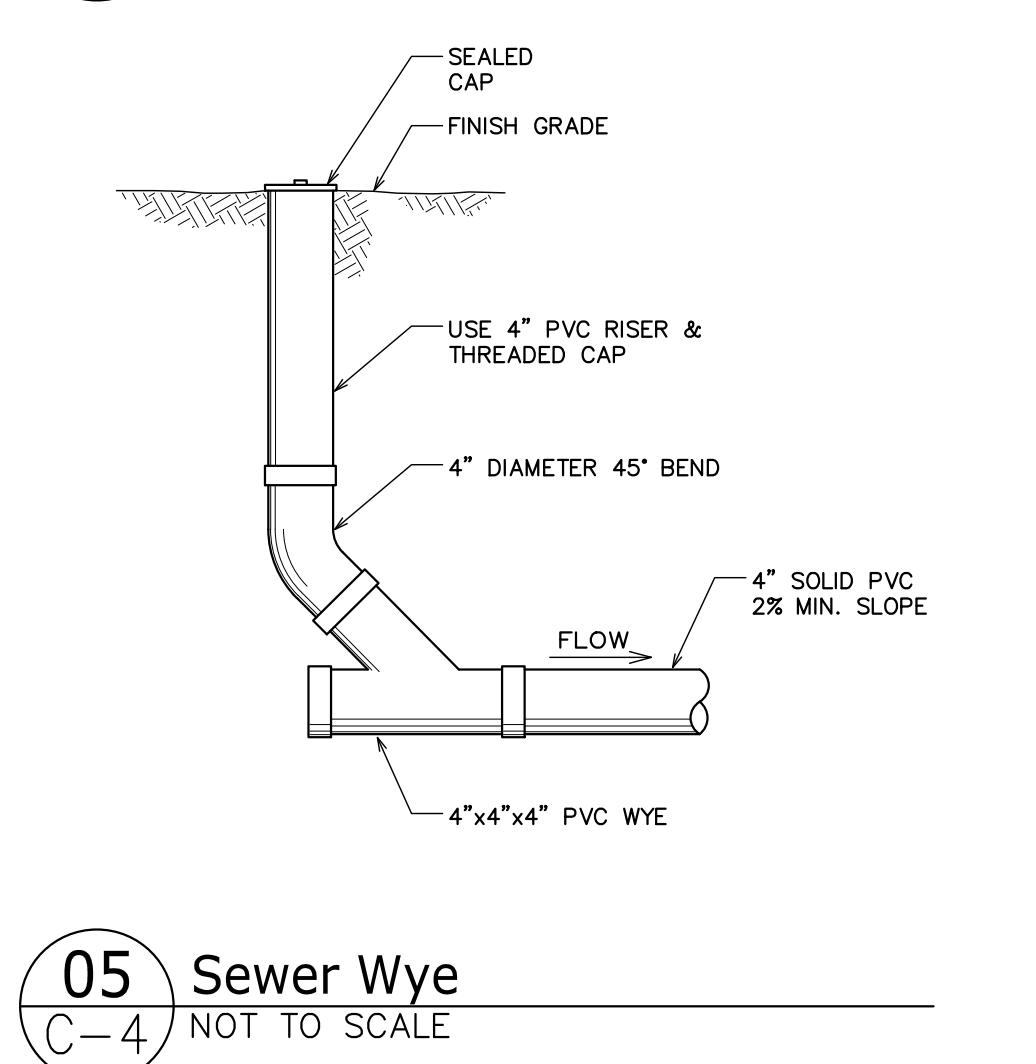


DESIGN CRITERIA
EXISTING 2-BEDROOM SFR
140gpd/Bedroom = 280gpd
NEW HISTORICAL SOCIETY FACILITY WASTEWATER HOLDING TANK SYSTEM
2 - employees @ 15gpd/employee = 30gpd
25 - patron/client @ 4gpd/patron = 100gpd
Total: 130gpd
Utilize existing 1,000gal septic tank & leachfield. Install polylok access covers to grade on existing septic tank, and add an effluent filter to the outlet of the existing septic tank.



Montgomery Historical Society
Montgomery, VT
Historical Society Center
Montgomery, VT
North Main St

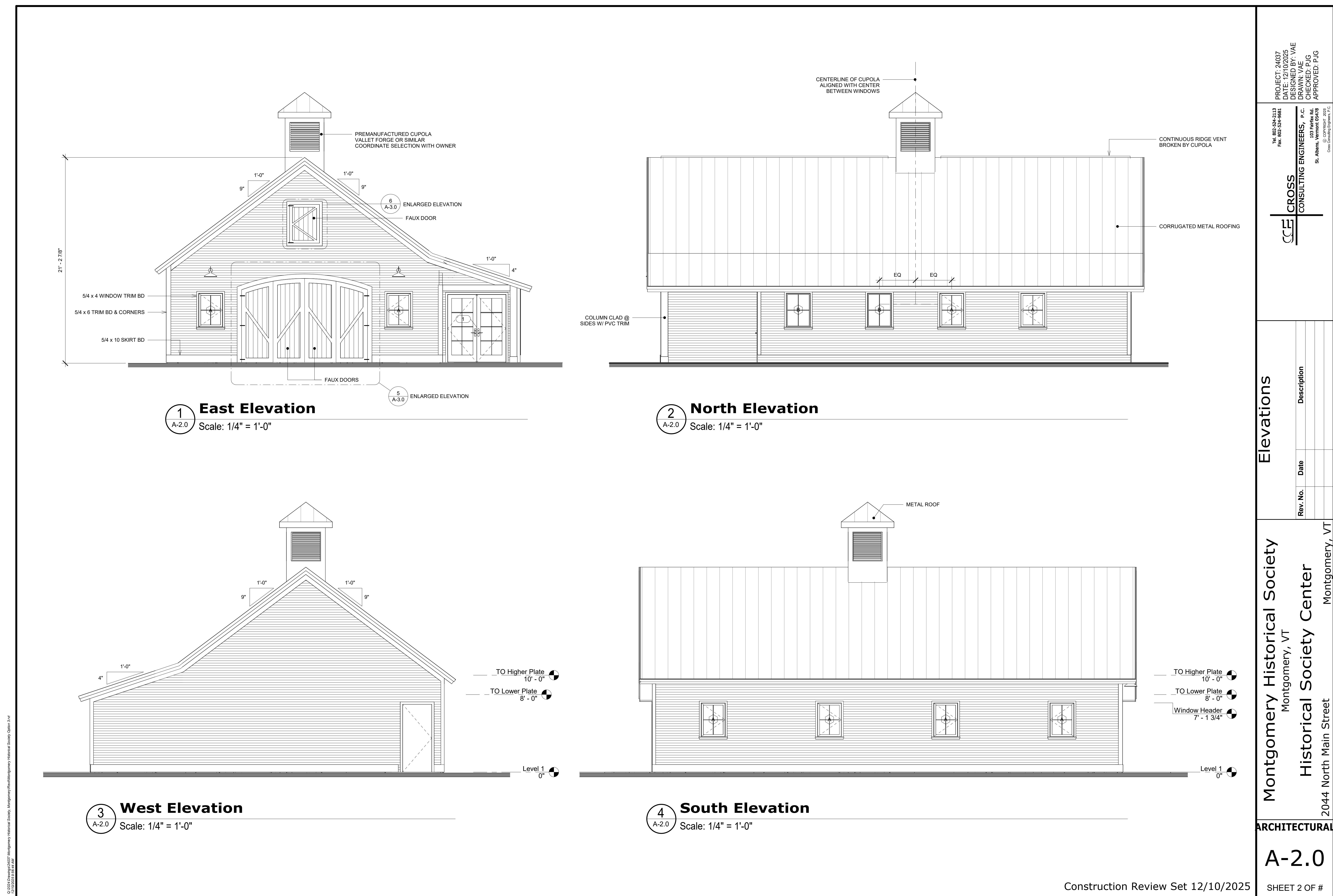
Details

CCE CROSS CONSULTING ENGINEERS, P.C.
103 Fairfax Rd.
St. Albans, Vermont 05778
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PROJECT: 24037
DATE: October 23, 2024
DESIGN: PJG
DRAWN: ASA
CHECKED: PJG
APPROVED: PJG

C-4
CIVIL

SHEET C-4 OF 1



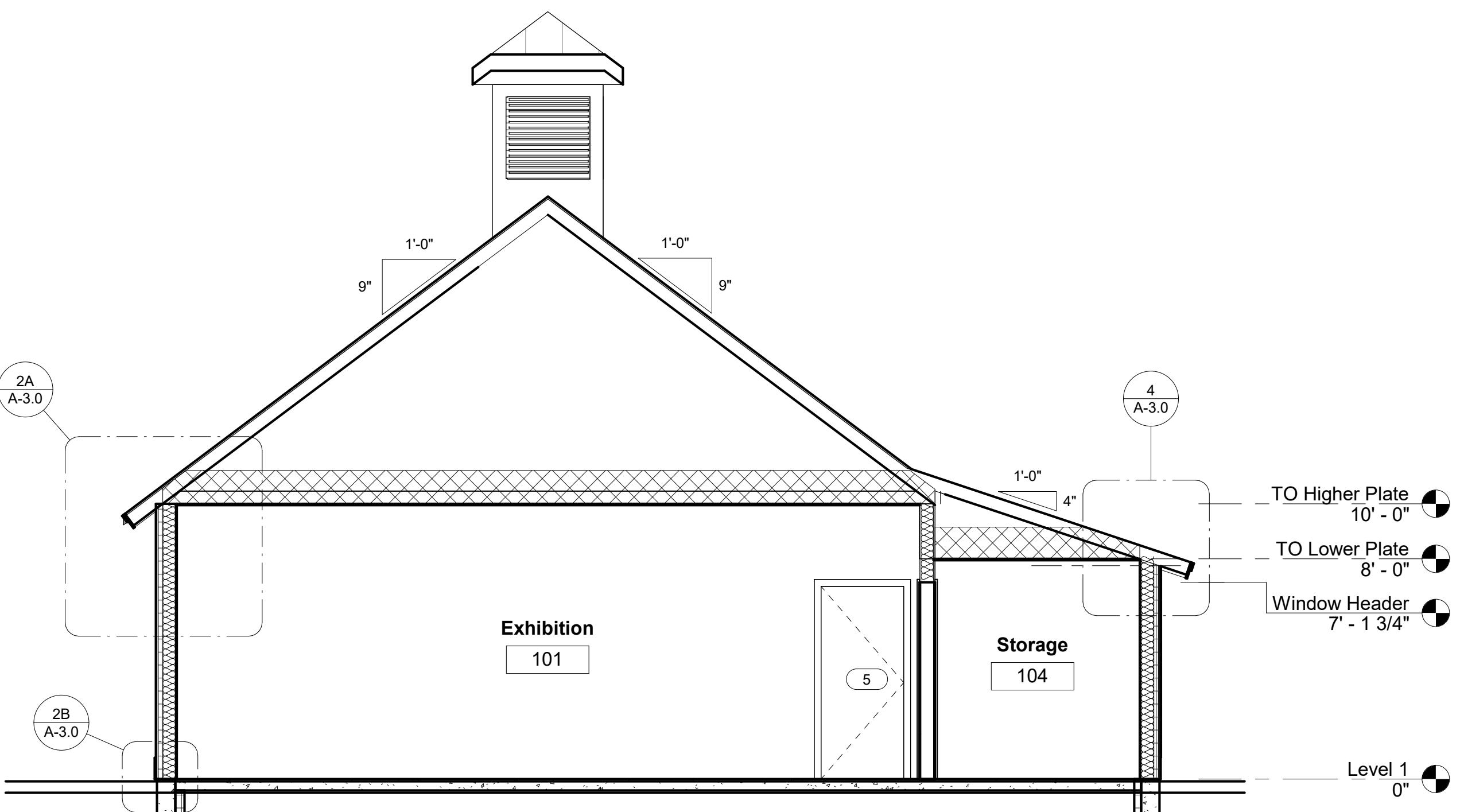
Sections & Elevations

Montgomery Historical Society
Montgomery, VT
Historical Society Center
Montgomery, VT
2044 North Main Street
2044 North Main Street

ARCHITECTURAL

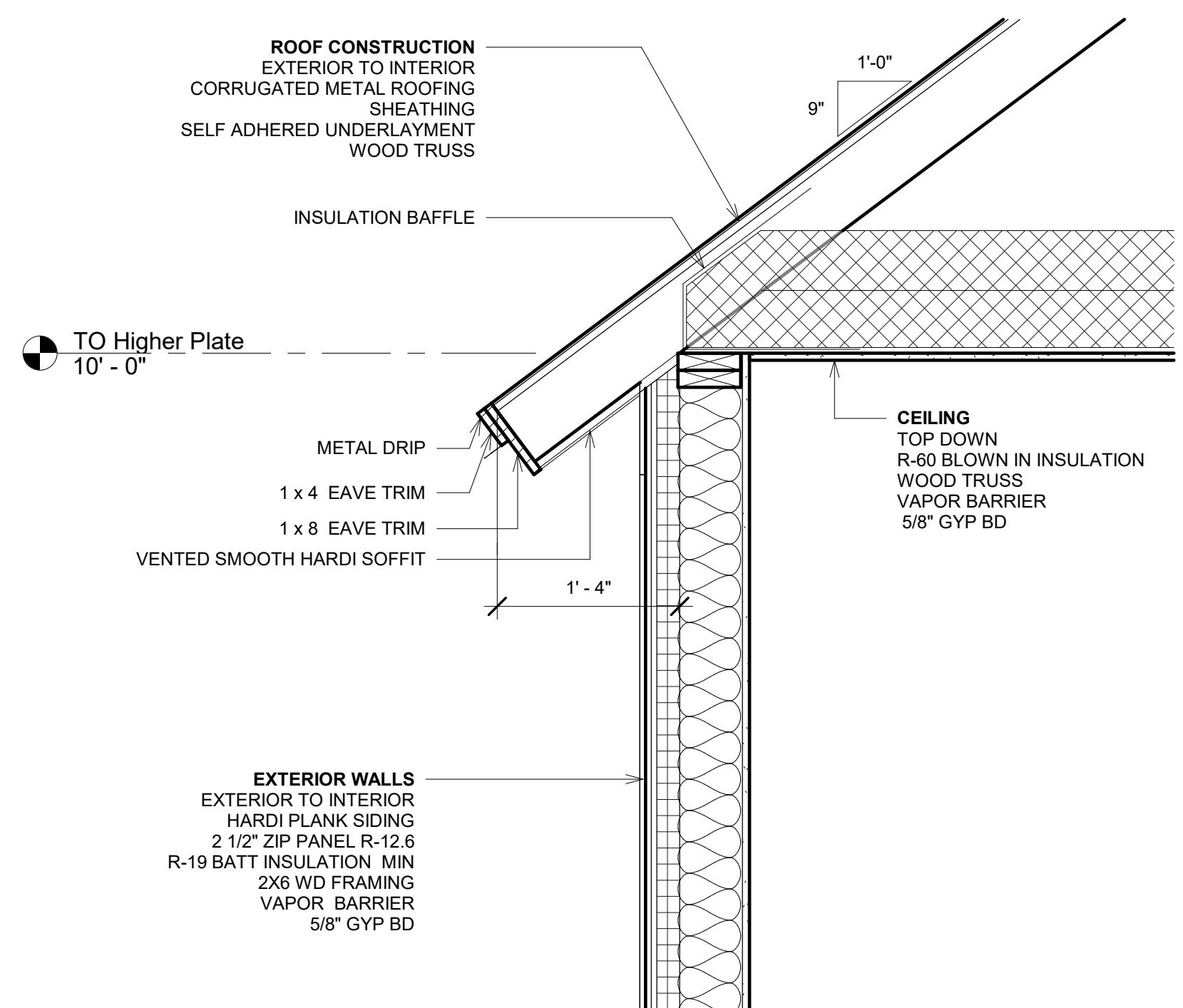
A-3.0

SHEET 3 OF #



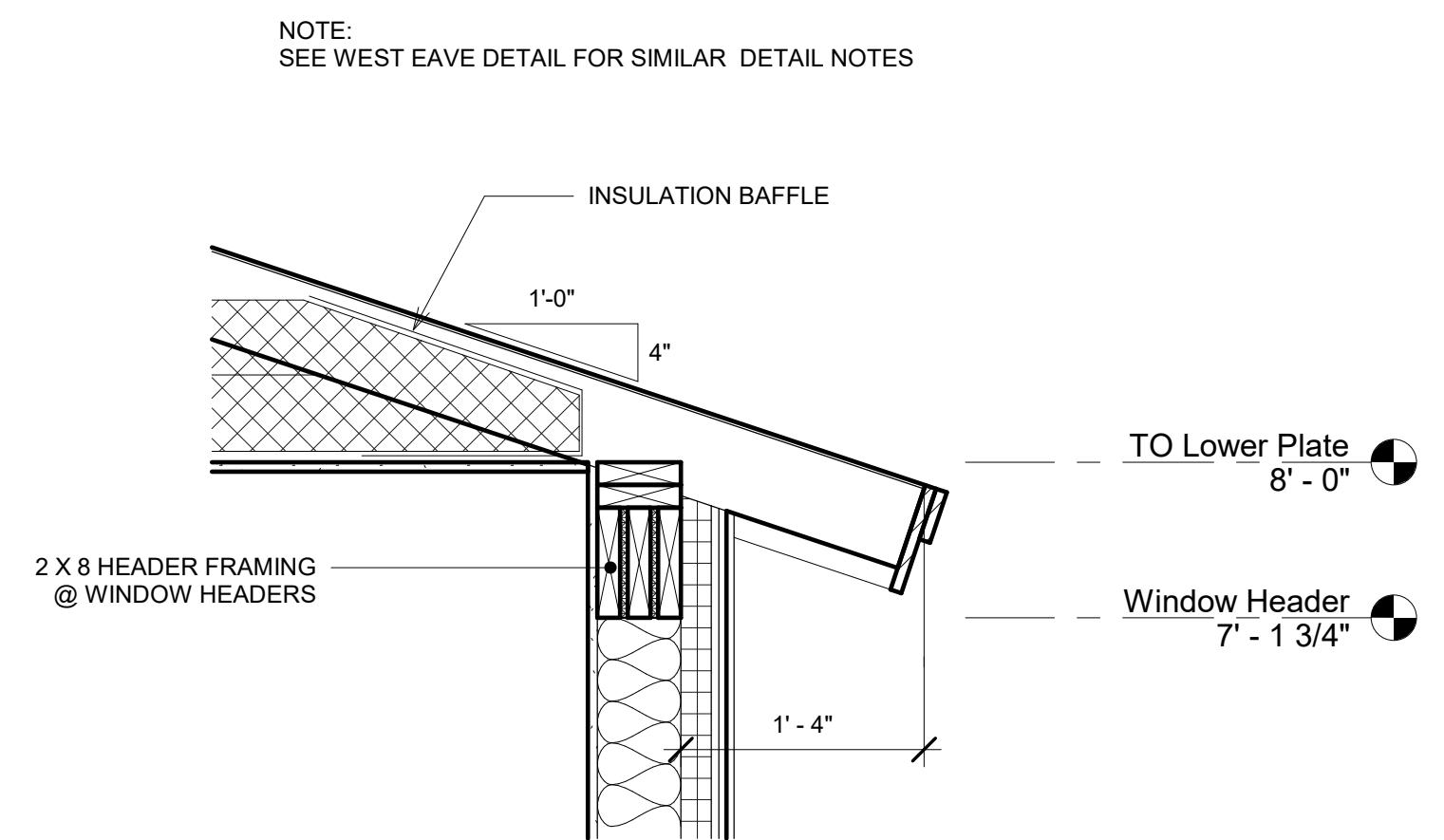
1
A-3.0
Building Cross Section

Scale: 1/4" = 1'-0"



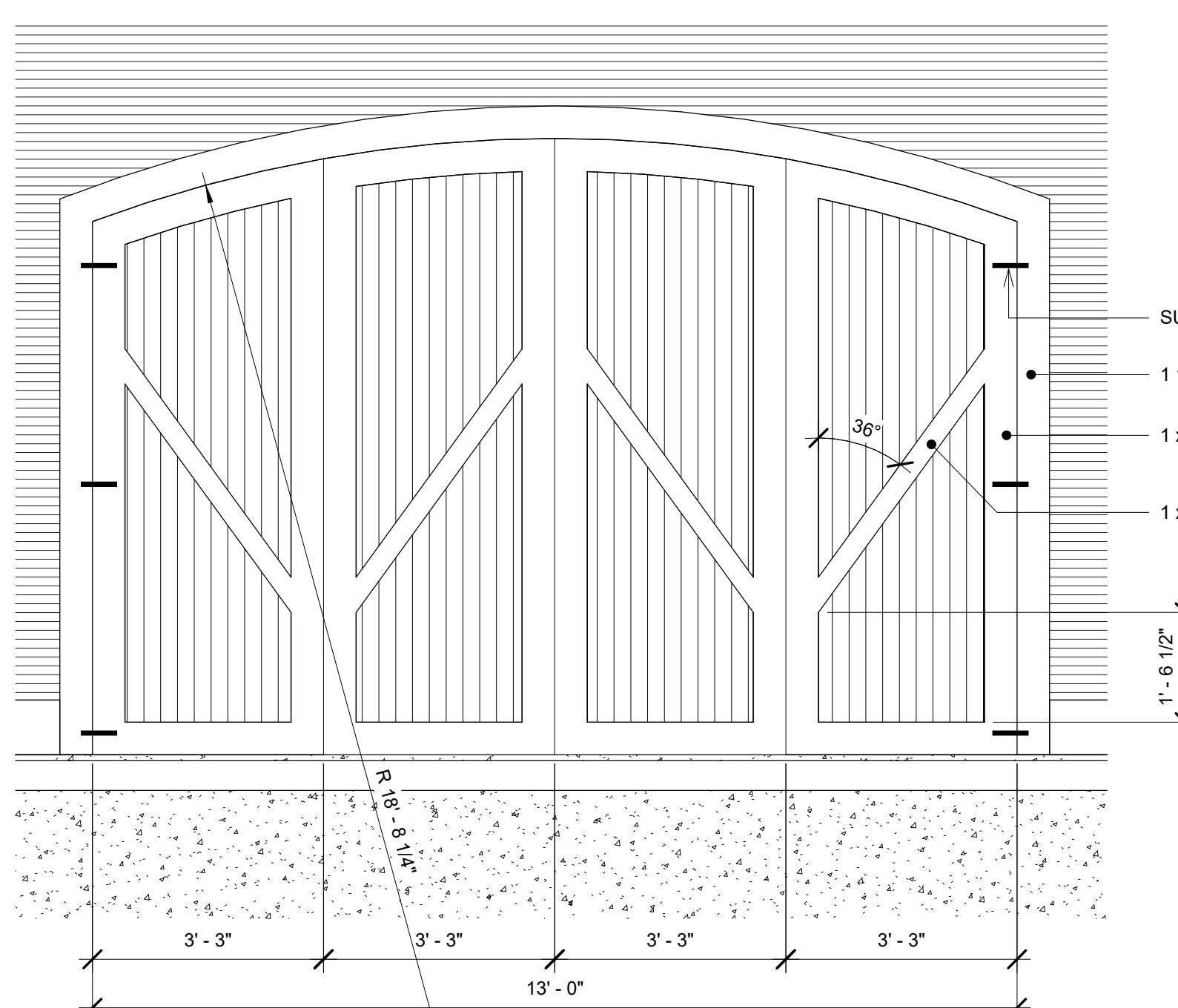
2A
A-3.0
West Eave Section

Scale: 1" = 1'-0"



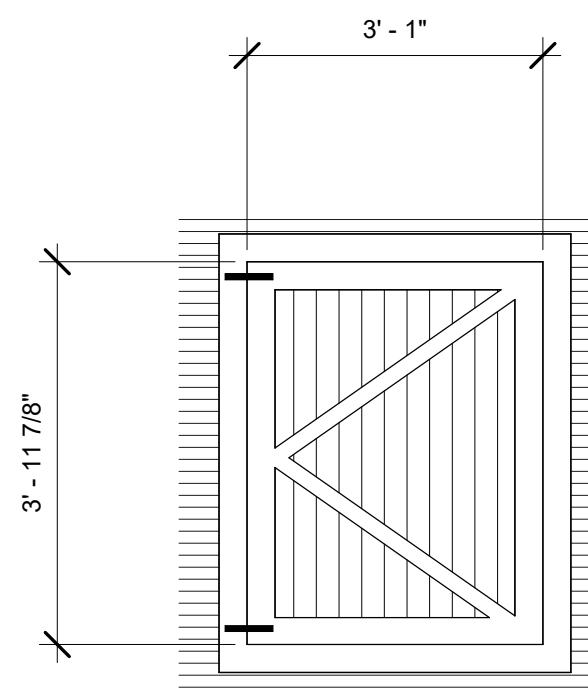
4
A-3.0
East Eave Section

Scale: 1" = 1'-0"



