

PLUMBING GENERAL NOTES

APPLICABLE CODES:
VIRGINIA PLUMBING CODE (VPC) 2021
VIRGINIA CONSTRUCTION CODE (VCC) 2021
ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES (ICC/ANSI A117.1-2009)
UNIFORM STATEWIDE BUILDING CODE OF VIRGINIA 2021

PLUMBING SYSTEMS:
PROVIDE ALL PLUMBING FIXTURES AND TRIM AS INDICATED ON THE DRAWINGS AND AS SPECIFIED ELSEWHERE HEREIN. ALL FIXTURES SHALL BE CONNECTED TO THE PLUMBING SYSTEMS AS INDICATED AND REQUIRED FOR PROPER OPERATION. PIPING MATERIALS, ACCESSORIES AND EQUIPMENT SHALL BE SPECIFIED ELSEWHERE WITHIN THIS SPECIFICATION.

SANITARY WASTE AND VENT SYSTEMS:
PROVIDE A COMPLETE SANITARY, WASTE AND VENT SYSTEM FOR ALL FIXTURES AND EQUIPMENT IN THE BUILDING REQUIRING CONNECTIONS. ALL WASTE FROM THE BUILDING SHALL DISCHARGE BY GRAVITY OUT THE BUILDING TO BE PICKED UP BY CIVIL AND EXTENDED TO THE SEWER SYSTEM.

WATER SUPPLY SYSTEM:
PROVIDE A COMPLETE WATER SUPPLY SYSTEM FOR ALL FIXTURES AND EQUIPMENT IN THE BUILDING INCLUDING DOMESTIC WATER HEATERS. PROVIDE APPROVED GATE OR COMPRESSION STOPS AT EVERY CONNECTION TO FIXTURES AND EQUIPMENT.

STORM DRAINAGE SYSTEM: ROOF TO BE SERVED BY EXISTING DOWNSPOUTS WITH EMERGENCY SCUPPERS. REPAIR AND REPLACE AS NECESSARY. CONTRACTOR TO COORDINATE BETWEEN CIVIL AND PLUMBING DRAWINGS. RAINFALL RATE USED – 3.5" PER HOUR.

THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE INTENDED TO SHOW THE GENERAL ROUTING, LOCATION, AND SIZE OF EQUIPMENT, PIPING AND FIXTURES. THE CONTRACTOR SHALL MAKE ALLOWANCES FOR ALL MATERIALS AND LABOR NECESSARY TO MAKE FINAL CONNECTIONS, NOT ALL NECESSARY OFFSETS OR FITTINGS ARE SHOWN, BUT SHALL BE PROVIDED WHERE REQUIRED. THE CONTRACTOR SHALL PROVIDE ALL ACCESSORIES, SUPPORTS, AND HANGARS TO ALLOW FOR COMPLETE AND FUNCTIONAL SYSTEMS. ALL WORK SHALL MEET OR EXCEED PUBLISHED OR ACCEPTED STANDARDS OF QUALITY WORKMANSHIP, AND SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN SPECIFICATIONS AND/OR INSTALLATION INSTRUCTIONS. THE INTENT OF THESE CONTRACT DOCUMENTS IS TO PROVIDE COMPLETE FUNCTIONING SYSTEMS.

PERMIT, FEES, AND NOTICES:
COMPLY WITH THE GENERAL CONDITIONS AND PROVIDE ALL PERMITS AS REQUIRED FOR THE INSTALLATION OF ALL INDICATED PLUMBING SYSTEMS.

FIRE RATINGS:
SEPARATIONS BETWEEN R-2 TENANTS ARE 1-HR RATED.
STAIRWELLS AND ELEVATOR ARE 2-HR RATED.

FULLY SPRINKLERED PER NFPA 13 R

USE GROUP: R-2

CONSTRUCTION: IIIB

PLUMBING DRAWING LIST:

- P.001 - PLUMBING NOTES, SPECIFICATIONS, LEGEND, & ABBREVIATIONS
- P.002 - PLUMBING SCHEDULES AND DETAILS
- P.003 - PLUMBING FIRESTOP DETAILS
- P.004 - PLUMBING FIRESTOP DETAILS
- P.201 - PLUMBING OVERALL FIRST FLOOR PLAN
- P.202 - PLUMBING OVERALL SECOND FLOOR PLAN
- P.203 - PLUMBING OVERALL THIRD FLOOR PLAN
- P.204 - PLUMBING OVERALL ROOF PLAN
- P.220 - PLUMBING PARTIAL FIRST FLOOR PLAN - AREA A
- P.221 - PLUMBING PARTIAL FIRST FLOOR PLAN - AREA B
- P.222 - PLUMBING PARTIAL FIRST FLOOR PLAN - AREA C
- P.223 - PLUMBING PARTIAL SECOND FLOOR PLAN - AREA A
- P.224 - PLUMBING PARTIAL SECOND FLOOR PLAN - AREA B
- P.225 - PLUMBING PARTIAL SECOND FLOOR PLAN - AREA C
- P.226 - PLUMBING PARTIAL THIRD FLOOR PLAN - AREA A&B
- P.301 - PLUMBING DOMESTIC WATER RISER DIAGRAMS A AND B
- P.302 - PLUMBING DOMESTIC WATER RISER DIAGRAM C
- P.401 - PLUMBING SANITARY AND VENT RISER DIAGRAMS A AND B
- P.402 - PLUMBING SANITARY AND VENT RISER DIAGRAM C

PLUMBING SPECIFICATIONS

SECTION 220523 – BALL VALVES:

BALL VALVES:

DOMESTIC (POTABLE) WATER (CW/HW) PIPING: SYSTEM DESIGN PRESSURE = 80 PSIG. ALL SHUT OFF VALVES SHALL BE FULL OPEN PORT TYPE VALVES.

PEX: POTABLE WATER SERVICE SIZES 1" AND LESS SHALL BE BARBED WITH CRIMP STYLE SUITABLE FOR USE IN PEX PIPING SYSTEMS.

CPVC: POTABLE WATER SERVICE SIZES 1-1/4" – 2" SHALL BE GLUE TYPE SUITABLE FOR USE IN SCHEDULE 40 CPVC PIPING SYSTEMS. FOR PIPING SYSTEMS OVER 2" USE GLUE TYPE FITTINGS SUITABLE FOR USE IN SCHEDULE 80 CPVC SYSTEMS.

DRAIN VALVES: POTABLE WATER SERVICE SIZES 1/2" AND 3/4" SHALL BE GLUE TYPE SUITABLE FOR USE IN SCHEDULE 40 CPVC SYSTEMS.

SECTION 220719 – PIPING INSULATION:

CLOSED CELL ELASTOMERIC (PIPE SIZES UP TO 5 INCHES): FLEXIBLE ELASTOMERIC, CLOSED CELLULAR, TUBULAR MOLDED TO ACCOMMODATE PIPING, SMOOTH OUTER SURFACE SUITABLE FOR PAINTING WITH VINYL LACQUER TYPE COATING, WATER RESISTANT, NONABSORBENT, OZONE RESISTANT, MINIMUM DENSITY OF 4 LB/CF, MAXIMUM CONDUCTIVITY PER 1" THICKNESS OF 0.27 AT 75 F MEAN TEMPERATURE

RIGID FIBERGLASS: RESIN BONDED FIBROUS GLASS, FLAME RETARDANT, FACTORY APPLIED ALL SERVICE JACKET VAPOR BARRIER WITH SELF SEALING PRESSURE SENSITIVE LAP JOINTS, MOLDED TO ACCOMMODATE PIPE, MAXIMUM VAPOR PERMEANCE OF .02 PERM/IN. AND A PUNCTURE RESISTANCE OF 50 UNITS, MINIMUM DENSITY 4.0 LB/CF, MAXIMUM CONDUCTIVITY PER 1" THICKNESS OF .23 AT 75F, .29 AT 200F AND .43 AT 400F MEAN TEMPERATURE.

