRAWINGS: GENERAL CONTRACTOR SHALL PROVIDE AS BUILT DRAWINGS TO ARCHITECT AND OWNER FOR RECORD AFTER COMPLETION OF PROJECT. SEE BIM REQUIRMENTS.

J. THE CONSTRUCTION MANAGER, HENCEFORTH MENTIONED AS THE CM, IS RESPONSIBLE FOR COORDINATION WITH VARIOUS TRADE SUB-CONTRACTORS TO ENSURE SPATIAL RELATIONSHIPS AND COMPONENTS OF THE VARIOUS SYSTEMS AND ELIMINATION OF ANY CLASHES THAT MIGHT ARISE.

K. THE CM AND SUB-CONTRACTORS ARE TO ADHERE TO THE BIM RESPONSIBILITIES MENTIONED IN THE BIM EXECUCUTION PLAN.

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REVISIONS

NO.	DESCRIPTION	DATE	BY
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STAMP:

PHILIP R. SMITH ELEMENTARY SCHOOL

PROJECT:

22/26

FILE NO:

22/26

SCALE:

AS NOTED

DATE:

12/09/2022

DRAWN BY:

JBR

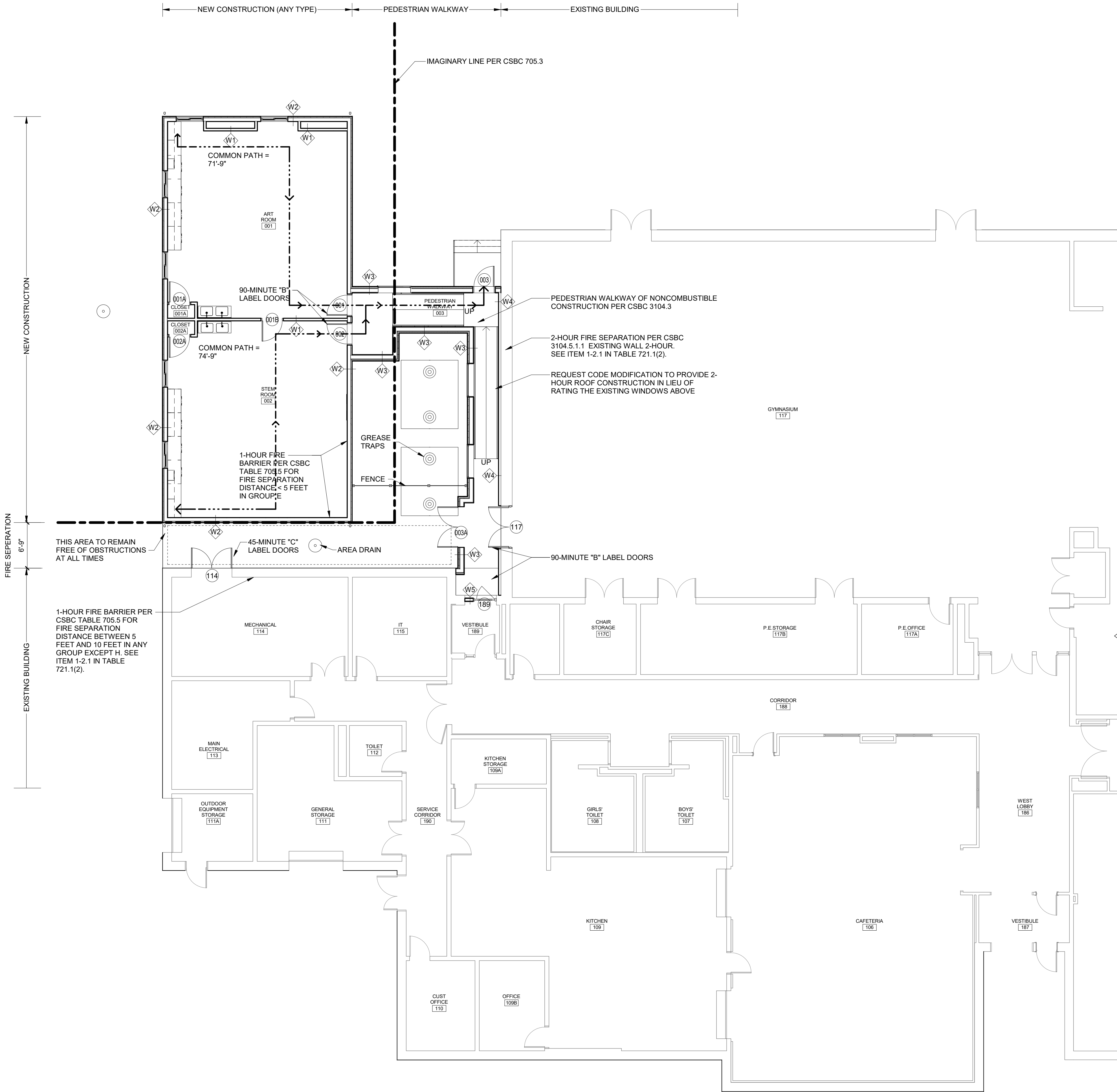
CHECKED BY:

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GENERAL NOTES

SHEET NUMBER:

G-2



2 HR. RATED REQ'D. WALL ASSEMBLY  
(2 HR. PROVIDED)

1 HR. RATED REQ'D. NON BEARING WALL ASSEMBLY. (1 HR. PROVIDED)

1 HR. RATED REQ'D. BEARING WALL ASSEMBLY. (2 HR. PROVIDED)

1/2 HR. RATED REQ'D. WALL ASSEMBLY. (1/2 HR. PROVIDED)

TRAVEL DISTANCE

NOTE:

1. ALL EXTERIOR BEARING WALLS & FLOORS TO BE 1 HOUR RATED.

FILE NO: 22/126

SCALE: AS NOTED

DATE: 12/09/2022

DRAWN BY: JBR

CHECKED BY: UKP

PROJECT: PHILIP R. SMITH ELEMENTARY SCHOOL

949 AVERY STREET, SOUTH WINDSOR, CT 06074

SHEET TITLE: EGRESS PLAN

SHEET NUMBER: G-3

STAMP:

REVISIONS

NO.	DESCRIPTION	DATE	BY
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IMAGINARY LINE PER CSBC 705.3

NEW CONSTRUCTION (ANY TYPE)

PEDESTRIAN WALKWAY

EXISTING BUILDING

NEW CONSTRUCTION

EXISTING BUILDING

6'-5"

FIRE SEPERATION

THIS AREA TO REMAIN FREE OF OBSTRUCTIONS AT ALL TIMES

1-HOUR FIRE BARRIER PER CSBC TABLE 705.5 FOR FIRE SEPERATION DISTANCE BETWEEN 5 FEET AND 10 FEET IN ANY GROUP EXCEPT H. SEE ITEM 1-2.1 IN TABLE 721.1(2).

COMMON PATH = 71'-9"

ART ROOM 101

90-MINUTE "B" LABEL DOORS

COMMON PATH = 74'-9"

STEM ROOM 002

1-HOUR FIRE BARRIER PER CSBC TABLE 709.5 FOR FIRE SEPERATION DISTANCE < 5 FEET IN GROUP E

GREASE TRAPS

FENCE

PEDESTRIAN WALKWAY OF NONCOMBUSTIBLE CONSTRUCTION PER CSBC 3104.3

2-HOUR FIRE SEPERATION PER CSBC 3104.5.1.1 EXISTING WALL 2-HOUR. SEE ITEM 1-2.1 IN TABLE 721.1(2).

REQUEST CODE MODIFICATION TO PROVIDE 2-HOUR ROOF CONSTRUCTION IN LIEU OF RATING THE EXISTING WINDOWS ABOVE

GYMNASIUM 117

90-MINUTE "B" LABEL DOORS

MECHANICAL 114

IT 115

VESTIBULE 189

CHAIR STORAGE 117C

P.E STORAGE 117B

P.E OFFICE 117A

CORRIDOR 188

KITCHEN 109

CAFETERIA 106

VESTIBULE 187

WEST LOBBY 186

BOYS' TOILET 107

GIRLS' TOILET 108

SERVICE CORRIDOR 190

GENERAL STORAGE 111

OUTDOOR EQUIPMENT STORAGE 111A

MAIN ELECTRICAL 113

TOILET 112

CUST OFFICE 110

OFFICE 100B

KITCHEN STORAGE 109A

1-HOUR FIRE BARRIER PER CSBC TABLE 709.5 FOR FIRE SEPERATION DISTANCE < 5 FEET IN GROUP E

45-MINUTE "C" LABEL DOORS

AREA DRAIN

001A

001B

002A

002B

003

003A

004

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006

007

008

009

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011

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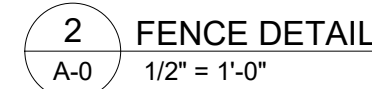
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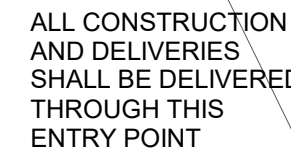
949 AVERY STREET, SOUTH WINDSOR, CT 06074

SHEET TITLE: EGRESS PLAN

SHEET NUMBER: G-3



N/F Town of South Windsor

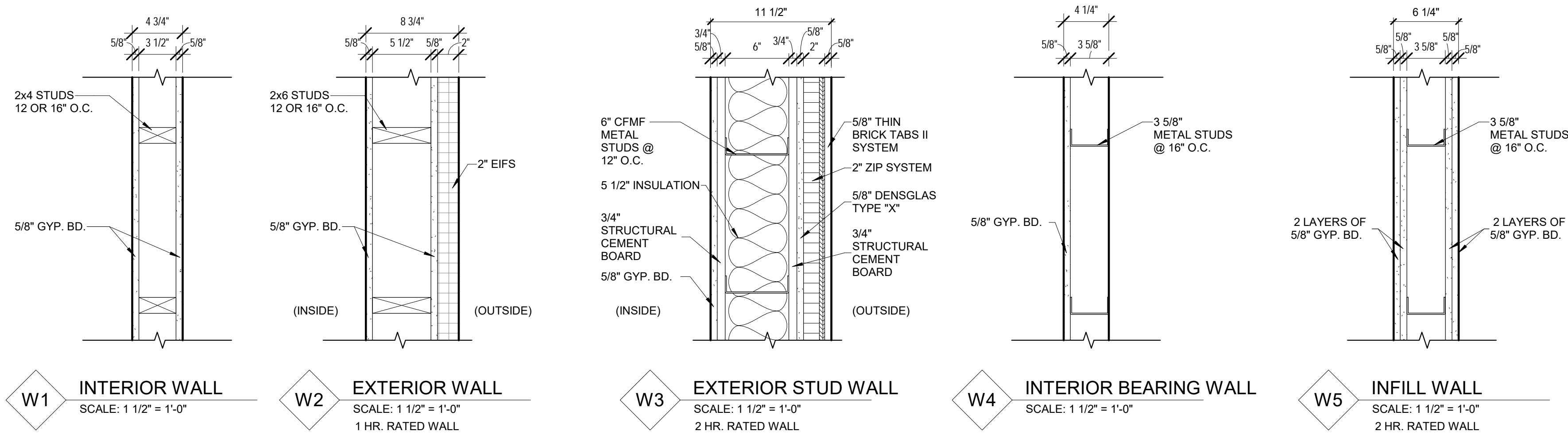


- AS BUILT SITE PLAN FOR REFERENCE ONLY.
- EXISTING BASKET BALL HOOPS WHERE PORTABLES ARE TO BE LOCATED ARE TO BE CAREFULLY REMOVED AND SALVAGED TO BE RELOCATED AT SPECIFIED AREA ON THE SITE PLAN HOLES TO BE FILLED AND PATCHED.

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

[illegible]





W1 INTERIOR WALL  
SCALE: 1 1/2" = 1'-0"

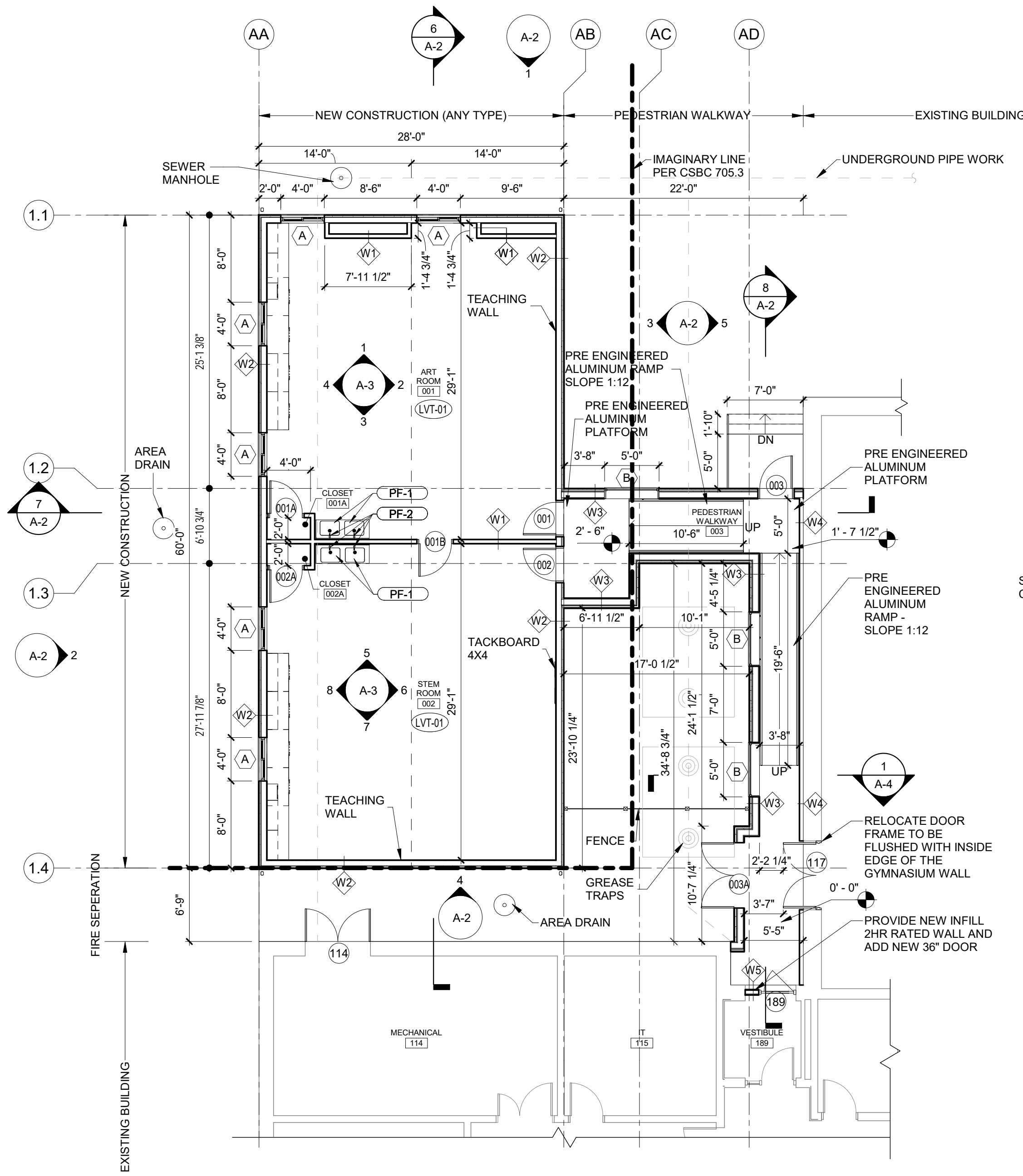
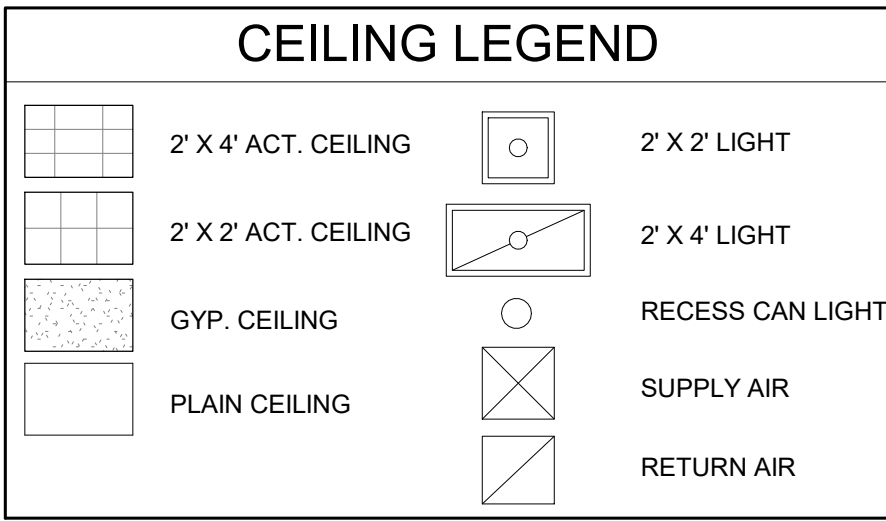
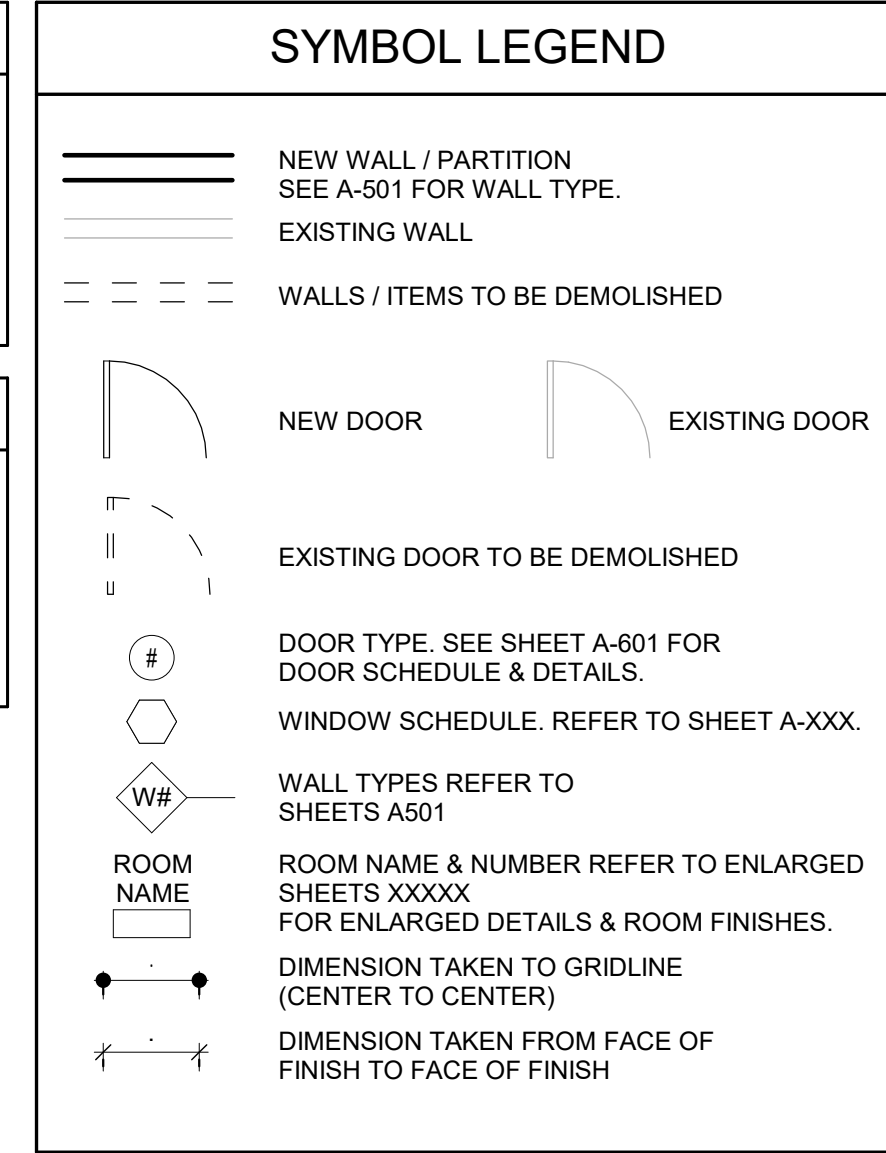
W2 EXTERIOR WALL  
SCALE: 1 1/2" = 1'-0"  
1 HR. RATED WALL

W3 EXTERIOR STUD WALL  
SCALE: 1 1/2" = 1'-0"  
2 HR. RATED WALL

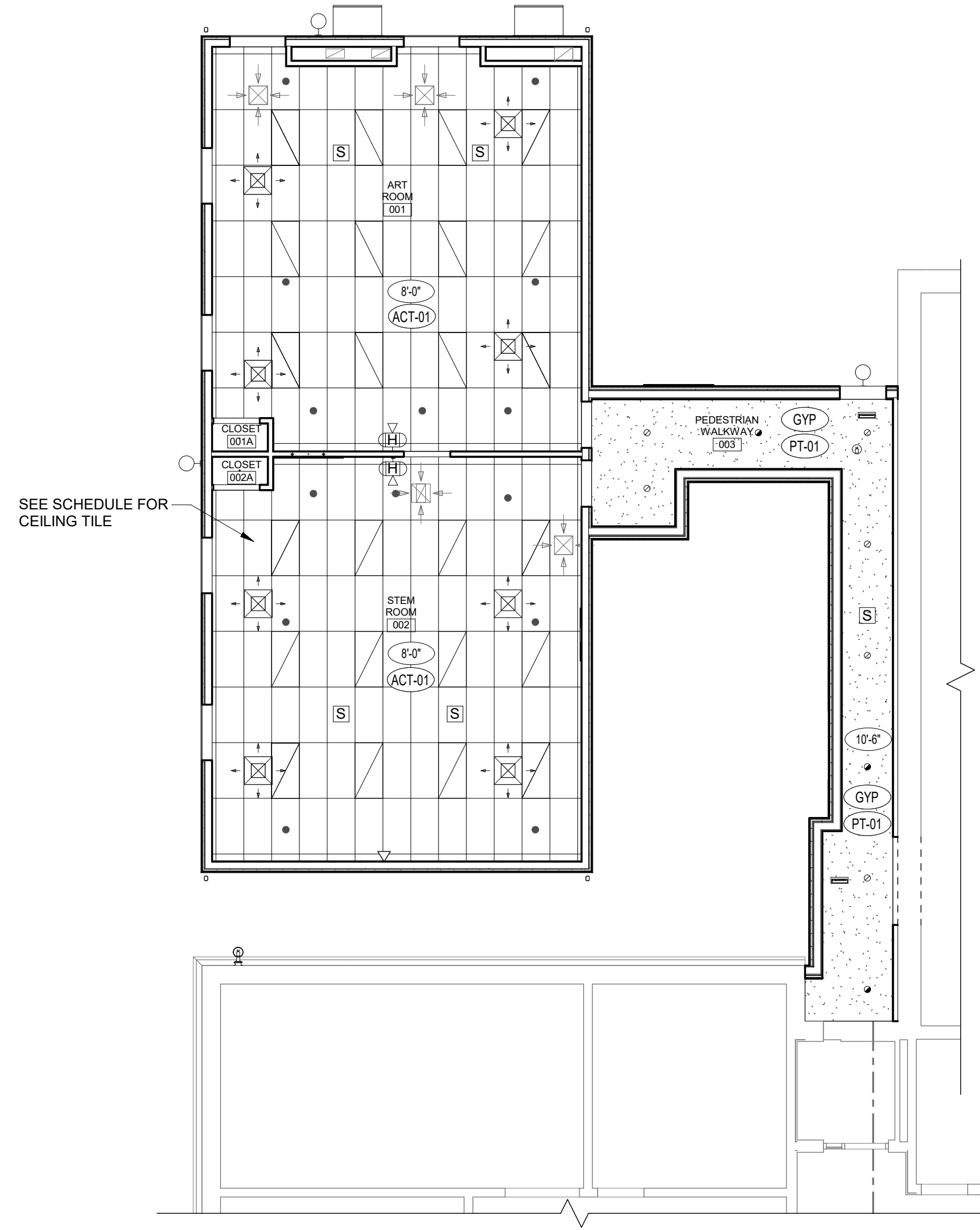
W4 INTERIOR BEARING WALL  
SCALE: 1 1/2" = 1'-0"

W5 INFILL WALL  
SCALE: 1 1/2" = 1'-0"  
2 HR. RATED WALL

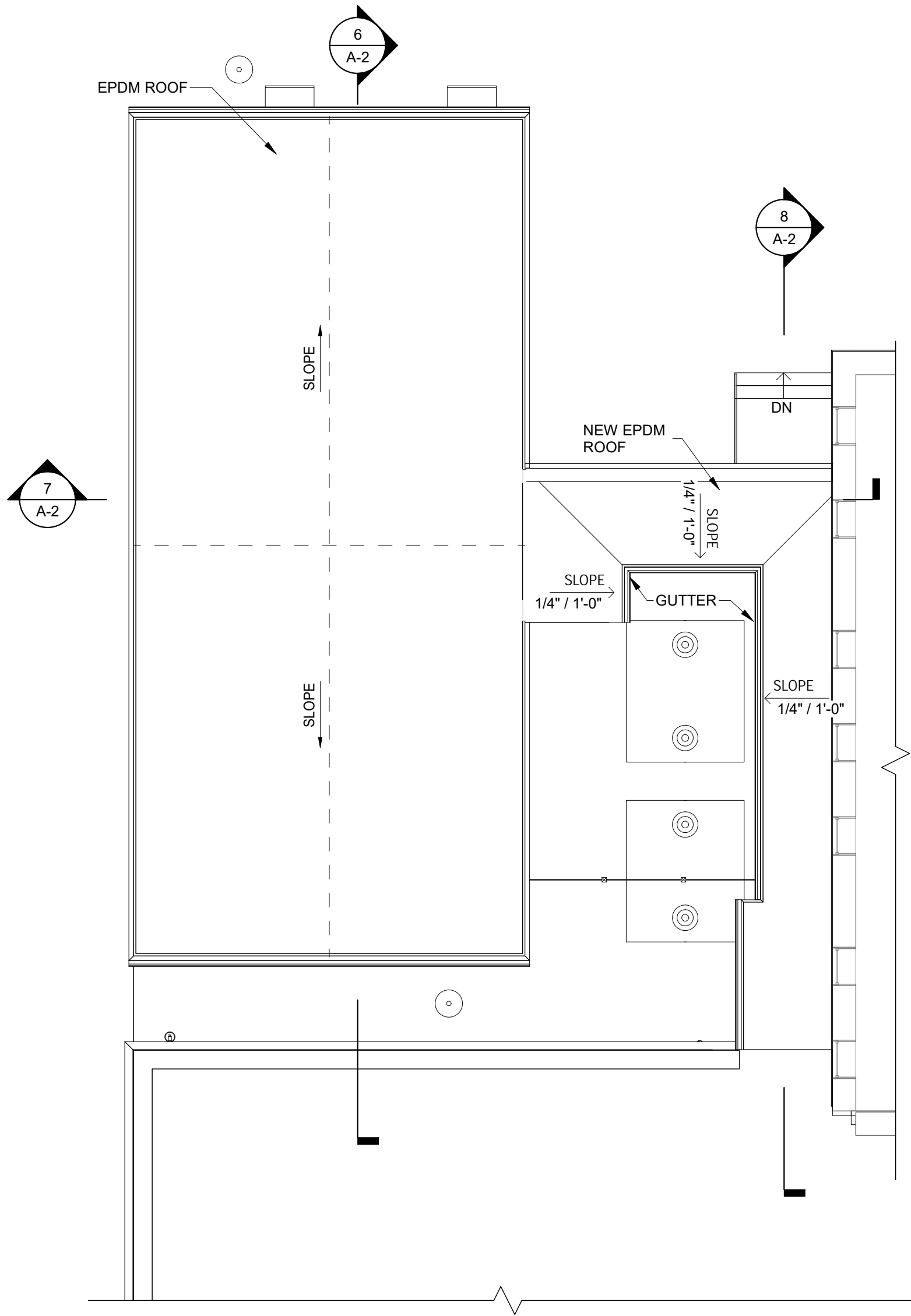
- ### NOTES
- RAMP, STAIRS, LANDINGS, STEPS & HANDRAILS SEE SITE DRAWINGS.
  - MODULAR BUILDING MANUFACTURER TO PROVIDE CLASSROOMS AS SHOWN INCLUDING VENTED BRICK FACED SKIRT TO GRADE.
  - ALL SIGNAGE REQUIRED SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE HANDICAP CODE REFERENCED ON G-001
- ### SPECIAL NOTES
- MATERIALS ARE TYPICAL ON ALL SIDES OF UNIT
  - ALL DOOR GLASS TO BE SAFETY GLAZED
  - SINKS + PLUMBING TO BE INCLUDED AS ALTERNATE #1. IF CLIENT CHOOSES NOT TO PROCEED WITH ALTERNATE #1 SINKS ON DRAWINGS TO BE REPLACED WITH CABINET RELATED MILLWORK.
  - ALTERNATE #3 - TO CONNECT FRONT ROW SYSTEM IN EACH MODULAR CLASSROOM TO EXISTING SYSTEM IN IT ROOM 115.



1 FIRST FLOOR PLAN  
1/8" = 1'-0"

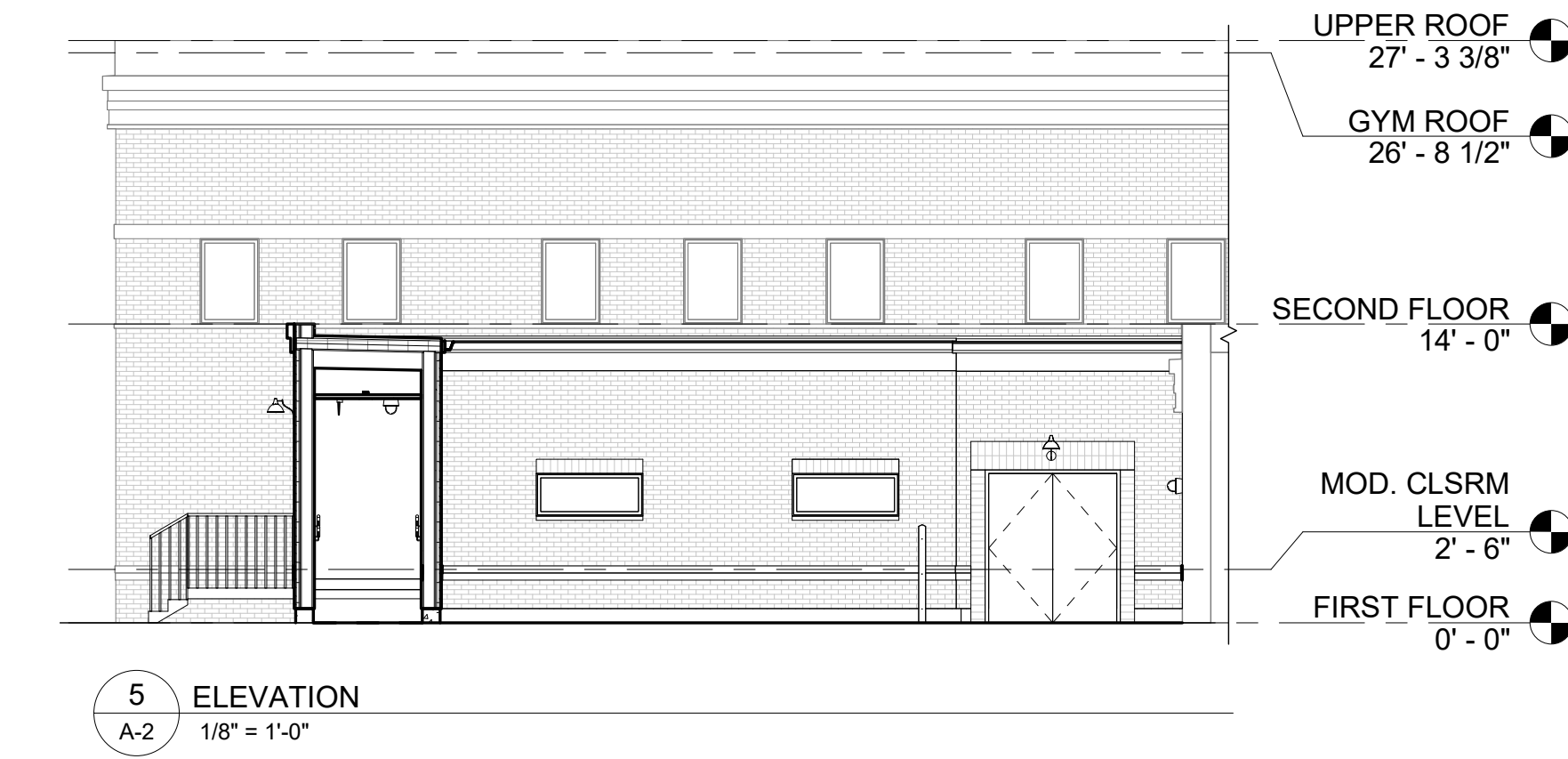
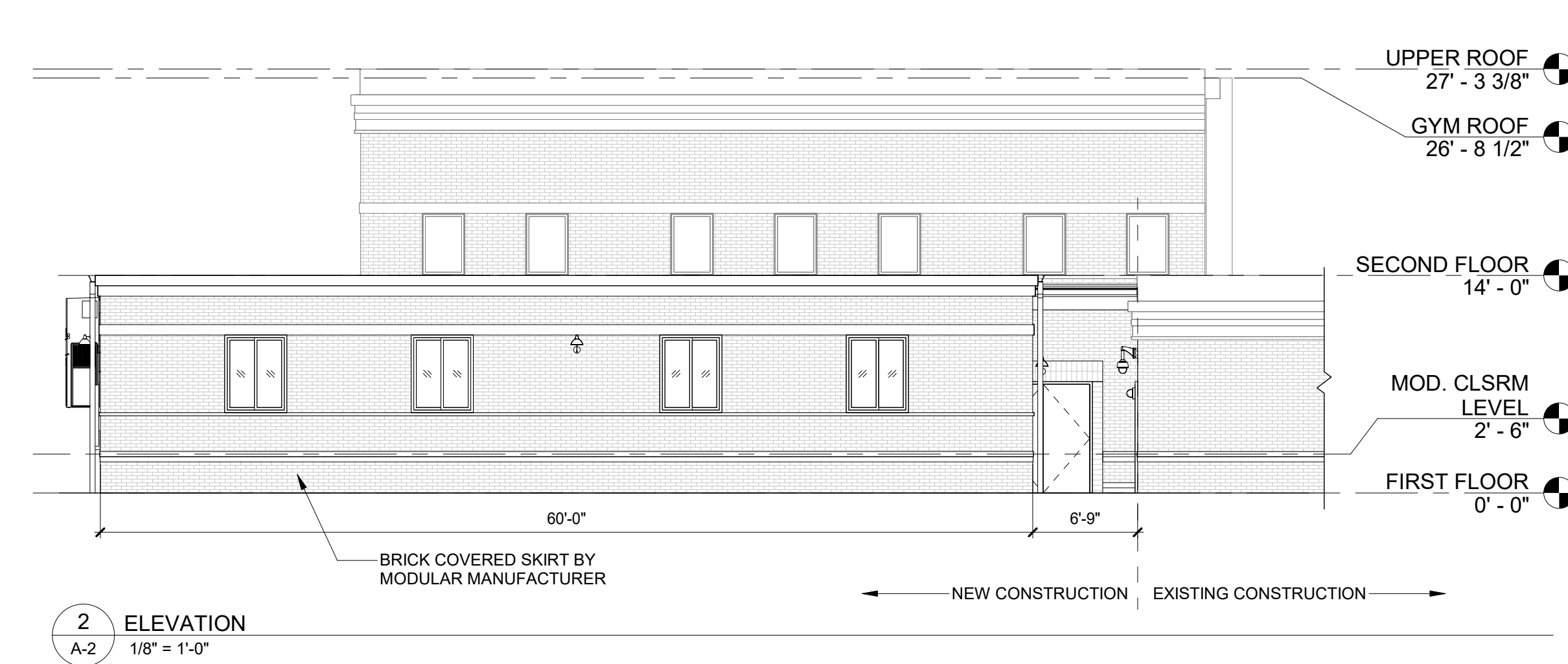
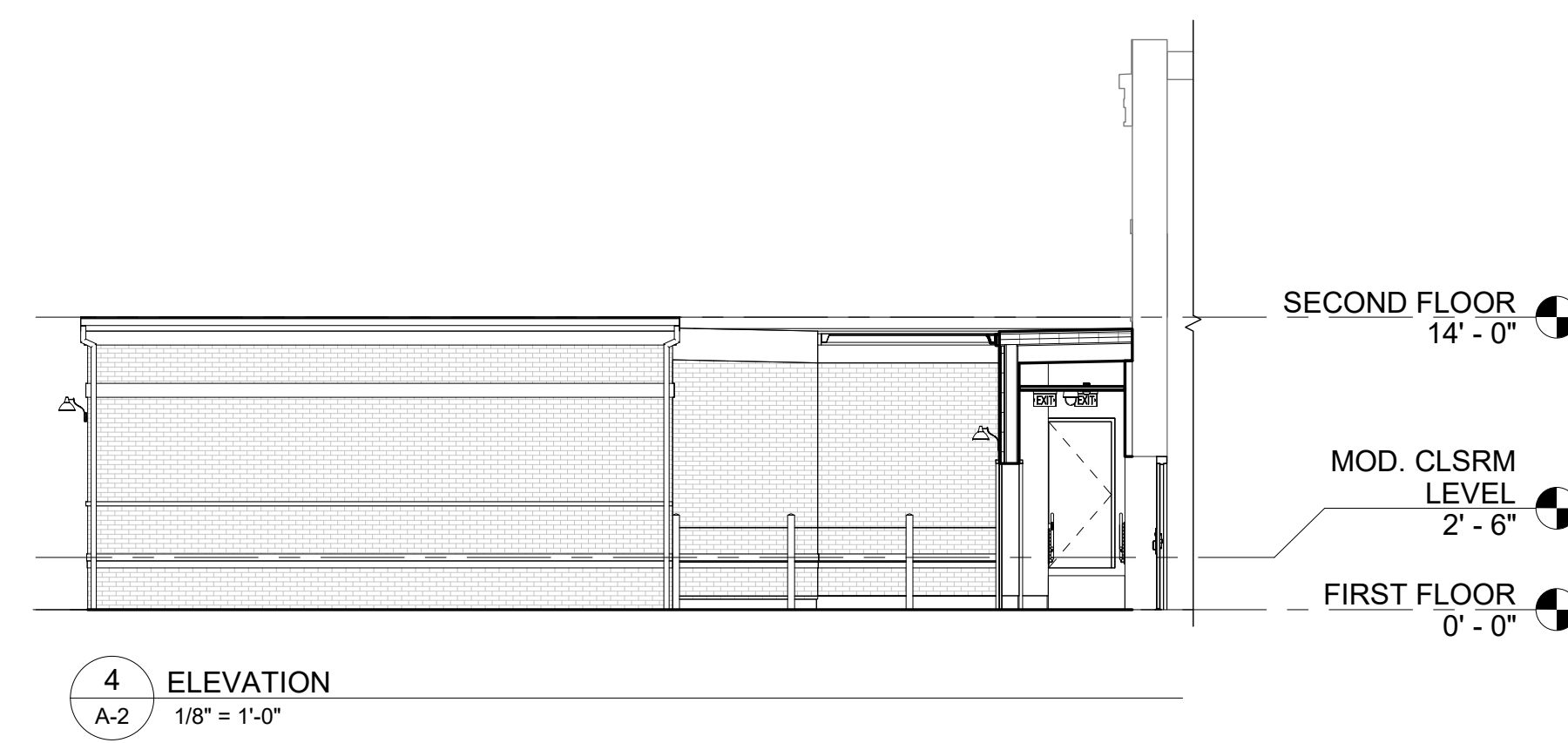
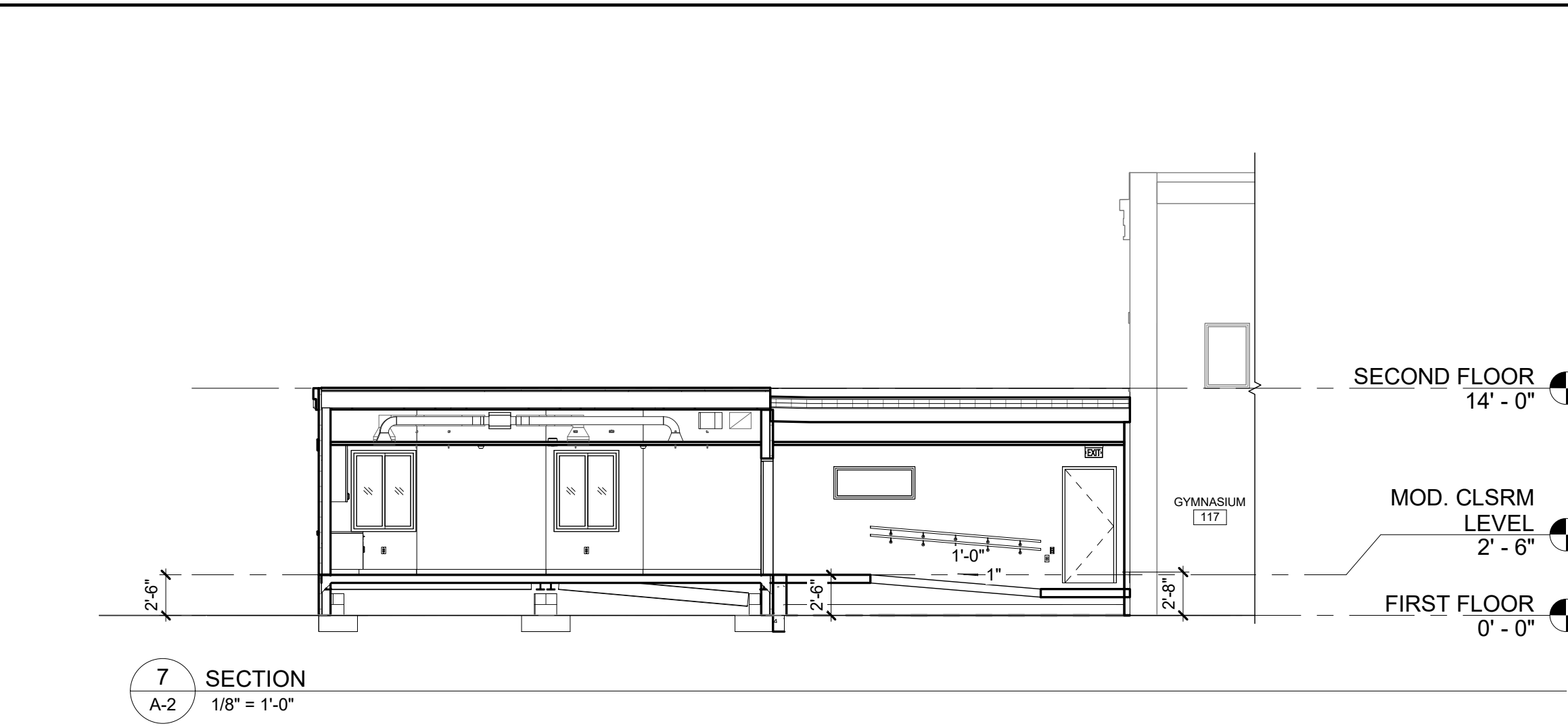
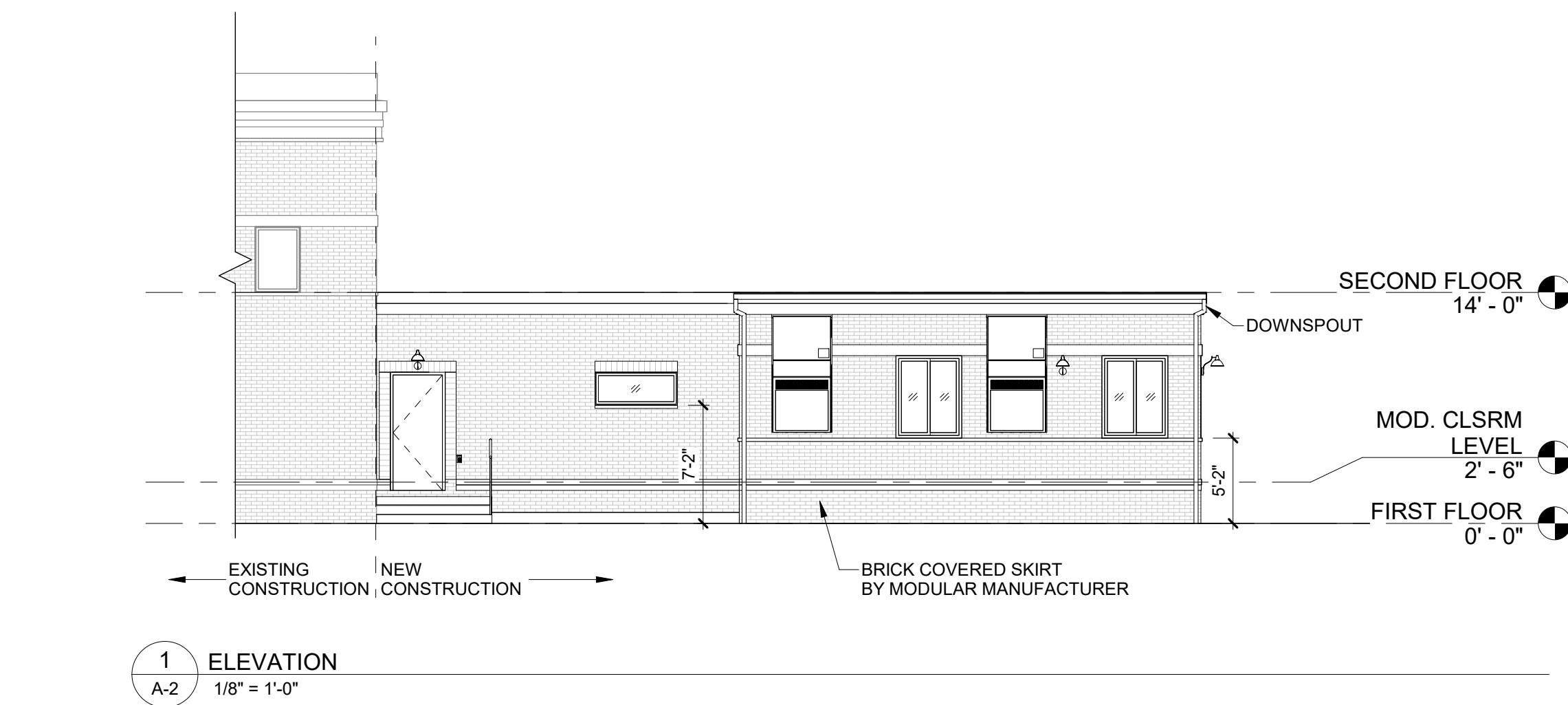
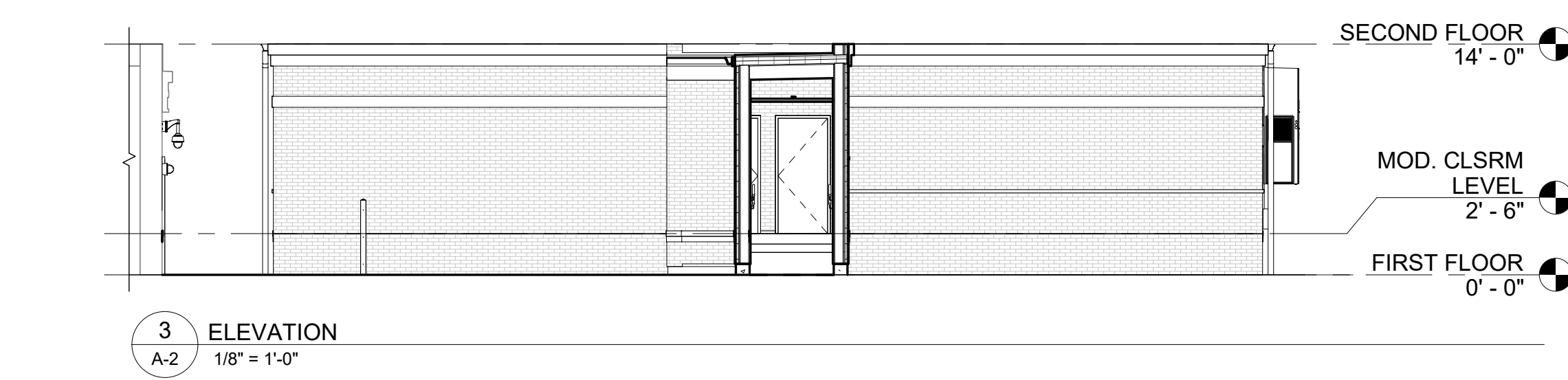
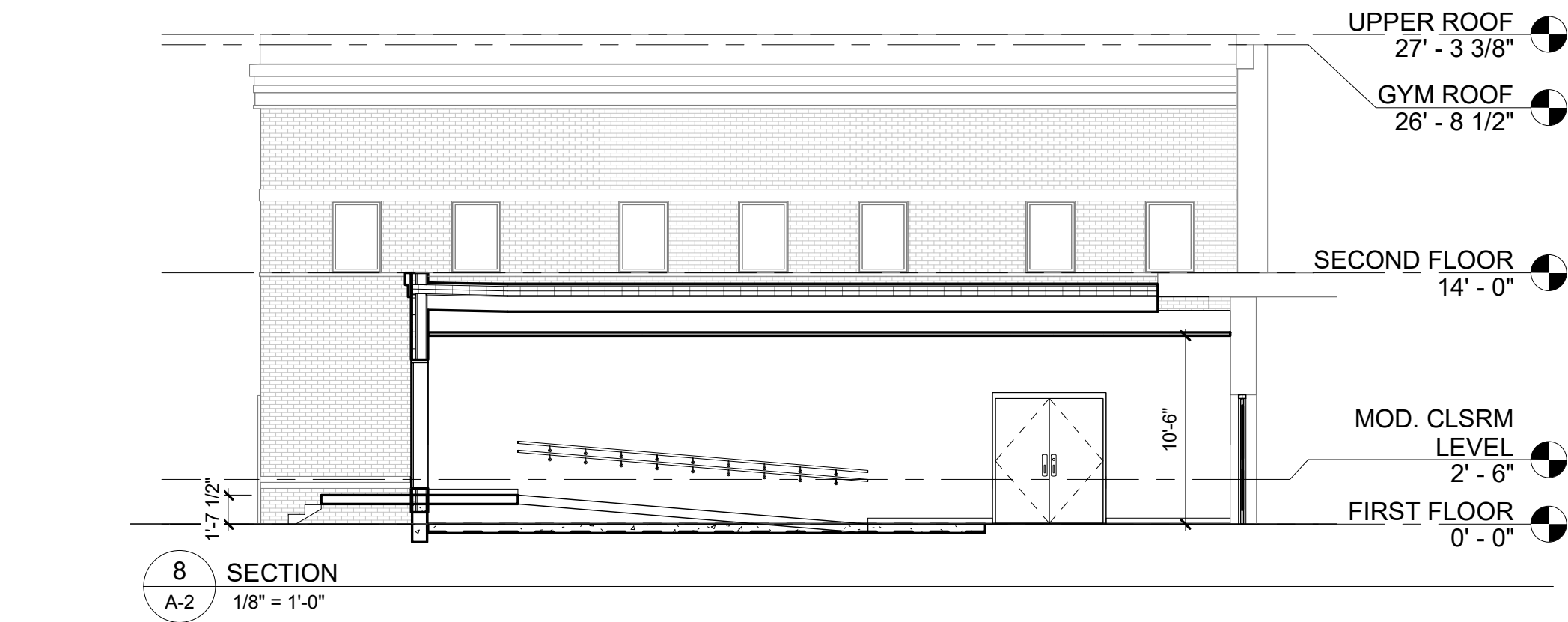
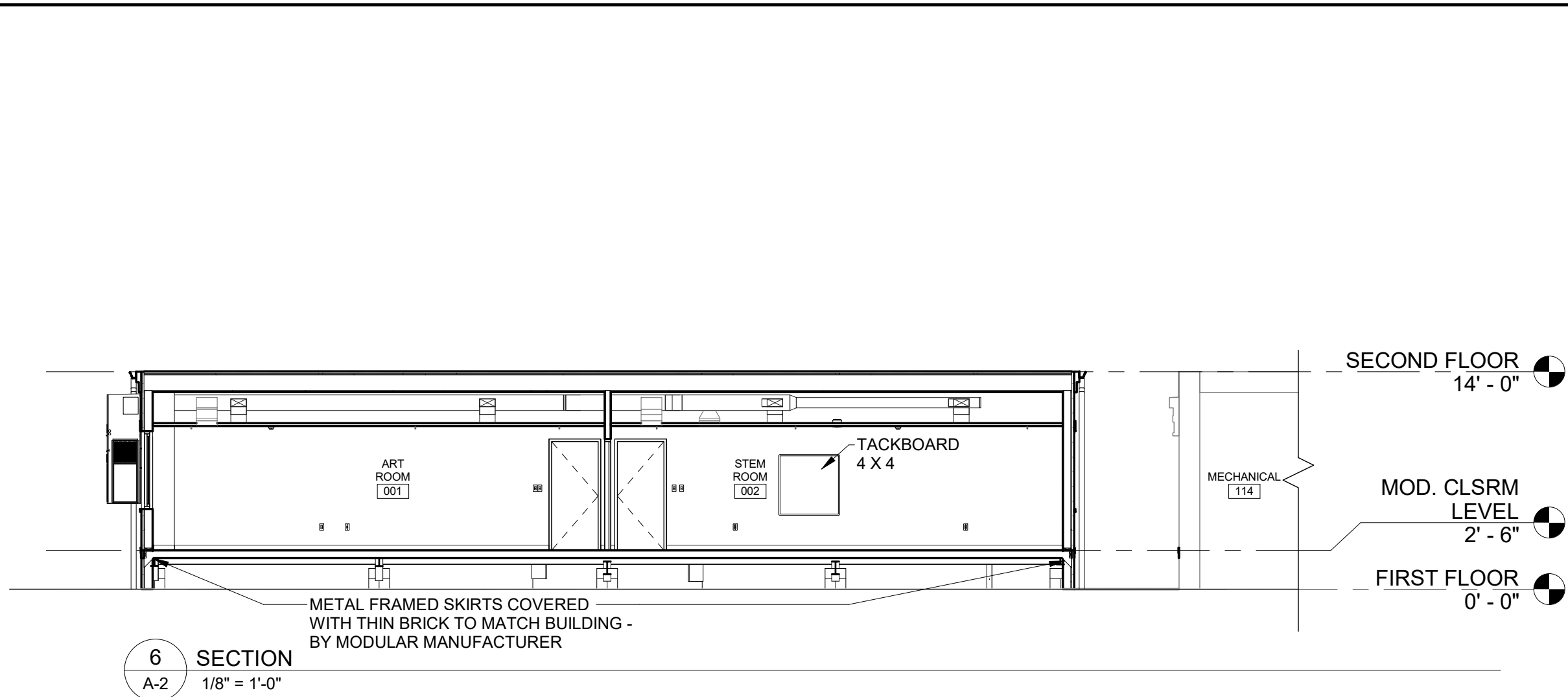


2 FIRST FLOOR CEILING PLAN  
1/8" = 1'-0"



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

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PROJECT: PHILIP R. SMITH ELEMENTARY SCHOOL 949 AVERY STREET, SOUTH WINDSOR, CT 06074	SHEET TITLE: FIRST FLOOR PLAN & ROOF PLAN			
	SHEET NUMBER: A-1			
	FILE NO: 22125			
	SCALE: AS NOTED			
DATE: 12/09/2022	DRAWN BY: JBR			
	CHECKED BY: UKP			



- NOTES

  - RAMPS, STAIRS, LANDINGS, STEPS & HANDRAILS SEE SITE DRAWINGS
  - MODULAR BUILDING MANUFACTURER TO PROVIDE CLASSROOMS AS SHOWN INCLUDING VENTED BRICK FACED SKIRT TO GRADE.
  - ALL SIGNAGE REQUIRED SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE HANDICAP CODE REFERENCED ON G-001
- SPECIAL NOTES

  - MATERIALS ARE TYPICAL ON ALL SIDES OF UNIT
  - ALL DOOR GLASS TO BE SAFETY GLAZED
  - SINKS + PLUMBING TO BE INCLUDED AS ALTERNATE #1. IF CLIENT CHOOSES NOT TO PROCEED WITH ALTERNATE #1 SINKS ON DRAWINGS TO BE REPLACED WITH CABINET RELATED MILLWORK.
  - ALTERNATE #3 - TO CONNECT FRONT ROW SYSTEM IN EACH MODULAR CLASSROOM TO EXISTING SYSTEM IN IT ROOM 115.