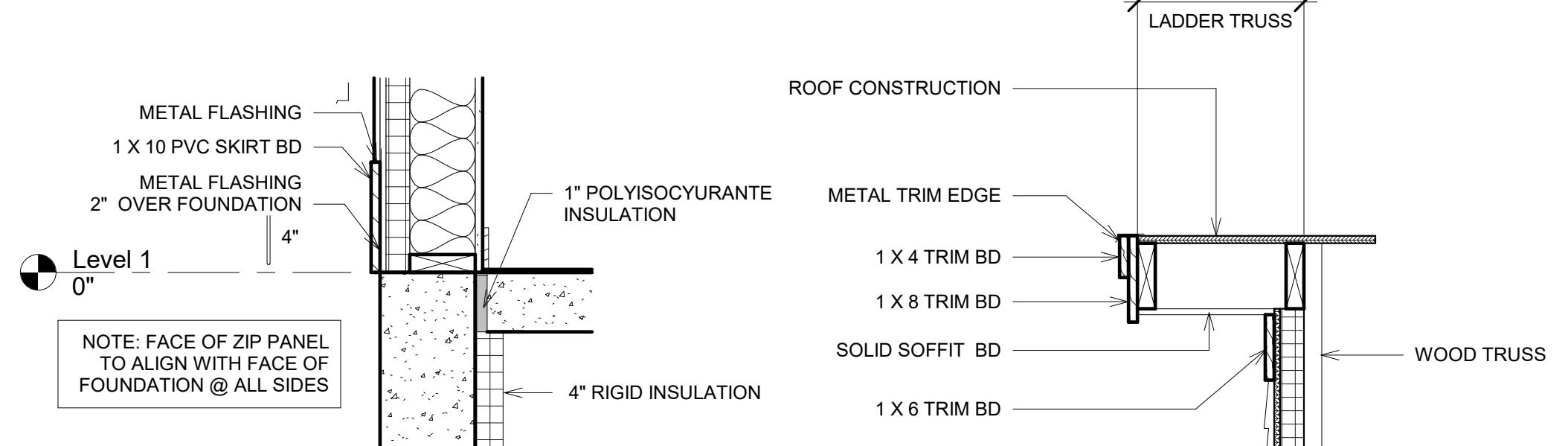
5
A-3.0
Large Faux Door Elevation

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



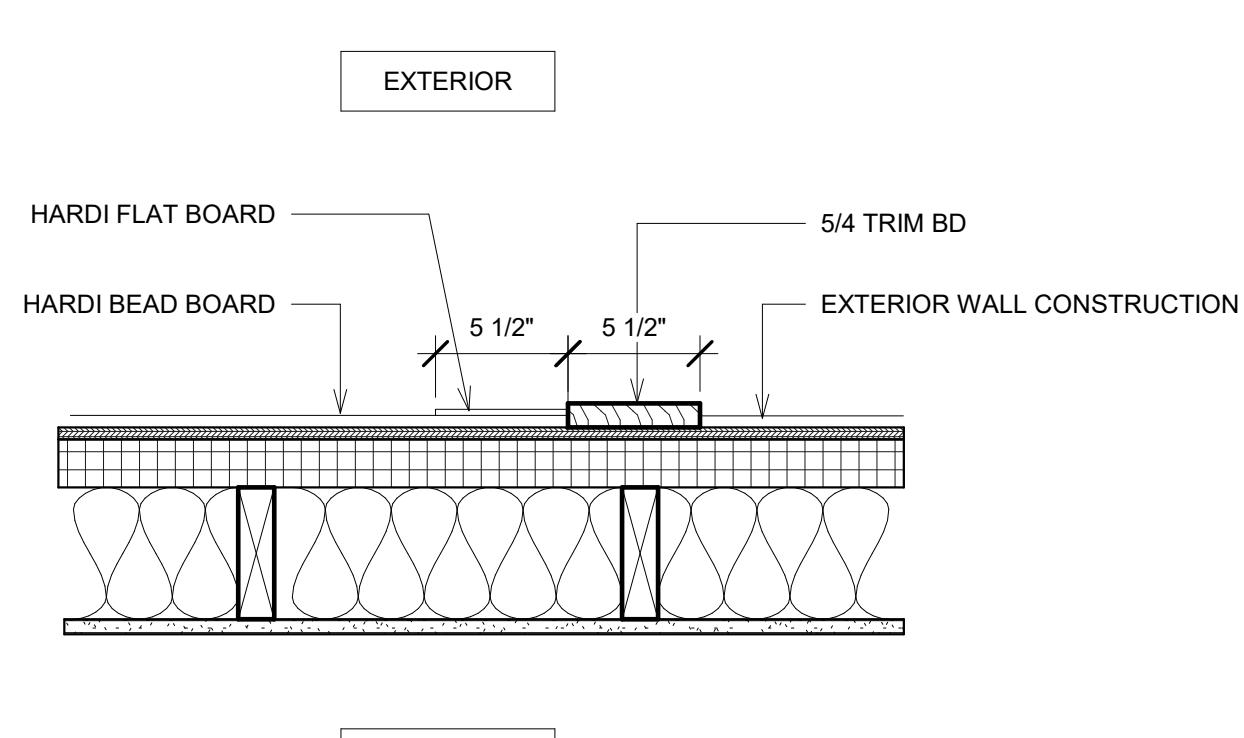
6
A-3.0
Small Faux Door Elevation

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



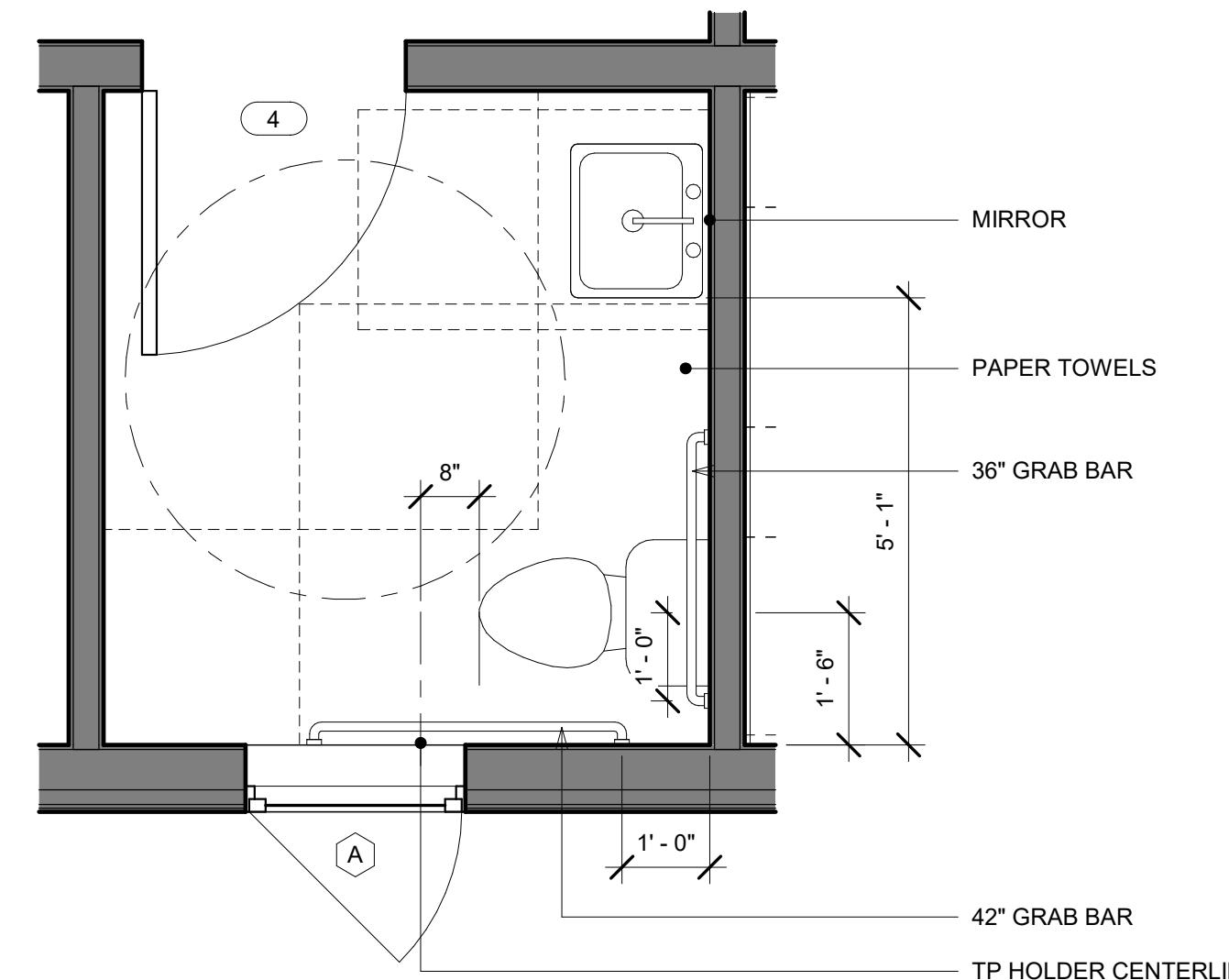
2B
A-3.0
Exterior Wall Base Section

Scale: 1" = 1'-0"

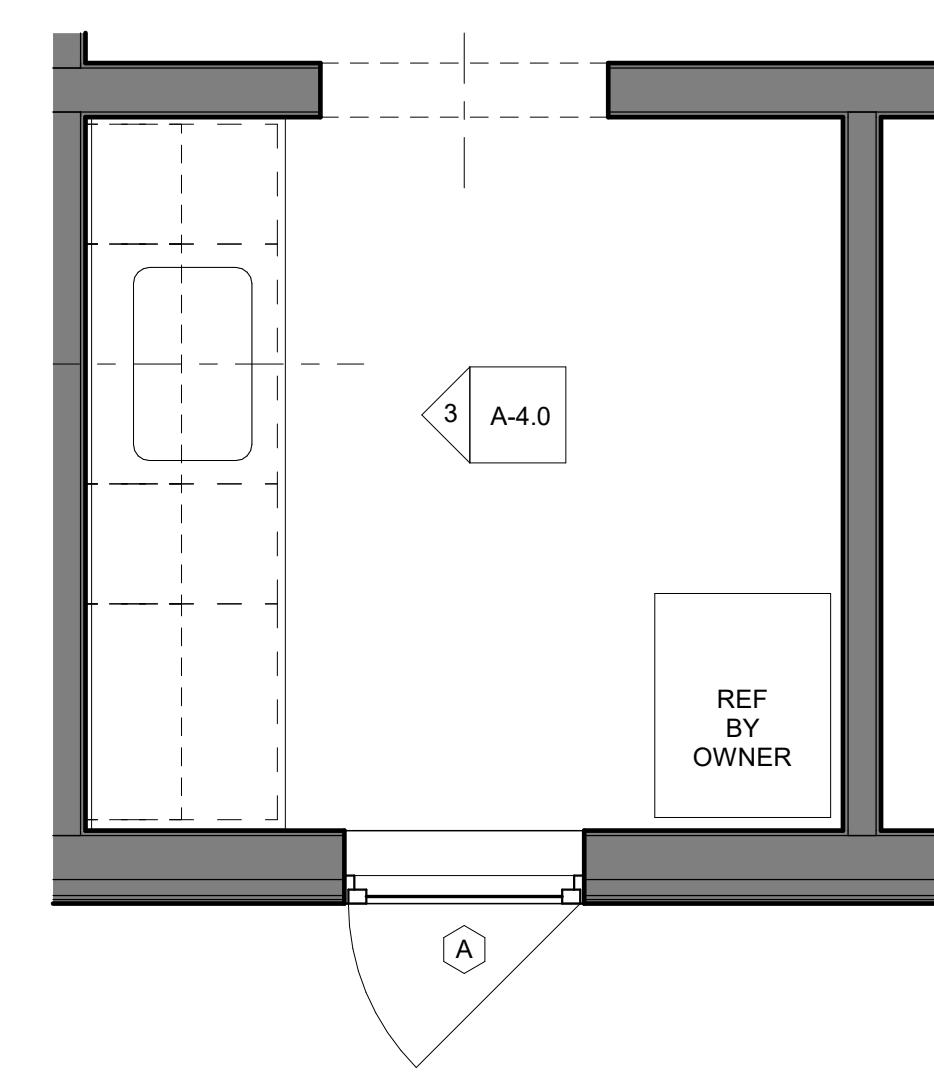


7
A-3.0
Faux Door Detail

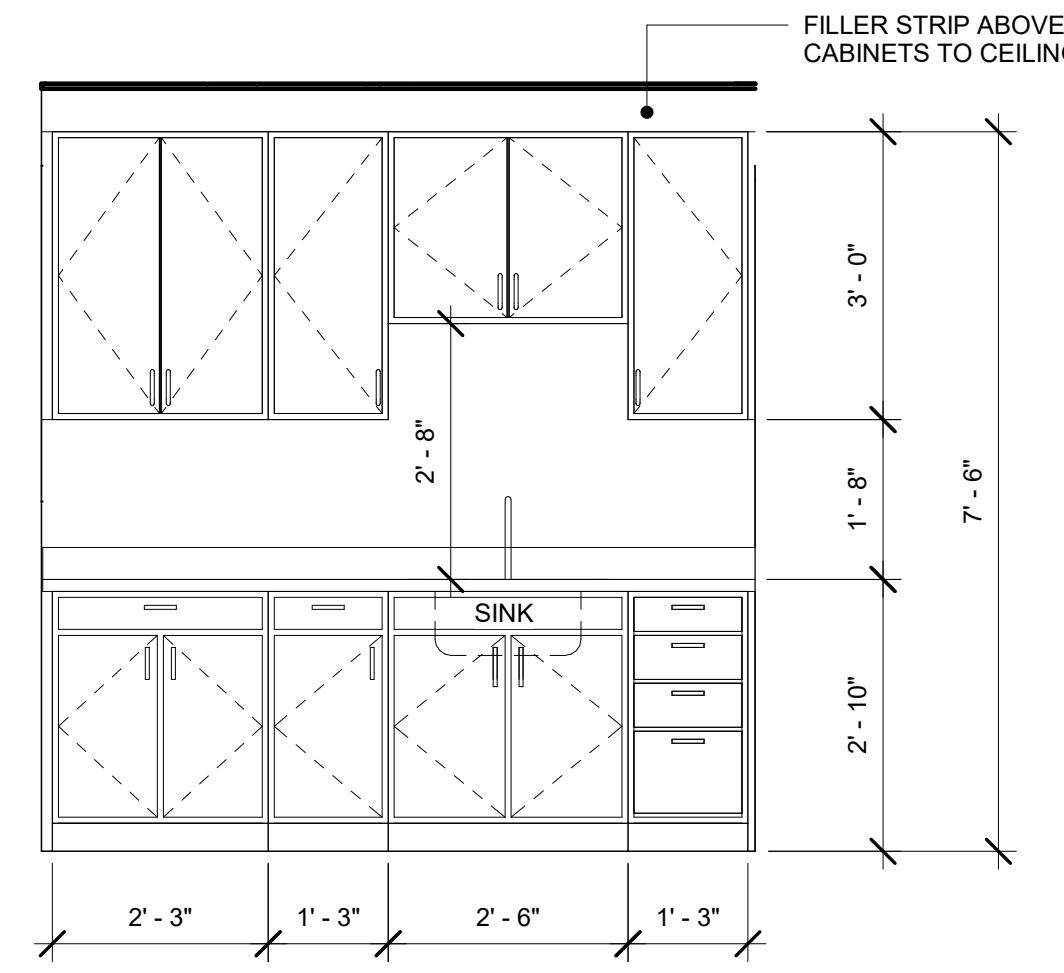
Scale: 1 1/2" = 1'-0"



1 Restroom Plan
A-4.0 Scale: 1/2" = 1'-0"



2 Kitchenette Plan
A-4.0 Scale: 1/2" = 1'-0"



3 Kitchenette Elevation
A-4.0 Scale: 1/2" = 1'-0"

PROJECT: 24037
DATE: 12/10/2025
DRAWN: VAE
CHECKED: PJG
APPROVED: PJG
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Large Scale Views

Montgomery Historical Society
Montgomery, VT

Historical Society Center
Montgomery, VT

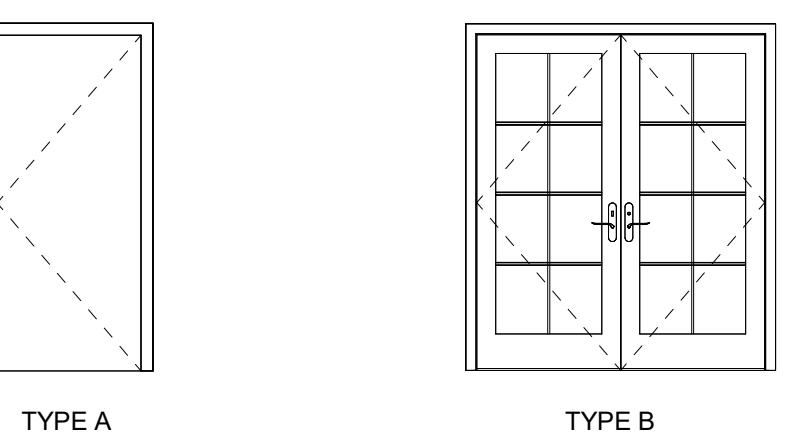
2044 North Main Street

ARCHITECTURAL
A-4.0

Construction Review Set 12/10/2025

SHEET 4 OF #

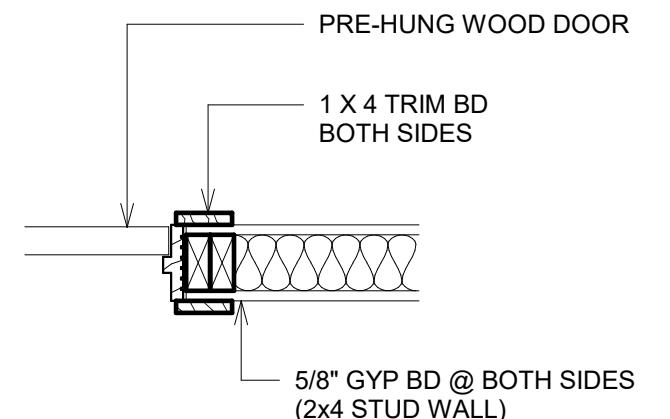
DOOR SCHEDULE												
Door Number	Room Number	Width	Height	Type Mark	Door Material	Door Glass	Jamb	Head	Threshold	Frame Material	Door Hardware	Comments
1	103	6'-0"	7'-0"	A	FIBERGLASS	YES	5/A-5.0	7/A-5.0	7/A-5.0	WD	1	
2	103	6'-0"	7'-0"	A	WD	YES	5/A-5.0	7/A-5.0	7/A-5.0	WD	2	
3	101	3'-0"	7'-0"	B	WD	NO	3/A-5.0	4/A-5.0	4/A-5.0	WD	3	
4	101	3'-0"	7'-0"	B	WD	NO	3/A-5.0	4/A-5.0	4/A-5.0	WD	4	
5	101	3'-0"	7'-0"	B	WD	NO	1/A-5.0	2/A-5.0	2/A-5.0	WD	5	
6	102	3'-0"	7'-0"	B	WD	NO	3/A-5.0	4/A-5.0	4/A-5.0	WD	3	1 HR
7	102	3'-0"	7'-0"	B								



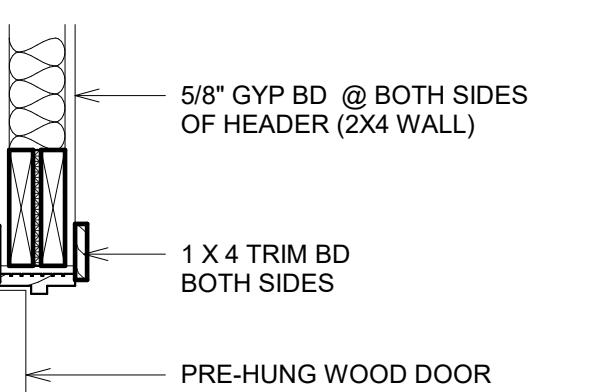
NOTE: INTERIOR DOOR #2 NO MULLIONS

Doors

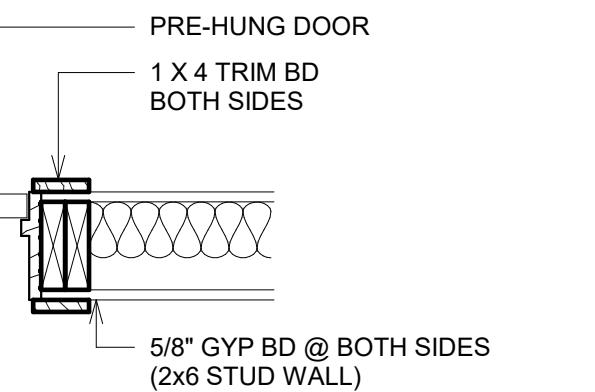
Scale: 1/4" = 1'-0"



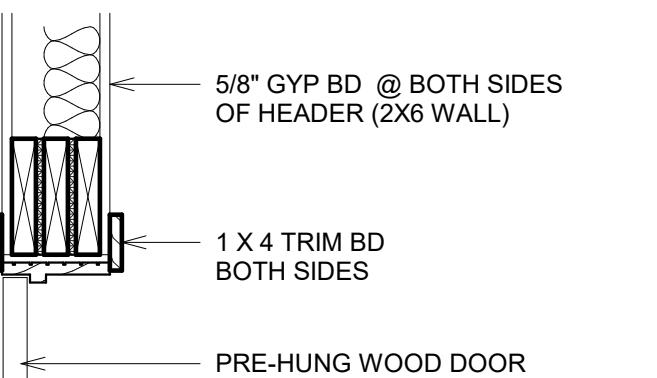
1 **Door Jamb 2x4 Wall**
A-5.0 Scale: 1" = 1'-0"



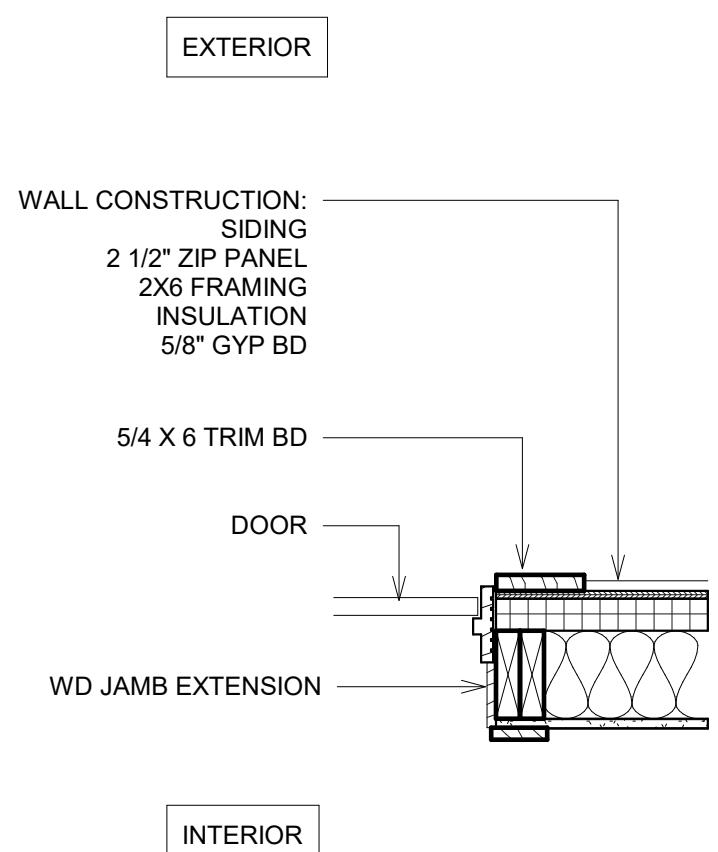
2 **Door Header 2x4 Wall**
A-5.0 Scale: 1" = 1'-0"



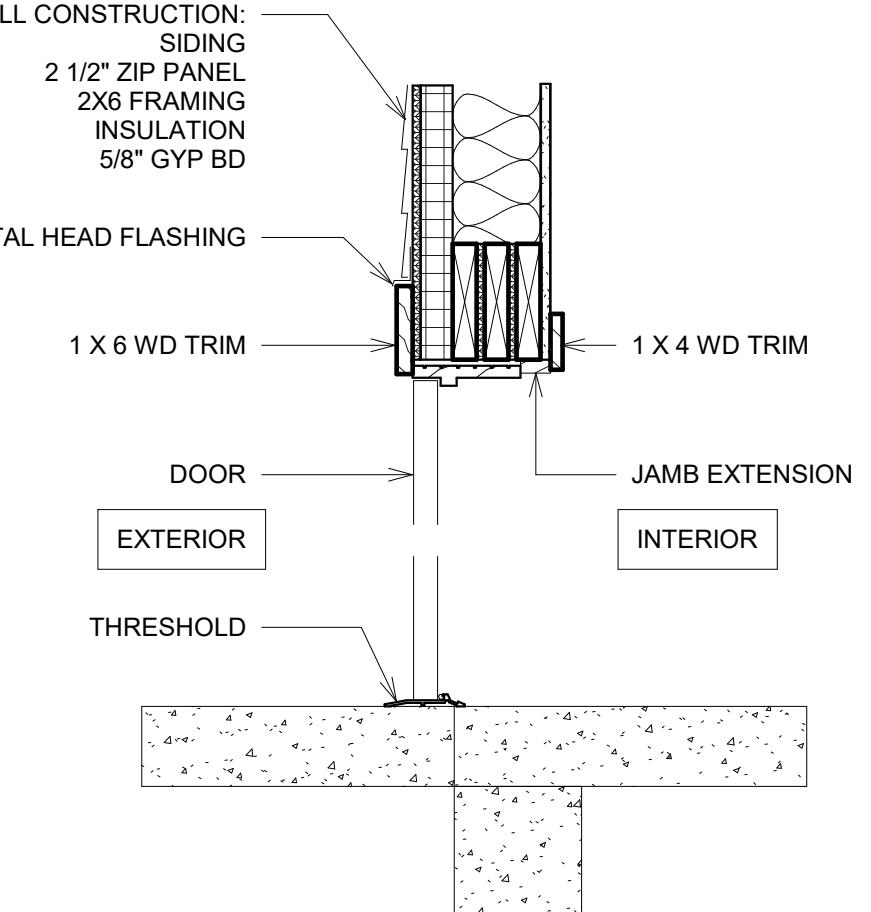
3 **Door Jamb 2x6 Wall**
A-5.0 Scale: 1" = 1'-0"