APPLICATIONS:

- DOMESTIC HOT AND COLD WATER (ALL SIZES) ON ALL EXTERIOR WALL PIPING OR IN UNCONDITIONED SPACES ONLY: PROVIDE 1/2" CLOSED CELL ELASTOMERIC.
- FLOOR DRAINS OR OPEN SITE DRAINS RECEIVING AHU CONDENSATE: INSULATE P-TRAP WITH 1/2" CLOSED CELL ELASTOMERIC INSULATION.
- DOMESTIC HOT WATER AND CIRCULATION LINES (WATER MAINS ONLY, PIPING LESS THAN 1-1/2") SHALL BE INSULATED WITH 1" RIGID FIBERGLASS INSULATION.

SECTION 221116 – DOMESTIC WATER PIPING:

PIPING 1" AND SMALLER SHALL BE PEX TUBING. BETWEEN 1-1/4" AND 2" SHALL BE SDR 11 CPVC TUBING.

SECTION 221316 – SANITARY WASTE AND VENT PIPING:

PVC: ALL PIPING SHALL BE SOLID CORE SCHEDULE 40 PVC. FOAM CORE IS NOT ALLOWED.

SECTION 221319 – SANITARY WASTE PIPING SPECIALITIES:

FLOOR CLEAN OUT (FCO) – PROVIDE SIZING AS INDICATED ON THE DRAWINGS. SPECIFICATION. BASED ON SIOUX CHIEF FINISH LINE SERIES 834 CLEANOUTS WITH NICKEL BRONZE ADJUSTABLE TOPS. MATCH MATERIALS OF CONSTRUCTION FOR BODY TYPE.

AIR ADMITTANCE VALVE (AAV) – AAV'S MAY BE EITHER OATEY OR STUDOR TYPE. ALL AAV'S USED WITH WB'S SHALL BE BY OATEY (SUBSTITUTION BY APPROVAL ONLY).

SECTION 221123 DOMESTIC WATER PUMPS:

BOOSTER PUMP (BP) – PACKAGED DOMESTIC WATER BOOSTER SYSTEM WITH STRUCTURAL BASE, DUPLEX PUMPS, MOTORS, PRESSURE REDUCING VALVES, CHECK AND ISOLATION VALVES, SUCTION AND DISCHARGE HEADERS, CONTROL PANEL, AND ALL NECESSARY INTERCONNECTING PIPING. PROVIDE WITH SINGLE POINT POWER CONNECTION, TYPE L COPPER HEADERS, AND CENTRIFUGAL, CLOSE-COUPLED, VFD DRIVEN, END SUCTION PUMPS. SYSTEM TO MAINTAIN A LEAVING PRESSURE OF 80 PSI. PROVIDE WITH BUFFER TANK.

SECTION 221429 – SUMP PUMPS

ELEVATOR SUMP PIT – SUMP PUMP (SP-1): SUBMERSIBLE EFFLUENT PUMP WITH DISCHARGE CHECK VALVE. PROVIDE WITH FLOW SENSOR THAT AUTOMATICALLY STOPS PUMPS AND SOUNDS AN ALARM WHEN FLOW IS DETECTED. SYSTEM SHALL HAVE A NEMA 4X WEATHER TIGHT CORROSION RESISTANT ENCLOSURE, SS SENSOR PROBE, DIRECT PLUG-IN POWER SOURCE, ALARM, LIGHT, AND REMOTE MONITORING CIRCUIT. PROVIDE WITH 50 FT OF CABLE FOR EASE OF INSTALLATION. COORDINATE LOCATION OF SYSTEM WITH ELECTRICAL ENGINEER AND INSTALLER. PLUMBING SUBCONTRACTOR TO PROVIDE SYSTEM AND INSTALL PUMP. ELECTRICAL SUBCONTRACTOR TO INSTALL ALL WIRING AND REMOTE CONTROL BOX.

SECTION 223300 ELECTRIC WATER HEATERS:

ELECTRIC WATER HEATER – FULLY INSULATED BAKED ENAMEL STEEL JACKET, INSULATED IN CONFORMANCE WITH ASHRAE 90A-1980 STANDARD FOR ELECTRIC DOMESTIC WATER HEATER, GLASS LININGS, RELIEF VALVE TAP, HEAT TRAPS, RATED FOR 150 PSI. PLATED COPPER ELEMENT, LOW WATT DENSITY, REPLACEABLE IMMERSION TYPE. PROVIDE WITH RELIEF VALVE AND FACTORY PACKAGED CONTROL WIRING.

EW-1 – 40 GALLON 4.5 KW DUAL ELEMENT WATER HEATER. HEATER SHALL BE "SHORT" CONSTRUCTION. PROVIDE WITH 3/4" TEMPERATURE AND PRESSURE RELIEF VALVE. BASED ON RUUD MODEL PROE38-S2-RU95-B.

EW-2 – 20 GALLON 4.5 KW DUAL ELEMENT WATER HEATER. HEATER SHALL BE "SHORT" CONSTRUCTION. PROVIDE WITH 3/4" TEMPERATURE AND PRESSURE RELIEF VALVE. BASED ON RUUD MODEL PROE20-S2-RU.

PROVIDE TANK WATER HEATERS WITH 2.5-GAL EXPANSION TANK (ET-1).

WATER HEATERS ARE LOCATED WITHIN A VENTILATED SPACE AND OVER AN IMPERVIOUS FLOOR.

SECTION 221119 DOMESTIC WATER PIPING SPECIALITIES:

OUTLET BOXES:

WB-1: WASHING MACHINE BOX (PLASTIC) – RECESSED SINGLE DRAIN WITH INTEGRAL WATER HAMMER ARRESTORS. BASED ON SIOUX CHIEF 696 WASHING MACHINE BOXES. PROVIDE WITH CONDENSATE DRAIN ADAPTER.

WB-2: WASHING MACHINE BOX (FIRE RATED) – RECESSED SINGLE DRAIN WITH INTEGRAL WATER HAMMER ARRESTORS. BASED ON SIOUX CHIEF 696R FIRE RATED WASHING MACHINE BOXES. PROVIDE WITH CONDENSATE DRAIN ADAPTER.

IM-1: REFRIGERATOR BOX (PLASTIC) – WATER-TIGHT RECESSED OUTLET BOX WITH INTEGRAL WATER HAMMER ARRESTOR. BASED ON SIOUX CHIEF 696 ICE MAKER BOXES.

IM-2: REFRIGERATOR BOX (FIRE RATED) – WATER-TIGHT RECESSED OUTLET BOX WITH INTEGRAL WATER HAMMER ARRESTOR. BASED ON SIOUX CHIEF 696R FIRE RATED ICE MAKER BOXES.

HYDRANTS:

WH-1: FREEZELESS WALL HYDRANT – BACKFLOW PROTECTED WITH ANTI-SIPHON VACUUM BREAKER (ASSE 1011), TEE KEY, COPPER TUBES, CHROME FINISH, PERMANENT TYPE BRASS VALVE BODY, ASSE STANDARD 1019-B, WITH AUTOMATIC DRAINING. BASED ON WOODFORD MODEL 65.

RH-1: ROOF HYDRANT – SPECIFICATION BASED ON WOODFORD MODEL SRH-MS, FREEZELESS ROOF HYDRANT, WITH INTEGRAL ANIT-SIPHON VACUUM BREAKER, BACKFLOW PROTECTED WITH FIELD TESTABLE ASSE 1052 DOUBLE CHECK BACKFLOW PREVENTER. NO DRAIN REQUIRED – A VENTURI ACTION DRAWS WATER OUT OF THE INTERNAL RESERVOIR AND DISCHARGES OF THE BACKFLOW PREVENTER. ALL NECESSARY MOUNTING HARDWARE FOR PROPER INSTALLATION ON A COMMEROIAL ROOF IS TO BE SUPPLIED WITH DEVICE.

MIXING VALVE (MV):

MV-1 – 1/2" TO 1" – DOUBLE THROTTLING DESIGN, INTEGRAL INLET FILTER WASHERS AND CHECK VALVES, BRONZE BODY CONSTRUCTION, THERMOSTAT CONTROLS, ADJUSTABLE CAP WITH LOOKING FEATURE, ASSE 1070 LISTED. ADJUSTABLE TEMPERATURE FROM 80°F TO 120°F. SET TO TEMPERATURES INDICATED ON THE DRAWINGS. BASED ON WATTS MODEL LFMMV.