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ARCHITECTURE & ENGINEERING

REVISIONS	
NO.	DESCRIPTION

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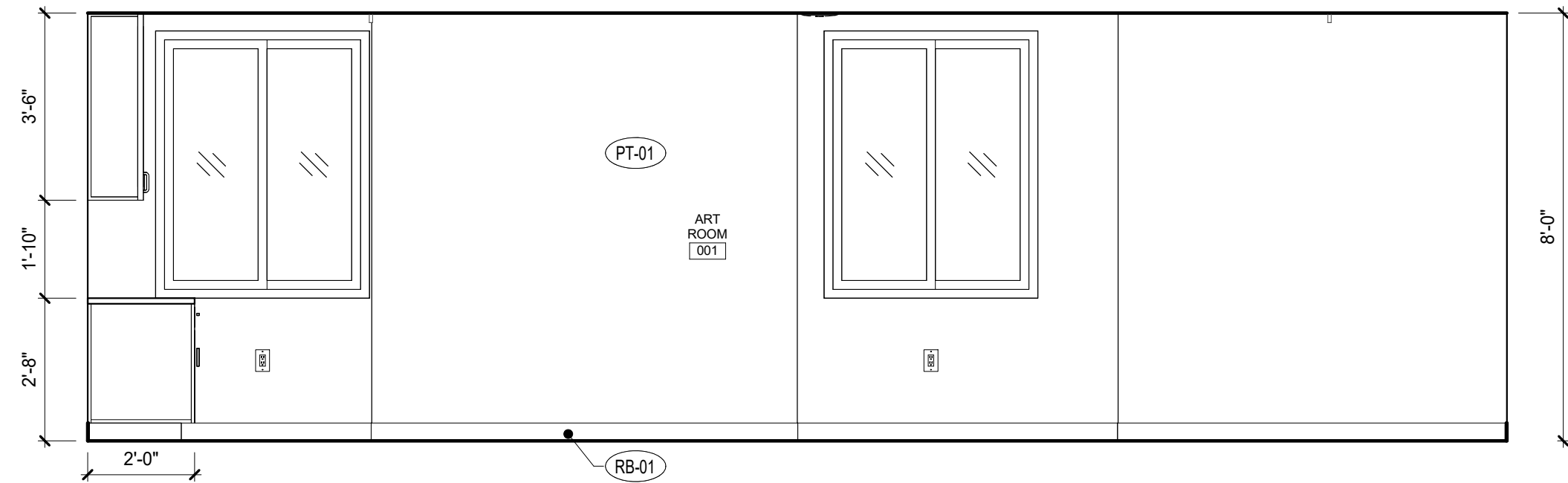
PROJECT: PHILIP R. SMITH ELEMENTARY SCHOOL

949 AVERY STREET, SOUTH WINDSOR, CT 06074

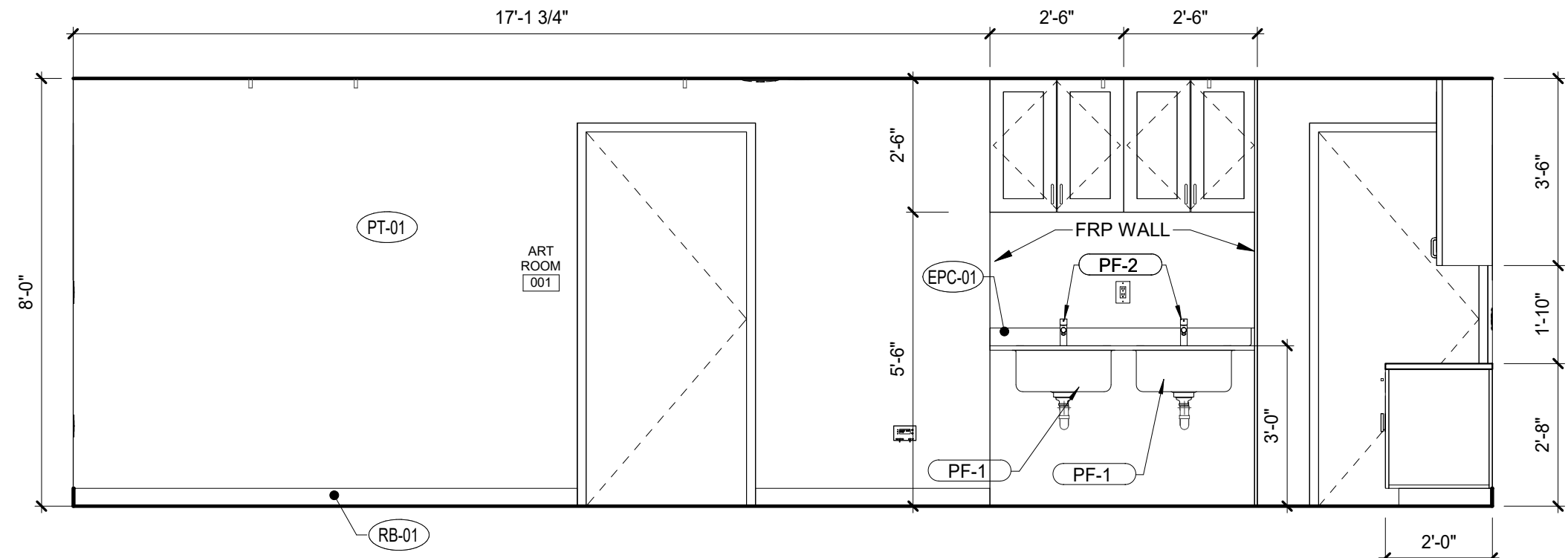
FILE NO:	SCALE:	DATE:	DRAWN BY:	CHECKED BY:
22126	AS NOTED	12/09/2022	JBR	UKP

SHEET TITLE: ELEVATIONS, SECTIONS

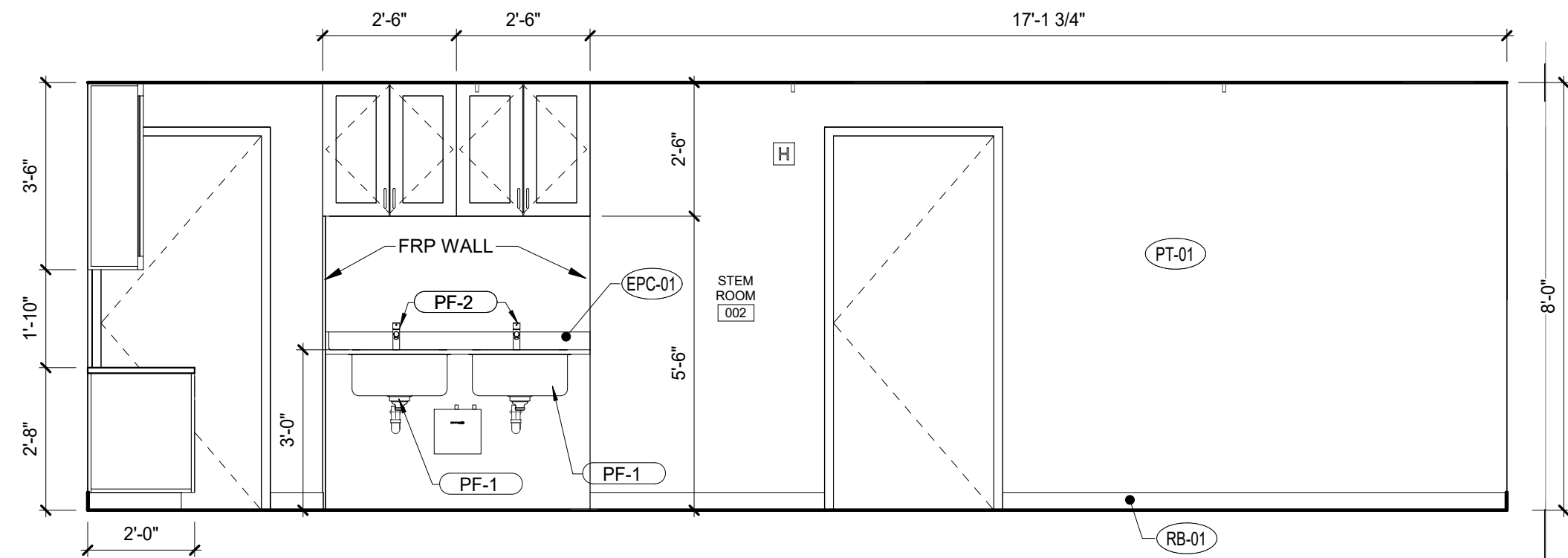
SHEET NUMBER: A-2



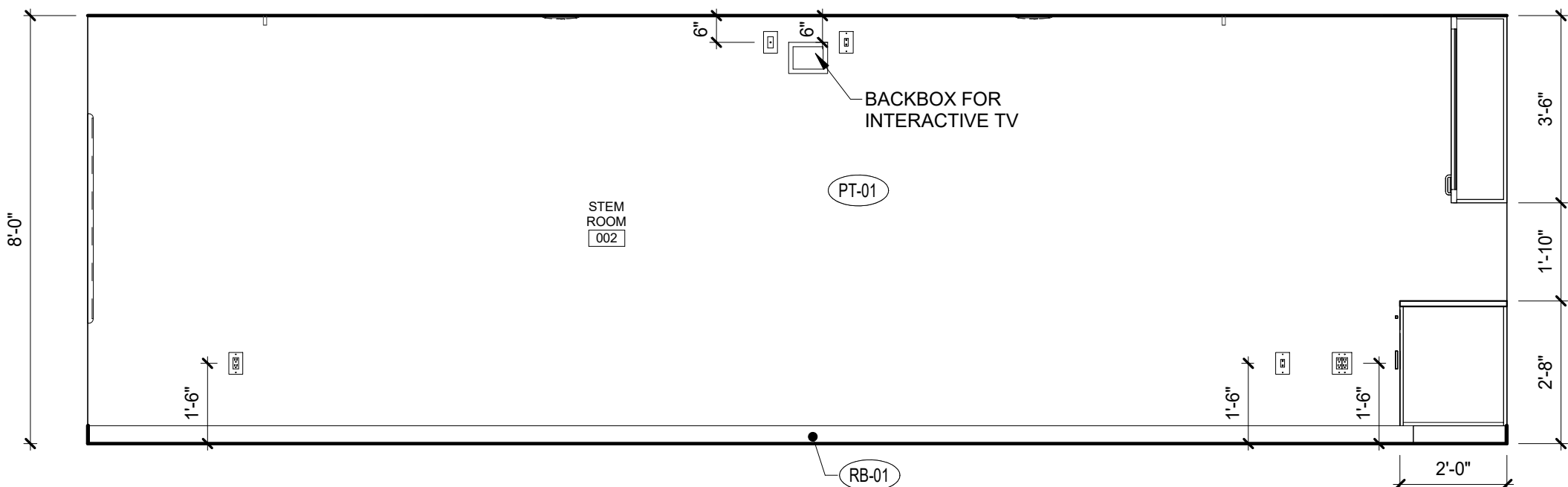
1 ELEVATION  
A-3 3/8" = 1'-0"



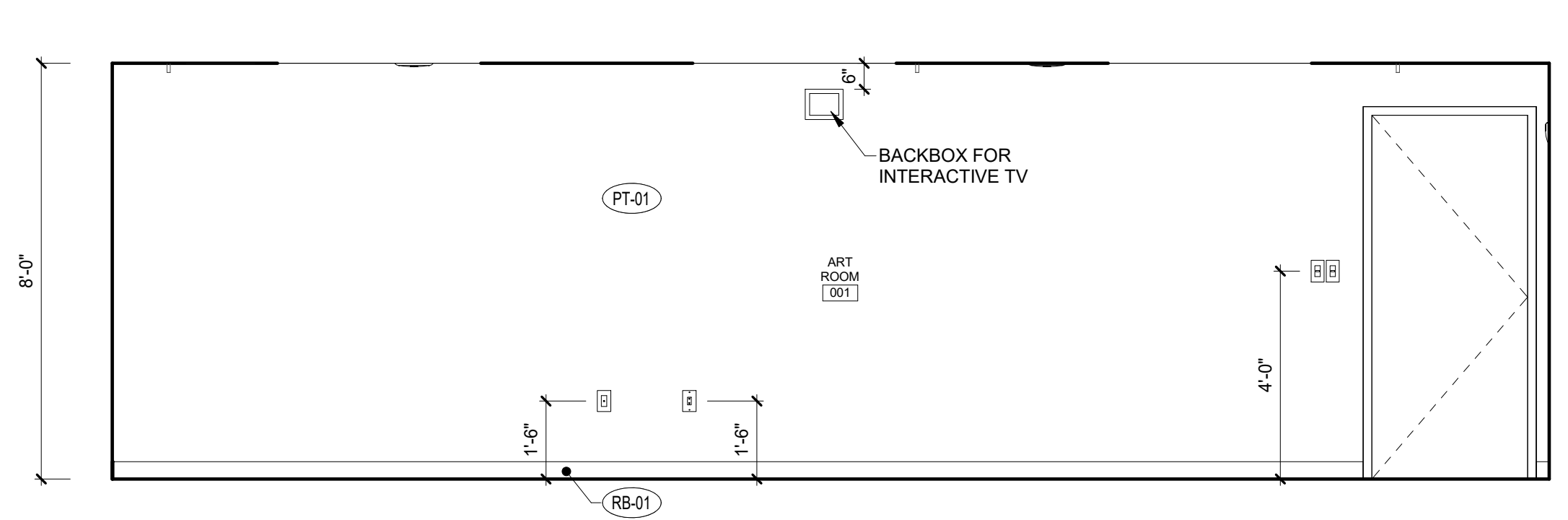
3 ELEVATION  
A-3 3/8" = 1'-0"



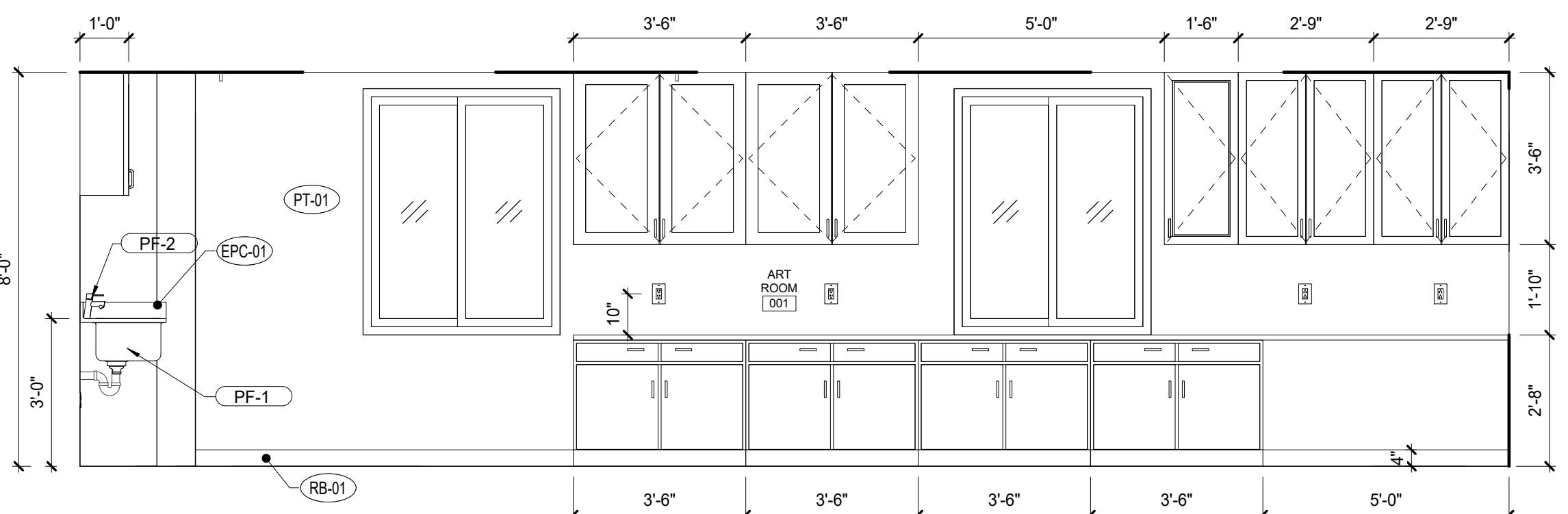
5 ELEVATION  
A-3 3/8" = 1'-0"



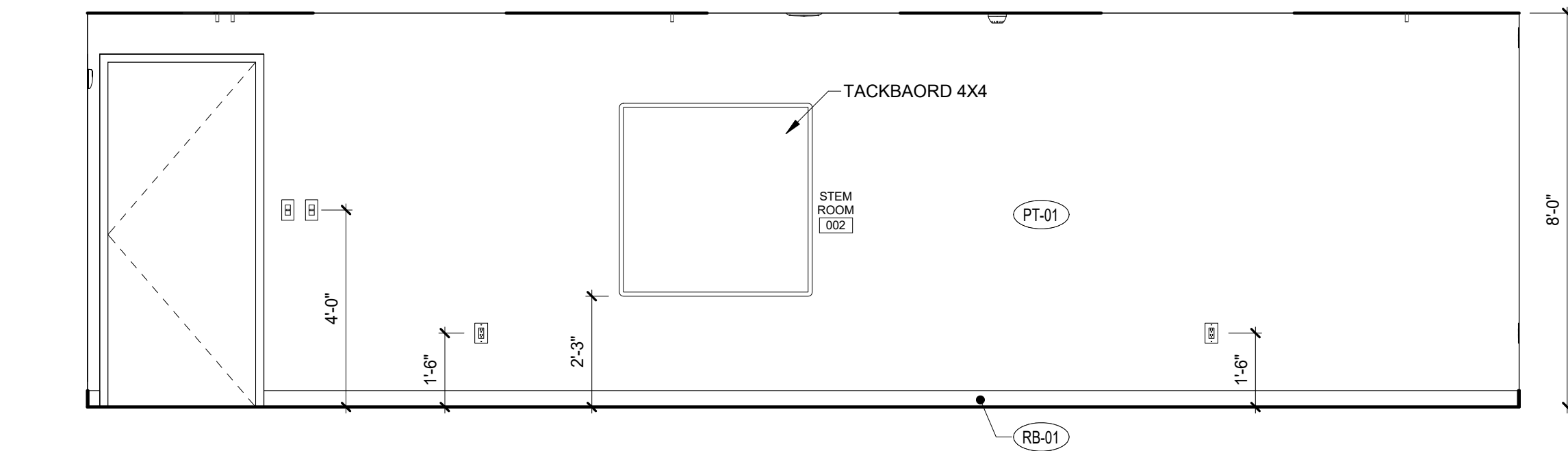
7 ELEVATION  
A-3 3/8" = 1'-0"



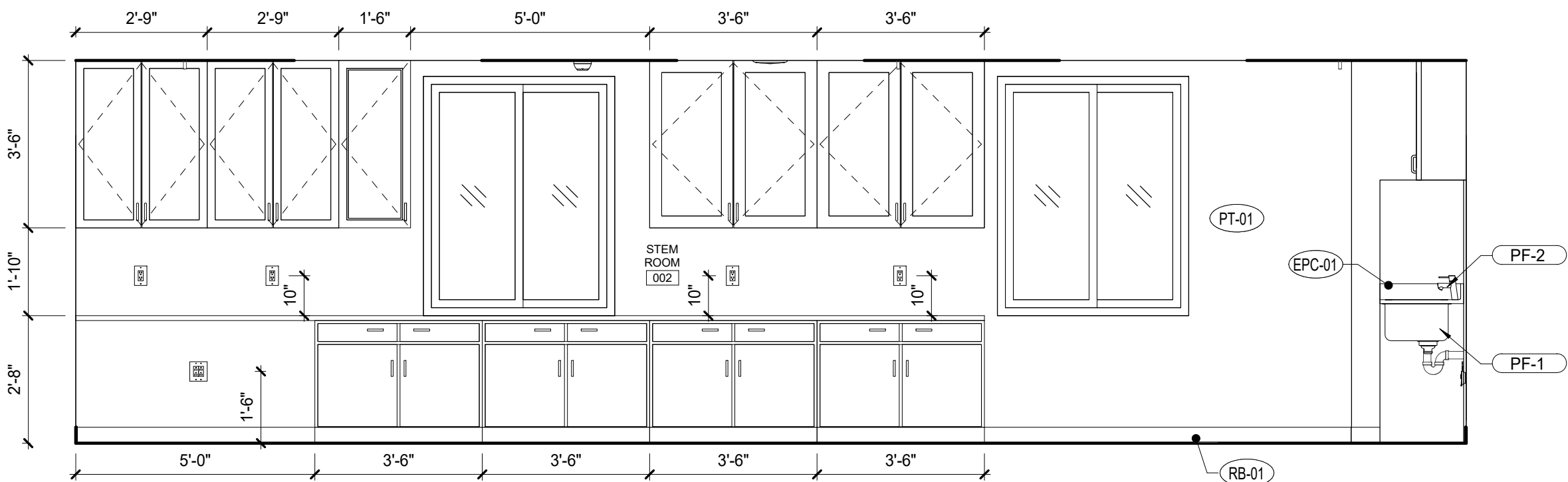
2 ELEVATION  
A-3 3/8" = 1'-0"




4 ELEVATION  
A-3 3/8" = 1'-0"



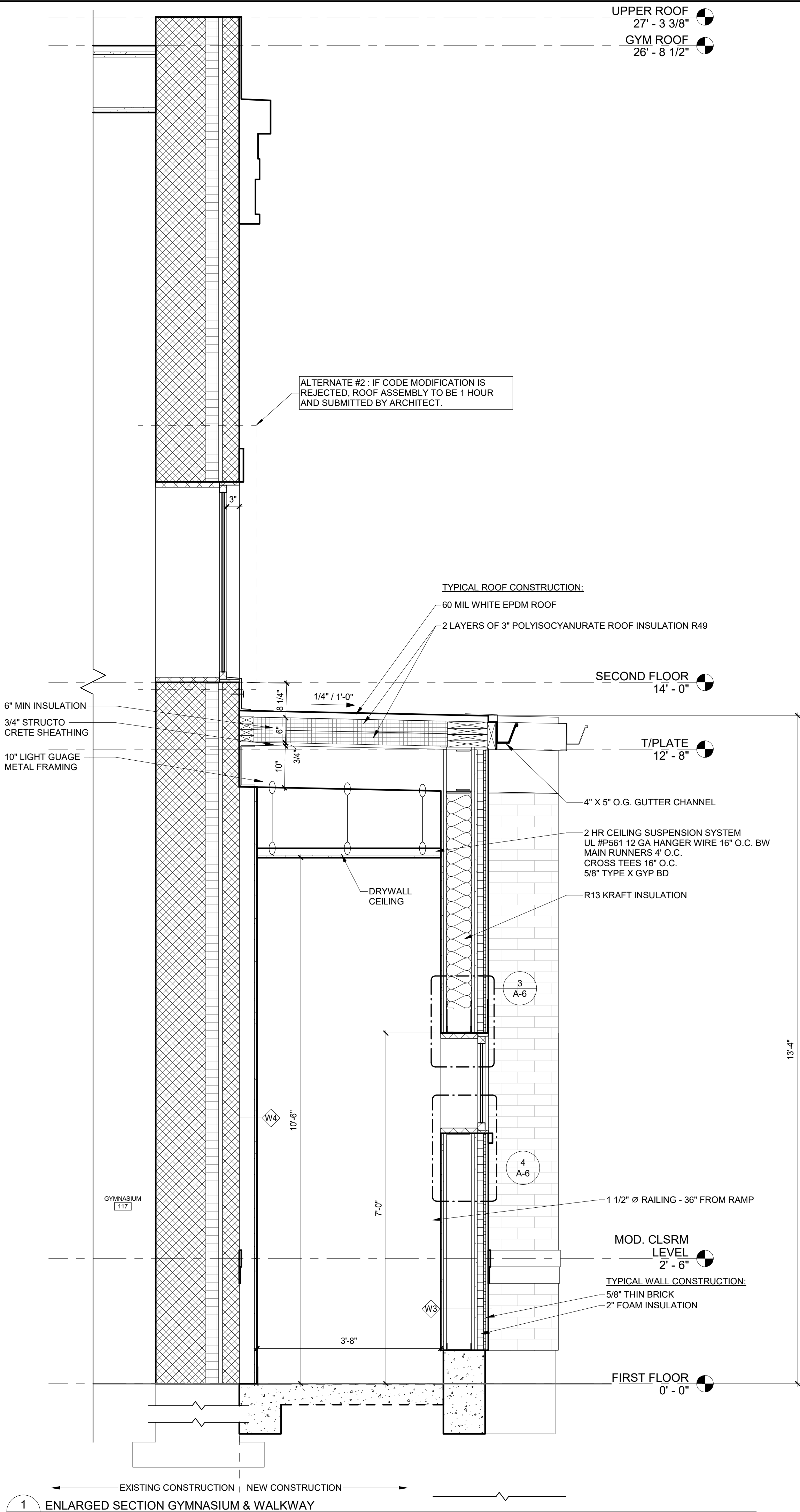
6 ELEVATION  
A-3 3/8" = 1'-0"



8 ELEVATION  
A-3 3/8" = 1'-0"

SHEET TITLE: ENLARGED ELEVATIONS		PROJECT: PHILIP R. SMITH ELEMENTARY SCHOOL		STAMP:		RUSSELL AND DAWSON INC. ARCHITECTURE & ENGINEERING 1111 Main Street, East Hartford, CT 06108 TEL: (860) 285-1100 FAX: (860) 285-5272 E-MAIL: info@rad-inc.com	
FILE NO: 22126	AS NOTED	DATE: 12/09/2022	REVISIONS				
			NO.	DESCRIPTION	DATE	BY	
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SHEET NUMBER: A-3							





GENERAL NOTES

- MODULAR CLASSROOM TO BE NO MORE THAN 30" ABOVE GRADE

SHEET TITLE:  
ENLARGED SECTIONS  
AND DETAILS

SHEET NUMBER:  
A-4

FILE NO:	22126
SCALE:	AS NOTED
DATE:	12/09/2022
DRAWN BY:	JBR
CHECKED BY:	UKP

PROJECT:  
PHILIP R. SMITH ELEMENTARY  
SCHOOL  
949 AVERY STREET, SOUTH WINDSOR, CT 06074

STAMP:

REVISIONS

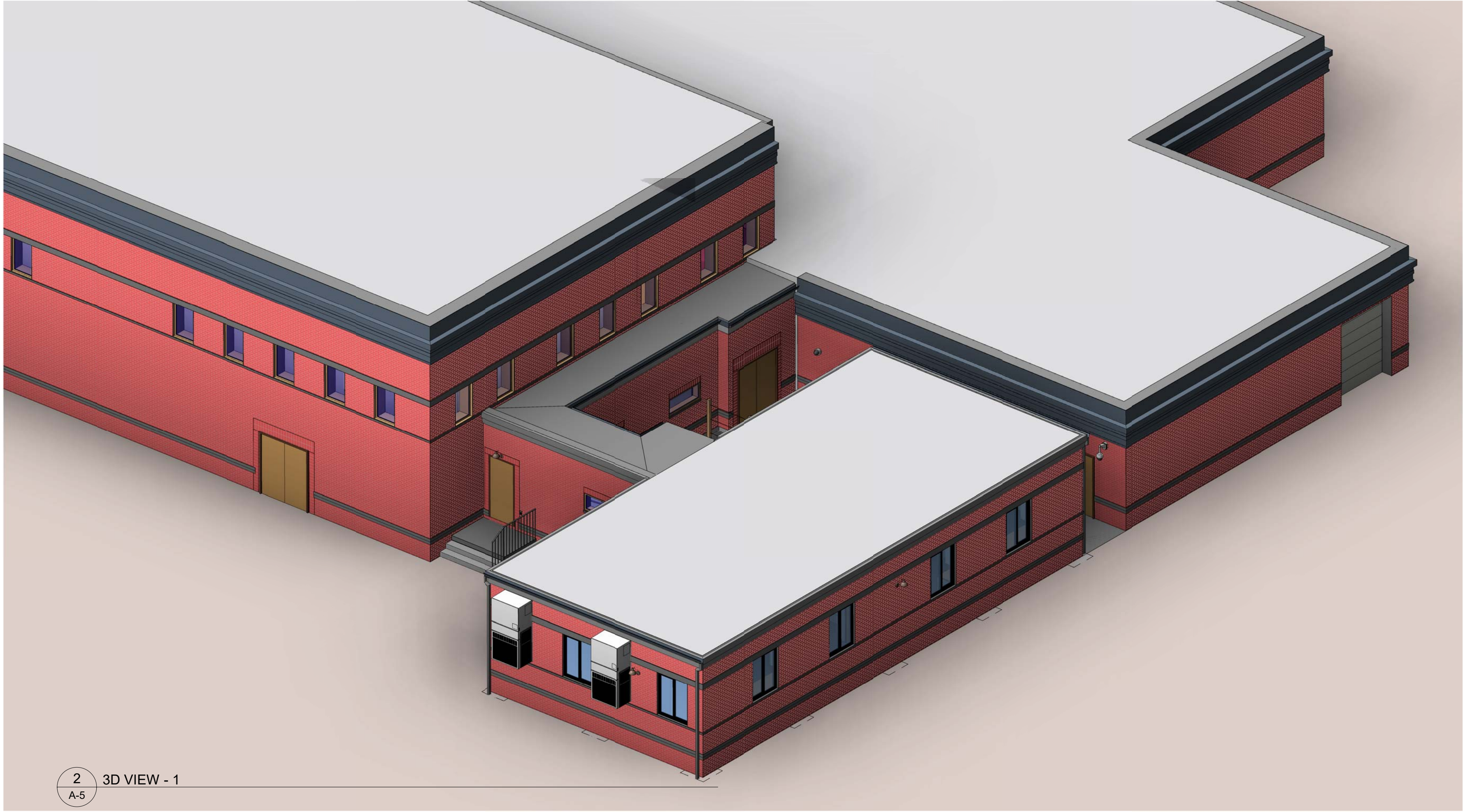
NO.	DESCRIPTION	DATE	BY
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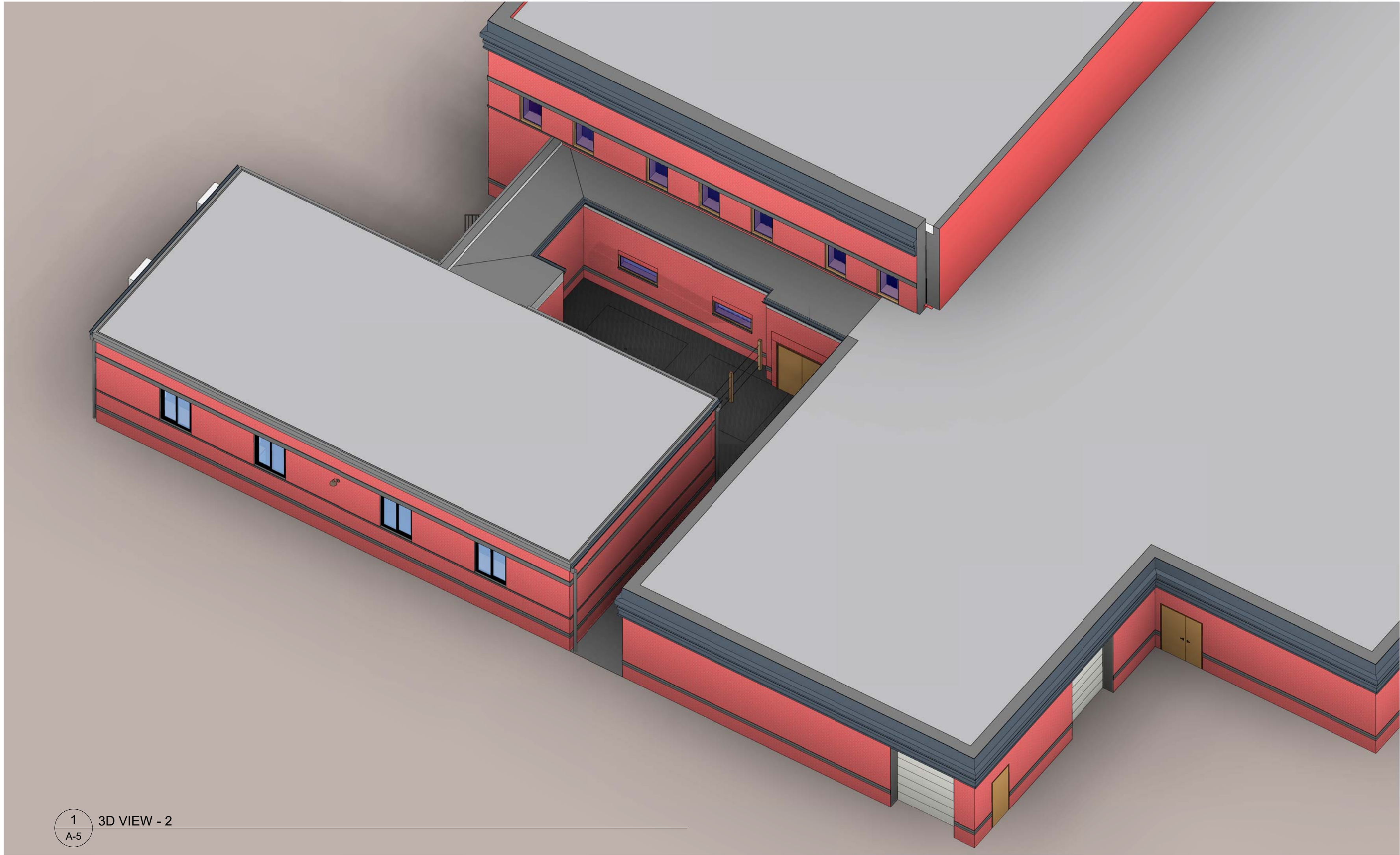
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2  
A-5 3D VIEW - 1



1  
A-5 3D VIEW - 2

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FILE NO: 22126

SCALE: AS NOTED

DATE: 12/09/2022

DRAWN BY: JBR

CHECKED BY: UKP

SHEET TITLE: 3D VIEWS

SHEET NUMBER: A-5

PROJECT: PHILIP R. SMITH ELEMENTARY SCHOOL

949 AVERY STREET, SOUTH WINDSOR, CT 06074

REVISIONS

NO.	DESCRIPTION	DATE	BY
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STAMP:



DOOR SCHEDULE																
MARK	ROOM NAME	DOOR			DOOR				FRAME				THRESHOLD	FIRE RATING	HARDWARE SET	REMARKS
		WIDTH	HEIGHT	THICK.	MATERIAL	FINISH	TYPE	GLAZING	TYPE	HEAD	JAMB	MATERIAL				
FIRST FLOOR																
003	PEDESTRIAN WALKWAY	3' - 0"	7' - 0"	0'-1 3/4"	ALUM	-	D3		F2	H1	J1	HM			01	PROVIDE CARD READER. SALVAGE EXISTING VESTIBULE 189 DOOR
003A	PEDESTRIAN WALKWAY	6' - 0"	7' - 0"	0'-1 3/4"	HM	PAINT TO MATCH EXISTING	D1		F1	H1	J1	HM			02	
114	MECHANICAL	6' - 0"	7' - 0"	0'-1 3/4"	HM	PAINT TO MATCH EXISTING	D1		F1	H1	J1	HM		45 MIN		REUSE EXISTING HARDWARE
117	GYMNASIUM	6' - 0"	7' - 0"	0'-1 3/4"	HM	PAINT TO MATCH EXISTING	D1		F1	H1	J1	HM		90 MIN		REUSE EXISTING HARDWARE
189	VESTIBULE	3' - 0"	7' - 0"	0'-1 3/4"	HM	PAINT TO MATCH EXISTING	D4		F3	H3	J3	HM		90 MIN	01	DOOR TO BE LATCHING BUT NON-LOCKING
MOD. CLSRM LEVEL																
001	ART ROOM	3' - 0"	7' - 0"	0'-1 3/4"	SCWD	WOOD VENEER	D2		F2	H2	J2	HM		90MIN B LABEL	03	FINISH : OASIS, OA18
001A	CLOSET	3' - 0"	7' - 0"	0'-1 3/4"	HCWD	WOOD VENEER	D2		F2			WD			04	FINISH : OASIS, OA18
001B	COMMON DOOR	3' - 0"	7' - 0"	0'-1 3/4"	HCWD	WOOD VENEER	D2		F2	H2	J2	WD			05	FINISH : OASIS, OA18
002	STEM ROOM	3' - 0"	7' - 0"	0'-1 3/4"	SCWD	WOOD VENEER	D2		F2	H2	J2	HM		90MIN B LABEL	03	FINISH : OASIS, OA18
002A	CLOSET	3' - 0"	7' - 0"	0'-1 3/4"	HCWD	WOOD VENEER	D2		F2			WD			04	FINISH : OASIS, OA18

### GLAZING LEGEND

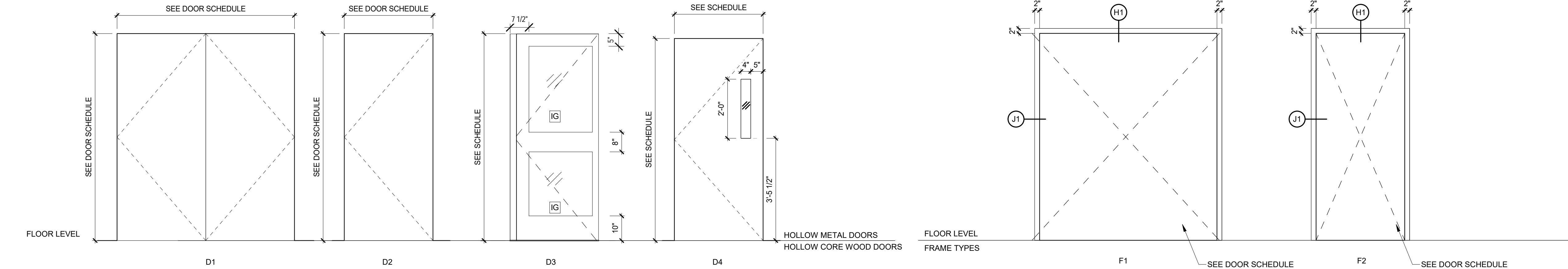
TC CLEAR TEMPERED 1/4" GLASS.  
IG FIRELITE IGU GLASS . RATING MIN. 90MIN

### DOOR GENERAL NOTES

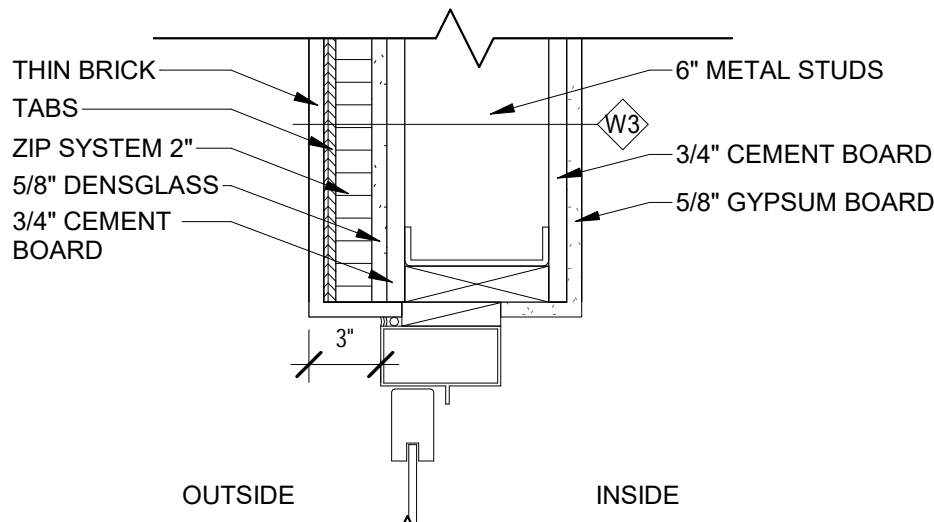
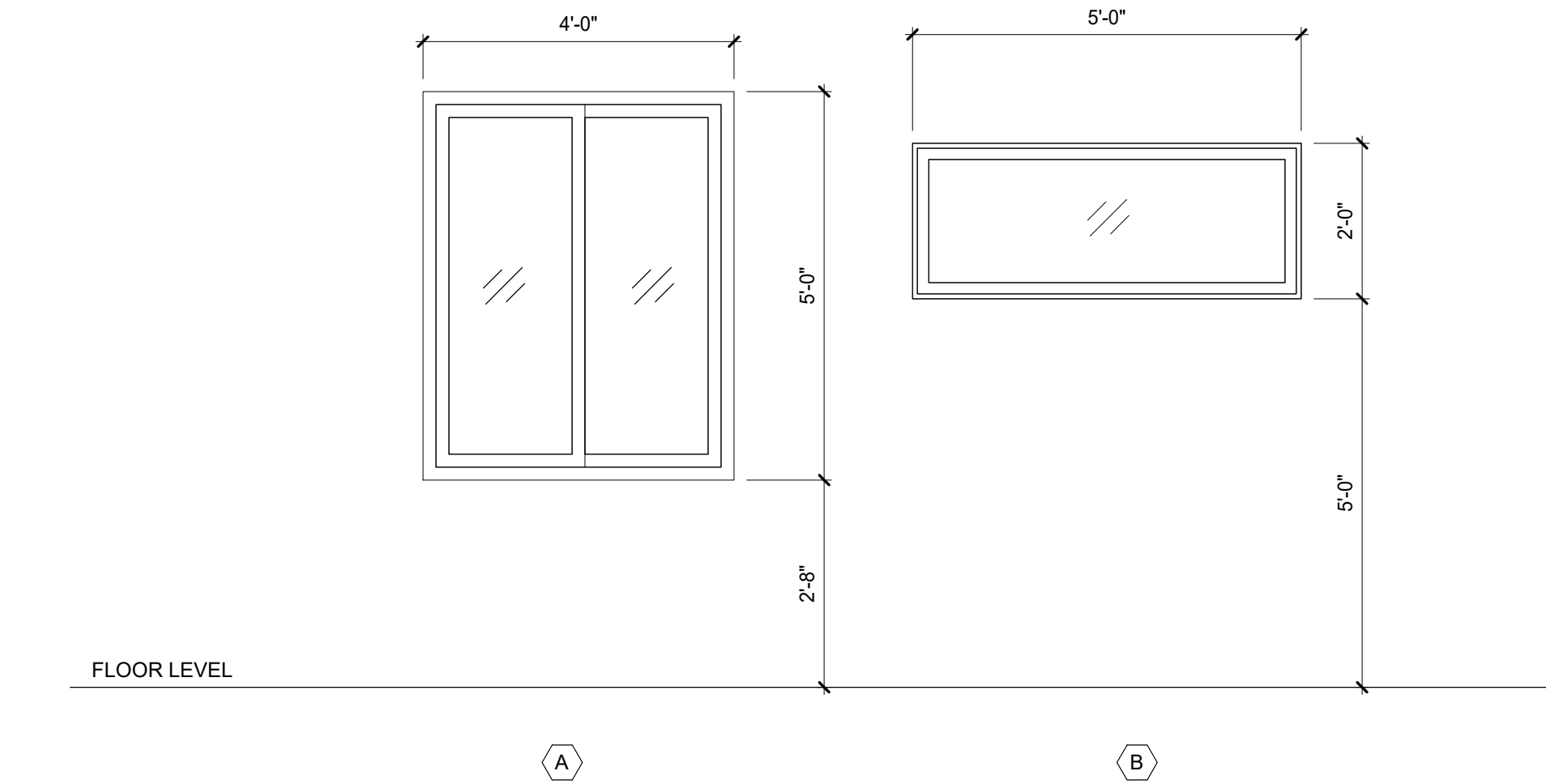
- ALL INTERIOR WOOD DOORS SHALL BE SOLID CORE CONSTRUCTION
- DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERABLE DEVICES SHALL BE MOUNTED AT MINIMUM HEIGHT OF 34" AND MAXIMUM HEIGHT OF 48". OPERATING DEVICE SHALL BE CAPABLE OF OPERATION WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF WRIST TO OPERATE
- THE FORCE FOR PUSHING OR PULLING OPEN DOORS SHALL NOT EXCEED AS FOLLOWS:  
A. INTERIOR HINGED DOOR: 5.0 LBS MAX.  
B. SLIDING DOORS: 5.0 LBS MAX.
- DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO AN OPEN POSITION OF 12 DEGREES SHALL BE 5 SECONDS MINIMUM.

### DOOR ABBREVIATIONS

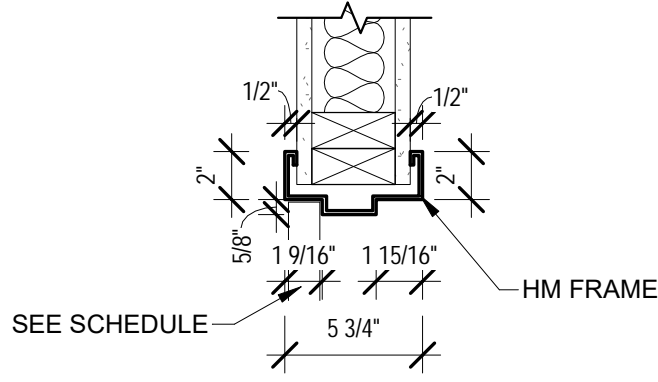
ALUM	ALUMINUM
HM	HOLLOW METAL
SCWD	SOLID CORE WOOD
PLAM	PLASTIC LAMINATE
HCWD	HOLLOW CORE WOOD



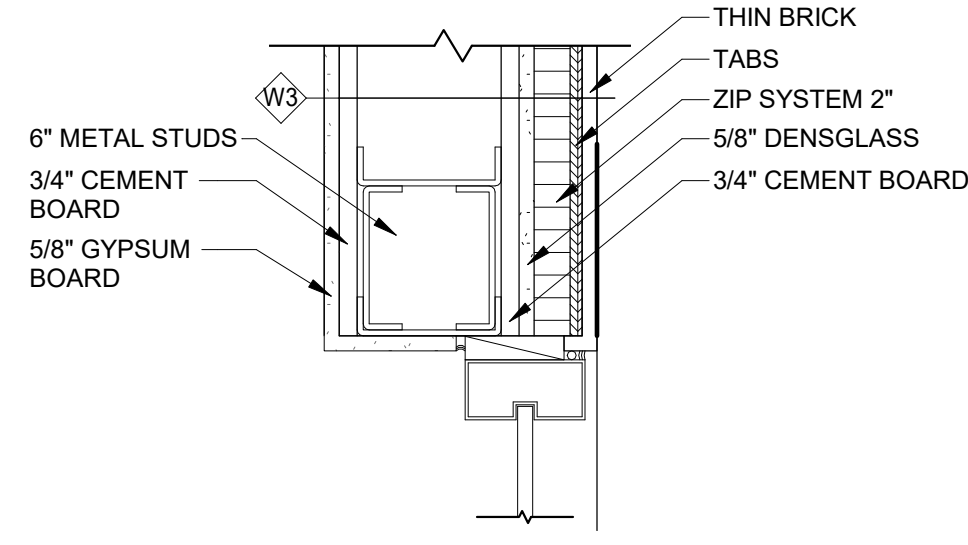
WINDOW SCHEDULE						
TYPE	MANUFACTURER	MODEL	ROUGH OPENING		FINISH	REMARKS
			WIDTH (R.O.)	HEIGHT (R.O.)		
A	QUAKER	SLIDING	4' - 0"	5' - 0"	BLACK	
B	QUAKER	FIXED	5' - 0"	2' - 0"	BLACK	



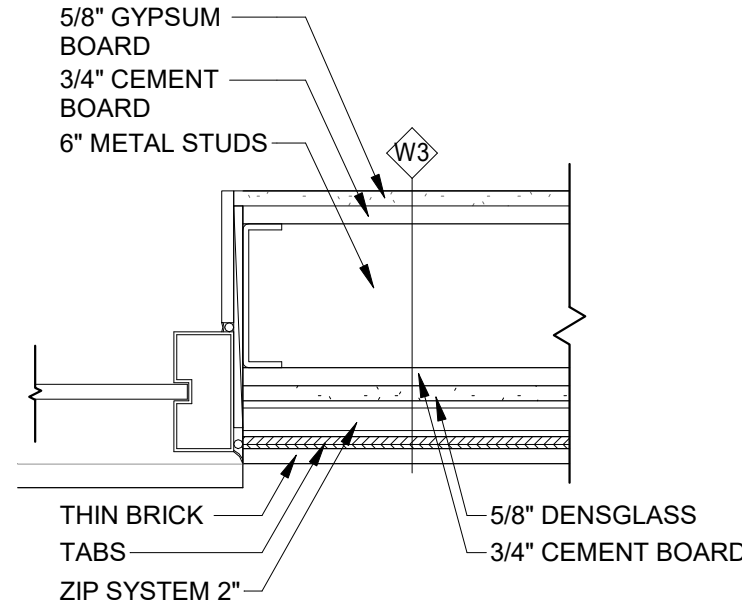
H1 DOOR HEAD DETAIL  
A-6 1 1/2" = 1'-0"



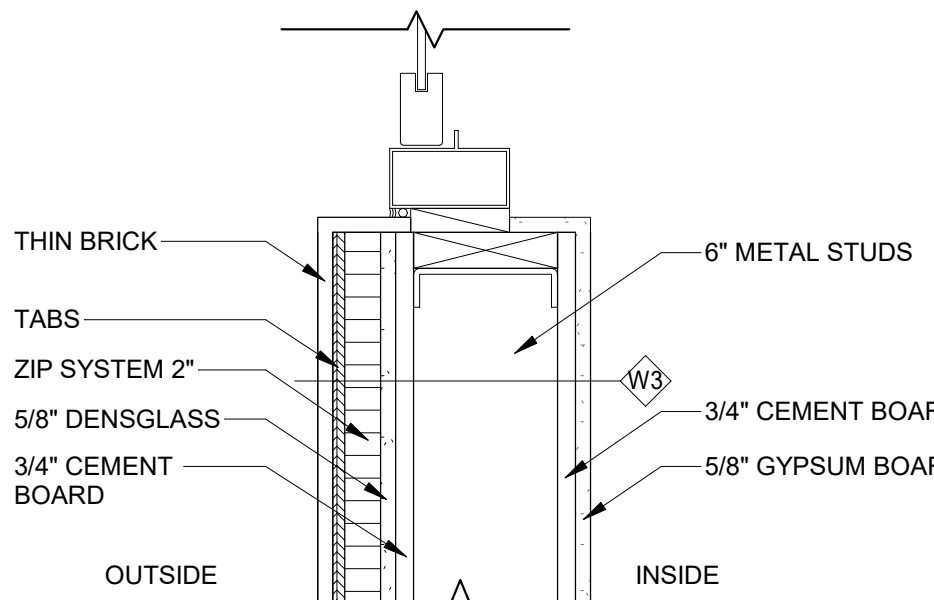
H2 INTERIOR DOOR HEAD DETAILS  
A-6 1 1/2" = 1'-0"



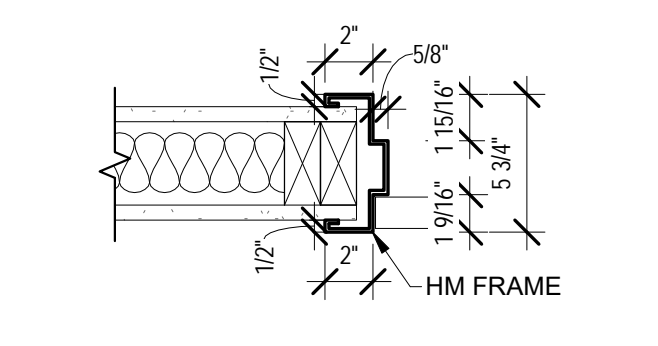
3 WINDOW HEAD DETAIL  
A-6 1 1/2" = 1'-0"



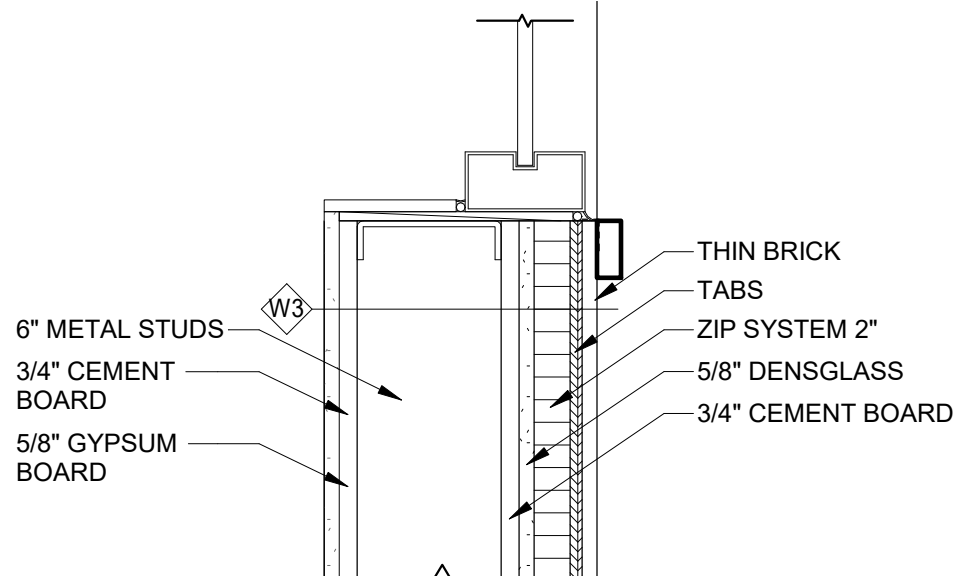
5 WINDOW JAMB DETAIL  
A-6 1 1/2" = 1'-0"



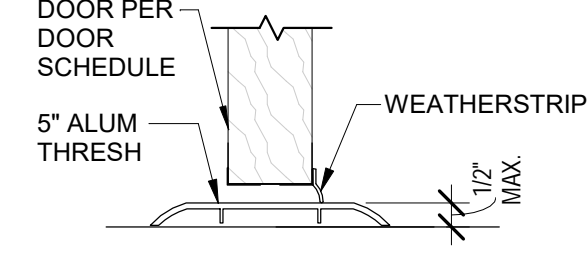
J1 DOOR JAMB DETAIL  
A-6 1 1/2" = 1'-0"



J2 INTERIOR DOOR JAMB DETAILS  
A-6 1 1/2" = 1'-0"



4 WINDOW SILL DETAIL  
A-6 1 1/2" = 1'-0"



1 DOOR SILL  
A-6 3" = 1'-0"

### PLUMBING FIXTURES SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	FINISH
PF-1	UNDERMOUNT SINK	KOHLER	K1772	WHITE
PF-2	FAUCET	BRADLEY	6315-KT0000	POLISHED CHROME

### ROOM FINISH SCHEDULE

ROOM NO.	ROOM	FLOOR	BASE	WALLS		CEILING	REMARKS
	NAME			MATERIAL	FINISH	FINISH	
FIRST FLOOR							
003	PEDESTRIAN WALKWAY	LVT-01	RB-02	PAINT	PT-01 / WP-01	GYP. - PT-01	
MOD. CLSRM LEVEL							
001	ART ROOM	LVT-01	RB-01	PAINT	PT-01	ACT-01	
001A	CLOSET	LVT-01	RB-01	PAINT	PT-01	-	
002	STEM ROOM	LVT-01	RB-01	PAINT	PT-01	ACT-01	
002A	CLOSET	LVT-01	RB-01	PAINT	PT-01	-	

### FINISH KEY

TAG	MATERIAL	LOCATION	MANUFACTURER	DESCRIPTION	SIZE	COMMENTS
ACOUSTIC CEILING TILE						
ACT-01	ACOUSTIC CEILING TILE		ARMSTRONG CEILINGS	PRODUCT- ULTIMA HIGH NRC #1941 COLOR- WHITE GRID- PRELUDE XL 15/16"	24" X 24"	
EPOXY COUNTERTOP						
EPC-01	EPOXY COUNTERTOP		DURCON	PRODUCT: EPOXY RESIN ; COLOR: TAN	12"W X 24"L; 3/8"T	
IMPACT RESISTANT WALL PROTECTION						
WP-01	IMPACT RESISTANT WALL PROTECTION		WOLF GORDON	COLLECTION- RAMPART PATTERN- GRAIN COLOR- WHITE OAK GOH12648373		
LUXURY VINYL TILE						
LVT-01	LUXURY VINYL TILE		MANNINGTON	PRODUCT: COLOR ANCHOR ; STYLE: GROOVE ; COLOR: PEANUT SHELL C113	6" X 36"	
PAINT						
PT-01	PAINT		SHERWIN WILLIAMS	COLOR: SW7035 AESTHETIC WHITE ; FINISH: EGGSHELL (FIELD PAINT)		
PT-02	PAINT		SHERWIN WILLIAMS	COLOR: SW6780 NAUTILUS ; FINISH: EGGSHELL (MAIN AREA TEAL ACCENT)		
RUBBER BASE						
RB-01	RUBBER BASE		JOHNSONITE	PRODUCT: 4" BASE; COLOR: CHARCOAL 20	4.25"H X 0.25"D	
RB-02	RUBBER BASE		JOHNSONITE	PRODUCT: SAFE-T FIRST THERMOPLASTIC WITH 1" PHOTOLUMINESCENT BASE; COLOR: CHARCOAL 20 (CORRIDOR)	4.25"H X 0.25"D	

FILE NO:

22126

SCALE:

AS NOTED

DATE:

12/09/2022

DRAWN BY:

JBR

CHECKED BY:

UKP

PROJECT:

22126

PHILIP R. SMITH ELEMENTARY SCHOOL

949 AVERY STREET, SOUTH WINDSOR, CT 06074

SHEET TITLE:

DOOR, WINDOW SCHEDULES AND DETAILS

SHEET NUMBER:

A-6

RUSSELL AND DAWSON INC.

ARCHITECTURE & ENGINEERING

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HARDWARE SCHEDULE			
SET #1	1 HINGE, CONTINUOUS LEAF 1 EXIT DEVICE, RIM, KEY, ELP 1 CLOSER, OVERHEAD PARALLEL ARM 1 WEATHERSTRIP 1 DOOR BOTTOM 1 THRESHOLD 1 POWER SUPPLY 1 DIAGRAMS 1 DIAGRAMS	780-226HD-85" CLEAR CONCEALED LEAF - RETWQC (12-WIRE) ED5200 - K157 - P12 - 630 - LHR - D200 - M94 CPS-7500-689 (AT 90 DEGREES) WEATHERSTRIPPING - ALUMINUM DOOR SUPPLIED STANDARD DOOR BOTTOM - ALUMINUM DOOR SUPPLIER STANDARD 195A X - A (FLUTED PLATE) X 196A (SUPP) X 195A X (FRM DEPTH) - 1 WELDED UNIT X36" W X 1/2" H POWER SUPPLY BY SECURITY SECTION DIAGRAMS- ELEVATION & RISER DIAGRAMS - POINT TO POINT	ROTON CORBIN - RUSSWIN NORTON SECTION 084113 SECTION 084113 PEMKO BY OTHERS BY MFR BY MFR
SET #2	2 HINGE, CONTINUOUS GEARED 1 EXIT DEVICE, RIM, KEY, ELP 1 EXIT DEVICE, VRT, CONC, KEY, ELP 1 CYLINDER, MORTISE - DOGGING 2 CLOSER, OVERHEAD PARALLEL ARM 2 KICK PLATE 2 ASTRAGAL, OVERLAPPING 1 WEATHERSTRIP 2 DOOR BOTTOM SWEEP 1 OVERHEAD RAIN DRIP 1 THRESHOLD 1 POWER SUPPLY 1 DIAGRAMS 1 DIAGRAMS	780 - 224 HD - 83" - CLEAR - CONCEALED LEAF - RETW-QC ( 12-WIRE) ED5800 - EO - P12 - 630 - LHR - D200 - M52 (CD) - ED5800 - EO - P12 - 630 - RHR - D200 - M52 (CD) - M94 CYLINDER - MORTISE - 626 (DOGGING ) CPS-7500 - 689 (AT 90 DEGREES ) K1050 - 08" X 36" - 18 GA. - US32D 305CN X 84" 316AS - 76" X 84" 315CN X 38" 346C X 80" 195A X _A ( FLUTED PLATE) X 196A (SUPP) X 195A X (FRM DEPTH + 1/2" ) - 1 WELDED UNIT X 76" W X 1/2" H POWER SUPPLY BY SECURITY SECTION DIAGRAMS - ELEVATION AND RISER DIAGRAMS - POINT TO POINT	ROTON CORBIN - RUSSWIN CORBIN - RUSSWIN SECTION 087100 NORTON ROCKWOOD PEMKO PEMKO PEMKO PEMKO BY OTHERS BY MFR BY MFR
SET #3	3 HINGE, BALL BEARING 1 LOCKSET, CLASSROOM SECURITY 1 HOLDER/STOP, OVERHEAD - SURF. 1 SOUND GASKET 1 DOOR BOTTOM - AUTOMATIC 1 THRESHOLD	BB1279 - 4.5 X 4.5 - US26D - NRP ML2072 - (SECURITY FUNCTION) - NSA - 626 - M17 9ADJ-326 - HOLD OPEN - (33-1/16" - 38" DOOR) - 689 S773D X 544D ( GASKET, SOUND SEALS ) - 36" X 84" PDB411AE X 36" ( SEAL ) - ( FULL_MORT ) 2005AT X 36"	HAGER CORBIN-RUSSWIN RIXSON PEMKO PEMKO PEMKO
SET #4	3 HINGE, BALL BEARING 1 LOCKSET, CLASSROOM 1 HOLDER/STOP, OVERHEAD - SURF. 3 SILENCER, HM DR. FRAME	BB1279 - 4.5 X 4.5 - US26D ML2055 - NSA - 626 - M17 - M21 (KLO) 9ADJ-326 X 5458 LH - HOLD OPEN - (33-1/16" - 38" DOOR) - 689 608 - GRAY	HAGER CORBIN-RUSSWIN RIXSON ROCKWOOD
SET #5	3 HINGE, BALL BEARING 1 LATCHSET PASSAGE 1 CLOSER, OVERHEAD REGULAR ARM 1 STOP, WALL 3 SILENCER, HM DR. FRAME	BB1279 - 4.5 X 4.5 - US26D ML2010 - NSA - 626 - M17 7500-689 409-US26D 608 - GRAY	HAGER CORBIN-RUSSWIN NORTON ROCKWOOD ROCKWOOD

[illegible]

DESIGN CRITERIA			
DC-1	BUILDING CODES AND SPECIFICATION:		
	ALL STRUCTURAL DESIGN SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS		
	A. 2021 INTERNATIONAL BUILDING CODE ADOPTED BY STATE OF CONNECTICUT		
	B. 2022 CONNECTICUT STATE BUILDING CODE		
	C. AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI 318-19		
	D. AMERICAN SOCIETY OF CIVIL ENGINEERING (ASCE); MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURAL, ASCE 7-16		
DC-2	LATERAL LOAD DESIGN CRITERIA		
	A. WIND DESIGN CRITERIA		
	1. BASIC DESIGN WIND SPEED	=	125 MPH
	2. EXPOSURE CATEGORY	=	B
	3. BUILDING CATEGORY	=	III
	B. SEISMIC DESIGN CRITERIA		
	1. SEISMIC IMPORTANCE FACTOR, $I_E$	=	1.25
	2. SPECTRAL RESPONSE ACCEL., $S_S$	=	0.183
	3. SPECTRAL RESPONSE ACCEL. (1-SEC.), $S_1$	=	0.055
	4. SITE CLASS	=	D
	5. SEISMIC PERFORMANCE CATEGORY	=	B
	6. RISK CATEGORY	=	III
DC-3	GRAVITY LOADS		
	A. LIVE LOADS		
	1. CLASSROOM	=	40 PSF
	2. CORRIDOR	=	100 PSF
	B. SNOW LOADS		
	1. GROUND SNOW LOAD, $P_g$	=	30 PSF
	2. FLAT ROOF SNOW LOAD, $P_f$	=	30 PSF
	3. SNOW EXPOSURE FACTOR, $C_E$	=	1.1
	4. SNOW THERMAL FACTOR, $C_T$	=	1.0
	5. SNOW IMPORTANCE FACTOR, $I_s$	=	1.0

GENERAL NOTES	
G-1	METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND IMPLEMENTING THE NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF STRUCTURE AT ALL STAGES OF CONSTRUCTION.
G-2	TEMPORARY BRACING, SHEATHING, SHORING, ETC., REQUIRED TO INSURE THE STRUCTURAL INTEGRITY/STABILITY OF THE EXISTING BUILDINGS, SIDE WALKS, UTILITIES, ETC., DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER EMPLOYED BY THEM.
G-3	THE CONTRACTOR SHALL PROTECT ALL REMAINING ABOVE AND BELOW GRADE UTILITIES AND OTHER STRUCTURES FROM DAMAGE RESULTING FROM THIS WORK.
G-4	THE CONTRACTOR SHALL REPAIR, AT ITS OWN EXPENSE, AND DAMAGE TO STRUCTURES & APPURTENANCES DUE TO HIS CONSTRUCTION OPERATION.
G-5	IMPLEMENTATION OF JOB SITE SAFETY IS RESPONSIBILITY OF THE CONTRACTOR.
G-6	SLEEVES OR BLOCK-OUTS REQUIRED FOR PASSAGE OF DUCTWORK, PIPING, DRAINS, CONDUIT, ETC., IN ADDITION TO ANCHORS AND HANGERS REQUIRED FOR EQUIPMENT AND PIPING AND UNDER-SLAB UTILITIES ARE NOT SPECIFICALLY, NOR GENERALLY, INDICATED ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING SUCH REQUIREMENTS FROM OTHER SERIES DRAWINGS, SUBCONTRACTORS AND SUPPLIERS, AND COORDINATING THE LOCATIONS AND DETAILS FOR THESE ITEMS PRIOR TO FABRICATION OR ERECTION OF THE STRUCTURE. ALL PENETRATIONS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
G-7	DIMENSIONS AND INSTALLATION DETAILS OF PURCHASED EQUIPMENT MUST BE VERIFIED AND COORDINATED WITH THE SUPPORTING STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING SUCH REQUIREMENTS FROM SUBCONTRACTORS AND EQUIPMENT SUPPLIERS ALONG WITH COORDINATING THE LOCATIONS AND DETAILS FOR THESE ITEMS PRIOR TO FABRICATION OR ERECTION OF THE SUPPORTING STRUCTURE. ANY CONFLICTS BETWEEN THESE ITEMS AND THE BUILDING STRUCTURE ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
G-8	WORK NOT INDICATED ON A PART OF THE DRAWINGS, BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT THE CORRESPONDING LOCATIONS IS THE BE REPEATED.
G-9	EXISTING BUILDING INFORMATION SHOWN IS BASED UPON EXISTING BUILDING DOCUMENTS AND/OR FROM FIELD OBSERVATION. THE INFORMATION CONTAINED HEREIN MAY REQUIRE ADJUSTMENT AND/OR MODIFICATION TO CONFORM TO EXISTING CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY ALL EXITING CONDITIONS (DIMENSIONS, ELEVATIONS, ETC.) AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO FABRICATION OF ANY STRUCTURAL COMPONENT.
G-10	DETAILS DESIGNATED AS "STRUCTURAL DETAILS" APPLY GENERALLY TO THE DRAWINGS IN AREAS WHERE CONDITIONS ARE SIMILAR TO THOSE DESCRIBED IN THE DETAILS.
G-11	CONTRACTOR SHALL VERIFY ALL EXISTING STRUCTURES, DISCREPANCIES AND CONFLICTS BETWEEN NEW ELEMENTS AND EXISTING STRUCTURE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE FABRICATION AND CONSTRUCTION OF DEPENDENT WORK.