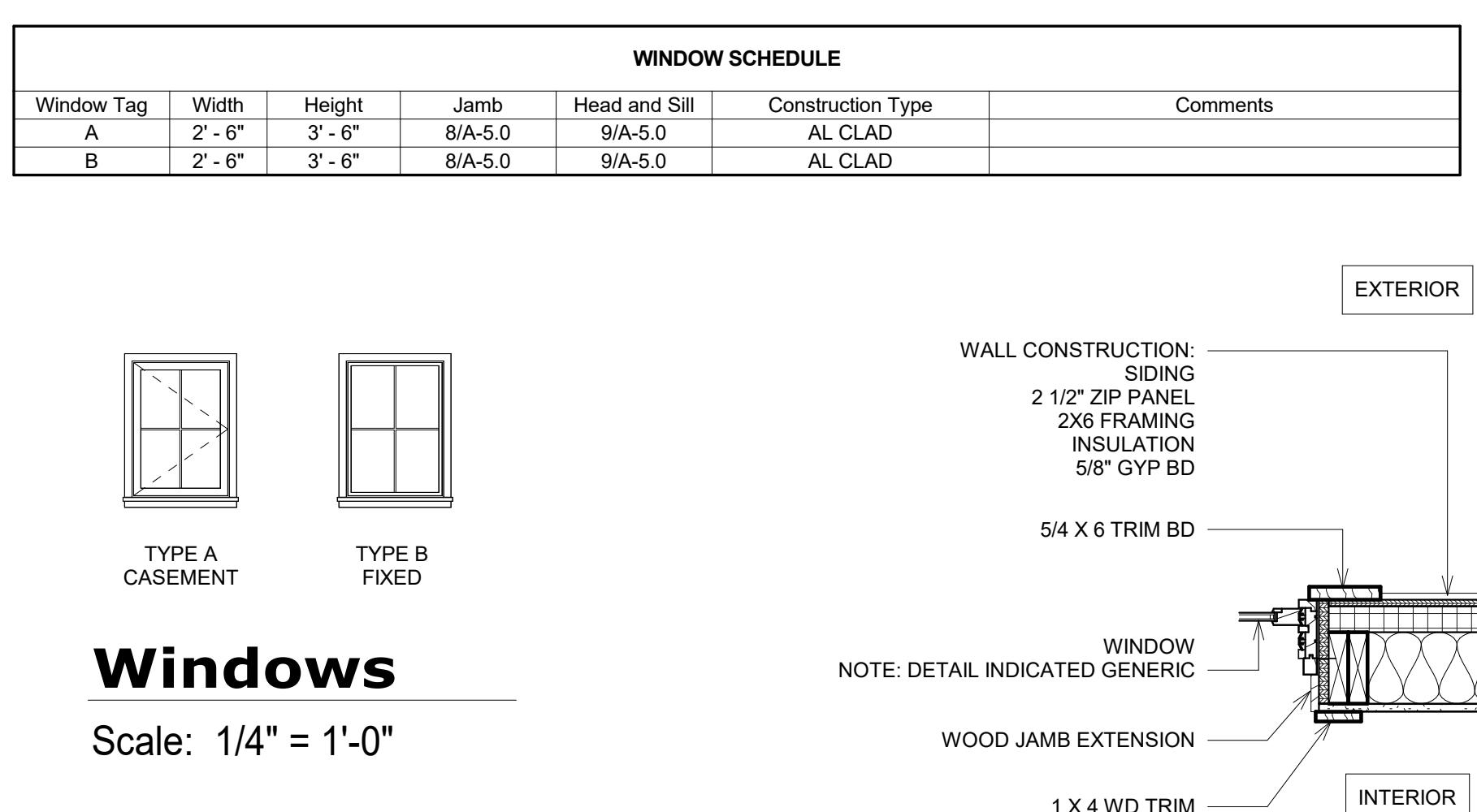
4 **Door Header 2 x 6 Wall**
A-5.0 Scale: 1" = 1'-0"



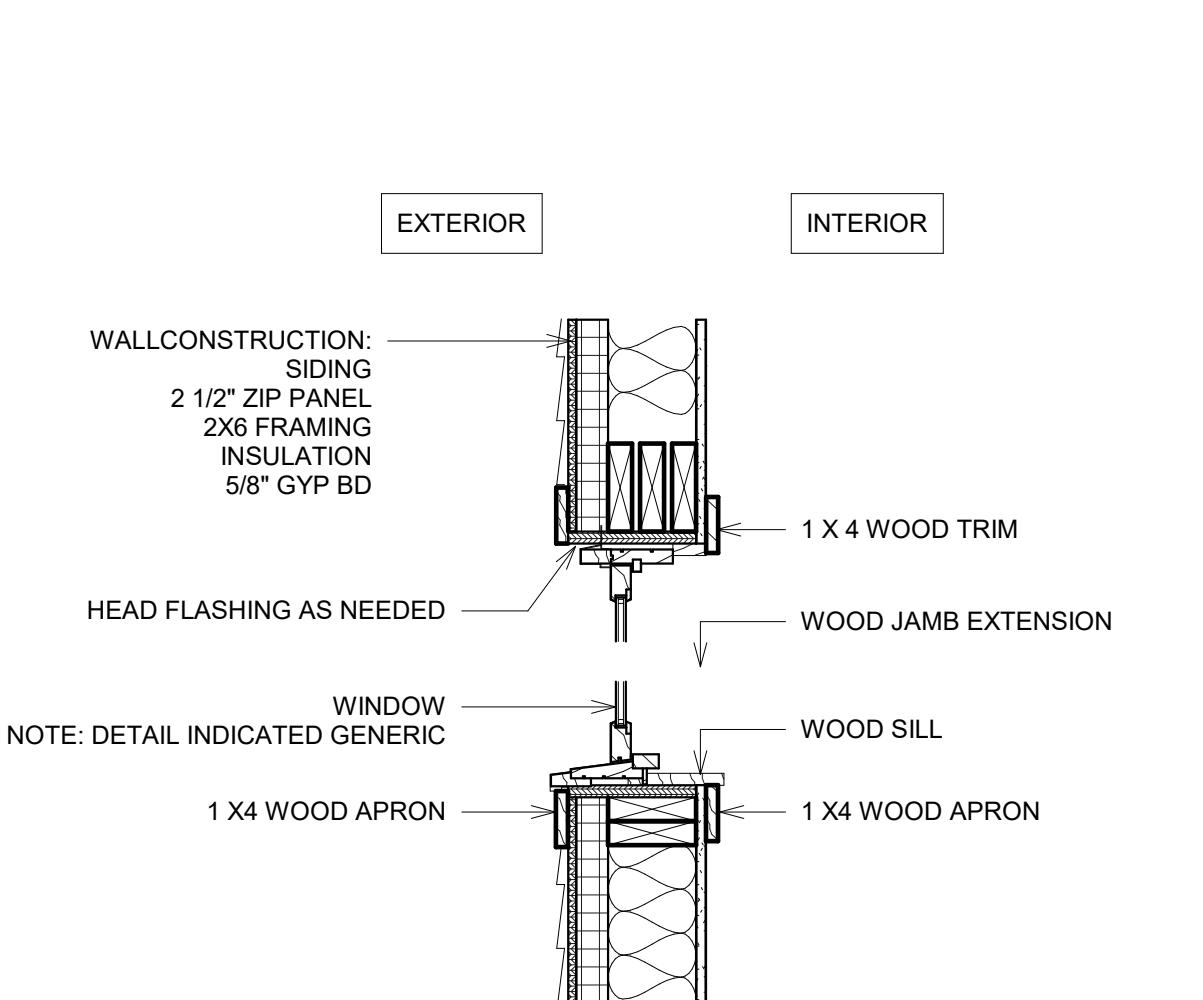
5 **Door Jamb Exterior**
A-5.0 Scale: 1" = 1'-0"



7 **Door Header & Threshold Exterior**
A-5.0 Scale: 1" = 1'-0"



Windows
Scale: 1/4" = 1'-0"



8 **Window Jamb**
A-5.0 Scale: 1" = 1'-0"

9 **Window Header & Sill**
A-5.0 Scale: 1" = 1'-0"

PROJECT: 24037
DRAWN: VAE
DESIGNED: PUG
APPROVED: PUG
DATE: 12/10/2025
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Schedules & Details

Rev. No. Date Description

Montgomery Historical Society
Montgomery, VT
Historical Society Center
Montgomery, VT
2044 North Main Street
2024 North Main Street

ARCHITECTURAL
A-5.0

Construction Review Set 12/10/2025

SHEET 5 OF #

Foundation Plan

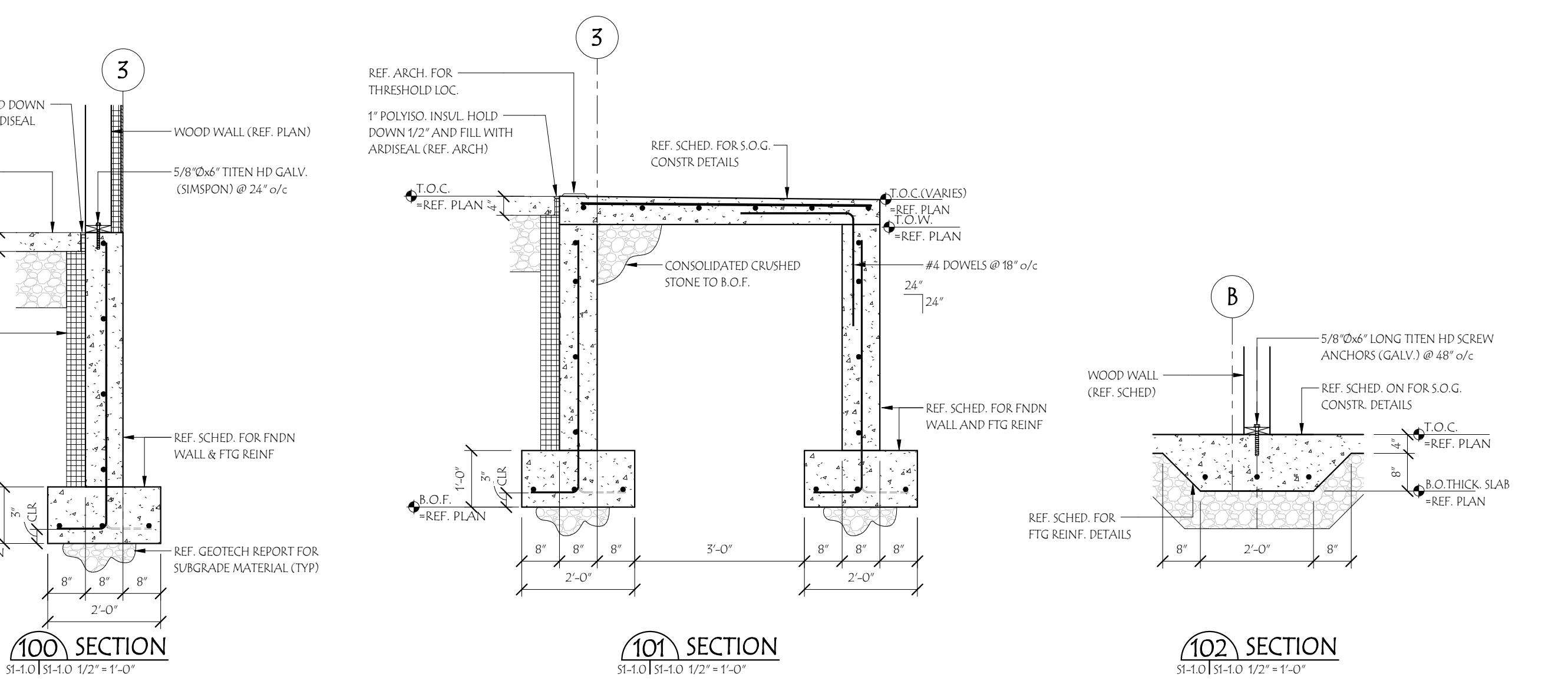
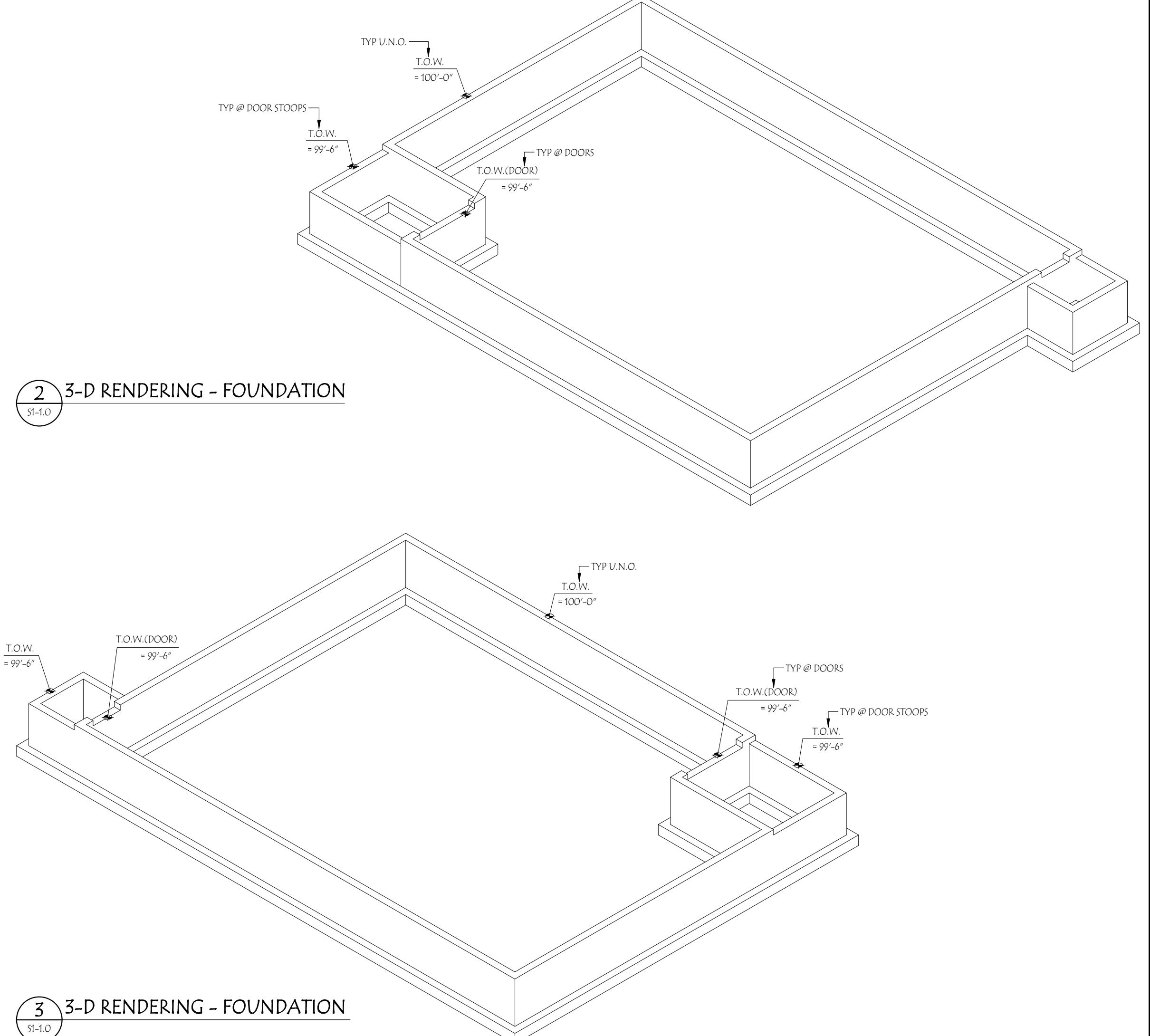
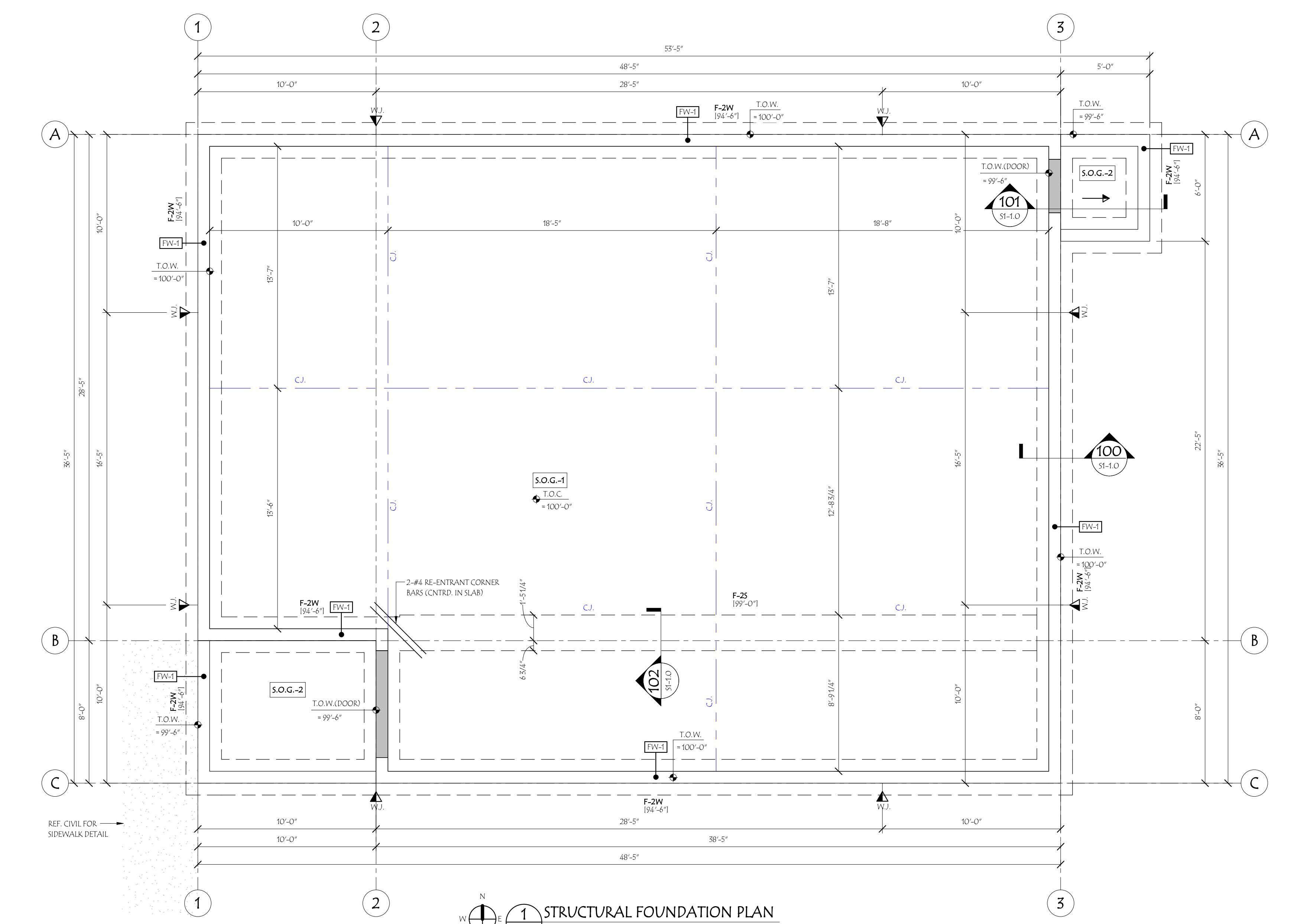
Montgomery Historical Society Center
Montgomery, VT
2044 North Main Street

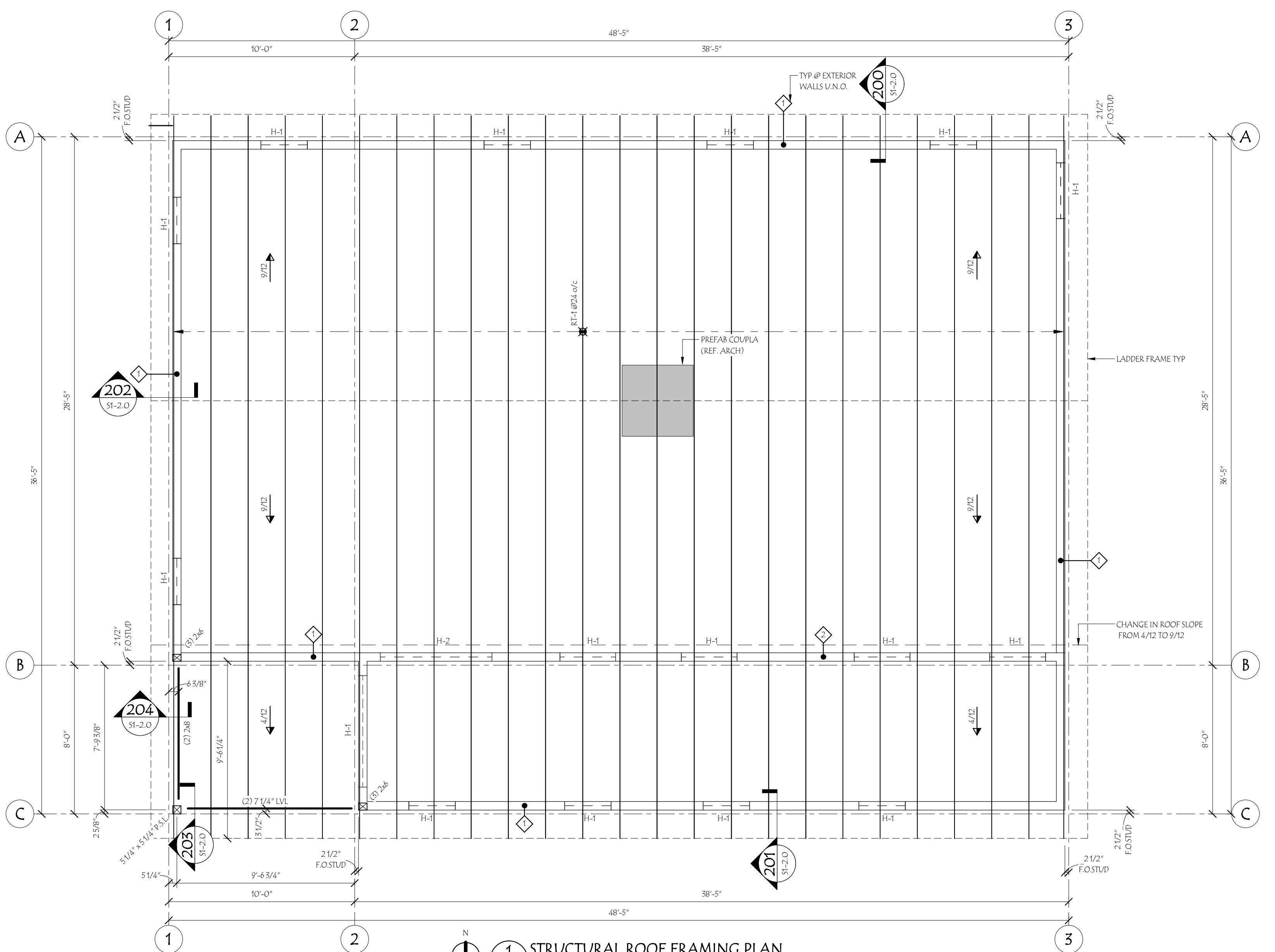
Structural
S1-1.0

FOR REVIEW

11/12/2025 3:12:01 PM

Sheet 2 Of 5





1 STRUCTURAL ROOF FRAMING PLAN

S1-2.0 $1/4'' = 1'-0''$
NOTES:

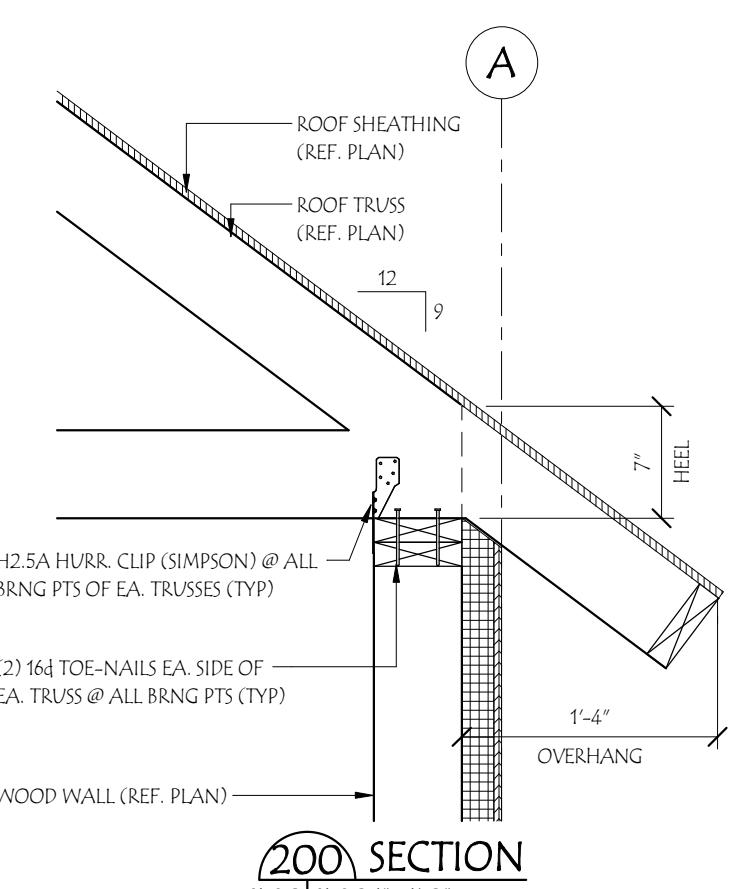
1. REFER TO ARCHITECTURAL DRAWINGS FOR INTERIOR WALL LAYOUT DIMENSIONS.
2. ALL ROOF FRAMING SHALL BE SPACED AS SHOWN ON THE PLAN (STUDS AND ROOF FRAMING SHALL BE ON THE SAME LAYOUT WHEN STUD & ROOF FRAMING SPACING ARE THE SAME U.N.O.).
3. ROOF SHEATHING SHALL BE 5/8" ADVANTECH SHEATHING BY HUBER WOODS (NAILED W/RING SHANK NAILS).
4. ALL WALLS SHOWN ON THIS PLAN ARE LOCATED "BELOW" THIS FRAMING LEVEL (U.N.O.).