DRAIN VALVES: POTABLE WATER SERVICE SIZES 1/2" AND 3/4" SHALL BE GLUE TYPE SUITABLE FOR USE IN SCHEDULE 40 CPVC SYSTEMS.

BACKFLOW PREVENTER: SPECIFICATIONS ARE BASED ON WATTS LF909 LARGE SERIES WITH 909AG AIR GAP. PROVIDE AT LOCATIONS IN WHICH THE PUBLIC WATER SUPPLY SYSTEM MUST BE PROTECTED. MATERIALS OF CONSTRUCTION – EPOXY COATED CAST IRON BODY, BRONZE TEST COCKS, RUBBER DISCS, BRONZE SEAT AND DISC HOLDER, DOUBLE CHECK ASSEMBLY WITH RELIEF DRAIN ASSEMBLY. PIPE RELIEF TO FLOOR DRAIN AS SHOWN.

SECTION 221320 SANITARY DRAINS:

TRAP SEAL DEVICE – PROVIDE A TRAP SEAL AT ALL OPENSITE AND FLOOR DRAINS SUBJECT TO EVAPORATION. TRAP SEAL SPECIFICATIONS ARE BASED ON JOSAM 68240 SERIES TRAP SEAL INSERT. MUST BE AN ASSE 1072 TRAP SEAL DEVICE.

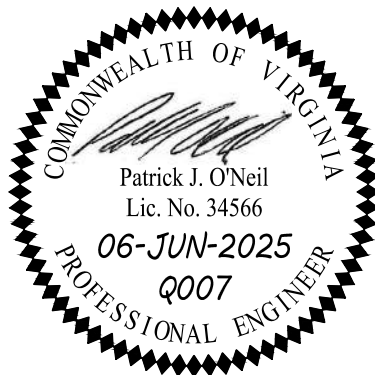
FLOOR DRAINS (FD) – PROVIDE FLOOR DRAIN SIZES AS INDICATED ON DRAWINGS. FLOOR DRAINS SHALL BE SUPPLIED WITH NICKEL BRONZE ADJUSTABLE TOPS. SPECIFICATION BASED ON SIOUX CHIEF FINISH LINE SERIES 842 FLOOR DRAINS. PROVIDE DRAINS SUBJECT TO EVAPORATION WITH A TRAP SEAL.

MISCELLANEOUS ITEMS

- ALL APARTMENT DOMESTIC WATER SHUT OFF VALVES WILL BE LOCATED IN AN EASILY ACCESSIBLE LOCATION.
- IDENTIFY ALL MAIN SHUT OFF VALVES BY TAGGING EACH.
- IT IS THE INTENT OF THESE DRAWINGS THAT ALL TUB/SHOWERS WILL BE ABOVE FLOOR ROUGH IN.
- PROVIDE QUARTER TURN SHUT OFF VALVES FOR ALL PLUMBING FIXTURES.
- PROVIDE WHA'S ON ALL CONNECTIONS SERVING DISHWASHERS.
- ALL PLUMBING FIXTURES TO HAVE SHUT OFF VALVES OR INTEGRAL STOPS.
- ALL LAVATORIES ARE TO MEET THE PROPER CLEARANCES PER SECTION 405.3.1 OF THE IPC. SEE ARCHITECTS DRAWINGS FOR DIMENSIONED BATHROOM DRAWINGS.
- PROVIDE A CLEAN OUT AT THE BASE OF ALL SANITARY STACKS.
- ALL RISERS SHALL HAVE AN ACCESSIBLE SHUT OFF VALVE. PROVIDE 12x12 FIRE RATED ACCESS DOORS TO ALL VALVES IF REQUIRED.
- ALL PIPING TO BE CONCEALED WITHIN WALLS OR ABOVE CEILINGS.
- ALL WATER LINES TO PLUMBING FIXTURES SHALL BE BURST PROOF, FLEXIBLE STAINLESS STEEL TYPE SUPPLY LINES.
- RUN AIR HANDLING UNIT AND DEHUMIDIFIER CONDENSATE TO NEAREST OPEN SITE DRAIN, FLOOR DRAIN, OR OUT THE BUILDING TO A SPLASH BLOCK. PROVIDE CONDENSATE PUMP FOR AHU AS NEEDED.
- ALL TUB/SHOWER VALVES TO BE PRESSURE BALANCED PER SECTION 412.3 OF THE VPC.
- ALL PLUMBING FIXTURES TO COMPLY WITH SECTION 402.1 OF THE VPC.
- PROVIDE KITCHEN SINKS WITH TAILPIECE FOR DISHWASHER CONNECTION AND DISPOSAL. DISPOSAL TO BE EQUAL TO SINK GUARD MODEL SE150, 1/3 HP, CORROSION RESISTANT COMPOSITE HOPPER WITH CAST STAINLESS STEEL ANTI-JAM SWIVEL IMPELLERS. PROVIDE WHA AND SHUT OFF VALVE FOR CONNECTION TO DISHWASHER.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
	SANITARY PIPING WASTE (ABOVE GRADE)
	SANITARY PIPING WASTE (BELOW FLOOR)
	VENT PIPING
	COLD WATER PIPING
	HOT WATER PIPING
	PIPE TURNING UP/DOWN
	FULL OPEN PORT GATE VALVE
	FLOOR DRAIN
	FLOOR CLEANOUT
	CLEANOUT
	1 HR RATED WALLS
	2 HR RATED WALLS
	WATER HAMMER ARRESTOR
	FIXTURE TYPE
	MIXING VALVE
	AIR ADMITTANCE VALVE
	BACKFLOW PREVENTOR

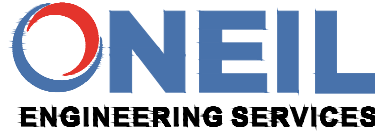


VENABLE STREET CHURCH
2101 Vanable St.
Richmond, VA 23223

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	06-JUN-2025	ISSUE FOR PERMIT

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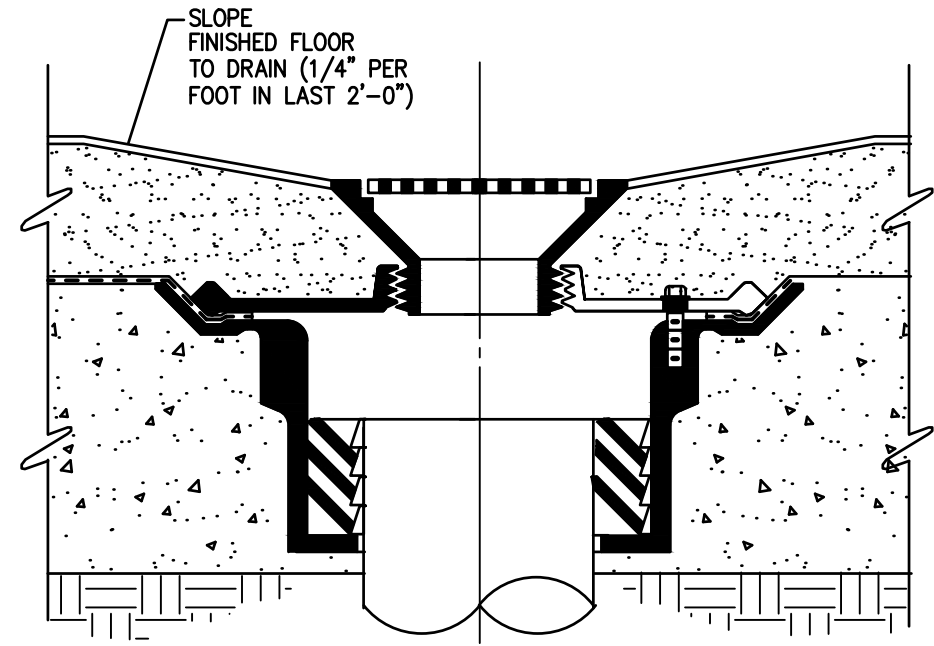
PROJECT #:	Q007
DATE:	06-JUN-2025
SCALE:	NONE
DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING NOTES,
SPECIFICATIONS,
LEGEND, AND
ABBREVIATIONS