CONSTRUCTION NOTES	
CN-1	<p><u>GENERAL:</u> THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING LABOR, MATERIAL AND EQUIPMENT NECESSARY TO SATISFY THE INTENT OF THIS PROJECT. DRAWINGS ARE SCHEMATIC ONLY AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSPECT THE PREMISES PRIOR TO SUBMITTING HIS BID PRICE TO ENSURE THAT HE IS AWARE OF JOB CONDITIONS AND HAS INCLUDED IN HIS PRICE EVERYTHING REQUIRED.</p>
CN-2	<p><u>EXAMINATION OF SITE:</u></p> <p>A. BEFORE COMMENCING THE WORK, EACH CONTRACTOR IS HELD TO HAVE FULLY INFORMED HIMSELF AS TO CONDITIONS UNDER WHICH THE WORK IS TO BE CARRIED ON, OF WHAT WILL IN ANY WAY AFFECT THE WORK UNDER HIS CONTRACT, AND TO HAVE COMPARED SAME WITH THE DRAWINGS AND SPECIFICATIONS BEFORE SUBMITTING HIS PROPOSAL.</p> <p>B. COMMENCING OF WORK WILL BE CONSIDERED AS EVIDENCE THAT AN EXAMINATION HAS BEEN MADE. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF ERROR ON HIS PART, DUE TO HIS NEGLECT TO COMPLY WITH THE REQUIREMENTS OF THIS CLAUSE.</p> <p>C. COMMENCING OF WORK WILL BE CONSIDERED PRESUMPTIVE EVIDENCE THAT THE CONTRACTOR IS CONVERSANT WITH LOCAL FACILITIES AND DIFFICULTIES. THE REQUIREMENTS OF THE DOCUMENTS, AND OF PERTINENT STATE OR LOCAL CODES, STATE LABOR AND MATERIAL MARKETS, AND HAS MADE DUE ALLOWANCE IN HIS BID FOR ALL CONTINGENCIES. NO COMPENSATION WILL BE ALLOWED BY REASON OF ANY DIFFICULTIES WHICH THE BIDDER COULD HAVE DISCOVERED OR REASONABLY ANTICIPATED PRIOR TO BIDDING.</p>
CN-3	<p><u>SUBSTITUTIONS:</u> IF A CONTRACTOR FINDS THAT MATERIALS OR METHOD OF CONSTRUCTION SPECIFIED OR SHOWN ON THE PLANS CANNOT BE OBTAINED OR USED AT THIS TIME, OR IF HE WISHES TO PROPOSE AN ALTERNATE NOT LISTED IN THE SPECIFICATIONS, HE IS REQUESTED TO STATE WITH HIS PROPOSAL WHAT ALTERNATE MATERIAL OR METHOD OF CONSTRUCTION HE PROPOSES TO THE DESIGNER. BASE BID SHALL BE BASED ON THE SPECIFICATION DATA AS ISSUED BY RUSSELL AND DAWSON AND ANY LIST OF PROPOSED SUBSTITUTIONS SHALL INCLUDE THE AMOUNT TO BE ADDED TO OR DEDUCTED FROM BID.</p>
CN-4	<p><u>MATERIALS AND WORKMANSHIP:</u> MATERIALS USED THROUGHOUT THE JOB SHALL BE NEW, FIRST QUALITY, AND OF HIGH GRADES SATISFACTORY TO THE OWNER. ALL WORKMANSHIP SHALL BE HIGH GRADE IN ACCORDANCE WITH THE TEST PRACTICE FOR THE TYPE OF WORK PERFORMED. THE OWNER SHALL HAVE THE RIGHT TO REJECT ANY PORTION OF THE WORK IN CASE THE MATERIAL OR WORKMANSHIP IS NOT OF SATISFACTORY QUALITY AND THE CONTRACTOR SHALL REPLACE SAME WITH ACCEPTABLE WORK AT HIS OWN EXPENSE.</p>
CN-5	<p><u>CODE CONFORMANCE:</u> WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS, DEPARTMENT OF BUILDING OF THE CITY, OSHA AND OTHER LOCAL, STATE, AND NATIONAL CODES WHICH APPLY. NOTHING ON THIS DRAWING SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES.</p>
CN-6	<p><u>GUARANTEE:</u></p> <p>A. CONTRACTOR SHALL GUARANTEE THAT THE INSTALLATION SHALL FULFILL EACH AND EVERY REQUIREMENT OF THESE SPECIFICATIONS, AND SHOULD THEY FAIL IN ANY WAY TO DO SO, THAT HE WILL, WITHOUT ADDITIONAL COST TO THE OWNER, PROVIDE WHATEVER ADDITIONAL MATERIAL AND/OR LABOR AS NECESSARY TO CORRECT THE FAULT AND TO COMPLY WITH THESE REQUIREMENTS.</p> <p>B. WORK FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED AGAINST DEFECTS IN WORKMANSHIP OF MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE WORK.</p> <p>C. NOTHING IN THIS SPECIFICATION SHALL BE CONSTRUED TO RELIEVE THIS CONTRACTOR FROM MAKING GOOD AND PERFECT WORK IN USUAL DETAILS OF CONSTRUCTION AND HE WILL BE HELD RESPONSIBLE TO PROVIDE MATERIAL AND BEAR EXPENSE INCIDENT TO THE SATISFACTORY COMPLETION OF THE WORK EMBRACED HEREIN.</p>
CN-7	<p><u>CLEAN UP:</u> AFTER COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE WASTE, RUBBISH, AND OTHER MATERIALS LEFT AS A RESULT OF HIS OPERATIONS AND LEAVE THE PREMISES IN CLEAN CONDITION.</p>

FOUNDATION NOTES	
F-1	FOUNDATION DESIGN CRITERIA IS BASED UPON THE FOLLOWING ALLOWABLE NET SOIL BEARING CAPACITY: 4,000 PSF.
F-2	FOOTINGS SHALL BEAR ON UNDISTURBED NATURAL MATERIAL OR GRANULAR FILL. ELEVATIONS OF BOTTOM OF FOOTING SHOWN ON PLANS ARE FOR BIDDING PURPOSES AND SHALL BE LOWERED IF NECESSARY TO THE REQUIRED BEARING MATERIAL AS FOUND UPON EXCAVATION. IF THE REQUIRED BEARING MATERIAL IS NOT ENCOUNTERED AT ELEVATIONS SHOWN, NOTIFY ENGINEER IMMEDIATELY. CONTROLLED BACKFILL AND COMPACTION IF REQUIRED.
F-3	WHERE UNACCEPTABLE MATERIAL MUST BE REMOVED AND REPLACED WITH PROPER MATERIAL, A CONTROLLED PROCEDURE MUST BE FOLLOWED TO ENSURE PROPER BEARING FOR THE BUILDING
F-4	BEFORE BACKFILLING, REMOVE CONSTRUCTION DEBRIS, STUMPS, TREES, ROOTS, SOD, HEAVY GRASS, DECAYED VEGETABLE MATTER AND OTHER UNSUITABLE MATERIALS. FILL MATERIAL SHALL BE AS APPROVED BY THE ENGINEER.
F-5	AFTER DEPOSITING FILL OR BACKFILL IN 6 INCH LIFTS, WELL WASHED IN, COMPACT TO THE FOLLOWING PERCENT OPTIMUM DENSITY: THE DRY DENSITY AFTER COMPACTION SHALL NOT BE LESS THAN 95% OF THE DRY DENSITY FOR THAT SOIL WHEN TESTED IN ACCORDANCE WITH ASTM D1557, METHOD D. IN THIS TEST, MATERIALS RETAINED ON THE THREE-QUARTER SIEVE SHALL BE REPLACED WITH MATERIAL RETAINED ON THE NO. 4 SIEVE, AS NOTED AS AN OPTION IN THE SPECIFICATIONS FOR THIS TEST.
F-6	PERFORM ONE FIELD DENSITY TEST FOR EACH SOURCE OF FILL MATERIAL PERFORMED IN ACCORDANCE WITH ASTM D1556. PERFORM STANDARD FIELD DENSITY TESTS EACH OF AN ACCURACY OF PLUS OR MINUS ONE PERCENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER AND TESTING LABORATORY WHEN EACH LAYER OF FILL IS TO BE IN PLACE AND READY FOR TESTING. THE CONTRACTOR SHALL ALLOW AMPLE TIME FOR TESTING. IF ANY FILL IS PLACED IN EXCESS OF SIXTEEN (16) INCHES WITHOUT TESTING, IT SHALL BE SUBJECT TO REMOVAL. SIEVE ANALYSIS SHALL BE AT THE CONTRACTOR'S EXPENSE.
F-7	EXCAVATION OF UNACCEPTABLE MATERIAL, INSTALLATION OF CONTROLLED FILL, COMPACTION, FIELD TESTING AND LABORATORY TESTING SHALL BE DONE UNDER THE SUPERVISION OF A TESTING LABORATORY WHO SHALL PROVIDE WRITTEN REPORTS OF PHASES OF THE WORK TO THE ENGINEER.
F-8	ELEVATIONS SHOWN ON THE DRAWINGS AT WHICH FOUNDATIONS BEAR ARE APPROXIMATE AND MAY VARY TO SUIT SUBSURFACE SOIL CONDITIONS.
F-9	STEPPED FOOTING LOCATIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED AND ADJUSTED AS REQUIRED. HEIGHT OF STEP IN FOOTING SHALL NOT EXCEED ONE HALF THE SPACING BETWEEN ADJACENT STEPPED FOOTING LOCATIONS. A PLAN SHOWING FINAL STEPPED FOOTING LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
F-10	PRIOR TO PLACING CONCRETE STANDING WATER PRESENT IS TO BE PUMPED OUT FROM THE BOTTOM OF EXCAVATIONS TO A LEVEL APPROVED BY THE ENGINEER.

CONCRETE NOTES									
C-1	REINFORCED CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318) AND THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) OF THE AMERICAN CONCRETE INSTITUTE.								
C-2	MIXING, TRANSPORTING, PLACING AND TESTING OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.								
C-3	PRIOR TO CONCRETE PLACEMENT, THE CONTRACTOR SHALL SUBMIT A CONCRETE MIX DESIGN PREPARED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE STRUCTURAL ENGINEER FOR REVIEW.								
C-4	CONCRETE SHALL BE NORMAL WEIGHT CONCRETE (150 PCF) WITH CEMENT CONFORMING TO ASTM C150, TYPE I, UNLESS OTHERWISE NOTED.								
C-5	EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1" X 1" EXCEPT WHERE SHOWN OTHERWISE.								
C-6	REINFORCEMENT:								
<table><tr><td>A. DEFORMED BARS: ASTM A615, GR 60</td><td></td></tr><tr><td>B. DEFORMED BARS TO BE WELDED: ASTM A706, GR 60</td><td></td></tr><tr><td>C. WELDED WIRE REINFORCEMENT: ASTM A185, GR 60</td><td></td></tr></table>		A. DEFORMED BARS: ASTM A615, GR 60		B. DEFORMED BARS TO BE WELDED: ASTM A706, GR 60		C. WELDED WIRE REINFORCEMENT: ASTM A185, GR 60			
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B. DEFORMED BARS TO BE WELDED: ASTM A706, GR 60									
C. WELDED WIRE REINFORCEMENT: ASTM A185, GR 60									
C-7	ALL WELDED WIRE REINFORCEMENT FOR EXTERIOR SLABS SHALL BE EPOXY COATED EXCEPT WHERE SHOWN OTHERWISE.								
C-8	REINFORCEMENT IS TO BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. ADDITIONAL BARS, STIRRUPS, OR CHAIRS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR BARS WHERE NECESSARY DURING CONSTRUCTION.								
C-9	REINFORCING BARS SHALL HAVE THE FOLLOWING MINIMUM CONCRETE COVER FOR CAST-IN PLACE CONCRETE. UNLESS NOTED OTHERWISE:								
<table><tr><td>A. CAST AGAINST EARTH:</td><td>3"</td></tr><tr><td>B. EXPOSED TO EARTH OR WEATHER</td><td>2"</td></tr><tr><td>C. CONCRETE NOT EXPOSED TO WEATHER</td><td>1"</td></tr></table>		A. CAST AGAINST EARTH:	3"	B. EXPOSED TO EARTH OR WEATHER	2"	C. CONCRETE NOT EXPOSED TO WEATHER	1"		
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B. EXPOSED TO EARTH OR WEATHER	2"								
C. CONCRETE NOT EXPOSED TO WEATHER	1"								
C-10	REINFORCEMENT DETAILS AND SPLICES SHALL CONFORM TO ACI318.								
C-11	CONTINUOUS REINFORCING BARS TO BE TURNED AND LAPPED AT CORNERS AND INTERSECTIONS OF WALLS AND FOOTINGS. LAP SPLICES TO BE CLASS B TENSION SPLICES PER ACI 318. HOOKED BARS TO HAVE STANDARD ACI HOOKS U.N.O.								
C-12	CONTINUOUS TOP BARS TO BE SPLICED AT MID-SPAN. CONTINUOUS BOTTOM BARS TO BE SPLICED AT CENTERLINE OF SUPPORTS (OR AS SHOWN ON DETAILS).								
C-13	WELDED WIRE REINFORCEMENT IS TO BE SUPPLIED IN FLAT SHEETS ONLY. LAP WELDED WIRE REINFORCEMENT TWO FULL MESH LENGTHS (OR 6" MIN.) AT SPLICES AND WIRE TOGETHER WELDED. WIRE FABRIC TO BE PLACED 1" FROM THE TOP OF SLABS UNLESS NOTED OTHERWISE.								
C-14	EXPANSION AND CONTRACTION JOINTS IN CONCRETE STRUCTURES SHALL NOT BE PERMITTED IN LOCATIONS OTHER THAN THOSE SHOWN ON PLANS UNLESS APPROVED BY THE ENGINEER.								
C-15	CONSTRUCTION JOINTS SHALL BE AS DETAILED OR AS APPROVED BY THE STRUCTURAL ENGINEER								
C-16	WATERSTOPS SHALL BE CONTINUOUS THROUGHOUT JOINTS TO PROHIBIT THE INFILTRATION OF GROUNDWATER. WATERSTOPS SHALL BE INSTALLED AND SPLICED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.								
C-17	SLAB-ON-GRADE CONSTRUCTION JOINTS TO BE PLACED ON COLUMN CENTERLINES. CONTROL JOINTS TO BE PLACED AT EQUAL INTERVALS IN EACH DIRECTION AS INDICATED ON THE PLANS ADAPT CONTROL JOINT LOCATION AT ODD BAYS.								
C-18	LEVELING GROUT TO BE NON-SHRINK, NON-METALLIC TYPE, FACTORY PREMIXED GROUT IN ACCORDANCE WITH ASTU C1107, WITH F <sub>c</sub> OF NOT LESS THAN 5000 PSI.								
C-19	SLEEVES, INSERTS, MECHANICAL OPENINGS, CONDUITS, PIPES, RECESSES, DEPRESSIONS, CURBS AND OTHER EMBEDDED ITEMS TO BE PROVIDED FOR AS SHOWN ON THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND AS REQUIRED BY EQUIPMENT MANUFACTURERS. INSTALLATION OF THESE ITEMS TO BE COORDINATED AND PROVIDED FOR PRIOR TO PLACING CONCRETE.								
C-20	ANCHOR BOLTS TO BE ASTM F1554, GRADE 55, F <sub>y</sub> =55 KSI								
C-21	ANCHOR BOLTS SHALL BE LOCATED, SET PLUMB AND HELD RIGIDLY IN PLACE BY MEANS OF A TEMPLATE.								
C-22	CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (F <sub>c</sub> ) AS FOLLOWS:								
<table><tr><td>A. FOOTINGS</td><td>4000 PSI</td></tr><tr><td>B. PIERS/GRADE BEAMS</td><td>4000 PSI</td></tr><tr><td>C. WALLS/SLAB ON DECK</td><td>4000 PSI</td></tr><tr><td>D. SLABS-ON-GRADE</td><td>4000 PSI</td></tr></table>		A. FOOTINGS	4000 PSI	B. PIERS/GRADE BEAMS	4000 PSI	C. WALLS/SLAB ON DECK	4000 PSI	D. SLABS-ON-GRADE	4000 PSI
A. FOOTINGS	4000 PSI								
B. PIERS/GRADE BEAMS	4000 PSI								
C. WALLS/SLAB ON DECK	4000 PSI								
D. SLABS-ON-GRADE	4000 PSI								

SLAB NOTES	
SL-1	IF GROUNDWATER ACCUMULATES IN OPEN EXCAVATIONS, FREE DRAINING MATERIAL SHOULD BE PLACED BELOW THE WATER TABLE.
SL-2	CONCRETE SLABS ON GRADE SHALL BEAR ON 8" MINIMUM SUB-BASE MATERIAL ON VARIABLE DEPTH SUBGRADE UNLESS NOTED OTHERWISE.
SL-3	THE SUB-BASE SHALL CONSIST OF CLEAN CRUSHED GRAVEL.
SL-4	THE SUB-BASE AND SUBGRADE SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS OR 95% OF THE DRY DENSITY (MAXIMUM LIFT 6")
SL-5	SEE ARCHITECTURAL DRAWINGS FOR FINISH FLOOR ELEVATIONS.
SL-6	CONTRACTOR SHALL VERIFY AND COORDINATE FINISH FLOOR ELEVATIONS DURING THE PROGRESS OF THE WORK. NOTIFY THE ENGINEER OF DISCREPANCIES AND/OR CHANGES AS THEY OCCUR.
SL-7	BUILDING SLABS ON GRADE SHALL BE PLACED OVER A VAPOR RETARDER AND/OR WATERPROOFING AS RECOMMENDED BY THE ENGINEER.
SL-8	BACKFILL MATERIAL SHOULD BE APPROVED BY THE ENGINEER PRIOR TO USE.

FILE NO:

22126

SCALE:

1" = 1'-0"

DATE:

12/09/2022

DRAWN BY:

JM/FB

CHECKED BY:

JM

GENERAL NOTES

SHEET NUMBER:

S-0

PROJECT:

PHILIP R. SMITH ELEMENTARY SCHOOL

945 AVERY STREET, SOUTH WINDSOR, CT 06074

STAMP:

REVISIONS

NO.	DESCRIPTION	DATE	BY

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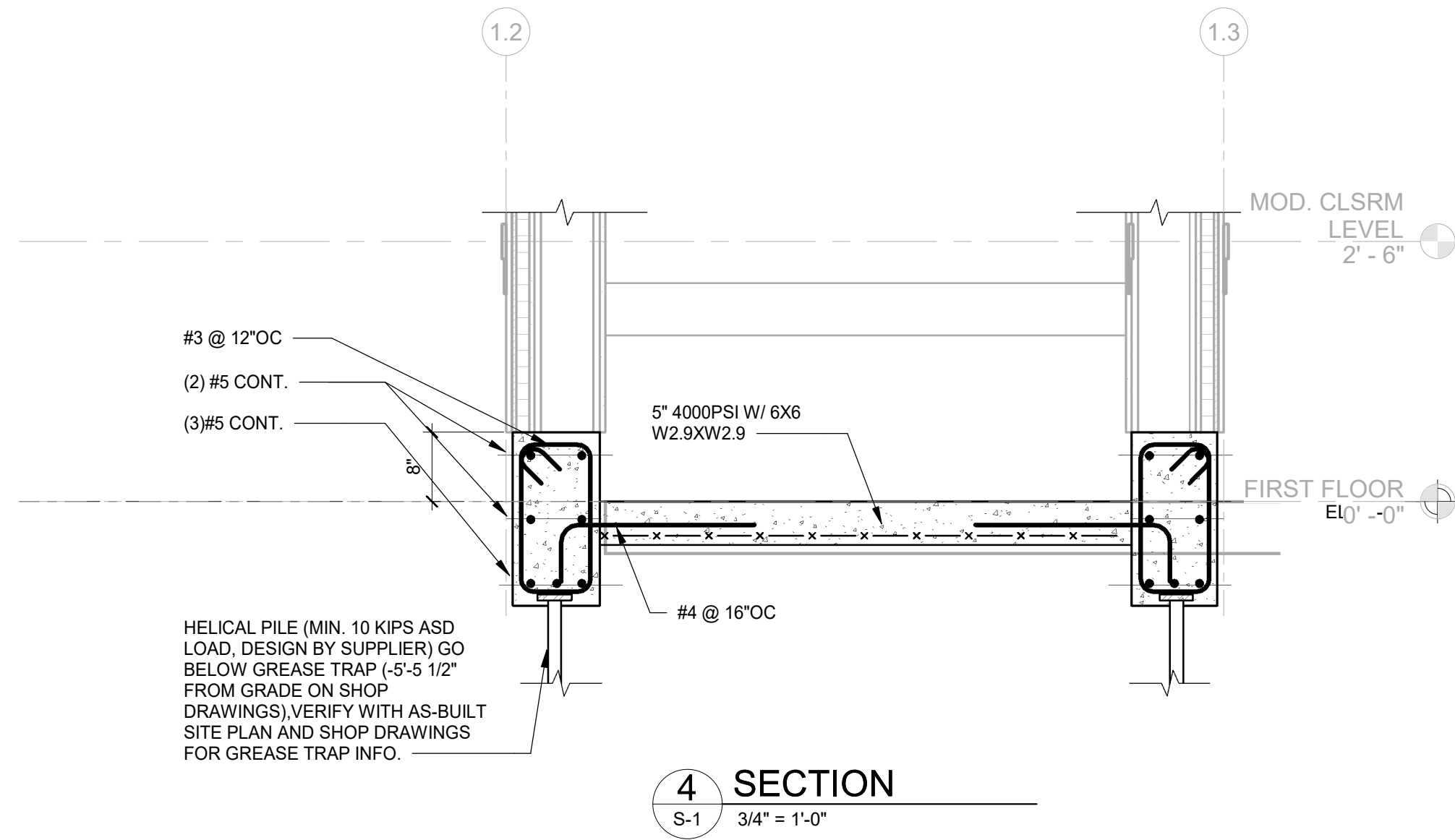
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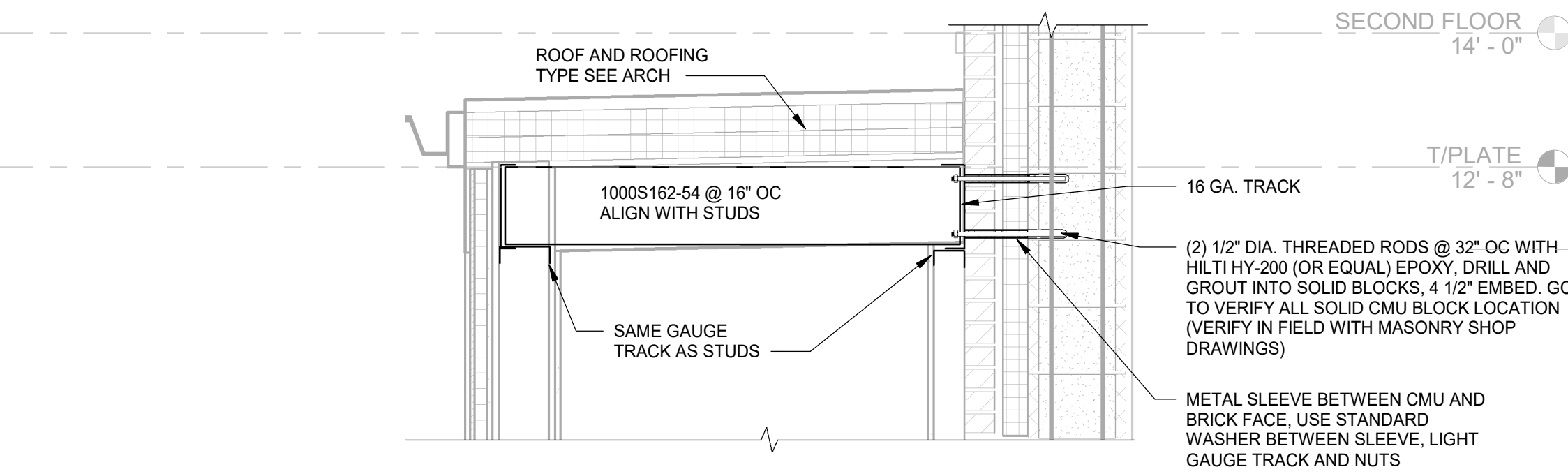
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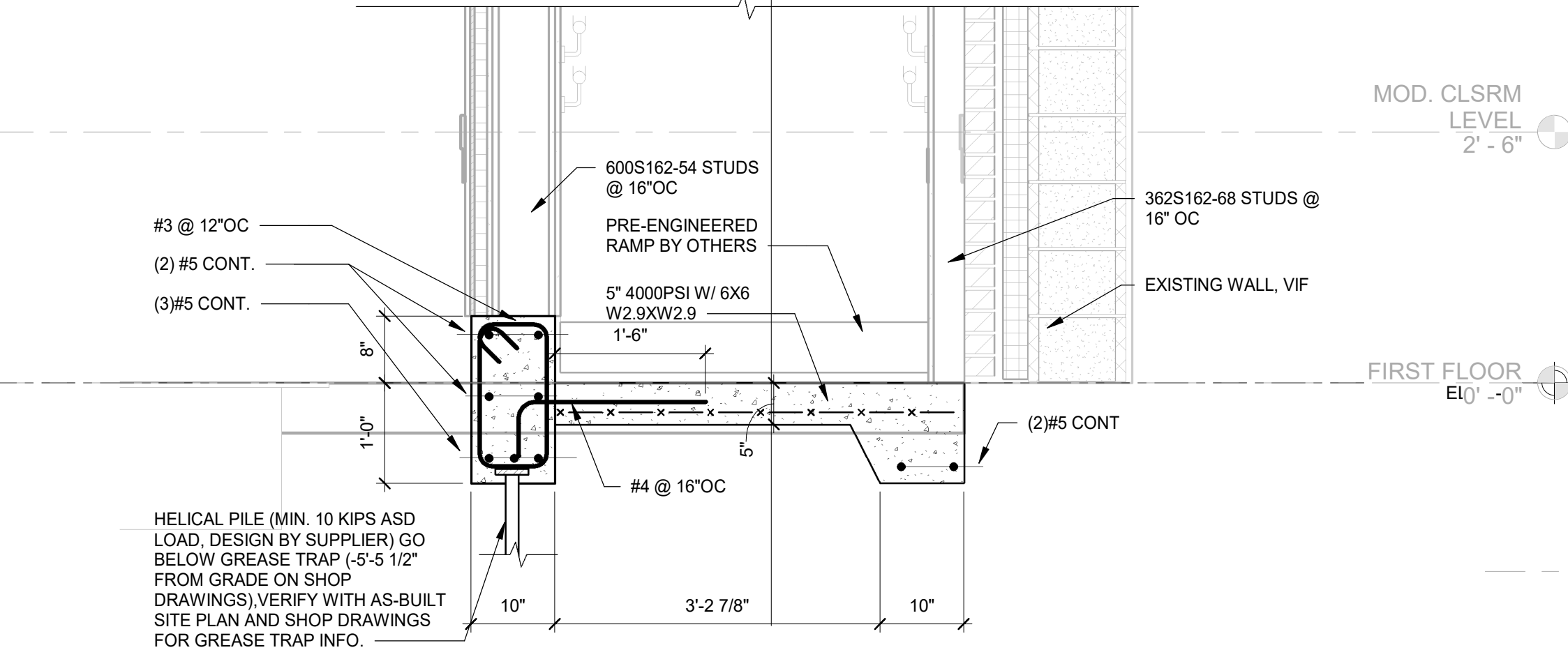




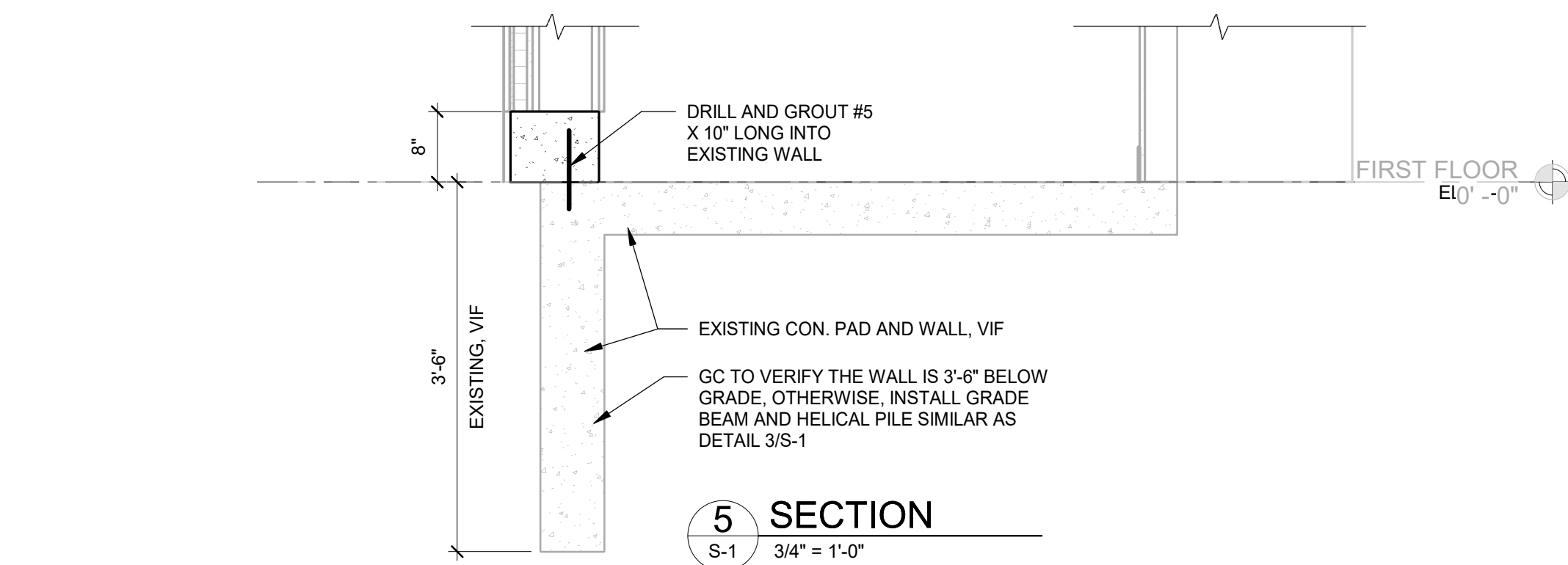
4 SECTION  
S-1 3/4" = 1'-0"



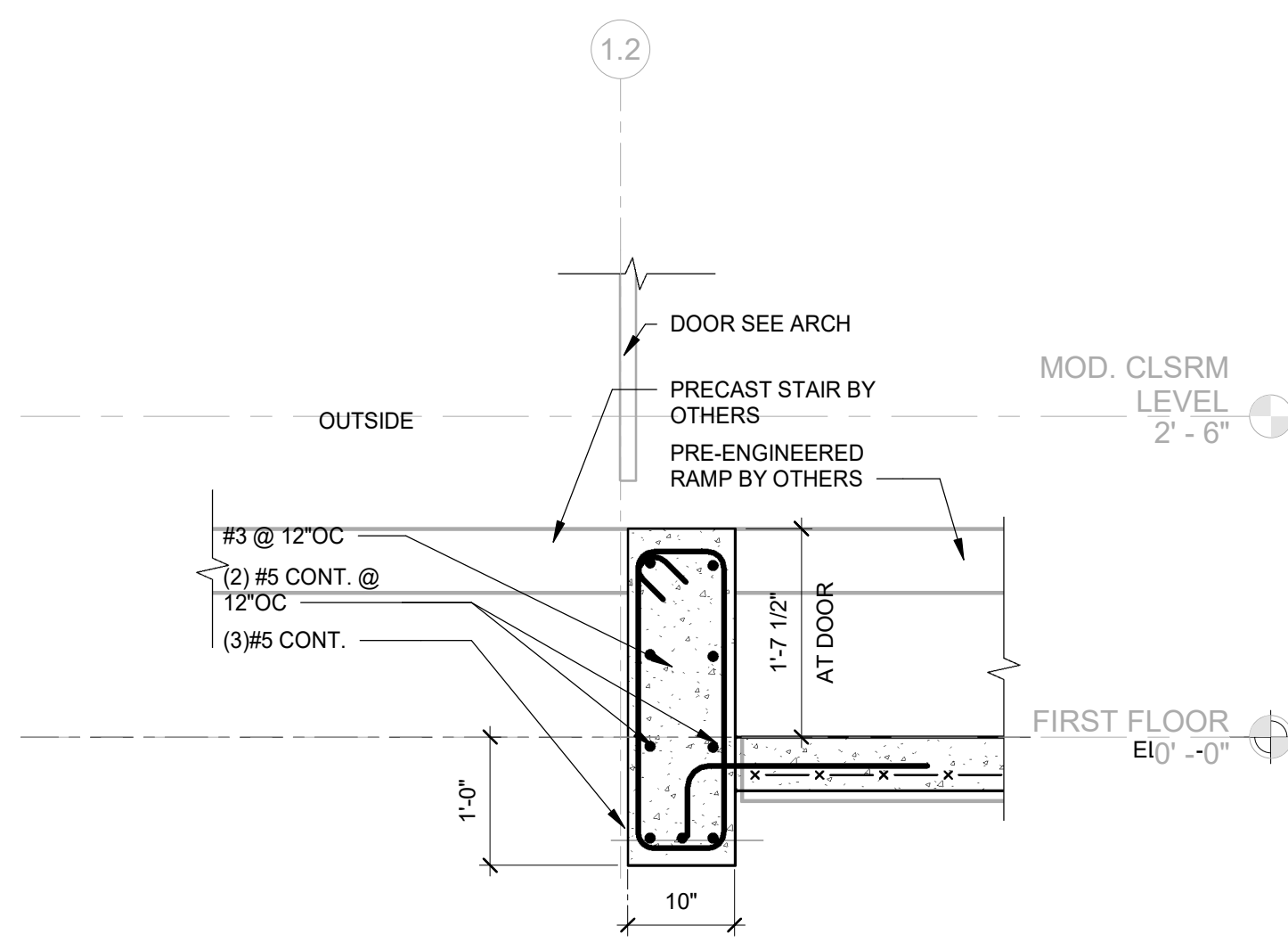
9 S-1



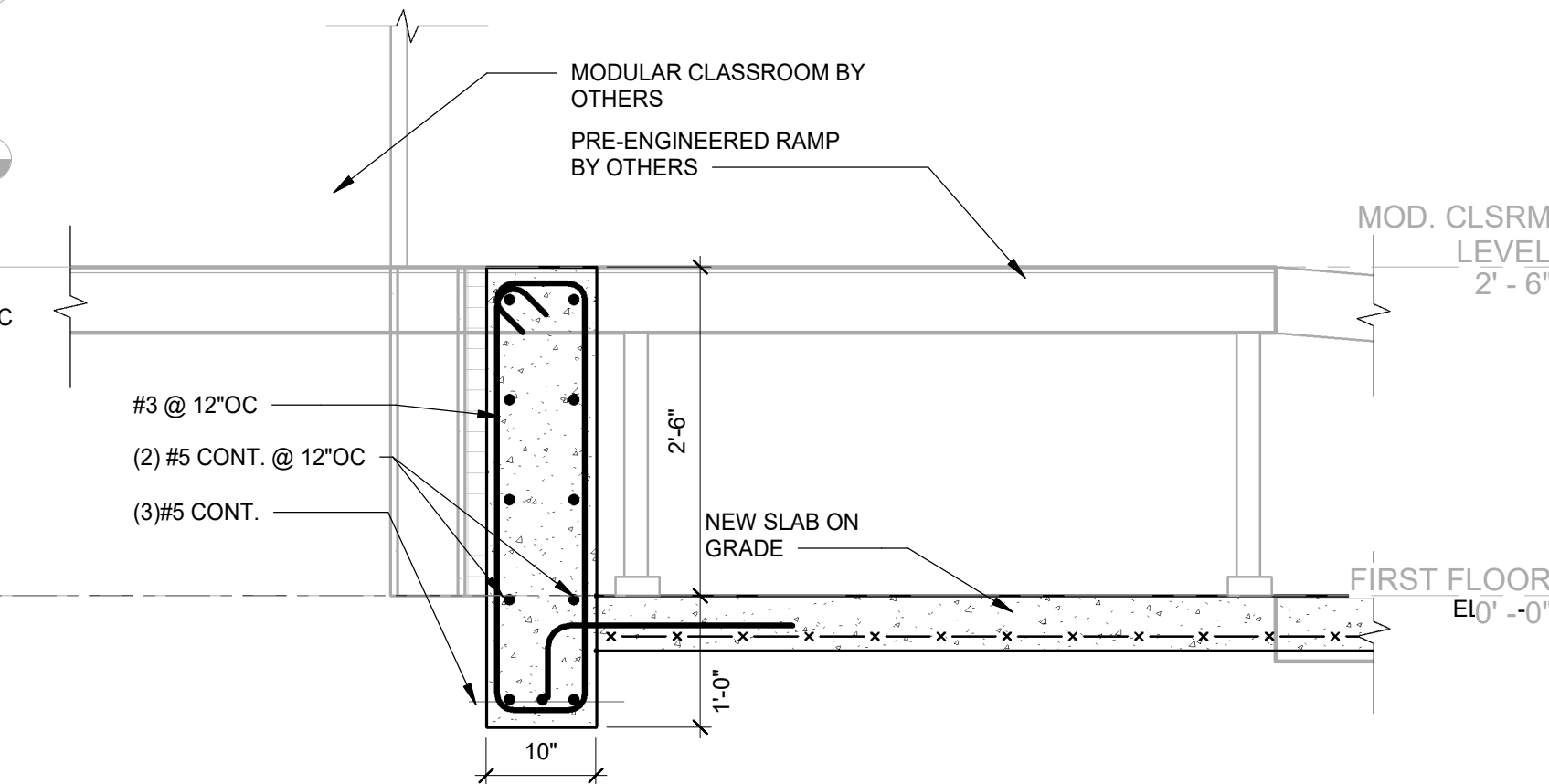
3 SECTION  
S-1 3/4" = 1'-0"



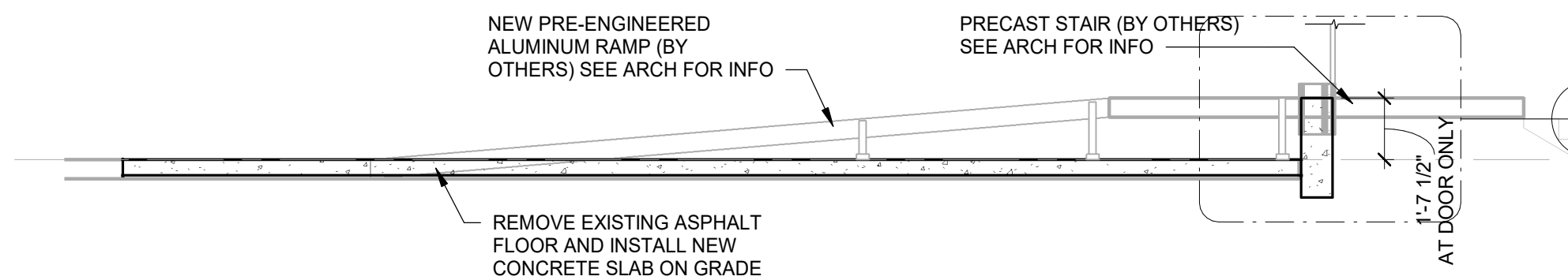
5 SECTION  
S-1 3/4" = 1'-0"



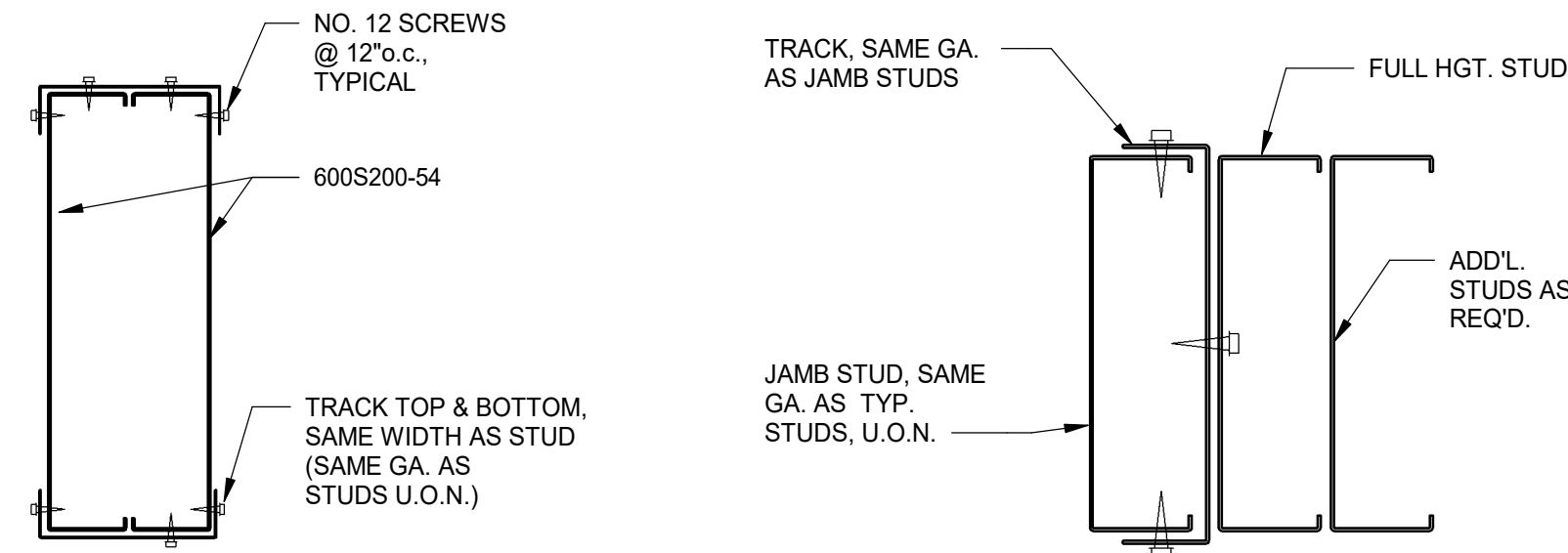
7 SECTION  
S-1 3/4" = 1'-0"



8 SECTION  
S-1 3/4" = 1'-0"



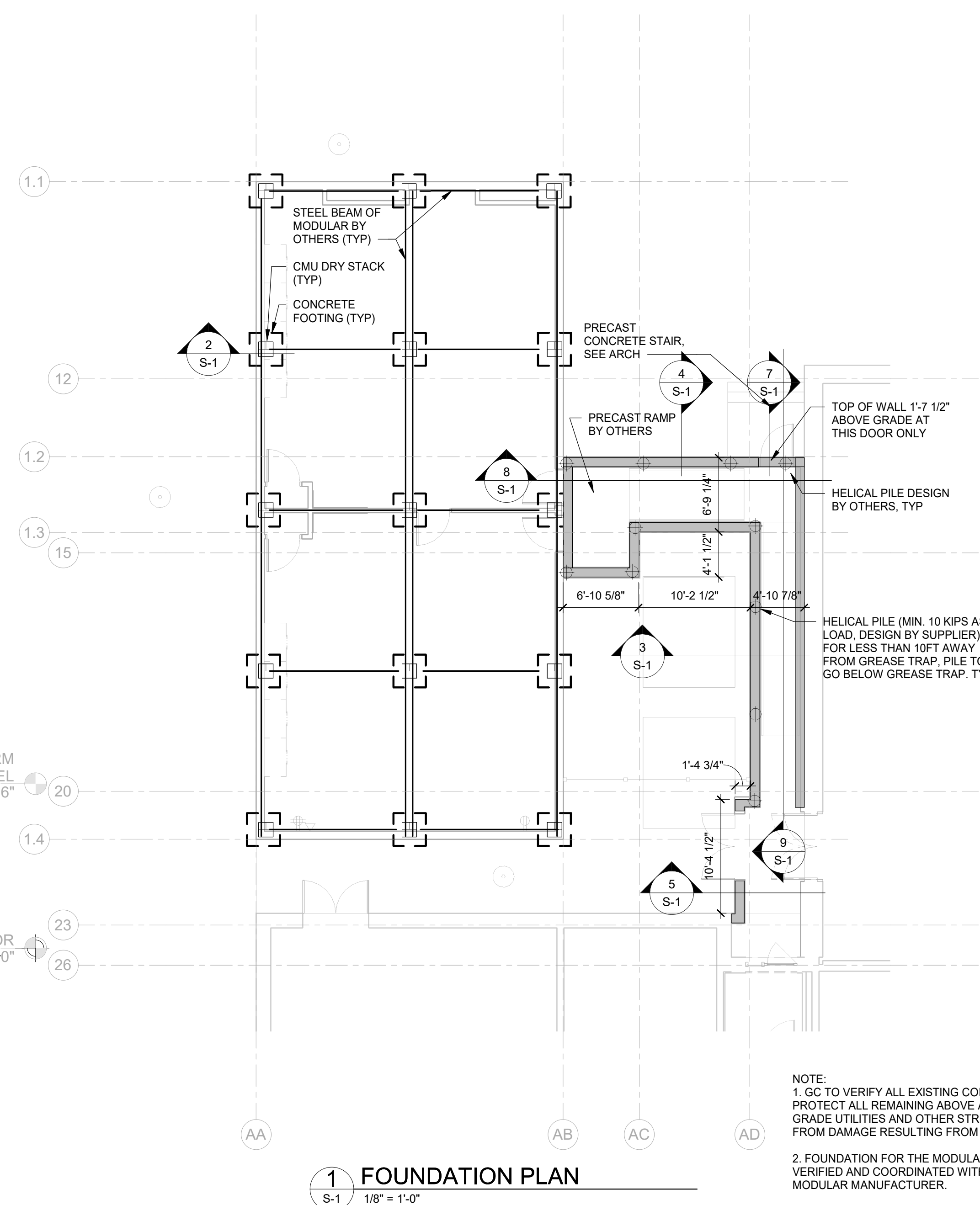
9 SECTION  
S-1 NO SCALE



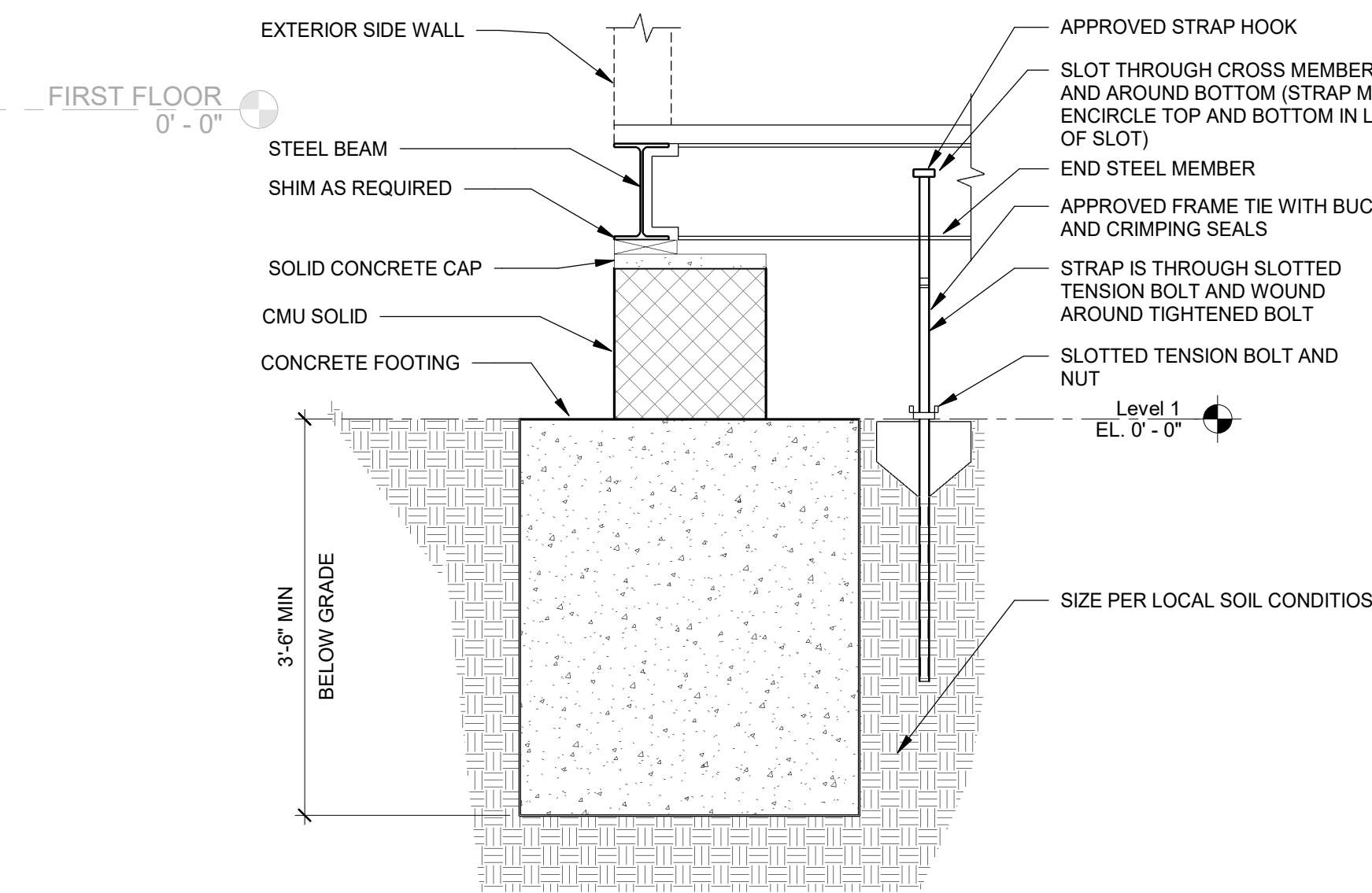
HEADER DETAIL AT DOORS

6 HEADER AND JAMB DETAIL  
S-1 NO SCALE

JAMB DETAIL AT DOORS



1 FOUNDATION PLAN  
S-1 1/8" = 1'-0"



2 SECTION (VERIFY WITH MANUFACTURER)  
S-1 3/4" = 1'-0"



PIPE AND FITTING SCHEDULE						
DESCRIPTION	SIZE	PIPE		FITTING		REMARKS
		TYPE	SCHEDULE	TYPE	RATING	
SOIL, WASTE, RWL, STORM AND VENT ABOVE GROUND	ALL	CI-NH	SV	CI	SV	PVC IS ACCEPTABLE
SOIL, WASTE, RWL, STORM AND VENT BELOW GROUND	ALL	CI- N&H	SV	CI	SV	PVC IS ACCEPTABLE
DOMESTIC COLD WATER WITHIN BUILDING	2-1/2" AND BELOW	COPPER	TYPE L	CUS	STD	HARD TEMPERED
DOMESTIC HOT WATER PIPING	2-1/2" AND BELOW	COPPER	TYPE L	CUS	STD	HARD TEMPERED
DOMESTIC COLD WATER WITHIN BUILDING	3" AND LARGER	COPPER	TYPE L	GJ	MJ	HARD TEMPERED
GAS PIPE	2" AND BELOW	STEEL	STEEL			THREADED
GAS PIPE	2 1/2" AND ABOVE	STEEL	STEEL			WELDED
DOMESTIC HOT WATER PIPING	3" AND LARGER	COPPER	TYPE L	GJ	MJ	HARD TEMPERED
INDIRECT WASTE AND CONDENSATE PIPING	ALL	COPPER	TYPE L	CUS	STD	HARD TEMPERED
DOMESTIC WATER SERVICE PIPING	2-1/2" AND BELOW	COPPER	TYPE K	CUS	STD	
DOMESTIC WATER SERVICE PIPING	3" AND LARGER	CLDI	CLASS 52	DIMJ	250	
DOMESTIC HOT AND COLD WATER PIPING WITHIN BUILDING	2" AND BELOW	PEX				
NOTE: NO-HUB OR TRANSITION COUPLINGS ARE NOT PERMITTED BELOW GRADE, BELOW SLAB OR BURIED IN CONTACT WITH EARTH. PER TABLE 605.4 OF THE 2015 IFC ALLOWS CPVC FOR WATER DISTRUBUTION PIPE MEETING THE ASTM F 2855 STD. PIPE SHALL HAVE IDENTIFYING STAMP. FINAL APPROVAL BY LOCAL AUTHORITIES.						

INSULATION SCHEDULE					
SYSTEM	PIPE SIZE	PIPE INSULATION TYPE	PIPE INSULATION THICKNESS	FITTING, VALVES, FLANGES - INSULATION TYPE	REMARKS
DOMESTIC COLD WATER INCLUDING PEX PIPE	ALL	MINERAL FIBER, ASJ, SSL	1"	MOLDED, PRE-FORMED MINERAL FIBER PVC JACKET	TYPE I
DOMESTIC HOT WATER INCLUDING PEX PIPE	ALL	MINERAL FIBER, ASJ, SSL	1"	MOLDED, PRE-FORMED MINERAL FIBER PVC JACKET	TYPE I
CONDENSATE DRAINS	ALL	FLEXIBLE ELASTOMERIC, CLOSED CELL	1"	MOLDED, PRE-FORMED MINERAL FIBER PVC JACKET	TYPE I
1.FIBERGLASS INSULATION: THERMAL CONDUCTIVITY, 22 TO 28 BTU x IN/ H x FT x °F W/ 100°F MEAN TEMP, THICKNESS BASED ON ASHRAE 90, 1, 2007, TABLE 6, 8, 3 2.ALL EXPOSED INDOOR PIPING/ TUBING FITTINGS WITHIN OCCUPIED SPACES, CORRIDORS, MECHANICAL ROOMS AND OTHER NON-CONCEALED LOCATIONS SHALL BE FITTED WITH PVC FITTING COVERS AND PVC PIPE COVERS FROM THE FLOOR LEVEL TO 12" ABOVE THE FINISHED FLOORS, PVC FITTING AND PIPE COVERS SHALL BE 25/ 50 FLAME AND SMOKE SPREAD RATED, COVERS AND JACKETING COLOR TO BE SELECTED BY ARCHITECT, PROVIDE TEMPLATE OF JACKET COLORS FOR THE ARCHITECT'S REVIEW. 3.ALL ELBOWS: CONCEALED OR EXPOSED, SHALL BE INSULATED WITH PRE-MOLDED, FACTORY FIBROUS GLASS WITH 3.5 PCF MINIMUM DENSITY AS MANUFACTURED BY HAMFAB OR APPROVED EQUAL. ALL ELBOWS: CONCEALED OR EXPOSED, SHALL BE COVERED WITH PVC FITTING COVERS, PVC FITTING COVERS SHALL BE 25 / 50 FLAME AND SMOKE SPREAD RATED, COVER COLOR TO BE SELECTED BY ARCHITECT, PROVIDE TEMPLATE OF JACKET COLORS FOR THE ARCHITECTS REVIEW.					

DISCRPTION	SIZE	TYPE						REMARKS	ABBREVIATIONS	
		GATE	GLOBE	CHECK	BALL	PLUG	BALAN	CLASS	ABB.	DESCRIPTION
DOMESTIC COLD WATER	2" AND SMALLER	GVT	GLVT	CVT	BVT	---	---	125 PSI	---	BVA BALL VALVE COMPRESSED AIR- 3-PIECE, 600 PSI, FULL PORT, BRONZE
DOMESTIC HOT WATER	2" AND SMALLER	GVT	GLVT	CVT	BVT	---	CBV	125 PSI	---	BVF BALL VALVE FLANGED - FULL PORT, BRONZE BVM BALL VALVE MEDICAL - CLEANED FOR OXYGEN SERVICE, 3-PIECE, 600 PSI, FULL PORT, BRONZE
DOMESTIC COLD WATER	2-1/2" AND LARGER	GVF	---	CVF	---	---	---	125 PSI	---	BVT BALL VALVE THREADED - 2-PIECE, FULL PORT, 400 PSI, BRONZE
DOMESTIC HOT WATER	2-1/2" AND LARGER	GVF	---	CVF	---	---	CBV	125 PSI	---	CBV CALIBRATED BALANCING VALVE, BRONZE
BACKFLOW PREVENTER	3/4" TO 2"	---	---	---	BVT	---	---	125 PSI	---	CVF CHECK VALVE FLANGED - IBBM CVT CHECK VALVE THREADED - BRONZE
BACKFLOW PREVENTER	2-1/2" & UP	GVF	---	---	---	---	---	125 PSI	---	GVF GATE VALVE FLANGED - IBBM GVT GATE VALVE THREADED - BRONZE
SOLENOID VALVE: UL LISTED, FM APPROVED FOR GAS SERVICE, TWO-WAY NORMALLY CLOSED, SOLENOID VALVE: ASCO 8044 SERIES W/ MANUAL RESET. PROVIDE BACKFLOW PREVENTER FOR DOMESTIC CW & MAKE UP WATER FOR WATER HEATER AND BOILER PROVIDE ACCESS PANEL FOR VALVES.										
GLVT GLOBE VALVE THREADED - BRONZE PGVF PLUG VALVE FLANGED - AGA APPROVED PGVT PLUG VALVE THREADED - AGA APPROVED PRODUCTS INCLUDED IN THIS SECTION SHALL BE "LEAD FREE" IN ACCORDANCE WITH THE REQUIREMENTS OF THE "REDUCTION OF LEAD IN DRINKING WATER ACT".										

HORIZONTAL STEEL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH ANS/MSS SP-69 & SP-58 TABLES 3 AND 4, EXCERPTS OF WHICH FOLLOW BELOW:		
PIPE SIZE	ROD DIA	HANGER SPACING
>= 1 - 1 / 4"	3/8"	7'-0"
1-1/2"	3/8"	9'-0"
2"	3/8"	10'-0"
2-1/2"	1/2"	11'-0"
3"	1/2"	12'-0"
3-1/2"	1/2"	13'-0"
4"	5/8"	14'-0"
5"	5/8"	16'-0"
6"	3/4"	17'-0"
8"	3/4"	19'-0"
10"	7/8"	22'-0"
12"	7/8"	23'-0"
14"	1"	25'-0"
16"	1"	27'-0"
HORIZONTAL COPPER TUBING SHALL BE SUPPORTED IN ACCORDANCE WITH ANS/MSS SP-69 & SP-58 TABLES 3 AND 4, EXCERPTS OF WHICH FOLLOW BELOW:		
PIPE SIZE	ROD DIA	HANGER SPACING
>= 3/ 4"	3/8"	5'-0"
1"	3/8"	6'-0"
11/4"	3/8"	7'-0"
11/2"	3/8"	8'-0"
2"	3/8"	8'-0"
2 1/2"	1/2"	9'-0"
3"	1/2"	10'-0"
31/2"	1/2"	11'-0"
4"	1/2"	12'-0"
5"	1/2"	13'-0"
6"	5/8"	14'-0"
8"	3/4"	16'-0"

MINIMUM PIPE INSULATION THICKNESS							
FLUID OPERATING \ TEMP RANGE (° F)	CONDUCTIVITY BTU-IN/(HR FT2	MEAN TEMP	PIPE SIZE				
			<01"	01 "°<01.5"	01.5"°<04"	04" < 08"	>08"
350	0.32- 0.34	250	5.0"	5.0"	5.0"	5.0"	5.0"
251 - 350	0.32-0.34	200	4.5"	4.5"	4.5"	4.5"	4.5"
201-250	0.29 - 0.32	150	2.5"	2.5"	2.5"	3.0"	3.0"
141 - 200	0.27 - 0.30	125	1.5"	2.0"	2.0"	2.0"	2.0"
105 - 140	0.21 - 0.29	100	1.0"	1.5"	1.5"	1.5"	1.5"
40 - 60	0.21 - 0.28	75	0.5"	1.0"	1.0"	1.0"	1.0"
<40	0.21 - 0.27	75	0.5"	1.0"	1.0"	1.0"	1.0"
	0.20 - 0.26						

PLUMBING NOTES	
1.	ALL BRANCH PLUMBING WATER PIPES TO HAVE SHUT OFF VALVES.
2.	PIPING AS SHOWN IS ONLY DIAGRAMMATICALLY PRESENTED; CONTRACTOR IS TO COORDINATE WITH OTHER TRADES AND NEW STRUCTURAL ELEMENTS.
3.	ALL PENETRATIONS OF RATED ASSEMBLIES TO BE SEALED WITH APPROVED FIRE RATED CAULK; FIRE PENETRATION SYSTEMS SHALL MEET THE UL LISTING FOR EXISTING WALL OR FLOOR CONSTRUCTION.
4.	PROVIDE ACCESS DOORS AS NEEDED FOR ALL SHUT-OFF VALVES; COORDINATE WITH GENERAL CONTRACTOR ALL HOT & COLD WATER RISERS AT BASEMENT TO HAVE SHUTOFF VALVES.
5.	SEE ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHTS.
6.	INSULATE EXPOSED PIPING BELOW HANDICAP LAVATORIES AND SINKS.
7.	ALL OVERHEAD PIPING AT LOWER LEVEL TO START AS HIGH AS POSSIBLE TO MAXIMIZE CLEARANCE BELOW.