NOTES:

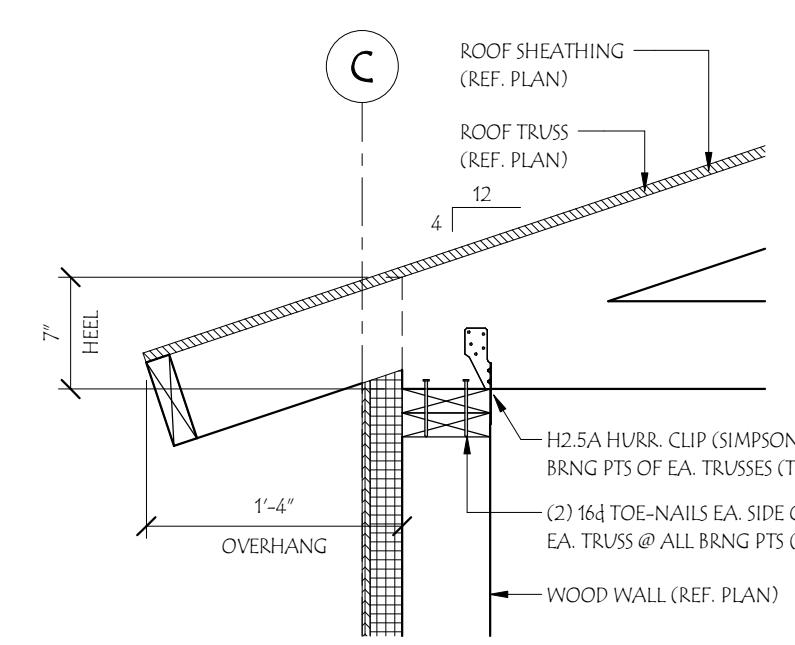
1. WALL STUDS AND FLOOR/ROOF TRUSSES ARE TO BE ON THE SAME LAYOUT. (I.E. ALIGNED ABOVE AND BELOW), EXCEPT WHERE STUD AND TRUSS SPACING DIFFER.
2. STRUCTURAL BLOCKING TO BE EVENLY SPACED ALONG STUD HEIGHT.
3. ALL SHEAR WALLS TO RECEIVE BLOCKING @ HORIZ. SHEATHING PANEL EDGES IN LIEU OF BLOCKING SHOWN IN THIS SCHEDULE.
4. PROVIDE 11/2"x3 1/2" OR 5 1/2" TIMBERSTRAND LSL TOP & BOTT. PLATES IN ALL STRUCTURAL WALLS. BOTTOM PLATES FOR EXTERIOR WALL BRNG ON CONCRETE SHALL BE P.T.

HEADER SCHEDULE

MARK	H-1	H-2
SIZE/MATERIAL	3-2x8 (SPF NO.1/NO.2)	3-2x12 (SPF NO.1/NO.2)
JAMB CONSTRUCTION		
GROUND FLOOR	1 JACK, 1 KING	2 JACK, 1 KING



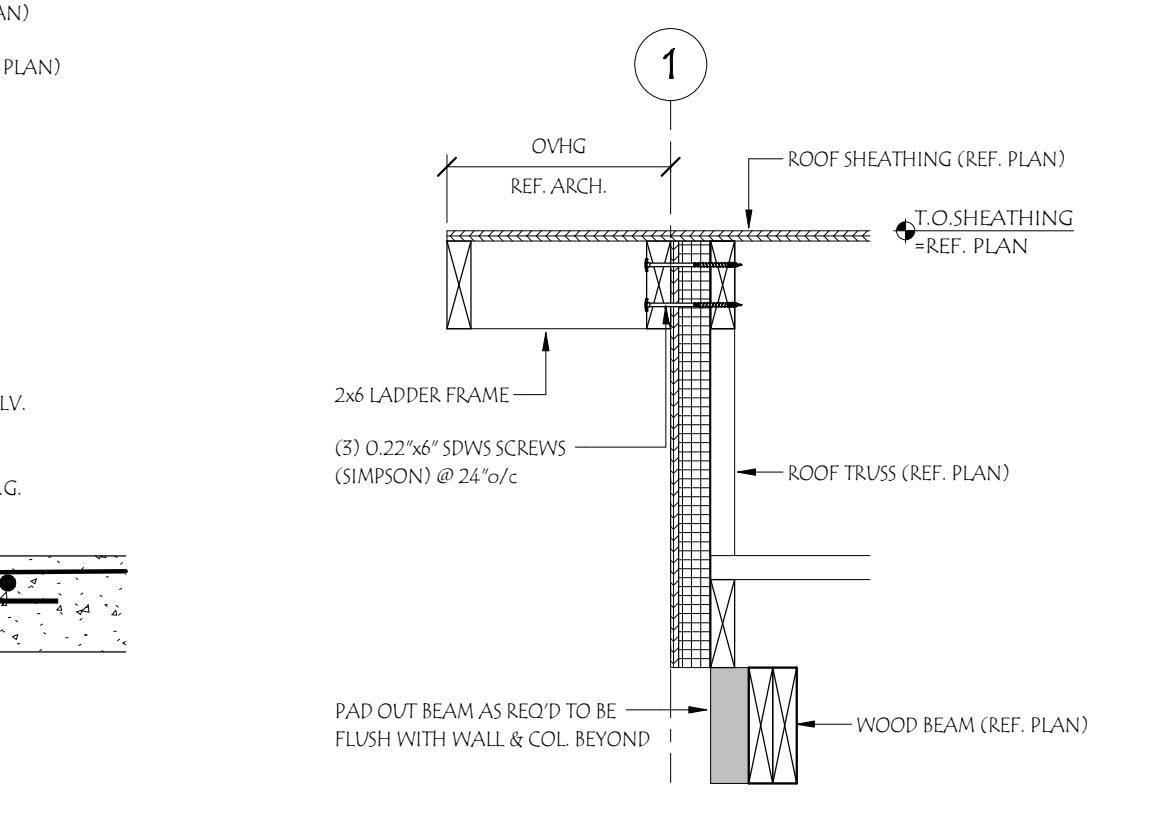
201 SECTION



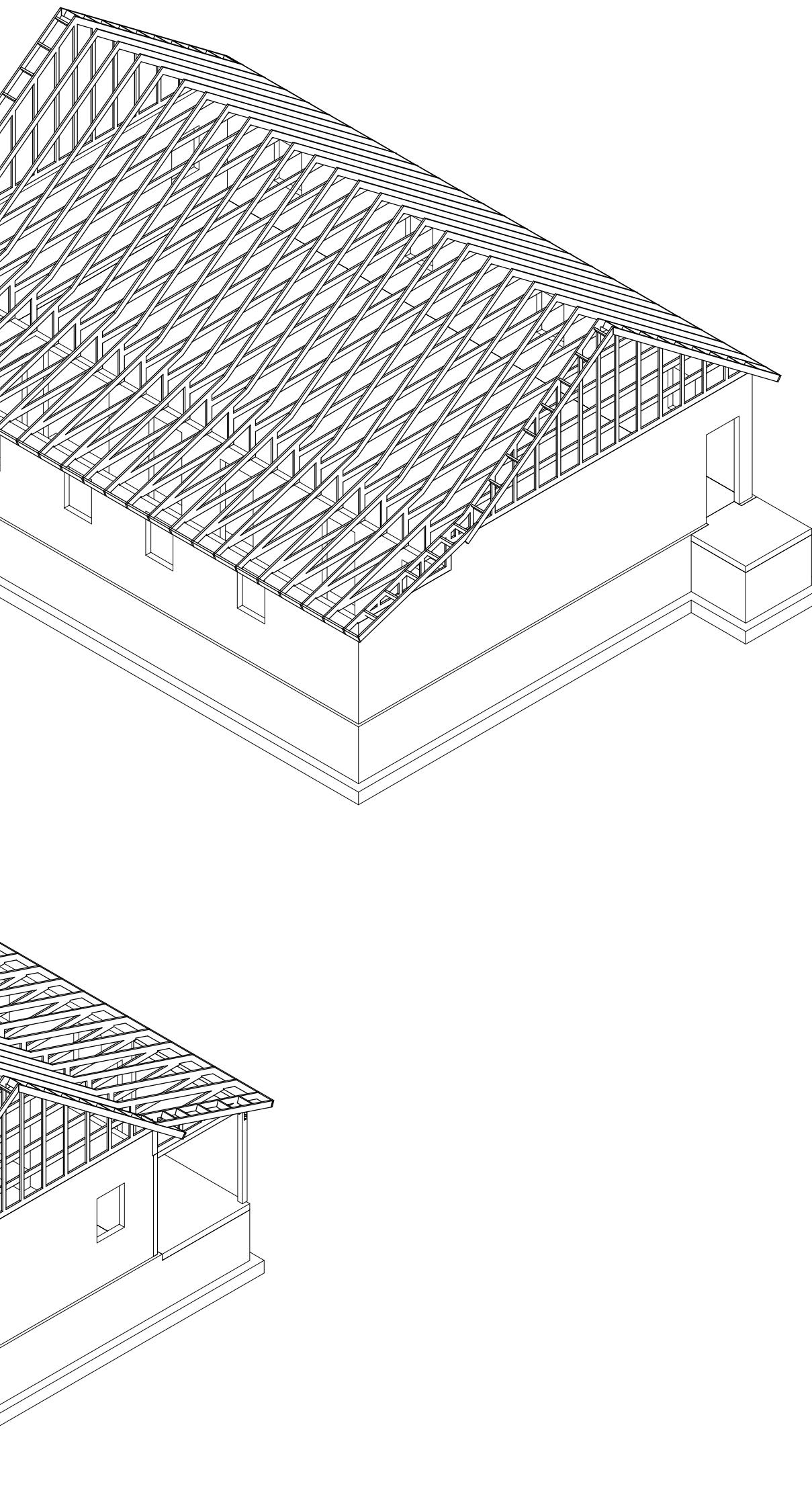
202 SECTION



SECTION

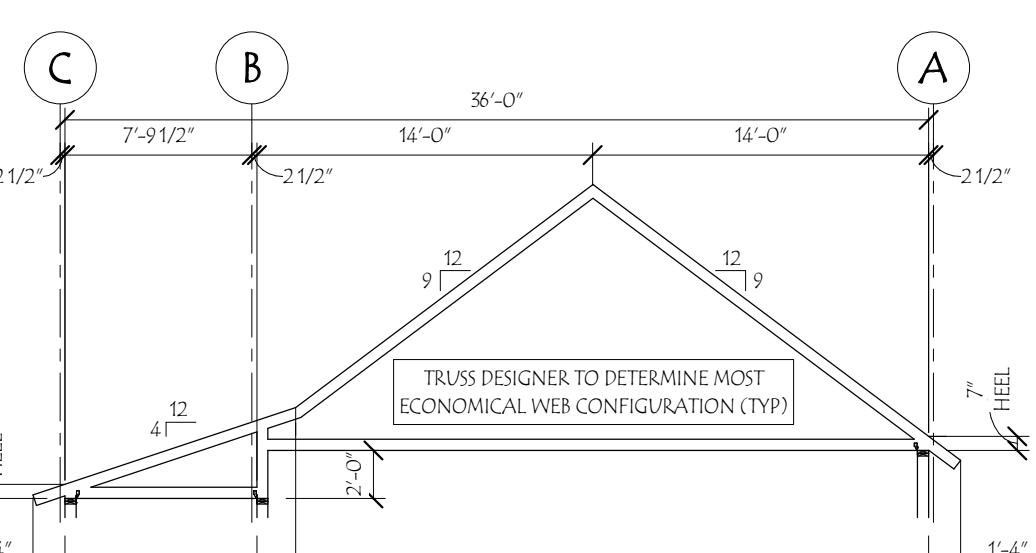


204 SECTION



 3-D RENDERING – FULL BUILDING

3-D RENDERING - FULL BUILDING



4 ROOF TRUSS DIAGRAM

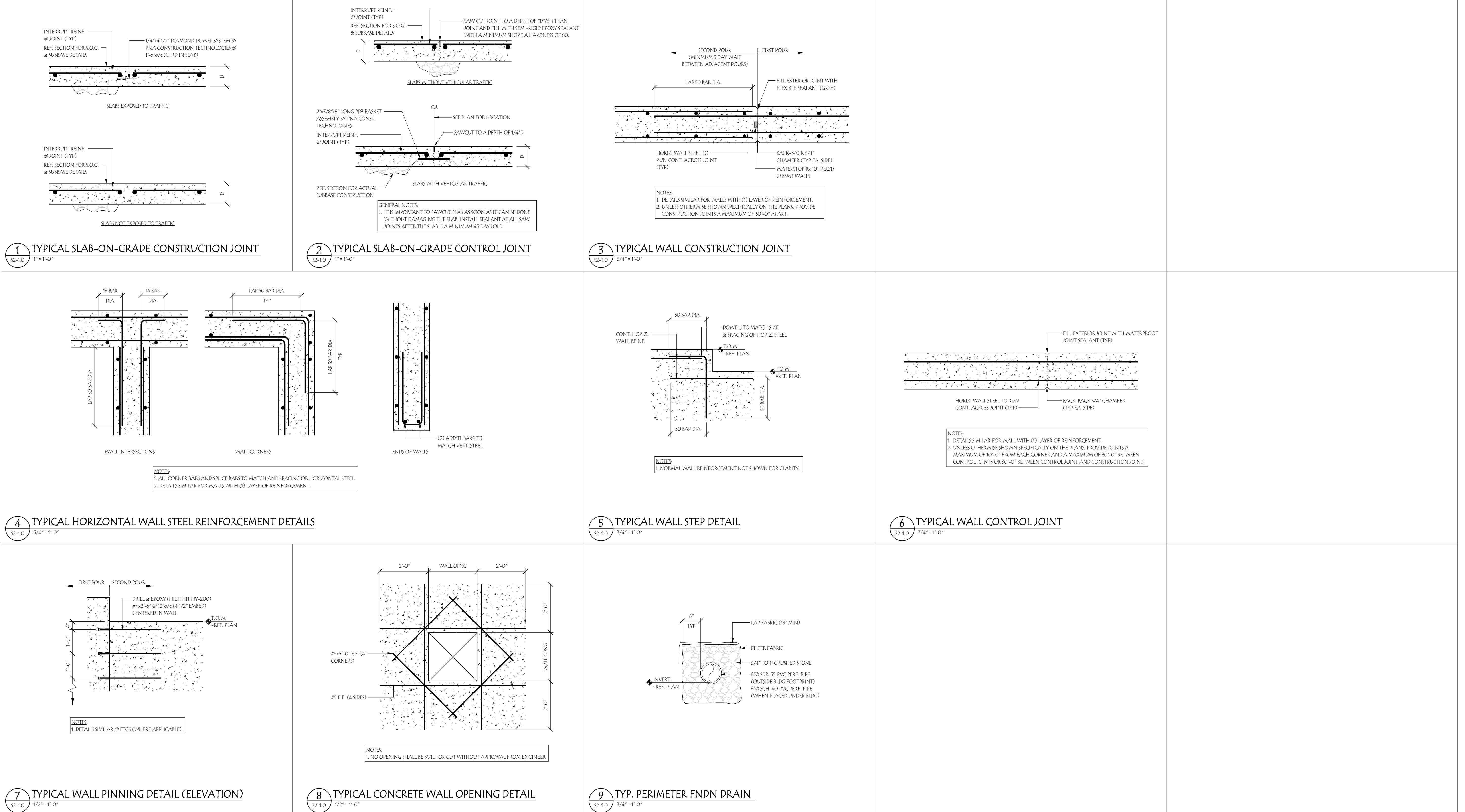
S1-2.0 $1/8'' = 1'-0''$
NOTES:
1. REF. SO-1.0 FOR TYP. DESIGN LOAD INFORMATION.
2. SEE SECTION 1.0 FOR DESIGN LOADS FOR ALL CONCRETE UNITS.

Roof Framing Plan

Montgomery Historical Society

Structural S1-2.0

FOR REVIEW



Concrete Standard Details

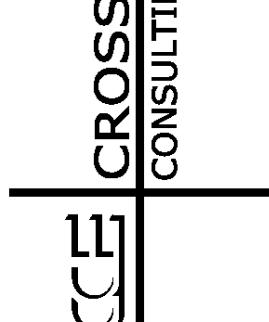
Montgomery Historical Society Center
Montgomery, VT
Historical Society Center
Montgomery, VT
2044 North Main Street

Structural
S2-1.0

FOR REVIEW

11/12/2025 3:12:14 PM

Sheet 4 Of 5



HARDY
STRUCTURAL ENGINEERING

875 Roseway Hwy, Ste. 130
Colchester, VT 05446
www.hardye.com

Wood Standard Details

Montgomery Historical Society
Montgomery, VT

Historical Society Center
Montgomery, VT

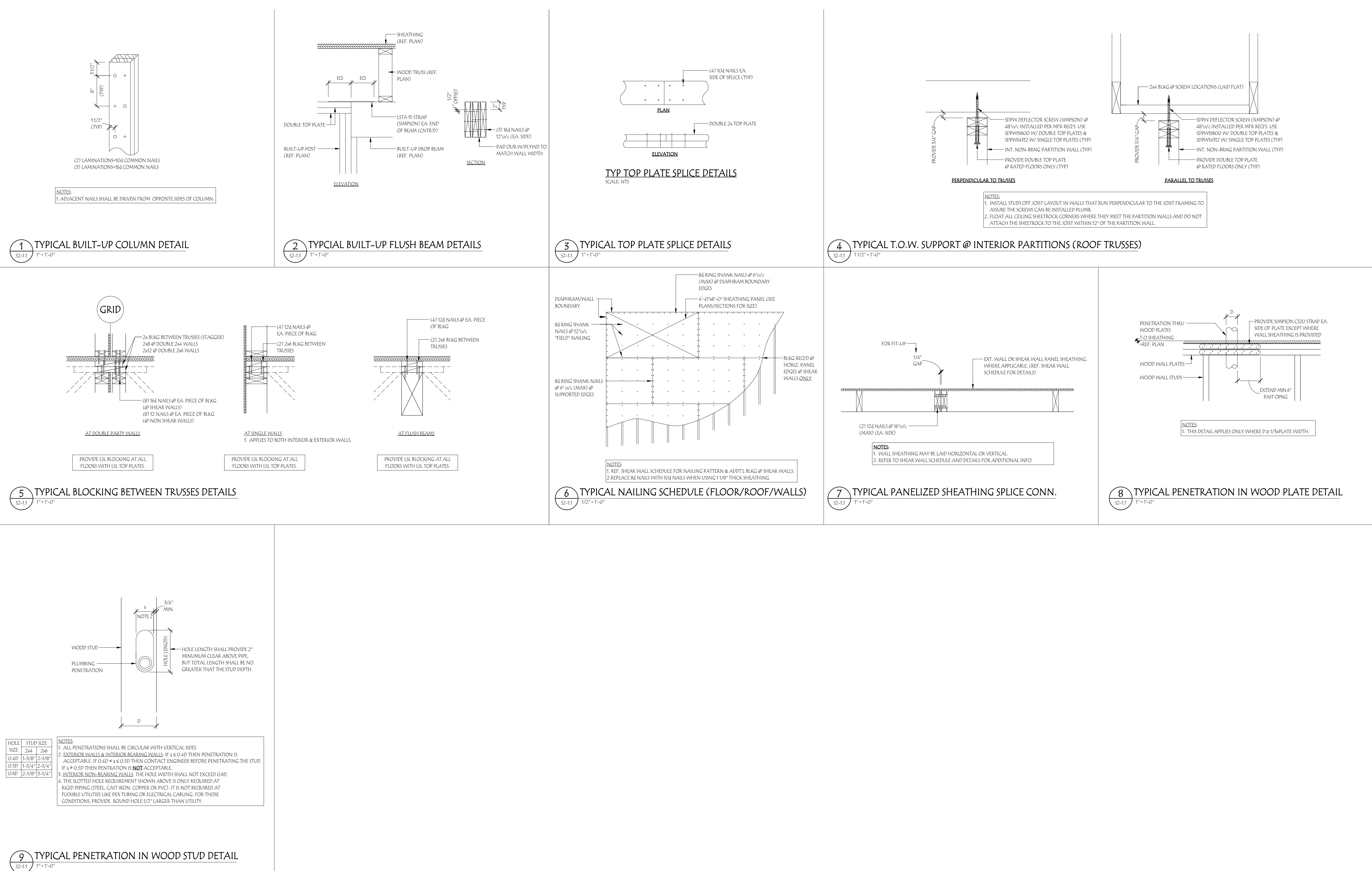
2044 North Main Street

Structural
S2-1.1

FOR REVIEW

11/12/2025 3:12:14 PM

Sheet 5 Of 5



MECHANICAL MATERIAL SPECIFICATION:

APPLICABLE CODES AND STANDARDS:

COMPLY WITH ALL STATE OF VERMONT CODES AND STANDARDS ADOPTED OR ENFORCED BY THE STATE OF VERMONT, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. VERMONT FIRE AND BUILDING CODE, 2015 EDITION.
2. VERMONT PLUMBING RULES, 2021 EDITION.
3. NFPA 101 LIFE SAFETY CODE, 2015 EDITION.
4. NFPA 1 FIRE CODE, 2015 EDITION.
5. NFPA 70 NATIONAL ELECTRICAL CODE, 2015 EDITION.
6. NFPA 70B NATIONAL PLUMBING CODE, 2021 EDITION
7. NFPA 70 NATIONAL ELECTRICAL CODE, 2020 EDITION
8. ICC INTERNATIONAL PLUMBING CODE, 2021 EDITION
9. THE NATIONAL BOARD INSPECTION CODE, NATIONAL BOARD OF BUREAUS OF INSPECTION, 2015 EDITION
10. 2020 COMMERCIAL BUILDING ENERGY STANDARD
11. ASHRAE 62.1-2022, VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY.

SYSTEMS TESTING:

UPON COMPLETION OF FABRICATION AND BEFORE ENCLOSING, INSULATING OR CONCEALING, ALL WALL, ALUMINUM, MAINS AND JOINTS SHALL BE TESTED FOR LEAKS AND ONE-HALF THEIR NORMAL WORKING PRESSURES. PROVIDE TEST PUMPS, METERS, GAUGES AND OTHER INSTRUMENTS AND MATERIALS TO TEST HEATING, VENTILATING, SYSTEMS AS SPECIFIED HEREIN.

NEW REFRIGERANT PIPING SHALL BE TESTED PRIOR TO CHARGING SYSTEM. FILL SYSTEM WITH 150 PSIG OF NITROGEN ON LOW SIDE AND 300 PSIG ON HIGH SIDE. INSPECT ALL JOINTS FOR FOUR (4) HOURS, CHARGE WITH DRY NITROGEN, EVACUATE FOR FOUR (4) HOURS, AND RE-CHARGE WITH NITROGEN. EQUIVATE FOR FOUR (4) HOURS AND TEST. CHARGE PIPING APPROVAL OF PIPE TEST CHAMBER SYSTEM WITH R-410A REFRIGERANT AS RECOMMENDED BY THE MANUFACTURER. CHECK ENTIRE SYSTEM FOR LEAKS FOLLOWING CHARGING. ALLOW TO STAND FOR 24 HOURS WITH SYSTEM CHARGED TO TEST PRESSURES. WHEN TESTING IS COMPLETE, REDUCE PRESSURE TO PROPER OPERATION PRESSURES AND INSTALL FINAL CHARGE.

CONDENSATE DRAINAGE SYSTEMS: TEST CONDENSATE DRAINAGE PIPING AT 5 PSIG FOR FOUR (4) HOURS. OBSERVE TEST FOR LEAKAGE AT END OF TEST PERIOD.

ADDITIONAL TESTING REQUIREMENTS WILL BE INVOKED IF THERE IS A QUESTION TO RELATIVE QUALITY, WORKMANSHIP OR METHODS UTILIZED DURING THE INSTALLATION OF THE WORK. THE ENGINEER SHALL SELECT THE APPROPRIATE TEST METHODS AND TEST STANDARDS REQUIRED FOR ANY AND ALL SYSTEMS TESTED. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REMOVAL AND REPLACEMENT OF SECTIONS OF THE WORK REQUIRED FOR TESTING.

SHOP DRAWINGS:

SUBMIT SHOP DRAWINGS ON ALL MAJOR ITEMS OF EQUIPMENT AND MATERIALS TO THE CONTRACTOR FOR APPROVAL. MANUFACTURING OR FABRICATION OF ANY MATERIAL OR THE PERFORMANCE OF ANY WORK PRIOR TO APPROVAL OF SHOP DRAWINGS WILL BE ENTIRELY AT THE RISK OF THE CONTRACTOR. SHOP DRAWINGS SHALL BE SUBMITTED WITHIN THIRTY (30) DAYS AFTER AWARD OF CONTRACT. APPROVAL RENDERED ON SHOP DRAWINGS SHALL NOT BE CONSIDERED AS A DRAFT. WORKING DRAWINGS, WHICH ARE NOT APPROVED, WHERE DRAWINGS ARE APPROVED, SAID APPROVAL DOES NOT MEAN THAT DRAWINGS HAVE BEEN CHECKED IN DETAIL; SAID APPROVAL DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM NEITHER HIS RESPONSIBILITY NOR THE NECESSITY OF FURNISH MATERIAL OR PERFORMING WORK AS PER THE CONTRACT DRAWINGS AND SPECIFICATIONS. SUBMIT COMPLETE AND DIMENSIONED "AS-BUILT" PLANS FOR ALL TRADES INDICATING ACTUAL INSTALLED CONDITIONS. PLANS SHALL BE ENTIRELY NEAT, LEGIBLE AND ACCURATE.