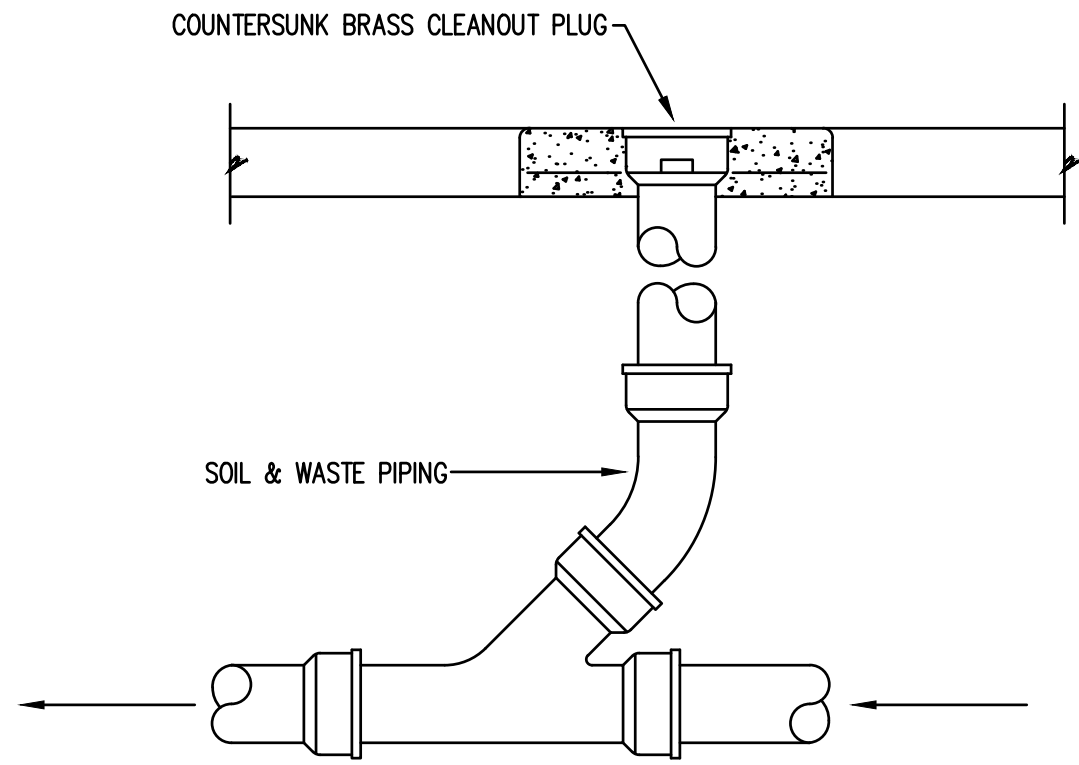
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P.001