ABBREVIATION	
ABBREV	DESCRIPTION
AWWA	AMERICAN WATER WORKS ASSOCIATION
CI	CAST IRON
CLDI	CEMENT-LINED DUCTILE IRON
CPVC	CHLORINATED POLYVINYL CHLORIDE
CUS	WROUGHT COPPER SOLDER (95/5)
DI	DUCTILE IRON
DIMJ	DUCTILE IRON MECHANICAL JOINT
GES	GROOVED END STEEL
GJ	GROOVED JOINT SYSTEM FITTINGS/COUPLING
GS	GALVANIZED STEEL
H&S	HUB AND SPIGOT
MJ	MECHANICAL JOINT
PEX	PEX PIPING
PF	PRESSURE FITTINGS
STD	STANDARD
STL-BLK	BLACK STEEL SEAMLESS
SV	SERVICE WEIGHT
TJ	THREADED JOINTS
WE	BUTT WELD

PLUMBING GENERAL NOTES	
1.	THESE GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING DRAWINGS.
2.	DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK. SEE DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3.	PLUMBING CONTRACTOR MUST REVIEW DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND OR COORDINATION OF HIS WORK FOR OPERATIONS OR CONNECTIONS TO OTHER SYSTEMS.
4.	THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL SERVICES TO HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO: GAS SUPPLY PIPING, CONDENSATE PIPING, COLD WATER SUPPLY PIPING, DRAINS, AND CONNECTIONS TO AC UNITS, BOILERS, ETC. ALSO, DEVICES REQUIRED INCLUDE BACKFLOW PREVENTERS, REGULATORS, UNIONS, TRAPS, AND SHUT-OFF VALVES REQUIRED FOR THIS EQUIPMENT. REFER TO HVAC DRAWINGS FOR ADDITIONAL INFORMATION AND COORDINATION.
5.	THE PLUMBING CONTRACTOR SHALL PROVIDE PIPE EXPANSION JOINTS ON PIPING PASSING THROUGH ALL BUILDING EXPANSION JOINT LOCATIONS AS REQUIRED PER BUILDING CODES WHETHER OR NOT SHOWN ON DRAWINGS. REVIEW ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT BUILDING EXPANSION JOINT LOCATIONS AND EXPANSION DIMENSIONS.
6.	ALL PLUMBING VALVES INSTALLED ABOVE CEILINGS SHALL BE PROVIDED WITH ACCESS PANELS (WHERE APPLICABLE) AND 1/2" DIA. "DOT" VALVE INDICATORS WHERE VALVES ARE LOCATED. COLORS ARE AS FOLLOWS: GREEN: COLD WATER BLUE: HOT WATER  VERIFY VALVE IDENTIFICATION STANDARDS AND REQUIREMENTS WITH OWNER IN THE FIELD.
7.	THE PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL AT ALL QUICK-CLOSING VALVES (FLUSH VALVES, SOLENOID VALVES, ETC.) WATER HAMMER ARRESTORS. WATER HAMMER ARRESTORS SHALL BE PROVIDED ON ALL BRANCH LINES SERVING NEW FIXTURES. ARRESTORS ON BRANCH PIPING SERVING FIXTURES THAT ARE TO BE MAINTAINED SHALL HAVE THESE ARRESTORS VERIFIED, CHECKED, AND REPLACED IF NOT FULLY OPERATIONAL. REFER TO THE PLUMBING SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8.	THE PLUMBING CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES CONTRACTORS THE ROUTING AND INSTALLATION OF PLUMBING SYSTEMS TO AVOID CONFLICTS BETWEEN PLUMBING AND THEIR WORK. THE CONTRACTOR SHALL LOCATE ALL EXISTING PIPING, DUCTWORK, CONTROLS, ETC. AND COORDINATE WITH NEW WORK BEING DONE.
9.	ALL VENT RISERS SHALL BE OFFSET AS REQUIRED TO CLEAR ROOF STRUCTURES, DUCTWORK, AND/ OR MECHANICAL UNITS ON THE ROOF. THE PLUMBING CONTRACTOR SHALL COORDINATE INSTALLATION OF VENT RISERS WITH OTHER TRADES WORK AND TYPE/PITCH OF ROOF IN THE FIELD. ALL VENT RISERS SHALL BE A MINIMUM OF 12'-0" FROM ANY OPENING IN ROOF AND MECHANICAL ROOF TOP UNITS. ALL VOID SPACES BETWEEN VENT RISER AND STRUCTURE SHALL BE FILLED WITH INSULATING MATERIAL. VENT STACK SHALL BE A MINIMUM 4" DIA. PENETRATION THROUGH ROOF. THE PLUMBING CONTRACTOR SHALL INSTALL INCREASER WHEN VENT IS 2" OR SMALLER.
10.	GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE IRON FITTINGS. WHERE GAS PIPING CONNECTS TO EQUIPMENT, IT SHALL BE PROVIDED WITH A DRIP LEG THE FULL SIZE OF THE SUPPLY PIPE. A 100 COCK AND A UNION. ALL OUTSIDE GAS PIPING SHALL BE GALVANIZED STEEL PIPE.
11.	ALL STEEL PIPE JOINTS SHALL BE WELDED 2 INCHES AND LARGER. WELDERS SHALL BE CERTIFIED AND ALL WORK SHALL BE IN ACCORDANCE WITH ASTM, AWS, API, MIL, ANSI, AND ASME STANDARDS.
12.	GAS PIPING HANGERS AND SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF ANS/MSS SP-58 REQUIREMENTS OF STANDARD PRACTICE FOR PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN, AND MANUFACTURER. ALL PIPES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER.
13.	PORTIONS OF GAS PIPING SYSTEM INSTALLED IN CONCEALED LOCATIONS SHALL NOT HAVE UNIONS, TUBE FITTINGS, OR RUNNING THREADS. NO GAS VALVES SHALL BE INSTALLED IN ABOVE CEILING LOCATIONS.
14.	A VERTICAL CHASE ENCLOSING A GAS PIPE RISER SHALL BE VENTILATED AT THE TOP DIRECT TO THE OUTDOORS IN ACCORDANCE WITH NFPA 54, SECTION 3.5.3. VENT SHALL NOT BE PROXIMAL TO ANY BUILDING OPENING.
15.	ALL GAS VENTS FROM PRESSURE RELIEF OR PRESSURE REGULATING DEVICES SHALL BE PIPED THE FULL OUTLET SIZE AND SHALL BE FITTED WITH AN AGA APPROVED FITTING WITH INSECT SCREEN. PROVIDE CAULKING OR PROPER FLASHING AT VENTS.
16.	ALL BRANCH OUTLET PIPES SHALL BE TAKEN FROM THE TOP OR SIDES OF THE HORIZONTAL LINES AND NOT FROM THE BOTTOM.
17.	USE DIELECTRIC UNIONS WHERE DISSIMILAR METALS ARE JOINED TOGETHER.
18.	INSPECT, TEST AND PURGE THE GAS PIPING SYSTEM IN ACCORDANCE WITH NFPA 54 AND ALL STATE AND LOCAL CODE REQUIREMENTS. MINIMUM REQUIREMENTS SHALL BE 5 PSIG FOR A PERIOD OF 2 HOURS.
19.	G.C. TO PROVIDE COORDINATION DRAWINGS WITH OTHER TRADES TO ENSURE ALL TRADES ARE COORDINATED.
20.	THESE GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING DRAWINGS.
21.	DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK, SEE DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
22.	PLUMBING CONTRACTOR MUST REVIEW DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND OR COORDINATION OF HIS WORK FOR OPERATIONS OR CONNECTIONS TO OTHER SYSTEMS.
23.	THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF FOOD SERVICE AND OR KITCHEN EQUIPMENT PLUMBING ACCESSORIES FURNISHED BY DIVISION 11, INCLUDING BUT NOT LIMITED TO: FAUCETS, VACUUM BREAKERS, SOLENOIDS, PRESSURE REDUCING VALVES, GAS SUPPLY HOSES, DRAINS, SINK TAILPIECES, AND OTHER TRIM SUPPLIED WITH EQUIPMENT. THE PLUMBING CONTRACTOR MUST REVIEW THE KITCHEN DESIGN DOCUMENTS AND SPECIFICATIONS AS PART OF THIS CONTRACT FOR ADDITIONAL WORK AND OR COORDINATION REQUIRED.
24.	THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF LABORATORY EQUIPMENT AND ACCESSORIES INCLUDING BUT NOT LIMITED TO: SINKS, FAUCETS, TRAPS, TAILPIECES, GAS COCKS, EMERGENCY SAFETY EQUIPMENT,VACUUM BREAKERS, AND ANY AND ALL PLUMBING TRIM SUPPLIED WITH LABORATORY EQUIPMENT OR CASEWORK. THE PLUMBING CONTRACTOR MUST REVIEW THE LABORATORY DESIGN DOCUMENTS AND SPECIFICATIONS AS PART OF THIS CONTRACT FOR ADDITIONALWORK AND OR COORDINATION REQUIRED.
25.	THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL SERVICES TO HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO: GAS SUPPLY PIPING, CONDENSATE PIPING, COLD WATER SUPPLY PIPING, DRAINS, AND CONNECTIONS TO AIR HANDLINGUNITS, FAN COIL UNITS, UNIT HEATERS, BOILERS, CHILLERS, ETC. ALSO, DEVICES REQUIRED INCLUDE BACKFLOW PREVENTERS, REGULATORS, UNIONS, TRAPS, AND SHUT-OFF VALVES REQUIRED FOR THIS EQUIPMENT. REFER TO HVAC DRAWINGS FOR ADDITIONALINFORMATION AND COORDINATION.
26.	THE PLUMBING CONTRACTOR SHALL PROVIDE PIPE EXPANSION JOINTS ON PIPING PASSING THRU ALL BUILDING EXPANSION JOINT LOCATIONS AS REQUIRED PER BUILDING CODES WHETHER OR NOT SHOWN ON DRAWINGS. REVIEW ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT BUILDING EXPANSION JOINT LOCATIONS AND EXPANSION DIMENSIONS.
27.	THE PLUMBING CONTRACTOR SHALL INSTALL ALL PIPING EQUIPMENT AND ACCESSORIES IN ACCORDANCE WITH THE LATEST STATE BUILDING CODE AND LOCAL AUTHORITIES HAVING JURISDICTION. COORDINATION BETWEEN TRADES IS REQUIRED TO INSURE COMPLIANCE WITH THE GOVERNING CODES.
28.	ALL PIPING, EQUIPMENT OR ACCESSORIES INSTALLED IN PLENUM RATED CEILINGS SHALL BE LISTED AND APPROVED FOR SUCH INSTALLATION.

PLUMBING SHEET INDEX	
SHEET NUMBER	SHEET NAME
P-1	PLUMBING GENERAL NOTES, LEGENDS AND SCHEDULES
P-2	PLUMBING SPECIFICATIONS
P-3	PLUMBING PLAN & SCHEDULES
P-4	PLUMBING DETAILS

PLUMBING SYMBOL LEGEND	
	THERMOMETER
	PRESSURE GAUGE
	WATER HAMMER ARRESTER
	STRAINER - Y" TYPE
	P-TRAP
	ROOF DRAIN
	FLOOR DRAIN
	FLOOR SINK
	SHOWER HEAD
	TRAP PRIMER
	UNION
	GAS COCK
	BALANCING VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CURB GATE VALVE & BOX
	BACKWATER VALVE
	CHECK VALVE
	BACKFLOW PREVENTER (DOUBLE CHECK VALVE TYPE)
	BACKFLOW PREVENTER ASSEMBLY (RPD W/ DRAIN PIPING)
	THERMOSTATIC MIXING VALVE
	SOLENOID VALVE
	GATE VALVE
	GAS VALVE (BALL OR PLUG)
	OUTSIDE SCREW & YOKE (OS&Y) GATE VALVE
	VALVE IN PIPE DROP
	VALVE IN PIPE RISER
	ANGLE VALVE
	WALL HYDRANT (W.H.) or HOSE BIBB (H.B.)
	WATER PRESSURE REDUCING VALVE (P = PSI SETTING)
	GAS PRESSURE REGULATOR
	DRAIN
	TEMPERATURE & PRESSURE RELIEF VALVE (T&P)
	WATER METER
	GAS METER
	CIRCULATOR PUMP
	ADA ACCESSIBLE FIXTURE
	OVERFLOW STORM - WALL OUTLET

PLUMBING PIPING LEGEND	
	COLD WATER
	HOT WATER
	HOT WATER RECIRCULATION
	CONDENSATE DRAIN
	HOT WATER 140° F
	HOT WATER RECIRCULATION 140° F
	WASTE, SANITARY OR SOIL
	WASTE, SANITARY, SOIL BURIED
	STORM
	STORM BURIED
	RWL
	VENT
	GAS (NATURAL OR LPG)
	DIRECTION OF FLOW
	WATER SERVICE
	PIPE DOWN
	PIPE DROP
	PIPE RISE
	PIPE ANCHOR
	PIPE GUIDE or SLEEVE
	PIPE EXPANSION FITTING (AT BLDG. EXP.JOINTS)
	VIBRATION ISOLATION FITTING
	PLUGGED OR CAPPED PIPE
	CLEANOUT
	WALL CLEANOUT
	FLOOR CLEANOUT

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FILE NO:	22126	AS NOTED	12/09/2022	MF
SCALE:				
DATE:				
DRAWN BY:				
CHECKED BY:				
SHEET TITLE: PLUMBING GENERAL NOTES, LEGENDS AND SCHEDULES				
SHEET NUMBER: P-1				

SPECIFICATION - PLUMBING

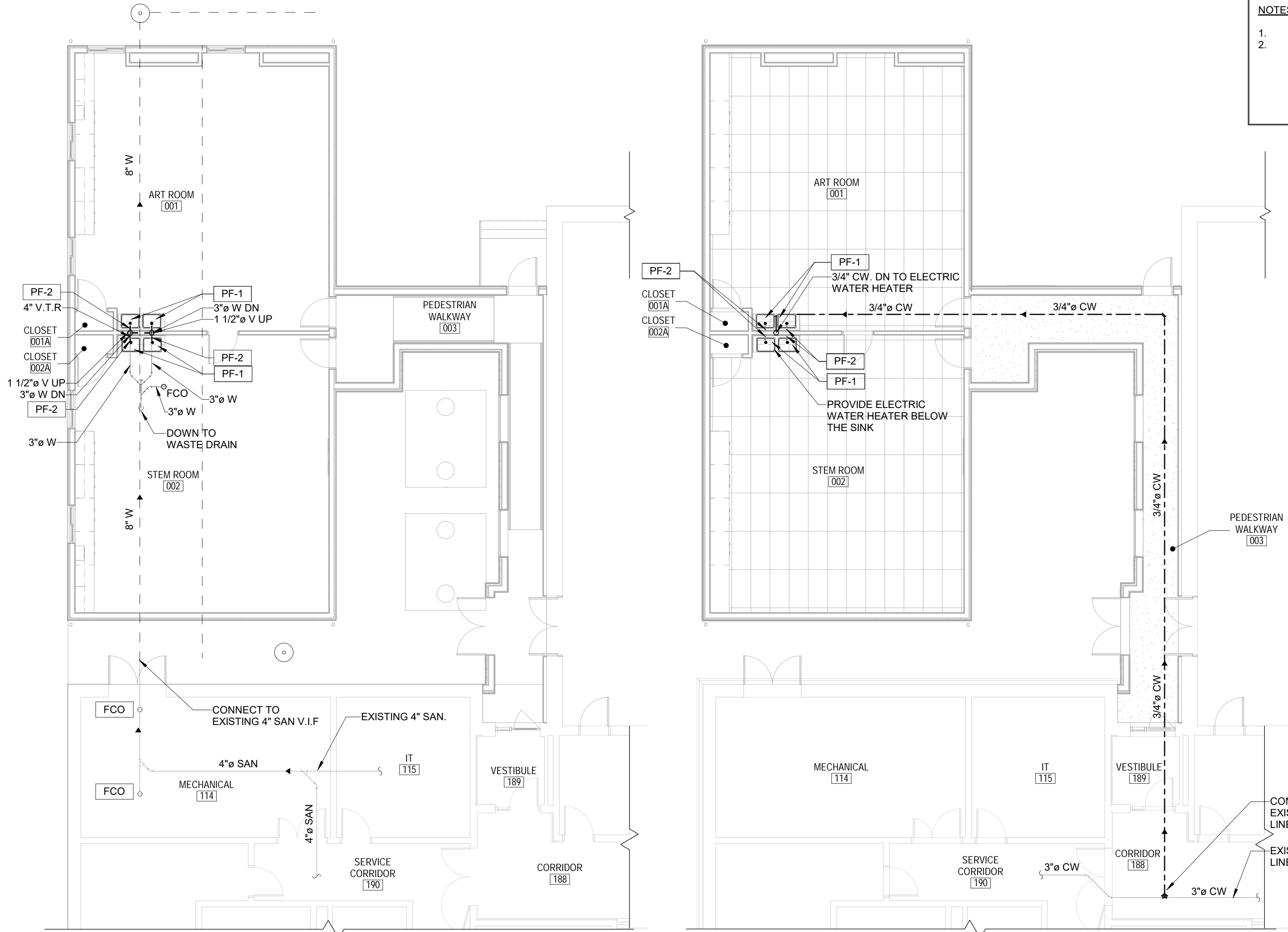
PART 1 - GENERAL REQUIREMENTS      PERFORMANCE SPECIFICATION      SECTION 15400 - PLUMBING			
1.01 SCOPE OF WORK	WORK UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS, SERVICES, EQUIPMENT, TRANSPORTATION AS NECESSARY TO FURNISH AND INSTALL ALL PLUMBING WORK INCLUDING:  - INTERIOR SOIL, WASTE AND VENT SYSTEM TO 10 FEET BEYOND BUILDING. - INTERIOR STORM DRAINAGE SYSTEM TO 10 FEET BEYOND BUILDING. - INTERIOR DOMESTIC WATER SYSTEMS, CONNECTING TO SERVICE AT BUILDING WALL. - PLUMBING FIXTURES AND TRIM. - PIPING INSULATION. - GAS PIPING SYSTEM. - FLUSHING, STERILIZATION AND TESTS. FURNISH PANELS TO BE INSTALLED BY THE TRADE IN WHOSE SURFACE THEY OCCUR AND ROOF DRAINS TO BE INSTALLED BY ROOFER. THE FOLLOWING WORK IS TO BE PERFORMED UNDER OTHER SECTIONS.  - EXCAVATION, BACKFILL, PUMPING, SHORING AND MANHOLES. - TEMPORARY WATER. - FLASHING FOR PLUMBING VENTS THROUGH ROOF. - ELECTRIC WIRING, DISCONNECT SWITCHES, MOUNTING OF CONTROLLERS FOR ALL EQUIPMENT ARE INCLUDED UNDER SECTION 16000 - ELECTRICAL. - EXTERIOR SANITARY, STORM DRAINAGE AND WATER.	GAS SYSTEM TESTS: BEFORE THE GAS PIPING SYSTEM IS FINALLY PUT INTO SERVICE IT SHALL BE CLEANED AND CAREFULLY TESTED TO INSURE THAT IT IS GAS-TIGHT. FIRST, USE A CIRCULAR BRUSH, AND THEN BLOW THE PIPE DOWN. TO TEST FOR PLAIN UNCOATED PIPE, THE SYSTEM SHALL BE SUBJECTED TO A TEST PRESSURE OF 25 PSIG. THE SYSTEM SHALL HOLD THE BOTTLED UP PRESSURE AFTER DISCONNECTING THE PRESSURE SOURCE FOR THIRTY (30) MINUTES, WITHOUT SHOWING ANY DROP IN PRESSURE AFTER THE TEST GAS IN THE PIPE HAS BEEN GIVEN TIME TO ARRIVE AT THE AMBIENT TEMPERATURE. FOR TEST PURPOSES, AIR OR AN INERT GAS SUCH AS NITROGEN, SHOULD BE USED AS THE PRESSURING MEDIUM. DO NOT USE CARBON DIOXIDE OR HYDROSTATIC TESTS. TESTS FOR GAS LEAKS SHOULD BE MADE WITH APPROVED LEAK DETECTORS, WHILE THE SYSTEM IS UNDER PRESSURE. MATCHES, CANDLES, OR ANY SOURCE OF FLAME OR IGNITION SHALL NOT BE USED TO TEST FOR LEAKS. CHECK THE ENTIRE SYSTEM TO MAKE CERTAIN THAT THERE ARE NO OPEN FITTINGS OR VALVES BEFORE GAS IS TURNED ON.	
1.02 STANDARDS	PLUMBING WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF STATE PLUMBING CODE AND ALL OTHER STATE AND LOCAL CODES AND/OR AUTHORITIES HAVING JURISDICTION AND AMENDMENTS THERETO. GAS WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE FUEL AND GAS CODE AND AMENDMENTS THERETO.	1.12 GUARANTEE	CAST IRON DRAINAGE PIPING AND FITTINGS (SOIL, WASTE, VENT AND STORM DRAINAGE).  - SERVICE WEIGHT HUB AND SPIGOT PATTERN CAST IRON SOIL PIPE AND FITTINGS CONFORMING TO ASTM A-74 AND ANSI A-112.5.3 WITH LEAD JOINTS, OR RUBBER GASKETS FOR BURIED INSTALLATIONS. ABOVE GROUND PIPING MAY BE HUBLESS SERVICED EIGHT CAST IRON WITH CODE APPROVED CLAMPS. PVC ACCEPTABLE WITH SPECIFIC APPROVAL.
1.03 PERMITS AND FEES	THIS SUBCONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED TESTS, PERMITS, CERTIFICATES, NOTARIZATIONS, INSPECTIONS AND LICENSES NECESSARY FOR ALL INCIDENTAL TO THE ACCOMPLISHMENT OF HIS WORK AND THE USE OF SUCH WORK WHEN COMPLETED.	PART 2 - PRODUCTS	- JOINTS FOR CAST IRON SOIL PIPE AND FITTINGS WITH HUBS AND BEADED SPIGOTS AS SPECIFIED ABOVE SHALL BE MADE WITH CAULKED LEAD AND OAKUM, OR WITH STAINLESS STEEL NO HUB APPROVED JOINTS. - SCREWED FITTINGS: ANSI B16.12. - PIPING AND FITTINGS SHALL BE COATED INSIDE AND OUTSIDE AT FACTORY, CONFORMING TO COMMERCIAL STANDARDS C88. COPPER DRAINAGE PIPE AND FITTINGS (VENTS AND WASTES 2" AND SMALLER, ABOVE GROUND): - TYPE M COPPER TUBING: ASTM B-88. - CAST BRASS SOLDER JOINT FITTINGS: ANSI B16.23. GALVANIZED STEEL PIPE (SANITARY VENTS): - AMERICAN STANDARD WEIGHT AND MANUFACTURE. SCHEDULE 40 GALVANIZED STEEL PIPE. - STANDARD 175# CAST IRON SCREWED FITTINGS, AS SPECIFIED ABOVE FOR SANITARY VENTS. COPPER TUBING AND FITTINGS (DOMESTIC WATER): - TYPE L HARD DRAWN OR ANNEALED: ASTM B-88 FOR ABOVE GROUND. - TYPE K SOFT ANNEALED: ASTM B-88 FOR BURIED INSTALLATIONS. - WROUGHT SOLDER FITTINGS: ANSI B16.22 REFER TO DWG. P-001 PIPE AND FITTING SCHEDULE FOR HOT COLD WATER, SANITARY WASTE & VENT - STANDARD WEIGHT SCHEDULE 40 BLACK STEEL: ANSI B16.10 WITH JOINTS OF AMERICAN NATIONAL TAPER SCREW THREAD OR WELDED. - STANDARD 150 MALLEABLE IRON FITTINGS WITH FLAT BAND ANSI B16.3 OR WELDED. - MAKE WELDED JOINTS BY OXYACETYLENE OR ELECTRIC ARC PROCESS, IN ACCORDANCE WITH PRACTICES DESCRIBED IN ANSI B31.1 CODE FOR PRESSURE PIPING, LATEST EDITION. WELDED FITTINGS SHOULD COMPLY WITH ANSI STANDARDS B16.9 AND B16.25.
1.04 SHOP DRAWINGS	SUBMIT SHOP DRAWINGS AND/OR MANUFACTURER'S LITERATURE OF ALL MATERIALS AND EQUIPMENT UNDER THIS SECTION FOR APPROVAL. NO WORK SHALL COMMENCE UNTIL SHOP DRAWINGS HAVE BEEN STAMPED WITH AN APPROVAL BY THE ARCHITECT.	STEEL PIPE AND FITTINGS (GAS):	BRASS PIPE AND FITTINGS (SHORT BRANCH WASTE CONNECTIONS TO FIXTURES); IPS, SEMI-ANNEALED, RED BRASS PIPE, WITH STANDARD 125# BRONZE CAST IRON PATTERN, RECESSED DRAINAGE FITTING.  - GROUND JOINT TYPE, BRASS FOR COPPER TUBING: MALLEABLE IRON, WITH BRONZE SEATS FOR IRON PIPE.  - PIPE NIPPLES SHALL BE OF THE CORRESPONDING QUALITY AS PIPE ON WHICH THEY ARE USED. - CLOSE AND SHORT SPACE NIPPLES SHALL BE EXTRA HEAVY, STANDARD WEIGHT CLOSE OR SHOULDER NIPPLES ARE NOT PERMITTED.
1.05 COORDINATION	FURNISH ALL SLEEVES, FRAMES, BOXES, TEMPLATES, AND SUPPORTS SO THAT THE GENERAL CONTRACTOR MAY BUILD IN SAME PLACE. CONFER WITH ALL OTHER SUBCONTRACTORS AS TO THE LOCATION OF THEIR WORK BEFORE BEGINNING PLUMBING WORK AND INSTALL PLUMBING WORK IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE OTHER TRADES. OBTAIN FROM THESE SUBCONTRACTORS THE NECESSARY INFORMATION RELATIVE TO PLUMBING WORK REQUIRED FOR EQUIPMENT INSTALLED BY THEM.  CUTTING AND PATCHING REQUIRED FOR OPENINGS THROUGH THE STRUCTURE FOR PLUMBING WORK SHALL BE DONE BY THE GENERAL CONTRACTOR AT THE EXPENSE OF THIS SUBCONTRACTOR, IF THE LATTER FAILS TO GIVE PROPER INFORMATION FOR THESE OPENINGS AT THE TIME OF CONSTRUCTION FOR THESE AREAS.  PLUMBING SUBCONTRACTOR SHALL BE RESPONSIBLE TO CHECK WITH THE OWNER AND THE ARCHITECT FOR FINAL ROUGHING DIMENSIONS ON EQUIPMENT OR FIXTURES FURNISHED BY VARIOUS EQUIPMENT CONTRACTORS AND IN ALL ROOMS WHERE SAID FIXTURES OR EQUIPMENT ARE. DRAWINGS MUST BE FURNISHED BY RESPECTIVE VENDOR OR OWNER BEFORE ANY FLOOR OR WALL IS SLEEVED, OR PLUMBING PIPING INSTALLED. SAID DRAWINGS TO BE FIRST APPROVED BY THE ARCHITECT.  THE PLUMBING SUBCONTRACTOR SHALL BE HELD RESPONSIBLE FOR AND SHALL PAY FOR ALL DAMAGES TO OTHER WORK CAUSED BY THIS WORK OR WORKMEN.	UNIONS:	- THREADED AND FLANGED JOINTING COMPOUND SHALL BE MADE UP OF PIPE CEMENT AND OIL, OR GRAPHITE AND OIL.
1.06 PROTECTION	MATERIALS, FIXTURES, AND FITTINGS SHALL BE PROPERLY PROTECTED, AND ALL PIPE OPENINGS SHALL BE TEMPORARILY CLOSED AS TO PREVENT OBSTRUCTION AND DAMAGE. WATER CLOSETS, LAVATORIES, AND URINALS SHALL BE BOARDED OVER, AND ALL OTHER FIXTURES PROTECTED WITH PASTED ON PAPER. POST NOTICE PROHIBITING THE USE OF THE FIXTURES PRIOR TO COMPLETION. TAKE PRECAUTION TO PROTECT ALL MATERIAL FROM DAMAGE AND THEFT.	PIPE NIPPLES:	- FIXTURE SETTING COMPOUND SHALL CONFORM TO FEDERAL SPECIFICATION HH-C-536. - SOLDERED JOINTS SHALL BE MADE WITH NEW LEAD FREE BRIGHT WITH 95/5 SOLDER. FLUX SHALL BE NON-CORROSIVE TYPE.
1.07 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS	AT THE COMPLETION OF THE PROJECT TURN OVER TO THE ENGINEER FOUR COMPLETE MANUALS CONTAINING THE FOLLOWING:  - COMPLETE SHOP DRAWINGS OF ALL EQUIPMENT. - OPERATING DESCRIPTION OF ALL SYSTEMS. - NAMES, ADDRESSES AND TELEPHONE NUMBERS OF ALL SUPPLIERS OF THE SYSTEM AND SERVICE AGENTS. - PREVENTIVE MAINTENANCE INSTRUCTIONS FOR ALL SYSTEMS.	JOINTING COMPOUNDS:	PRESSURE GAUGES: 1/2" SIZE WITH CAST ALUMINUM CASES, PHOSPHOR BRONZE BUSED MOVEMENT AND BOURDON TUBES, WHILE DIAL FACES AND BLACK LETTERING, FORGED BRASS SOCKETS, AND RANGE OF 0 TO 150 PSI, EQUAL TO TERRICE #600 SERIES, MARSH OR U.S. GAUGE. PROVIDE TO HANDLE GAUGE COCKS ON GAUGES, EQUAL TO TERRICE #865. REFER TO DRAWINGS FOR PRESSURE RANGES OTHER THAN THOSE SPECIFIED. THERMOMETERS WILL BE OF THE 4 1/4" VAPOR DIAL TYPE, WITH CAST ALUMINUM CASES, CHROME RINGS, BRASS SEPARABLE SOCKETS, AND RANGE
1.08 STERILIZATION OF WATER SYSTEM	STERILIZE THE ENTIRE INTERIOR AND EXTERIOR WATER PIPING SYSTEMS WITH CHLORINE BEFORE ACCEPTANCE FOR DOMESTIC OPERATION.  THE AMOUNT OF CHLORINE APPLIED SHALL BE SUCH AS TO PROVIDE A DOSAGE OF NOT LESS THAN 50 PARTS PER MILLION. THE CHLORINATING MATERIALS SHALL BE EITHER LIQUID CHLORINE OR SODIUM HYPOCHLORITE, AND SHALL BE INTRODUCED INTO THE SYSTEM AND DRAWN TO ALL POINTS OF THE SYSTEM. IF POSSIBLE TO DO SO, THE LINES SHALL BE THOROUGHLY FLUSHED BEFORE INTRODUCTION OF THE CHLORINATING MATERIALS. AFTER A CONTACT PERIOD OF NO FEWER THAN EIGHT (8) HOURS, THE SYSTEM SHALL BE FLUSHED WITH CLEAN WATER UNTIL THE RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN 0.2 PARTS PER MILLION. ALL VALVES IN THE LINES BEING STERILIZED SHALL BE OPENED AND CLOSED SEVERAL TIMES DURING THE CONTACT PERIOD.	VALVES AND GAUGES:	VACUUM BREAKERS SHALL BE WATTS NO. 288A, BEACON, OR CASH, OF 30 DEGREES TO 180 DEGREES F EQUAL TO TERRICE #V803300 SERIES, MARSH, CAULKING FERRULES, SOLDERING NIPPLES, AND BUSHING SHALL BE OF RED BRASS.
1.09 CLEANING AND ADJUSTING	AT THE COMPLETION OF THE WORK, ALL PARTS OF THE INSTALLATION SHALL BE THOROUGHLY CLEANED. ALL EQUIPMENT, PIPE, VALVES, AND FITTINGS SHALL BE CLEANED OF GREASE AND METAL CUTTINGS AND SLUDGE WHICH MAY HAVE ACCUMULATED BY OPERATION OF THE SYSTEM FOR TESTING.	PVC SCHEDULE 40 CELLULAR CORE (FOAM CORE) PIPE AND DWV FITTING SYSTEM:	- PIPE AND FITTING SHALL BE MANUFACTURED FROM PVC COMPOUND WITH A CELL CLASS OF 12454 PER ASTM D 1784 AND CONFORM WITH NATIONAL SANITATION FOUNDATION (NSF) STANDARD 14. PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1785 AND ASTM D 2685. INJECTION MOLDED FITTINGS SHALL CONFORM TO ASTM D 2685. FABRICATED FITTINGS SHALL CONFORM TO ASTM F 1896. - ALL PIPE AND FITTINGS TO BE PRODUCED BY A SINGLE MANUFACTURER AND TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND LOCAL CODE REQUIREMENTS. GENERAL: ALL SANITARY SEWER SYSTEM MATERIALS, CONSTRUCTION AND TESTING SHALL BE IN ACCORDANCE WITH THESE SPECIFICATIONS. ANY MATERIAL PROPOSED AS "AN EQUAL" MUST BE REVIEWED AND FOUND ACCEPTABLE BY THE DISTRICT PRIOR TO DESIGN OR CONSTRUCTION UNLESS SPECIFIED OTHERWISE BY THE DISTRICT. PVC PIPE MATERIAL SHALL BE USED FOR SANITARY SEWER SYSTEM CONSTRUCTION. PIPE: SANITARY SEWER PIPE AND FITTINGS SHALL BE POLY(VINYL CHLORIDE)(PVC) CONFORMING TO ASTM D1784 RIGID POLY (VINYL CHLORIDE) (PVC) COMPOUNDS AND CHLORINATED POLY (VINYL CHLORIDE) (CPVC) COMPOUNDS SHALL MEET ONE OF TWO SETS OF REQUIREMENTS AS STATED BELOW: 1. SDR-35 PIPE MEETING ASTM D3034 TYPE PSM POLY (VINYL CHLORIDE) (PVC) SEWER PIPE AND FITTINGS OR ASTM F679 POLY(VINYL CHLORIDE) (PVC) LARGE-DIAMETER PLASTIC GRAVITY SEWER PIPE AND FITTINGS LATEST REVISION. 2. DR-18 PIPE MEETING AWWA C900 STANDARD FOR POLY(VINYL CHLORIDE) (PVC) PRESSURE PIPE, 4 IN THROUGH 12 IN.
1.10 SUBMITTALS	ISSUE 4 COPIES OF MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS AND SHOP DRAWINGS FOR ALL ITEMS OF THE HVAC EQUIPMENT FOR APPROVAL.		
1.11 TESTS	THE PLUMBING SUBCONTRACTOR SHALL NOTIFY THE ENGINEER AND THE PROPER ADMINISTRATIVE OR UTILITY AUTHORITIES HAVING JURISDICTION OVER THE PLUMBING WORK THREE (3) WORKING DAYS BEFORE THE TESTS ARE TO BE MADE. CONCEALED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED TESTS ARE PROVIDED. REPAIRS OR DEFECTS THAT ARE DISCOVERED AS A RESULT OF INSPECTION OF TESTS SHALL BE MADE WITH NEW MATERIALS. CAULKING OF SCREWED JOINTS, CRACKS, OR HOLES WILL NOT BE ACCEPTED. TESTS SHALL BE REPEATED AFTER DEFECTS HAVE BEEN ELIMINATED. ALL TESTING INSTRUMENTS, GAUGES, PUMPS, AND OTHER EQUIPMENT REQUIRED OR NECESSARY FOR TESTS SHALL BE PROVIDED BY THE PLUMBING SUBCONTRACTOR. THE ENGINEER AND PROPER ADMINISTRATIVE AUTHORITIES SHALL BE REPRESENTED AT ALL TESTS.  DRAINAGE SYSTEMS TESTS: APPLY A WATER TEST TO ALL PARTS OF THE INTERIOR AND EXTERIOR DRAINAGE SYSTEMS BEFORE PIPES ARE CONCEALED OR FIXTURES SET IN PLACE. THE TEST MAY BE APPLIED IN SECTIONS. CLOSE ALL OPENINGS OF EACH SYSTEM TO BE TESTED, EXCEPT THE HIGHEST OPENING ABOVE THE ROOF, AND FILL THE ENTIRE SYSTEM WITH WATER TO THE OVERFLOW POINT OF THE HIGHEST OPENING. ALL PARTS OF THE SYSTEM SHALL BE SUBJECT TO NOT LESS THAN 10 FEET OF HYDROSTATIC HEAD, EXCEPT THE UPPERMOST 10 FEET OF THE PIPING DIRECTLY BELOW THE OPENING. THE WATER SHALL REMAIN IN THE SYSTEM FOR NOT LESS THAN 30 MINUTES, AFTER WHICH TIME NO LEAKS AT ANY JOINT OR LOWERING OF THE WATER LEVEL AT THE OVERFLOW SHALL BE VISIBLE.		
			CHECK VALVES: BRASS BODY, BRASS SWING CHECK, FOR 2 INCH AND UNDER, NIBCO F-918-Y, OR APPROVED EQUAL. FOR 2 1/2 INCH AND OVER, IRON BODY, BRONZE TRIM, NIBCO F-918-Y, OR APPROVED EQUAL.  GAS VALVES: GAS PLUG COCKS OR BALL VALVES, TEFLON SEAT, NEBCO 560, OR EQUIVALENT BY DEZURIK OR CRANE. MILWAUKEE "BUTTERBALL" #BB1-100, VITON SEALS AND STAINLESS STEEL TRIM.  GATE VALVES: #125, RISING STEM, UNION BONNET, BRASS BODY, FOR 2 INCH AND UNDER, NIBCO T-134, OR APPROVED EQUAL. FOR 2 1/2 INCH AND OVER, IRON BODY, BRONZE TRIM, NIBCO F-617-0, OR APPROVED EQUAL.  BALL VALVES: BRASS BODY, TEFLON SEAT, 1 INCH AND UNDER, NIBCO 585, OR APPROVED EQUAL, 1 1/4 INCH THRU 2 INCH, NIBCO 595, APPROVED EQUAL.  BUTTERFLY VALVES: CAST IRON, DOUBLE LUG, WITH ALUMINUM BRONZE DISC, EPDM LINER, LEVER LOCK OPERATOR WITH 10 DEGREE NOTCHES, 6 INCH AND UNDER, NIBCO NL-082-3, OR APPROVED EQUAL.  BALANCING VALVES: APOLLO 70-200 SERIES WITH BALANCING STOPS AND LOCKED RETAINER.  DRAIN VALVES: JENKINS FIG. 372, HAMMOND, WALWORTH OR EQUAL, SCREWED ENDS, 200# OWG, AND FITTED WITH CAP AND CHAIN, OR APOLLO NO. 78-203-01.  FLOOR DRAINS: SEE SCHEDULES ON DRAWINGS. WALWORTH NO. 1796 WITH ATTACHED WRENCH. FLOOR CLEANOUTS FOR SANITARY AND STORM DRAINS SHALL BE SMITH NO. 4021 NICKEL BRONZE TOP AND SECURED COVER. PROVIDE CARPET MARKERS IN CARPETED AREAS, GAS COCKS: 1/2"TO 2-1/2". APOLLO NO. 70-100-07 CODE APPROVED AND LARGER: WALL CLEANOUTS: SMITH 4402 NICKEL BRONZE NIKALOY SECURED COVER.  SHOCK ABSORBERS SHALL BE SMITH NOS. 5005, 5010 AND 5020 FOR SA-1 THROUGH SA-3, RESPECTIVELY.  WALL HYDRANTS: SMITH NO. 5509 WITH INTEGRAL VACUUM BREAKER OUTLET.  ROOF DRAINS: SMITH NO. 1010-C WITH UNDERDECK CLAMP OR EQUAL. PROVIDE EXTENSION COLLARS WHERE REQUIRED.  ACCESS PANELS: - FURNISH ACCESS PANELS OF SUFFICIENT SIZE TO FACILITATE SERVICING WHERE CLEANOUT, SHOCK ABSORBERS, EXPANSION JOINT TRAPS, OR WATER SHUT-OFF VALVES ARE CONCEALED IN FURRED SPACE 12"x12" MINIMUM.  - PANELS SHALL BE MILCOR STYLE 'DW' FOR PANELS IN DRYWALL STYLE 'AP' FOR PANELS IN PLASTER WALLS AND CEILINGS, AND STYLE 'M' FOR PANELS IN MASONRY OR TILE WALLS AS MANUFACTURED BY INLET STEEL PRODUCTS CO. PANELS IN FIRE RATED WALLS AND CEILINGS SHALL BE UL LISTED AND LABELED FIRE DOORS. ALL PANELS SHALL BE FURNISHED WITH A SHOP PRIME COAT OF PAINT.  - PROVIDE COPPER FLASHING FOR ALL DRAINS NOT IN SLABS ON GRADE 16 OZ. COPPER, ASTM B-152, 18"x18" MINIMUM, OR 6" BEYOND FLANGES OF DRAINS.  PLUMBING FIXTURES PROVIDE ALL FIXTURES IN ACCORDANCE WITH THE DRAWINGS AND SCHEDULE. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF ALL FIXTURES. COLOR OF FIXTURES SHALL BE WHITE.  FAUCETS AND ALL EXPOSED PIPING, VALVES AND FITTINGS SHALL BE CHROMIUM PLATED.  PLUMBING FIXTURES: THE FIXTURES LISTED ARE TO SHOW QUALITY OF FIXTURES REQUIRED, COMPLETE WITH ALL TRIM AND WASTE FITTINGS. UNLESS OTHERWISE NOTED.  PLUMBING FIXTURES: THE FIXTURES LISTED ARE TO SHOW QUALITY OF FIXTURES REQUIRED, COMPLETE WITH ALL TRIM AND WASTE FITTINGS. UNLESS OTHERWISE NOTED.  PART 3 - EXECUTION 3.01 PIPING INSTALLATION  DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF WORK TO BE INSTALLED. RUN AND ARRANGEMENTS OF PIPING SHALL BE APPROXIMATELY AS INDICATED, SUBJECT TO MODIFICATIONS AS REQUIRED TO SUIT CONDITIONS AT BUILDING, TO AVOID INTERFERENCE WITH WORK OF OTHER TRADES, OR FOR PROPER CONVENIENT AND ACCESSIBLE LOCATION OF ALL PARTS OF PIPING SYSTEM. DUE TO SMALL SCALE OF DRAWINGS, ALL REQUIRED OFFSETS, FITTINGS, VALVES, TRAPS, DRAINS, ETC. MAY NOT BE INDICATED. REFER TO AND CAREFULLY CHECK ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS, AND DETAILS, NOTING LOCATIONS WHERE WALLS, PARTITIONS, CEILINGS, BEAMS, COLUMNS, AND OTHER SURFACES ARE FURRED, LOCATION OF PIPE SHAFTS, AND CONFLICTS WITH WORK OF OTHER TRADES, AND ARRANGE WORK ACCORDINGLY, FURNISHING ALL OFFSETS, FITTINGS VALVES, TRAPS, DRAINS, ETC., REQUIRED TO MEET SUCH CONDITIONS.  RUN PIPE CONCEALED IN WALL CHASES, RECESSES, PIPE SHAFTS, AND ABOVE CEILINGS, WHEREVER POSSIBLE. EXTERIOR UTILITIES ARE DIAGRAMMATIC, AND EXACT LOCATION AND INVERT ELEVATIONS SHALL BE INDICATED OR REQUIRED TO MEET FIELD CONDITIONS. DO NOT PERMANENTLY CLOSE UP, FURR IN, OR COVER PIPING BEFORE EXAMINATION AND TEST.  RUN PIPING STRAIGHT AND DIRECT AS POSSIBLE, IN GENERAL FORMING RIGHT ANGLES WITH OR PARALLEL WITH WALLS OR OTHER PIPING, AND NEATLY SPACED, WITH RISERS ERECTED PLUMB AND TRUE. INSTALL PIPING SO THAT THERE IS CLEARANCE OF AT LEAST 1" BETWEEN FINISHED COVERINGS (FITTINGS HUBS ON UNCOVERED PIPING) OF FITTINGS AND ALSO BETWEEN FINISHED COVERINGS, OR FITTINGS, HUBS, AND ADJOINING WORK. HANG PIPING AT OR IN CEILING FROM CONSTRUCTION ABOVE, AS CLOSE AS POSSIBLE TO BOTTOM OF SLABS, BEAMS, ETC., MAINTAINING MAXIMUM HEADROOM AT ALL TIMES. CHECK DRAWINGS FOR CEILING HEIGHT AND CONSTRUCTION AND INSTALL WORK ABOVE THIS HEIGHT.  NO EXPOSED CHROMIUM PLATED (CP) PIPING SHALL BE SHOWN ANY TOOL MARKS OR MORE THAN ONE THREAD AT FITTINGS. FITTINGS AND VALVES ON CP PIPING SHALL HAVE CP FINISH.  USE REDUCING FITTINGS FOR CHANGES IN PIPE SIZE. DO NOT USE BUSHINGS.  3.02 HANGERS AND SUPPORTS  HANGERS AND SUPPORT PIPING FROM BUILDING STRUCTURE TO MAINTAIN REQUIRED GRADE AND PITCH OF PIPE LINES, TO PREVENT VIBRATION, SECURE PIPING IN PLACE, AND PROVIDE FOR EXPANSION AND CONTRACTION. PROVIDE LOCKNUTS ON ALL HANGERS AND SUPPORTS. HANGERS SHALL BE SECURED TO INSERTS WHEREVER PRACTICAL. SET INSERTS BEFORE CONCRETE IS PLACED. PROVIDE ATTACHMENTS FOR PRECAST CONCRETE PLANK.  HANGERS SHALL BE ADJUSTABLE CLEVIS HANGER TYPE. HANGER RODS SHALL HAVE MACHINE THREADS. HANGERS SHALL BE GRINNELL FIG. 260 FOR FERROUS PIPING AND FIGURE CT-65 FOR COPPER TUBING. GANG HANGERS MAY BE USED.  SUPPORT HORIZONTAL PIPING AT LEAST AS FOLLOWS: SCREWED PIPING EVERY 9 FEET, COPPER TUBING EVERY 7 FEET, CAST IRON HUB AND SPIGOT AND HUBLESS EVERY 5 FEET AT EACH HUB OR CLAMP, AND STEEL PIPE EVERY 10 FEET.  BRANCHES: SEPARATE SUPPORTS, AND NO BRANCH 5 FEET OR LONGER WITHOUT SUPPORT  PROVIDE METAL COVERING SHIELDS ON HANGERS FOR INSULATED PIPING TO PROTECT COVERING.  PROVIDE APPROVED MATERIAL BETWEEN IRON SUPPORTS AND COPPER OR BRASS PIPING TO PREVENT REACTION BETWEEN METALS.  3.03 SLEEVES  SLEEVES SHALL BE INSTALLED AROUND ALL PIPING PASSING THROUGH MASONRY FOUNDATIONS, WALLS, FLOORS, SLABS, PARTITIONS OR OTHER BUILDING CONSTRUCTION. SLEEVES SHALL BE SET IN NEW CONCRETE CONSTRUCTION BEFORE POURING. PLUMBING SUBCONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION, SETTING, AND ANCHORING OF SLEEVES IN A SUBSTANTIAL MANNER. SEE DETAILS ON DRAWINGS FOR INSTALLATION OF PIPING THROUGH FIRE WALLS.  3.04 INSULATION  DOMESTIC HOT WATER, HOT WATER RECIRCULATING AND COLD WATER PIPING SHALL BE COVERED WITH 3.5" DESIGNSPEC KRAFT PAPER, AND FIBERGLASS REINFORCED ALUMINUM FOIL VAPOR BARRIER JACKET. INSULATION THICKNESS SHALL BE 1"Ø
			FOR COLD WATER AND 1"Ø FOR HOT WATER AND HOT WATER RECIRCULATING AND 1"Ø FOR 180 DEGREE HOT WATER. ALL ABOVE GROUND HORIZONTAL ROOF DRAIN CONDUCTORS AND ROOF DRAIN BOWLS SHALL BE COVERED WITH 1" THICK FIBERGLASS BLANKET INSULATION WITH VINYL JACKET TO ONE FOOT BELOW CHANGE TO VERTICAL.  DOMESTIC HOT AND COLD WATER LINES IN WALLS AND CHASES MAY BE INSULATED WITH O.C. FLEXIBLE (RIGID) TUBING INSULATION, 1" THICK. RIGID TUBING SHALL BE APPLIED AT HANGER LOCATIONS, AS BOTTOM SUPPORTING HALF SECTION MATCHED WITH TOP HALF SECTION OF FLEXIBLE OR RIGID TUBING. IN ALL CASES, LONGITUDINAL JOINTS SHALL BE IN HORIZONTAL PLANE. AN 18 GAUGE METAL SHIELD, SAME LENGTH AS O.C. RIGID TUBING, IS TO BE USED AT ALL PIPE HANGER LOCATIONS. BUTT ENDS AND LONGITUDINAL JOINTS SHALL BE SEALED WITH O.C. 500 ADHESIVE. ALL FITTINGS SHALL BE FABRICATED FROM O.C. FLEXIBLE OR RIGID TUBING. INSULATION IN NESTING SIZES, JOIN SLT AND MITERED JOINTS WITH O.C. 500 ADHESIVE. FOR ADDITIONAL INFORMATION REFER TO DWG P-001 FOR INSULATION SCHEDULE.  ALL HORIZONTAL STORM PIPE SHALL BE 1" INSULATED  INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. INSULATION SHALL BE AS MANUFACTURED BY GUSTIN- BACON, OWENS CORNING FIBERGLASS, KNAUF, OR EQUAL. ALL PEX PIPING SHALL BE INSULATED MIN. 1"  3.05 INTERIOR DOMESTIC WATER PIPING SYSTEMS  HOT AND COLD WATER SUPPLY SYSTEM SHALL BE RUN AS INDICATED, INCLUDING MAINS, RISERS, OR FIXTURES, SHALL BE FROM TOP OF MAINS, EXCEPT AS NOTED, AND ALL PIPING SHALL BE PITCHED AT LEAST 1-1/4" IN 40 FEET SO THAT IT CAN BE DRAINED COMPLETELY AT RISERS AND FIXTURES FOR PROPER AIR RELIEF. PROVIDE DRAIN VALVES AT ALL LOW POINTS IN SYSTEM.  PROVIDE SHOCK ABSORBERS FOR ALL HOT AND COLD WATER SUPPLY LINES TO FIXTURES AND EQUIPMENT UNDER OTHER SECTIONS. WHERE SHOCK ABSORBERS ARE NOT SCHEDULED PROVIDE FULL SIZE, 12" HIGH, AIR CHAMBERS AT ALL FIXTURES SUPPLIES.  SHUT-OFF AND CONTROL VALVES ON MAIN DISTRIBUTION AND BRANCH LINES SHALL BE LOCATED FOR EASY ACCESS AND OPERATION.  3.07 RECORD DRAWINGS  THIS CONTRACTOR SHALL MAINTAIN AND SUBMIT RECORD DRAWINGS, ON WHICH SHALL AT ALL TIMES, CLEARLY AND COMPLETELY SHOW THE ACTUAL INSTALLATION IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.  WHEREVER THE WORK WAS INSTALLED OTHER THAN AS SHOWN ON THE CONTRACT DRAWINGS, SAID CHANGES SHALL BE INDICATED ON THE "AS-BUILT" PRINTS. ANY ADDENDA SKETCHES AND SUPPLEMENTARY DRAWINGS ISSUED DURING THE COURSE OF CONSTRUCTION SHALL ALSO BE INCORPORATED ON THE "AS-BUILT" PRINTS.  THE "AS-BUILT" DRAWINGS SHALL BE KEPT UP TO DATE AND BE AVAILABLE TO THE ENGINEER FOR INSPECTION AT ALL TIMES.  UPON RECEIPT OF APPROVAL OF THE "AS-BUILT" DRAWINGS, PHOTO REPRODUCTIONS OF THE ORIGINAL TRACINGS ON MYLAR TRANSPARENCIES SHALL BE REVISED TO INCORPORATE ALL THE CHANGES ON THE "AS-BUILT" DRAWINGS. THESE REPRODUCIBLE TRANSPARENCIES SHALL BE CERTIFIED AS CORRECT AND DELIVERED TO THE ENGINEER ALONG WITH (2) SETS OF BLACK LINE PRINTS AS "RECORD DRAWINGS"  ALL COSTS RELATIVE TO THESE RECORD DRAWINGS SHALL BE PAID BY THIS CONTRACTOR.  3.08 RUBBISH REMOVAL  AT THE COMPLETION OF EACH DAYS WORK, THIS CONTRACTOR SHALL REMOVE FROM THE PREMISES, ALL RUBBISH OR WASTE MATERIAL BELONGING TO HIM.

SHEET TITLE: <b>PLUMBING SPECIFICATIONS</b>	PROJECT:		PROJECT:		PROJECT:	
	FILE NO:	22126	SCALE:	AS NOTED	DATE:	12/09/2022
	DRAWN BY:	MF	CHECKED BY:	HH	PROJECT:	
SHEET NUMBER:		PHILIP R. SMITH ELEMENTARY SCHOOL		949 AVERY STREET, SOUTH WINDSOR, CT 06074		
REVISIONS		NO.	DESCRIPTION	DATE	BY	
STAMP:						
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SPECIAL NOTES:

\*SINKS & PLUMBING WORK TO BE INCLUDED AS ALTERNATE #1 IF CLIENT CHOOSES NOT TO PROCEED WITH ALTERNATE #1 SINKS ON DRAWINGS TO BE REPLACED WITH CABINET RELATED MILLWORK.



1 FIRST FLOOR - PLUMBING PLAN SAN, WASTE & VENT  
P-3 1/8" = 1'-0"

2 FIRST FLOOR - PLUMBING PLAN HW & CW  
P-3 1/8" = 1'-0"

PLUMBING FLOOR DRAIN / CLEANOUT AND SPECIALTY SCHEDULE

SYMBOL	FIXTURE TYPE	SUGGESTED MANUFACTURER/ MODEL NUMBER	HOT COLD SOIL OR VENT				DESCRIPTION	NOTES:
			HOT	COLD	SOIL OR	VENT		
FD	FLOOR DRAIN, MEDIUM DUTY TYPE	ZURN MODEL ZN-415-3NL-5B-P G-P(1/2")  PRO SET TRAP GUARD MODEL TG 33IP (UTILITY ROOM DRAINS ONLY)					DUCO CAST IRON BODY WITH FLASHING COLLAR AND ADJUSTABLE STRAINER HEAD, ROUND TOP, NO-HUB OUTLET. PROVIDE WITH THE FOLLOWING OPTIONS: -P13: 1/2" TRAP PRIMER CONNECTION -VP: VANDAL PROOF SCREWS. -ZN: POLISHED NICKEL BRONZE STRAINER (FOR USE IN SHOWERS, TOILET, AND UTILITY ROOMS ONLY)  SIZE AS INDICATED ON FLOOR PLANS.  UTILITY ROOM DRAINS SHALL BE 3" DIA. WITH TRAP GUARD INSTALLED	2
CO	CLEANOUT	ZURN MODEL Z-1456IC-SW					ALL NICKEL BRONZE WITH POLISHED SCORIATED COVER, SUPPLY WITH SPANNER WRENCH. SIZE AS INDICATED ON FLOOR PLANS	2
FCO	CLEANOUT FLOOR TYPE	ZURN MODEL ZN-1400-HD -VP-BP-KC-NH					DUCO CAST IRON CLEANOUT WITH ROUND, ADJUSTABLE SCORIATED SECURED NICKEL BROZE TOP, GASKET TYPE SEAL WITH BROZE CLOSURE PLUG. SUPPLY WITH FLASHING FLANGE WITH FLASHING CLAMP, VANDAL PROOF, POLISHED BRONZE TOP. SIZE AS INDICATED ON FLOOR PLANS	2
FGCO	CLEANOUT FINISHED GRADE TYPE	ZURN MODEL Z-1474-VP-G -NH					DUCO CAST IRON CLEANOUT AND DOUBLE FLANGED HOUSING WITH HEAVY DUTY, SECURED SCORIATED CAST IRON COVER WITH LIFTING DEVICE. BRONZE TYPE PLUG. SUPPLY WITH VANDAL PROOF TOP. SIZE AS INDICATED ON FLOOR PLANS	2
WCO1 WCO2	CLEANOUT WALL TYPE	ZURN MODEL ZB-1446-BP-VP ZB-1447-BP-VP- HB-SP-TX					DUCO CAST IRON CLEANOUT TEE AND COUNTERSUNK PLUG WITH CHROME PLATED, BRONZE ROUND FRAME AND SECURED COVER. PROVIDE WITH VANDAL PROOF SCREWS AND POLISHED BRONZE FRAME AND COVER. SIZE AS INDICATED ON FLOOR PLANS. MODEL 1447-BP-TX: FACE OF WALL - TILE, MASONRY, DRY WALL MODEL 1447-BP: FLUSH WITH WALL - PLASTER, WET WALL	2
WH	WATER HAMMER	JAY R SMITH PDI-WH-201					PROVIDE WATER HAMMER AT EACH BATH ROOM	

NOTES:

- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF DRAINS.
- REFER TO PLUMBING SPECIFICATIONS FOR LISTING OF APPROVED ALTERNATIVE MANUFACTURER'S FOR PLUMBING FIXTURES AND EQUIPMENT. ALTERNATIVE MANUFACTURERS SHALL BE AS FOLLOWS:

FLOOR DRAINS: JOSAM, MIFAB, WADE, WATTS, ZURN  
FLOOR, WALL CLEANOUTS: MIFAB, WADE, WATTS, ZURN  
TRAP PRIMER: MIFAB, WATTS, ZURN

PIPE INSULATION SCHEDULE

SYSTEM	PRODUCT MANUFACTURER	INSULATION THICKNESS	REMARKS
DOMESTIC COLD WATER PIPING, FITTING, AND VALVES (40°F - 60°F)	JOHN MANVILLE MICRO-LOK HP OR APPROVED EQUAL. PROVIDE PVC COVERS ON ALL EXPOSED PIPING	LESS THAN 1-1/4" - 1" 1-1/2" TO 4" - 1-1/2"	ALTERNATE PRODUCTS SHALL HAVE A CONDUCTIVITY OF 0.21 - 0.28 BTU-IN/(H·FT2·°F). PROVIDE ALL EXPOSED PIPING WITH PVC PIPE COVERS
DOMESTIC HOT WATER AND HOT WATER RECIRCULATION PIPING, FITTING, AND VALVES (105°F - 140°F)	JOHN MANVILLE MICRO-LOK HP OR APPROVED EQUAL. PROVIDE PVC COVERS ON ALL EXPOSED PIPING	LESS THAN 1-1/4" - 1/2" 1-1/2" TO 4" - 1"	ALTERNATE PRODUCTS SHALL HAVE A CONDUCTIVITY OF 0.21 - 0.28 BTU-IN/(H·FT2·°F). PROVIDE ALL EXPOSED PIPING WITH PVC PIPE COVERS
EXPOSED SANITARY, HOT WATER, AND COLD WATER PIPINGS BELOW LAVATORYS AND SINKS	TRUEBRO - LAV GUARD2	RESILIENT MOLDED VINYL	ALTERNATE PRODUCTS SHALL BE SHALL COMPLY WITH ASME A112.8.9-2001 AND ADA ARTICLE 4.19.4

PIPING AND FITTINGS SCHEDULE

SYSTEM	PIPING	FITTINGS	REMARKS
DOMESTIC WATER	TYPE L HARD DRAWN COPPER TUBING.	COPPER - CAST BRONZE OR COPPER SWEAT FITTINGS JOINED WITH TIN/ANTIMONY LEAD-FREE SOLDER	PROVIDE WITH APOLLO 70-200 SERIES SOLDER END BRONZE BALL VALVES WHERE REQUIRED.
SANITARY, WASTE, AND VENT	SERVICE WEIGHT HUBLESS CAST IRON	SERVICE WEIGHT HUBLESS CAST IRON JOINED W / APPROVED STAINLESS MECHANICAL COUPLINGS W / NEOPRENE RESILIENT GASKETS	---
GAS PIPING	SCHEDULE 40 STEEL	SCREWED SCHEDULE 40 BLACK STEEL	CORRUGATED STAINLESS STEEL TUBING SHALL BE APPROVED FOR SIZED UP TO 2"

FIXTURE CONNECTIONS (INCHES)

SYMBOL	SAN	W	V	HW	CW	NOTE
WATER CLOSET	4	-	2	-	1 1/2	
LAV	-	1 1/2	1 1/2	1/2	1/2	
SINK	-	1 1/2	1 1/2	1/2	1/2	
SERVICE SINK	-	2	1 1/2	3/4	3/4	

PLUMBING FIXTURES SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	FINISH
PF-1	UNDERMOUNT SINK	KOHLER	K1772	WHITE
PF-2	FAUCET	BRADLEY	6315-KT0000	POLISHED CHROME

WATER HEATER SCHEDULE

NOTES:

- PROVIDE 240V-3 PHASE 60A DISCONNECT SWITCH.

TAG	MANUFACTURER	MODEL NO	AREA SERVED	STANDARD INPUT(KW)	DIMENSION	REMARK
EWH-1	EEMAX	EEM24013	CLASS ROOM	13	12" x 9.75" x 3.75"	NEW

STAMP:

PHILIP R. SMITH ELEMENTARY SCHOOL

PROJECT: 22126

FILE NO: 22126

SCALE: AS NOTED

DATE: 12/09/2022

DRAWN BY: MF

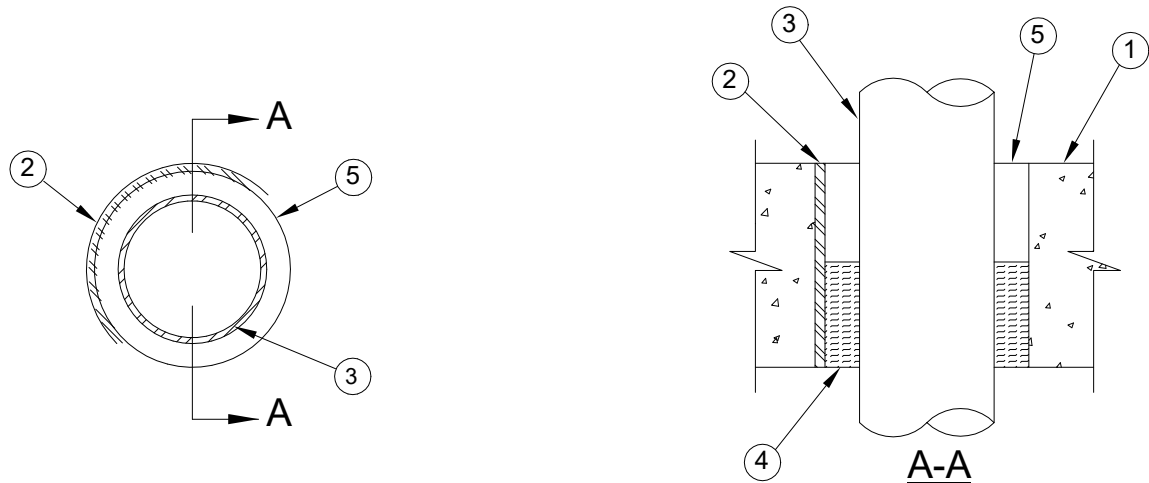
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PLUMBING PLAN & SCHEDULES

SHEET NUMBER:

P-3





**FIRE RESISTANCE DETAIL**  
**THROUGH-PENETRATION FIRESTOP**  
NOT TO SCALE

**SYSTEM NO. CAJ1020**

F RATING 2 AND 3 HR. (SEE ITEM 3)  
T RATING - 0 HR. & 3/4 HR. (SEE ITEM 3)

1. FLOOR OR WALL ASSEMBLY-MIN. 4 1/2" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. MIN. 6 1/2" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX. DIA. OF OPENING IS 8 IN.

SEE CONCRETE BLOCK (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. METALLIC SLEEVE-(OPTIONAL)-NOM. 8" DIA. (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED IN TO WALL OR FLOOR ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES.

3. THROUGH PENETRANTS- ONE METALLIC PIPE, CONDUIT OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

- A. STEEL PIPE- NOM. 6" DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.  
B. CONDUIT- NOM. 4" DIA (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.  
C. CONDUIT- NOM. 6" DIA. (OR SMALLER) RIGID GALV. STEEL CONDUIT.

THE F AND T RATING OF THE SYSTEM IS DEPENDENT UPON THE DIA. OF THE PIPE OR CONDUIT AND ANNULAR SPACE BETWEEN THE PIPE OR CONDUIT AND THE PERIPHERY OF THE OPENING AS SHOWN IN THE TABLE BELOW:

MAX. DIA. OF STEEL PIPE OR CONDUIT LN.	NOM. ANNULAR SPACE LN.	F RATING HR	T RATING HR
1-1/2	2-1/8	3	3/4
4	3/4	3	0
6	3/4	2	0

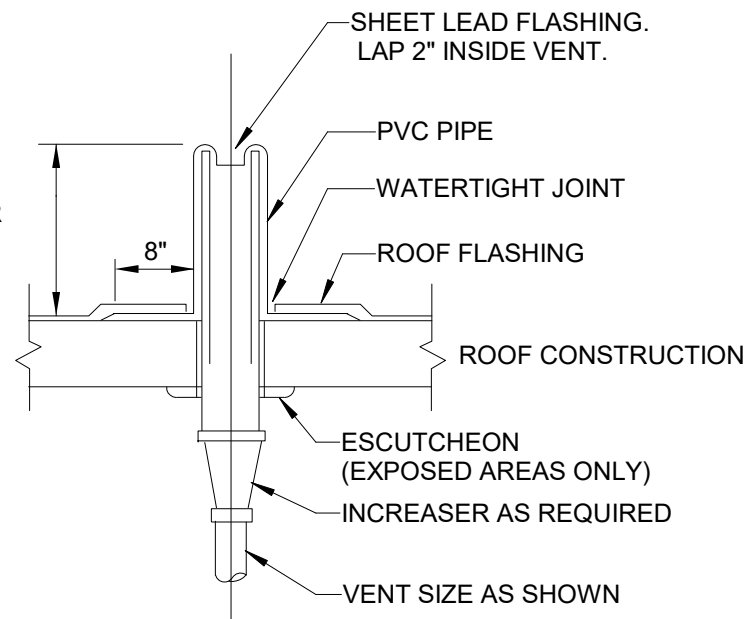
4. FORMING MATERIAL\*- MIN. 2-1/2" THICKNESS OF MIN. 3.5 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. FORMING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRE TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

USG INTERIORS INC.-TYPE SAF

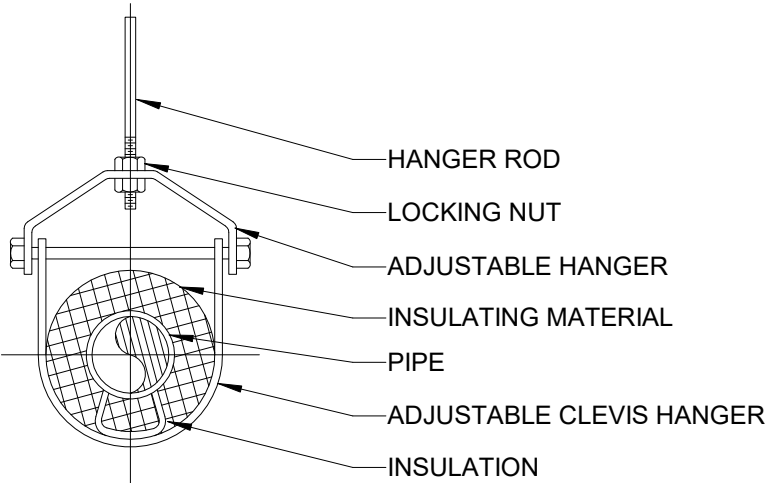
5. FILL, VOID OR CAVITY MATERIAL\*-SEALANT-MIN. 2" THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL.