GUARANTEE SERVICE AND REPLACEMENT:

EXCEPT AS A LONGER PERIOD MAY BE PROVIDED IN THIS SPECIFICATION, THE CONTRACTOR SHALL GUARANTEE THE WORK TO THE OWNER FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE ARCHITECT AS EVIDENCED BY THE ARCHITECT'S FINAL CERTIFICATES. THIS CONTRACTOR SHALL SERVICE ALL INSTALLED EQUIPMENT FREE OF CHARGE DURING THE GUARANTEE PERIOD. EQUIPMENT OR EQUIPMENT THAT REQUIRES EXCESSIVE SERVICE DURING THE GUARANTEE PERIOD SHALL BE CONSIDERED DEFECTIVE AND SHALL BE REPLACED BY THIS CONTRACTOR WITHOUT ADDITIONAL COST TO OWNER.

AIR BALANCING:

PROVIDE THE SERVICES OF A CERTIFIED BALANCING COMPANY TO MEASURE AND ADJUST ALL AIR FLOWS TO THOSE SHOWN ON THE DRAWINGS. AFTER APPROVED, AIR QUANTITIES ARE OBTAINED. FINAL ADJUSTMENT OF AIR AND WATER SHALL BE AS REQUIRED OR DIRECTED TO OBTAIN THE REQUIRED FLOW IN ALL SPACES. ADJUST ALL AUTOMATIC TEMPERATURE CONTROLS FOR SATISFACTORY OPERATION CYCLES.

SYSTEM IDENTIFICATION:

ALL EQUIPMENT SHALL BE IDENTIFIED WITH PERMANENT PHENOLIC NAMEPLATES WITH 1/2" LETTERS. LABEL ALL VALVES WITH 1 1/2" ROUND BRASS TAG SWITCH BLANK PHENOLIC TAG WITH WHITE LETTERS, SECURED WITH BRASS CHAIN. POST A PERMANENT FRAMED VALVE CHART IN THE BOILER ROOM INCLUDING VALVE NUMBER, LOCATION, AND THE SERVICE HEATING, DOMESTIC, COLD ETC., LABEL ALL PIPING THROUGHOUT THE BUILDING. USE 1/2" WRAP AROUND VINYL PIPE LABELS WITH 1" HIGH LETTERS. LABELS SHALL INCLUDE DIRECTION ARROWS AND ZONES SERVED.

GENERAL SCOPE OF WORK:

REFER TO DRAWINGS PREPARED FOR THIS PROJECT, INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

NEW ELECTRIC BASEBOARD RADIATION AND CONTROLS:

NEW AIR LOW AMBIENT AIR SOURCE HEAT PUMP SYSTEMS INCLUDING ALL INDOOR UNITS AND REFRIGERATION PIPING, FITTINGS, ACCESSORIES AND CONTROLS.

INSTALLATION OF CONDENSATE DRAINAGE PIPING FOR ALL NEW AIR CONDITIONING EQUIPMENT.

INSTALLATION OF NEW THERMOSTATS AS INDICATED ON THE DRAWINGS.

INSTALLATION OF NEW DUCTWORK AS SHOWN ON THE DRAWINGS.

INSTALLATION OF ELECTRIC WALL HEATERS AND CONTROLS.

FACTORY BALANCING AND START-UP OF ALL NEW AIR DISTRIBUTION AND AIR SOURCE HEAT PUMP SYSTEMS.

PROVIDE ALL MINOR AND MISCELLANEOUS ITEMS AND EQUIPMENT REQUIRED TO MAKE EACH SYSTEM COMPLETE AND SATISFACTORY WORKING ORDER.

PIPE AND FITTINGS:

GENERAL: PROVIDE PIPE AND FITTINGS OF THE TYPE, GRADE, SIZE AND WEIGHT INDICATED FOR EACH PIPING SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

REFRIGERATION PIPING: FURNISH AND INSTALL ALL REFRIGERATION PIPING, VALVES, STRAINERS, SOLENOID VALVES, CHARGING PORTS, AND ACCESSORIES FOR THE REFRIGERATION SYSTEM. THE CONTRACTOR MUST HAVE A MINIMUM OF FIVE YEARS OF EXPERIENCE IN INSTALLATION OF REFRIGERATION PIPING AND ACCESSORIES. THE CONTRACTOR SHALL NOT BE APPLIED TO RECLAMATION AND EVACUATION EQUIPMENT SHALL BE USED TO AVOID UNCONTROLLED RELEASE OF REFRIGERANTS. REFRIGERANT PIPING SHALL USE HARD TEMPER COPPER, TYPE ACR, WELDED BRAZED JOINTS. FOLLOWING SYSTEM INSTALLATION CHARGE ALL SYSTEMS WITH R-454B REFRIGERANT.

AT CONTRACTORS OPTION, REFRIGERANT PIPING LINSETS PRE-INSULATED WITH 1" THICK ARMALFLEX INSULATION, SEAL ALL SEAMS TO MAINTAIN VAPOR BARRIER. PROVIDE JOHNS MANVILLE ADDITIONAL ALUMINUM JACKETING WITH POLYVINYL MOISTURE BARRIER FOR EXTERIOR OR EXPOSED REFRIGERANT PIPING. SECURE TO PIPE WITH ALUMINUM STRAPS MIN. 2"-0" O.C.

ALL EXTERIOR REFRIGERANT PIPING SHALL BE INSULATED WITH 1" THICK ARMALFLEX INSULATION, SEAL ALL SEAMS TO MAINTAIN VAPOR BARRIER. PROVIDE JOHNS MANVILLE ADDITIONAL ALUMINUM JACKETING WITH POLYVINYL MOISTURE BARRIER FOR EXTERIOR OR EXPOSED REFRIGERANT PIPING. SECURE TO PIPE WITH ALUMINUM STRAPS MIN. 2"-0" O.C.

ALL INTERIOR REFRIGERANT PIPING SHALL BE INSULATED WITH 1/2" THICK ARMALFLEX INSULATION, SEAL ALL SEAMS TO MAINTAIN VAPOR BARRIER.

THE UNITS SHALL BE COVERED BY THE MANUFACTURERS LIMITED WARRANTIES AND ALL TECHNICAL AND SERVICE MANUALS MUST BE

READYLY AVAILABLE BY ANY CONTRACTOR SHOULD EMERGENCY SERVICE BE REQUIRED. SIGN IN REQUIREMENTS WHICH MAY DELAY EMERGENCY SERVICE ARE NOT ALLOWED.

OUTDOOR UNITS SHALL BE A WALL MOUNTED UNIT AS INDICATED ON THE DRAWINGS. UNIT SHALL INCLUDE INDOOR UNIT SECTION AND SHOWER HEAD, EXHAUST FAN, EXHAUST AIR DEVICE AND FLAT PANEL. THE INDOOR UNITS SHALL BE FACTORY ASSEMBLED, WIRING, AND RUN TEST AT THE FACTORY. THE INDOOR UNITS SHALL BE ALL FACTORY WIRING, PIPING, ELECTRONICS, MODULATING LINEAR EXPANSION DEVICE, CONTROLLER, AND ROTARY MOTOR. INDOOR UNITS SHALL HAVE A SELF-DIAGNOSTIC FUNCTION, 3-MINUTE TIME DELAY MECHANISM, AN AUTO RESTART FUNCTION, AND TEST SWITCH. THE UNITS SHALL HAVE THE ABILITY TO INTERFACE WITH REMOTE LOW VOLTAGE THERMOSTAT AND SUPPLEMENTAL HEAT CONTROL.

ALL CONDENSATE DRAINAGE PIPING SHALL BE INSULATED WITH 1/2" THICK INSULATION.

PIPE SLEEVES AND FIRE STOPPING:

FURNISH AND SET SLEEVES TO ACCOMMODATE PIPES PASSING THROUGH WALLS, FOUNDATIONS, FLOORS, CEILINGS AND CEILINGS. COORDINATE SLEEVES WITH OTHER CONTRACTORS IN SETTING ALL SLEEVES. SLEEVES SHALL BE FULL THICKNESS OF CONSTRUCTION. SLEEVES THROUGH EXTERIOR WALLS BELOW GRADE THROUGH FOUNDATION WALLS SHALL BE WATERTIGHT CONSTRUCTION. USE "LINK-SEAL", COMPRESSION TYPE NEOPRENE LINER SEALS INSTALLED IN SLEEVES.

SLEEVES FOR PIPING THROUGH EXTERIOR MASONRY WALL, FLOORS ON GRADE AND THROUGH FIRE PARTITIONS SHALL BE GALVANIZED STEEL PIPE, AND AT LEAST TWO PIPE SIZES LARGER THAN PIPE PASSING THROUGH ALL SLEEVES IN EXPOSED LOCATIONS SHALL BE SET SO ESCUTCHEON PLATES SPECIFIED SHALL COVER ENTIRE PIPE SLEEVE.

SLEEVES SHALL BE LARGE ENOUGH TO PERMIT FREE MOVEMENT OF PIPE. PIPES FOR EXPANSION AND CONTRACTION, DRAINAGE AND INSULATION INSTALLATION SHALL BE TIGHT CONSTRUCTION. USE GRADE 304 STAINLESS STEEL SLEEVES IN ALL FLOOR, WALLS, CEILINGS, ETC., AND AT ALL PENETRATION OF FIRE RATED CONSTRUCTION. FILL ANNULAR SPACE BETWEEN PIPE AND SLEEVE WITH UL APPROVED FIRE RETARDING PACKING, RATED FOR 1-HOUR RATING MINIMUM.

PIPE HANGERS AND SUPPORTS:

HANGERS SHALL BE SECURELY SUPPORTED FROM THE BUILDING STRUCTURE BY AN INDEPENDENT HANGER AND SUPPORTS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY INTERMEDIATE SUPPORT STEEL AND THE PROPER HANGING OF ALL PIPING AND EQUIPMENT. CHAINS, STRAIGHT PERFORATED BAR OR WIRE HANGERS SHALL NOT BE USED. HANGERS FOR INSULATED STEEL PIPE SHALL BE SECURED OUTSIDE OF INSULATION. INSULATED PIPE SHALL BE SUPPORTED BY INSULATED SUPPORTS WITH INSULATION PROTECTION SADDLES. SADDLES SHALL BE 12", LONG, 1/2" THE CIRCUMFERENCE IN WIDTH. ALL SUPPORT COMPONENTS SHALL CONFORM TO THE MANUFACTURER'S STANDARDIZATION SOCIETY SPECIFICATION SP-95. THE HANGERS SHALL ADEQUATELY SUPPORT THE PIPING SYSTEM. THE HANGERS SHALL BE SECURELY SUPPORTED AT CHANGES IN PIPING DIRECTION AND AT CONCENTRATED LOADS. THEY SHALL PROVIDE VERTICAL ADJUSTMENT TO MAINTAIN PITCH REQUIRED FOR PROPER DRAINAGE AND ALLOW FOR EXPANSION AND CONTRACTION OF THE PIPING. HANGERS SHALL BE CONSTRUCTED OF MATERIALS OR MATERIALS IRON, IRON, STEEL, OR ALUMINUM. HANGERS SHALL BE COPPER-PLATED PIPE HANGERS FOR COLD WATER SERVICES SHALL BE LARGE ENOUGH TO ENCOMPASS THE INSULATION, USING A METAL SHIELD, SO THAT VAPOR BARRIER JACKET WILL NOT BE BROKEN.

PIPE, FLOOR, WALL AND CEILING ESCUTCHEONS:

ESCUCHEN PLATES SHALL BE INSTALLED ON ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, CEILINGS. PLATES SHALL BE AS MANUFACTURED BY KODIAK, PATTERN AND CASTING CO., BRIDGEPORT BRASS CO., CHROME PLATED STEEL PLATES WITH SET SCREW AND CONCEALED HINGE. PLASTIC ESCUTCHEONS ARE NOT APPROVED.

AIR DISTRIBUTION DUCTWORK:

DUCTWORK SHALL BE CONSTRUCTED FROM GALVANIZED SHEETMETAL 1/2" W/G. PRESSURE CLASS IN ACCORDANCE WITH BEST PRACTICES AND LAST SMAA REQUIREMENTS FOR METAL GAUGES, JOINTS, REINFORCING, AND SUPPORTS EXCEPT WHERE SPECIFIED OTHERWISE IN THESE SPECIFICATIONS. ALL EXPOSED DUCTWORK SHALL BE CONSTRUCTED AND FINISHED USING THE NEWEST CONSTRUCTION METHODS, MATERIALS, AND ACCESSORIES. ALL EXPOSED DUCTWORK SHALL BE PROVIDED WITH DUCT MOUNTING BRACKETS, METAL DUCTS, AND ACCESSORIES. CADMIUM PLATED SHEET METAL SCREWS SHALL BE USED ON ALL EXPOSED DUCTWORK. DUCTS SHALL BE FREE FROM THINNING OR ROLLING WHEN FANS ARE TURNED ON OR OFF. ALL DUCTWORK SHALL BE AIR SEALED. NO DUCTWORK SHALL BE RUN IN UNCONDITIONED ATTICS.

ELECTRIC WALL HEATERS:

BASEBOARD RADIATION HEATERS SHALL BE MANUFACTURED BY BERKO, QMARK, OR APPROVED EQUAL UNITS SHALL BE FACTORY PACKAGED UNITS CONTAINING HEATING ELEMENTS AND CONTROLS. CONSTRUCTED OF STAINLESS STEEL, IRON, AND 2024 ALUMINUM. HEATERS, ACCESSORIES, AND CONTROLS, IN COMPLIANCE WITH UL-2021, ELECTRIC DEVICES, AND ACCESSORIES SHALL BE LISTED AND LABELED AS APPROVED EQUAL UNITS. HEATERS SHALL BE STAINLESS STEEL CONSTRUCTION WITH REMOVABLE FRONT COVERS, BAKED ENAMEL FINISH, WITH SURFACE MOUNTED CABINET ENCLOSURE, WITH PERMANENTLY LUBRICATED MULTI-SPEED MOTOR, AND FACTORY CONTROLLED FOR SINGLE PHASE CONNECTION. DIRECT START SWITCH UNITS SHALL BE PROVIDED WITH LOW-VOLTAGE RELAY CONTROLS AND TRANSFORMER KIT AS REQUIRED TO INTERFACE WITH REMOTE LOW VOLTAGE THERMOSTAT.

ELECTRIC BASEBOARD HEATERS:

GRILLES AND REGISTERS AND DIFFUSERS SHALL BE METAL AIRE, PRICE OR EQUAL BY CARNES, EQUAL T, THOSE LISTED ON THE DRAWINGS. SEED DRAWINGS FOR SIZE, CCF, LOCATION, AND QUANTITY OF VARIOUS TYPES AND GENERAL UNITS SHALL BE INSTALLED WITH FACE PLATES PARALLEL TO FLOOR OR NEAREST WALL. ALL VOLUME CONTROL DAMPERS SHALL BE KEY OPERATED. FINISH FOR ALL DIFFUSERS, GRILLES, AND REGISTERS TO BE FACTORY FURNISHED WITH COLOR SELECTED BY THE ARCHITECT/ENGINEER.

FLEXIBLE DUCTWORK CONNECTIONS:

PROVIDE IN EACH DUCT CONNECTION TO EVERY FAN AND HEAT RECOVERY UNIT 30 OUNCE DOUBLE NEOPRENE COATED WOVEN GLASS FLEXIBLE DUCT CONNECTION NOT LESS THAN 4" LONG SECURELY HELD TO RETAINING CLAMPS.

VIBRATION ISOLATION MOUNTS:

FURNISH AND INSTALL VIBRATION ISOLATION BASES AND SUPPORTS FOR ALL FAN UNITS AND THEIR MOTORS, AS MANUFACTURED BY KORFUND, MASON INDUSTRIES, OR VIBRATION ELIMINATOR CO. SELECTED FOR ISOLATION EFFICIENCY OF NOT LESS THAN 90 PERCENT EQUAL TO THE FAN. GENERAL VIBRATION ISOLATION UNITS SHALL BE SELECTED AND FURNISHED BY THE FAN EQUIPMENT MANUFACTURER OR SUPPLIER, BUT IN NO CASE BE LESS THAN SPECIFIED.

VOLUME DAMPERS:

DUCT SYSTEM SHALL HAVE SUFFICIENT VOLUME DAMPERS, WHERE OR NOT SHOWN, TO CONTROL AND ADJUST THE TOTAL VOLUME OF EACH SYSTEM, EACH ZONE, IN EACH BRANCH, AND AT EACH DIFFUSER OR GRILLE. VOLUME DAMPERS SHALL BE DULY LISTED AND APPROVED. 16" GAGE GALVANIZED IRON BLADE, DULY LISTED SHALL BE EQUIPPED WITH 1/2" WIRE UNDOCK LOCKING MECHANISM. DAMPERS 25" IN WIDTH AND LONGER SHALL BE PROVIDED WITH DAMPER BEARINGS ON EACH END OF SHAFT. BEARINGS SHALL EXTEND THROUGH DUCTS INTO THE ONE OPPOSITE QUADRANT MOUNTED ON A 2" X 3" X 1/8" PLATE, HEADED TO DUCT WITH SHEET METAL SCREWS. MAXIMUM WIDTH OF SINGLE BLADES SHALL BE 14".

DUCTWORK INSULATION:

ALL HEAT RECOVERY UNIT SUPPLY DUCTWORK, FRESH AIR INTAKE DUCTWORK, LOCATED INSIDE THE BUILDING, SHALL BE INSULATED WITH 1/2" THICK ONE POLE DENSITY POLYURETHANE INSULATION. FACTORY APPLIED POLYURETHANE INSULATION JACKET, INSULATION SHALL EQUAL TO KNAUF DUCT WRAP, WITH FSK FACING. PRODUCT SHALL NOT EXCEED 25 FLAME SPREAD, AND 50 SMOKE DEVELOPMENT. APPLY WITH 3" WIDE PRESSURE SENSITIVE TAPE AND SEALING TOOL. LIMIT AVERAGE COMPRESSION TO 25% OR LESS.

WALL LOUVERS:

WALL LOUVERS SHALL COMPLY WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARD NO. 90A, AS APPLICABLE TO LOUVER CONSTRUCTION. WALL LOUVERS SHALL BE MANUFACTURED BY RUSKIN, ARROW OR CARNES.

PROVIDE ALL WALL LOUVERS WHERE INDICATED ON THE DRAWINGS. DELIVER TO THE GENERAL CONTRACTOR TO BE BUILT-IN TO CONSTRUCTION. MATERIAL SHALL BE ALUMINUM CHANNEL FRAME WITH EXTENSION SILL AS REQUIRED. ALUMINUM BLADES WITH 1/8" X 19" GAUGE GALVANIZED WIRE BIRD SCREEN. DUCT COLLARS AND STAINLESS STEEL SCREWS. SCREEN SHALL BE PRE-COATED.

LOUVERS TO BE PROVIDED WITH CUSTOM BAKED ENAMEL FINISH, ARCHITECT TO PROVIDE CUSTOM COLOR CHIP FOR MATCHING BY THE MANUFACTURER.

AIR SOURCE HEAT PUMP UNIT:

OUTDOOR UNITS SHALL BE SPECIFICALLY USED WITH THE SPECIFIED SYSTEMS. OUTDOOR UNITS SHALL BE EQUIPPED WITH MULTIPLE CIRCUIT BOARDS THAT INTERFACE TO THE CONTROL SYSTEM AND SHALL PERFORM ALL FUNCTIONS NECESSARY FOR OPERATION. EACH OUTDOOR UNIT MODULE SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED, TESTED AND RUN TEST AT THE FACTORY. SYSTEMS SHALL BE MANUFACTURED BY MITSUBISHI OR APPROVED EQUAL BY DAIKIN.

UNITS SHALL BE LISTED AND WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. UNITS SHALL BE STORED AND HANDLED ACCORDING TO THE MANUFACTURERS RECOMMENDATION.

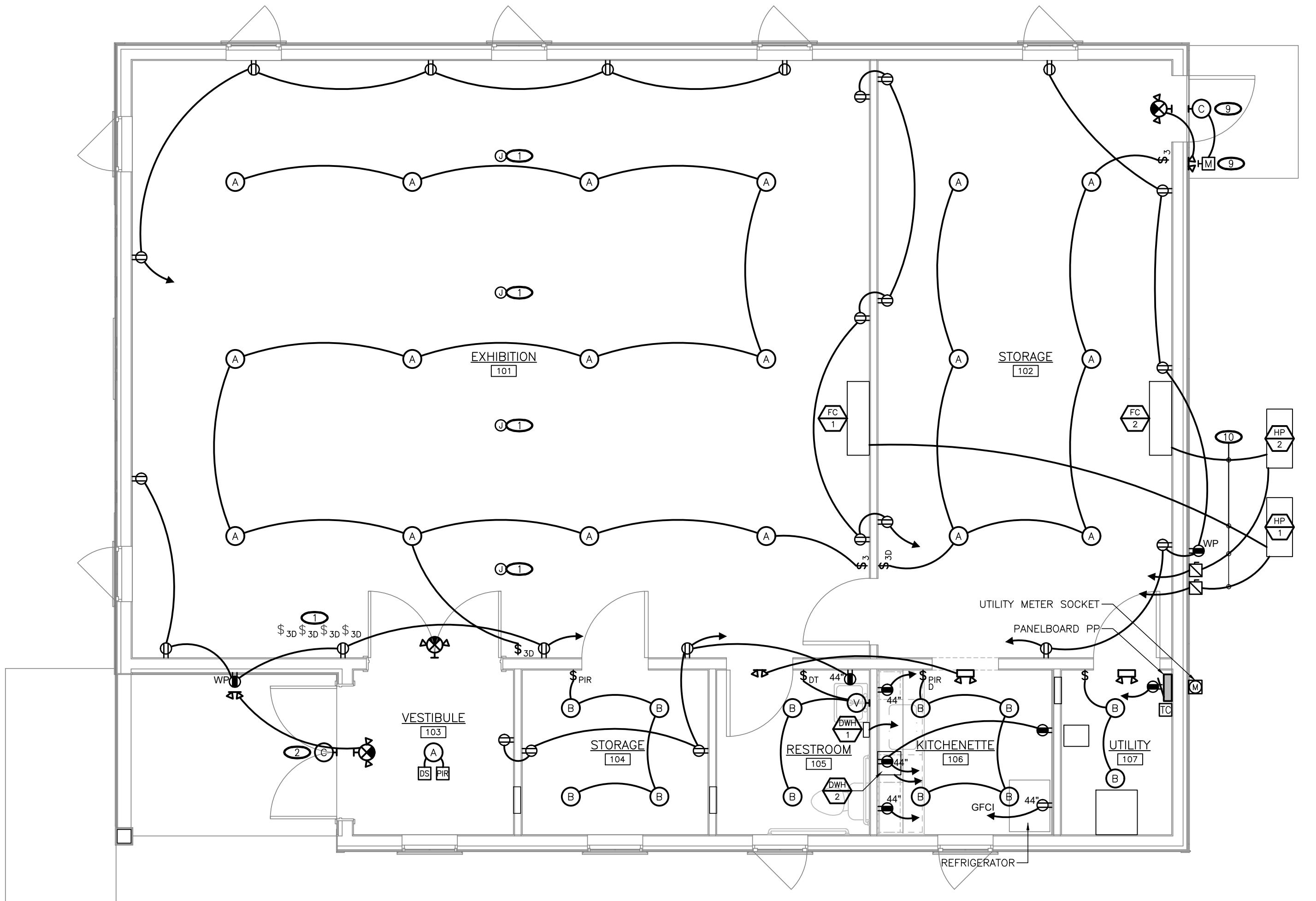
OUTDOOR UNITS:

PROVIDE ALL EXTERIOR REFRIGERANT PIPING, LINSETS PRE-INSULATED WITH 1" THICK ARMALFLEX INSULATION, SEAL ALL SEAMS TO MAINTAIN VAPOR BARRIER. PROVIDE JOHNS MANVILLE ADDITIONAL ALUMINUM JACKETING WITH POLYVINYL MOISTURE BARRIER FOR EXTERIOR OR EXPOSED REFRIGERANT PIPING. SECURE TO PIPE WITH ALUMINUM STRAPS MIN. 2"-0" O.C.

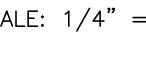
ALL INTERIOR REFRIGERANT PIPING SHALL BE INSULATED WITH 1/2" THICK ARMALFLEX INSULATION, SEAL ALL SEAMS TO MAINTAIN VAPOR BARRIER.