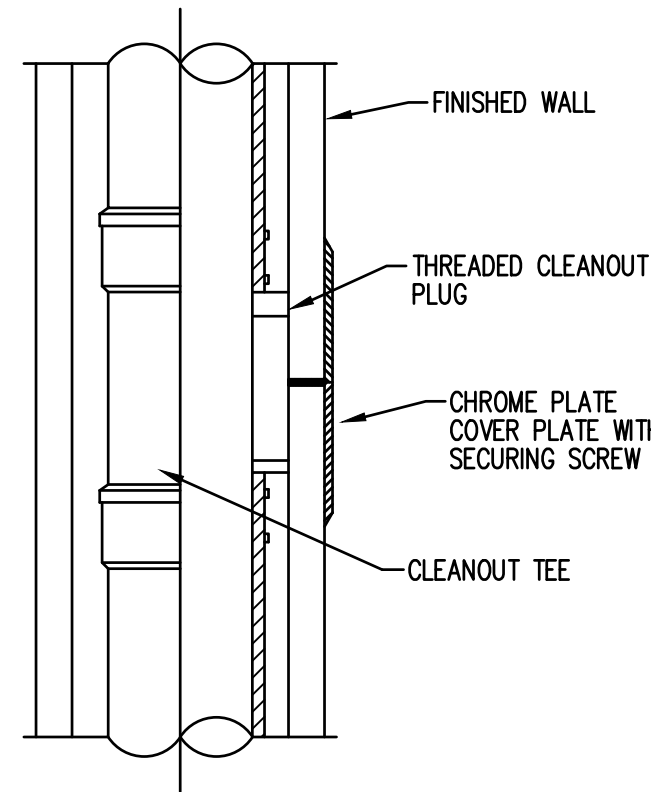
VENABLE ST



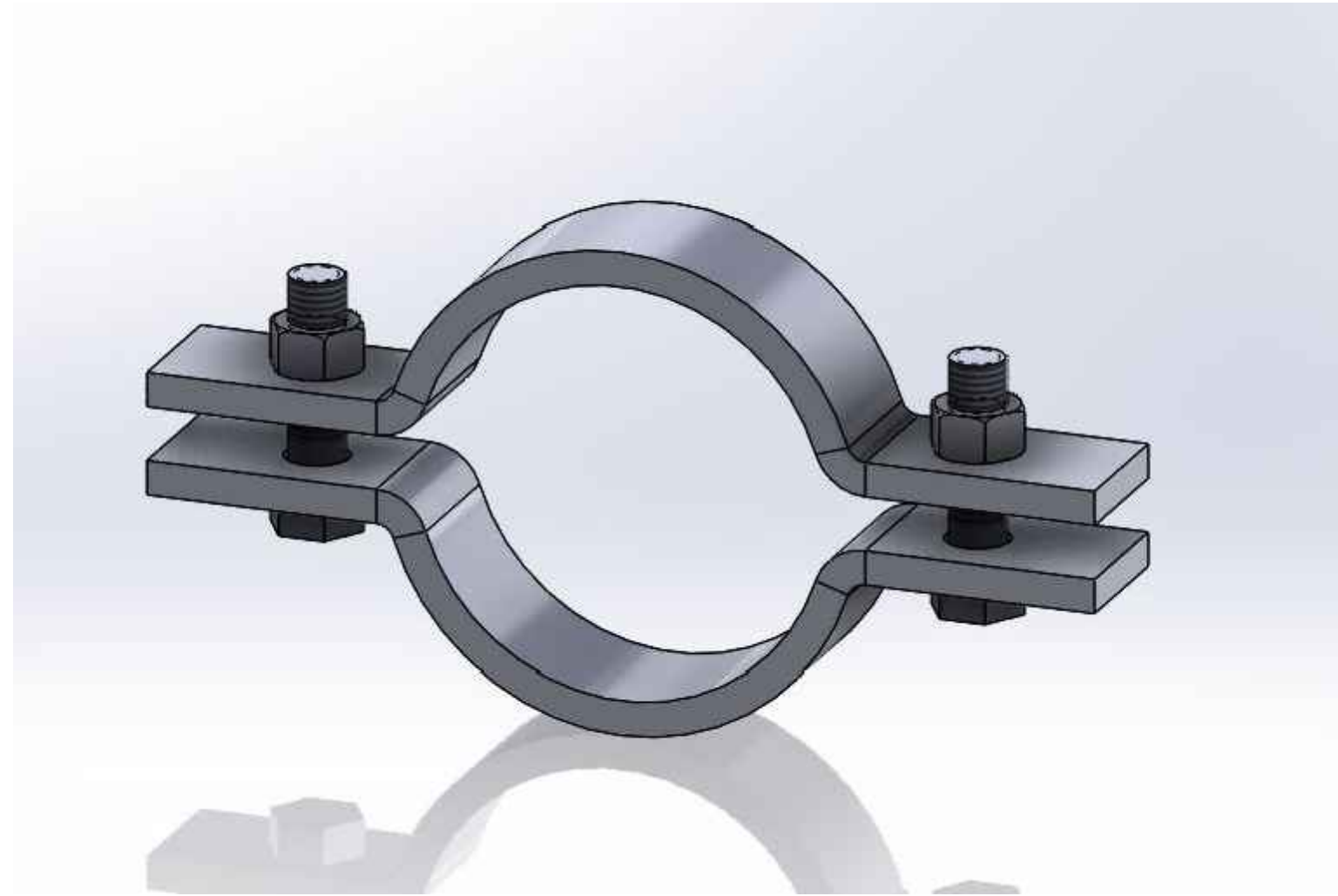
FLOOR DRAIN DETAIL
NOT TO SCALE



C.O. UP TO GRADE
NOT TO SCALE

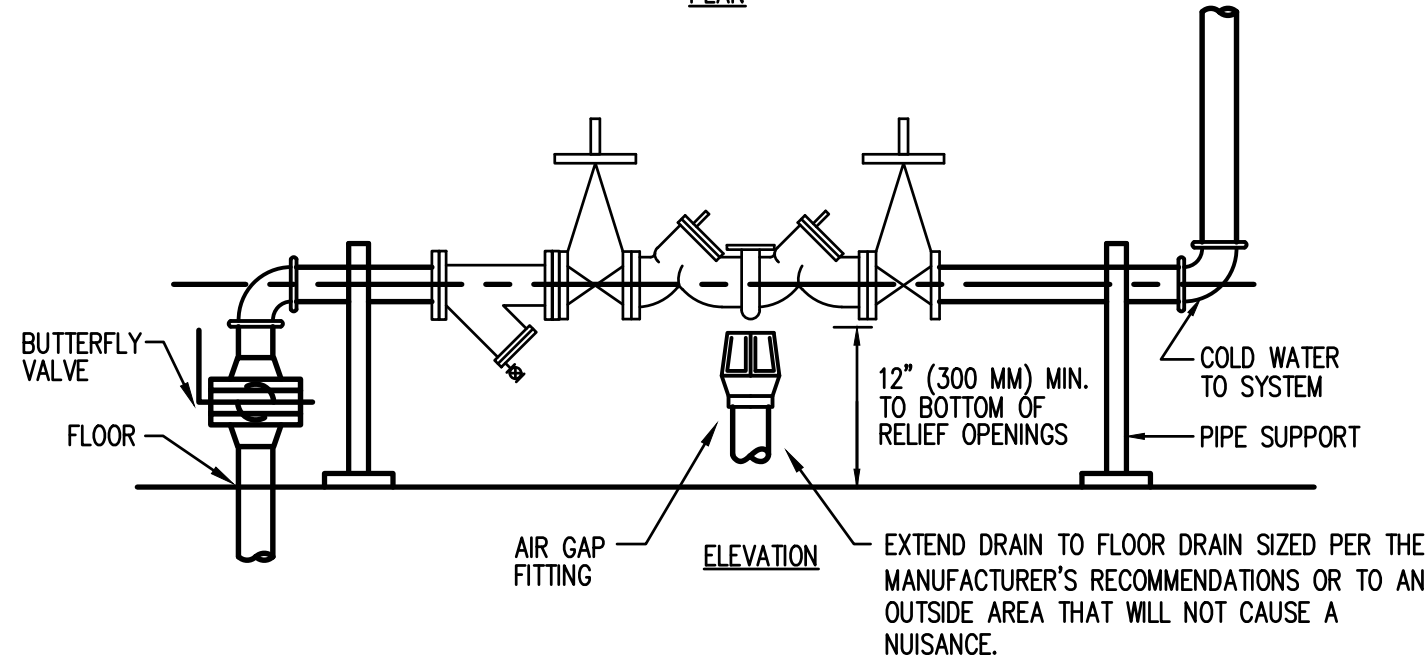
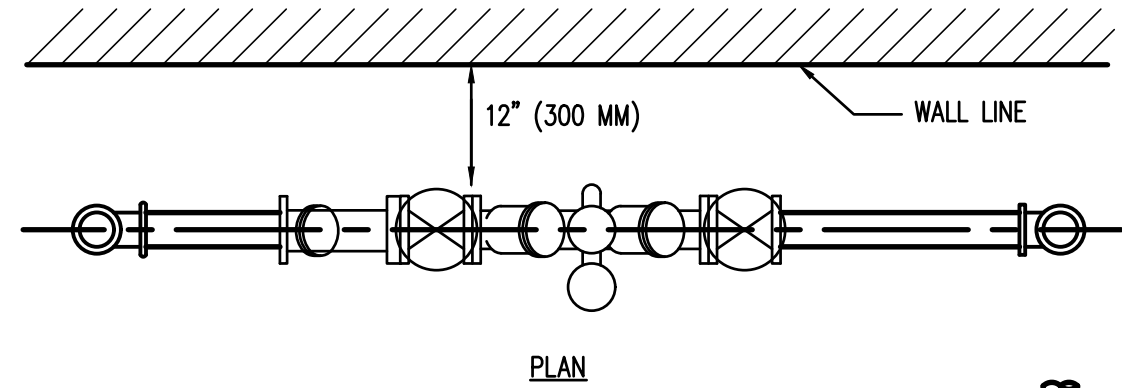


WALL CLEANOUTS
NO SCALE



STACK RISER CLAMP
NOT TO SCALE

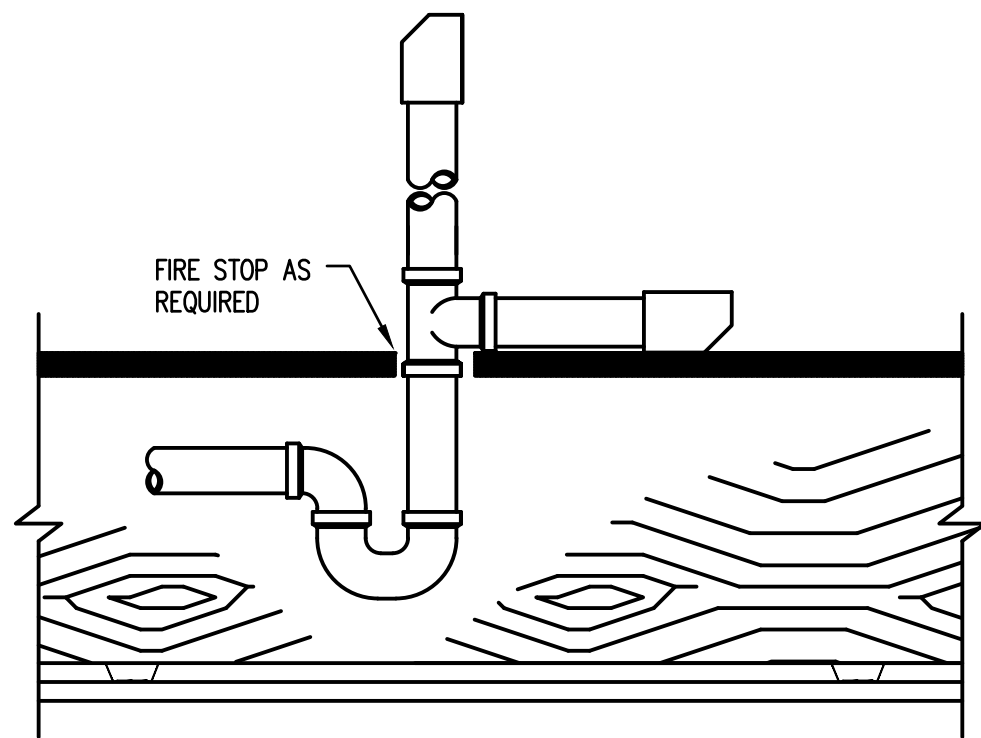
INSTALL AT THE BASE OF ALL
SANITARY WASTE AND VENT RISERS
WHEN ABOVE GRADE LEVEL.