USG INTERIORS INC.-TYPE SS

\*BEARING THE UL CLASSIFICATION MARKING

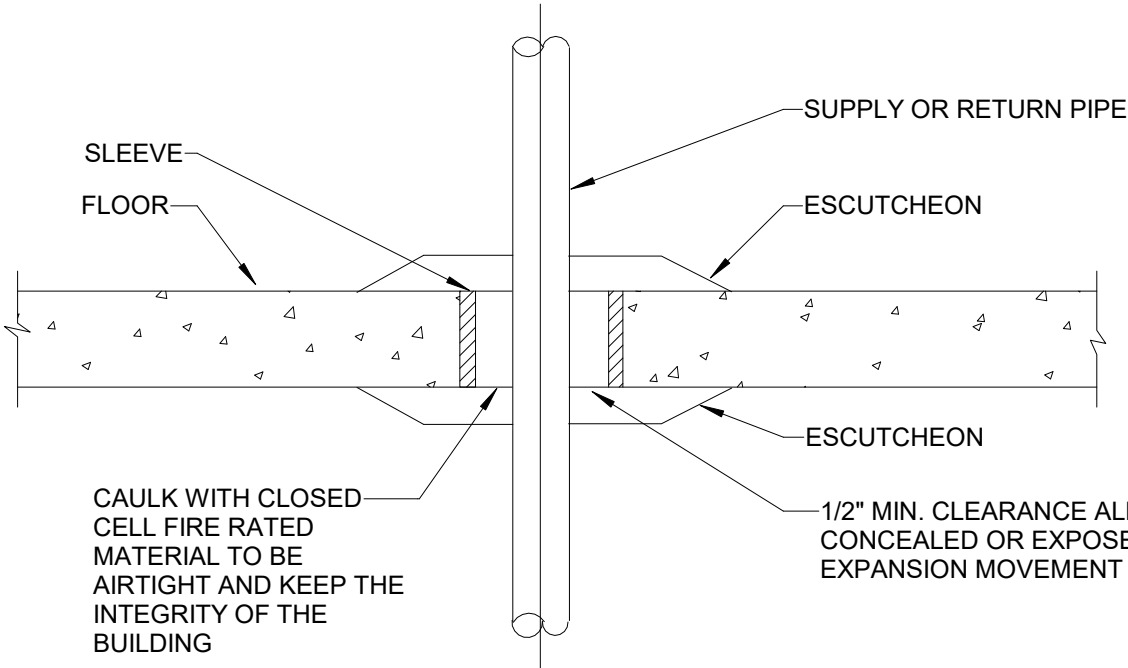


**2**  
P-4 VENT STACK TERMINATION  
N.T.S.

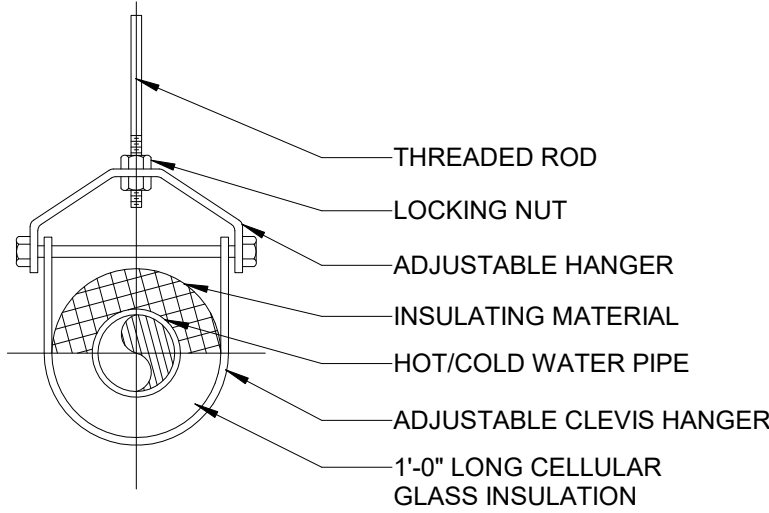


INDOOR HANGERS ARE GALVANIZED OUT DOOR HANGERS ARE STAINLESS STEEL.

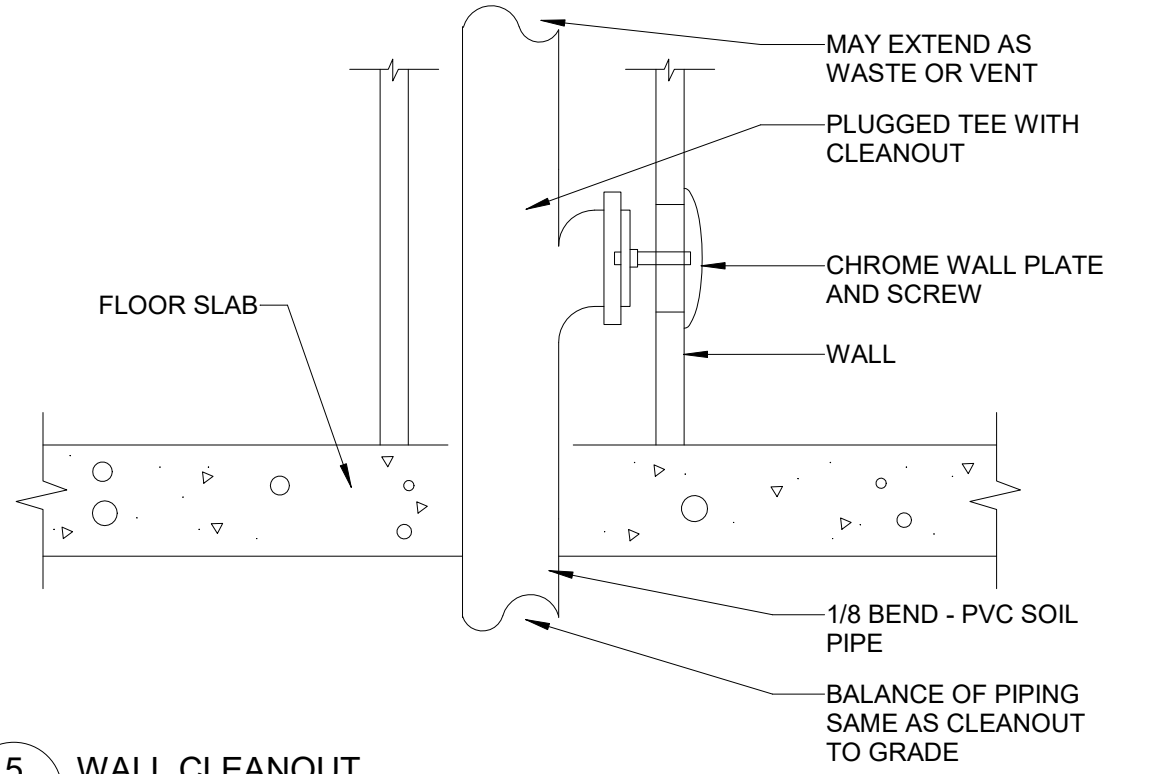
**6**  
P-4 CLEVIS HANGER WITH SADDLE  
N.T.S.



**7**  
P-4 DETAIL OF PIPING THRU FLOOR OR SLAB  
N.T.S.

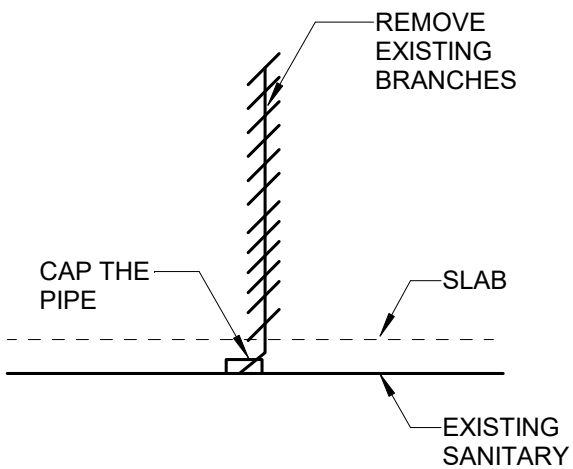


**4**  
P-4 CLEVIS HANGER WITHOUT SADDLE FOR HW,CW  
N.T.S.

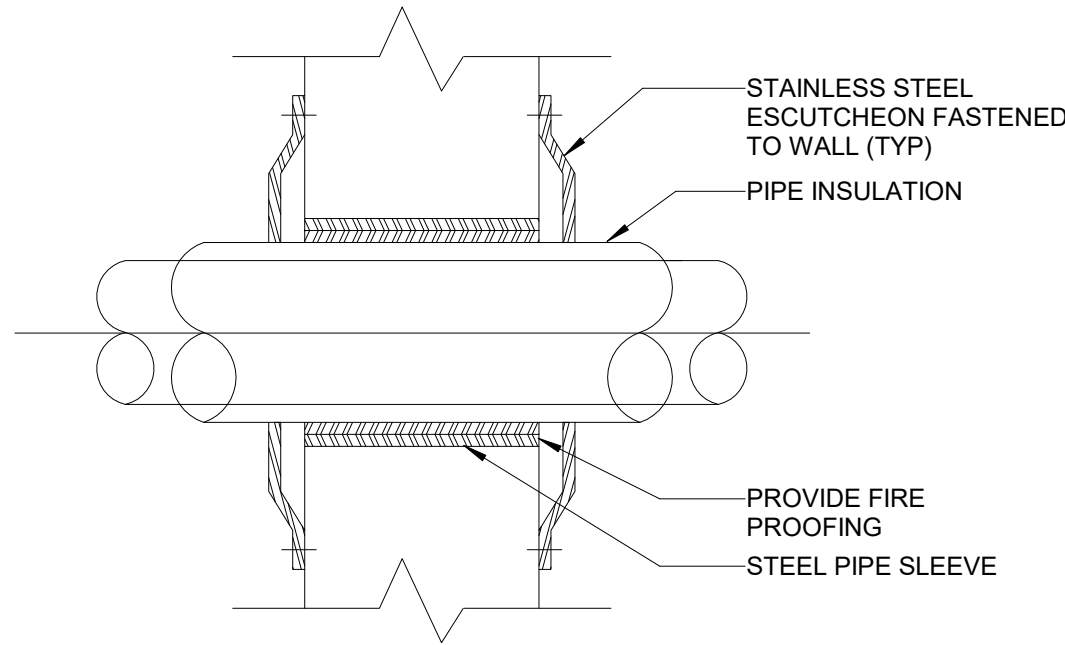


**5**  
P-4 WALL CLEANOUT  
N.T.S.

CONTRACTOR NEED TO USE LASER TO LOCATE EXISTING MAIN PAINT THE LOCATION. PLUMBING CONTRACTOR SHALL PAY G.C. TO SAW CUT THE FLOOR TO REMOVE BRANCHES FROM SANITARY MAIN AND CAP THE PIPES AS REQUIRED.



**8**  
P-4 DETAIL OF BRANCH CAPPING  
N.T.S.



**9**  
P-4 WALL PIPE SLEEVE  
N.T.S.

**1**  
P-4 FIRE RESISTANT DETAIL  
N.T.S.

SHEET TITLE: <b>PLUMBING DETAILS</b>	FILE NO: 22/126	SCALE: AS NOTED	DATE: 12/09/2022	DRAWN BY: MF	CHECKED BY: HH	PROJECT: <b>PHILIP R. SMITH ELEMENTARY SCHOOL</b>  949 AVERY STREET, SOUTH WINDSOR, CT 06074	STAMP:	REVISIONS NO. DESCRIPTION DATE BY	THIS DOCUMENT, THE IDEAS, AND THE INFORMATION HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF RUSSELL AND DAWSON INC. AND SHALL NOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF RUSSELL AND DAWSON INC. THE USER AGREES TO HOLD RUSSELL AND DAWSON INC. HARMLESS FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, THAT MAY BE ASSERTED AGAINST OR INCURRED BY RUSSELL AND DAWSON INC. DUE TO THE USER'S USE OF THIS DOCUMENT. © 2023 By Russell and Dawson Inc.

FIRE PROTECTION GENERAL NOTES	
GENERAL	COORDINATION DRAWINGS
FIRE PROTECTION WORK INCLUDES BUT NOT LIMITED TO INSTALLATION OF SPRINKLER HEADS,PIPING,HANGERS,ETC. AS REQUIRED TO ACCOMMODATE ARCHITECTURAL AND MECHANICAL RENOVATIONS. CONNECTION TO THE EXISTING FIRE PROTECTION SYSTEM. THE RISER CHECK VALVE ASSEMBLY SHALL SUPPLY SPRINKLER CONTROL ASSEMBLIES (CONTROL VALVES, FLOW SWITCHED AND TAMPER SWITCHES) SERVING WET SPRINKLERS ON EACH FLOOR	DEVELOP AND SUBMIT COORDINATION DRAWING AS OUTLINED.
UTILIZE SEMI-RECESSED FM OR UL LISTED AND APPROVED PENDENT SPRINKLERS AND PIPING IN AREAS WITH FINISHED CEILING, AND EXPOSED PIPING AND UPRIGHT SPRINKLERS IN AREAS WITHOUT CEILINGS. CONCEALED SPRINKLER HEADS LOCATED ON ACOUSTICAL TILES TO UTILIZE FLEX HOSE PIPING 6' IN LENGTH. PROVIDE AND INSTALL SPRINKLERS UNDER AND ABOVE ALL OBSTRUCTIONS IN ACCORDANCE WITH NFPA 13	SHEET METAL, PLUMBING AND FIRE PROTECTION SHOP DRAWINGS THAT HAVE BEEN COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. DRAWINGS MUST BE RETURNED FROM ENGINEER EITHER 'REVIEWED' OR 'FURNISH AS CORRECTED' PRIOR TO BEING USED AS BASIS FOR COORDINATION DRAWINGS.
ACTIVATION OF A TAMPER SWITCH SHALL RESULT AS A TROUBLE INDICATION AT THE FIRE ALARM CONTROL PANEL AND THE FIRE ALARM ANNUNCIATOR PANEL	AFTER SHEET METAL AND PIPING DRAWINGS HAVE BEEN REVISED PER ENGINEERS COMMENTS, REPRODUCIBLE COPIES SHALL BE SENT TO THE TRADES IN THE FOLLOWING SEQUENCE FOR THE INCLUSION OF THEIR WORK:
ACTIVATION OF A FLOW SWITCH SHALL RESULT AS AN 'ALARM' INDICATION AT THE FIRE ALARM CONTROL PANEL AND THE FIRE ALARM ANNUNCIATOR PANEL. THE SPRINKLER CONTRACTOR SHALL EXAMINE ALL CONTRACT DOCUMENTS AND SHALL VERIFY ALL CONDITIONS IN THE FIELD.	-MECHANICAL SHEET METAL   -PLUMBING PIPING   -ELECTRICAL WORK -MECHANICAL PIPING        -SPRINKLER PIPING
FIRE PROTECTION PLANS ARE INTENDED TO INDICATE TOTAL COVERAGE AND MAY OR MAY NOT INDICATE ALL SPRINKLER HEADS. SPRINKLER HEADS INDICATED ON DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE COUNTED FOR BID (IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ENTIRE PIPING LAYOUT, PROPOSED MAINS AND DEVICES INDICATED ONLY). THE CONTRACTOR SHALL PROVIDE A COMPLETE SPRINKLER SYSTEM WITH COMPLETE SPRINKLER COVERAGE, INDICATED OR NOT, ITEMS AND SERVICES NOT SHOWN ON DRAWINGS OR SPECIFICATIONS BIT REQUIRED TO RENDER THE WORK COMPLETE IN ACCORDANCE WITH NFPA INSURANCE COMPANY REQUIREMENTS AND OWNERS. READY FOR OPERATION SHALL BE PROVIDED AND INSTALLED, THE CONTRACTOR SHALL PROVIDE COMPLETE SPACES, CONCEALED COMBUSTIBLE SPACES, SHAFTS, AND ALL CLOSETS.	AFTER ALL TRADES HAVE INCLUDED THEIR WORK ON THE COORDINATION DRAWING AND NOTED CONFLICTS, ALL TRADES SHALL MEET TO RESOLVE CONFLICTS AND AGREE TO ACCEPTABLE SOLUTIONS. EACH TRADE SHALL SIGN COORDINATION DRAWINGS. ITEMS NOT SHOWN ON COORDINATION DRAWING IS RESPONSIBILITY OF OMITTING CONTRACTOR AND CONTRACTOR IS SUBJECT TO ADDITIONAL COSTS INCURRED BY OTHER TRADES.
DRAWINGS ARE DIAGRAMMATIC AND INDICATE A GENERAL ARRANGEMENT OF WORK AND ARE NOT TO BE CONSIDERED SUBCONTRACTOR DOCUMENTS. IT IS THE INTENT OF THERE DOCUMENTS TO INCLUDE THE PROVISION AND INSTALLATION OF ALL NECESSARY WORK AND MATERIALS FOR COMPLETE, OPERATIONAL AND CODE COMPLIANT SYSTEMS BY THE CONTRACTOR. GENERAL DESIGN CONCEPTS INDICATED MUST BE FOLLOWED OR BETTERED. THE BID SHALL INCLUDE OFFSETS, MEET CONSTRUCTION CONDITIONS FOR PROPER OPERATION. DO NOT SCALE DRAWINGS. CONSULT ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPACE CONDITIONS AND ADDITIONAL REQUIREMENTS.	THE ARCHITECT AND ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE FOR NOTED CONFLICTS ONLY. COORDINATION DRAWINGS ARE NOT TO BE CONSIDERED PIPING OR DUCT SHOP DRAWINGS. THE CONTRACTOR IS REQUIRED TO SUBMIT INDIVIDUAL PIPING AND DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. PIPING AND DUCTWORK SHOP DRAWINGS SHALL FOLLOW THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.
WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUALITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWING OR NOT.	SUBMIT FINAL SIGNED COORDINATION DRAWING TO ENGINEER FOR REVIEW. ENGINEER WILL REVIEW COORDINATION DRAWINGS FOR GENERAL ARRANGEMENT AND FOR NOTED CONFLICTS ONLY. SPECIFIC INSTALLATION REQUIREMENTS WILL BE REVIEWED ONLY IN INDIVIDUAL TRADE SHOP DRAWINGS.
THE CONTRACTOR SHALL COORDINATE SPRINKLER HEAD LOCATIONS WITH THE LATEST ARCHITECTURAL REFLECTED CEILING PLANS. ANY DISCREPANCIES SHALL BE BROUGHT BACK TO THE ARCHITECT/ENGINEER. DO NOT SCALE DRAWINGS FOR DIMENSIONS NOT INDICATED. REFER TO ARCHITECT FOR RESOLUTION FOR ANY DIMENSIONS NOT INDICATED	WHERE CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, OR WITHIN EITHER DOCUMENT, THE CONTRACTOR SHALL ASK FOR AND OBTAIN A WRITTEN CLARIFICATION FROM THE ENGINEER PRIOR TO SUBMITTING HIS BID. OTHERWISE, THE ITEMS OR ARRANGEMENTS OF SUPERIOR QUALITY, GREATER QUANTITY OR HIGHER COST SHALL PREVAIL AND BE INCLUDED IN THE CONTRACT PRICE.
IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO PROVIDE FOR FINISHED WORK, TESTED AND READY FOR OPERATION	ANY WORK FABRICATED OR INSTALLED PRIOR TO SIGN OFF BY ALL TRADES WHICH IS DEEMED TO BE IN CONFLICT WITH COORDINATION DRAWINGS SHALL BE REMOVED AND RE-INSTALLED IN CONFORMANCE WITH COORDINATION DRAWINGS.
THE DESIGN OF ALL FIRE SUPPRESSION SYSTEMS WILL BE IN ACCORDANCE WITH THE LOCAL AND STATE BUILDING CODE, NFPA 13, USE ONLY UL/FM SPRINKLERS, MATERIALS AND DEVICES, UNLESS NOTED OTHERWISE.	EACH CONTRACTOR (MENTIONED ABOVE) IS RESPONSIBLE FOR THE COORDINATION OF HIS SUB-CONTRACTORS.
THE SPRINKLER CONTRACTOR IS REQUIRED TO VISIT THE SITE , TO EXAMINE CONDITIONS AND BECOME FAMILIAR WITH THE JOB, NOTING DEGREE OF DIFFICULTY IN GETTING EQUIPMENT (INCLUDING LIFTS AND SCAFFOLDS) IN AND OUT OF THE BUILDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER IN WRITING PRIOR TO SUBMITTING A BID.	THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BEAR ADDITIONAL COST.
NOTIFY PROPER AUTHORITIES (INCLUDING BUT NOT LIMITED TO THE LOCAL A.H.J., INSURANCE COMPANY, ETC.) OF ANY FIRE PROTECTION SYSTEM(S) WILL BE OUT OF SERVICE. RETURN THE SPRINKLER SYSTEM BACK IN SERVICE AT THE END OF EACH WORKING DAY. IF A FIRE WATCH IS REQUIRED BY THE LOCAL A.H.J BUILDING MANAGER, ETC. IT SHALL BE PROVIDE BY THE GENERAL CONTRACTOR. FIRE WATCH SCHEDULING AND PERSONNEL SHALL BE COORDINATED WITH THE LOCAL A.H.J., BUILDING MANAGER AND INSURANCE COMPANY	AS BUILT DRAWINGS
ARRANGE PIPING TO FACILITATE FLUSHING. PROVIDE READILY ACCESSIBLE DRAIN AND FLUSHING CONNECTIONS AS REQUIRED BY NFPA 13. PROVIDE AND INSTALL AUXILIARY DRAINS WITH PROVISIONS FOR COMPLETE DRAINAGE. PIPE ALL DRAINS TO AN APPROVED LOCATION	PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC (AUTOCAD AND/VERSION AS REQUIRED BY OWNER) VERSION. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER
INSPECTORS TEST CONNECTIONS, DRAIN VALVES AND CONTROL VALVES SHALL BE READILY ACCESSIBLE AND INSTALLED NOT OVER +/-7'-0" ABOVE THE FINISHED FLOOR PROVIDE ALL VALVES WITH IDENTIFICATION SIGNS. SUPERVISORY SWITCHED SHALL BE ON ALL CONTROL VALVES. PIPE ALL DRAIN PIPING. INSPECTORS TEST CONNECTIONS, ETC. TO THE EXTERIOR. ENSURE DRAINAGE DOES NOT CAUSE DAMAGE TO BUILDING OR SITE	INCLUDE ALL CHANGES OF ALL DEVIATIONS BETWEEN THE WORK INDICATED AND THE WORK INSTALLED INCLUDING APPROVED CONTRACT MODIFICATIONS AND SUBSTITUTIONS.
PROVIDE A HEAD GUARD ON SPRINKLERS IN AREA SUBJECT TO MECHANICAL DAMAGE (I.E. SPRINKLERS IN MECHANICAL ROOMS, ETC.)	INDICATE VALVES AND CONTROL DEVICES LOCATED AND NUMBERED COORDINATED WITH SUBMITTED VALVE CHARTS. SUBMIT A COMPLETE MAINTENANCE MANUAL OF ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT.
REFER TO ADDITIONAL NOTES ON ARCHITECTURAL DRAWINGS.	PROVIDE AND INSTALL ACCESS DOORS FOR EACH VALVE. DRAIN OF FIRE PROTECTION DEVICE REQUIRING ACCESS. ACCESS DOORS SHALL BE RIGID CONSTRUCTION WITH TWO HINGES AND A LATCH. IN PLENUM CEILINGS, PROVIDE FELT BETWEEN THE DOOR AND FRAME TO MAKE AN AIR TIGHT SEAL. ACCESS DOORS SHALL BE RATED TO THE SAME OR GREATER RATING OF THE PARTITION IN WHICH THEY ARE INSTALLED. ACCESS DOORS SHALL BE FLUSH MOUNTED, PRIME COATED WITH RUST INHIBITIVE PAINT, CONCEALED FRAME, FLUSH SCREW DRIVER OPERATED LOCKS WITH METAL CAMS AND ANCHORS AS REQUIRED.
THE CONTRACTOR SHALL COORDINATE SPRINKLER WORK WITH THE OWNERS PHASING SCHEDULE PRIOR TO COMMENCEMENT OF ANY WORK. ALL PHASED SECTIONS OF WORK SHALL COMPLY WITH THE OWNERS SCHEDULE AND BE TESTED, INSPECTED, READY FOR OPERATIONAL IN ACCORDANCE WITH NFPA, OWNERS INSURANCE COMPANY AND A.H.J. REQUIREMENTS.	ACCESS DOOR SIZES SHALL BE: 12' X 12' AT EASILY ACCESSIBLE ITEMS 16' X 16' WHERE PARTIAL BODY ACCESS IS REQUIRED 24' X 24' WHERE FULL BODY ACCESS IS REQUIRED
THE CONTRACTOR SHALL PROVIDE COMPLETE SIGNED AND SEALED (BY LICENSED P.E.) DRAWINGS INDICATING ALL PIPING AND SPRINKLER HEADS. CONTRACTOR SHALL SECURE AND PAY COSTS OF PERMITS, CERTIFICATES, LICENSES, INSPECTIONS AND APPROVALS.	HANGERS AND SUPPORT
INSTALL SPRINKLERS BELOW DUCTS, AND/OR COMBINATIONS OF DUCTS/EQUIPMENT IN ACCORDANCE WITH THE OBSTRUCTION REQUIREMENTS OF NFPA 13.	SPRINKLER PIPING IN A SUBSTANTIAL MANNER FROM BUILDING STRUCTURE, AND INDEPENDENT OF THE CEILING SYSTEM. PROVIDE EARTHQUAKE/SEISMIC BRACING IN ACCORDANCE WITH NFPA 13 AND THE LOCAL CODE. DO NOT USE SPRINKLER PIPING OR HANGERS TO SUPPORT NON-SYSTEM COMPONENTS.
PROVIDE SPRINKLER PROTECTION IN ORDER TO AVOID ALL OBSTRUCTIONS IN ACCORDANCE WITH NFPA 13, INCLUDING LIGHTING, CEILING FIXTURES, STRUCTURAL MEMBERS, ETC. WITHIN ALL HAZARD OCCUPANCIES.	SEISMIC RESTRAINT: PROVIDE SEISMIC RESTRAINT AND EXPANSION OF ALL FIRE PROTECTION EQUIPMENT AND SYSTEMS IN ACCORDANCE WITH APPLICABLE NFPA STANDARDS, OWNERS INSURANCE COMPANY, STATE FEDERAL AND LOCAL BUILDING CODE REQUIREMENTS. SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT CALCULATIONS FOR A COMPLETE SYSTEM.
ALL DRAIN PIPING AND ANY PIPING SUBJECT TO ALTERNATE WETTING AND DRYING SHALL BE GALVANIZED.	PROVIDE ALL NECESSARY STRUCTURAL MEMBERS INCLUDING ADDITIONAL STRUCTURAL SUPPORT TO SUPPORT PIPING AND EQUIPMENT. HANGERS AND SUPPORTS SHALL BE OF AN APPROVED DESIGN NECESSARY TO SUPPORT PIPING EQUIPMENT AND TO KEEP PIPING IN PROPER ALIGNMENT AND PREVENT TRANSMISSION OF INJURIOUS THRUSTS AND VIBRATIONS. IN ALL CASES WHERE HANGERS, BRACKETS, ETC., ARE SUPPORTED FROM CONCRETE CONSTRUCTION, DO NOT WEAKEN CONCRETE OR PENETRATE WATERPROOFING. ALL HANGERS AND SUPPORTS SHALL BE CAPABLE OF SCREW ADJUSTMENTS AFTER PIPING IS REJECTED. HANGERS SUPPORTING PIPING EXPANDING INTO LOOPS, BENDS AND OFFSETS SHALL BE SECURED TO THE BUILDING STRUCTURE IN SUCH A MANNER THAT HORIZONTAL ADJUSTMENT PERPENDICULAR TO THE RUN OF PIPING SUPPORTED MAY BE MADE TO ACCOMMODATE DISPLACEMENT DUE TO EXPANSION. ALL SUCH HANGERS SHALL BE FINALLY ADJUSTED BOTH IN THE VERTICAL AND HORIZONTAL DIRECTION, AS REQUIRED.
ALL SYSTEM COMPONENTS SHALL BE CAPABLE OF WITHSTANDING A MINIMUM WORKING PRESSURE OF 175 PSI.	PROVIDE ADDITIONAL SUPPORT FOR PIPING AND EQUIPMENT WHEN DECK IS NOT CAPABLE OF SUPPORT.
THE CONTRACTOR SHALL SEAL AROUND ALL NEW PENETRATIONS THROUGHOUT THE BUILDING WITH SEALANT OF FIRE AND/OR SMOKE RETARDANT TYPE EQUAL IN FIRE RATING TO THE STRUCTURE BEING PENETRATED. SEALANT SHALL BE UL LISTED ASSEMBLY	BEAM CLAMPS: HANGERS SUPPORTED FROM STEEL SHALL BE CENTER LOADING BEAM CLAMPS FOR HANGERS SUPPORTING PIPING 2 INCHES. FOR PIPING 2-1/2 INCHES AND LARGER, 1 BEAM CLAMPS SHALL BE FORGED STEEL. "C" CLAMPS ARE PERMITTED ONLY WHEN PROVIDED WITH RESTRAINING STRAP. BAR JOIST HANGERS SHOULD BE UTILIZED WHEN HANGING FROM BAR JOIST CONSTRUCTION.
WORK OF THIS SECTION SHALL BE GOVERNED BY THE CONTRACT DOCUMENTS. PROVIDE MATERIAL, LABOR, EQUIPMENT AND SERVICES NECESSARY TO FURNISH, DELIVER AND INSTALL ALL WORK AS SPECIFIED AND AS REQUIRED BY JOB CONDITIONS. WHERE A CONFLICT EXISTS BETWEEN THESE NOTES, THE DRAWINGS AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.	ALL HANGERS AND SUPPORTS SHALL BE HOT DIPPED GALVANIZED. ALL THREADED ROD AND HARDWARE SHALL BE NOT DIPPED GALVANIZED.
PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GENERAL CONDITIONS AND WITH THE PROVISIONS OF ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND LAWS.	PROVIDE AND INSTALL EXPANSION COMPENSATION FOR ALL PIPING. SUBMIT PLANS, CALCULATIONS AND EQUIPMENT DATA.
WORK SHALL INCLUDE ALL INCIDENTALS, LABOR, MATERIAL, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, CONSUMABLE ITEMS, FEES, LICENSES, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE WORK SHOWN ON THE DRAWINGS, SPECIFIED HEREIN AND AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.	
STORE MATERIAL INSIDE AND PROTECTED FROM DEBRIS,WEATHER AND MOISTURE.	
THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL POWER AND CONTROL WIRING REQUIRED FOR EQUIPMENT OPERATION NOT SPECIFICALLY PROVIDED BY OTHERS BUT REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THIS CONTRACTOR SHALL PROVIDE MOTOR STARTERS FOR INSTALLATION BY OTHERS. COORDINATE REQUIREMENTS.	


## FIRE PROTECTION DESIGN CRITERIA

FIRE PROTECTION CONTRACTOR SHALL OBTAIN RECENT AREA FLOW TEST RESULTS (WITHIN ONE YEAR OF START OF CONSTRUCTION) OR SHALL ARRANGE WITH THE WATER UTILITY FOR A NEW WATER FLOW TEST
SPRINKLER SYSTEMS SHALL BE HYDRAULICALLY CALCULATED BASED ON THE FOLLOWING CRITERIA. INCLUDE ANY/ALL FIRE MARSHAL, AND OWNER REQUIREMENTS:
CONTRACTOR RESPONSIBLE FOR DOCUMENTING SIZE AND LENGTH OF FIRE PROTECTION WATER SUPPLY INCLUDING VALVING, ETC. AS NECESSARY IN ORDER TO PERFORM HYDRAULIC CALCULATIONS
THE FIRE PROTECTION WATER SERVICE SHALL BE CONNECTED TO SPRINKLER FIRE MAIN. THE FIRE PROTECTION CONTRACTOR SHALL CONDUCT A CURRENT FLOW TEST FOR USE IN THE HYDRAULIC CALCULATIONS AND DOCUMENTS THE RESULTS.
DESIGN CRITERIA
<u>LIGHT HAZARD OCCUPANCY NOT PERMITTED PER UCONN FIRE SAFETY STANDARDS. ORDINARY HAZARD GROUP I IS THE MINIMUM DESIGN DENSITY.</u> MINIMUM DENSITY OF 0.15GPM/SQ.FT OVER THE MOST REMOTE 1500 SQ.FT. PLUS 250 GPM FOR HOSE DEMAND. MAXIMUM COVERAGE PER SPRINKLER HEAD IS 130 SQ.FT. SPRINKLERS SHALL HAVE A "K" FACTOR OF >= 5.6
DESIGN CRITERIA
<u>HAZARD CATEGORY-2</u> UTILITY, EQUIPMENT , MECHANICAL, ELECTRICAL ROOMS, TELEPHONE ROOMS, ETC. MINIMUM DENSITY OF 0.2GPM/SQ.FT OVER THE MOST REMOTE 2500SQ.FT. PLUS 250GPM FOR HOSE DEMAND. MAXIMUM COVERAGE PER SPRINKLER HEAD IS 130 SQ.FT. SPRINKLERS SHALL HAVE A "K" FACTOR-8
<u>ORDINARY HAZARD (GROUP II) AREAS:</u> STORAGE ROOMS, LIBRARY STACK AREAS, ETC. MINIMUM DENSITY OF 0.20 GPM/SQ.FT. OVER THE MOST REMOTE 2000 SQ.FT. PLUS 250GPM FOR HOSE DEMAND. MAXIMUM COVERAGE PER SPRINKLER HEAD IS 130 SQ.FT. SPRINKLERS SHALL HAVE A "K" FACTOR OF 8.0
<u>WHERE DISTRIBUTION PIPING IS RUN ON WARM SIDE OF BUILDING INSULATION, BUT SPACE TO BE PROTECTED IS EXPOSED TO FREEZING:</u>
PROVIDE DRY SPRINKLER HEADS TO PROTECT SPACE EXPOSED TO FREEZING, EXTENDED FROM WET PIPE SYSTEMS.
<u>WHERE DISTRIBUTION PIPING AND SPACE TO BE PROTECTED ARE EXPOSED TO FREEZING:</u>
PROVIDE DRY PIPE SPRINKLER SYSTEM; ALL PENDENT AND SIDEWALL HEADS SHALL BY DRY TYPE.
<u>PROTECTION OF EGRESS CORRIDORS WITHIN WORK ZONES</u>
FORE PROTECTION CONTRACTOR SHALL MAINTAIN SUPERVISED AUTOMATIC SPRINKLER PROTECTION OF ALL EGRESS CORRIDORS WITHIN WORK ZONES AT ALL TIMES

PIPE AND FITTING SCHEDULE						
DESCRIPTION	SIZE	PIPE		FITTING		REMARKS
		TYPE	SCHEDULE	TYPE	RATING	
WET SPRINKLER PIPING	2" AND SMALLER	STL-BLK	40	MT	STD	-
WET SPRINKLER PIPING	2-1/2" AND LARGER	STL-BLK	10	GRV	STD	-
DRAIN PIPING	ALL	GALV.	40	MT/GRV	STD	ALL FITTINGS MUST BE GALVANIZED
NOTES:						
1. ALL PIPE ON THE SUCTION SIDE OF THE FIRE PUMP SHALL BE FLANGED TYPE CONNECTIONS AND FITTINGS.						
2. ALL EXPOSED PIPING AND FITTINGS WITHIN FINISHED AREAS SHALL BE CUSTOM PAINTED IN ACCORDANCE WITH NFPA OWNERS PAINTING REQUIREMENTS AND COORDINATED WITH ARCHITECT.						
3. ALL PIPING IN RETURN AIR CEILING PLENUM INSTALLATIONS SHALL BE LISTED FOR THIS APPLICATION						
ABBREVIATIONS	DESCRIPTION		ABBREVIATIONS	DESCRIPTION		
CI	CAST IRON		GRV	GROOVED JOINT SYSTEM FITTINGS/COUPLINGS		
CLDI	CEMENT LINED DUCTILE IRON		GALV.	GALVANIZED STEEL		
CUS	WROUGHT COPPER SOLDER (95/5)		MIT	MALLEABLE IRON THREADED		
DI	DUCTILE IRON		STD	STANDARD		
DIMJ	DUCTILE IRON MECHANICAL JOINT		STL-BLK	BLACK STEEL		
FL	FLANGED					

VALVE SCHEDULE						
DESCRIPTION	SIZE	TYPE				REMARKS
		OS&Y	BUTTERFLY	CHECK	BALL	
WET SPRINKLER PIPING	2" AND SMALLER	OS&YT	BFVT	CVT	BVT	175PSI -
WET SPRINKLER PIPING	2-1/2" AND LARGER	OS&YG	BFVG	CVG	BVG	175PSI -
DRAIN PIPING	ALL	-	-	-	BVT	175PSI -
ABBREVIATIONS	DESCRIPTION			ABBREVIATIONS	DESCRIPTION	
BVF	BALL VALVE FLANGED - FULL PORT,BRONZE			CVF	CHECK VALVE FLANGED	
BVG	BALL VALVE GROOVED - FULL PORT,BRONZE			CVG	CHECK VALVE GROOVED	
BVT	BALL VALVE FLANGED -2PIECE,FULL PORT,400PSI,BRONZE			CVT	CHECK VALVE THREADED - BRONZE	
BFVF	BUTTERFLY VALVE FLANGED			OS&YF	OS&Y RAISING STEM VALVE FLANGED	
BFVG	BUTTERFLY VALVE GROOVED			OS&YG	OS&Y RAISING STEM VALVE GROOVED	
BFVT	BUTTERFLY VALVE THREADED			OS&YT	OS&Y RAISING STEM VALVE THREADED	

FIRE PROTECTION SHEET INDEX	
SHEET NUMBER	SHEET NAME
FP-1	FIRE PROTECTION GENERAL NOTES AND SCHEDULES
FP-2	SPECIFICATION FOR PIPE SPRINKLER SYSTEMS
FP-3	FIRE PROTECTION SPECIFICATION
FP-4	FIRE PROTECTION PLAN & SPECIFICATION

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SHEET NUMBER: FP-1			

SPECIFICATION- FIRE SUPPRESSION

1.SPECIFICATION FOR WET-PIPE SPRINKLER SYSTEMS

1.1 PERFORMANCE REQUIREMENTS

A. QUALITY STANDARDS: NFPA 13-2013 AND NFPA 70-2017

1.2 PIPING MATERIALS

- A. PIPING BETWEEN FIRE-DEPARTMENT CONNECTIONS AND CHECK VALVES: GALVANIZED, STANDARD-WEIGHT STEEL PIPE WITH CAST-IRON THREADED FITTINGS.  
B. STANDARD-PRESSURE, WET-PIPE SPRINKLER SYSTEM, NPS 1 (DN 50) AND LARGER:  
1. STANDARD-WEIGHT OR SCHEDULE 30, GALVANIZED-STEEL PIPE WITH THREADED ENDS AND GALVANIZED, GRAY-IRON FITTINGS.

1.3 SPRINKLER MATERIALS

- A. SPRINKLER TYPES:  
1. ROOMS WITHOUT CEILINGS: UPRIGHT SPRINKLERS.  
2. ROOMS WITH SUSPENDED CEILINGS: PENDENT, RECESSED, FLUSH, AND CONCEALED SPRINKLERS AS INDICATED.  
3. WALL MOUNTING: SIDEWALL SPRINKLERS.

- B. SPRINKLER FINISHES:  
1. CONCEALED SPRINKLERS: ROUGH BRASS, WITH FACTORY-PAINTED WHITE COVER PLATE.  
2. FLUSH SPRINKLERS: BRIGHT CHROME, WITH PAINTED WHITE ESCUTCHEON.  
3. RECESSED SPRINKLERS: BRIGHT CHROME, WITH BRIGHT CHROME ESCUTCHEON.  
4. UPRIGHT, PENDENT, AND SIDEWALL SPRINKLERS: CHROME PLATED IN FINISHED SPACES EXPOSED TO VIEW; ROUGH BRONZE IN UNFINISHED SPACES NOT EXPOSED TO VIEW; WAX COATED WHERE EXPOSED TO ACIDS, CHEMICALS, OR OTHER CORROSIVE FUMES.

1.4 SPECIALTY VALVES

- A. ALARM VALVES.  
B. AUTOMATIC (BALL DRIP) DRAIN VALVES.  
C. AIR VENTS: MANUAL.

1.5 SPRINKLER SPECIALTY PIPE FITTINGS

- A. BRANCH OUTLET FITTINGS.  
B. FLOW DETECTION AND TEST ASSEMBLIES.  
C. BRANCH LINE TESTERS.  
D. SPRINKLER INSPECTOR'S TEST FITTINGS.  
E. ADJUSTABLE DROP NIPPLES.  
F. FLEXIBLE, SPRINKLER HOSE FITTINGS.  
G. SPRINKLER ESCUTCHEONS:  
1. CEILING MOUNTING: CHROME-PLATED STEEL, TWO PIECE, WITH 1-INCH (25-MM) VERTICAL ADJUSTMENT.  
2. SIDEWALL MOUNTING: CHROME-PLATED STEEL, ONE PIECE, FLAT.

1.6 ALARM DEVICES

- A. ELECTRICALLY OPERATED ALARM BELL.  
B. WATER-FLOW INDICATORS.  
C. PRESSURE SWITCHES.  
D. VALVE SUPERVISORY SWITCHES.

1.7 MANUAL CONTROL STATIONS

A. HYDRAULIC OPERATION.

1.8 CONTROL PANELS

A. SINGLE-AREA, TWO-AREA, OR SINGLE-AREA CROSS-ZONED CONTROL PANEL WITH **ELECTRIC**-OPERATION, MANUAL CONTROL STATIONS.

1.9 PRESSURE GAGES

A. 0- TO 250-PSIG (0- TO 1725-KPA) MINIMUM RANGE.

2.SPECIFICATION FOR DRY PIPE SPRINKLER SYSTEMS

2.1 PIPING MATERIALS

A. COMPLY WITH REQUIREMENTS IN "PIPING SCHEDULE" ARTICLE FOR APPLICATIONS OF PIPE, TUBE, AND FITTING MATERIALS, AND JOINING METHODS FOR SPECIFIC SERVICES, SERVICE LOCATIONS, AND PIPE SIZES.

2.2 STEEL PIPE AND FITTINGS

- A. ALL DRY AND DRAIN PIPING AND FITTINGS SHALL BE GALVANIZED  
B. STANDARD WEIGHT, GALVANIZED-STEEL PIPE: ASTM A 53/A 53M, TYPE E, GRADE B. PIPE ENDS MAY BE FACTORY OR FIELD FORMED TO MATCH JOINING METHOD.  
C. GALVANIZED-STEEL PIPE NIPPLES: ASTM A 733, MADE OF ASTM A 53/A 53M, STANDARD-WEIGHT, SEAMLESS STEEL PIPE WITH THREADED ENDS.  
D. GALVANIZED, STEEL COUPLINGS: ASTM A 865, THREADED.  
E. GALVANIZED, GRAY-IRON THREADED FITTINGS: ASME B16.4, CLASS 125, STANDARD PATTERN.  
F. GROOVED-JOINT, STEEL-PIPE APPURTENANCES:  
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:  
A. ANVIL INTERNATIONAL, INC.  
B. TYCO FIRE & BUILDING PRODUCTS LP.  
C. VICTAULIC COMPANY.  
2. PRESSURE RATINGS: 175 PSIG MINIMUM.  
3. GALVANIZED, GROOVED-END FITTINGS FOR STEEL PIPING: ASTM A 47/A 47M, MALLEABLE-IRON CASTING OR ASTM A 536, DUCTILE-IRON CASTING, WITH DIMENSIONS MATCHING STEEL PIPE.  
4. GROOVED-END-PIPE COUPLINGS FOR STEEL PIPING: AWWA C606 AND UL 213, RIGID PATTERN, UNLESS OTHERWISE INDICATED, FOR STEEL-PIPE DIMENSIONS. INCLUDE FERROUS HOUSING SECTIONS, EPDM-RUBBER GASKET, AND BOLTS AND NUTS.  
G. THE ENDS OF ALL CROSS MAINS SHALL BE PROVIDED WITH A THREADED FLUSHING CONNECTION NO MORE THAN 2" IN DIAMETER TO FACILITATE FLUSHING.

2.3 PIPING JOINING MATERIALS

- A. PIPE-FLANGE GASKET MATERIALS: AWWA C110, RUBBER, FLAT FACE, 1/8 INCH THICK.  
1. CLASS 125, CAST-IRON AND CLASS 150, BRONZE FLAT-FACE FLANGES: FULL-FACE GASKETS.  
2. CLASS 250, CAST-IRON AND CLASS 300, RAISED-FACE FLANGES: RING-TYPE GASKETS.  
B. METAL, PIPE-FLANGE BOLTS AND NUTS: ASME B18.2.1, CARBON STEEL UNLESS OTHERWISE INDICATED.

2.4 LISTED FIRE-PROTECTION VALVES

- A. GENERAL REQUIREMENTS:  
1. VALVES SHALL BE UL LISTED OR FM APPROVED.  
2. MINIMUM PRESSURE RATING FOR STANDARD-PRESSURE PIPING: 175 PSIG.  
3. REFER TO SPECIFICATION SECTION 211313 "WET-PIPE SPRINKLER SYSTEMS"

2.5 TRIM AND DRAIN VALVES

- A. GENERAL REQUIREMENTS:  
1. STANDARD: UL'S "FIRE PROTECTION EQUIPMENT DIRECTORY" LISTING OR "APPROVAL GUIDE," PUBLISHED BY FM GLOBAL, LISTING.  
2. PRESSURE RATING: 175 PSIG MINIMUM.

- B. ANGLE VALVES:  
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:  
a. FIRE PROTECTION PRODUCTS, INC.  
b. UNITED BRASS WORKS, INC.

- C. BALL VALVES:  
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:  
A. ANVIL INTERNATIONAL, INC.  
B. CONBRACO INDUSTRIES, INC.; APOLLO VALVES.  
C. FIRE-END & CROKER CORPORATION.  
D. FIRE PROTECTION PRODUCTS, INC.  
E. KENNEDY VALVE; A DIVISION OF MCWANE, INC.  
F. MILWAUKEE VALVE COMPANY.  
G. NIBCO INC.  
H. POTTER ROEMER.  
I. TYCO FIRE & BUILDING PRODUCTS LP.  
J. VICTAULIC COMPANY.

D. GLOBE VALVES:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:  
A. FIRE PROTECTION PRODUCTS, INC.  
B. UNITED BRASS WORKS, INC.

2.6 SPRINKLER SPECIALTY PIPE FITTINGS

A. GENERAL REQUIREMENTS FOR DRY-PIPE-SYSTEM FITTINGS: UL LISTED AND/OR FM APPROVED FOR DRY-PIPE SERVICE.

- B. BRANCH OUTLET FITTINGS:  
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:  
A. ANVIL INTERNATIONAL, INC.  
B. NATIONAL FITTINGS, INC.  
C. SHURJOINT PIPING PRODUCTS.  
D. TYCO FIRE & BUILDING PRODUCTS LP.  
E. VICTAULIC COMPANY.  
2. STANDARD: UL 213.  
3. PRESSURE RATING: 175 PSIG MINIMUM.  
4. BODY MATERIAL: DUCTILE-IRON HOUSING WITH EPDM SEALS AND BOLTS AND NUTS.  
5. TYPE: MECHANICAL-T AND -CROSS FITTINGS.  
6. CONFIGURATIONS: SNAP-ON AND STRAPLESS, DUCTILE-IRON HOUSING WITH BRANCH OUTLETS.  
7. SIZE: OF DIMENSION TO FIT ONTO SPRINKLER MAIN AND WITH OUTLET CONNECTIONS AS REQUIRED TO MATCH CONNECTED BRANCH PIPING.  
8. BRANCH OUTLETS: GROOVED, PLAIN-END PIPE, OR THREADED.

C. FLOW DETECTION AND TEST ASSEMBLIES:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:  
A. AGF MANUFACTURING INC.  
B. RELIABLE AUTOMATIC SPRINKLER CO., INC.  
C. TYCO FIRE & BUILDING PRODUCTS LP.  
D. VICTAULIC COMPANY.  
2. STANDARD: UL'S "FIRE PROTECTION EQUIPMENT DIRECTORY" LISTING OR "APPROVAL GUIDE," PUBLISHED BY FM GLOBAL, LISTING.  
3. PRESSURE RATING: 175 PSIG MINIMUM.  
4. BODY MATERIAL: CAST- OR DUCTILE-IRON HOUSING WITH ORIFICE, SIGHT GLASS, AND INTEGRAL TEST VALVE.  
5. SIZE: SAME AS CONNECTED PIPING.  
6. INLET AND OUTLET: THREADED.

D. SPRINKLER INSPECTOR'S TEST FITTINGS:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:  
A. AGF MANUFACTURING INC.  
B. TRIPLE R SPECIALTY.  
C. TYCO FIRE & BUILDING PRODUCTS LP.  
D. VICTAULIC COMPANY.  
E. VIKING CORPORATION.  
2. STANDARD: UL'S "FIRE PROTECTION EQUIPMENT DIRECTORY" LISTING OR "APPROVAL GUIDE," PUBLISHED BY FM GLOBAL, LISTING.  
3. PRESSURE RATING: 175 PSIG MINIMUM.  
4. BODY MATERIAL: CAST- OR DUCTILE-IRON HOUSING WITH SIGHT GLASS.  
5. SIZE: SAME AS CONNECTED PIPING.  
6. INLET AND OUTLET: THREADED.

E. FLEXIBLE, SPRINKLER HOSE FITTINGS:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:  
A. FIVALCO INC.  
B. FLEXHEAD INDUSTRIES, INC.  
C. GATEWAY TUBING, INC.  
2. STANDARD: UL 1474.  
3. TYPE: FLEXIBLE HOSE FOR CONNECTION TO SPRINKLER, AND WITH BRACKET FOR CONNECTION TO CEILING GRID.  
4. PRESSURE RATING: 175 PSIG MINIMUM.  
5. SIZE: SAME AS CONNECTED PIPING, FOR SPRINKLER.

2.7 SPRINKLERS

A. REFER TO SPECIFICATION SECTION 211313 "WET-PIPE SPRINKLER SYSTEMS" AND DESIGN DRAWINGS, SPRINKLER SCHEDULE.

2.8 ALARM DEVICES

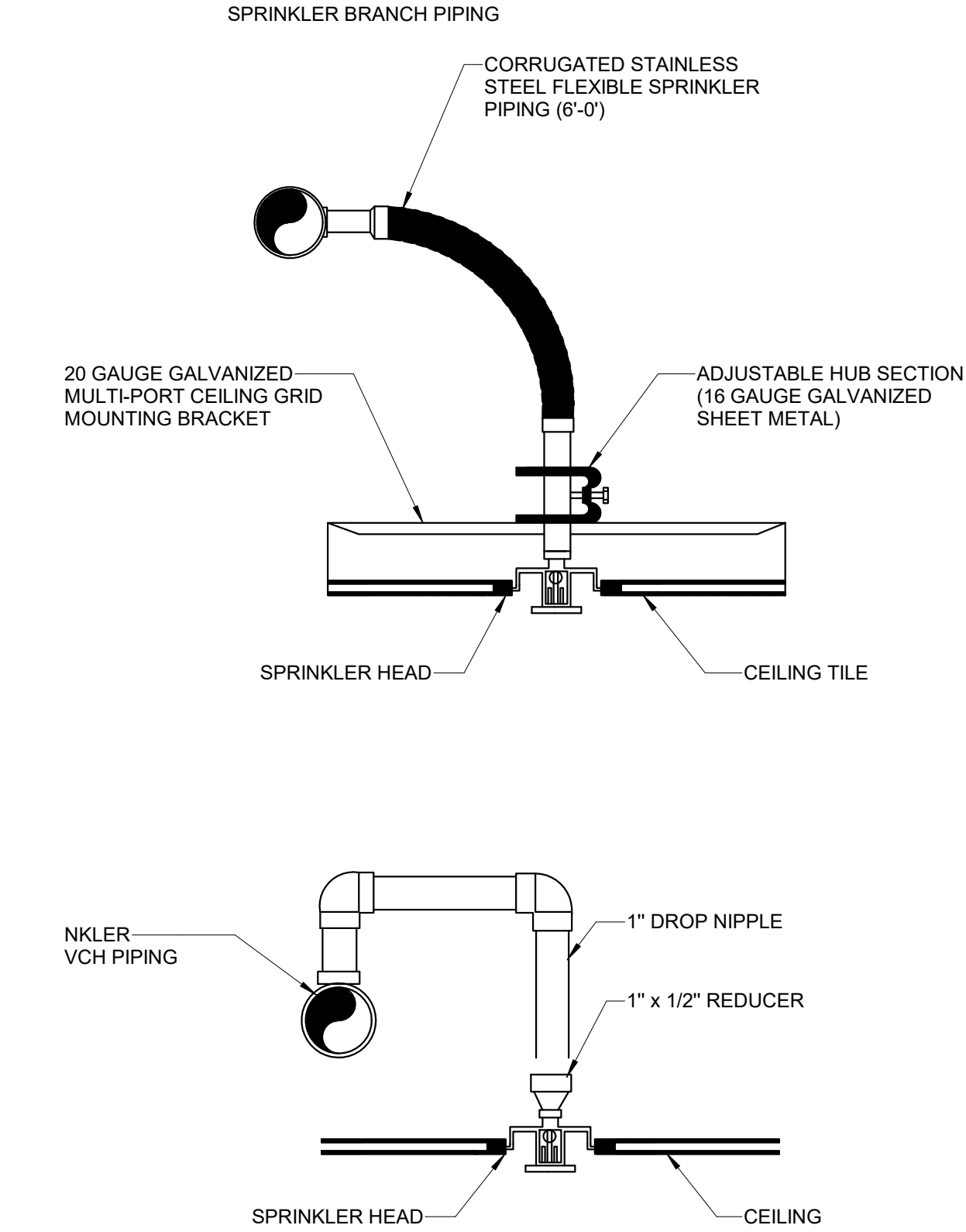
- A. ALARM-DEVICE TYPES SHALL MATCH PIPING AND EQUIPMENT CONNECTIONS.  
B. REFER TO SPECIFICATION SECTION 211313 "WET-PIPE SPRINKLER SYSTEMS" AND DESIGN DRAWINGS, SPRINKLER SCHEDULE.

2.9 PRESSURE GAGES

- A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:  
1. AMETEK; U.S. GAUGE DIVISION.  
2. ASHCROFT, INC.  
3. BRECCO CORPORATION.  
4. WIKA INSTRUMENT CORPORATION.  
B. STANDARD: UL 393.  
C. DIAL SIZE: 3-1/2- TO 4-1/2-INCH DIAMETER.  
D. PRESSURE GAGE RANGE: 0 TO 250 PSIG MINIMUM.  
E. WATER SYSTEM PIPING GAGE: INCLUDE "WATER" OR "AIR/WATER" LABEL ON DIAL FACE.  
F. AIR SYSTEM PIPING GAGE: INCLUDE RETARD FEATURE AND "AIR" OR "AIR/WATER" LABEL ON DIAL FACE.

2.10 SPRINKLER DESIGN

FIRE SPRINKLER SHALL BE DESIGNED AND STAMPED BY LICENSE ENGINEER REGISTERED AT STATE OF CT.






2 CONCEALED PENDENT SPRINKLER HEAD DETAILS  
FP-2 N.T.S.

SHEET TITLE: SPECIFICATION FOR PIPE SPRINKLER SYSTEMS		SHEET NUMBER: FP-2			
FILE NO:	22/126	PROJECT:	PHILIP R. SMITH ELEMENTARY SCHOOL		
SCALE:	AS NOTED				
DATE:	12/09/2022				
DRAWN BY:	MF		949 AVERY STREET, SOUTH WINDSOR, CT 06074		
CHECKED BY:	RHT				
STAMP:		REVISIONS			
		NO.	DESCRIPTION	DATE	BY







 UPRIGHT SPRINKLER  
 PENDENT SPRINKLER  
 SIDE WALL

1. PROVIDE HYDRAULIC CALCULATION SUMMARY ON SHOP DRAWINGS INCLUDING DESIGN CRITERIA, PRESSURE AND GPM REQUIRED, PRESSURE AND GPM AVAILABLE.
2. LABEL OCCUPANCY OF ALL SPACES. CLEARLY LABEL ALL PIPING AND EQUIPMENT INCLUDING SIZES, MAKES, MODELS, ETC.
3. PROVIDE A FULL HEIGHT BUILDING CROSS SECTION INCLUDING SPRINKLER RISER DIAGRAM
4. CONTRACTOR TO PROVIDE NEW (LESS THAN 1 YEAR OLD) WATER FLOW DATA WHICH SHALL BE UTILIZED TO HYDRAULICALLY CALCULATE FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13.

1. STANDARD WEIGHT BLACK STEEL SEAMLESS (SCHEDULE 40) EXCEPT AS NOTED FOR SIZES 1" AND LARGER
2. SCHEDULE 10 BLACK STEEL SEAMLESS PIPE MAY BE USED FOR SIZES 2" AND LARGER
3. GALVANIZED PIPE FOR ALL DRAIN PIPING, TEST PIPING, PIPING BETWEEN FIRE DEPARTMENT CONNECTION AND CHECK VALVE AND FOR ALL DRY & DELUGE PIPING

1. CAST IRON THREADED, STANDARD WEIGHT, ANSI B-16.4
2. CAST IRON FLANGED, STANDARD WEIGHT ANSI B-16.1
3. MALLEABLE IRON THREADED, STANDARD WEIGHT, ANSI B-16.3
4. GROOVED END AND MECHANICAL TYPE, MALLEABLE IRON, WITH RUBBER SEALING GASKET, SIMILAR TO VCTAULIC CO.

1. STANDARD WEIGHT GALVANIZED SCHEDULE 40, PACKED WITH FIRE AND SMOKE RESTRICTIVE MATERIAL IN ACCORDANCE WITH NFPA 13.
2. ALL FIRESTOPPING MATERIAL SHOULD BE FM APPROVED AND INSTALLED WITH THE MANUFACTURE GUIDELINES AND THE APPROVAL GUIDE, A PUBLICATIONS OF FM APPROVALS

1. GROOVED BUTTERFLY TYPE CONTROL VALVES WITH BUILT-IN TAMPER SWITCHES, SIMILAR TO NIBCO F41765-8.
2. OSEY GATE CONTROL VALVES, RESILIENT WEDGE TYPE WITH TAMPER SWITCH SIMILAR TO NIBCO F-607-OTS.
3. CHECK VALVES, GROOVED END SWING CHECK WITH SPRING-LOADED CLAPPER ASSEMBLY SIMILAR TO CENTRAL MODEL 90.
4. DRAIN AND TEST VALVES SHALL BE THREADED BRONZE ANGLE OR GLOBE TYPE WITH COMPOSITION DISC, 300 PSI WITH 1/2" 300PSI WATER PRESSURE GAUGE SIMILAR TO 'AGF TESTDRAIN'.

1. ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE TYPE, CAST BRASS, CLOSED, FUSIBLE LINK, SPRAY TYPE WITH 1/2" DISCHARGE ORIFICE. SPRINKLERS SHALL BE ORDINARY TEMPERATURE RATING, HIGHER TEMPERATURE HEADS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13.
2. ON EXPOSED PIPING: EXPOSED UPRIGHT OR PENDENT TYPE, VICTAULIC MODEL V27, HORIZONTAL SIDEWALL TYPE, VICTAULIC, MODEL 27
3. ON CONCEALED PIPING: CONCEALED TYPE, VICTAULIC MODEL V34, ADJUSTABLE CONCEALED PENDENT HORIZONTAL RECESSED SIDEWALL TYPE, VICTAULIC, MODEL V27
4. INCLUDE SPARE SPRINKLER HEAD CABINET WITH SPRINKLER HEAD WRENCH(S), INSTALL HEAD GUARDS ON ALL EXPOSED SPRINKLERS SUBJECT TO MECHANICAL INJURY.
5. ON EXPOSED PIPING: EXPOSED HORIZONTAL SIDEWALL TYPE, VICTAULIC, MODEL V27 STANDARD COMMERCIAL QUICK RESPONSE.

1. 11/2" ROUND BRASS WITH STAMPED TEXT ON ALL VALVES AND CONTROLS
2. PROVIDE DIAGRAMMATIC CHART LISTING ESSENTIAL FEATURES OF THE SYSTEM.

1. IN ACCORDANCE WITH NFPA 13, PROVIDE EARTHQUAKE BRACING IN ADDITION TO CONVENTIONAL HANGER ASSEMBLIES.
2. TOP BEAM CLAMPS, SIMILAR TO TOLCO FIG. 65.
3. HANGER RODS, CARBON STEEL SIMILAR TO TOLCO FIG. 99, SIZED IN ACCORDANCE WITH NFPA 13.
4. ADJUSTABLE HANGER RINGS, CARBON STEEL WITH KNURLED SWIVEL NUT, SIMILAR TO TOLCO FIG 2.
5. ADJUSTABLE CLEVIS HANGER, CARBON STEEL WITH NUT ABOVE AND BELOW CLEVIS, SIMILAR TO TOLCO FIG. 1.
6. MAXIMUM LOADING INCLUDING PIPE CONTENTS EQUAL 75% OF RATED CAPACITY. ALL HANGER MATERIAL SHALL BE GALVANIZED.

1. PROVIDE ADDITIONAL OFFSETS, FITTINGS, VALVES, DRAINS, ETC. WHERE REQUIRED BY COORDINATION AND CONSTRUCTION CONDITIONS.
2. NO CLOSE NIPPLES, BUSHINGS, OR STREET ELBOWS PERMITTED.
3. RUN PIPING PARALLEL WITH OR AT RIGHT ANGLES TO WALLS AND OTHER PIPING, NEATLY SPACED WITH PLUMB VERTICAL PIPING.
4. PROVIDE SPRINKLERS BELOW ALL EXPOSED DUCTS, COMBINATIONS OF DUCTS OR OTHER OBSTRUCTIONS EXCEEDING 4 FEET IN WIDTH.
5. NO FIELD WELDING PERMITTED. SHOP WELDING SHALL BE PERFORMED ONLY BY CERTIFIED WELDERS.
6. TEST ALL UNDERGROUND AND INTERIOR PIPING IN ACCORDANCE WITH NFPA 13.

7. INSTALL SPRINKLER HEADS IN CEILING AREAS, CENTER OF TILE. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF SPRINKLER HEADS. ARCHITECT TO DETERMINE FINISHES.

8. INSTALL SPRINKLERS THROUGHOUT ALL AREAS INCLUDING COMBUSTIBLE CONCEALED SPACES AND IN ACCORDANCE WITH OBSTRUCTION REQUIREMENTS SET FORTH IN NFPA 13.

1. DESIGN DENSITIES FOR HYDRAULICALLY CALCULATED SPRINKLER SYSTEMS SHALL COMPLY WITH THE REFERENCED STANDARDS, EXCEPT LIGHT HAZARD SHALL NOT BE USED. MINIMUM DENSITY IF ORDINARY HAZARD GROUP 1.
2. HOSE STREAM ALLOWANCES SHALL BE PROVIDED FOR EACH SYSTEM IN ACCORDANCE WITH THE REFERENCED STANDARDS.

ALARM VALVES WITH FULL TRIM AND WATER MOTOR GONG ARE REQUIRED  
SHOTGUN TYPE VALVES ALONE ARE NOT ACCEPTABLE.

1. SUPERVISION; PROVIDE TAMPERS, FLOWS AND PRESSURE SWITCHED TO BE WIRED UNDER DIVISION 16, ELECTRICAL

ALL SPRINKLER HEADS, VALVES, FITTINGS AND APPURTENANCES SHALL BE FACTORY MUTUAL APPROVED TYPES AND SHALL BEAR THE FACTORY MUTUAL ACCEPTANCE OR UL LABEL. ALL MAIN CONTROL VALVES SHALL BE PROVIDED WITH TAMPER CONTACTS TO CONNECTION TO THE BUILDING FIRE ALARM SYSTEM.