THE UNITS SHALL BE COVERED BY THE MANUFACTURERS LIMITED WARRANTIES AND ALL TECHNICAL AND SERVICE MANUALS MUST BE

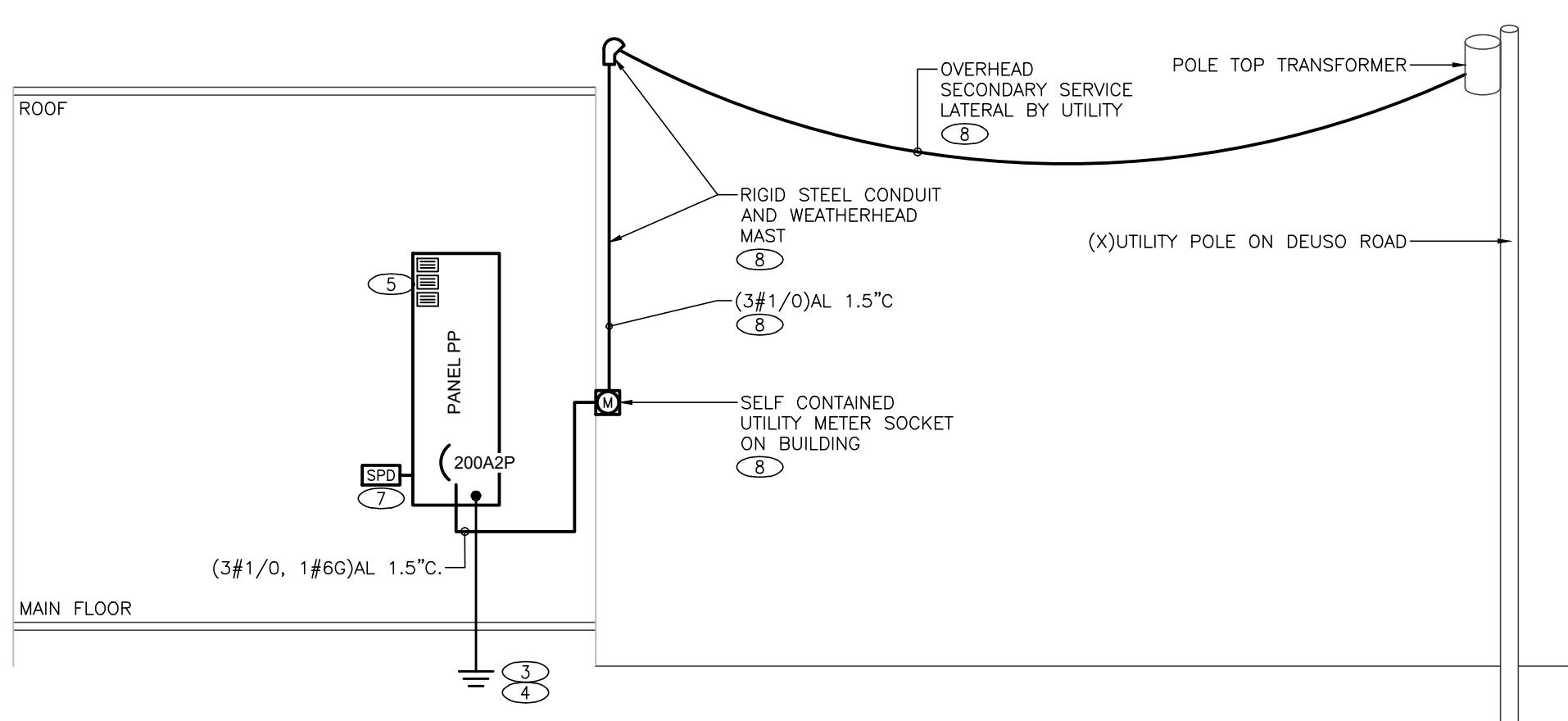
READYLY AVAILABLE BY ANY CONTRACTOR SHOULD EMERGENCY SERVICE BE REQUIRED. SIGN IN REQUIREMENTS WHICH MAY DELAY EMERGENCY SERVICE ARE NOT ALLOWED.



ELECTRICAL FLOOR PLAN



DESCRIPTION			CONNECTED LOAD (VA)			PHASE A			CONNECTED LOAD (VA)			DESCRIPTION
	A	B	BKR	A	B	BKR	A	B	BKR	A	B	
RCPT - EXHIBIT, VEST, STORAGE, RR	900		20/1	1	●	2	20/2 LO	1750		1750		DWH2 - WATER HEATER
RCPT - EXHIBIT	900		20/1	3	●	4						
RCPT - EXHIBIT	900		20/1	5	●	6	20/1 LO	1360				DWH1 - WATER HEATER
RCPT - EXHIBIT, STORAGE	1080		20/1	7	●	8	15/1 LO			170		HRU1 - HEAT RECOVERY UNIT
RCPT - STORAGE	1080		20/1	9	●	10	20/3 LO	1500				EHC1 - ELECTRIC HEAT COIL
RCPT - AT PANEL PP	180	20/1	11	●	12			1500				
RCPT - REFRIGERATOR	1000	G 20/1	13	●	14	25/3	2640					HP1/FC1 - OUTDOOR HEAT PUMP AND INDOOR FAN COIL UNIT
RCPT - KITCHENETTE	360	20/1	15	●	16			2640				
RCPT - KITCHENETTE	180	20/1	17	●	18	15/3	1680					HP2/FC2 - OUTDOOR HEAT PUMP AND INDOOR FAN COIL UNIT
RCPT - KITCHENETTE	180	20/1	19	●	20			1680				
LTG - INTERIOR & EXTERIOR LIGHTING	480	20/1	21	●	22	15/2 LO	750					EWH1 - ELECTRIC WALL HEATER
SPARE	-	20/1	23	●	24			750				
SPARE	-	20/1	25	●	26	15/2 LO	750					EWH2 - ELECTRIC WALL HEATER
SPARE	-	20/1	27	●	28			750				
SPARE	-	20/1	29	●	30	15/2 LO	750					EWH3 - ELECTRIC WALL HEATER
SPARE	-	20/1	31	●	32			750				
SPARE	-	20/1	33	●	34	20/1	-					SPARE
SPARE	-	20/1	35	●	36	20/1	-					SPARE
SPARE	-	20/1	37	●	38	20/1	-					SPARE
SPARE	-	20/1	39	●	40	20/1	-					SPARE
SPARE	-	20/1	41	●	42		-					SPD - SURGE PROTECTIVE DEVICE
TOTALS:	-	-	-	-	-	-	-	-	-	-	-	
MAXIMUM PANEL CAPACITY: 48 KVA 200 AMPS G = 5mA GFCI GROUND FAULT PROTECTION INTEGRAL TO THE CIRCUIT BREAKER												
ESTIMATED CONNECTED LOAD: 28.6 KVA 119 AMPS LO = PROVIDE LOCK OPEN (OFF) CLIP FOR THIS CIRCUIT BREAKER												



ELECTRICAL ONE LINE DIAGRAM

DRAWING NOTES:

THESE DRAWING NOTES APPLY TO THIS DRAWING ONLY.

1. PROVIDE LIGHTING CIRCUIT POWER TERMINATED IN JUNCTION BOXES IN THE EXHIBITION SPACE CEILING TO ALLOW TRACK LIGHTING TO BE INSTALLED IN THE FUTURE. PROVIDE SWITCH LEG WIRING FROM THE JUNCTION BOXES DOWN TO WALL SWITCH DEVICE BOXES FOR FUTURE DIMMING SWITCHES, ONE FOR EACH JUNCTION BOX, CAP AND LABEL ALL WIRING PER CODE AND BLANK PLATE JUNCTION AND DEVICE BOXES.
2. CONTROLLED VIA EXTERIOR LIGHTING CHANNEL IN DIGITAL TIME CONTROLLER.
3. PROVIDE (1) #4 7 STRAND BARE COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" NON-METALLIC RIGID CONDUIT TO THE COLD WATER MAIN METALLIC SERVICE PIPE AT THE WATER ENTRANCE LOCATION. PROVIDE A #3/0 7 STRAND BARE COPPER BONDING JUMPER AT THE WATER METER TO MAINTAIN GROUNDING CONTINUITY. (NEC 250.52(1), 250.66)
4. PROVIDE (1) #4 7 STRAND BARE COPPER BONDING JUMPER IN 1/2" NON-METALLIC RIGID CONDUIT TO A 1/2" DIAMETER (OR GREATER) MINIMUM 20'-0" LONG CONCRETE ENCASED REINFORCING BAR IN A SLAB OR FOOTING THAT IS IN DIRECT CONTACT WITH THE EARTH. MINIMUM 2" CONCRETE ENCASEMENT. WHERE ADEQUATE REINFORCING ROD IS NOT AVAILABLE, PROVIDE 20' OF #4 COPPER CONDUCTOR INSTALLED IN THE CONCRETE, METALLICALLY TIED TO THE METALLIC REINFORCING RODS. (NEC 250.52(3), 250.66(B))
5. PROVIDE ENGRAVED LABELS:
 1. AVAILABLE FAULT CURRENT AND DATE (2020 NEC 110.24(A)). AVAILABLE FAULT CURRENT INFORMATION SHALL BE MADE AVAILABLE BY THE ENGINEER DURING CONSTRUCTION, PRIOR TO ENERGIZATION OF EQUIPMENT FOLLOWING FINAL COORDINATION WITH THE ELECTRIC UTILITY.
 2. SHORT CIRCUIT CURRENT IS CALCULATED BASED UPON INFINITE AVAILABLE UTILITY SHORT CIRCUIT CURRENT, MOTOR CONTRIBUTIONS, ESTIMATED 50KVA UTILITY TRANSFORMER WITH 1.5% IMPEDANCE.
6. PROVIDE A SURGE PROTECTIVE DEVICE. CONNECT TO A 40A2P CIRCUIT BREAKER; WIRING SHALL BE (3#8, 1#10G) 3/4". LOCATE SURGE SUPPRESSION DEVICE ADJACENT TO THE PANEL. PROVIDE SQUARE D #7VS-EMA WITH COUNTER OR APPROVED EQUAL; 120/240V, 1 PHASE, 3 WIRE, 240KA PEAK SURGE CURRENT PER PHASE IN A NEMA 1 ENCLOSURE.
7. COORDINATE ELECTRIC SERVICE TO THE BUILDING WITH UTILITY. ALL ASPECTS OF THE ELECTRIC SERVICE AND METERING SHALL BE AS PER UTILITY STANDARDS.
8. CONNECTED TO UNSWITCHED PORTION OF 20A1P LIGHTING CIRCUIT. CONTROL VIA MOTION SENSOR SWITCH MOUNTED ON WALL ABOVE LUMINAIRE. BASIS OF DESIGN FOR MOTION SENSOR SWITCH IS LEVITON #PS10-10.
9. ROUTE WIRING ON SUPPORTS PARALLEL TO REFRIGERATION PIPING, NEATLY, LEAVING SPACE FOR REFRIGERATION LINE INSULATION.

GENERAL NOTES:

THESE GENERAL NOTES APPLY TO ALL ELECTRICAL PLAN DRAWINGS.

1. FOLLOW ALL APPLICABLE CODES AND USE GOOD ELECTRICAL CONSTRUCTION PRACTICES WHEN DETERMINING TYPES OF WIRING METHODS AND SIZING OF CONDUCTORS AND CONDUIT. INSTALL ALL POWER, CONTROL AND SIGNAL WIRING USING METHODS AS FOLLOWS:

- 1.1. UNDERGROUND WIRING OR BEHIND CONCRETE SLAB: INDIVIDUAL CONDUCTORS IN SCHEDULE 40 PVC RIGID NON-METALLIC CONDUIT (RNC) FOR DIRECT BURIAL: TRANSITION TO SCHEDULE 80 PVC RIGID NON-METALLIC CONDUIT (RNC) FOR SWEEP BENDS AND WHERE CONDUIT RISES TO BE EXPOSED ABOVE GRADE OR CONCRETE SLAB, FROM A MINIMUM OF 24" BELOW FINISHED GRADE.
- 1.2. UNDERGROUND WIRING BEHIND ROAD WAY OR PARKING AREA: INDIVIDUAL CONDUCTORS IN SCHEDULE 80 PVC RIGID NON-METALLIC CONDUIT (RNC) FOR DIRECT BURIAL: TRANSITION TO SCHEDULE 80 PVC RIGID NON-METALLIC CONDUIT (RNC) WHERE CONDUIT RISES TO BE EXPOSED ABOVE GRADE OR CONCRETE SLAB, FROM A MINIMUM OF 36" BELOW FINISHED GRADE.

- 1.3. EXPOSED EXTERIOR WIRING: INDIVIDUAL CONDUCTORS IN GALVANIZED STEEL RIGID METAL CONDUIT (RMC).
- 1.4. EXPOSED WIRING IN UTILITY AREAS (MECHANICAL, ELECTRICAL ROOMS, ETC.): INDIVIDUAL CONDUCTORS IN ELECTRICAL METAL TUBING (EMT) WITH SET SCREW FITTINGS.
- 1.5. CONCEALED WIRING ABOVE ACCESSIBLE CEILINGS: MULTI-CONDUCTOR SERVICE ENTRANCE (TYPE SE) OR NON-METALLIC (TYPE NM) CABLE.

- 1.6. CONCEALED WIRING IN INACCESSIBLE WALLS AND CEILINGS: MULTI-CONDUCTOR SERVICE ENTRANCE (TYPE SE) OR NON-METALLIC (TYPE NM) CABLE.
- 1.7. FINAL CONNECTIONS TO MECHANICAL/VIBRATING EQUIPMENT WILL BE MAXIMUM 4" FLEXIBLE METALIC CONDUIT (FMC) IN DRY AREAS AND LIQUID TIGHT FLEXIBLE METALIC CONDUIT (LFMC) IN DAMP/WET AREAS.
- 1.8. CONTRACTOR SHALL CONSULT WITH ENGINEER REGARDING QUESTIONS REGARDING WIRING METHODS PRIOR TO ROUGH-IN OF WIRING.

2. SERVICE AND FEEDER WIRING SHALL BE ALUMINUM CONDUCTORS, XHHW INSULATION. ALL BRANCH WIRING SHALL BE COPPER, THHN/THWN-2 INSULATION.
3. MINIMUM CONDUCTOR SIZE SHALL BE 12 AWG. PROVIDE AN INSULATED GROUND CONDUCTOR WITHIN ALL CABLES AND RACEWAYS. ALL CONDUCTORS SHALL BE COPPER, UNLESS OTHERWISE NOTED.
4. CIRCUITS SHALL BE 20A1P, (2#12, 1#12G) 1/2" C. OR CABLE, UNLESS INDICATED OTHERWISE.
5. MINIMUM 1" CONDUIT UNDERGROUND IN SITE.
6. PROVIDE AN INSULATED EQUIPMENT GROUND CONDUCTOR WITHIN ALL CABLES AND RACEWAYS.

7. ALL WIRING SHALL BE ROUTED CONCEALED AND DEVICES SHALL BE FLUSH/ACCESS MOUNTED TO THE GREATEST EXTENT POSSIBLE. WIRING IN THE UTILITY SPACES SHALL BE PERMITTED TO BE EXPOSED WHERE NO WALL FINISH EXISTS. WIRING ROUTED EXPOSED ON VERTICAL SURFACES SHALL BE ROUTED VERTICALLY; HORIZONTAL WIRING SHALL BE ROUTED AT THE CEILING LEVEL OF THESE SPACES, NOT ON THE WALLS.

8. ALL LIGHTING LAYOUTS SHALL BE COORDINATED WITH ARCHITECT'S REFLECTED CEILING PLANS AND EXISTING LOCATIONS OF CEILING AREAS SHALL BE CHECKED AT CONSTRUCTION TIME AND PRIOR TO INSTALLATION WITH OTHER TRADE'S LATEST DRAWINGS AND EQUIPMENT LAYOUTS. COORDINATE LUMINAIRE TRIMS AND MOUNTING WITH CEILING CONSTRUCTION. FINAL LOCATION OF LUMINAIRES SHALL BE REASONABLY CONDUCIVE TO ACCESS BY THE OWNER FOR ROUTINE MAINTENANCE.

9. LIFE SAFETY LUMAIRES (EXIT SIGNS, EMERGENCY BATTERY UNITS) SHALL BE CONNECTED TO THE UNSWITCHED PORTION OF THE LIGHTING CIRCUIT SERVING THE AREA, AHEAD OF ANY SWITCHING OR AUTOMATIC CONTROLS.

10. MOUNT LIGHTING CONTROL SWITCHES 44" ABOVE FINISHED FLOOR TO CENTER, WITHIN 6" OF THE LATCH SIDE OF THE DOOR, UNLESS OTHERWISE INDICATED. "AC" INDICATES MOUNTING 8" ABOVE COUNTER BACK SPLASH, APPROXIMATELY 44" ABOVE FINISHED FLOOR.

11. MOUNT RECEPTACLE DEVICES 18" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED. MOUNT RECEPTACLE DEVICES SUCH THAT THEY ARE ORIENTED SO THE GROUND IS IN THE "UP" POSITION. "AC" INDICATES MOUNTING 8" OVER COUNTER BACK SPLASH, APPROXIMATELY 44" ABOVE FINISHED FLOOR. ALL RECEPTACLES SHALL BE TAMPER RESISTANT STYLE.

12. PROVIDE LABELING OF EQUIPMENT AS INDICATED ON PLANS. PROVIDE WEATHER AND SUN RESISTANT STICKER TYPE LABELS.

13. BASIC METHODS:
 - 13.1. GENERAL:
 - 13.1.1. PROVIDE WIRING METHODS AS PER GENERAL NOTES.
 - 13.1.2. ALL CONDUCTORS SHALL BE COPPER EXCEPT FOR DISTRIBUTION FEEDERS WHICH ARE SPECIFICALLY IDENTIFIED AS ALUMINUM ON THE DRAWINGS. CONDUCTOR INSULATION SHALL BE THHN/THWN-2. FEEDER CONDUCTORS SHALL BE TYPE "XHHW".

- 13.1.3. PROVIDE AN INSULATED EQUIPMENT GROUND CONDUCTOR IN ALL RACEWAYS AND BOXES.

- 13.1.4. GROUNDING SYSTEM: THE GROUNDING SHALL COMPLY WITH THE NEC ARTICLES 250, 430 AND 440 AS THEY APPLY.

- 13.1.5. PROVIDE LABELING OF CIRCUIT CONDUCTORS IN ALL JUNCTION BOXES.

- 13.2. ALL ELECTRICAL EQUIPMENT IDENTIFIED ON THE DRAWINGS OR EQUIPMENT LISTED IN THE EQUIPMENT SCHEDULE IS TO BE PROVIDED BY THE MANUFACTURER. THE EQUIPMENT IS TO BE OF SIMILAR PERFORMANCE AND QUALITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUBMITTAL PROCESS, ACCEPTANCE AS A SUBSTITUTION FOR THE BASIS OF DESIGN PRODUCT.

14. BASIC MATERIALS:

- 14.1. DUPLEX RECEPTACLES SHALL BE COMMERCIAL GRADE 5-15R, 15 AMP AND 5-20R, 20 AMP 125V.

- 14.2. WEATHER PROOF DEVICE COVERS SHALL BE METALLIC, "WHILE-IN-USE" TYPE.

- 14.3. MOTOR SWITCHES SHALL BE INDUSTRIAL SPECIFICATION GRADE AC TOGGLE SWITCHES, 20 AMP 120/277VAC RATED BLACK, GALVANIZED STEEL COVER PLATE WITH PROVIDED LOCK SWITCH IN OPEN (OFF) POSITION.

- 14.4. SAFETY SWITCHES SHALL BE GENERAL DUTY TYPE BY SQUARE D, SIEMENS, CUTLER-HAMMER OR G.E.

- 14.5. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

15. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

16. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

17. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

18. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

19. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

20. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

21. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

22. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES, DEVIATIONS AND FIELD CONDITIONS TO THE ENGINEER.

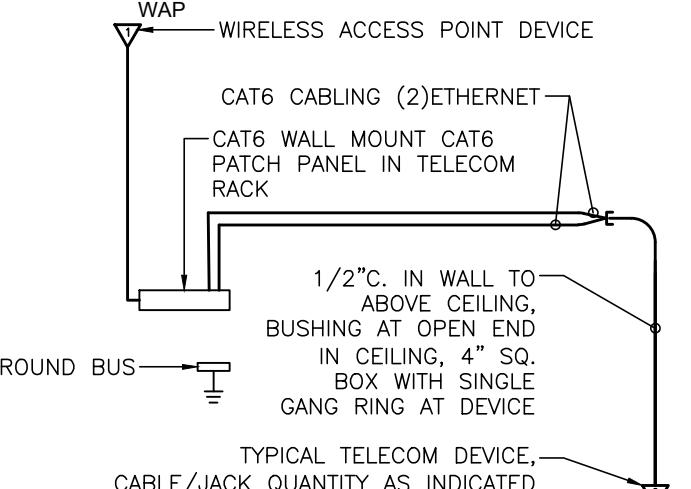
23. SUBMIT RECORD DRAWINGS NOTING ALL CHANGES

Lighting Control Matrix							
Room	Manual Control	Dimming Control	Daylight Sensing	Occupancy Sensor	Occupancy/Vacancy	Scheduling	Notes
101 EXHIBITION, 02 STORAGE	MANUAL DIMMING SWITCH	MANUAL	NONE	NONE	NONE	SCHEDULE PER OWNER DIRECTION	DIGITAL TIME CONTROLLER
103 VESTIBULE	NONE	DAYLIGHT	MAINTAIN MIN. 5 FC	PIR CEILING MOUNTED	OCCUPANCY	SCHEDULE PER OWNER DIRECTION	DIGITAL TIME CONTROLLER
04 STORAGE	OCCUPANCY SENSOR SWITCH	NONE	NONE	PIR INTEGRAL TO SWITCH	VACANCY	NONE	STAND ALONE CONTROL
105 RESTROOM	OCCUPANCY SENSOR SWITCH	NONE	NONE	DUAL-TECH INTEGRAL TO SWITCH	VACANCY	NONE	STAND ALONE CONTROL
106 ITCHENETTE	OCCUPANCY SENSOR DIMMING SWITCH	MANUAL	NONE	PIR INTEGRAL TO SWITCH	VACANCY	NONE	STAND ALONE CONTROL
107 UTILITY	MANUAL SWITCH	NONE	NONE	NONE	NONE	NONE	AUTOMATIC LIGHTING CONTROL IS NOT ALLOWED AT ELECTRICAL SERVICE ENTRANCE PER NEC

AUTOMATIC LIGHTING CONTROL DEVICE SCHEDULE					
SYMBOL	TYPE/DESCRIPTION	VOLTS/WATTS/AMPS	MANUFACTURER	SERIES/CATALOG NO.	COVERAGE/PATTERN
STAND-ALONE CONTROLS :					
\$ _{PIR} D	PASSIVE-INFRARED WALL ON/OFF SENSOR SWITCH D = DIMMING VERSION	800W SWITCH LOAD, 120/277V RATED	SENSOR SWITCH	WSX	630 SQUARE FEET 20' RADIUS 180° COVERAGE
\$ _{DT} D	DUAL TECHNOLOGY WALL ON/OFF SENSOR SWITCH D = DIMMING VERSION	800W SWITCH LOAD, 120/277V RATED	SENSOR SWITCH	WSX-PDT	630 SQUARE FEET 20' RADIUS 180° COVERAGE
PIR	PASSIVE-INFRARED CEILING MOUNT SENSOR	20A SWITCH LOAD, 15VDC CONTROL 5W, 120V INPUT	SENSOR SWITCH	CM-9 SENSOR; PP20/PP20-2P POWER PACK	450 SQUARE FEET 14' RADIUS 360° COVERAGE
DS	0-10VDC DIMMING DAYLIGHT SENSOR CONTROL	120VAC 12-24 VAC/VDC	SENSOR SWITCH	CMR-ADC CM-ADC	
AUTOMATIC LIGHTING CONTROL DEVICE SCHEDULE GENERAL NOTES:					
1.	INSTALL OCCUPANCY SENSOR CONTROL DEVICES AND ALL ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS TO OPTIMIZE CONTROLLER ABILITY (IE: AVOID PLACEMENT NEAR HVAC LOUVERS, MASKING OF SENSORS, ETC.).				
1.1.	SENSOR LOCATIONS INDICATED ON PLAN ARE APPROXIMATE; PROVIDE QUANTITIES NECESSARY AND LOCATE SENSORS AS PER THE MANUFACTURER'S APPROVED SHOP DRAWINGS.				
1.2.	WIRING OF AUTOMATIC LIGHTING CONTROLS AS INDICATED ON THE PLAN DRAWINGS IS INTENDED ONLY TO PROVIDE SWITCHGROUP DIRECTION; INTERCONNECT AUTOMATIC CONTROLS, MANUAL SWITCHES AND LUMINAIRES AS PER MANUFACTURER'S RECOMMENDATIONS.				
2.	INDICATE FINAL LOCATIONS OF SENSORS AND ASSOCIATED DEVICES (SWITCHES, POWER PACKS/POWER SUPPLY MODULES) ON AS-BUILT DOCUMENTS.				
3.	DUAL TECHNOLOGY SENSORS SHALL EMPLOY A COMBINATION OF PASSIVE-INFRARED AND EITHER ULTRASONIC OR MIRCRO-PHONIC TECHNOLOGY TO SENSE THE PRESENCE OF OCCUPANTS IN A SPACE.				
4.	PROVIDE SENSOR FOR SURFACE OR RECESSED MOUNTING AS APPROPRIATE.				
5.	REFER TO AUTOMATIC LIGHTING CONTROLS PERFORMANCE SPECIFICATION FOR ADDITIONAL INFORMATION.				