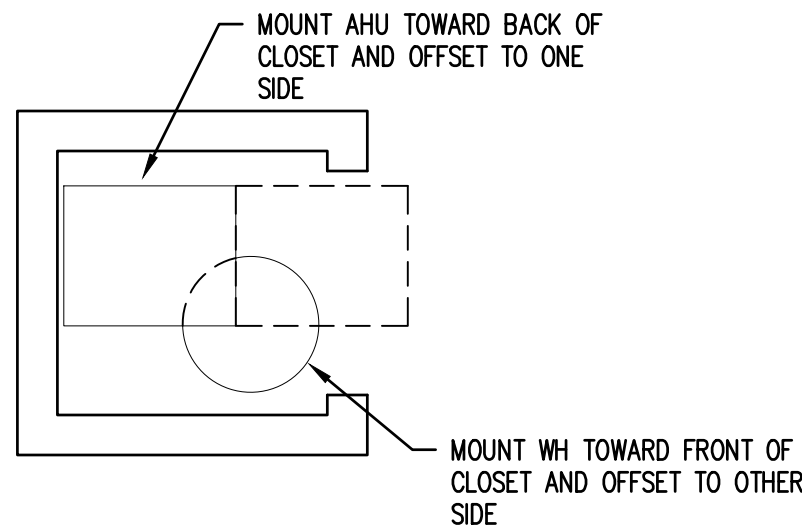
BACKFLOW PREVENTER PIPING DETAIL
NTS

NOTES:

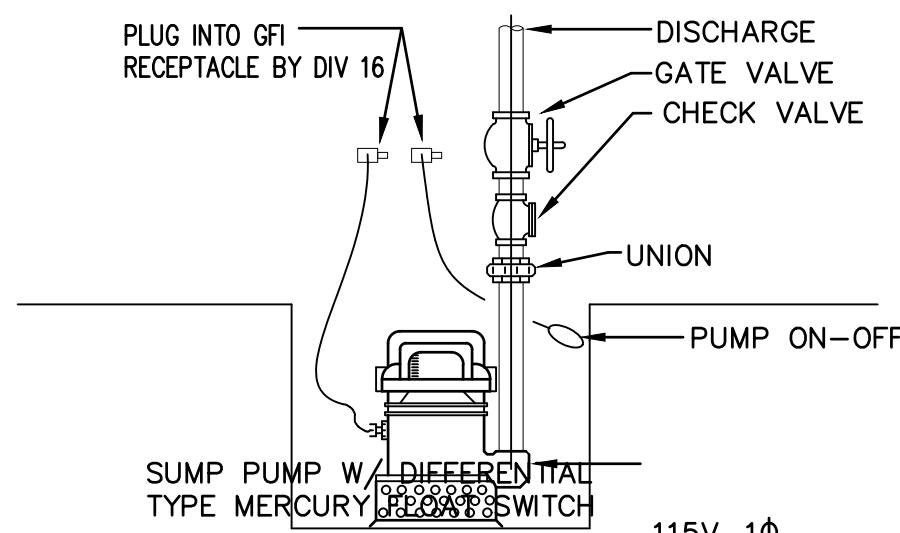
1. BACKFLOW TO BE MOUNTED IN HORIZONTAL POSITION. ALL MOUNTING CLEARANCES AND INSTALLATION TO BE PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
2. REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTER WITH GATE VALVES. PROVIDE FULL OPEN PORT SHUT OFF VALVE AND STRAINER UPSTREAM OF BACKFLOW.
3. BACKFLOW WILL NOT BE PLACED WITHIN A VAULT AS DEFINED BY THE CITY OF RICHMOND.
4. BACKFLOW TO BE MOUNTED AT A HEIGHT SUCH THAT NO LADDER WILL BE NEEDED TO SERVICE THE BACKFLOW.