IN ADDITION TO THE DISTRIBUTION OF DRAWINGS SPECIFIED IN GENERAL CONDITIONS, THE UNIVERSITY CODE COMPLIANCE OFFICER SHALL BE PROVIDED WITH (4) FOUR SETS OF SHOP DRAWINGS DEPICTING THE COMPLETE AUTOMATIC SPRINKLER SYSTEM. SHOP DRAWINGS SHALL CLEARLY IDENTIFY THE HYDRAULICALLY REMOTE AREA AND ALL REFERENCE NODES. ADDITION, (4) FOUR COMPLETE SETS OF HYDRAULIC CALCULATIONS, INCLUDING DETAIL AND SUMMARY SHEETS, SHALL ALSO BE SUBMITTED FOR RETENTION BY THE UNIVERSITY CODE COMPLIANCE OFFICER.

1. ALL NEW SYSTEMS SHALL BE HYDROSTATICALLY TESTED AT NOT LESS THAN 200 PSI PRESSURE FOR 2 HOURS. THE TEST PRESSURE SHALL BE READ FROM A GAUGE LOCATED AT THE LOW ELEVATION POINT OF THE INDIVIDUAL SYSTEM BEING TESTED. THE INSIDE SPRINKLER PIPING SHALL BE INSTALLED IN SUCH A MANNER THAT THERE WILL BE NO VISIBLE LEAKAGE WHEN THE SYSTEM IS SUBJECTED TO THE HYDROSTATIC PRESSURE TEST.

2. ALL SPRINKLER HEADS, VALVES, FITTINGS AND OTHER APPURTENANCES SHALL BE INSTALLED PRIOR TO CONDUCTING THE FINAL HYDROSTATIC TEST WHICH SHALL BE WITNESSED BY THE UNIVERSITY'S CODE COMPLIANCE OFFICER, THE UNIVERSITY'S INSURER AND THE PROJECT COORDINATOR.

3. A CONTRACTORS MATERIAL AND TEST CERTIFICATE FOR ABOVEGROUND PIPING SHALL BE COMPLETED AND SUBMITTED, BY THE CONTRACTOR, TO THE UNIVERSITY'S CODE COMPLIANCE OFFICER, THE UNIVERSITY'S INSURER AND THE PROJECT COORDINATOR.

J. HYDRAULIC CALCULATIONS SHALL BE BASED ON APPROVED FLOW TESTS, WHICH WILL BE PERFORMED BY THE UNIVERSITY OF CONNECTICUT UPON AVE'S REQUEST. THE OWNER INSURER SHALL REVIEW ALL HYDRAULIC CALCULATIONS.

K. STANDPIPES SHALL BE AUTOMATIC WET TYPE OR COMBINATION TYPE. PROVIDE 2 1/2" VALVED, CAPPED CONNECTION AT EACH FLOOR PARKING GARAGES AND OTHER UNHEATED STRUCTURES SHALL UTILIZE AUTOMATIC DRY TYPE STANDPIPES.

L. WHERE DRY OR PREACTION SYSTEMS ARE REQUIRED, USE STANDARD WALL GALVANIZED PIPE AS APPROVED BY FACTORY MUTUAL.

M. DO NOT PROVIDE FIRE HOSES. FIRE EXTINGUISHERS SHALL BE PROVIDED NOMINALLY AT 4A60BC DRY CHEMICAL TYPE.

N. PLAIN END PIPE COUPLINGS SHALL BE USED

O. TO FACILITATE FLUSHING OF THE SPRINKLER SYSTEM, THE ENDS OF ALL CROSS MAINS SHOULD BE PROVIDED WITH A THREADED FLUSHING CONNECTION NO MORE THAN 2" IN DIAMETER.

P. A PERMANENT PLACARD SHOULD BE PROVIDED AT THE BASE OF EACH RISER STATING THE DESIGN CRITERIA OF THE SYSTEM FOR HYDRAULICALLY DESIGNED SYSTEMS.



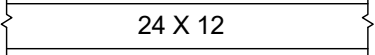
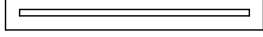
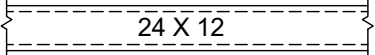

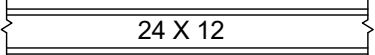

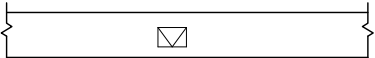
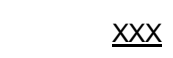
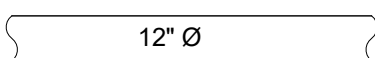




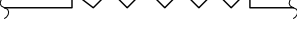
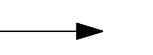
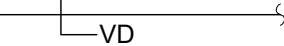

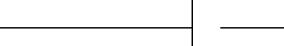
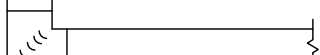
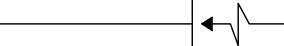

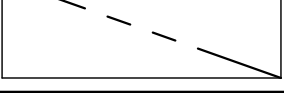
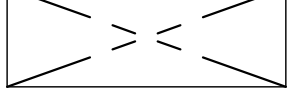



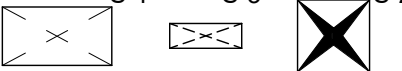
## FIRE PROTECTION SYSTEM CONTROL VALVES

EACH CONTROL VALVE SHALL BE PROVIDED WITH AN ADDRESSABLE TAMPER SWITCH. CONTROL VALVE HEIGHT SHALL NOT EXCEED SEVEN FEET (7") FROM THE WALKING SURFACE, UNLESS APPROVED BY THE FIRE CHIEF OR HIS DESIGNEE. IF THE VALVE HEIGHT EXCEEDS SEVEN FEET, IT SHALL HAVE A CHAIN EQUIPPED HANDLE. THE CONTROL VALVE INDICATOR SHALL BE READILY ACCESSIBLE AND VISIBLE FROM THE FLOOR WITHOUT THE USE OF A LADDER AS DETERMINED BY THE FIRE CHIEF OR HIS DESIGNEE. THE CONTROL VALVES SHALL BE EQUIPPED WITH LOCKS (KEYED AS CAT 83) AND A CHAIN OR CABLE.

### MISCELLANEOUS SPRINKLER REQUIREMENTS

ALL RISERS, VALVES AND APPURTENANCE SHALL BE ACCESSIBLE FOR NORMAL AND EMERGENCY MAINTENANCE AND RESETING. ALL SPRINKLER EQUIPMENT SHALL REMAIN THE PROPERTY OF THE UNIVERSITY OF CONNECTICUT. UNUSED OR REPLACED EQUIPMENT SHALL BE KEPT OR DISCARDED AT THE DISCRETION OF THE FIRE CHIEF OR HIS DESIGNEE.

GENERAL MECHANICAL NOTES			
<div>GENERAL</div> <div><div><div>1. WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUANTITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.</div><div>2. IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO PROVIDE FOR FINISHED WORK, TESTED AND READY FOR ORPERATION.</div><div>3. ITEMS AND SERVICES NOT SHOWN ON DRAWINGS OR SPECIFICATION BUT REQUIRED TO RENDER THE WORK COMPLETE AND READY FOR OPERATION, SHALL BE PROVIDED WITHOUT ADDITIONAL COST.</div><div>4. WORK OF THIS SECTION SHALL BE GOVERNED BY THE CONTRACT DOCUMENTS. PROVIDE MATERIALS, LABOR, EQUIPMENT AND SERVICES NECESSARY TO FURNISH, DELIVER AND INSTALL WORK AS SPECIFIED AND AS REQUIRED BY JOB CONDITIONS. WHERE A CONFLICT EXISTS BETWEEN THESE NOTES, THE DRAWINGS AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.</div><div>5. DRAWINGS ARE DIAGRAMMATIC AND INDICATE A GENERAL ARRANGEMENT OF WORK AND ARE NOT TO BE CONSIDERED SUB-CONTRACTOR DOCUMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND ALL SUBCONTRACTORS TO INCLUDE THE PROVISIONS AND INSTALLATION OF ALL NECESSARY WORK AND MATERIALS FOR COMPLETE, OPERATIONAL AND CODE COMPLIANT SYSTEMS. GENERAL DESIGN CONCEPTS INDICATED MUST BE FOLLOWED OR BETTERED. THE BID SHALL INCLUDE OFFSETS, ADDITIONAL PIPING, VALVES AND EQUIPMENT AND COMPONENTS AS REQUIRED TO MEET CONSTRUCTION CONCEPTS FOR PROPER OPERATION. CONSULT ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPACE CONDITIONS AND ADDITIONAL REQUIREMENTS.</div><div>6. PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GENERAL CONDITIONS AND WITH THE PROVISIONS OF ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES AND LAWS.</div><div>7. WORK SHALL INCLUDE ALL INCIDENTALS, LABOR, MATERIAL, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, CONSUMABLE ITEMS, FEES, LICENSES, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE WORK SHOWN ON THE DRAWINGS, SPECIFIED HEREIN AND AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.</div><div>8. STORE MATERIALS INSIDE AND PROTECTED FROM DEBRIS, WEATHER AND MOISTURE</div><div>9. COORDINATE ALL HVAC WORK AND EQUIPMENT WITH STRUCTURAL STEEL, FIRE PROTECTION PIPING, PLUMBING PIPING, LIGHT FIXTURES, ELECTRICAL EQUIPMENT AND OWNER'S EQUIPMENT.</div><div>10. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING GRILLES, REGISTERS AND DIFFUSERS.</div><div>11. PROVIDE VOLUME DAMPERS IN EACH BRANCH DUCTWORK SERVING REGISTERS, GRILLES AND DIFFUSERS WHETHER INDICATED OR NOT.</div><div>12. PROVIDE CABLE OPERATED DAMPERS IN BRANCH DUCTWORK SERVING REGISTERS, GRILLES, AND DIFFUSERS IN INACCESSIBLE CEILING LOCATIONS WHETHER INDICATED OR NOT.</div><div>13. LOCATE ALL BALANCING DAMPERS AT CLEAN DUCTWORK ABOVE ACCESSIBLE CEILINGS, OR PROVIDE ACCESS DOORS.</div><div>14. PROVIDE FIRE DAMPERS, SMOKE DAMPERS AND A COMBINATION OF FIRE/SMOKE DAMPERS AS REQUIRED TO MAINTAIN WALL &amp; FLOOR RATINGS AS DEFINED IN ARCHITECTURAL DRAWINGS.</div><div>15. DO NOT RUN ANY MECHANICAL OR CONTROL SERVICES THROUGH RATED STAIR ENCLOSURES UNLESS SYSTEMS ARE DESIGNED AND DESIGNATED TO SERVICE STAIRS.</div><div>16.THESE GENERAL NOTES ARE APPLICABLE TO ALL MECHANICAL DRAWINGS.</div><div>17.DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK. SEE DETAILS, SCHEDULES AND SPECIFICATIONS</div><div>18.MECHANICAL CONTRACTOR MUST REVIEW DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND OR COORDINATION OF HIS WORK FOR OPERATIONS OR CONNECTIONS TO OTHER SYSTEMS.</div></div><div>SHOP DRAWINGS</div><div><div>1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION. SHOP DRAWINGS SHALL BE SUBMITTED FOR DUCTWORK LAYOUT, PIPING LAYOUT, SHEET METAL SHOP STANDARDS AND ALL EQUIPMENT FURNISHED.</div><div>2. ELECTRONIC DRAWING FILES SHALL BE GENERATED BY THE CONTRACTOR DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC VERSION (AUTOCAD VERSION AS REQUIRED BY THE OWNER) OR AUTOCAD VERSION 2017 IF NOT SPECIFIED.</div></div></div>	<div>3. PRIOR TO THE SUBMISSION AND REVIEW OF SHEET METAL SHOP DRAWINGS, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHEET METAL SHOP STANDARDS. ANY SHEET METAL SHOP DRAWINGS SUBMITTED PRIOR TO THE SUBMISSION OF THE SHOP STANDARDS SHALL BE RETURNED NOT REVIEWED.</div> <div>AS BUILT DRAWINGS</div> <div><div>1. PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC VERSION (AUTO-CAD VERSION AS REQUIRED BY THE OWNER) OR LATEST AUTOCAD VERSION IF NOT SPECIFIED. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.</div><div>2. PROVIDE "AS-BUILT DRAWINGS" INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN OF THE WORK. INDICATE THE FOLLOWING INSTALLED CONDITIONS:<div><div>· INCLUDE ALL CHANGES AND AN ACCURATE RECORD IN AUTOCAD DRAWING OR APPROPRIATE SHOP DRAWINGS, OF ALL DEVIATIONS, BETWEEN THE WORK SHOWN AND WORK INSTALLED.</div><div>· MAINS AND BRANCHES OF PIPING SYSTEMS, WITH VALVES AND CONTROL DEVICES LOCATED AND NUMBERED, CONCEALED UNIONS LOCATED, AND WITH ITEMS REQUIRING MAINTENANCE LOCATED (I.E., TRAPS, STRAINERS, EXPANSION COMPENSATORS, TANKS, ETC.). VALVE LOCATION DIAGRAMS, COMPLETE WITH VALVE TAG CHART.</div><div>· EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT BUILDING LINES.</div><div>· APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.</div><div>· CONTRACT MODIFICATIONS, ACTUAL EQUIPMENT AND MATERIALS INSTALLED.</div></div></div><div>3. SUBMIT FOR REVIEW BOUND SETS OF THE REQUIRED DRAWINGS, MANUALS AND OPERATING INSTRUCTIONS.</div><div>4. SUBMIT A COMPLETE MAINTENANCE MANUAL OF ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT.</div><div>5. SUMBIT ALL WARANTY FOR EQUIPMENT.</div></div>		

GENERAL MECHANICAL SYMBOLS			
	SUPPLY DUCT UP / DOWN RETURN AIR DUCT UP / DOWN		RETURN / EXHAUST GRILLE REFER TO SCHEDULE FOR SIZE & TYPE
	DOUBLE DUCTWORK WITH INDICATION OF INSIDE DIMENSIONS		RETURN / EXHAUST GRILLE REFER TO SCHEDULE FOR SIZE & TYPE
	DOUBLE DUCTWORK WITH INTERNAL ACOUSTICAL INSULATION AND INDICATION OF INSIDE DIMENSIONS		THERMOSTAT
	DOUBLE LINE DUCTWORK WITH DUCT LAGGING AND INDICATION OF INSIDE DIMENSIONS		MANUAL VOLUME DAMPER / CABLE OPERATED DAMPER (COD)
	ACCESS DOOR IN DUCT		UNDERLINED TEXT DENOTES EQUIPMENT REFER TO SCHEDULES
	ROUND DUCT DIAMETER SIZE		S - SUPPLY DIFFUSER R - RETURN DIFFUSER E - EXHAUST DIFFUSER
	FLEXIBLE DUCT CONNECTION		CFM = VELOCITY AT WHICH AIR FLOWS INTO OR OUT OF SPACE. SIZE = SIZE OF DIFFUSER
	UNDERCUT DOOR		FLEXIBLE CONNECTION
	SUPPLY AIR FLOW		VOLUME DAMPER
	EXHAUST / RETURN AIR FLOW		SUPPLY REGISTER
	MITERED ELBOW WITH TURNING VANES		RETURN OR EXHAUST REGISTER OR GRILL
	DUCT TAKE-OFF		RETURN OR EXHAUST DUCT DOWN
	SUPPLY DUCT DOWN		THERMOSTAT - WALL OR DUCT MOUNTED
	RETURN OR EXHAUST DUCT UP		TEMPRATURE SENSOR - WALL OR DUCT MOUNTED
	CEILING DIFFUSER, SIDE WALL AND FLOOR DIFFUSER REFER TO SCHEDULE FOR SIZE & TYPE		

GRILLE AND DIFFUSER SCHEDULE (AIR FLOW)								
CEILING SUPPLY DIFFUSER			DUCTED CEILING RETURN/EXHAUST GRILLE		NON-DUCTED CEILING RETURN/EXHAUST GRILLE		FLEXIBLE DUCT SIZES TO SUPPLY DIFFUSERS	
CFM	SQUARE NECK SIZE	ROUND NECK SIZE	CFM	NECK SIZE	CFM	NECK SIZE	CFM	SIZE
0-100	6x6	6"Ø	0-150	6x6	0-350	12x12	0-100	6"Ø
101-250	9x9	8"Ø	151-350	12x12	351-1200	22x22	101-250	8"Ø
251-400	12x12	10"Ø	351-650	16x16	-	-	251-400	10"Ø
401-600	15x15	12"Ø	651-1000	22x22	-	-	401-600	12"Ø
601-800	18x18	14"Ø	-	-	-	-	601-800	14"Ø

HVAC DUCT/ PLENUM INSULATION				
SYSTEM	INSULATION TYPE	MINIMUM INSTALLED INSULATION VALUED	NORMAL DENSITY	REMARKS
INDOOR DUCT/ PLENUM CONCEALED SA, RA, OA OTHER THAN PRE-MANUFACTURED LINEAR SUPPLY AND RETURN GRILLE PLENUMS.	MINERAL FIBER BLANKET	2" R-8.0	3/4 LB/FT"	
	MINERAL FIBER BOARD WITH REFLECTIVE VAPOR BARRIER,	2" R-8.0	3/4 LB/FT"	
<div>1. ALL DUCTWORK INSTALLED OUTDOOR : PROVIDE A PRE- MANUFACTURED SELF ADHERING PRODUCT WITH AN UV RESISTANT. STUCCO ENBOSSED FACING. WATER VAPOR TRANSMISSION OF THE INSTALLED PRODUCT SHALL BE SIMILAR TO FLEX-CLAD 400.MFM BUILDING PRODUCTS CORP. ALUMAGUARD 60. POLYGAURD PRODUCTS, INC.</div> <div>2. DUCT LINING SHALL NOT BE INSTALED WITHIN 10 FT UPSTREAM OR DOWNSTREAM OF A DUCT MOUNTED HUMIDIFIER DISPERSION TUBE OR DISPERSION GRID.</div> <div>3. INSULATION TYPE INDICATED IN THE SCHEDULE SHALL BE USED UNLESS OTHERWISE INDICATED ON THE PLAN OR SPECIFICATIONS.</div> <div>4. CLOSED CELL, FIBER FREE, ANTI-MICROBIAL COATED, LOW VOC CERTIFIED, MOISTURE AND MOLD RESISTENT DUCT LINING SHALL BE PROVIDED IN DUCTWORK AND EQUIPMENT WITHIN HOSPITAL AND HEALTHCARE FACILITIES AND ROOMS CLASSIFIED AS MOIST OR WET ENVIROMENTS WHERE THIS SCHEDULE DRAWINGS AND SPECIFICATION INDICATE DUCT LINING.</div> <div>5. DUCTWORK SHALL BE FIRE WRAPPED FROM THE APPLIANCE CONNECTION TO THE TERMINATION POINT.</div> <div>OA= OUTDOOR AIR DUCTWORK SA= SUPPLY AIR DUCTWORK RA= RETURN AIR DUCTWORK EA= EXHAUST AIR DUCTWORK</div>				

DIFFUSERS, REGISTERS, GRILLES									
UNIT TAG	SERVICE	METERIAL FINISH	MANUFACTURER MODEL	REMARKS	UNIT TAG	SERVICE	METERIAL FINISH	MANUFACTURER MODEL	REMARKS
A	SUPPLY	STEEL WHITE	PRICE SPD	NOTE 1	B	RETURN	STEEL WHITE	PRICE 530	NOTE 1
C	SUPPLY	STEEL WHITE	PRICE LBP	NOTE 1-2	D	RETURN	STEEL WHITE	PRICE LBP	NOTE 1-2
<div>NOTES:</div> <div>1. PROVIDE SIZE INDICATED IN DRAWINGS.</div> <div>2. PROVIDE WITH 16A CORE. PROVIDE OPTIONAL DAMPER FOR AIR BALANCING.</div>									

ABBREVIATIONS	
ABV AD AFF AHU# AL ALP APD BTU CAP CD CFM CG CLG C-# C.O.D. CTD DB DIFF DN DP DR EAT ENT ESP ETR EXT °F FD FIN FL FLOOR FLEX FT FV GC HC HC-# HTG HVAC  ID IN LAT LD LVG MAN MAT MAX MBH MER MIN NC NFA NIC NTS OA OAT OAI OD O.E.T.D. OEO PD RA RAT RH RM RPM SA SAT SP SQ FT T'STAT TD TEMP TG TRD TYP UC VD W/ WB WMS WT	ABOVE ACCESS DOOR ABOVE FINISHED FLOOR AIR HANDLING UNIT ACoustIC LInING ACoustICALLY LInED PLENUM AIR PRESSURE DROP BRITISH THERMAL UNIT CAPACITY CEILING DIFFUSER CUBIC FEET PER MINUTE CEILING GRILLE CEILING CONNECTOR CABLE OPERATED DAMPER CEILING TRANSFER DUCT DRY BULB DIFFUSER DOWN DEWPOINT TEMPRATURE DROP ENTERING AIR TEMPERATURE ENTERING EXTERNAL STATIC PRESSURE EXISTING TO REMAIN EXISTING EXTERNAL DEGREES FAHRENHEIT FIRE DAMPER WITH ACCESS DOOR FINISH FLOOR FLOOR FLEXIBLE FEET FACE VELOCITY GENERAL CONTRACTOR HEATING/COOLING HEATING COIL HEATING HEATING, VENTILATING & AIR CONDITIONING INSIDE DIMENSION INCHES LEAVING AIR TEMPERATURE LINEAR DIFFUSER LEAVING MANUAL MIXED AIR TEMPERATURE MAXIMUM 1000 BTU'S MECHANICAL EQUIPMENT ROOM MINUMIM NOISE CRITERIA NET FREE AREA NOT IN THIS CONTRACT NOT TO SCALE OUTSIDE AIR OUTDOOR AIR TEMPERATURE OUTDOOR AIR INTAKE OUTSIDE DIMENSION OPEN END TRANSFER DUCT OPEN END DUCT PRESSURE DROP RETURN AIR RETURN AIR TEMPERATURE RELATIVE HUMIDITY ROOM REVOLUTIONS PER MINUTE SUPPLY AIR SUPPLY AIR TEMPERATURE STATIC PRESSURE SQUARE FOOT (AREA) THERMOSTAT TEMPERATURE DIFFERENCE TEMPERATURE AIR TRANSFER GRILLE TRANSFER DUCT TYPICAL UNDERCUT DOOR VOLUME DAMPER WITH WET BULB WIRE MESH SCREEN WEIGHT(LBS)
*ALL ABBREVIATIONS MAY NOT BE USED IN THESE DOCUMENTS.	

MECHANICAL DRAWING INDEX	
SHEET NUMBER	SHEET NAME
M-1	MECHANICAL NOTES, SCHEDULES AND LEGENDS
M-2	MECHANICAL SPECIFICATIONS
M-3	MECHANICAL SPECIFICATIONS
M-4	MECHANICAL PLAN & SCHEDULES
M-5	MECHANICAL DETAILS

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REVISIONS	NO. DESCRIPTION DATE BY
STAMP:	
PROJECT: PHILIP R. SMITH ELEMENTARY SCHOOL 949 AVERY STREET, SOUTH WINDSOR, CT 06074	
FILE NO: 22126	AS NOTED 12/09/2022
SCALE:	DATE:
DRAWN BY: MF	CHECKED BY: HH
SHEET TITLE: MECHANICAL NOTES, SCHEDULES AND LEGENDS SHEET NUMBER: M-1	



PERFORMANCE SPECIFICATION-MECHANICAL

PERFORMANCE SPECIFICATION  
SECTION 15800-HEATING, VENTILATING, AIR CONDITIONING

PART 1 - GENERAL REQUIREMENTS

1.01 SCOPE OF WORK

INSTALL ALL NEW WORK IN A NEAT WORKMANLIKE MANNER READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR.

WORK UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS, SERVICES, EQUIPMENT, TRANSPORTATION AND OTHER INCIDENTALS NECESSARY TO FURNISH, INSTALL, AND TO CONSTRUCT ALL HVAC SYSTEMS INCLUDING:

- COOLING UNITS
- HEATING UNITS
- PIPING
- SHEET METAL WORK
- DUCT INSULATION
- AUTOMATIC TEMPERATURE CONTROLS
- VIBRATION CONTROL
- TESTING, BALANCING AND ADJUSTING

1.02 SUBMITTALS

- A. PROVIDE ALL LABOR, MATERIAL EQUIPMENT AND CONTRACTOR'S SERVICES NECESSARY FOR COMPLETE, SAFE INSTALLATION OF ALL MECHANICAL WORK. THE SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. DEMOLITION AND REMOVAL OF ITEMS AS REQUIRED.
2. DUCTWORK AND DUCTWORK DEPARTMENT BUILDING MANAGEMENT, AND ALL AUTHORITIES HAVING JURISDICTION AND APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS COVERING OR RELATING TO ANY PORTION OF THIS WORKSHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS. CONTRACTOR IS TO INFORM ENGINEER OF ANY EXISTING WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE BY THIS CONTRACTOR AND AT NO EXPENSE TO THE OWNER.
3. THIS CONTRACTOR SHALL OBTAIN ALL EQUIPMENT APPROVALS AS REQUIRED BY STATE AND LOCAL AUTHORITIES. PERMITS SHALL BE TURNED OVER AT JOB COMPLETION.
4. TESTING AND BALANCING.
5. CUTTING AND PATCHING.
6. SHOP DRAWINGS.
7. AS-BUILT DRAWINGS.
8. OPERATING AND MAINTENANCE MANUALS.
9. FULL COORDINATION WITH OTHER TRADES.
10. WARRANTY AND GUARANTY.
11. PHASING AS REQUIRED BY OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR OR BUILDING MANAGEMENT.
12. PREMIUM TIME FOR WORK TO BE PERFORMED AFTER-HOURS AS REQUIRED BY BUILDING MANAGEMENT AND/OR OWNER.
13. FILING, PERMITS, CONTROLLED INSPECTIONS.
14. FULL TESTING AND STARTUP OF ALL SYSTEMS.

- B. SECURE CERTIFICATES, PAY ALL FEES AND CHARGES FOR ALL WORK INSTALLED, CERTIFYING COMPLIANCE WITH ALL AUTHORITIES, DELIVER CERTIFICATES TO OWNER FOR SIGNING BEFORE FILING.

ISSUE 4 COPIES OF MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS AND SHOP DRAWINGS FOR ALL ITEMS OF THE HVAC EQUIPMENT FOR APPROVAL.

1.03 CODES

- A. CODES, PERMITS AND INSPECTIONS:

1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF CONNECTICUT BUILDING CODE, FARMINGTON BUILDING DEPARTMENT BUILDING MANAGEMENT, AND ALL AUTHORITIES HAVING JURISDICTION AND APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS COVERING OR RELATING TO ANY PORTION OF THIS WORKSHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS. CONTRACTOR IS TO INFORM ENGINEER OF ANY EXISTING WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE BY THIS CONTRACTOR AND AT NO EXPENSE TO THE OWNER.
2. THIS CONTRACTOR SHALL OBTAIN ALL EQUIPMENT APPROVALS AS REQUIRED BY STATE AND LOCAL AUTHORITIES. PERMITS SHALL BE TURNED OVER AT JOB COMPLETION.

- B. SITE VERIFICATION:

1. PRIOR TO SUBMISSION OF THE BID, THIS CONTRACTOR SHALL VISIT THE JOB SITE TO ASCERTAIN THE ACTUAL FIELD CONDITION AS THEY RELATE TO THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN. DISCREPANCIES, IF ANY, SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO SUBMISSION OF THE BID, AND IF NOT RESOLVED TO SATISFACTION, SHALL BE SUBMITTED AS A WRITTEN QUALIFICATION OF THE BID. SUBMISSION OF A BID SHALL EVIDENCE THAT SITE VERIFICATION HAS BEEN PERFORMED AS DESCRIBED ABOVE.

- C. CONTRACT DOCUMENTS:

1. PRIOR TO SUBMISSION OF A FORMAL BID, THIS CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THE ENTIRE PROJECT INCLUDING GENERAL CONSTRUCTION, DEMOLITION, ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND SPRINKLER AND SHALL INCLUDE ANY WORK REQUIRED IN THE BID WHICH IS INDICATED OR IMPLIED TO BE PERFORMED BY THIS TRADE IN OTHER SECTIONS OF THE WORK.
2. DRAWINGS ARE DIAGRAMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK AND APPROXIMATE LOCATION OF EQUIPMENT. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND COORDINATE FINAL LOCATIONS OF DIFFUSERS, GRILLES, REGISTERS, THERMOSTATS, SENSORS, SWITCHES AND ANY WALL MOUNTED DEVICES. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT.
3. IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWING, THE MORE STRINGENT SITUATION SHALL APPLY.

- D. GUARANTEE:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK. FINAL ACCEPTANCE SHALL BE DEFINED AS THE TIME AT WHICH THE MECHANICAL WORK IS TAKEN OVER AND ACCEPTED BY THE OWNER, AND IS UNDER CARE, CUSTODY, AND CONTROL OF THE OWNER. ENGAGE THE SERVICES OF VARIOUS MANUFACTURERS SUPPLYING THE EQUIPMENT FOR THE PROPER STARTUP AND OPERATION OF ALL SYSTEMS INSTALLED. INSTRUCT THE OWNER'S PERSONNEL IN THE PROPER OPERATION AND SERVICING OF THE SYSTEM.
2. THE CONTRACTOR SHALL GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED DOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN THE GUARANTEE PERIOD. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL INCLUDE RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THIS CONTRACTOR.
3. THIS CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF ALL SYSTEMS UNTIL THE FINAL ACCEPTANCE OF THE WORK.
4. ALL AIR CONDITIONING UNIT COMPRESSORS AND REFRIGERATION COMPONENTS SHALL HAVE 5-YEAR WARRANTY.

- E. THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AIA DOCUMENTS, A201, LATEST EDITION, OR AS REQUIRED BY THE ARCHITECT'S DOCUMENTS, AND/OR THE STRUCTURAL ENGINEER'S DOCUMENTS, AS APPLICABLE, ARE PART OF THIS CONTRACT.

- F. DEFINITIONS:

1. MECHANICAL CONTRACTOR, "THIS CONTRACTOR"-THE PARTY HAVE BEEN DULY AWARDED THE CONTRACT FOR AND ARE THEREBY MADE RESPONSIBLE FOR THE MECHANICAL WORK AS DESCRIBED HEREIN.
2. "THIS CONTRACT", "THE CONTRACT", "THE AGREEMENT" COVERING THE WORK TO BE PERFORMED BY THIS CONTRACTOR.
3. "APPROVED", "EQUAL", "SATISFACTORY", "ACCEPTED", "ACCEPTABLE", "EQUIVALENT"-SUITABLE FOR USE ON THE PROJECT AS DETERMINED BY THE ENGINEER BASED ON DOCUMENTS PRESENTED FOR SUCH DETERMINATION.
4. "THESE SPECIFICATIONS", "THIS SECTION PART, DIVISIONS" (OF THE SPECIFICATION)-THE DOCUMENT SPECIFYING THE WORK TO BE PERFORMED BY "THIS CONTRACTOR".
5. "THE MECHANICAL WORK", "THIS WORK"-ALL LABOR MATERIALS, EQUIPMENTS, APPARATUS, CONTROLS, ACCESSORIES, AND OTHER ITEMS REQUIRED FOR A PROPER AND COMPLETE INSTALLATION BY MECHANICAL CONTRACTOR.

6. "ARCHITECT", "ENGINEER", "OWNER'S REPRESENTATIVE"-THE PARTY OR PARTIES RESPONSIBLE FOR INTERPRETING, ACCEPTING AND OTHERWISE RULING ON THE PERFORMANCE UNDER THIS CONTRACT.
7. "FURNISH"-PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT, ALL AS PART OF THE MECHANICAL WORK.
8. "INSTALL"- UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING INSTALLATION AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT, ALL AS PART OF THE MECHANICAL WORK.
9. "PROVIDE"-FURNISH AND "INSTALL".
10. "NEW"-MANUFACTURED WITHIN THE PAST TWO YEARS AND NEVER BEFORE USED.
11. "RELOCATE"-MOVE EXISTING EQUIPMENT AND ALL ACCESSORIES AS REQUIRED.
12. "REMOVE", DISMANTLE AND CART AWAY FROM SITE INCLUDING ALL RELATED ACCESSORIES. ALL ITEMS SHALL BE LEGALLY DISPOSED OF. ALL OTHER EQUIPMENT AND OPERATIONS IN ANY WAY AFFECTED BY THE REMOVAL IS TO REMAIN IN FULL OPERATION. PROVIDE ALL NECESSARY COMPONENTS TO MAINTAIN SUCH OPERATION.

THE FOLLOWING CODES AND STANDARDS SHALL APPLY TO THIS WORK:

- ASTM A120, STEEL PIPE  
ASTM B88, COPPER TUBING  
ANSI H20.1 STANDARDS FOR COPPER TUBING  
ANSI B31.1 CODE FOR PRESSURE PIPING  
NEMA NC1 MOTOR GENERATOR STANDARDS  
NEMA DC1 STANDARDS FOR TEMPERATURE CONTROLS  
NFPA-90A AIR CONDITIONING AND VENTILATING SYSTEM  
NFPA-91 BLOWER AND EXHAUST SYSTEMS  
APPLICABLE BOCA MECHANICAL CODE

1.04 ELECTRICAL REQUIREMENTS

THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING ALL MOTORS FOR EQUIPMENT SPECIFIED HEREIN IF NOT SUPPLIED AS PART OF EQUIPMENT. MOTORS UP TO 1/2 HP SHALL BE 115 VOLT, SINGLE PHASE. MOTORS 1/2 HP AND OVER SHALL BE 208 VOLT, 3 PHASE.

MOTORS SHALL BE GENERAL ELECTRIC, WESTINGHOUSE, OR ALLIS CHALMERS. ALL MOTORS SHALL BE 40 DEGREE C RIS, BUILT IN ACCORDANCE WITH A.I.E.E. STANDARDS.

ALL CIRCUIT BREAKERS AND FUSED DISCONNECT SWITCHES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR COORDINATE WITH ELECT. DWG. STARTERS WITH AUXILIARY CONTACTS SHALL BE FURNISHED FOR ALL 3 PHASE MOTORS SUPPLIED UNDER THIS CONTRACT.

ALL AIR EQUIPMENT OF 2000 CFM AND LARGER SHALL BE SUPPLIED WITH SMOKE DETECTORS INSTALLED IN THE DUCTWORK. DETECTORS SHALL BE 4-3. WIRING OF THESE DETECTORS SHALL BE A PART OF THIS MECHANICAL CONTRACT.

1.05 COORDINATION WITH BUILDING MANAGEMENT

- A. THIS CONTRACTOR IS TO OBTAIN A COPY OF THE BUILDING RULES AND REGULATIONS PRIOR TO BID SUBMISSION TO DETERMINE THE REQUIREMENTS AND THE EXTENT OF PREMIUM THE WORK REQUIRED BY THE BUILDING.
- B. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO THE BUILDING OWNER'S RULES AND REGULATIONS. ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND THE BUILDING RULES AND REGULATIONS SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT/ENGINEER FOR REVIEW WITH BID SUBMISSION.
- C. COORDINATE WITH BUILDING OWNER FOR ANY SERVICE INTERRUPTION OF EXISTING SYSTEMS AND GIVE NOTICE AS REQUIRED BY BUILDING RULES AND REGULATIONS OR CONTRACTOR TO PROVIDE A MINIMUM OF TWO(2) DAYS NOTICE PRIOR TO ANY WORK BEING PERFORMED. WHENEVER IS THE MORE STRINGENT, CONTRACTOR IS TO PERFORM WORK ON PREMIUM TIME, IF SO DIRECTED BY BUILDING OWNER, SO AS NOT TO DISTURB EXISTING TENANTS ON OTHER FLOORS.

1.06 SHOP DRAWINGS

- A. SUBMIT SHOP DRAWING CERTIFIED BY ALL TRADES THAT COORDINATES HAS BEEN COMPLETED. SUBMIT ALL CERTIFIED EQUIPMENT CUTS WITH CONSTRUCTION WIRING DIAGRAMS AND AUTOMATIC TEMPERATURE CONTROL REQUIREMENTS. SHOP DRAWINGS SUBMISSION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

1. DUCTWORK-PROVIDE DUCT SHOP STANDARDS AND LEAKAGE TEST CERTIFICATION, AS REQUIRED AND 1/4 SCALE DUCT LAYOUT.
2. PIPING LAYOUT AND APPURTENANCES-PROVIDE PIPING, VALVING, CHEMICAL TREATMENT, SHOP STANDARDS AND 1/4 SCALE PIPING LAYOUT WITH ALL VALVING.
3. INSULATION FOR DUCTWORK, PIPING AND EQUIPMENT.
4. EQUIPMENT CATALOG CUTS FOR ALL ITEMS TO BE UTILIZED ON PROJECT (FANS, PUMPS, AC UNITS, VARIABLE FREQUENCY DRIVES, VAV BOXES, ETC.)
5. AIR OUTLETS (DIFFUSERS, REGISTERS, GRILLES, ETC.)
6. AUTOMATIC TEMPERATURE CONTROL DIAGRAM, DEVICES AND SEQUENCE OF OPERATION.
7. CERTIFIED AIR AND WATER BALANCING REPORT.
8. AS-BUILT DRAWINGS AT PROJECT COMPLETION OF THE INSTALLED CONDITION OF WORK.

- B. THE QUANTITY OF SHOP DRAWINGS SHALL AS A MINIMUM BE FOUR (4) COPIES OF 8-1/2" X 11" SUBMISSIONS AND FIVE(5) PRINTS OF ALL DRAWINGS. SPECIFIC JOB REQUIREMENTS MAY BE MORE STRINGENT AND CONTRACTOR IS RESPONSIBLE TO OBTAIN REQUIREMENTS FROM OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR OR ARCHITECT.

1.07 MAINTENANCE MANUALS

- A. SUBMIT FOUR(4) LOOSE-LEAF BOUND OPERATING AND MAINTENANCE MANUALS WITH INDEX AND INDEX TABS TO INCLUDE THE FOLLOWING:

1. OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL SYSTEMS.
2. MANUFACTURERS- CATALOG CUTS ON ALL EQUIPMENT.
3. AUTOMATIC TEMPERATURE CONTROL SYSTEMS WITH SEQUENCE OF OPERATIONS, CATALOG CUTS OF ALL DEVICES AND POINT-TO-POINT WIRING DIAGRAMS.
4. CERTIFIED FINAL AIR AND WATER BALANCING REPORT.
5. DUCT AND PIPING AS-BUILT DRAWING WITH VALVE CHART AND KEY PLAN DRAWINGS INSERTED IN BINDER.
6. ALL ITEMS SUBMITTED FOR REVIEW IN SHOP DRAWING SECTION.

1.08 ACCESS DOORS IN GENERAL CONSTRUCTION

- A. THIS CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL A PLAN INDICATING THE SIZE AND LOCATION OF ALL ACCESS DOORS REQUIRED FOR OPERATION AND MAINTENANCE OF ALL CONCEALED EQUIPMENT, DEVICES, VALVES, DAMPERS AND CONTROLS. CONTRACTOR SHALL ARRANGE FOR FURNISHING AND INSTALLATION OF ALL ACCESS DOORS IN FINISHED CONSTRUCTION AND INCLUDE COSTS IN THE BID. ACCESS DOORS SHALL BE OF ADEQUATE SIZE TO PROVIDE ACCESS TO CONCEALED ITEMS FOR OPERATION AND MAINTENANCE, WITH A MINIMUM SIZE OF 18" x 18".

PART 2 - PRODUCT / APPLICATION

2.01 SHEET METAL WORK

DUCTWORK:

DUCTS SHALL CONFORM WITH THE FOLLOWING TABLE:

GAUGE	SIZE	TRANSVERSE JOINTS	BRACING
26	0 THRU 12"	S OR DRIVE @ 7'-10"	NONE
24	13" THRU 30"	STANDING S @ 7'-10"	1"X1"X1/8" @ 4'-0"
22	31" THRU 42"	REINFORCED STANDING OR POCKET @ 7'-10" O.C.	
20	OVER 42"	DRIVE OR POCKET	1"X1"X1/8" @ 2'-0"

MINIMUM DUCT GAUGES FOR DUCTWORK ABOVE SUSPENDED CEILINGS SHALL BE AS FOLLOWS:

- CONDITION A: FLOOR ASSEMBLY WITH SUSPENDED ACOUSTICAL CEILING PANEL  
MINIMUM GAUGE - 22  
CONDITION B: ROOF ASSEMBLY WITH SUSPENDED ACOUSTICAL CEILING PANEL  
MINIMUM GAUGE - 24  
CONDITION C: FLOOR ASSEMBLY WITH SHEETROCK CEILING  
MINIMUM GAUGE - 24  
CONDITION D: ROOF ASSEMBLY WITH SHEETROCK CEILING  
MINIMUM GAUGE - 20

FLEXIBLE DUCTWORK, WHEN SHOWN, SHALL BE WIRE REINFORCED FIBERGLASS WITH GRAY VINYL OUTER JACKET AND POLYETHYLENE INNER LINER. MAXIMUM LENGTH OF 14'-0" PER RUN. ALL SUPPLY AIR AND RETURN AIR DUCTWORK SEAMS AND SLIPS SHALL BE SEALED AIRTIGHT WITH 3M TYPE EC800 SEALER, HARDCAST, DUCTCAULK, OR EQUAL SEALER, AS APPROVED BY THE ENGINEER.

2.02 DUCTWORK AND ACCESSORIES

- A. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE, LATEST EDITION, SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL, LATEST EDITION, NFPA 90A LATEST EDITION, AND CONNECTICUT MECHANICAL CODE. THE MORE STRINGENT REQUIREMENT OF ANY CODES SHALL APPLY.
- B. PROVIDE ALL SUPPORTING AND HANGING DEVICES IN ACCORDANCE WITH CONNECTICUT BUILDING CODE AND SMACNA.
- C. DUCTWORK LAYOUT AND ROUTING IS SCHEMATIC AND THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL DUCT SIZE CHANGES AND RELOCATIONS TO ACCOMMODATE SPACE AND STRUCTURAL CONDITIONS. OFFSETS AND TRANSFORMATIONS SHALL PRESERVE THE FULL INSIDE CROSS-SECTIONAL AREA OF DUCTWORK SHOWN ON THE DRAWING.
- D. DUCTWORK(NEW AND EXISTING TO BE REUSED) SHALL HAVE PRESSURE CLASSIFICATION, SEALING REQUIREMENTS AND LEAKAGE TESTING IN ACCORDANCE WITH SMACNA AND AS LISTED BELOW UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS.
1. 2" CLASS: ALL OTHER LOW PRESSURE DUCTWORK. SEAL CLASS C, LEAKAGE CLASS 24 (RECTANGULAR) OR CLASS 12(ROUND).

2. LEAKAGE TESTING:

ALL TESTING SHALL BE DONE IN THE PRESENCE OF THE ENGINEER OR OWNER'S REPRESENTATIVE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL COLLARS, CAPS, ELECTRIC POWER, ETC. NECESSARY TO PERFORM THE TESTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR SCHEDULING THE TEST NO LESS THAN THREE(3) BUSINESS DAYS PRIOR TO ITS INTENDED OCCURRENCE. LOW PRESSURE DUCT WORK(2" CLASS) SHALL BE TESTED ON AN AS-NEEDED BASIS AT THE ENGINEER'S DIRECTION. LEAKAGE TEST PROCEDURE SHALL FOLLOW THE OUTLINES AND CLASSIFICATIONS IN THE SMACNA HVAC DUCT LEAKAGE TEST MANUAL. IF SPECIMAN FAILS TO MEET ALLIOTED LEAKAGE LEVEL, THE CONTRACTOR SHALL MODIFY TO BRING IT INTO COMPLIANCE AND SHALL RETEST IT UNTIL ACCEPTABLE LEAKAGE IS DEMONSTRATED. TESTS AND NECESSARY REPAIR SHALL BE COMPLETED PRIOR TO CONCEALMENT OF DUCTS.

- E. MATERIAL:

1. SHEETMETAL: UNLESS OTHERWISE SPECIFIED OR INDICATED, DUCTS SHALL BE CONSTRUCTED OF HOT-DIPPED GALVANIZED SHEETMETAL WITH 60 COMMERCIAL COATING ACCORDING TO ASTM 653 AND A924.
2. FLEXIBLE CONNECTIONS AT FANS SHALL BE NEOPRENE COATED, FLAME RETARDANT GLASS FABRIC(COMPLYING WITH NFPA 90 AND 96), 30 OZ./SQ. YD. WITH SOWN AND CEMENTED SEAMS.

- F. FABRICATION:

CONFORM TO SMACNA REQUIREMENTS FOR METAL THICKNESS, REINFORCING, JOINTS, AND SEALING FOR MAXIMUM STATIC PRESSURES INVOLVED. ALL SEAMS AND JOINTS SHALL BE SEALED AND TAPED.

- G. VOLUME DAMPERS:

1. GALVANIZED STEEL OR SAME AS DUCT CONSTRUCTION. CONFORM TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 1995 OR LATEST EDITION, OPPOSED BLADE TYPE. PROVIDE BEARING AT BOTH ENDS OF DAMPER ROD AND QUADRANT WITH LEVER AND LOCKSCRE AT ONE END. INSTALL WITH LEVER ACCESSIBLE THROUGH INSULATION. SPLITTER DAMPER OR AIR EXTRACTORS SHALL NOT BE USED ON THIS PROJECT.
2. PROVIDE MANUAL BALANCING VOLUME DAMPERS AS REQUIRED TO PROPERLY BALANCE THE AIR DISTRIBUTION SYSTEM. IF THE LOCATION OF BALANCING DAMPERS ARE NOT DEFINED ON THE DRAWING, THE FOLLOWING MINIMUM STANDARDS SHALL GOVERN:  
A) LOW PRESSURE: ALL SUPPLY AIR MAIN BRANCHES FROM TRUNK EACH SPLIT, AND ALL SUB-BRANCHES FROM MAINS SHALL BE PROVIDED WITH BALANCING DAMPERS.  
B) LOW PRESSURE: ALL EXHAUST AND RETURN BRANCHES FROM TRUNK, EACH SPLIT AND ALL SUB-BRANCHES FROM MAINS SHALL BE PROVIDED WITH BALANCING DAMPERS.  
C) MEDIUM PRESSURE: ALL BRANCHES AND TAKEOFFS DOWNSTREAM OF TERMINAL BOXES(VAV OR FAN POWERED) SHALL BE PROVIDED WITH BALANCING DAMPERS.  
D) AS NOTED ON PLANS.

- H. DUCT ACCESS DOORS:

1. CONFORM TO SMACNA WITH PIANO HINGES, TWO SASH LOCKS AND DOOR GASKETS. SCREWED ACCESS PANELS ARE NOT PERMITTED. PROVIDE REMOVABLE ACCESS DOORS WHERE DOOR SWING CANNOT BE ACCOMMODATED.
2. SIZE: MINIMUM 20"x14" EXCEPT DUCTS LESS THAN 16", ONE DIMENSION 20" AND THE OTHER DIMENSIONS, 2" LESS THE DUCT WIDTH.
3. PROVIDE ACCESS DOORS: AT ENTERING AND LEAVING SIDES OF COILS IN DUCTS; AUTOMATIC DAMPERS ON LINKAGE SIDE; MANUAL DAMPERS 2 SQ. FT. AND LARGER; FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, SMOKE DETECTION HEADS, FAN BEARINGS ENCLOSED IN DUCTS, SUCTIION AND DISCHARGE SIDES OF CEILING MOUNTED FANS, FILTERS, REHEAT COILS. AT EQUIPMENT REQUIRING ACCESS AND AS INDICATED ON DRAWINGS.

2.03 FIRE DAMPERS AND SMOKE (IF SPECIFICALLY SHOWN)

FURNISH AND INSTALL UNDERWRITER'S LABORATORIES APPROVED AND LABELED FIRE DAMPERS AT EACH PENETRATION OF FIRE ENCLOSURES. INSTALL FIRE DAMPERS AT ALL CEILING SUPPLY AND RETURN GRILLES, REGISTERS AND DIFFUSERS IF REQUIRED. FIRE DAMPERS SHALL BE OF A TYPE WHERE FULL DUCT OPENING IS OBTAINED WITH THE BLADES NOT STORED WITHIN THE NORMAL DUCT DIMENSIONS.

DAMPERS SHALL BE RATED FOR AT LEAST THE SAME FIRE RESISTANCE AS THE OPENING THROUGH WHICH THEY PASS.

ALL DAMPERS SHALL CONFORM TO NFPA BULLETIN NO. 90A.

FIRE DAMPERS:

- A. FIRE DAMPERS SHALL BE FACTORY FABRICATED WITH FUSIBLE LINK SHUTTER TYPE MECHANISM OUT OF AIRSTREAM. THE HVAC CONTRACTOR SHALL PROVIDE AND ACCESS DOOR AT EACH DAMPER. DAMPER SHALL BE MANUFACTURED BY IMPERIAL, MODEL FD-150 (1-1/2HR. RATED) OR MODEL FD-350 (3-HOUR RATED) OR APPROVED EQUAL.

- B. COMBINATION FIRE / SMOKE DAMPERS:

1. COMBINATION FIRE/ SMOKE DAMPERS SHALL BE CLASS ONE, DUAL OVERRIDE REMOTE RESETTABLE, OPPOSED MULTIBLADE TYPE WITH FUSIBLE MECHANICAL HEAT RESPONSIVE DEVICE, 120 VOLT OR PNEUMATIC ACTUATOR AS REQUIRED MOUNTED OUT OF THE AIR STREAM, WITH DAMPER OPERATOR AND BLADE POSITION INDICATOR SWITCHES. PROVIDE MOTOR MOUNT BRACKET STRANGTHENER FOR DAMPERS OVER 10' IN HEIGHT. PROVIDE A 10 GAUGE WELDED VERTICAL STIFFENER AT EACH CORNER TO PREVENT DAMPER MISALIGNMENT.
2. THE HVAC CONTRACTOR SHALL PROVIDE ALL DEVICES, RELAYS, END SWITCHES, F/P SWITCHES, CONTROL COMPONENTS, AIR PIPING, POWER WIRING, CONTROL WIRING AND INTERLOCK WIRING, AS REQUIRED TO ACCOMPLISH THE SEQUENCE OF OPERATION FOR THESE DAMPERS.

- C. SEAL OPENING AROUND DUCTS THROUGH WALLS WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL. SEAL ALL DUCT PENETRATIONS THROUGH WALLS AIRTIGHT.
- D. ALL DUCTS EXPOSE TO MOISTURE SHALL BE ALUMINIUM, SLOPED AND DRAINED AND SHALL NOT BE INTERNALLY LINED.

- E. EXISTING DUCTWORK TO BE REUSED:

1. THIS CONTRACTOR SHALL INSPECT, SEAL PER SMACNA REQUIREMENTS, LEAK TEST AND INSULATE ALL EXISTING DUCTWORK TO BE REUSED. EXISTING DUCTWORK TO BE REUSED SHALL CONFORM TO SPECIFICATIONS FOR NEW DUCTWORK LISTED HEREIN. ALL REQUIRED WORK SHALL BE PART OF BID.

2.04 AIR OUTLETS

ALL RATED REGISTERS, GRILLES AND DIFFUSERS SHALL BE WHITE FINISH WITH OPPOSED BLADE DAMPERS TYPE AS NOTED ON THE DRAWINGS. NON-RATED TYPE SHALL BE EQUAL TO THE FOLLOWING:

DIFFUSERS: CARNES SK5A, ANEMOSTAT OR METALARE  
TRANSFER GRILLES: CARNES RSLAH, ANEMOSTAT OR METALARE  
RETURN REGISTERS: CARNES RTLAH, ANEMOSTAT OR METALARE  
EXHAUST REGISTERS: CARNES RTDLAH, ANEMOSTAT OR METALARE  
SUPPLY REGISTERS: CARNES RTDHA, ANEMOSTAT OR METALARE

2.05 SOUND LINING (IF SPECIFICALLY SHOWN)

FURNISH AND INSTALL LINING ON ALL SUPPLY AND RETURN DUCTWORK WITHIN 10'-0" OF EACH AIR HANDLING MACHINE. LINING SHALL BE 1" THICK FLEXIBLE NEOPRENE HANGING ACOUSTICAL DUCT LINER. FASTEN TO INSIDE OF DUCTS WITH WELDED PINS AND CLIP WASHERS. DUCT SIZES SHOWN ON DRAWINGS REPRESENT FREE OPENINGS. THE SIZE OF LINED DUCTWORK SHALL BE INCREASED ACCORDINGLY TO COMPENSATE FOR THICKNESS OF THE LINING.

2.06 AUTOMATIC SMOKE DAMPERS (IF SPECIFICALLY SHOWN)

EACH DUCT PENETRATING A SMOKE PARTITION SHALL HAVE AN AUTOMATIC MOTOR OPERATED SMOKE DAMPER. DAMPER MOTOR SHALL BE NORMALLY OPEN TYPE, ARRANGED TO CLOSE WHEN ENERGIZED FROM A SMOKE DETECTOR, FURNISHED, INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. DAMPER SHALL BE PREFECO MODEL 5020, OR APPROVED EQUAL.

2.07 INSULATION

ALL SUPPLY AND RETURN DUCTWORK OUTDOORS, EXPOSED TO WEATHER, SHALL BE INSULATED WITH 1" THICK 6 LB DENSITY RIGID FIBERGLASS BOARD ATTACHED TO DUCT. APPLY 2-1/8 INCH THICK COATS OF BREATHER MASTIC AND, WHILE STILL WET, IMBED A LAYER OF GLASS FABRIC WITH ALL JOINTS LAPPED 2" MINIMUM AND OVER WITH THIRD COAT OF BREATHER MASTIC 1/8" THICK.

SUPPLY AIR DUCTWORK, RETURN AIR AND OUTDOOR INTAKE DUCTWORK SHALL BE INSULATED WITH 1-1/2 INCH THICK FLEXIBLE DUCT WRAP WITH STABLE STITCHED GRAY VINYL JACKET.

PROVIDE INDOOR AIR HANDLING UNITS WITH FOIL-FACED FIBERGLASS INSULATION OR CLOSED-CELL ELASTOMERIC INSULATION.

HEATING/COOLING UNITS

FURNISH AND INSTALL HEATING/COOLING UNITS OF THE SIZE AND CAPACITY SCHEDULED ON THE PLANS.

EACH UNIT SHALL BE FULLY PREWIRED, INCLUDING STARTERS AND DISCONNECT SWITCHES, REQUIRING ONLY A POWER AND THERMOSTAT CONNECTION.

HVAC UNITS SHALL BE PACKAGED UNITS WITH CENTRIFUGAL FAN, DX COIL, HEATING SECTION AND FILTERS. UNIT SHALL BE COMPLETE IN ALL RESPECTS WITH DRAIN PAN, MOTOR, SUSPENSION ARRANGEMENTS, THERMAL EXPANSION VALVES AND FAN INTERLOCKS WITH SMOKE DETECTORS IF REQUIRED.

CONDENSING UNITS SHALL BE WEATHERPROOF GROUND MOUNTED UNITS WITH SEER OF AT LEAST 10; BE PROVIDED WITH EXTERNAL SERVICE VALVES FOR REFRIGERANT TUBING CONNECTIONS AND SHALL BE MATCHED TO THE SELECTED FAN/COIL UNIT. UNITS SHALL HAVE STANDARD 1 YEAR WARRANTY ON PARTS WITH AN ADDITIONAL 4 YEARS FOR THE COMPRESSOR.

EACH UNIT SHALL HAVE ITS FILTERS REPLACED WITH A SET OF CLEAN FILTERS AT THE TIME OF FINAL ACCEPTANCE OF THE WORK. IN ADDITION, PROVIDE A SET OF SPARE FILTERS FOR EACH UNIT.

PROVIDE INDOOR UNIT AIR HANDLING UNITS WITH FOIL BASED FIBREGLASS INSULATION ON CLOSED CELL ELASTOMERIC INSULATION.

INSULATION

- A. ALL INSULATION SHALL MEET THE REQUIREMENTS OF ASTM, NFPA, 2009 INTERNATIONAL ENERGY CONSERVATION CODE AND ALL AUTHORITIES HAVING JURISDICTION (JACKETING, COVERING, ADHESIVES, MASTICS, FACINGS, TAPES, ETC.), SHALL HAVE RATING NOT EXCEEDING A FLAME SPREAD OF 25 OR LESS AND SMOKE DEVELOPED INDEX OF 50 OR LESS.
- B. BEFORE APPLYING INSULATION, ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED. FURNISH AND INSTALL AS PER MANUFACTURER'S REQUIREMENTS.
- C. INSULATION FOR FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACABLE WITHOUT DAMAGE.

- D. DUCT INSULATION:

1. GENERAL

- A) INSULATION SHALL BE APPLIED WITH MASTICS, ADHESIVES, COATINGS, WITH COVERS, WEATHER-PROTECTION AND OTHER WORK AS REQUIRED BY RECOMMENDATIONS. DO NOT INSULATE SOUND LINED DUCTWORK. MATERIAL SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND SMACNA.
- B) ALL SUPPLY AND RETURN DUCTS AND PENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES. A MINIMUM OF R-8 INSULATION SHALL BE INSTALLED WHEN LOCATED OUTSIDE OF THE BUILDING. WHEN A DUCTOR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED SPACES BY A MINIMUM OF R-8 INSULATION.

2. CONCEALED DUCTWORK

- A) INSULATE SUPPLY AND FRESH AIR DUCTS AND PLENUMS IN CONCEALED SPACES AND RETURN DUCT NOT IN CEILING PLENUM WITH AT LEAST 1-1/2" THICK FIBROUS GLASS DUCT WRAP, WITH A MINIMUM R VALUE OF R-6 AND FOIL-KRAFT FLAME RESISTANT VAPOR BARRIER.

3. EXPOSED DUCTWORK

- A) INSULATE EXPOSED SUPPLY, RETURN AND FRESH AIR DUCTS AND EXPOSED PLENUM WITH 2" THICK, SEMI-RIGID FIBROUS GLASS BOARD WITH A MINIMUM R VALUE OF R-8 AND A FACTORY APPLIED FIRE RETARDANT FOIL REINFORCED KRAFT VAPOR BARRIER FACING. PROVIDE WELD PINS AND VAPOR SEAL ALL JOINTS WITH TAPE.

2.08 TESTING AND BALANCING:

- A. GENERAL:

1. TESTING AND BALANCING WORK SHALL BE PERFORMED BY AN INDEPENDENT COMPANY (NOT ASSOCIATED WITH THA HVAC CONTRACTOR), AABC CERTIFIED OR AS APPROVED BY THE ENGINEER BEFORE COMMENCEMENT OF WORK. APPROVED COMPANIES INCLUDE MERENDINO ASSOCIATES, R.H. MCDEMOTT, INTERNATIONAL TESTING AND BALANCING OR AS APPROVED BY THE ENGINEER AND BUILDING MANAGEMENT.

2. AFTER ALL PROJECT HVAC WORK IS COMPLETE, TESTED, AND IN FULL WORKING ORDER, THE AGENCY SHALL PERFORM THE BALANCING AND TESTING OF THE PROJECT HEATING, VENTILATING AND AIR CONDITIONING SYSTEM.

3. UPON THE COMPLETION OF THE AIR CONDITIONING SYSTEM, THE BALANCING AGENCY SHALL PERFORM TESTING AND BALANCING AND COMPILE ALL TEST DATA IN A CERTIFIED REPORT AND SUBMIT FOUR(4) COPIES FOR REVIEW AND APPROVAL TO THE ENGINEER.

4. THE REPORT SHALL INCLUDE DESIGN AND ACTUAL READINGS FOR ALL EQUIPMENT AND LOCATION PLAN INDICATING WHERE ALL WORK HAS BEEN PERFORMED, AND METHODS OF BALANCING AND DETAILS OF INSTRUMENTS USED.

5. IF DISCREPANCIES EXIST IN THE REPORT THAT REQUIRE FIELD VERIFICATION, THE TESTING AND BALANCING COMPANY IN THE PRESENCE OF THE ENGINEER SHALL VISIT THE JOBSITE FOR FIELD VERIFICATION OF THE REPORT.

6. AFTER SUBMISSION OF THE FIELD VERIFIED BALANCING REPORT, THE AIR BALANCING COMPANY SHALL RETURN TO THE JOB SITE PERFORM TWO(2) OCCUANT COMFORT BALANCES AS DIRECTED BY THE OWNER OR ENGINEER.

7. THE FINAL REPORT AFTER THE COMFORT BALANCE IS TO BE INCLUDED IN PROJECT OPERATING AND MAINTNANCE MANUAL.

8. THE TESTING AND BALANCING AGENCY SHALL INCLUDE AS PART OF THEIR WORK AN EXTENDED WARRANTY OF 90 DAYS AFTER COMPLETION OF TEST AND BALANCE WORK. THE ENGINEER AT HIS DISCRETION DURING THE WARRANTY PERIOD MAY REQUEST A RECHECK OR RESETTING OF ANY EQUIPMENT. THE MECHANICAL CONTRACTOR AND THE BALANCING CONTRACTOR SHALL PROVIDE THE NECESSARY TECHNICIANS FACILITATE THIS WORK.

9. THE BALANCING AGENCY SHALL PERMANENTLY MARK ALL ADJUSTMENT DEVICES (VALVES, DAMPERS, ETC.) TO ENABLE THE SETTING TO BE RESTORED.

- B. AIR BALANCING

1. PRE-CONSTRUCTION AIR TESTING: MEASURE PRESSURE, TEMPERATURE, AND VOLUME OF AIR FROM THE EXISTING BASE BUILDING SYSTEM BEFORE STARTING WORK. TRAVERSE MAIN SUPPLY AND RETURN DUCTS BEFORE WORK TO OBTAIN TOTAL FLOW. SUBMIT REPORT TO THE ENGINEER IMMEDIATELY AFTER COMLETION OF THE TEST.

2. HVAC CONTRACTOR SHALL ENSURE THAT A FIRST SET OF AIR FILTERS ARE IN PLACE, WHENEVER FANS ARE RUNNING AND REPLACED WITH A NEW CLEAN SET OF FILTERS BEFORE TESTING IS COMMENCED.

3. TEST, ADJUST, REPLACE SHEAVES, AND BALANCE ALL EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE AIR QUANTITIES INDICATED ON PLANS WITHIN PLUS OR MINUS 10 PERCENT.

4. TEST REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- A) FLOW, LEAKAGE CLASS, TEMPERATURE, STATIC PRESSURE OF AIR AT ALL TRUNK DUCTS SERVING AREAS OF WORK.

- B) TEMPERATURE OF AIR LEAVING OUTLETS AT TWO (2) TYPICAL AIR OUTLETS.