MECHANICAL EQUIPMENT SCHEDULE								
	DESCRIPTION	LOAD	VOLTAGE SYSTEM	CONDUCTORS AND CONDUIT	CIRCUIT PROTECT	CONTACTOR OR STARTER	LOCAL DISCONNECT	REMARKS
RU1	HEAT RECOVERY UNIT	166 WATT	120V 1Ø	(2#12, 1#12G) 1/2"C.	15A1P	INTEGRAL TO EQUIPMENT	(2)	(1)
HC1	ELECTRIC HEAT COIL	3 KW	240V 1Ø	(2#12, 1#12G) 1/2"C.	20A2P	INTEGRAL TO EQUIPMENT	(2)	(1)
IP1	OUTDOOR HEAT PUMP UNIT	22 MCA	240V 1Ø	(2#10, 1#10G) 1/2"C.	25A2P MOCP	INTEGRAL TO EQUIPMENT	30A2P NON-FUSED NEMA 3R	(1)
C1	INDOOR FAN COIL UNIT			(3#12, 1#12G) 1/2"C.		INTEGRAL TO EQUIPMENT	(4)	(1)
IP2	OUTDOOR HEAT PUMP UNIT	14 MCA	240V 1Ø	(2#12, 1#12G) 1/2"C.	15A2P MOCP	INTEGRAL TO EQUIPMENT	30A2P NON-FUSED NEMA 3R	(1)
C2	INDOOR FAN COIL UNIT			(3#12, 1#12G) 1/2"C.		INTEGRAL TO EQUIPMENT	(4)	(1)
VH1, VH2, VH3	ELECTRIC WALL HEATER	1.5 KW	240V 1Ø	(2#12, 1#12G) 1/2"C.	15A2P	ECM/VFD INTEGRAL TO EQUIPMENT	(2)	(1)
WH1	ELECTRIC DOMESTIC WATER HEATER	11.3 AMP	120V 1Ø	(2#12, 1#12G) 1/2"C.	20A1P	INTEGRAL TO WATER HEATER	(2)	(1)
WH2	ELECTRIC DOMESTIC WATER HEATER	3.5 KW	120V 1Ø	(2#12, 1#12G) 1/2"C.	20A2P	INTEGRAL TO WATER HEATER	(2)	(1)

LUMINAIRE SCHEDULE						
KEY	DESCRIPTION AND FINISH	MOUNTING	MANUFACTURER	SERIES OR TYPE (NOT A COMPLETE CAT. #)	VOLT/ WATT	LAMP(S)
A	RLM STYLE CEILING LUMINAIRE, 18" ROUND SHADE, FINISH AS SELECTED BY ARCHITECT.	CEILING SURFACE	BARN LIGHT ELECTRIC	BLE F SI18 ____ RIB E26	120 14W	LED, FURNISHED WITH LUMINAIRE 1,500 LUMEN 80 CRI 3,000K CCT
B	4" ROUND LED WAFER STYLE DOWN LIGHT LUMINAIRE, WHITE TRIM, 0-10VDC DIMMING, IC RATED DRIVERS.	CEILING RECESSED	ACUITY BRANDS LITHONIA LIGHTING	WF4 LED 27K30K35K MVOLT 90CRI MW	120/ 277V 14W	LED, FURNISHED WITH LUMINAIRE 1,110 LUMEN 90 CRI 3,000K CCT
C	RLM STYLE GOOSENECK WALL LUMINAIRE, 18" ROUND SHADE, FINISH AS SELECTED BY ARCHITECT.	WALL ~8' AFF	BARN LIGHT ELECTRIC	BLE G WHS14 ____ G15 LED16 3000K FL	120 15W	LED, FURNISHED WITH LUMINAIRE 1,250 LUMEN 80 CRI 3,000K CCT
V	RLM STYLE GOOSENECK WALL LUMINAIRE, 18" ROUND SHADE, FINISH AS SELECTED BY ARCHITECT.	WALL MOUNT ③	BARN LIGHT ELECTRIC	BLE G WHS14 ____ G15 LED16 3000K FL	120 15W	LED, FURNISHED WITH LUMINAIRE 1,250 LUMEN 80 CRI 3,000K CCT
▲	COMBINATION EMERGENCY/EXIT LUMINAIRE, WHITE THERMOPLASTIC HOUSING, RED LED LETTERS, TWO LED EMERGENCY LIGHTING HEADS AND INTEGRAL BATTERY FOR 90 MINUTE SELF-POWERED OPERATION WITH TEST SWITCH. PROVIDE BATTERY OUTPUT TO OPERATE TWIN REMOTE HEADS. ②	WALL MOUNTED ①	ISO-LITE	CMB EM R U WH MTEBP L1 SD	120V 1.5W	LED; PROVIDED INTEGRAL TO LUMINAIRE
▶	EMERGENCY BATTERY UNIT (EBU) WITH TWO LED LIGHTING HEADS, WHITE THERMOPLASTIC HOUSING. BATTERY FOR SELF POWERING OF LIGHTING HEADS FOR MINIMUM 90 MINUTES SELF-POWERED OPERATION WITH TEST SWITCH. PROVIDE BATTERY OUTPUT TO OPERATE ONE SET TWIN REMOTE HEADS. ②	WALL MOUNTED ①	ISOLITE	BUG 3W WH MB EB SD	120/ 277V 3.6VDC 4W	LED LAMP HEADS PROVIDED INTEGRAL TO LUMINAIRE
◀	EMERGENCY REMOTE LUMINAIRE WITH TWO LED LIGHTING HEADS; WHITE PLASTIC HOUSING. PROVIDE VOLTAGE TO MATCH BATTERIES POWERING LAMPS.	WALL MOUNTED ①	ISOLITE	MVH BK 2 LWP	3.6V DC 2W	LED LAMP HEADS PROVIDED INTEGRAL TO LUMINAIRE
LUMINAIRE SCHEDULE KEYED NOTES:						
①	MOUNT LUMINAIRE 96" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED. WHERE SHOWN ABOVE A DOOR, MOUNT CENTERED ABOVE DOOR FRAME, 8" ABOVE THE TOP OF THE DOOR. WHERE EMERGENCY AND EXIT LUMINAIRES ARE SHOWN ABOVE A DOOR, MOUNT THE EMERGENCY LUMINAIRE CENTERED ABOVE THE EXIT SIGN.					
②	WHERE LUMINAIRE IS MOUNTED ABOVE THE VANITY, CENTER ON VANITY, 6" ABOVE TOP OF MIRROR.					



ELECOMMUNICATIONS RISER DIAGRAM

NOT TO SCALE

ALL CABLING SHALL BE PROVIDED COMPLETE FROM THE PATCH PANELS THROUGH TO WALL JACKS, WAP DEVICES AND CAMERA LOCATIONS TO INCLUDE LABELING AND TESTING.

- 1.1. THIS CONTRACTOR SHALL PROVIDE RACKS, POWER SUPPLIES, PATCH PANELS, CABLING AND WALL JACKS AS PER SPECIFICATION.
- 1.2. PROVIDE PATCH PANELS FOR TERMINATION OF ALL CAT6 ETHERNET DATA CABLES PLUS 25% SPARE CAPACITY, MINIMUM.
1. CAT6 CABLES SHALL BE BLUE FOR STANDARD ETHERNET USE.
1. RACK SHALL BE BOLTED TO THE WALL AS PER RACK MANUFACTURER DIRECTION.
1. PROVIDE AN INSULATED GROUND BUS, CONNECTED WITH #8 STRANDED COPPER WITH EACH RACK BONDED TO THE GROUND BUSES. PROVIDE STRANDED #8 COPPER CONDUCTOR IN 1" PVC CONDUIT BACK TO THE BUILDING GROUNDING ELECTRODE SYSTEM IN THE ELECTRICAL ROOM.
1. **THIS CONTRACTOR SHALL SCHEDULE A MEETING WITH OWNERS IT PERSONNEL AND/OR VENDOR PRIOR TO BEGINNING WORK TO VERIFY ALL TELECOMMUNICATIONS DETAILS.**

GENERAL NOTES:

FER TO DRAWING NOTES ON DRAWING E1.00 WHICH APPLY TO
IS DRAWING, AS WELL AS DRAWING NOTES LISTED, BELOW.

IGHTING CONTROL ERFORMANCE SPECIFICATION

GENERAL LIGHTING CONTROL OPERATIONS:

1. PROVIDE A SYSTEM OF LOCALIZED (STAND-ALONE) MANUAL SWITCHES, OCCUPANCY SENSORS AND DAYLIGHT SENSORS.
 - 1.1.1. VACANCY SENSING: LUMINAIRES IN THE SPACE MAY BE TURNED OFF MANUALLY OR AUTOMATICALLY BASED UPON NO OCCUPANCY; LUMINAIRES MAY ONLY BE TURNED ON MANUALLY.
 - 1.1.2. OCCUPANCY SENSING: LUMINAIRES IN THE SPACE MAY BE TURNED OFF MANUALLY OR AUTOMATICALLY BASED UPON NO OCCUPANCY. TO TURN ON THE LUMINAIRES, IF THE MANUAL SWITCH IS LEFT IN THE ON POSITION, THE LUMINAIRES WILL TURN ON AUTOMATICALLY AS PRESENCE IS SENSED; IF SWITCH IS LEFT IN THE OFF POSITION, IT MUST BE MANUALLY SWITCHED TO TURN ON THE LUMINAIRES.
 - 1.1.3. WHERE NECESSARY, PROVIDE 3-WAY AND 4-WAY TYPE SWITCHES.
 - 1.1.4. WHERE INDICATED, PROVIDE 0-10VDC MANUAL DIMMING INTEGRAL TO SWITCH
 - 1.1.5. BASIS OF DESIGN PRODUCTS FOR LOW VOLTAGE LIGHTING CONTROLS ARE PRODUCTS AS IDENTIFIED IN THE AUTOMATIC LIGHTING CONTROL DEVICE AND LUMINAIRE SCHEDULES (SENSOR SWITCH, ACUITY BRANDS PRODUCTS). PRODUCTS OF COOPER, CRESTRON OR HUBBELL MAY ALSO BE ACCEPTABLE, PENDING SUBMITTAL PROCEDURE APPROVAL.
 - 1.1.6. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSIDERING ANY DIFFERENCES IN LUMINAIRE OPTIONS, WIRING AND CONTROL DEVICES WHETHER PROVIDING A BASIS OF DESIGN SYSTEM OR A SUBSTITUTE SYSTEM (MATERIALS, METHODS, COSTS, ETC.).
 - 1.1.7. AUTOMATIC LIGHTING CONTROL EQUIPMENT SHALL BE PRODUCTS OF ONE MANUFACTURER.

PROGRESS PRINTS
NOT FOR
CONSTRUCTION
12/01/2025

Engineering Services of Vermont, LLC

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MECHANICAL - ELECTRICAL

MONTGOMERY HISTORICAL SOCIETY
MONTGOMERY, VERMONT

HISTORICAL SOCIETY CENTER

APPENDIX E: ELECTRICAL SCHEDULES & DETAILS

DRAWING NOTES:

THESE DRAWING NOTES APPLY TO THIS DRAWING, ONLY.

ELECTRICAL CONNECTION INFORMATION IS BASED UPON THE SPECIFIED "BASIS OF DESIGN" EQUIPMENT. VERIFY ALL CONNECTION REQUIREMENTS WITH THE APPROVED EQUIPMENT SUBMITTALS AND/OR SHOP DRAWINGS PRIOR TO ANY BORCHILL

LOCAL DISCONNECT IS NOT REQUIRED AS THE BRANCH CIRCUIT OVERCURRENT DEVICE (CIRCUIT BREAKER) SHALL BE PROVIDED WITH A PERMANENT PADLOCK CLIP TO ALLOW LOCKING OF THE CIRCUIT BREAKER IN THE OPEN (OFF) POSITION.

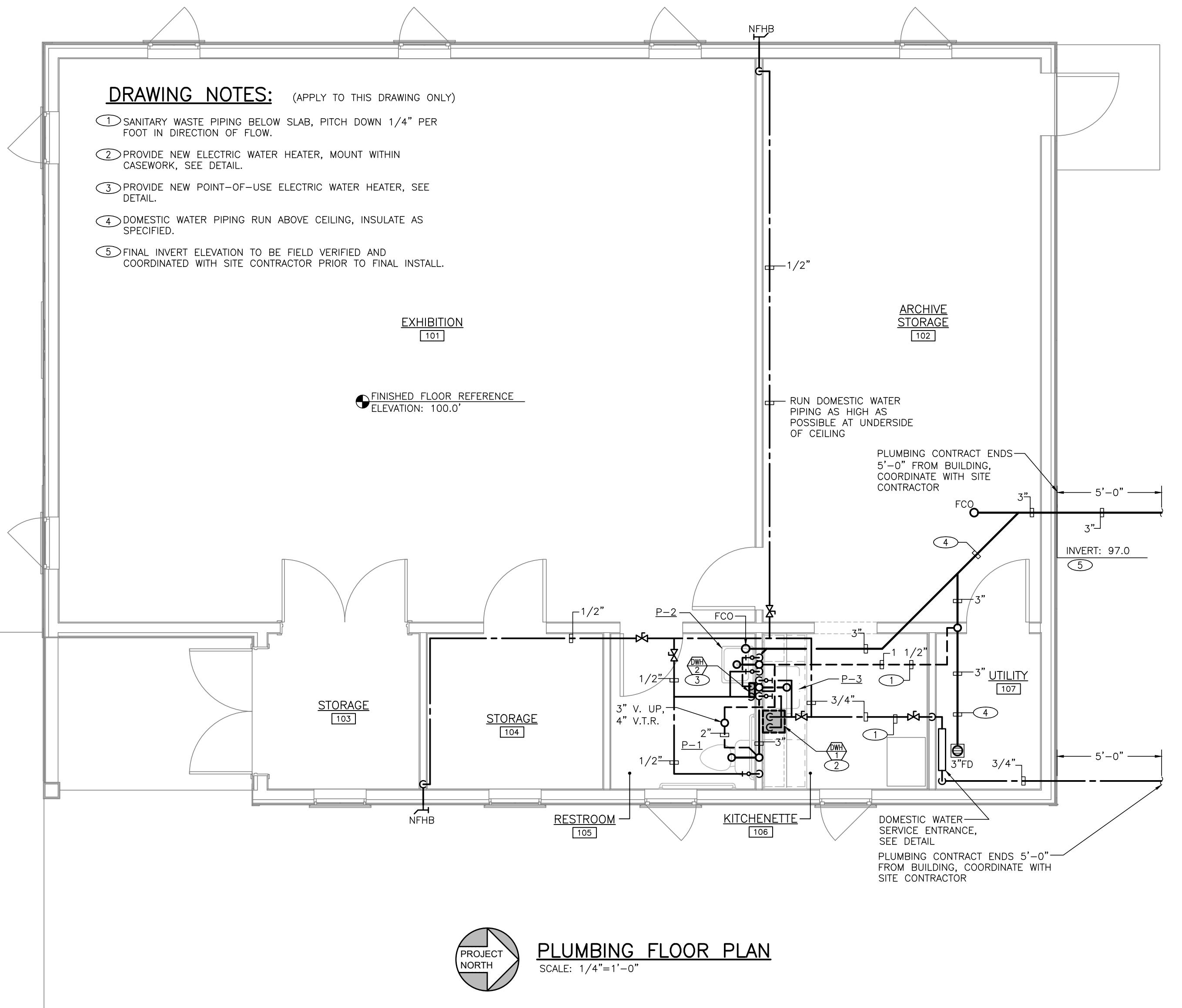
PROVIDE TWO BURNER SWITCHES; ONE AT EQUIPMENT AND OTHER AT DOOR INTO SPACE CONTAINING THE EQUIPMENT, ~60" AEE, LABELED

FAN COIL UNIT POWERED FROM BRANCH BOX UNIT IS AN APPLIANCE SYSTEM. LOCKING DISCONNECT AT BRANCH BOX

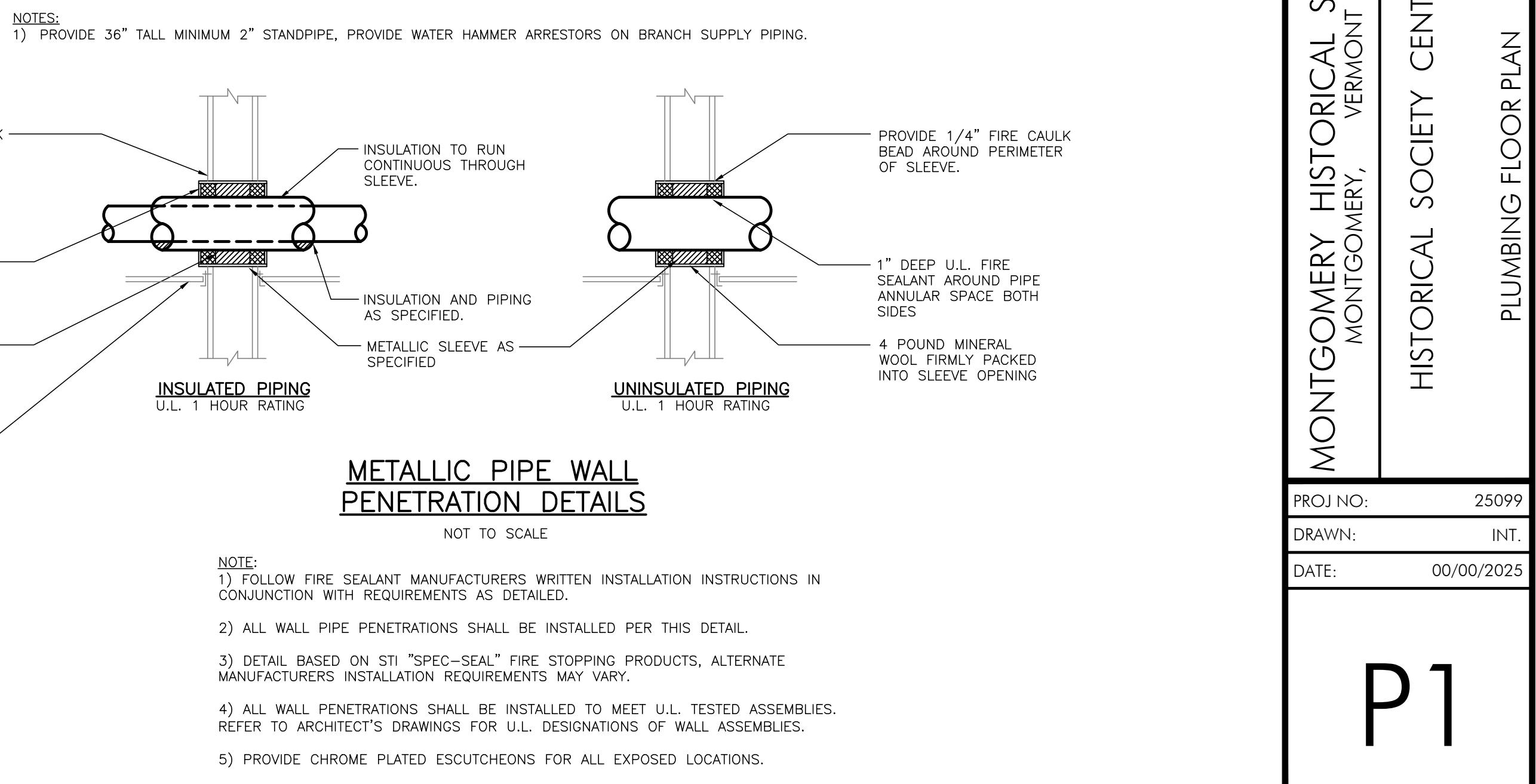
SERVES AS A LOCKABLE DISCONNECT FOR FAN COIL UNIT.

PROJ NO: 25099
DRAWN: CPB
DATE: 00/00/2025

E2

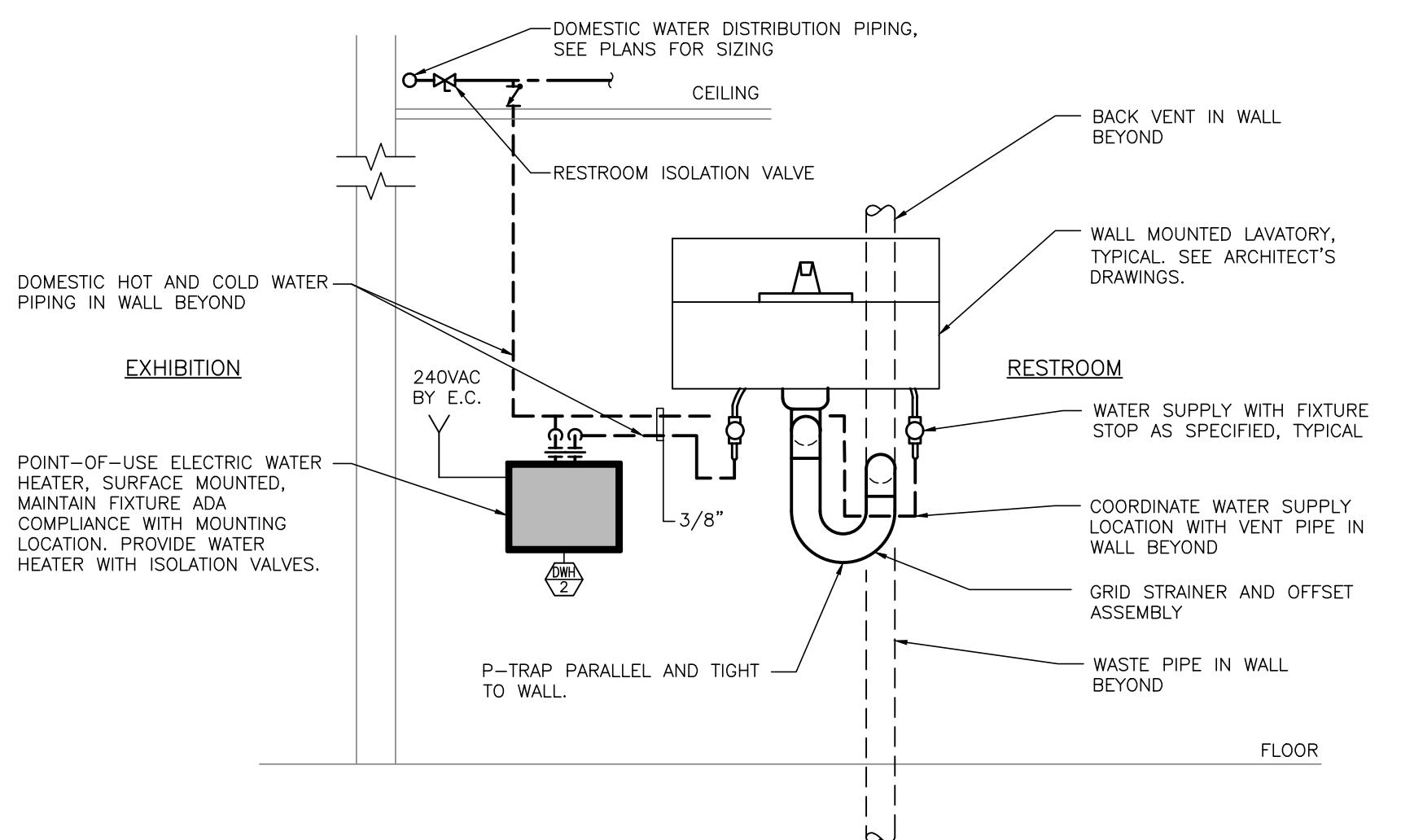


PLUMBING FIXTURE CONNECTION SCHEDULE								PLAN SYMBOL P-#
NO.	ITEM	SOIL	WASTE	VENT	CW	HW	TRAP	REMARKS
P-1	ACCESSIBLE FLUSH TANK WATER CLOSET	3"	—	2"	1/2"	—	INTEGRAL	—
P-2	ACCESSIBLE WALL-HUNG LAVATORY	—	1 1/2"	1 1/2"	3/8"	3/8"	1 1/4" X 1 1/2" P	SEE NOTE 2
P-3	ACCESSIBLE KITCHEN SINK	—	1 1/2"	1 1/2"	1/2"	1/2"	1 1/2" P	—



PLUMBING LEGEND & ABBREVIATIONS

— SANITARY PIPING
- - - VENT PIPING
— CONDENSATE PIPING
— COLD WATER PIPING
— HOT WATER PIPING (110°F)
— TEMPERATURE GAUGE
Z CHECK VALVE
— BALANCING VALVE
— FCO FLOOR CLEANOUT
— FD FLOOR DRAIN
— BV BALL VALVE
— FIXTURE STOP
— NFHB NON-FREEZE HOSE BIBB
— PRV PRESSURE REDUCING VALVE
— WM WATER METER
P-# PLUMBING FIXTURE TAG
V.T.R. VENT THROUGH ROOF
— DWHT DOMESTIC WATER HEATER TAG



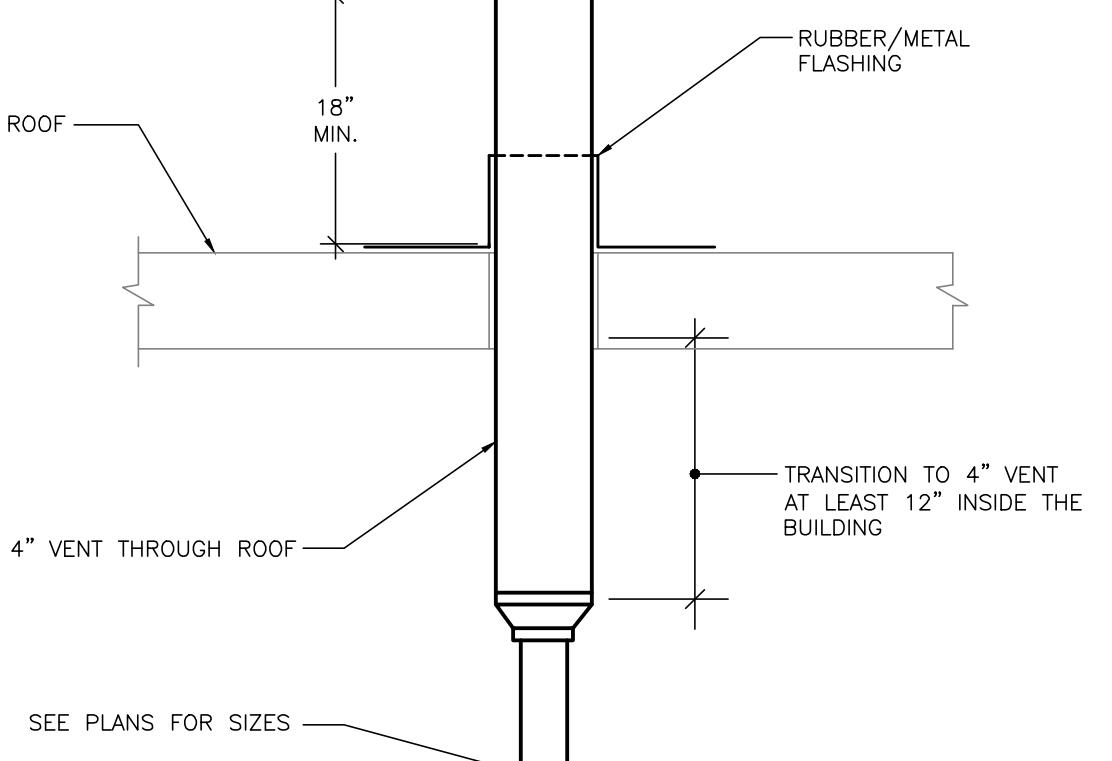
ACCESSIBLE LAVATORY PIPING DETAIL

NOT TO SCALE

DWHT-2: PROVIDE STIEBEL ELTRON MINI SERIES, MODEL MINI-E 4-2, MINIMUM FLOW 0.30 GPM, FURNISHED WITH 3500WATT ELECTRIC ELEMENT AND INTEGRAL FLOW SWITCH, TEMPERATURE ADJUSTMENT, AND PRESSURE SAFETY CUT-OUT ELECTRICAL: 240V, 1 PHASE, 60HZ, 15A