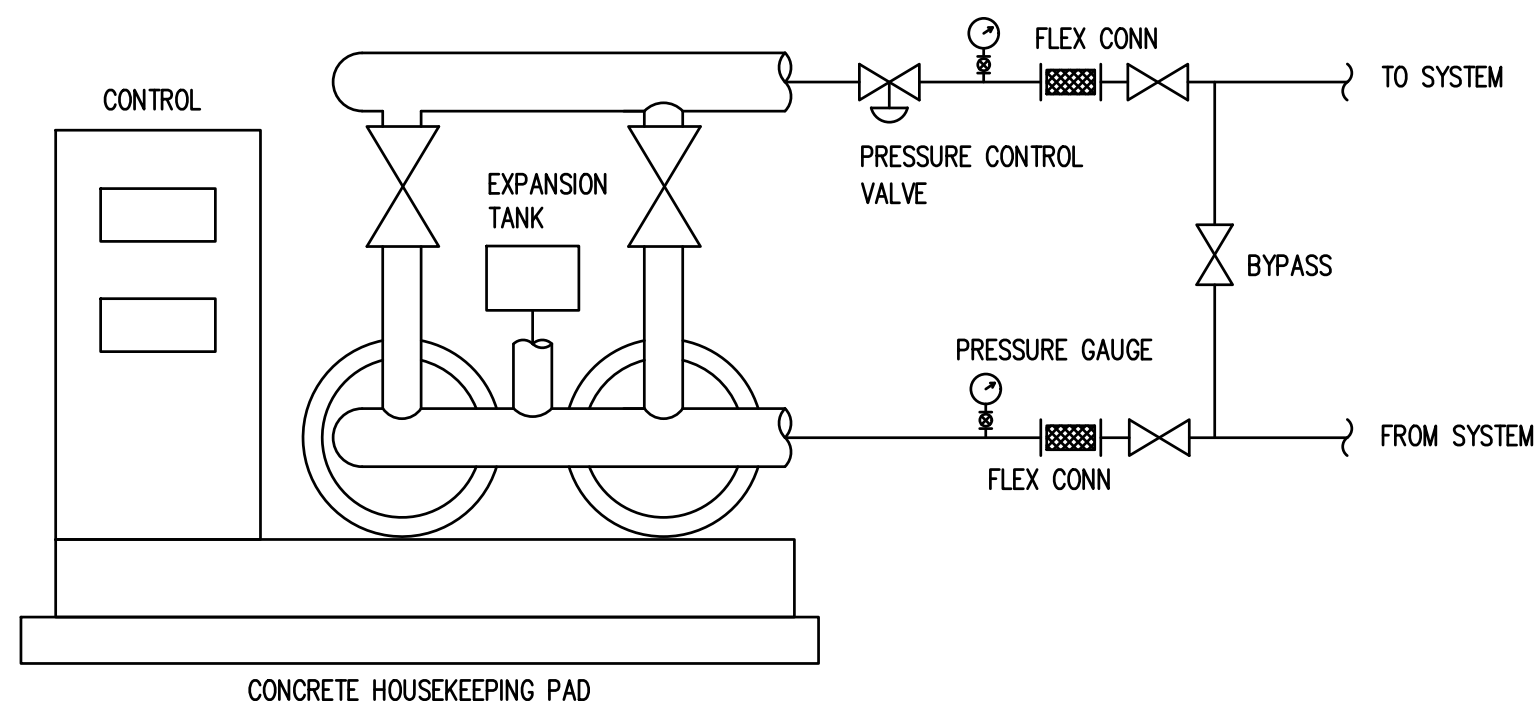
ABOVE FLOOR ROUGH IN DETAIL TUB/SHOWER
NO SCALE



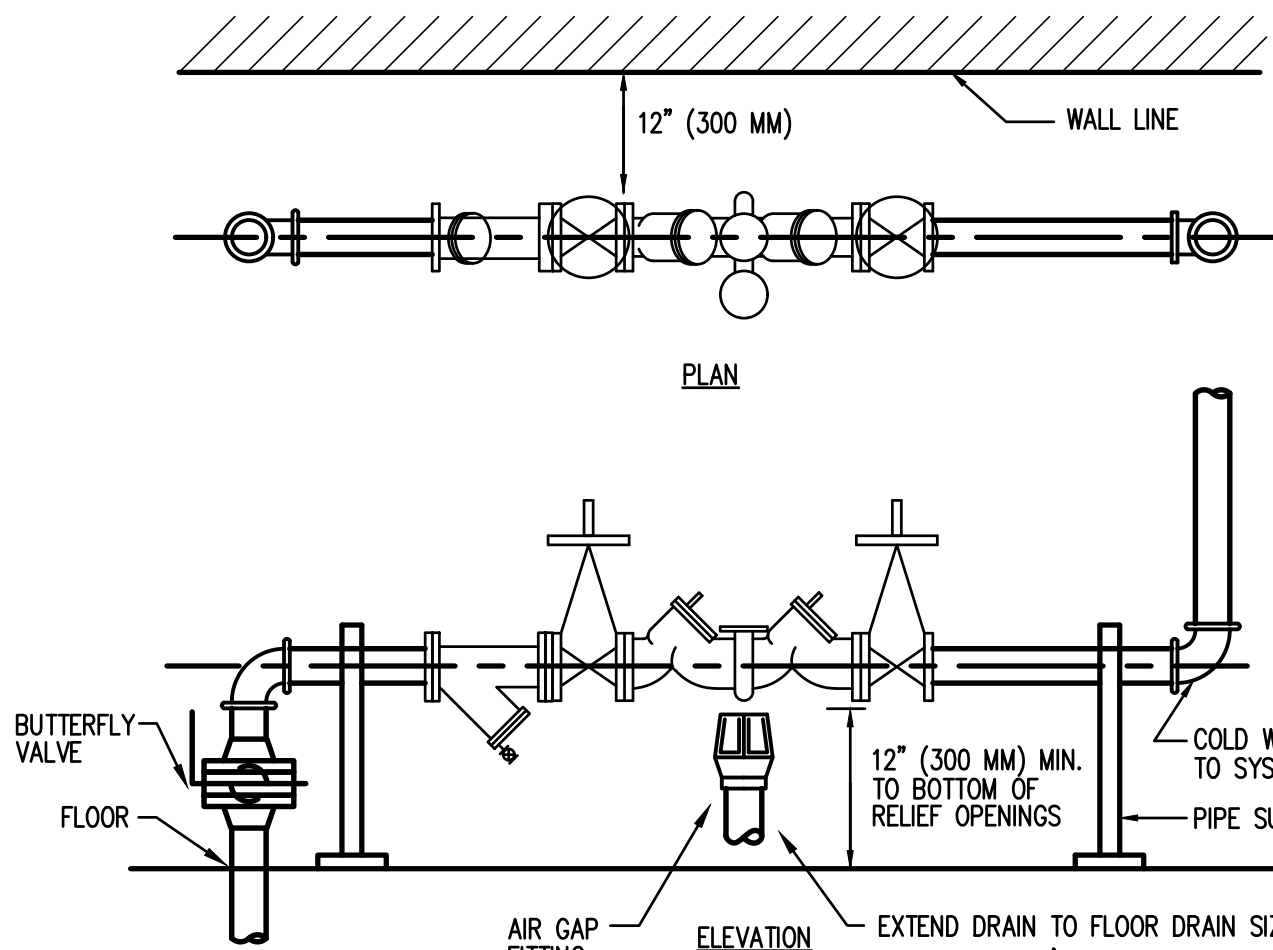
INDOOR AHU MOUNTED ABOVE WATER HEATER
NO SCALE



SUMP PUMP DETAIL
NOT TO SCALE



DUPLEX BOOSTER PUMP SYSTEM (BP-1)
NOT TO SCALE



BACKFLOW PREVENTER PIPING DETAIL
NTS

NOTES:

1. BACKFLOW TO BE MOUNTED IN HORIZONTAL POSITION. ALL MOUNTING CLEARANCES AND INSTALLATION TO BE PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
2. REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTER WITH GATE VALVES. PROVIDE FULL OPEN PORT SHUT OFF VALVE AND STRAINER UPSTREAM OF BACKFLOW.
3. BACKFLOW WILL NOT BE PLACED WITHIN A VAULT AS DEFINED BY THE CITY OF RICHMOND.
4. BACKFLOW TO BE MOUNTED AT A HEIGHT SUCH THAT NO LADDER WILL BE NEEDED TO SERVICE THE BACKFLOW.



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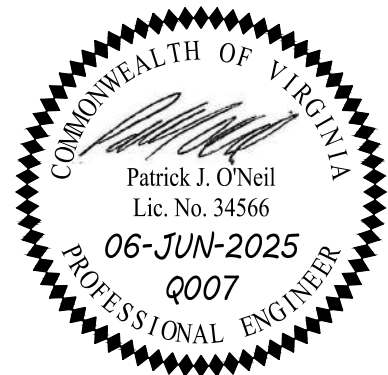
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DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING SCHEDULES
AND DETAILS

SHEET:

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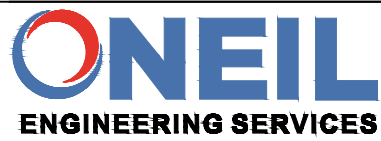


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SCALE:	NONE
DRAWN BY:	JCS
APPROVED BY:	PJO
PLUMBING FIRESTOP DETAILS	

SHEET:

P.003

VENABLE ST



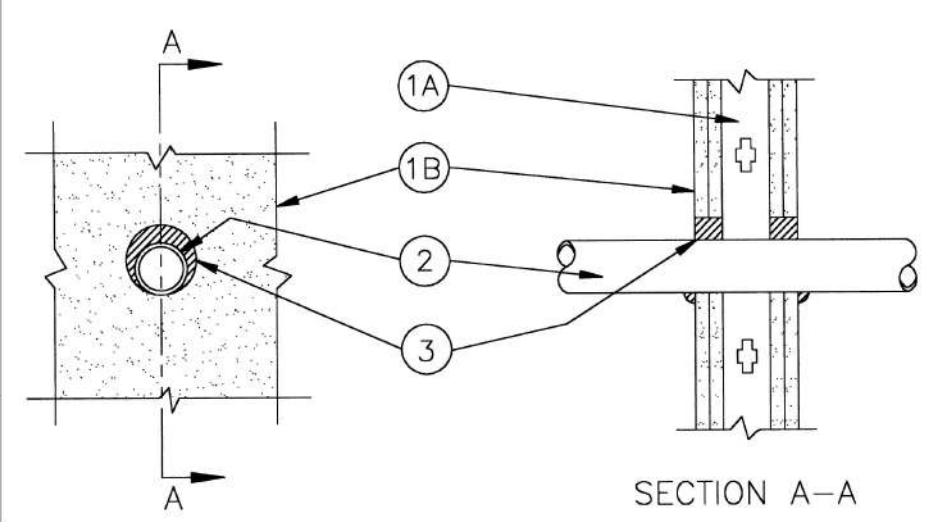
F Ratings – 1, 2, 3 and 4 Hr (See Item 1)
T Ratings – 1, 2, 3 and 4 Hr (See Item 1)

W-L-2126

ANSI/UL1479 (ASTM E814)

F Ratings — 1, 2, 3 and 4 Hr (See Item 1)

T Ratings — 1, 2, 3 and 4 Hr (See Item 1)



SECTION A-A

1. **Wall Assembly** – The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3-5/8 in. wide and spaced max 24 in. OC.

B. **Gypsum Board*** – The gypsum wallboard type, thickness, number of layers, fasteners and sheet orientation shall be as specified in the individual U300 or U400 Series Designs in the UL Fire Resistance Directory. Max diam of opening is 3-1/8 in.

The hourly F and T Ratings of the firestop system is equal to the hourly fire rating of the assembly in which it is installed.