PERFORMANCE SPECIFICATION-MECHANICAL	
F. DIFFUSER, GRILLES AND REGISTERS	
1. GENERAL	
A) GRILLES, REGISTERS AND DIFFUSERS SHALL BE TESTED IN ACCORDANCE WITH ASHRAE STANDARD 70-1991 OR LATEST EDITION. THE MANUFACTURER SHALL PROVIDE PUBLISHED PERFORMANCE DATA FOR ALL AIR INLET AND OUTLETS TO BE USED ON PROJECT AS PART OF THE SUBMISSION.	
B) THE MECHANICAL CONTRACTOR TO COORDINATE THE LOCATION OF DIFFUSERS, GRILLES AND REGISTRARS WITH OTHER TRADES AND WITH CEILING AND WALL CONSTRUCTION. THE MECHANICAL CONTRACTOR IS TO VERIFY THAT ALL DIFFUSERS, GRILLES AND REGISTERS ARE COMPATIBLE WITH CEILING CONSTRUCTION TO WHICH THEY ARE TO BE INSTALLED.	
C) COORDINATE ALL WORK WITH THE GENERAL CONTRACTOR AND REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION, LENGTHS AND FOR FRAMING AND MITERING ARRANGEMENTS THAT MAY DIFFER FROM THOSE SHOWN ON HVAC DRAWINGS. PROVIDE ALL REQUIRED GENERAL CONSTRUCTION, FRAMING, BLOCKING, PLASTERING AND SUPPORTS TO MATCH CEILING, SOFFIT OR WALL CONSTRUCTION AS PART OF THE PROJECT.	
D) INLETS AND OUTLETS SHALL HANDLE AIR QUANTITIES INDICATED AT OPERATING VELOCITIES WITH SOUND PRESSURE LEVEL NOT TO EXCEED NC-30, UNLESS NOTED OTHERWISE.	
E) DIFFUSERS, GRILLES AND REGISTERS SHALL BE INSTALLED WITH FACES SET LEVEL AND PLUM AND MOUNTED TIGHTLY AGAINST MOUNTING SERVICE.	
F) ALL AIR INLETS AND OUTLETS TO BE STEEL OR ALUMINUM IF EXPOSED TO MOISTURE UNLESS OTHERWISE INDICATED. FINISHES TO BE SELECTED BY THE ARCHITECT.	
G) DIFFUSER, GRILLES AND REGISTERS SHALL BE MANUFACTURED BY TITUS, ANEMOSTAT OR APPROVED EQUAL.	
H) SUBMIT FOR APPROVAL A COMPLETE SCHEDULE OF ALL AIR INLETS AND OUTLETS TO BE USED ON PROJECT INCLUDING MANUFACTURER'S MODELS, SIZES, PERFORMANCE, ACCESSORIES, ACOUSTIC INFORMATION, FINISHES, ETC., BEFORE RELEASE FOR FABRICATION. NOTE ANY DEVIATIONS FROM SPECIFICATIONS AND SCHEDULES SHALL BE INDICATED ON SUBMITTAL.	
PART 2 - EXECUTION	
2.01 SHEET METAL WORK	
DUCTWORK SHALL BE FABRICATED AND ERECTED AS REQUIRED TO COMPLETE THE WORK. IF IT IS DEEMED ADVISABLE BY THE CONTRACTOR TO CHANGE THE LOCATION OF ANY DUCT OR DIMENSION THEREOF FROM THAT SHOWN ON THE DRAWINGS, THE CHANGE SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT, AND HIS APPROVAL RECEIVED. SHEET METAL WORK SHALL BE FABRICATED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS AS SET FORTH BY ASHRAE AND SMACNA.	
FLEXIBLE CONNECTIONS: ALL DUCT CONNECTIONS TO FAN DRIVEN UNITS SHALL BE MADE WITH A FIREPROOF FLEXIBLE DUCT CONNECTOR, 6" MAXIMUM LENGTH. OUTDOOR DUCT WORK SHALL BE ALUMINUM.	
2.02 INSTALLATION	
DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF WORK TO BE INSTALLED. RUN AND ARRANGEMENT SHALL BE APPROXIMATELY AS INDICATED, ACCESSIBLE LOCATION.	
SUBJECT TO MODIFICATIONS AS REQUIRED TO SUIT CONDITIONS AT BUILDING, TO AVOID INTERFERENCE WITH WORK OF OTHER TRADES, OR FOR PROPER CONVENIENT AND RUN DUCTS CONCEALED IN WALL CHASES, RECESSES, PIPE SHAFTS, AND ABOVE CEILINGS. DO NOT PERMANENTLY CLOSE UP, FURR IN, OR COVER WORK BEFORE EXAMINATION AND TEST.	
2.03 EQUIPMENT SUPPORT	
THIS CONTRACTOR SHALL PROVIDE METAL AND OTHER BASES AND SUPPORTS NOT PART OF THE BUILDING FOR ALL EQUIPMENT AND ERECT ALL STRUCTURAL SUPPORTS OF PROPER SIZE, TYPE AND STRENGTH THROUGHOUT WHEREVER NECESSARY. THE MATERIAL SHALL BE COMPLETE AND MUST BE APPROVED BY THE ARCHITECT.	
2.04 PROTECTION	
THIS CONTRACTOR SHALL TAKE PARTICULAR CARE TO PROTECT ANY FINISHED WORK FROM INJURY OR DEFACEMENT AND MUST REMEDY AT HIS OWN EXPENSE ANY INJURY CAUSED THERE TO BY HIS OPERATIONS OR THE OPERATIONS OF ANY OTHER CONTRACTORS.	
THIS CONTRACTOR SHALL PROVIDE SUITABLE PROTECTION OF ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT WHILE STORED AT THE JOB SITE AND AFTER INSTALLATION. THIS PROTECTION SHALL BE SUITABLE TO GUARD EQUIPMENT ITEMS AGAINST DAMAGE FROM THE WEATHER OR FROM CONSTRUCTION ACTIVITY. SUCH PROTECTION SHALL NOT BE REMOVED UNTIL DIRECTED BY THE ARCHITECT. THE INTERIOR AND EXTERIOR OF ALL DUCTS, PIPING AND EQUIPMENT, SHALL BE KEPT IN A CLEAN CONDITION, FREE FROM DIRT AND DEBRIS. ALL PIPING, DUCT, AND EQUIPMENT ITEMS SHALL BE THOROUGHLY CLEANED BEFORE THE START-UP OF ANY EQUIPMENT OR SYSTEMS.	
2.05 GUARANTEES	
ALL PARTS OF THE INSTALLATION ARE TO BE GUARANTEED IN WRITING BY THIS SUBCONTRACTOR TO BE FREE FROM DEFECTS, MANUFACTURE AND SHALL GIVE FULL INFORMATION TO THE GENERAL CONTRACTOR AND ALL OTHER SUBCONTRACTORS SUFFICIENTLY IN ADVANCE. HE SHALL FURNISH ALL SLEEVES, SUPPORTS, ETC., SO THAT THE GENERAL CONTRACTOR MAY BUILD THE SAME IN PLACE. IN THE CASE OF FAILURE OF THIS CONTRACTOR TO NOTIFY THE GENERAL CONTRACTOR ALL REQUIRED CUTTING AND PATCHING WILL BE DONE BY THE GENERAL CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR.	
2.06 SLEEVES AND OPENINGS	
THIS CONTRACTOR SHALL KEEP HIMSELF FULLY INFORMED AS TO THE SHAPE, SIZE AND LOCATION OF ALL OPENINGS REQUIRED FOR HIS EQUIPMENT AND SHALL GIVE FULL INFORMATION TO THE GENERAL CONTRACTOR AND ALL OTHER SUBCONTRACTORS SUFFICIENTLY IN ADVANCE. HE SHALL FURNISH ALL SLEEVES, SUPPORTS, ETC., SO THAT THE GENERAL CONTRACTOR MAY BUILD THE SAME IN PLACE. IN THE CASE OF FAILURE OF THIS CONTRACTOR TO NOTIFY THE GENERAL CONTRACTOR ALL REQUIRED CUTTING AND PATCHING WILL BE DONE BY THE GENERAL CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR.	
2.07 ACCESS PANELS	
FURNISH ACCESS PANELS OF SUFFICIENT SIZE TO FACILITATE SERVICING WHERE DAMPERS, OR SHUT-OFF VALVES ARE CONCEALED IN NON-ACCESSIBLE SPACE.	
PANEL SHALL BE MILCOR STYLE "AT" FOR PANELS IN ACOUSTICAL TILE AREAS, STYLE "AP" FOR PANELS IN PLASTER WALLS AND CEILINGS, AND STYLE "M" FOR PANELS IN MASONRY OR TILE WALLS AS MANUFACTURED BY INLAND STEEL PRODUCTS CO., L.N. WALSH CO., MIAMI CAREY, OR EQUAL. ALL PANELS SHALL BE FURNISHED WITH A SHOP PRIME COAT OF PAINT.	
LOCATIONS OF ALL ACCESS PANELS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.	
PANELS SHALL BE INSTALLED BY THE CONTRACTOR IN WHOSE SURFACE THE PANELS OCCUR.	
2.08 RECORD DRAWINGS	
THE CONTRACTOR SHALL MAINTAIN AND SUBMIT RECORD DRAWINGS, ON WHICH SHALL AT ALL TIMES, CLEARLY AND COMPLETELY, SHOW THE ACTUAL INSTALLATION IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.	
WHEREVER THE WORK WAS INSTALLED OTHER THAN AS SHOWN ON THE CONTRACT DRAWINGS, SAID CHANGES SHALL BE INDICATED ON THE "AS-BUILT" PRINTS. ANY ADDENDA SKETCHES AND SUPPLEMENTARY DRAWINGS ISSUED DURING THE COURSE OF CONSTRUCTION SHALL ALSO BE INCORPORATED ON THE "AS-BUILT" PRINTS.	
THE "AS-BUILT" DRAWINGS SHALL BE KEPT UP TO DATE AND BE AVAILABLE TO THE ARCHITECT FOR INSPECTION AT ALL TIMES.	
UPON RECEIPT OF APPROVAL OF THE "AS-BUILT" DRAWINGS, PHOTO REPRODUCTIONS OF THE ORIGINAL TRACINGS ON MYLAR TRANSPARENCIES SHALL BE REVISED TO INCORPORATE ALL THE CHANGES ON THE "AS-BUILT" DRAWINGS. THESE REPRODUCIBLE TRANSPARENCIES SHALL BE CERTIFIED AS CORRECT AND DELIVERED TO THE ARCHITECT ALONG WITH TWO (2) SETS OF BLACK LINE PRINTS AS "RECORD DRAWINGS".	
ALL COSTS RELATIVE TO THESE RECORD DRAWINGS SHALL BE PAID BY THIS CONTRACTOR.	
2.09 RUBBISH REMOVAL	
AT THE COMPLETION OF EACH DAYS WORK, THIS CONTRACTOR SHALL REMOVE FROM THE PREMISES, ALL RUBBISH OR WASTE MATERIAL BELONGING TO HIM.	
2.10 TESTING AND ADJUSTING	
ALL EQUIPMENT AND APPARATUS NECESSARY FOR TESTS, ADJUSTMENTS, AND RECORDINGS SHALL BE FURNISHED BY THIS CONTRACTOR. ALL DEFECTS DISCLOSED BY TESTS SHALL BE RECTIFIED, WITHOUT ADDITIONAL COST TO THE OWNER.	
IN THE CASE OF THE EXHAUST AND AIR SUPPLY SYSTEMS, ALL EQUIPMENT, DUCT SECTIONS, AND ACCESSORY APPARATUS SHALL BE TESTED AND BALANCED TO DELIVER AIR WITHIN 5 % OF THE QUANTITIES SPECIFIED ON THE PLANS BY AN APPROVED, EXPERIENCED BALANCING ENGINEER WHOSE BUSINESS IS THE BALANCING OF AIR SYSTEMS. ALL TESTS SHALL BE APPROVED BY THE ENGINEER AND SHALL REVEAL THE RECORD INFORMATION IN ACCORDANCE WITH THE FOLLOWING TABLE OF REQUIREMENTS.	
- FAN OR UNIT NAME OR NUMBER - DESIGN STATIC PRESSURE - ACTUAL STATIC PRESSURE - DESIGN CFM - ACTUAL CFM - SIZE OF GRILLE IN INCHES AND SQUARE FEET - GRILLE VELOCITY IN RPM - DESIGN CFM PER GRILLE - ACTUAL CFM PER GRILLE	
CONTRACTOR SHALL SUBMIT FOUR (4) COPIES OF TEST REPORTS TO THE ENGINEER FOR APPROVAL.	
2.11 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS	
THIS CONTRACTOR SHALL GIVE DETAILED INSTRUCTIONS PRIOR TO THE COMPLETION OF THE WORK, TO THE RESPONSIBLE PERSONNEL DESIGNATED BY THE OWNER IN THE OPERATION AND MAINTENANCE OF ALL WORK INSTALLED UNDER THIS CONTRACT. A LETTER WITH TWO COPIES CONTAINING THE NAME OF THE PERSON OR PERSONS TO WHOM THE INSTRUCTIONS WERE GIVEN AND THE DATES OF THE INSTRUCTION PERIOD SHALL BE SUBMITTED TO THE OWNER NO LATER THAN THE COMPLETION OF THE PROJECT.	
IN ADDITION, THIS CONTRACTOR SHALL PREPARE AND SUBMIT TWO SETS OF MANUFACTURER'S CATALOGS, INSTRUCTIONS AND OTHER SIMILAR DATA, INCLUDING THE NECESSARY PHOTOGRAPHIC CUTS, DIAGRAMS, VALVE CHARTS AND THE LIKE, COVERING ALL MECHANICAL AND MANUALLY OPERATED EQUIPMENT AND DEVICES FURNISHED AND/OR INSTALLED UNDER THE HVAC SUBCONTRACT. THIS MANUAL SHALL CONTAIN ONLY THAT INFORMATION WHICH SPECIFICALLY APPLIED TO THIS PROJECT, AND ALL UNRELATED MATERIALS SHALL BE DELETED. DURING THE INSTRUCTION PERIOD, SPECIFIED ABOVE, THE MANUAL SHALL BE USED AND EXPLAINED. THE MATERIALS SHALL BE BOUND IN BOOK FORM AND INDEXED.	
2.12 START UP	
CONTRACTOR SHALL START UNITS UNDER THE PRESENCE OF MANUFACTURER'S REPRESENTATIVE.	
PROVIDE A LETTER FROM MANUFACTURER THAT UNITS HAVE BEEN INSTALLED IN ACCORDANCE WITH MANUFACTURER'S GUIDE LINES.	
2.13. UNITS SHALL BE APPROVED DURING COOLING AND HEATING SEASONS	
2.14. PROVIDE COORDINATED DRAWING WITH OTHER TRADES.	
2.15. ANY CHANGES TO CONTRACT DOCUMENT MUST BE APPROVED BY THE ARCHITECT.	
2.16. HOUSEKEEPING PADS	
PROVIDE CONCRETE HOUSEKEEPING PADS FOR FLOOR-MOUNTED EQUIPMENT. COODINATE EXACT LOCATIONS, DIMENSIONS, PIPING LOCATIONS, AND ANCHOR BOLT REQUIREMENTS. PROVIDE CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED EQUIPMENT. PADS SHALL BE CONSTRUCTED OF 3,000 PSI CONCRETE. PADS SHALL BE 4 INCHES HIGH, AND 4 INCHES WIDER THAN THE EQUIPMENT IN BOTH DIRECTIONS.	
COORDINATE FLOOR DRAIN LOCATIONS WITH RESPECT TO EQUIPMENT HOUSEKEEPING PADS. PLACE DRAINS SUCH THAT EDGE OF THE FLOOR GRATE EXTENDS NO FURTHER THAN 2 INCHES FROM THE SIDE OF THE PAD.	

MECHANICAL ABBREVIATIONS	
AC	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
ATC	AUTOMATIC TEMPERATURE CONTROL
CD-A	DIFFUSER TYPE- REFER SCHEDULE
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNIT
CC	COOLING COIL
CFM	CUBIC FEET PER MINUTE
E	EXISTING
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ER	EXISTING TO REMAIN
ETR	EXISTING TO BE RELOCATED
FC	FAN COIL
FLA	FULL LOAD AMPS
FPI	FIN PER INCH
HZ	HERTZ
KW	KILOWATT
LAT	LEAVING AIR TEMERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
OED	OPEN ENDED DUCT
PH	PHASE
PSI	POUNDS PER SQUARE INCH
SHC	SENSIBLE COOLING (IN MBH)
TC	TOTAL COOLING (IN MBH)
TYP	TYPICAL
V	VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
WMS	WIRE MESH SCREEN

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PERFORMANCE SPECIFICATION

SECTION 16000 - ELECTRICAL

PART-1 GENERAL REQUIREMENTS

1.01 SCOPE OF THE WORK

WORK UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS, SERVICES, EQUIPMENT, TRANSPORTATION AND OTHER INCIDENTALS NECESSARY TO FURNISH AND INSTALL ALL ELECTRICAL WORK.

SPECIFIC INCLUSIONS ARE:

- ON SITE VERIFICATION OF EXISTING CONDITIONS
- EMERGENCY LIGHTING FOR LIFE SAFETY STANDARD
- BRANCH CIRCUIT WIRING FOR LIGHTING, RECEPTACLES, JUNCTION BOXES AND MOTORS.
- HANGERS, ANCHORS, SLEEVES, CHASES, SUPPORTS FOR FIXTURES, AND OTHER ELECTRICAL MATERIALS AND EQUIPMENT IN ASSOCIATION THEREWITH.
- LIGHTING FIXTURES AND LAMPS.
- OTHER ITEMS AND SERVICES REQUIRED OR AS SHOWN ON DRAWINGS TO COMPLETE THE INTENT OF THE PROJECT.

1.02 SUBMITTALS

SUBMIT PRODUCT DATA FOR APPROVAL INCLUDING:

- MATERIALS LIST AND MANUFACTURER'S SPECIFICATIONS.
- MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.

WHEN SO REQUESTED BY THE ENGINEER, PROMPTLY PROVIDE SAMPLES OF ITEMS SCHEDULED TO BE EXPOSED IN THE FINAL STRUCTURE.

MANUAL: UPON COMPLETION OF THIS PORTION OF THE WORK, AND AS A CONDITION OF ITS ACCEPTANCE, DELIVER TO THE ENGINEER FOUR COPIES OF AN OPERATION AND MAINTENANCE MANUAL. INCLUDE WITHIN EACH MANUAL:

- COPY OF THE APPROVED RECORD DOCUMENTS FOR THIS PORTION OF THE WORK.
- COPIES OF ALL EQUIPMENT, LIGHT FIXTURES, DEVICES BEING INSTALLED, WIRING AND CONDUITS
- COPIES OF ALL WARRANTIES AND GUARANTIES.

1.03 COORDINATION

CONFER WITH ALL OTHER SUBCONTRACTORS AS TO THE LOCATION OF THEIR WORK BEFORE BEGINNING ELECTRICAL WORK AND INSTALL WORK IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE OTHER ELECTRICALS. OBTAIN FROM THESE SUBCONTRACTORS THE NECESSARY INFORMATION RELATIVE TO ELECTRICAL WORK REQUIRED FOR EQUIPMENT INSTALLED BY THEM.

1.04 RECORD DRAWINGS

AT THE COMPLETION OF THE CONTRACT THE ELECTRICAL SUBCONTRACTOR SHALL SUBMIT FOR APPROVAL AN ACCURATE CHECK SET OF "AS-BUILT" DRAWINGS.

1.05 GUARANTEE

THE ELECTRICAL SUBCONTRACTOR SHALL GIVE THE OWNER A WRITTEN GUARANTEE TO MAKE GOOD ANY AND ALL FAULTS AND DEFECTS IN THE WORK DUE TO DEFECTIVE OR IMPROPER MATERIALS OF WORKMANSHIP THAT MAY APPEAR WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE BUILDING AND SHALL MAKE ALL CHANGES WITHIN THE GUARANTEE PERIOD WHICH ARE REQUIRED TO PUT THE SYSTEM IN PROPER CONDITION AND OPERATION WITHOUT COST TO THE OWNER.

PART-2 PRODUCTS

2.01 GENERAL AREA LIGHTING:

2.01 PANELBOARDS

PANELBOARDS SHALL BE BY SQUARE D, GENERAL ELECTRIC, EATON, SIEMENS OR EQUAL.

LIGHTING AND SMALL POWER PANELBOARDS SHALL BE GE #AQ SERIES OR EQUAL.

2.02

ALL CONDUIT AND FITTINGS TO BE METALLIC OR GALVANIZED STEEL. BOXED, STEPS, SUPPORTS AND GROUND FAULT CIRCUIT INTERRUPTER (GFI) RECEPTACLES SHALL BE NEMA G-20R, CLASS "A", 5 MA SENSITIVITY AND SHALL BE PASS & SEYMOUR HUBBELL #GF15820 OR EQUAL.

2.03 LAMPS

LED LAMP

LED LAMPS SHALL BE BY PHILIPS, OSRAM, CREE OR EQUAL. ALL LUMINARIES SHALL BE TESTED PER LM-79, LM-80. THE LED LAMPS SHALL HAVE AT LEAST 50000 BURNING HOURS (L70).

LED BOARDS SHALL BE CREE, NICHIA OR SAMSUNG.

2.04 BALLASTS

BALLASTS SHALL BE ETL/CBM APPROVED, LEAKPROOF, RATED FOR ENVIRONMENT TEMPERATURE AND LOW NOISE LEVEL.

FLUORESCENT BALLASTS SHALL BE CLASS P, HIGH-POWER FACTOR, WITH "A" NOISE RATING; FOR 120V OR 277V OPERATION, UNLESS OTHERWISE NOTED. BALLASTS SHALL BE EQUAL TO UNIVERSAL #412L-SLH-TC-P FOR ONE-LAMP USAGE, AND UNIVERSAL #445L- SLH-TC-P FOR TWO-LAMP USAGE AND OF THE ENERGY SAVINGS TYPE.

2.05 WIRING DEVICES:

STRAIGHT-BLADE RECEPTACLES DUPLEX CONVENIENCE RECEPTACLES: 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596. DUPLEX CONVENIENCE RECEPTACLES SHALL BE BY COOPER #CR5352, LEVITON #5362, HUBBELL #5362 AND PASS & SEYMOUR #5362.

GF RECEPTACLES: 125 V, 20 A, STRAIGHT BLADE, SELF-TESTING FEED-THROUGH TYPE. COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, UL 943 CLASS A, AND FS W-C-596. INCLUDE INDICATOR LIGHT THAT SHOWS WHEN THE GFCI HAS MALFUNCTIONED AND NO LONGER PROVIDES PROPER GFCI PROTECTION.

GF CONVENIENCE RECEPTACLES SHALL BE BY COOPER #SGF20, LEVITON #GFTR2, HUBBELL #GFRST20 AND PASS & SEYMOUR #2097.

TAMPER-RESISTANT, DUPLEX GF CONVENIENCE RECEPTACLES SHALL BE COOPER -#TRSGF20, HUBBELL #GFTRST20 AND PASS & SEYMOUR #2097TR.

TAMPER-RESISTANT CONVENIENCE RECEPTACLES: 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596. TAMPER-RESISTANT CONVENIENCE RECEPTACLES SHALL BE BY LEVITON #TBR20, HUBBELL #BR20TR AND PASS & SEYMOUR #TR20.

TWIST-LOCK, SINGLE CONVENIENCE RECEPTACLES: 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION L5-20R, AND UL 498. TWIST-LOCK, SINGLE CONVENIENCE RECEPTACLES SHALL BE BY COOPER #CWL520R, HUBBELL #L520R, LEVITON #2310, PASS & SEYMOUR #L520-R.

SWITCHES:

SWITCHES SHALL COMPLY WITH NEMA WD 1, UL 20, AND FS W-S-896. SWITCHES, 120/277 V, 20 A: SINGLE POLE: LEVITON # 1221-S OR EQUAL. THREE WAY: LEVITON #1223-S OR EQUAL. FOUR WAY: LEVITON # 1224-S OR EQUAL. KEY-OPERATED SWITCHES: 120/277 V, 20 A, SINGLE POLE, WITH FACTORY-SUPPLIED KEY IN LIEU OF SWITCH HANDLE. KEY-OPERATED SWITCHES SHALL BE BY COOPER #AH1221L, HUBBELL #HBL1221L, LEVITON #1221-2L, PASS & SEYMOUR #PS20AC1-L. WALL PLATES: SINGLE AND COMBINATION TYPES SHALL MATCH CORRESPONDING WIRING DEVICES. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH. MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC. MATERIAL FOR UNFINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC. MATERIAL FOR DAMP LOCATIONS: THERMOPLASTIC WITH SPRING-LOADED LIFT COVER, AND LISTED AND LABELED FOR USE IN WET AND DAMP LOCATIONS.

PART-3 EXECUTION

3.01 COORDINATION

THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC, BUT ARE REQUIRED TO BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION AND WORK OF OTHER ELECTRICALS WILL PERMIT. WHERE DEVIATIONS ARE REQUIRED TO CONFORM WITH ACTUAL CONSTRUCTION AND THE WORK OF OTHER ELECTRICALS, MAKE SUCH DEVIATIONS WITHOUT ADDITIONAL COST TO THE OWNER.

3.02 INSTALLATION OF RACEWAYS AND FITTINGS

WHERE CONDUIT IS INSTALLED CONCEALED IN WALLS OR ABOVE THE CEILING, OR EXPOSED IN WORK AREAS, PROVIDE ELECTRICAL METALLIC TUBING WITH COMPRESSION TYPE FITTINGS.

PROVIDE GALVANIZED RIGID STEEL CONDUITS FOR ALL CIRCUITINGS IN WET LOCATION AREA.

CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.

PROVIDE NECESSARY SLEEVES AND CHASES WHERE CONDUITS PASS THROUGH FLOORS AND WALLS, AND PROVIDE OTHER NECESSARY OPENINGS AND SPACES, ARRANGING FOR IN PROPER TIME TO PREVENT UNNECESSARY CUTTING IN CONNECTION WITH THE WORK. PERFORM CUTTING AND PATCHING IN ACCORDANCE WITH THE PROVISIONS FOR THE ORIGINAL WORK.

WHERE CONDUIT IS EXPOSED, RUN PARALLEL TO OR AT RIGHT ANGLE WITH LINES OF THE BUILDING; WHERE CONDUITS PIERCE THE ROOF, PROVIDE 24 GAUGE GALVANIZED IRON ROOF JACKS AND FLASHING COLLAR BRAZED ONTO THE CONDUITS AND COVERING THE TOP OF ROOF JACKS.

3.03 INSTALLATION OF LIGHTING FIXTURES

INSTALL LIGHTING FIXTURES COMPLETE AND READY FOR SERVICE IN ACCORDANCE WITH THE LIGHTING SCHEDULE SHOWN ON THE DRAWINGS.

WIRE FIXTURES WITH FIXTURE WIRING OF AT LEAST 50 DEGREES CELSIUS RATING. WHERE FIXTURES ARE MOUNTED IN CONTINUOUS ROWS, PROVIDE CONDUCTORS IN WIRING CHANNELS OR THE SAME SIZE AS THE CIRCUIT WIRES SUPPLYING THE ROW OF FIXTURES.

USE ONLY BONDERIZED, GALVANIZED, OR SHERARDIZED STEEL FOR FIXTURE INSTALLATION FOR PROTECTION AGAINST RUST AND CORROSION, AND INSTALL FLUORESCENT FIXTURES STRAIGHT AND TRUE WITH REFERENCE TO WALLS.

INSTALL ALL LIGHTING FIXTURES, INCLUDING THOSE MOUNTED IN CONTINUOUS ROWS, SO THAT THE WEIGHT OF THE FIXTURE IS SUPPORTED, EITHER DIRECTLY OR INDIRECTLY, BY A SOUND AND SAFE STRUCTURAL MEMBER OF THE BUILDING, USING ADEQUATE NUMBER AND TYPE OF FASTENINGS TO ASSURE SAFE INSTALLATION.

3.04 INSTALLATION OF CONDUCTORS

MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE: NO. 12 AWG. FOR ALL 20-A-1P, 120-VOLT CIRCUITS IN EXCESS OF 50 FT. FROM POWER SOURCE TO LAST DEVICE, PROVIDE NO. 10 AWG ENTIRE LENGTH OF CIRCUIT. FOR ALL 20-A-1P, 120-VOLT CIRCUITS IN EXCESS OF 80 FT. FROM POWER SOURCE TO LAST DEVICE, PROVIDE NO. 8 AWG ENTIRE LENGTH OF CIRCUIT. FOR ALL 20A-1P, 120-VOLT CIRCUITS IN EXCESS OF 120 FT. FROM POWER SOURCE TO LAST DEVICE, PROVIDE NO. 6 AWG ENTIRE LENGTH OF CIRCUIT.

PROVIDE CODE-SIZED CONDUIT FOR NUMBER AND SIZE WIRES SHOWN OR REQUIRED, UNLESS A LARGER SIZE CONDUIT IS SHOWN ON THE DRAWINGS.

USE IDENTIFIED (WHITE) NEUTRALS AND COLOR-CODED PHASE WIRES FOR ALL BRANCH CIRCUIT WIRING. MAKE SPLICES ELECTRICALLY AND MECHANICALLY SECURE WITH PRESSURE-TYPE CONNECTORS, OR BY SOLDERING. FOR WIRES SIZE 6 AWG AND LARGER, PROVIDE BURNDY VINYL-PLASTIC ELECTRICAL TAPE WHERE INSULATION IS REQUIRED.

INSULATE SPLICES WITH A MINIMUM OF TWO HALF-LAPPED LAYERS OF SCOTCH BRAND NO. 33 VINYL-PLASTIC ELECTRICAL TAPE WHERE INSULATION IS REQUIRED.

3.05 FINAL TESTING AND INSPECTION

PROVIDE PERSONNEL AND EQUIPMENT, MAKE REQUIRED TESTS, AND SECURE REQUIRED APPROVALS FROM THE ARCHITECT AND GOVERNMENTAL AGENCIES HAVING JURISDICTION.

WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, WITHIN THREE DAYS AFTER RECEIPT OF NOTICE OF SUCH NON-COMPLIANCE REMOVE THE NON-COMPLYING ITEMS FROM THE JOB SITE AND REPLACE THEM WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS, ALL AT NO ADDITIONAL COST TO THE OWNER.

3.06 PROJECT COMPLETION

UPON COMPLETION OF THE WORK OF THIS SECTION, THOROUGHLY CLEAN ALL EXPOSED PORTIONS OF THE ELECTRICAL INSTALLATION, REMOVING ALL TRACES OF SOIL, LABELS, GREASE,OIL, AND OTHER FOREIGN MATERIAL, AND USING ONLY THE TYPE CLEANER RECOMMENDED BY THE MANUFACTURER OF THE ITEM BEING CLEANED.

THOROUGHLY INDOCTRINATE THE OWNER'S OPERATION AND MAINTENANCE PERSONNEL IN THE CONTENTS OF THE OPERATIONS AND MAINTENANCE MANUAL.

3.07 RECORD DRAWINGS

THIS CONTRACTOR SHALL MAINTAIN AND SUBMIT RECORD DRAWINGS, ON WHICH SHALL AT ALL TIMES, CLEARLY AND COMPLETELY SHOW THE ACTUAL INSTALLATION IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.

WHEREVER THE WORK WAS INSTALLED OTHER THAN AS SHOWN ON THE CONTRACT DRAWINGS, SAID CHANGES SHALL BE INDICATED ON THE "AS-BUILT" PRINTS. ANY ADDENDA SKETCHES AND SUPPLEMENTARY DRAWINGS ISSUED DURING THE COURSE OF CONSTRUCTION SHALL ALSO BE INCORPORATED ON THE "AS-BUILT" PRINTS.

THE "AS-BUILT" DRAWINGS SHALL BE KEPT UP TO DATE AND BE AVAILABLE TO THE ENGINEER FOR INSPECTION AT ALL TIMES.

UPON RECEIPT OF APPROVAL OF THE "AS-BUILT" DRAWINGS, PHOTO REPRODUCTIONS OF THE ORIGINAL TRACINGS ON MYLAR TRANSPARENCIES SHALL BE REVISED TO INCORPORATE ALL THE CHANGES ON THE "AS-BUILT" DRAWINGS. THESE REPRODUCIBLE TRANSPARENCIES SHALL BE CERTIFIED AS CORRECT AND DELIVERED TO THE ENGINEER ALONG WITH (2) SETS OF BLACK LINE PRINTS AS "RECORD DRAWINGS"

ALL COSTS RELATIVE TO THESE RECORD DRAWINGS SHALL BE PAID BY THIS CONTRACTOR.

3.08 RUBBISH REMOVAL

AT THE COMPLETION OF EACH DAYS WORK, THIS CONTRACTOR SHALL REMOVE FROM THE PREMISES, ALL RUBBISH OR WASTE MATERIAL BELONGING TO HIM.

GENERAL ELECTRICAL NOTES

- THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, LATEST EDITION (NEC) AND THE LATEST EDITIONS OF ALL LOCAL CODES, RULES AND ORDINANCES HAVING JURISDICTION.
- AS A MINIMUM, ALL EQUIPMENT SHALL MEET APPLICABLE STANDARDS, FOR THE TYPE OF EQUIPMENT AND INTENDED USE, OF THE FOLLOWING:  
A. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)  
B. ILLUMINATING ENGINEERS SOCIETY (IES)  
C. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)  
D. NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATES (NEMA)  
E. NOTE: THESE STANDARDS ARE SUBORDINATE TO CODES AND STANDARDS SET BY U.I.
- ALL ELECTRICAL EQUIPMENT, DEVICES, WIRE, ETC., SHALL BE LISTED, FOR INTENDED USE, WITH UNDERWRITER'S LABORATORIES INC. (U.L.), WHERE STANDARDS HAVE BEEN ESTABLISHED BY U.L.
- CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK AS SHOWN AND/OR NOTED ON THE DRAWINGS.
- THE CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL CONDITIONS, LOCATIONS, DIMENSIONS AND COUNTS AS SHOWN OR NOTED ON THE DRAWINGS, PRIOR TO SUBMITTING BID.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK AS SHOWN AND/OR NOTED ON THE PLANS.
- ELECTRICAL CONTRACTOR SHALL NOT SCALE DRAWINGS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT UNLESS NOTED OTHERWISE.
- IT SHALL BE UNDERSTOOD THAT ALL WORK PERFORMED SHALL BE DONE BY A LICENSED CONTRACTOR AND IN A FIRST-CLASS WORKMANLIKE MANNER. SAID CONTRACTOR SHALL MEET ALL REQUIREMENTS SET FORTH BY ANY LOCAL ORDINANCE AND GOVERNING AUTHORITIES.
- THE CONTRACTOR SHALL PROVIDE ALL REQUIRED INSURANCE FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE, UNLESS INDICATED OR SPECIFIED OTHERWISE.
- IT SHALL NOT BE THE INTENT OF THESE PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR SHALL BE EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE FOR ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
- CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY OF EACH PANELBOARD. HAND WRITTEN DIRECTORY IS NOT ACCEPTABLE, EXCEPT SPARE AND SPACES SHALL BE HANDWRITTEN IN PENCIL.
- THE ELECTRICAL CONTRACTOR SHALL FURNISH A COMPLETE SET OF AS-BUILT DRAWINGS, SHOWING ALL CHANGES AND DEVIATIONS TO THE ARCHITECT/ENGINEER PRIOR TO COMPLETION OF THE PROJECT.
- COORDINATE TEMPORARY ELECTRICAL POWER REQUIREMENT WITH OWNER.
- G.C. TO COORDINATE WITH ALL OTHER DISCIPLINES AND PREPARE CEILING COORDINATION DRAWINGS TO ACCOMMODATE CEILING HEIGHTS, SPRINKLERS, LIGHTING, DUCTWORK & PLUMBING AND SUBMIT FOR APPROVAL TO THE ARCHITECT PRIOR TO ORDERING MATERIALS.

METER CENTERS 2-6 POSITION FIXED

PART 1 GENERAL

- 1.01 SECTION INCLUDES
- A. MULTI-METERING SHALL BE FURNISHED AND WALL MOUNTED AT LOCATIONS AS SHOWN ON THE DRAWINGS.
  - B. METERING SHALL BE UL LISTED.
  - C. METERING SHALL BE LABELED FOR SERVICE EQUIPMENT ONLY.

1.02 REFERENCES

- A. NEMA AB 1 - CIRCUIT BREAKERS
- B. NEMA PB 1 - PANELBOARDS

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
- A. METER UNIT(S) SHALL BE MANUFACTURED BY SQUARE D COMPANY OR APPROVED EQUAL.

2.02 ENCLOSURES

- A. NEMA TYPE 3R AS SHOWN ON THE DRAWINGS.
- B. ENCLOSURES SHALL BE CONSTRUCTED OF FORMED AND WELDED, CODE GAUGE STEEL, NEMA 3R WITH A GRAY BAKED ENAMEL FINISH ELECTRODEPOSITED OVER CLEANED GALVANIZED STEEL.
- C. NO DEVICE DISASSEMBLY IS TO BE REQUIRED BEFORE MOUNTING.
- D. ALL COMPARTMENTS CONTAINING UNMETERED CIRCUITS SHALL BE PROVIDED W/SEALING MEANS.

2.03 INTERIOR CONSTRUCTION

- A. ALL COMPONENTS SHALL BE FACTORY ASSEMBLED AND ALL CURRENT CARRYING PARTS SHALL BE PLATED BUS BARS.
- B. ALL BUSSING MUST BE COMPLETE FROM THE MAIN LUGS TO THE METER SOCKET AND TO THE CIRCUIT BREAKER USING BELLEVILLE WASHERS AT ALL JOINTS.

2.04 METER SOCKETS

- A. METER SOCKETS SHALL BE 4-JAW [NON-CIRCUIT CLOSING] [AUTOMATIC CIRCUIT CLOSING] [MANUAL CIRCUIT CLOSING] TYPE WITH 5TH JAW PROVISIONS WHEN USED ON 200/120 VAC SYSTEMS.
- B. SOCKETS SHALL BE RATED 200 AMPERE CONTINUOUS DUTY.
- C. METER SOCKET JAWS MUST BE SPRING REINFORCED AND FRONT REMOVABLE.

2.05 BRANCH CIRCUIT BREAKERS

- A. BRANCH CIRCUIT BREAKERS FOR 125 AMPERE DEVICES SHALL BE SQUARE D, TWO-POLE, PLUG-ON TYPE Q0 (FOR 15 THROUGH 125 AMPERE BREAKERS).
- B. BRANCH CIRCUIT BREAKERS FOR 150 OR 200 AMPERE DEVICES SHALL BE SQUARE D TYPE Q2 BREAKERS.
- C. INTERRUPTING RATINGS SHALL BE SELECTED TO PROVIDE THE REQUIRED CURRENT AND SHORT CIRCUIT CURRENT RATING.

GENERAL LIGHTING NOTES

- ANY PORTION OF WALL SCONCE OR OTHER OBJECT THAT PROTRUDES INTO THE CIRCULATION PATH ABOVE 27" OR BELOW 80" IS LIMITED TO A 4" MAXIMUM PROJECTION.
- ALL SWITCHES LOCATED AT 48" AFF, UNO.
- ALL DUPLEX RECEPTACLES SHALL BE 20AMP-120VOLT INSTALLED 18" FROM FINISHED FLOOR TO CENTER OF RECEPTACLE.
- ALL LIGHTING FIXTURE SHALL INCLUDE LAMPS AND MOUNTING COMPONENTS.
- COORDINATE WITH OWNER FOR PENDANT MOUNTING HEIGHT OF ALL PENDANT/SUSPENDED MOUNTED LIGHT FIXTURE.
- FLUORESCENT LAMPS SHALL BE EQUAL TO GENERAL ELECTRIC T8 ECOLUX HIGH LUMEN WITH COLOR TEMPERATURE K RATING OF 3500.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF LIGHT FIXTURES.
- COORDINATE TYPE OF CEILING FOR EACH FIXTURE WITH ARCHITECTURAL REFLECTED CEILING PLANS AND PROVIDE FIXTURE TRIM AS REQUIRED.
- ALL COMPACT FLUORESCENT DOWNLIGHTS SHALL USE LAMPS WITH 3500K TEMPERATURE, MINIMUM 10,000 HOUR LIFE ELECTRONIC BALLAST, UNLESS OTHERWISE NOTED.
- PROVIDE APPROVED FIRE RATED ENCLOSURES FOR ALL LIGHT FIXTURES LOCATED IN FIRE RATED CEILINGS.
- FIXTURES IN WALLS WITHOUT CEILINGS, OR IN MECHANICAL AND ELECTRICAL ROOMS SHALL BE MOUNTED WITH 1 1/2"x1 1/2" \*KINDORF CHANNEL SUPPORT SUSPENDED FROM ROOF STRUCTURE WITH THREAD RODS. FIXTURES SHALL BE MOUNTED 10'-0" A.F.F.
- ALL ACRYLIC LENSED FIXTURES SHALL HAVE A LENS THICKNESS OF .125 INCHES MINIMUM.
- HALF SHADED FIXTURES DENOTE EMERGENCY FIXTURES EITHER WITH 1100 LUMEN EMERGENCY BATTERY PACK OR ON LIFE SAFETY CIRCUIT.
- LIGHTING FIXTURE SCHEDULE IS PREDICTED ON PERFORMANCE AND IS DESIGNED TO MEET CERTAIN AESTHETIC CRITERIA. ALL ALTERNATIVE SELECTIONS MUST BE SUBMITTED FOR PRIOR APPROVAL TEN (10) DAYS PRIOR TO BID DATE.
- ALL BALLASTS SHALL HAVE MINIMUM POWER FACTOR OF 0.90. ALL BALLASTS FOR METAL HALIDE AND HIGH PRESSURE SODIUM FIXTURES SHALL BE CONSTANT WATTAGE TYPE WITH +/-5%% LAMP WATTS FOR +/-10%% NOMINAL LINE VOLTAGE VARIATION.
- PROVIDE LAMPS WITH FIXTURES, VERIFY LAMP TYPE WITH MANUFACTURER. FLUORESCENT LUMINAIRES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) OR MULTIWIRE BALASTED LUMINAIRES SHALL CONTAIN AN INTEGRATED INTERNAL DISCONNECT AND TO BE COMPLIED WITH NEC 410.73(G).
- ALL OPENINGS FOR LIGHT FIXTURES IN CEILINGS SHALL BE PROTECTED IN A MANNER (PER ALL GOVERNING CODES) THAT WILL PROVIDE THE SAME RATING AS THE CEILING. (THIS APPLIES TO ALL FIRE RATED CEILINGS).
- FOR EMERGENCY EXIT SIGNS AND EMERGENCY BATTERY PACKS MAKE CONNECTIONS AHEAD OF ALL SWITCHES AND CONTROLS.
- PROVIDE A FUSE HOLDER AND FUSE (BUSSMAN HEB AND FNO OR EQUAL), IN THE PRIMARY SIDE OF EACH UNGROUNDED CONDUCTOR FOR ALL BALLASTS AT THE HAND HOLE OF EACH EXTERIOR POLE MOUNTED LIGHTING FIXTURE OR J-BOX FOR WALL OR GROUND MOUNTED FIXTURE.
- PROVIDE WIND LOAD RATED LIGHT POLES WITH 145 MPH MINIMUM WIND SPEED (ASCE 7). EXPOSURE C WITH IMPORTANCE FACTOR OF 1.0, AND PROVIDE PHOTOMETRICS WITH ALL FIXTURE SUBMITTALS. CONTRACTOR TO VERIFY VOLTAGES OF ALL LIGHT FIXTURES PRIOR TO BIDDING. COORDINATE WITH SITE ENGINEER.
- PHOTOMETRICS ARE BASED ON MANUFACTURER'S INFORMATION AND CATALOG NUMBERS. ALTERNATIVE MANUFACTURERS MUST PROVIDE THE IESNA FORMAT ELECTRONIC FILES OF THE INDEPENDENT TEST LAB REPORTS FOR THE PROPOSED FIXTURES ON CD OR FLOPPY DISKETTE 10 WORKING DAYS PRIOR TO BID. (SPECIFIER) WILL CONFIRM THAT THE PHOTOMETRIC CRITERIA HAS BEEN MET, AND IF ALTERNATE IS APPROVED WILL ISSUE AN ADDENDUM. MANUFACTURERS NOT LISTED ON THE PLANS OR IN AN ADDENDUM WILL NOT BE ACCEPTED.
- TO CONFIRM THAT THE SPECIFIED PHOTOMETRIC CRITERIA HAS BEEN MET, A COMPUTER DISK CONTAINING AN IES FILE FOR THE PROPOSED ALTERNATE MUST BE SUBMITTED TO (SPECIFIER) FOR EVALUATION NO LESS THAN 10 DAYS PRIOR TO BID. ANY ACCEPTABLE ALTERNATE MUST BE APPROVED IN WRITING PRIOR TO BID DATE.
- CONTRACTOR MUST BID PROJECT USING SPECIFIED LIGHTING FIXTURES AS BASE BID (NO EXCEPTIONS). IF ALTERNATE FIXTURES ARE PROPOSED, THEY MUST BE BID AS AN ALTERNATE BID WHICH MUST INCLUDE: A) TOTAL DOLLAR CREDIT TO OWNER IF ALTERNATE IS ACCEPTED. B) LINE ITEM CREDIT FOR EACH ALTERNATE FIXTURE PROPOSED. C) CATALOG SUBMITTAL DATA FOR EACH ALTERNATE FIXTURE PROPOSED.
- IF THERE IS A DISCREPANCY BETWEEN A FIXTURE DESCRIPTION AND GENERAL NOTES, AND THE CATALOG NUMBER LISTED, THE FIXTURE DESCRIPTION AND GENERAL NOTES SHALL GOVERN.
- COORDINATE FIXTURE TYPES WITH ARCHITECTURAL DRAWINGS.

ELECTRICAL DRAWING INDEX	
SHEET NUMBER	SHEET NAME
E-1	ELECTRICAL NOTES & SPECIFICATIONS
E-2	EQUIPMENT SCHEDULES, NOTES AND LEGEND
E-3	POWER RISER DIAGRAM
E-4	LIGHTING & POWER PLAN

FILE NO:

22126

SCALE:

AS NOTED

DATE:

12/09/2022

DRAWN BY:

US

CHECKED BY:

UKP

SHEET TITLE:

ELECTRICAL NOTES & SPECIFICATIONS

SHEET NUMBER:

E-1

PROJECT:

22126

PHILIP R. SMITH ELEMENTARY SCHOOL

949 AVERY STREET, SOUTH WINDSOR, CT 06074

REVISIONS

NO.	DESCRIPTION	DATE	BY
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STAMP:

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Branch Panel: LP-3															
Location: PEDESTRIAN WALKWAY Supply From: TX-1 Mounting: SURFACE Enclosure: TYPE 1					Volts: 120/208 Wye Phases: 3 Wires: 4					A.I.C. Rating: Mains Type: MCB Bus Rating: 100 A MCB Rating: 100 A Feed Thru Lugs:					
Notes:															
CKT	Circuit Description	Note	Trip	Pole	A		B		C		Pole	Trip	Note	Circuit Description	CKT
1	REC - STEM ROOM		20 A	1	900	180					1	20 A		REC- UNDER CABINMATE - STEM...	2
3	REC - STEM ROOM		20 A	1			720	360			1	20 A		REC - WASH BASIN - STEM ROOM	4
5	REC - OVER COUNTER - ART ROOM		20 A	1					720	720	1	20 A		REC - ART ROOM	6
7	REC - WASH BASIN - ART ROOM		20 A	1	360	3000					1	20 A		ECUH-1	8
9	ECUH-2		20 A	1			3000								10
11															12
13															14
15															16
17															18
19															20
21															22
23															24
25															26
27															28
29															30
Total Load:					4440 VA		4080 VA		1440 VA						
Total Amps:					40 A		37 A		12 A						
Load Classification		Connected Load			Demand Factor			Estimated Demand			Panel Totals				
Power		6000 VA			100.00%			6000 VA							
											Total Conn. Load: 9960 VA				
											Total Est. Demand: 9960 VA				
											Total Conn.: 28 A				
											Total Est. Demand: 28 A				
Notes:															

Branch Panel: MP-3															
Location: PEDESTRIAN WALKWAY Supply From: MSB Mounting: SURFACE Enclosure: TYPE 1					Volts: 480/277 Wye Phases: 3 Wires: 4					A.I.C. Rating: Mains Type: MCB Bus Rating: 100 A MCB Rating: 100 A Feed Thru Lugs:					
Notes:															
CKT	Circuit Description	Note	Trip	Pole	A		B		C		Pole	Trip	Note	Circuit Description	CKT
1	LTG - STEM ROOM		20 A	1	432	117					1	20 A		LTG - PEDESTRIAN WALKWAY	2
3	LTG - ART ROOM		20 A	1			540	1353			3	20 A		ACU-2	4
5	ACU-1		20 A	3					1353	1353	--	--	--	--	6
7	--	--	--	--	1353	1353					--	--	--	--	8
9	--	--	--	--			1353	4333			3	20 A	--	--	10
11	TX-1 FOR LP-3		20 A	3					5000	4333	--	--	--	--	12
13	--	--	--	--	5000	4333					--	--	--	--	14
15	--	--	--	--			5000	216			1	20 A		LTG - NEAR PROJECTOR - STEM ROOM	16
17	LTG - NEAR PROJECTOR - ART ROOM		20 A	1					108						18
19															20
21															22
23															24
25															26
27															28
29															30
Total Load:					12588 VA		12795 VA		12147 VA						
Total Amps:					46 A		46 A		44 A						
Load Classification			Connected Load		Demand Factor		Estimated Demand		Panel Totals						
Lighting			1296 VA		100.00%		1296 VA								
Other			117 VA		100.00%		117 VA		Total Conn. Load: 22531 VA						
Power			21118 VA		100.00%		21118 VA		Total Est. Demand: 22531 VA						
									Total Conn.: 27 A						
									Total Est. Demand: 27 A						
Notes:															

## GENERAL ELECTRICAL NOTES

ALL THE ELECTRICAL WORK SHALL CONFORM TO NEC 2020.

PROVIDE ALL WIRING AND CONNECTIONS FOR ALL MECHANICAL EQUIPMENT AS SHOWN ON PLANS, INCLUDING DISCONNECT SWITCHES FOR ALL EQUIPMENT AS REQUIRED BY NEC.

ALL BRANCH ANS FEEDER CIRCUITS SHALL BE ARRANGED TO BALANCE THE LOAD ON THE PHASE AND SERVICE.

ALL ELECTRICAL WORK SHALL CONFIRM TO CURRENTLY ADOPTED NEC, NATIONAL STATE AND LOCAL BUILDING CODES.

ALL MATERIAL AND EQUIPMENT SHALL CONFORM TO APPLICABLE UL AND NEMA STANDARDS.

THE ELECTRICIAN SHALL CORDINATE HIS WORK WITH OTHER TRADES AND SHALL PROVIDE LABOR MATERIALS AND EQUIPMENT NECESSARY TO CONNECT ALL EQUIPMENT LIGHTING AND RECEPTACLES DESIGNED FOR THIS PROJECT.

CONDUCTORS SHALL BE TYPE 'THHN/THWN' OR 'XHHW', 600-VOLT STRANGED COPPER OR ALLUMINUM.

CONDUIT, WHERE APPLICABLE SHALL BE EMT OR PVC CONDUIT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE NECESSARY CLEARANCES AS REQUIRED BY THE MANUFACTURE OF THE EQUIPMENT.

THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMISSION OF SHOP DRAWINGS TO THE ENGINEER FOR HIS REVIEW AND APPROVAL.

PART 3 - EXECUTION

CO-ORDINATION

THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC, BUT ARE REQUIRED TO BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT. WHERE DEVIATIONS ARE REQUIRED TO CONFORM WITH ACTUAL CONSTRUCTION AND THE WORK OF OTHER TRADES MAKE SUCH DEVIATIONS WITHOUT ADDITIONAL COST TO THE OWNER.

INSTALLATION OF RACEWAYS, CABLES AND FITTINGS.

INSTALL MC CABLE AS ALLOWED BY CODE IN NEW AND EXISTING FRAMED WALLS & ABOVE SUSPENDED CEILINGS FOR LIGHTING & BRANCH CIRCUITS.

WHERE CONDUIT IS INSTALLED CONCEALED IN WALLS OR ABOVE THE CEILING OR EXPOSED IN WORK AREAS PROVIDE ELECTRICAL METALLIC TUBING WITH SET SCREW TYPE FITTINGS.

PROVIDE NECESSARY SLEEVES AND CHASES WHERE CONDUITS PASS THROUGH FLOORS AND WALLS AND PROVIDE OTHER NECESSARY OPENINGS AND SPACE ARRANGING FOR IN PROPER TIME TO PREVENT UNNECESSARY CUTTING IN CONNECTION WITH THE WORK . PERFORM CUTTING AND PATCHING IN ACCORDANCE WITH THE PROVISIONS FOR THE ORIGINAL WORK.

WHERE CONDUIT IS EXPOSED, RUN PARALLEL TO OR AT RIGHT ANGLE WITH LINES OF THE BUILDING.

INSTALLATION OF LIGHTING FIXTURES.

INSTALL LIGHTING FXTURES COMPLETE AND READY FOR SERVICE IN ACCORDANCE WITH THE LIGHTING FIXTURE SCHEDULE SHOWN ON THE DRAWINGS.

WIRE FIXTURES WITH FIXTURE WIRING OF AT LEAST 50 DEGREES C RATING WHERE FIXTURE ARE MOUNTED IN CONTINUES ROWS. PROVIDE CONDUCTORS IN WIRING CHANNELS OF THE SAME SIZE AS THE CIRCUIT WIRES SUPPLYING THE ROW OF FIXTURES.

INSTALL LED FIXTURES STRAIGHT AND TRUE WITH REFERENCE TO WALLS.

INSTALL ALL LIGHTING FIXTURES, INCLUDING THOSE MOUNTED IN CONTINUOUS ROWS, SO THAT THE WEIGHT OF THE FIXTURE IS SUPPORTED. EITHER DIRECTLY OR INDIRECTLY BY SOUND AND SAFE STRUCTURAL MEMBER OF THE BUILDING. USING ADEQUATE NUMBER AND TYPE OF FASTENINGS TO ASSURE SAFE INSTALLATION.

DEMOLITION NOTES:

ELECTRICAL CONTRACTOR TO USE THE EXISTING POWER OUTLETS WHERE EVER POSSIBLE.

## HEAT PUMP ELECTRICAL SCHEDULE

SYMBOL	Manufactu rer	MODEL NO	VOLT/PHASE	BREAKER	FLA	WIRE SIZE	COMMENTS
ACU-1	Bard	W36HB-C00	277/3P	20A-3P	5 A	3-#12 CU & 1-#12 GND IN 3/4" C	
ACU-2	Bard	W36HB-C00	277/3P	20A-3P	5 A	3-#12 CU & 1-#12 GND IN 3/4" C	

## ELECTRIC WATER HEATER ELECTRICAL SCHEDULE

NOTES:

1 - PROVIDE 240V-3 PHASE 60 A DISCONNECT SWITCH.

MARK	MANUFACTURE	MODEL NO	KW	VOLTS	BREAKER	WIRE SIZE	REMARK
EWH-1	EEMAX	EEM24013	13	240	40A-3P	3-#12 CU & 1-#12 GND IN 3/4" C	NEW

## ECUH ELECTRICAL SCHEDULE

NOTES:

1. PROVIDE STARTER AND DISCONNECT SWITCH. COLOR TO BE SELECTED BY ARCHITECT.

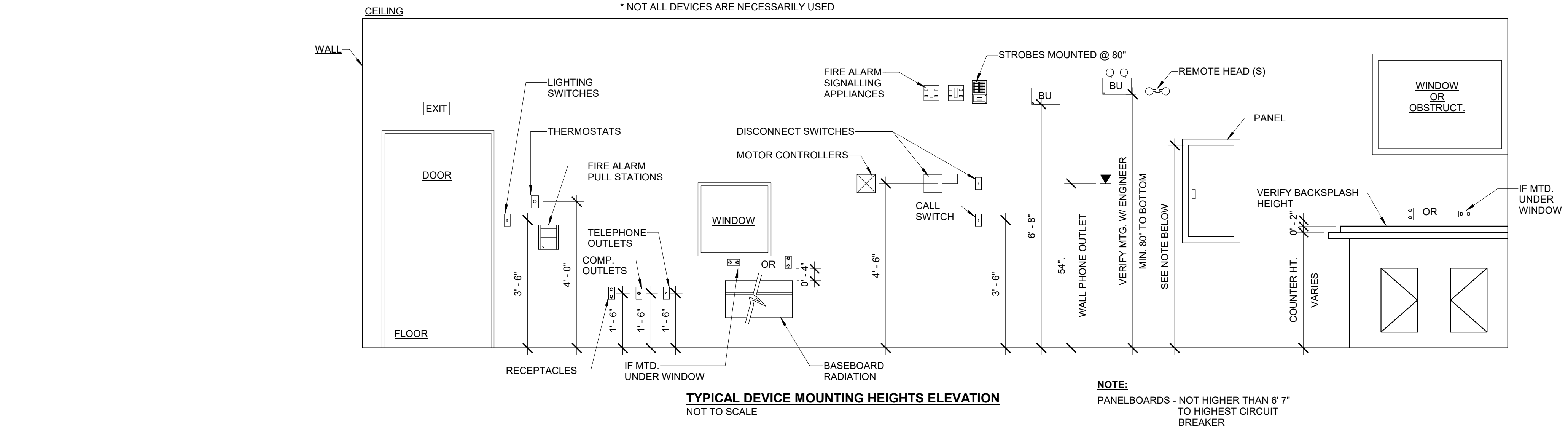
MARK	AREA SERVED	MANUFACTURER	MODEL NO.	KW	AMP	VOLT/PHASE	BREAKER	REMARKS
ECUH-1	PEDESTRIAN WALKWAY	MARLEY	CHU935	3	15	208V-1P	20A-1P	NEW
ECUH-2	PEDESTRIAN WALKWAY	MARLEY	CHU935	3	15	208V-1P	20A-1P	NEW

## LIGHTING FIXTURE SCHEDULE

NOTES:

- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND DETAILS FOR LIGHTING FIXTURE LAYOUT AND INSTALLATION ARRANGEMENT. VERIFY LIGHT FIXTURE TRIM WITH ARCH AND CEILING TYPE.
- CONTRACTOR TO COORDINATE WITH ARCHITECT FOR ALL TYPE OF CEILING CONSTRUCTIONS PRIOR TO BID AND PRIOR TO ORDER LIGHTING FIXTURES.
- ALL FINISHES AND COLOR OF ALL FIXTURES SHALL BE SELECTIONS BY ARCHITECT, UNLESS NOTED OTHERWISE (UNO).
- ALL LIGHTING FIXTURES SHALL BE EQUIPPED WITH ENERGY SAVING TYPE LAMPS AND BALLASTS.
- ALL LIGHTING FIXTURE SUBSTITUTIONS SHALL BE PROVIDE WITH PHOTOMETRY'S AND ILLUMINATION LEVELS EQUAL TO SPECIFIED LIGHTING FIXTURES.
- ALL LIGHTING FIXTURE SUBSTITUTIONS SHALL PROVIDE AESTHETIC APPEARANCE EQUAL TO SPECIFIED LIGHTING FIXTURES IN THE OPINION OF THE ARCHITECT.
- ALL LIGHTING FIXTURES SHALL QUALIFY FOR UTILITY POWER COMPANY'S HIGHEST AVAILABLE REBATE.
- ALL EXIT SIGNS SHALL BE CIRCUITED TO A NON-SWITCHED LIGHTING CIRCUIT UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL COORDINATE WITH POLE MANUFACTURER ON HOW TO BEST MOUNT CAMERA TO POLE. WRAP-AROUND BANDS TO SECURELY MOUNT THE CAMERA TO THE POLE ARE NOT ACCEPTABLE. TYPICAL FOR ALL POLE MOUNTED CAMERAS.
- LIGHT FIXTURE DESIGNATED WITH SUB LETTER "D" SHALL BE CONTROLLED BY DAY LIGHTING SENSOR. LIGHT FIXTURE SHALL BE DIMMED TO PRE-DETERMINED LEVEL AT TIME OF INSTALLATION.
- LIGHT FIXTURE DESIGNATED WITH SUB LETTER "E" SHALL BE BOTH NORMAL & EMERGENCY CIRCUITED FIXTURE.

TYPE MARK	E-MANUFACTURER	E-CATALOG NO.	E-DESCRIPTION OF LIGHT	E-DIMMING DRIVER	E-VOLTS	E-LOAD	E-LUMENS	E-CCT	E-CRI	E-COMMENT
B1	LITHONIA	STAKS 2X4 ALO6 SWW7	2X4 Center Element Troffer	0-10V	277 V	54 VA	6228	3500K		
B1-E	LITHONIA	STAKS 2X4 ALO6 SWW7	2X4 Center Element Troffer	0-10V	277 V	54 VA	6228	3500K		
C	LITHONIA	LVM6 SERIES	6" RECESSED CAN LIGHT - LED	0-10V	277 V	13 VA	2000	3500K		
CE	LITHONIA	LVM6 SERIES	6" RECESSED CAN LIGHT - LED	0-10V	277 V	13 VA	2000	3500K		
F	SPAULDING LIGHTING	LMC-30L4-3K-3-035-2	Exterior LED Wall Pack	0-10V	277 V	39 VA	3972	3500K		
SL-WE	LITHONIA	ESXW1-LED-10C-700-40K-P3M	Pendant Mount LED Light Fixture Rated for Wet Location	0-10V	277 V	20 VA	670	3500K		
X	ABL-LITHONIA LIGHTING	EXG LED EL M6	WHITE THERMOPLASTIC EXIT, UNIVERSAL FACE, GREEN LED EMERGENCY EXIT, CEC T20 COMPLIANT.	-	277 V	2 VA	-	-		

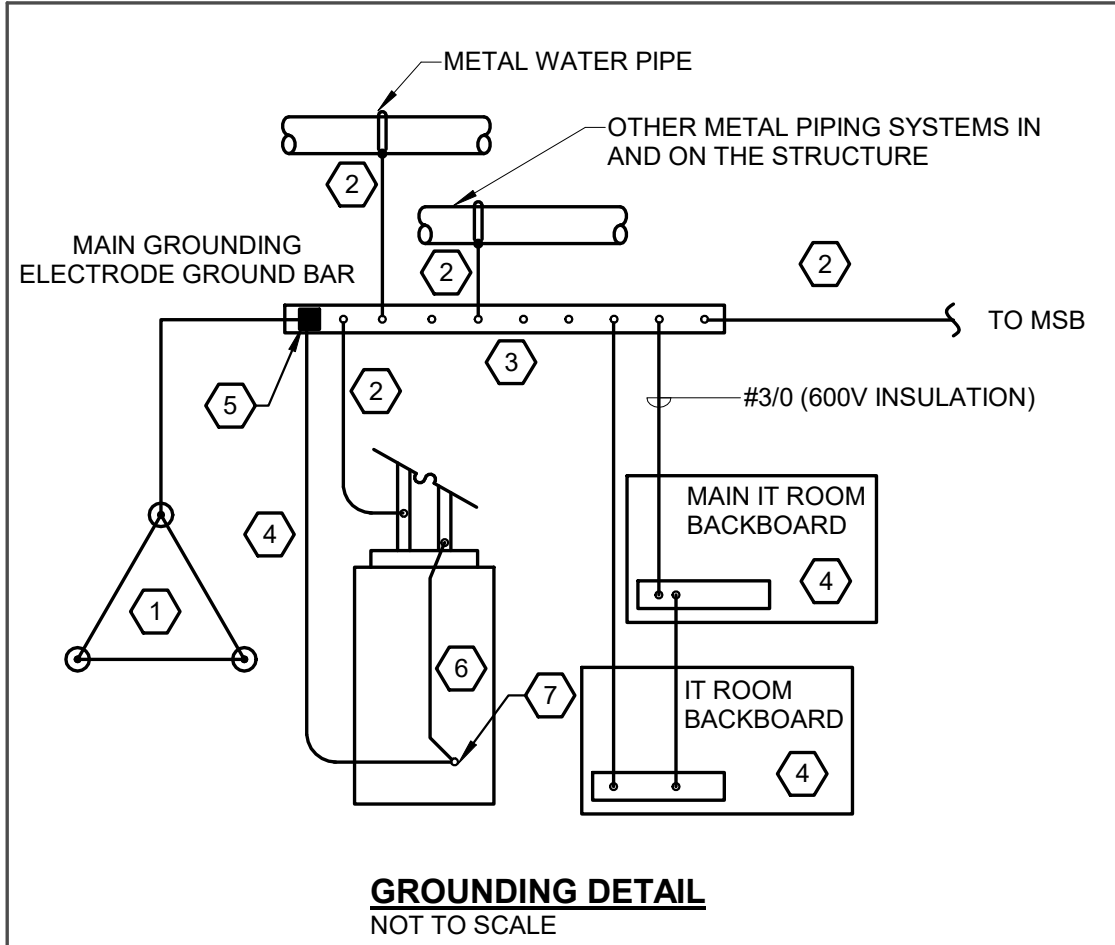


NOTES:

- THE ABOVE MOUNTING HEIGHTS SHALL APPLY TO ALL DEVICES UNLESS NOTED OTHERWISE ON THE PLANS. ALL NOTED DIMENSIONS ARE TO THE CENTERLINE OF THE DEVICE FROM THE FINISHED FLOOR.
- WHERE EXISTING OR SPECIAL CONDITIONS PREVENT THE INSTALLATION OF DEVICES AT THE ABOVE HEIGHTS, THE E.C. SHALL VERIFY HEIGHTS ON SITE WITH ARCHITECT.
- ALL DEVICES IN FINISHED AREAS SHALL BE INSTALLED IN FLUSH DEVICE BOXES NO SURFACE BOXES SHALL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ARCHITECT.
- E.C. SHALL VERIFY FINAL WORKBENCH, COUNTER, CABINET OR VENITY HEIGHTS INCLUDING BACKSPLASH, ON SITE WITH G.C. PRIOR TO INSTALLATION OF BOXES, ABOVE COUNTER DEVICES NOTED BY (\*)
- INSTALL RECEPTACLES HORIZONTALLY, 4" ABOVE BASEBOARD RADIATION. REFER TO M- SERIES (DIV. 15) SHEETS FOR RADIATION LAYOUT
- WHERE SHOWN BACK TO BACK, OFFSET BOXES IN STUDBAYS.