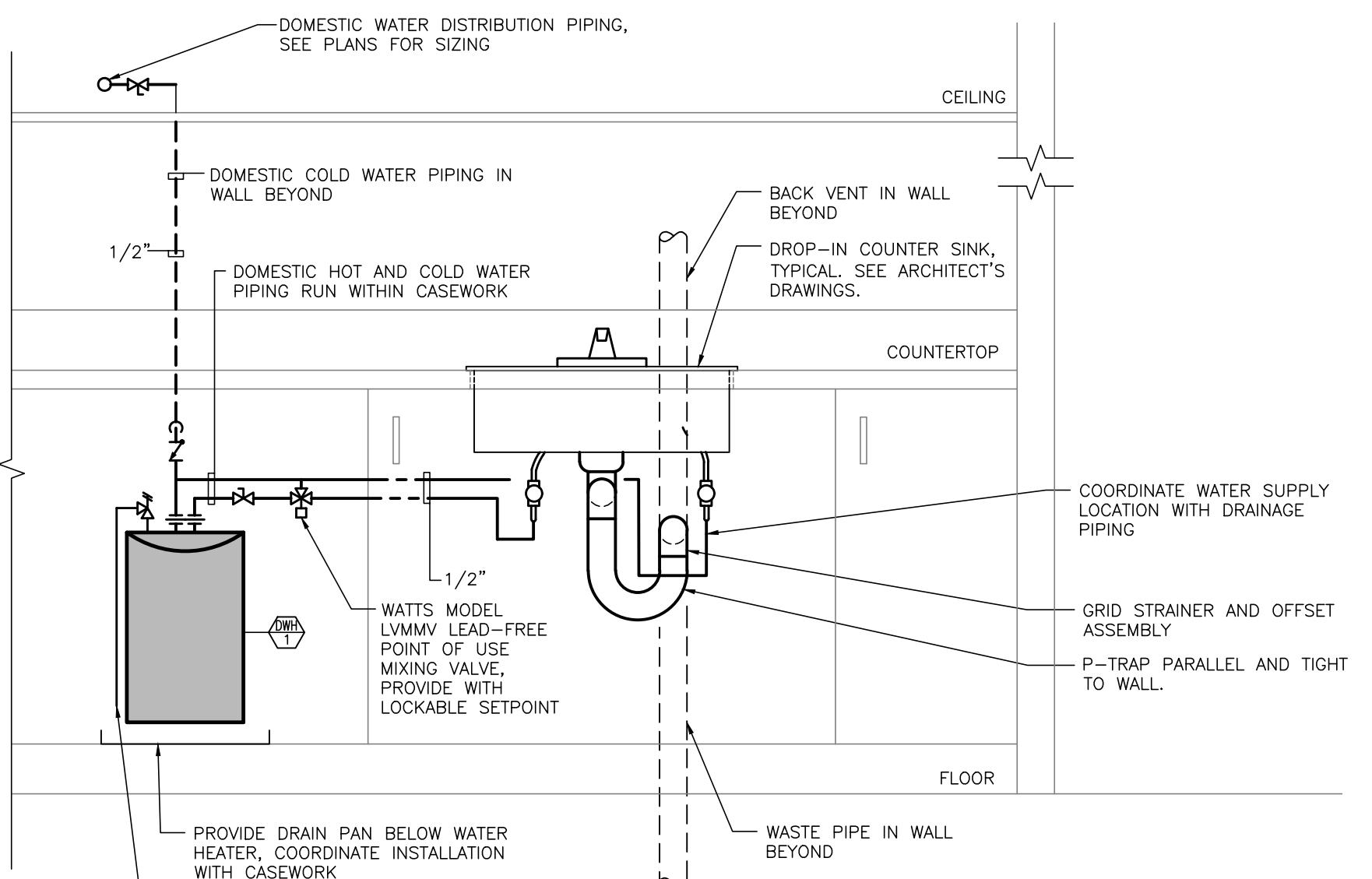
NOTES:

1. PROVIDE VINYL TRAP AND WATER SUPPLY COVERS KIT AS SPECIFIED ON ALL EXPOSED PIPING TO MEET A.D.A. REQUIREMENTS.
2. PIPING SIMILAR FOR ALL ACCESSIBLE SINKS.



PLUMBING VENT THRU ROOF
DETAIL

NOT TO SCALE



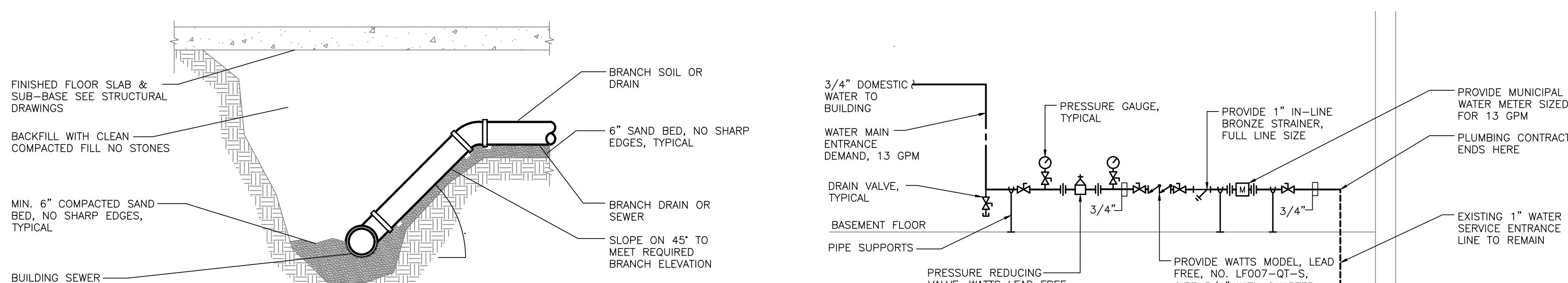
DOMESTIC WATER HEATER 1 PIPING DETAIL

NOT TO SCALE

DWHT-1: STIEBEL ELTRON MODEL SHS-4, 4 GALLON STORAGE, POINT OF USE TANK TYPE ELECTRIC WATER HEATER, FURNISHED WITH 1300WATT ELECTRIC HEATING ELEMENT. ELECTRICAL: 120V, 1PH, 11.3A

NOTES:

1. PROVIDE VINYL TRAP AND WATER SUPPLY COVERS KIT AS SPECIFIED ON ALL EXPOSED PIPING TO MEET A.D.A. REQUIREMENTS.
2. COORDINATE INSTALLATION OF WATER HEATER WITHIN CASEWORK WITH G.C.
3. PROVIDE DRAIN CONNECTION AS PIPING AS SPECIFIED.
4. FINISHED PIPING LOCATED WITHIN CASEWORK TO BE PROVIDED WITH ADDITIONAL JACKETING AS SPECIFIED.

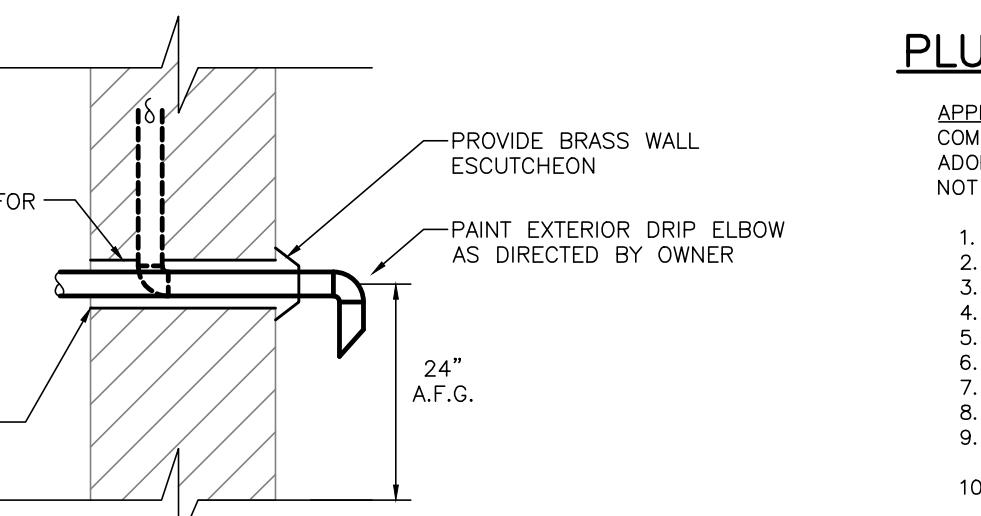


SANITARY WASTE BRANCH CONNECTION DETAIL

NOT TO SCALE

DOMESTIC WATER ENTRANCE DETAIL

NOT TO SCALE



Drip Elbow Detail

NOT TO SCALE

PLUMBING MATERIAL SPECIFICATION:

APPLICABLE CODES AND STANDARDS:
COMPLY WITH ALL STATE OF VERMONT CODES AND STANDARDS
ADOPTED OR ENFORCED BY THE STATE OF VERMONT, INCLUDING BUT
NOT LIMITED TO THE FOLLOWING:

1. VERNONT FIRE AND BUILDING CODE, 2025 EDITION
2. VERNONT PLUMBING RULES, 2021 EDITION
3. VERNONT ACCESS RULES, 2012 EDITION
4. NFPA 101 LIFE SAFETY CODE, 2015 EDITION
5. NFPA 101 LIFE SAFETY CODE, 2015 EDITION
6. THE INTERNATIONAL BUILDING CODE, IBC, 2015 EDITION
7. NFPA 70 NATIONAL ELECTRICAL CODE, 2017 EDITION
8. IEC 60364-4-44 PLUGGED CORD, 2014 EDITION
9. THE NATIONAL BOARD INSPECTION CODE, NATIONAL BOARD OF
BOILER AND PRESSURE VESSEL INSPECTORS, 2015
10. 2020 COMMERCIAL BUILDING ENERGY STANDARD

SHOP DRAWINGS:

SUBMIT SHOP DRAWINGS ON ALL MAJOR ITEMS OF EQUIPMENT AND
MATERIALS TO THE ARCHITECT FOR APPROVAL. MANUFACTURING OR
FABRICATION OF ANY MATERIAL OR EQUIPMENT PERFORMED BY ANY WORK
TEAM, APPROVAL OF SHOP DRAWINGS SHALL BE PERMITTED BY THE
RISK OF THE CONTRACTOR. SHOP DRAWINGS SHALL BE SUBMITTED
WITHIN THIRTY (30) DAYS AFTER AWARD OF CONTRACT. APPROVAL
RENDERED ON SHOP DRAWINGS SHALL NOT BE CONSIDERED AS A
GUARANTEE. MEASUREMENTS OR BUILDING CONDITIONS, WHICH
DRAWINGS ARE BASED UPON, SHALL NOT MEAN THAT
DRAWINGS HAVE BEEN CHECKED IN DETAIL. APPROVAL DOES NOT MEAN THAT
THE CONTRACTOR IS RELIEVED FROM NEITHER HIS
RESPONSIBILITY NOR THE NECESSITY OF FURNISHING MATERIAL OR
PERFORMING WORK REQUIRED BY THE CONTRACT DRAWINGS OR
SPECIFICATIONS. SUBMIT COMPLETE AND DIMENSIONED "AS-BUILT"
PLANS FOR ALL TRADES INDICATING ACTUAL INSTALLED CONDITIONS.
PLANS SHALL BE ENTIRELY NEAT, LEGIBLE AND ACCURATE.

GUARANTEE, SERVICE AND REPAIR:

EXCEPT AS A LONGER PERIOD MAY BE PROVIDED IN THIS
SPECIFICATION, THIS CONTRACTOR SHALL GUARANTEE THE WORK TO
THE FULL EXTENT OF THE PROVISION OF THE DRAWINGS. THIS
SPECIFICATION IS THE GENERAL CONDITIONS FOR A PERIOD OF ONE
YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE ARCHITECT
AS EVIDENCED BY THE ARCHITECT'S FINAL CERTIFICATES. THIS
CONTRACTOR SHALL SERVICE ALL INSTALLED EQUIPMENT FREE OF
CHARGE DURING THE GUARANTEE PERIOD. ANY APPARATUS OR
EQUIPMENT THAT IS RECALLED DUE TO DEFECTIVE SERVICE OR
MANUFACTURE PERIOD SHALL BE CONSIDERED DEFECTIVE AND SHALL BE
REPLACED BY THIS CONTRACTOR WITHOUT ADDITIONAL COST TO
OWNER.

SCOPE OF WORK:
REFER TO DRAWINGS PREPARED FOR THIS PROJECT, INCLUDES BUT IS
NOT LIMITED TO THE FOLLOWING:

PROVIDE COMPLETE CODE COMPLIANT DOMESTIC WATER, SANITARY
WASTE, SANITARY VENT SYSTEMS, INCLUDING BUT NOT LIMITED TO THE
FOLLOWING:

1. COMPLETE DOMESTIC WATER DISTRIBUTION SYSTEM TO ALL
PLUMBING FIXTURES AND WATER USING EQUIPMENT.
2. COMPLETE SANITARY WASTE AND VENT PIPING SYSTEMS TO ALL
PLUMBING FIXTURES AND WATER USING EQUIPMENT.

PROVIDE NEW PLUMBING FOR ALL NEW PLUMBING FIXTURES AS SHOWN
ON THE ARCHITECTURAL DRAWINGS.

PROVIDE NEW ELECTRIC WATER HEATERS AS SHOWN ON THE
DRAWINGS INCLUDING ALL ASSOCIATED ACCESSORIES INCLUDING BUT
NOT LIMITED TO THERMAL EXPANSION TANK, THERMOSTATIC MIXING
VALVES, SHUT-OFFS, AND PIPING.

PROVIDE NEW FLOOR DRAINS WITHIN THE MECHANICAL ROOM, AND AT
ANY LOCATIONS AS INDICATED BY ARCHITECT/OWNER.

ALL NEW DOMESTIC HOT, DOMESTIC COLD-WATER PIPING TO BE
INSULATED AS SPECIFIED HEREIN.

PROVIDE CONDENSATE DRAINAGE PIPING FOR ALL NEW AIR
CONDITIONING EQUIPMENT.

PROVIDE ALL MINOR AND MISCELLANEOUS ITEMS AND EQUIPMENT
REQUIRED TO MAKE EACH SYSTEM COMPLETE AND SATISFACTORY
WORKING ORDER.

SYSTEMS TESTING:

GENERAL: EACH SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE
GOVERNING REGULATIONS AND AS SPECIFIED HEREIN. THE
CONTRACTOR SHALL FURNISH ALL CERTIFICATES OF COMPLIANCE TO THE
OWNER.

WATER SYSTEMS:

1. ALL DOMESTIC COLD AND HOT WATER PIPING AND SHALL BE
TESTED HYDRAULICALLY AT 150 PSI AT THE LOWEST FLOOR
LEVEL BEFORE FIXTURES ARE CONNECTED. MAINTAIN TEST FOR
FOUR (4) HOURS WITH NO APPRECIABLE DROP IN PRESSURE.

SANITARY WASTE AND VENT SYSTEMS:

ALL DOMESTIC HOT WATER PIPING SHALL BE INSULATED WITH 1/2"

THICK INSULATION.

ALL DOMESTIC HOT WATER PIPING SHALL BE INSULATED WITH 1/2"

THICK INSULATION FOR A
MINIMUM OF 10'-0" BELOW VENT THROUGH ROOF PENETRATIONS.

ALL CONDENSATE DRAINAGE PIPING SHALL BE INSULATED WITH 1/2"

THICK INSULATION.

ALL ABOVE GRADE COLD WATER AND CONDENSATE DRAINAGE PIPING
AND FITTINGS SHALL BE MITERED WITH CONTINUOUS VAPOR BARRIER
MASTER SEALANT. VALVES TO INCLUDE HANDLE EXTENSIONS
INDULATED. ALL STRAINERS AND DRAIN VALVES AND SPECIALTIES TO
BE INSULATED AND COATED TO PREVENT SWEATING. ALL INSULATION
SYSTEMS TO CONTINUE THROUGH HANGERS AND INSTALLED
WITH CONTINUOUS VAPOR BARRIER.

SYSTEM IDENTIFICATION:

ALL EQUIPMENT SHALL BE IDENTIFIED WITH PERMANENT PHENOLIC
NAMEPLATES WITH 1/2" LETTERS. LABEL ALL VALVES WITH 1 1/2"
ROD, BURNT BRASS, BLACK, PHENOLIC, 1/2" HIGH LETTERS
SECURED WITH BRASS CHAIN. POST A PERMANENT FRAMED
VALVE CHART IN THE BOILER ROOM INCLUDING VALVE NUMBER,
LOCATION AND VALVE SERVICE (HEATING, DOMESTIC COLD ETC.).
LABEL ALL PIPING THROUGHOUT THE BUILDING WITH SETON STYLE "B"
WRAP AROUND VINYL PIPE LABELS WITH 1" HIGH LETTERS. LABELS
SHALL INCLUDE DIRECTION ARROWS AND ZONES SERVED.

STYLING:

AFTER COMPLETION OF ALL NEW DOMESTIC WATER PIPING THE
SYSTEMS SHALL BE DISINFECTED IN ACCORDANCE WITH THE
FOLLOWING:

1. PIPING SYSTEMS SHALL BE FILLED WITH WATER SOLUTION
CONTAINING 50 PPM OF AVAILABLE CHLORINE AND ALLOWED TO
STAND FOR A MINIMUM OF SIX (6) HOURS.
2. FOLLOWING THE ALLOWED STANDING TIME, THE SYSTEM SHALL BE
DRAINED AND FLUSHED WITH CLEAN POTABLE WATER UNTIL NO
CHLORINE REMAINS IN THE WATER COMING FROM THE SYSTEMS.

CROSS CONNECTIONS:

NO PIPE SHALL BE INSTALLED WHICH WILL PROVIDE A CROSS OR
INTERCONNECTION BETWEEN THE PLUMBING SYSTEMS AND AUTOMATIC
SUPPLY OR DRAINAGE SYSTEM. ALL AUTOMATIC WATER CONNECTIONS
WITH HOSE THREADED OUTLETS SHALL BE PROTECTED BY A SUITABLE
AIR GAP, APPROVED TYPE BACKFLOW PREVENTER OR VACUUM
BREAKER.

DOMESTIC WATER SYSTEM PIPE AND FITTINGS:

DOMESTIC WATER DISTRIBUTION PIPING SHALL BE TYPE "L" HARD
TEMPER COPPER TUBING, ASTM B-88. FITTINGS SHALL BE WROUGHT
COPPER SOLDER JOINT TYPE, USE "SILVERBRITE" LEAD FREE SOLDER
WITH SUITABLE FLUX FOR JOINING PIPE AND FITTINGS. PRO-PRESS
SHALL BE APPROVED AS AN ALTERNATE.

RUNOUTS AND PIPING FROM MAINS TO INDIVIDUAL TOILET ROOMS AND
FIXTURES 3/4" AND SMALL EXTERIOR TO MECHANICAL ROOMS SHALL
BE PLUMBED USING WATTS WATERPEX CROSS-LINKED POLYETHYLENE
PIPE OR APPROVED EQUAL AND ALL JOINTS SHALL BE MADE USING
WATTS CRIMPING, CRIMP-ON, OR POLY-ALUM CRIMPING FITTINGS
OR FINGER WATER COPPER CRIMPING OR STAINLESS STEEL
CINCHCLAMP CRIMPING METHODS AS OUTLINED WITHIN THE WATTS
WATERPEX INSTALLATION GUIDELINES. TUBING SHALL BE RATED 160
PSI @ 73.4 DEG. F. TUBING SHALL BE COLOR CODED BLUE FOR COLD
WATER AND RED FOR HOT WATER.

PIPE SLEEVES AND FIRE STOPPING:

FURNISH AND SET SLEEVES TO ACCOMMODATE PIPES PASSING
THROUGH FOUNDATIONS, WALLS, FLOORS, FURRING AND CEILINGS.
COOPERATE WITH GENERAL CONTRACTOR IN SETTING ALL SLEEVES.
SLEEVES SHALL BE APPROVED AS PER THE DRAWINGS. SLEEVES
SHALL BE LARGE ENOUGH TO PERMIT FREE MOVEMENT OF PIPE WHERE
EXPANSION AND CONTRACTION OF PIPING HAVING BEEN PROVIDED.
MALLEABLE OR WROUGHT IRON HANGERS SUPPORTING COPPER PIPE
SHALL BE COPPER-PLATED PIPE HANGERS FOR COLD WATER SERVICES
SHALL BE LARGE ENOUGH TO ENCOMPASS THE INSULATION, USING A
METAL SHIELD, SO THAT VAPOR BARRIER JACKET WILL NOT BE
BROKEN.

THE CONTRACTOR SHALL PREPARE AND SUBMIT A COMPLETE DETAILED
SUBMITTAL FOR ALL FIRE STOPPING CONDITIONS FOR THE PROJECT.
THE CONTRACTOR SHALL PREPARE AND SUBMIT THE FIRE STOPPING
METHODS AND MATERIALS REQUIRED TO MAINTAIN THE
FIRE RATING OF THE ASSEMBLY. THIS SUBMITTAL SHALL INCLUDE U.L.
TEST SHEET FOR THE INSTALLATION AND ALL INSTALLATION
INSTRUCTIONS. DO NOT PROCEED WITH INSTALLATION OF FIRE
STOPPING METHODS UNTIL DRAWINGS ARE BEING REVIEWED BY THE
ARCHITECT AND ENGINEER. THE CONTRACTOR SHALL SUBMIT ALL SHOP
DRAWINGS AVAILABLE AND SHALL UTILIZE APPROVED SHOP DRAWINGS
FOR THE INSTALLATION OF FIRE STOPPING SLEEVES THROUGH
EXTERIOR WALLS BELOW GRADE, THROUGH FOUNDATION WALLS, SHALL
BE "LINK-SEAL" WATER-TIGHT MECHANICAL SLEEVE SEAL.

ACCESS PANELS:

PROVIDE ACCESS PANELS IN CEILINGS, EXCEPT IN REMOVABLE TILE,
AND IN WALLS TO PERMIT ACCESS TO CONCEALED VALVES, ETC.
PANELS SHALL BE OF SUFFICIENT SIZE TO PERMIT ACCESS TO
CONCEALED EQUIPMENT. VALVE ACCESS PANELS SHALL BE 12" X 12"
MINIMUM SIZE. FIRE RATED WHERE REQUIRED. PROVIDE
ACCESS PANELS FOR NEW EQUIPMENT CONCEALED BY NEW FINISHES.

ELWOR, WALL AND CEILING ESCUTCHEONS:

ESCUCHEN PLATES SHALL BE INSTALLED ON ALL EXPOSED PIPE
PASSING THROUGH WALLS, FLOORS OR CEILINGS. PLATES SHALL BE
MANUFACTURED BY RITTER, PATTERN AND CASTING CO., 120
WATER STREET, NEW YORK, N.Y. OR APPROVED EQUAL,
CHROME-PLATED STEEL PLATES WITH SET SCREW AND CONCEALED
HINGE.

VALVES:

NOTE: ALL VALVES TO BE LEAD FREE.

VALVES SHALL BE LEAD-FREE AND MANUFACTURED BY APOLLO,
MILWAUKEE OR WATTS. VALVE TYPE AND NUMBERS NOTED HEREIN
ESTABLISH STANDARD OF TYPE AND QUALITY. VALVES SHALL HAVE
SCREWED ENDS FOR SCREWED PIPING AND SOLDER JOINT ENDS FOR
COPPER TUBE PIPING. PROVIDE VALVES FOR SERVICES LISTED
BELOW AND OF THE FOLLOWING TYPES:

1. CUPPER PIPE FITTING SHALL BE WROUGHT COPPER, SOLDER
JOINTS, ANSI B-16.22, STREAMLINED PATTERN JOINTS AND SHALL
BE MADE WITH "SILVERBRITE" LEAD FREE SOLDER WITH
NON-CORROUS FLUX.

2. CAST-IRON THREADED FITTINGS WHERE REQUIRED SHALL BE ANSI
B-16.21, STANDARD PATTERN, FOR THREADED JOINTS.
THREADS SHALL CONFORM TO ANSI B-16.2.

3. MALLEABLE-IRON THREADED FITTINGS WHERE REQUIRED SHALL BE
ANSI B-16.3, CLASS 300, STANDARD PATTERN, FOR THREADED JOINTS.
THREADS SHALL CONFORM TO ANSI B-16.21.

4. CAST-BRONZE FLANGES WHERE REQUIRED SHALL BE ANSI
B-16.24, CLASS 300; RAISED GROUND FACE, BOLTS SPOT FACED.

5. UNION SHALL BE OF THE SAME CLASS AND MATERIAL AS THE
PIPE AND FITTINGS OF THE SYSTEM IN WHICH THEY ARE
INSTALLED.

6. DIELECTRIC UNIONS: TO PREVENT CORROSION CAUSED BY
DISSIMILAR MATERIALS PROVIDE DIELECTRIC UNIONS EQUAL TO WATTS SERIES
300, WITH MATERIALS TO MATCH PIPING SYSTEM. FLANGED
DIELECTRIC FITTINGS SHALL BE EQUAL TO WATTS SERIES 3100 WITH
MATERIALS TO MATCH PIPING SYSTEM.

FITTINGS:

1. COPPER PIPE FITTING SHALL BE WROUGHT COPPER, SOLDER
JOINTS, ANSI B-16.22, STREAMLINED PATTERN JOINTS AND SHALL
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NON-CORROUS FLUX.

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