WHERE (2) DUPLEX RECEPTACLES ARE SHOWN NEAR EACH OTHER

QUAD NOT ALLOWED



GROUNDING DETAIL  
NOT TO SCALE

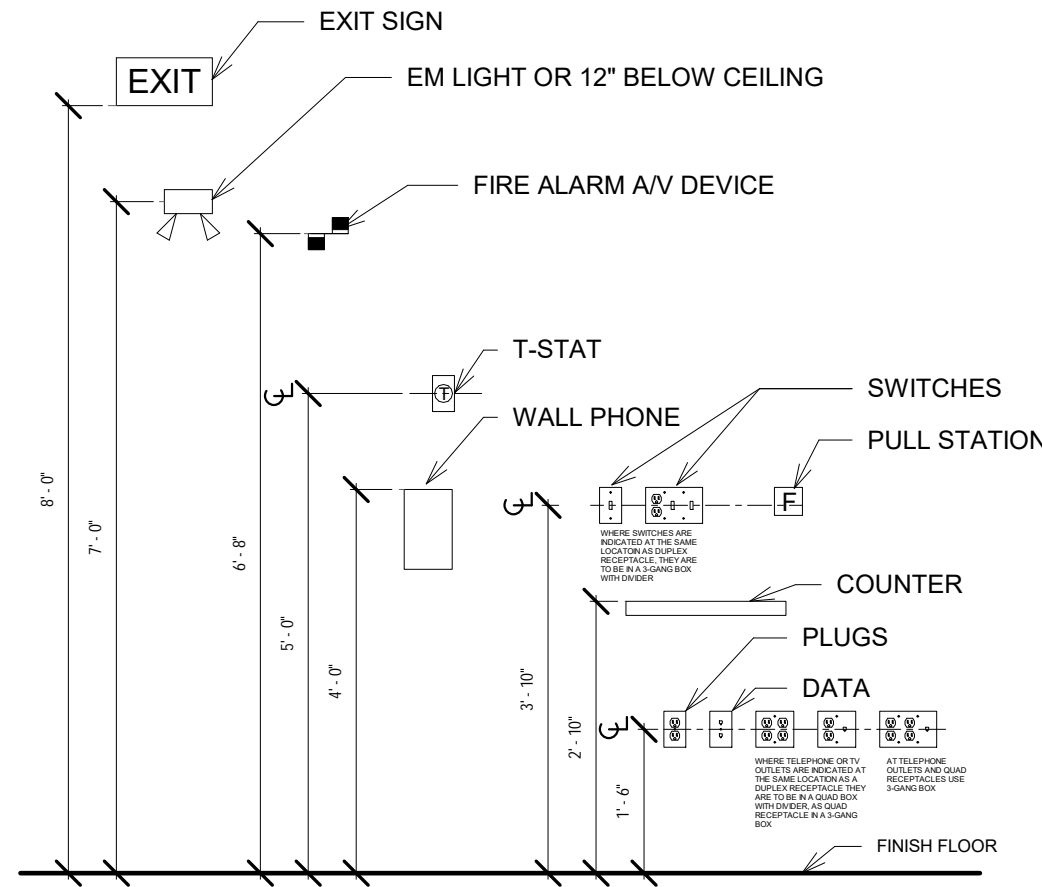
## GROUNDING NOTES

- PROVIDE #4/0 COPPER GROUND CONDUCTOR IN 1 1/4" PVC CONDUIT AND CONNECT (UNDERGROUND) TO THE DELTA GROUND GRID (THREE GROUND RODS, 10 FEET APART). CONNECT GROUND TO ALL OTHER BUILDING STEEL, METAL PIPING, ETC., AS REQUIRED BY ARTICLE 250 OF THE NEC.
- INSTALL GROUNDING ELECTRODE CONDUCTOR, SIZED BASED ON NEC TABLE 250-66 USING THE SERVICE PHASE CONDUCTOR SIZE, BUT NOT SMALLER THAN NO 4.
- INSTALL A "MAIN GROUND ELECTRODE GROUND BAR" FOR SINGLE POINT GROUNDING. LOCATE AT AN ACCESSIBLE POINT NEAR THE SERVICE ENTRANCE EQUIPMENT. MAKE CONNECTIONS TO THE GROUND ELECTRODE CONDUCTOR USING IRREVERSIBLE CONNECTORS OR EXOTHERMIC WELDS. MAKE OTHER CONNECTIONS TO THE GROUND BAR USING TWO-HOLE COMPRESSION SPADE LUGS THAT MEET IEEE 837 REQUIREMENTS. LABEL EACH CONNECTION TO THE GROUND BAR.
- INSTALL A COPPER GROUNDING BAR IN EACH TELECOMMUNICATIONS ROOM. CONNECT TO THE "MAIN GROUNDING ELECTRODE GROUND BAR" USING 600V INSULATED #6 COPPER CABLE AND COMPRESSION SPADE LUGS. MOUNT AT 7" AFF.
- INSTALL IRREVERSIBLE COMPRESSION CONNECTOR WITH TAMPERPROOF HARDWARE OR INSTALL EXOTHERMIC WELD.
- BOND STEEL COLUMN TO CONCRETE ENCASED ELECTRODE.
- PROVIDE CONCRETE ENCASED GROUNDING ELECTRODE(S) IN THE NEW CONCRETE FOUNDATION(S) USING:
  - AT LEAST 1/2" DIAMETER STEEL BAR (NO. 4 REBAR OR LARGER).
  - AT LEAST 20 FT. IN LENGTH OR MULTIPLE PIECES TIED TOGETHER TO MAKE ELECTRICALLY CONTINUOUS.
  - PLACED NEAR THE BOTTOM OF THE ADDITION FOOTING WITH A MINIMUM 3" OF CONCRETE COVER.
  - NOT ENCAPSULATED IN NONCONDUCTIVE COATINGS.

## DRAWING NOTES FOR POWER RISER DIAGRAM

- REFER TO DRAWING E-003 FOR ELECTRICAL GENERAL NOTES.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL APPLICABLE CODES.
- CONTRACTOR SHALL RUN A 1" CONDUIT WITH DRAG LINE FOR CONTROL WIRING FROM THE EMERGENCY GENERATOR TO THE ATS AND TO THE REMOTE ANNUNCIATOR PANEL. GENERATOR REMOTE ANNUNCIATOR SHALL BE LOCATED BEHIND FRONT LOBBY DESK.
- CONTRACTOR SHALL PROVIDE POWER TO ALL REQUIRED 120V GENERATOR CIRCUITS FROM PANEL "LP1". COORDINATE ALL REQUIREMENTS WITH GENERATOR VENDOR.
- CONTRACTOR SHALL PLACE A SIGN AT THE SERVICE ENTRANCE INDICATING TYPE AND LOCATION OF THE EMERGENCY GENERATOR.
- INTEGRALLY MOUNTED SURGE PROTECTION DEVICE (SPD) UNIT. CONNECT ON LOAD SIDE OF UTILITY METERING EQUIPMENT WITH OCPD. SURGE PROTECTION DEVICE SHALL BE IEEE C62.41-COMPLIANT, INTEGRALLY MOUNTED, BOLT-ON, SOLID-STATE, PARALLEL-CONNECTED, MODULAR (WITH FIELD-REPLACEABLE MODULES) TYPE, WITH SINE-WAVE TRACKING SUPPRESSION AND FILTERING MODULES, UL 1449, SECOND EDITION, SHORT-CIRCUIT CURRENT RATING MATCHING OR EXCEEDING THE SWITCHBOARD SHORT-CIRCUIT RATING, AND WITH THE FOLLOWING FEATURES AND ACCESSORIES:
  - FUSES, RATED AT 200-KA INTERRUPTING CAPACITY.
  - ARRANGEMENT WITH WIRE CONNECTIONS TO PHASE BUSES, NEUTRAL BUS, AND GROUND BUS.
  - LED INDICATOR LIGHTS FOR POWER AND PROTECTION STATUS.
  - AUDIBLE ALARM, WITH SILENCING SWITCH, TO INDICATE WHEN PROTECTION HAS FAILED.
  - PEAK SINGLE-IMPULSE SURGE CURRENT RATING: 160 KA PER MODE/320 KA PER PHASE.
  - WITHSTAND CAPABILITIES: 12,000 IEEE C62.41, CATEGORY C3 (10 KA), 8-BY-20-MIC.SEC. SURGES WITH LESS THAN 5 PERCENT CHANGE IN CLAMPING VOLTAGE.

## MOUNTING HEIGHTS



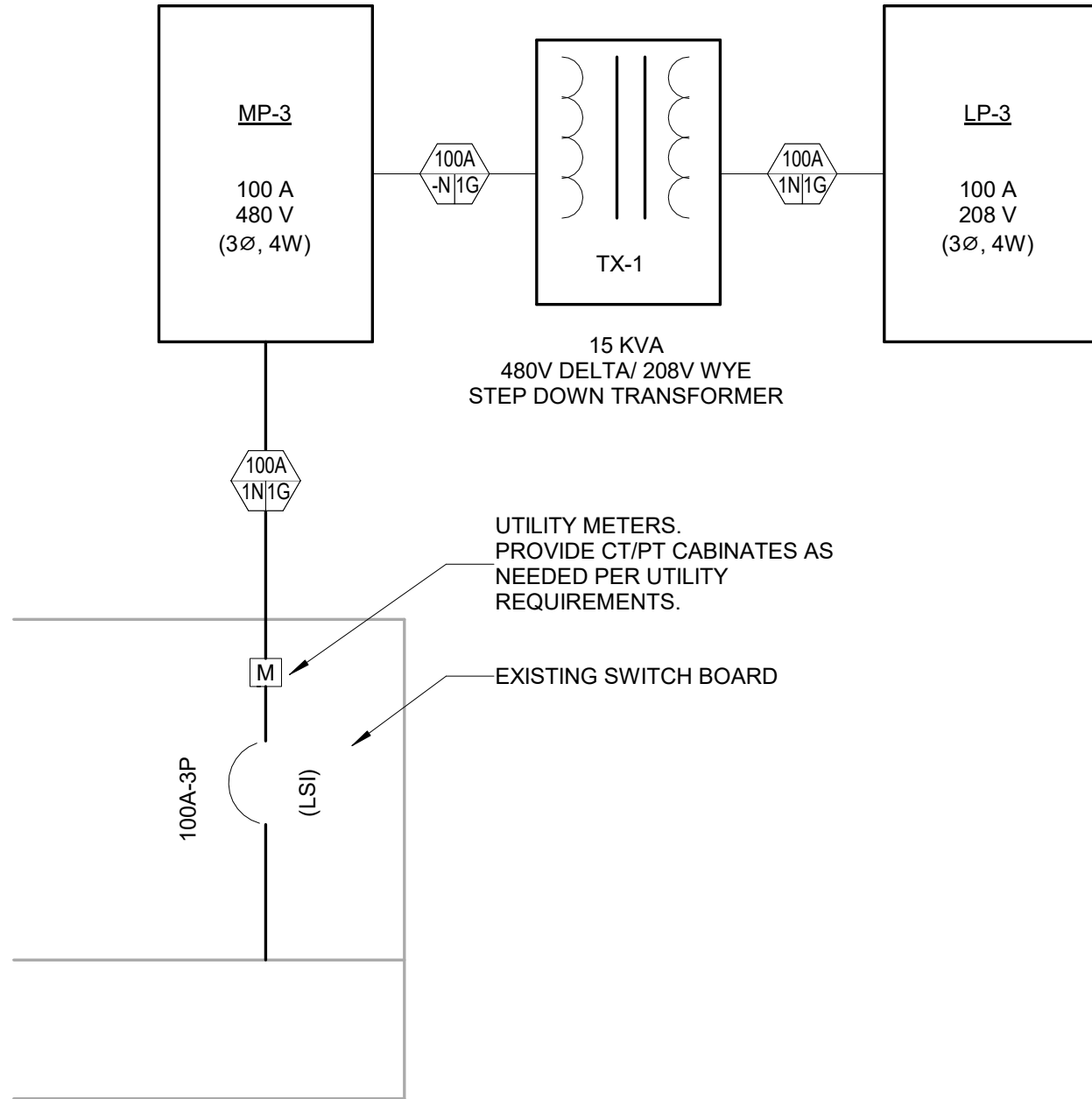
DEVICE LOCATIONS AND MOUNTING HEIGHTS SHALL BE CHECKED AGAINST THE ARCHITECTURAL PLANS & ELEVATIONS PRIOR TO ROUGH-IN IN ORDER TO AVOID INTERFERENCE WITH CASEWORK, FURNITURE, WINDOWS, EQUIPMENT, ETC.

LOCATION OF OUTLETS AND EQUIPMENT AS INDICATED ON THE DRAWINGS ARE APPROXIMATE. THE EXACT CENTER OF ALL OUTLETS SHALL BE PLACED IN COOPERATION WITH THE GENERAL CONTRACTOR & ARCHITECT. CONTRACTOR SHALL EXAMINE ALL INTERIOR DETAILS OF THE CONSTRUCTION SPECIFIC LOCATIONS

DEVICES SHALL BE CENTERED & LEVELED IN A COMMON VERTICAL PLANE. HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT FOR EXIT SIGNS AND FIRE ALARM SIGNALS

COORDINATE HEIGHT OF OUTLETS AND RACEWAYS ABOVE COUNTERS SO AS NOT TO INTERFERE WITH CASEWORK.

THE ENTIRE LENS OF A FIRE ALARM A/V SIGNAL OR VISUAL ONLY SIGNAL SHALL BE LOCATED BETWEEN 6'-8" A.F.F. & 8'-0" OR 6" BELOW CEILING (WHICHEVER IS LOWER). ELEVATION SHALL BE CONSISTENT THROUGHOUT PROJECT.



## POWER RISER DIAGRAM

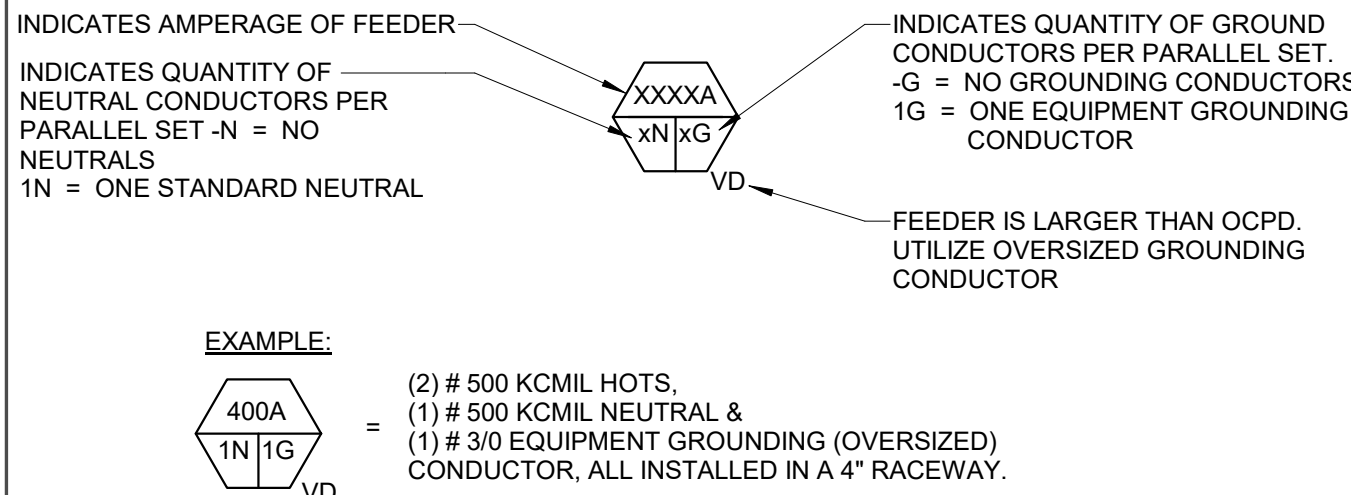
NOT TO SCALE

## TYPICAL SCHEDULE NOTES

- PROVIDE FUSED DISCONNECT SWITCH WITH FUSES PER MANUFACTURER RECOMMENDATION. FUSED DISCONNECT SWITCH MAY NOT NECESSARILY BE SHOWN ON ELECTRICAL PLANS. COORDINATE EXACT LOCATION OF FUSED DISCONNECT SWITCH IN FIELD. MAINTAIN MINIMUM OF 3'-0" CODE CLEARANCE REQUIREMENT IN FRONT OF ALL FUSED DISCONNECT SWITCHES.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH HVAC CONTACTOR FOR ALL EQUIPMENT REQUIRING A STARTER AND DISCONNECT. CONTRACTOR SHALL SUPPLY, WIRE AND INSTALL ALL EQUIPMENT REQUIRING A STARTERS AND/OR DISCONNECTS. CONTRACTOR SHALL REFER TO MANUFACTURER'S SPECIFICATION FOR MORE INFORMATION.
- ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL FIRE ALARM DEVICES REQUIRED FOR HVAC AIR HANDLING UNIT (AHU). ALL FIRE ALARM DEVICES SHALL BE CONNECTED TO THE FACP PANEL.
- ELECTRICAL CONTRACTOR SHALL WIRE ALL TYPES OF MOTORISED DAMPERS TO THE NEAREST MISC. CKT PROVIDED IN CORRIDORS. COORDINATE EXACT LOCATION OF ALL TYPES OF MOTORISED DAMPERS WITH MECHANICAL DRAWINGS.
- PROVIDE NEUTRAL WIRE AS PER THE MANUFACTURER'S RECOMMENDATION FOR ALL MECHANICAL EQUIPMENT. NEUTRAL WIRE IS SAME SIZE AS PHASE CONDUCTORS.
- HVAC CONTRACTOR TO PROVIDE & INSTALL THE EQUIPMENT (AIR CONDITIONING & CONDENSING UNITS, EXHAUST FANS & AHU) ON THIS SHEET AND ELECTRICAL CONTRACTOR TO CIRCUIT THEM.
- ELECTRICAL CONTRACTOR TO PROVIDE, INSTALL & CIRCUIT ALL THE ELECTRICAL CABINET UNIT HEATERS, ELECTRICAL UNIT HEATERS, & ELECTRICAL WALL HEATERS.
- ALL THE WIRE SIZES SHOWN IN THIS SHEET ARE BASED ON THWN/THHN COPPER (CU) AT 75°C.
- ALL THE THERMOSTATS SHOWN IN THE CONSTRUCTION DOCUMENTS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR.
- ELECTRICAL CONTRACTOR SHALL PROVIDE POWER WIRING TO ALL CONDENSATE PUMPS ASSOCIATED WITH AC UNITS. COORDINATE WITH HVAC CONTRACTOR FOR PUMP SPECIFICATIONS. REFER TO HVAC DRAWINGS FOR MORE INFORMATION.

## FEEDER LEGEND

**NOTE:**  
SEE POWER RISER DIAGRAM FEEDER SIZING CHART FOR SIZE OF CONDUCTORS BASED ON AMPERAGE OF FEEDER.



## FEEDER CHART

(4) #3 CU & (1) #6 GND IN 1-1/2".

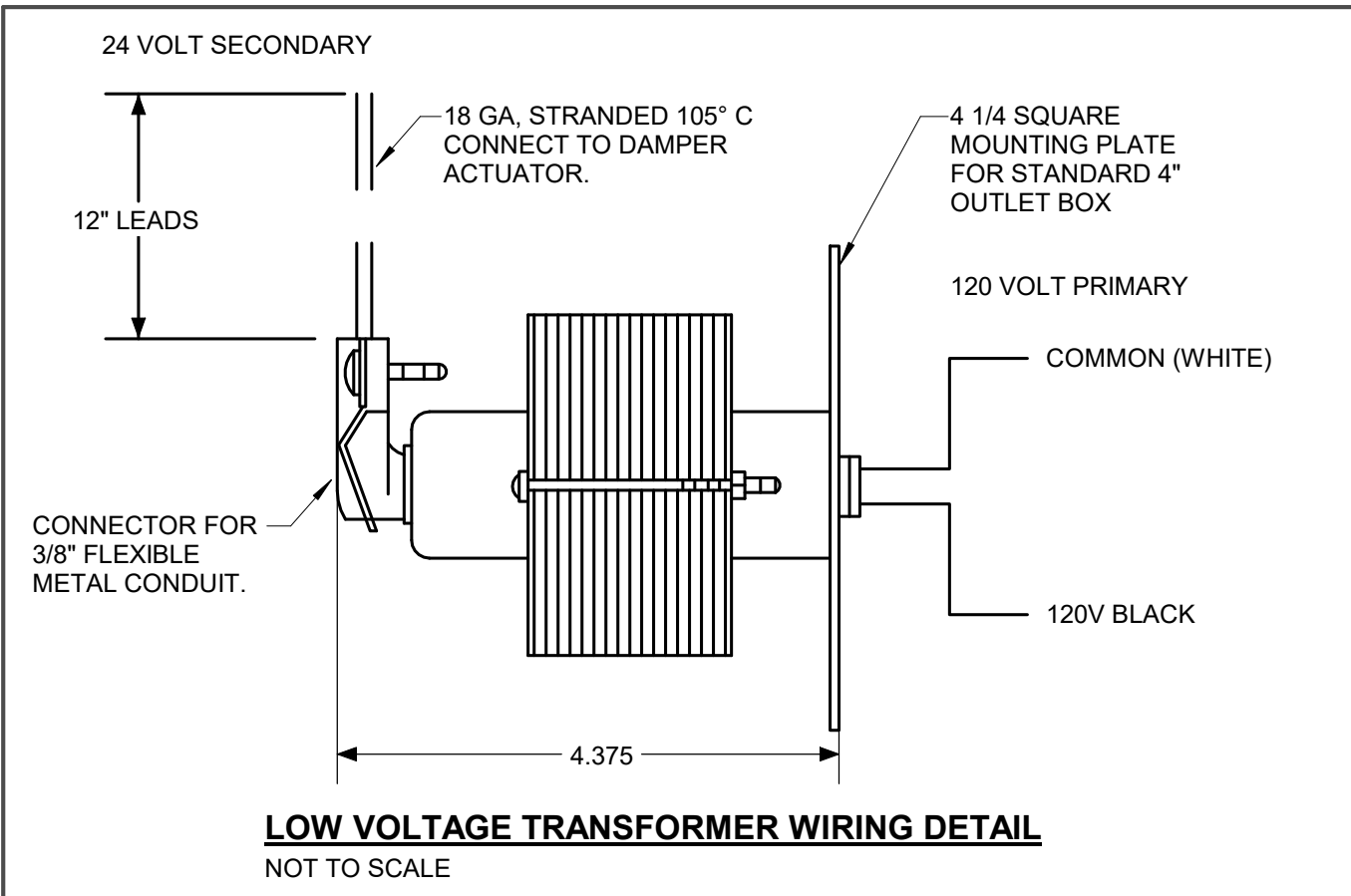
### NOTES:

- ALL CONDUCTORS LISTED ABOVE ARE THHN/THWN COPPER CONDUCTORS RATED AT 75 DEGREE CELSIUS.
- ALL THE FEEDERS ARE SIZED ALLOWING A MAXIMUM OF 3% VOLTAGE DROP AT BRANCH PANEL LOCATIONS.
- PROVIDE AUXILIARY LARGER SIZE LUGS AND OVERSIZED GUTTERS IN DISTRIBUTION EQUIPMENT TO ACCOMMODATE OVERSIZED CONDUCTORS DUE TO VOLTAGE DROP.

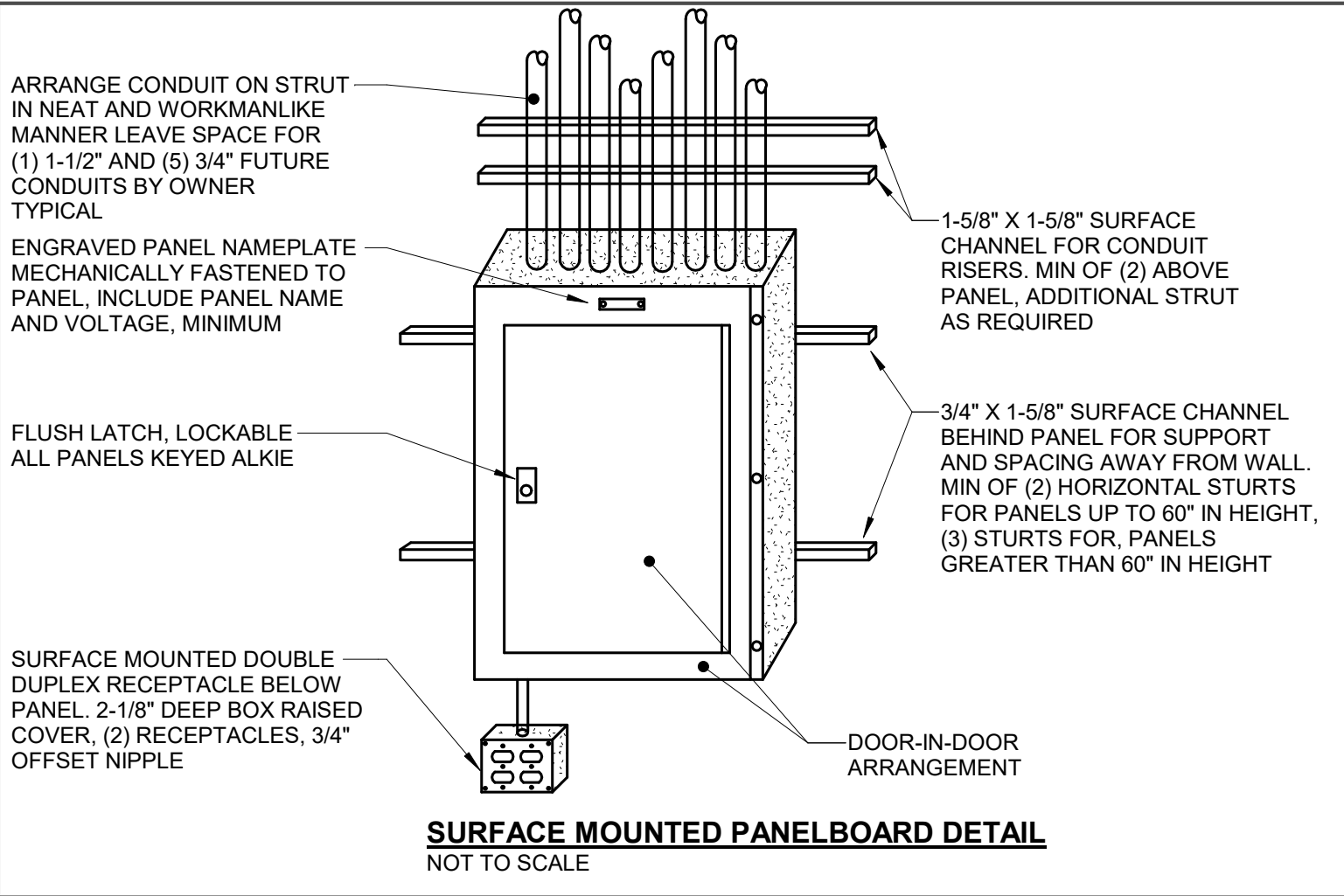
## ELECTRICAL DEVICE LEGEND

SYMBOL	DESCRIPTION
TX	TRANSFORMER, RATING AS SHOWN
J	JUNCTION BOX
⌀	DUPLEX RECEPTACLE
⌀	DUPLEX RECEPTACLE GFI
⌀	QUAD DUPLEX RECEPTACLE GFI
⌀	QUAD RECEPTACLE
⌀	SPECIAL PURPOSE NEMA RATED RECEPTACLE
⌂	ELECTRICAL PANELBOARD
—	BRANCH CIRCUIT WIRING IN CONDUIT
—	SWITCHED BRANCH CIRCUIT IN CONDUIT
—	BRANCH CIRCUIT HOMERUN INDICATOR IN CONDUIT
—	CONTROL WIRE
S	SINGLE POLE LIGHT SWITCH
S <sup>3</sup>	THREE-WAY TOGGLE SWITCH
S <sup>D</sup>	SINGLE POLE DIMMER SWITCH, EATON#SKYE SERIES
S <sup>WS</sup>	LIGHT SWITCH WITH PASSIVE INFRARED WALL SENSOR
S <sup>V</sup>	LIGHT SWITCH WITH VACANCY SENSOR
S <sup>T</sup>	TIMMER SWITCH
S <sup>TO</sup>	TOGGLE SWITCH
OC	EATON#OAC-DT-2000-R SERIES DUAL TECH OCCUPANCY SENSOR,
▽	DATA OUTLET & RACEWAY. TWO GANG BACKBOX WITH 1" CONDUIT STUBBED INTO AN ACCESSIBLE CEILING, PROVIDE WITH NYLON PULL STRING
▽	COMBINATION DATA \ TELEPHONE OUTLET & RACEWAY, TWO GANG BACKBOX WITH (2)1" CONDUIT STUBBED INTO AN ACCESSIBLE CEILING, PROVIDE WITH NYLON PULL STRING
▽	TELEPHONE OUTLET & RACEWAY. TWO GANG BACKBOX WITH 1" CONDUIT STUBBED INTO AN ACCESSIBLE CEILING, PROVIDE WITH NYLON PULL STRING
▽ C.F.A	CALL FOR AID PULL STRING WITH AN INDICATOR LIGHT CONNECTED TO IT.
F	FIRE ALARM PULL STATION, WALL MOUNTED AT 48" AFF. , 'S' INDICATES STOPPER COVER DEVICE WHERE SHOWN
S	SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
H	FIRE ALARM HORN/STROBE DEVICE, WALL MOUNTED AT 6'8" AFF. OR 6" BELOW CEILING, WHICHEVER IS LOWER. WITH ADA 15/75 CANDELA STROBE
F	FIRE ALARM STROBE DEVICE, WALL MOUNTED AT 6'8" AFF. OR 6" BELOW CEILING, WHICHEVER IS LOWER. WITH ADA 15/75 CANDELA STROBE
⌀ <sup>C</sup>	CEILING MOUNTED DEDICTACTED OUTLET FOR SIGNAGE
FACP	FIRE ALARM CONTROL PANEL
ANN	FIRE ALARM ANNUNCIATOR PANEL
□	DISCONNECT SWITCH
F 177cd	FIRE ALARM STROBE DEVICE, WALL MOUNTED AT 6'8" AFF. OR 6" BELOW CEILING, WHICHEVER IS LOWER. WITH 177 CANDELA STROBE
DS	DUCT SMOKE DETECTOR
RI	REMOTE INDICATOR
CR	CARD READER
FB	FLOOR BOX
T	THERMOSTAT
□	1' X 4' LIGHT FIXTURE
○	6" RECESSED LIGHT FIXTURE
⊗	CEILING MOUNTED EXIT SIGN WITH BATTERY BACK-UP POWER SUPPLY, SEE PLANS FOR FACE AND DIRECTION OF TRAVEL CONFIGURATIONS
⊕	REMOTE DUAL HEAD EMERGENCY LIGHT
⊕	DUAL HEAD EMERGENCY LIGHT
SP	CEILING MOUNTED SPEAKERS



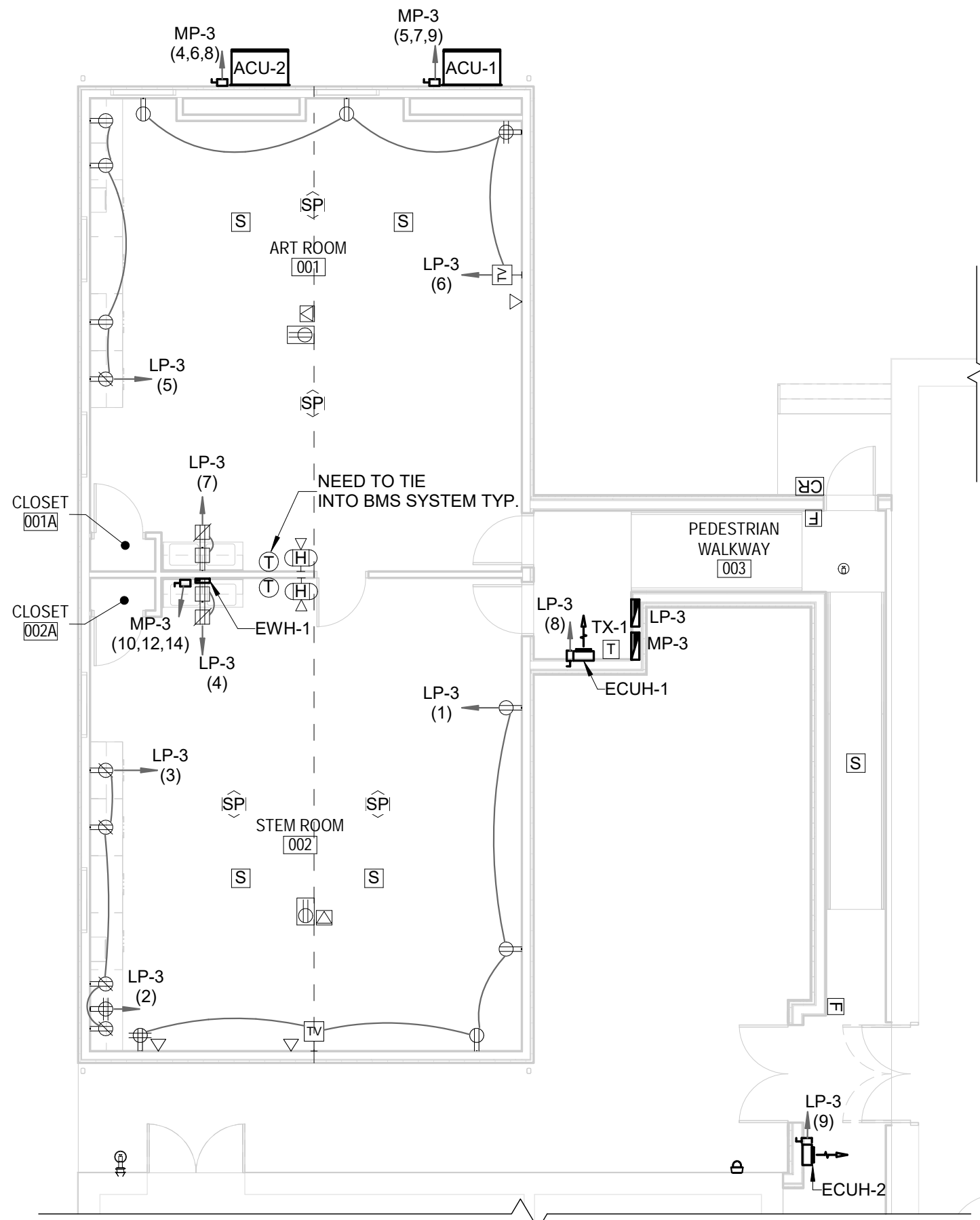


LOW VOLTAGE TRANSFORMER WIRING DETAIL  
NOT TO SCALE

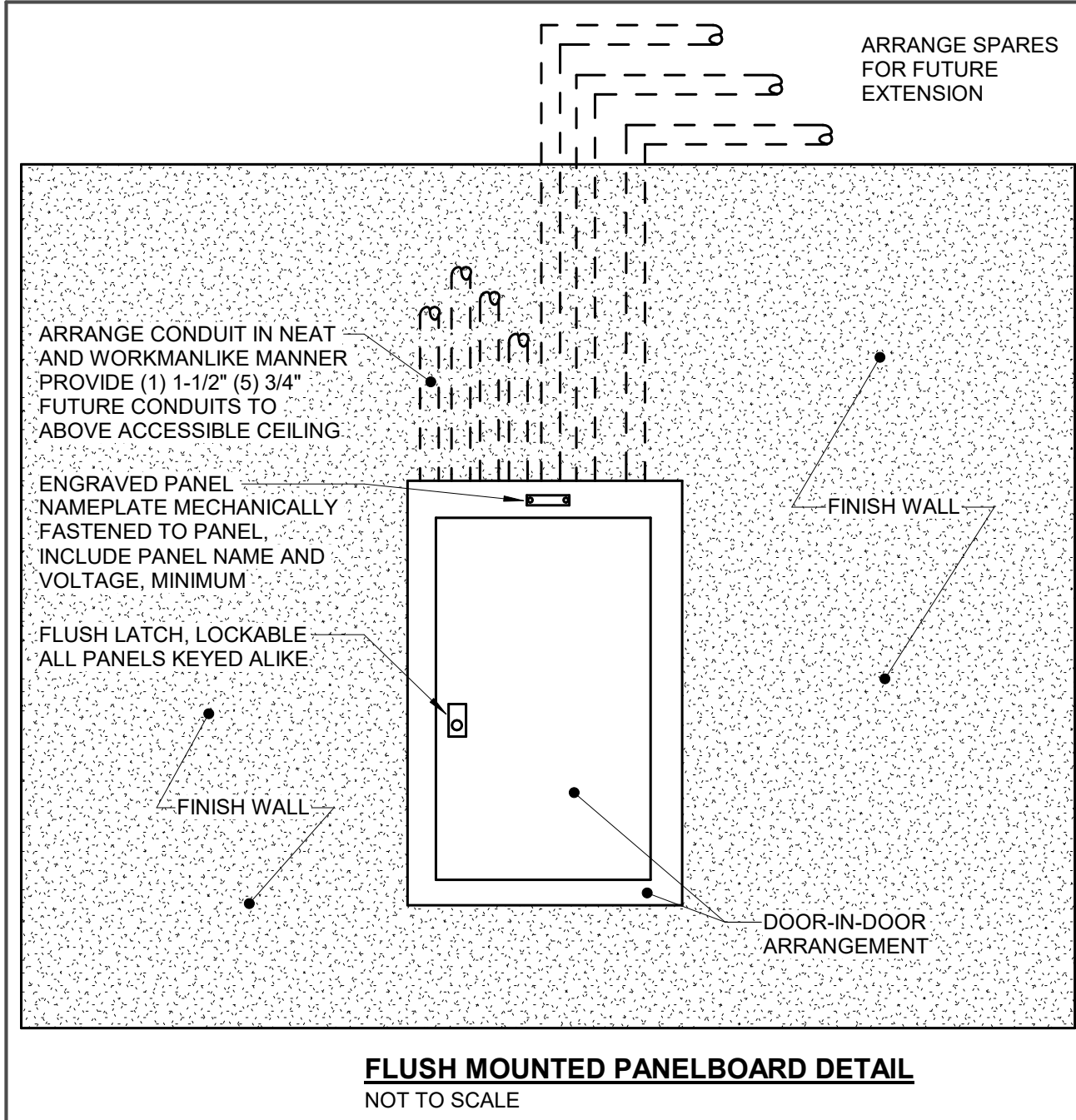


SURFACE MOUNTED PANELBOARD DETAIL  
NOT TO SCALE

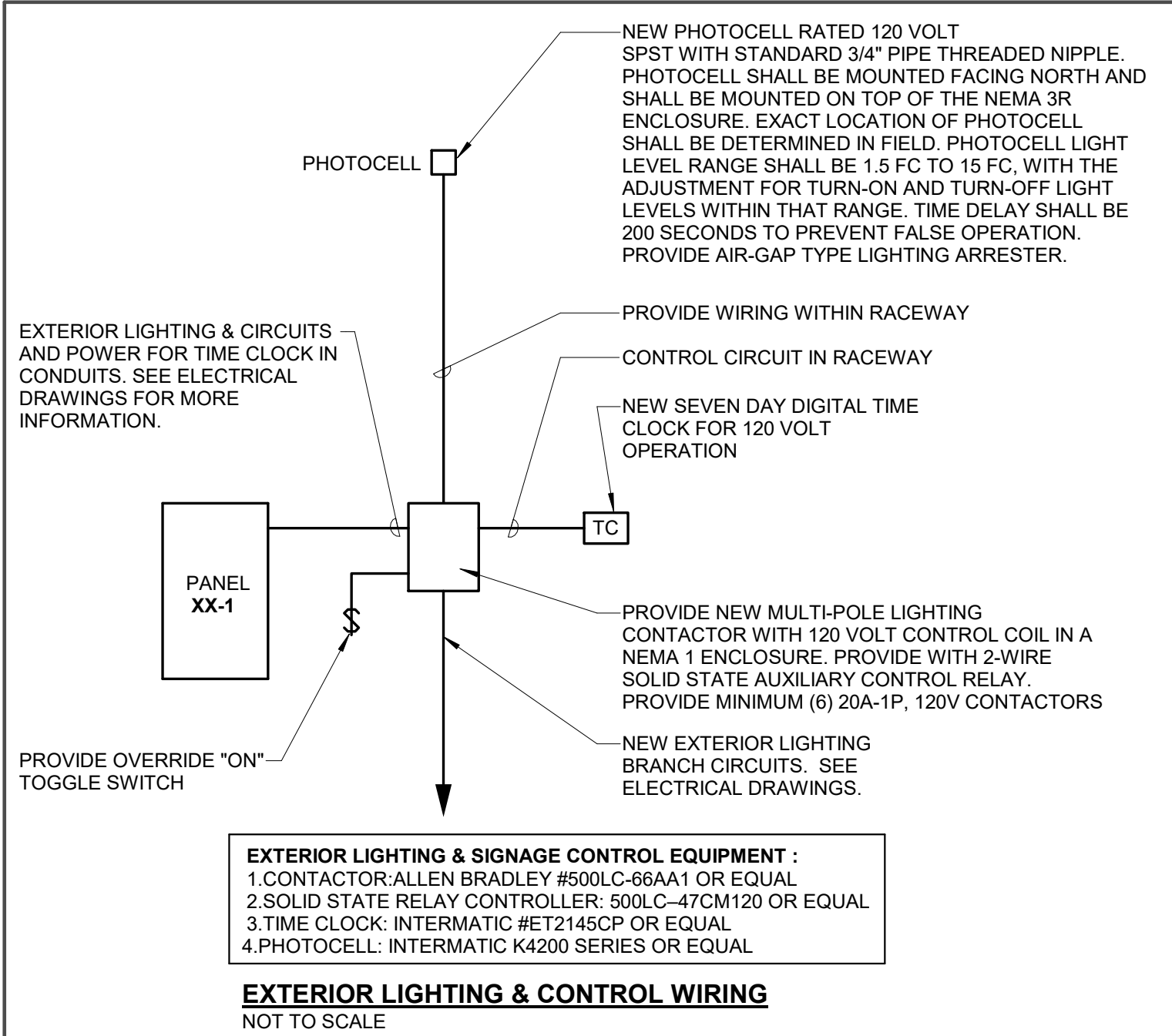
NOTE:  
LIGHTS ON THE EXTERIOR OF THE BUILDING (SL-WE) WILL BE ON DAYLIGHT  
TIMER.



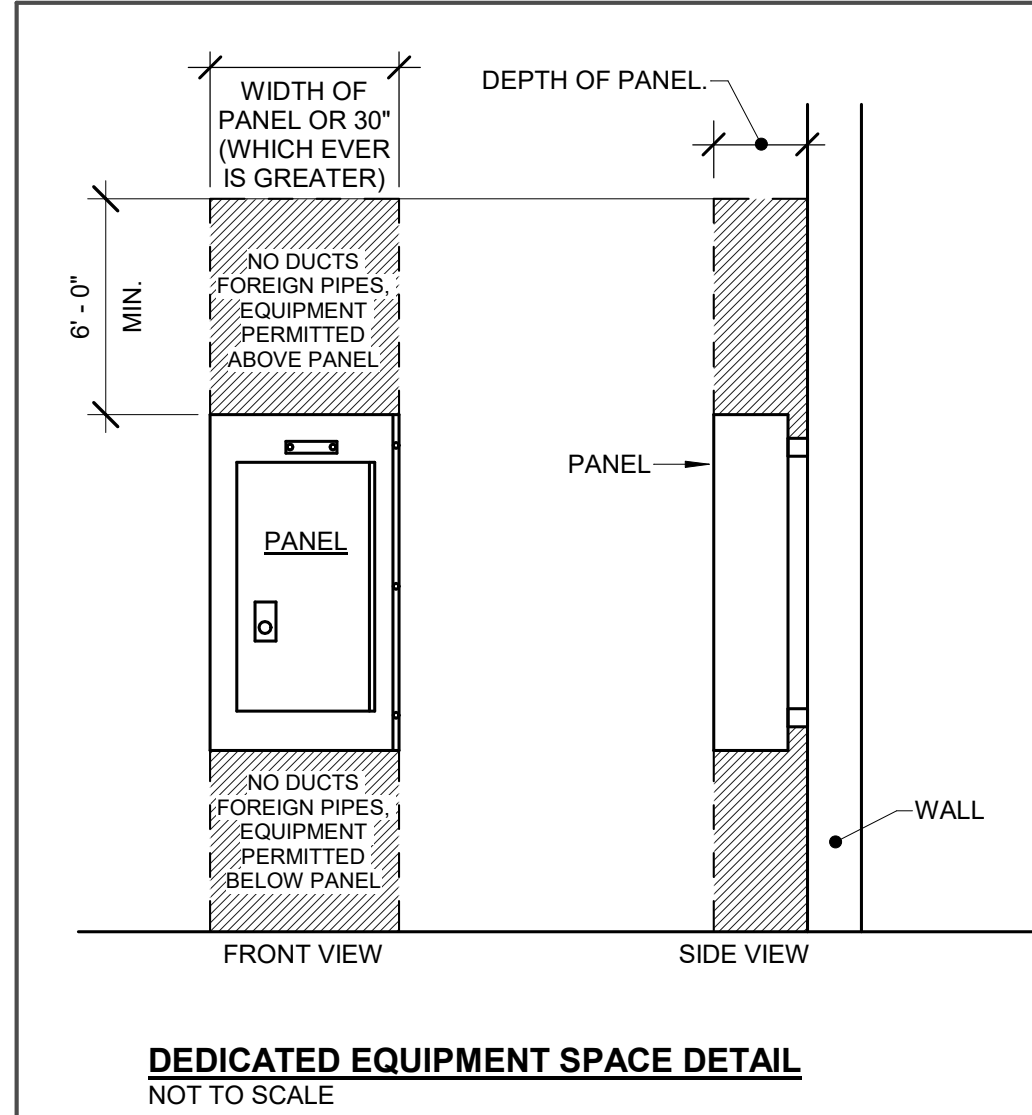
1 FIRST FLOOR - POWER PLAN  
E-4 1/8" = 1'-0"



FLUSH MOUNTED PANELBOARD DETAIL  
NOT TO SCALE

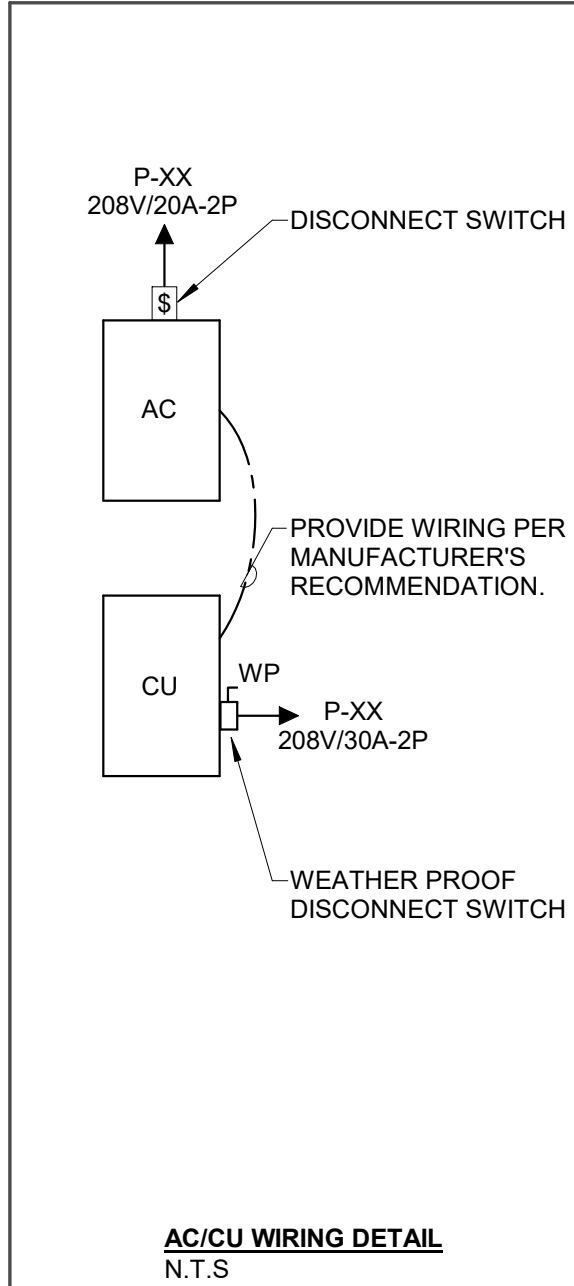


EXTERIOR LIGHTING & CONTROL WIRING  
NOT TO SCALE

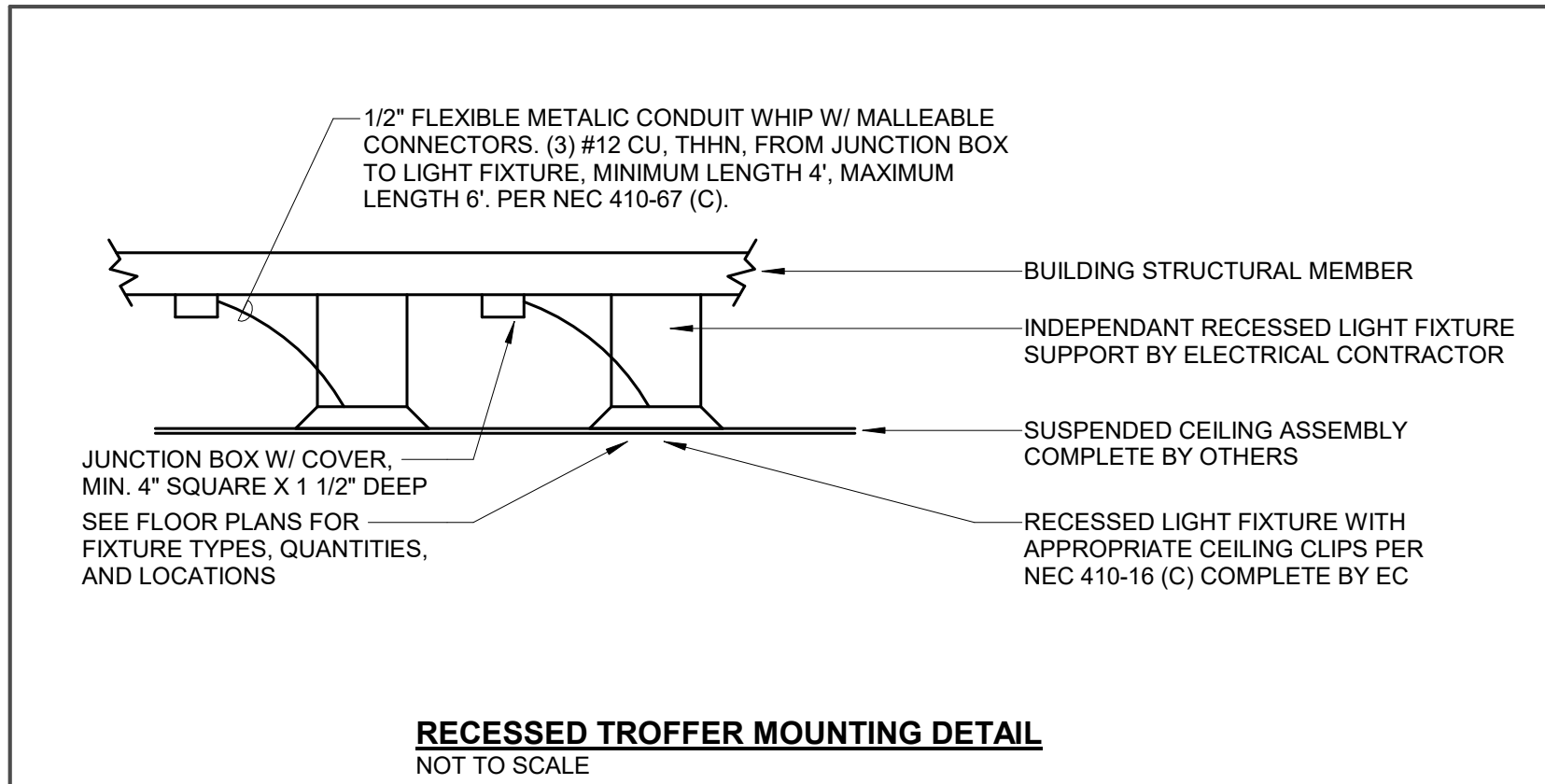


DEDICATED EQUIPMENT SPACE DETAIL  
NOT TO SCALE

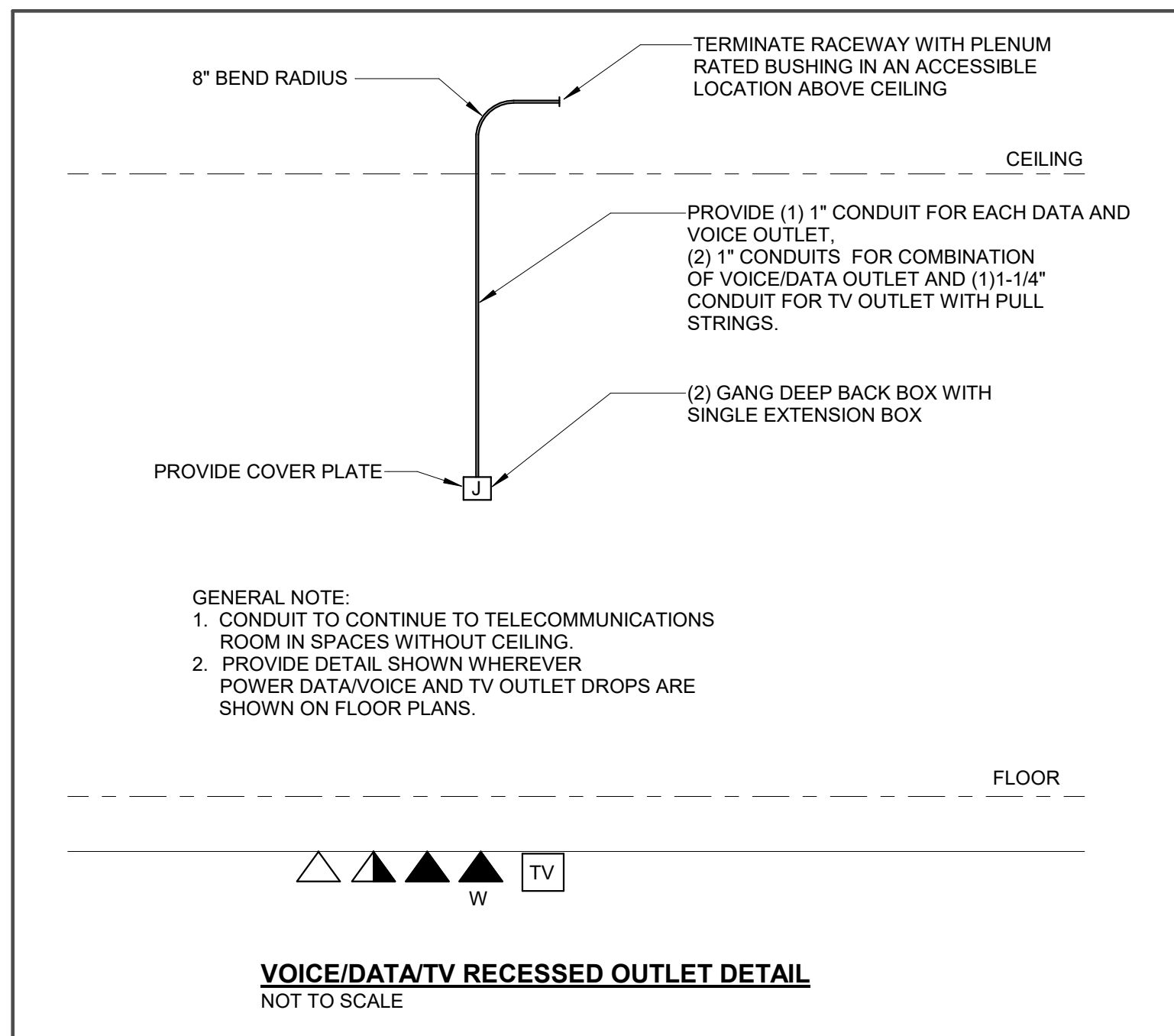
- NOTES:
- TYPICAL FOR SWITCHBOARDS, PANELBOARDS AND MOTOR CONTROL CENTERS.
  - SEE N.E.C. ART. 110.26.C.F



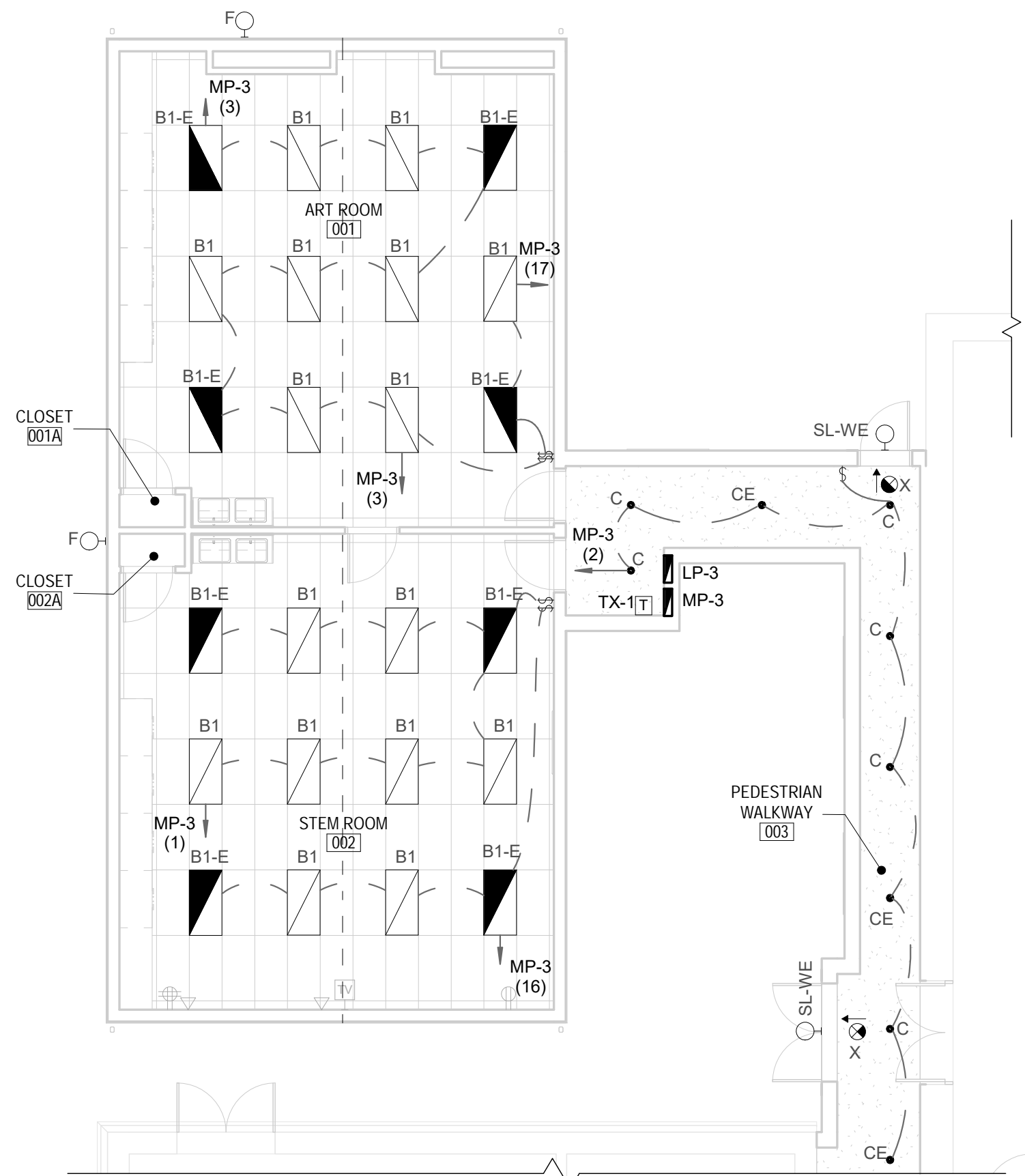
AC/CU WIRING DETAIL  
N.T.S



RECESSED TROFFER MOUNTING DETAIL  
NOT TO SCALE



VOICE/DATA/TV RECESSED OUTLET DETAIL  
NOT TO SCALE



2 FIRST FLOOR - LIGHTING PLAN  
E-4 1/8" = 1'-0"

SHEET NUMBER: <div>E-4</div>		SHEET TITLE: LIGHTING & POWER PLAN		FILE NO: 22126		PROJECT: PHILIP R. SMITH ELEMENTARY SCHOOL		STAMP:		<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> 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