09/16 (1)



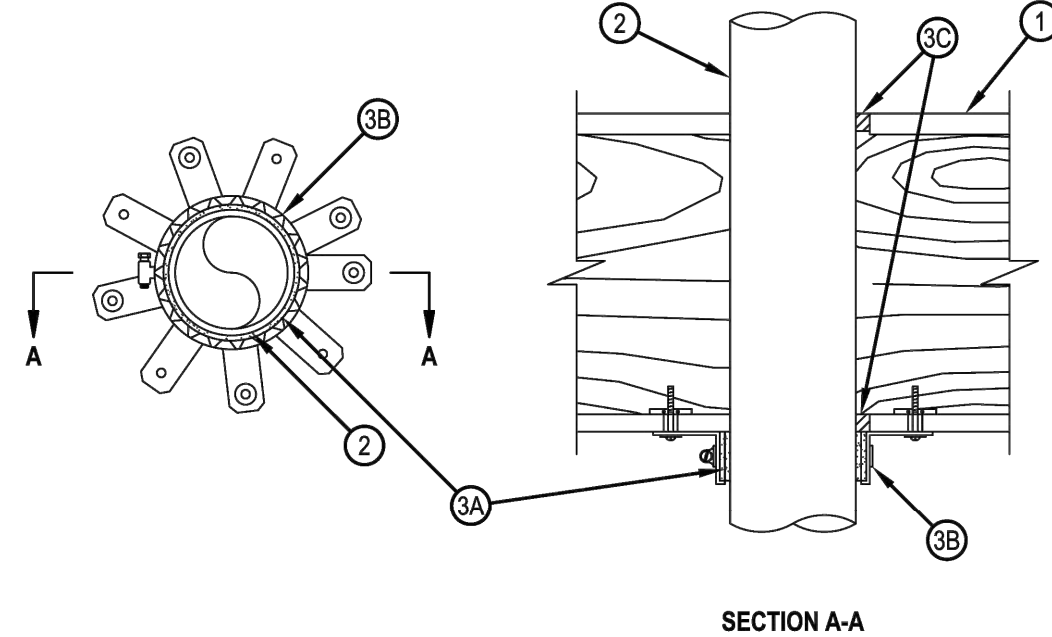
F Rating – 1 Hr
T Rating – 3/4 and 1 Hr (See Item 3)

FC 2232

System No. F-C-2232

F Rating – 1 Hr

T Rating – 3/4 and 1 Hr (See Item 3)



SECTION A-A

1. **Floor-Ceiling Assembly** – The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:

A. **Flooring System** – Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 5 in. (127 mm).

B. **Wood Joist*** – Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.

C. **Gypsum Board*** – Nom 5/8 in. (16 mm) thick, 4 ft (122 cm) wide as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 5 in. (127 mm).

2. **Through Penetrants** – One nonmetallic pipe or conduit to be installed concentrically or eccentrically within the firestop system. Annular space between pipe or conduit and edge of opening to be min 0 in. (point contact) and max 1/2 in. (13 mm). Pipe or conduit to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

A. **Polyvinyl Chloride (PVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

C. **Acrylonitrile Butadiene Styrene (ABS) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.



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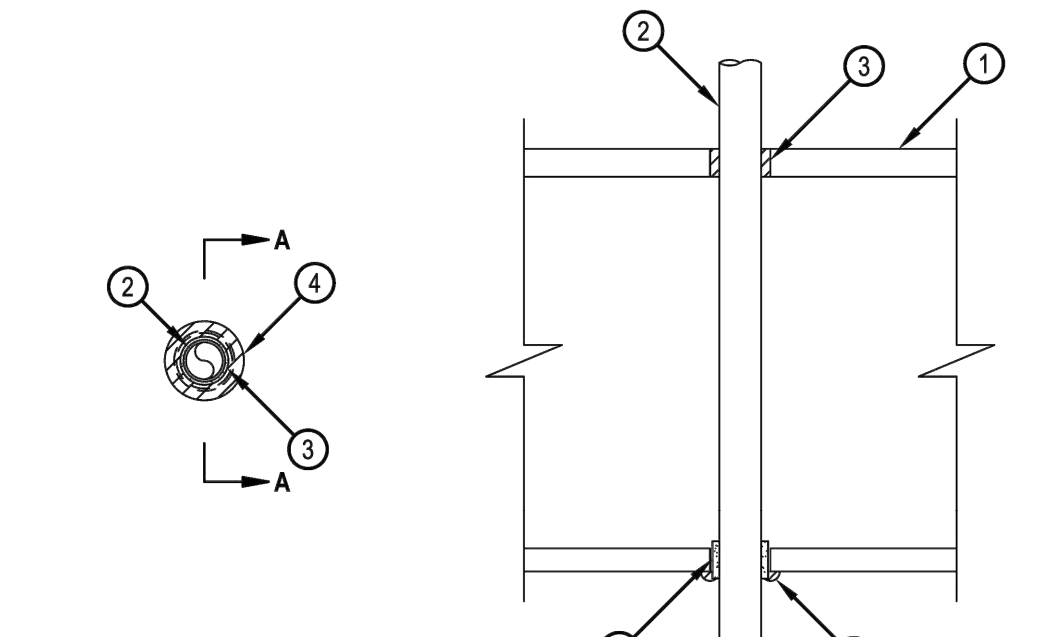
F Rating – 1 Hr
T Rating – 1/4 Hr

FC 2230

System No. F-C-2230

F Rating – 1 Hr

T Rating – 1/4 Hr



SECTION A-A

1. **Floor-Ceiling Assembly** – The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:

A. **Flooring System** – Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 1-5/8 in. (41 mm).

B. **Wood Joist*** – Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.

C. **Gypsum Board*** – Nom 5/8 in. (16 mm) thick, 4 ft (122 cm) wide as specified in the individual Floor-Ceiling Design.



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Page: 1 of 2



F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating at 400 F - 4 CFM/Sq Ft

W-L-2474

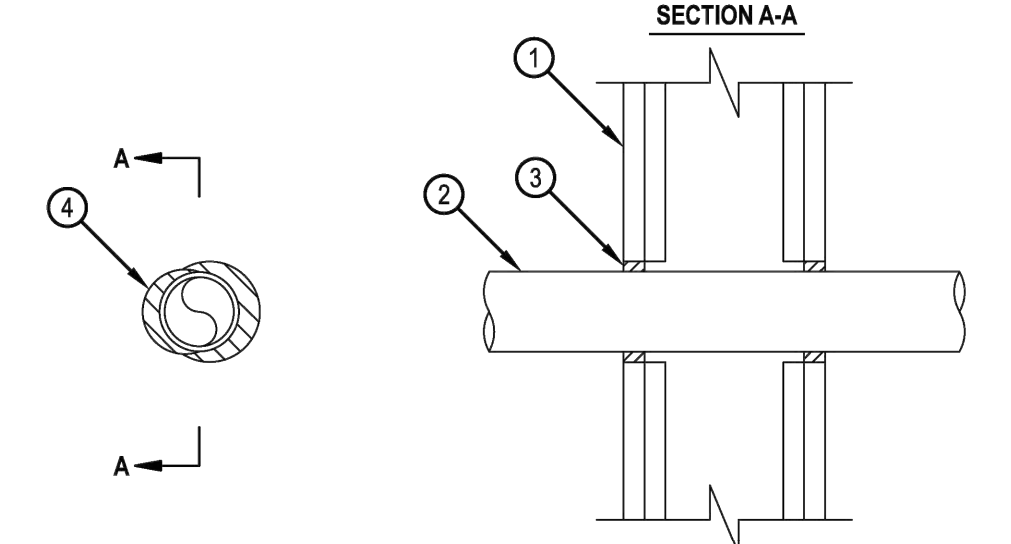
System No. W-L-2474

F Ratings - 1 and 2 Hr (See Item 1)

T Rating - 0 Hr

L Rating At Ambient - Less Than 1 CFM/Sq Ft

L Rating at 400 F - 4 CFM/Sq Ft



SECTION A-A

1. **Wall Assembly** – The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, U400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the construction features noted below:

A. **Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

B. **Gypsum Board*** – Nom 5/8 in. (16 mm) thick gypsum board, as specified in the individual Wall and Partition Design. Diam of opening shall be 1 in. (25 mm) larger than the nom pipe diam.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrants** – One nonmetallic pipe to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe and the periphery of the opening shall be min 0 in. (point contact) to a max 1/2 in. (13 mm). The following types and sizes of nonmetallic pipes may be used:

A. **Polyvinyl Chloride (PVC) Pipe** – Nom 2 in. (51 mm) diam (or smaller) cellular or solid core Schedule 40 (or heavier) pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 2 in. (51 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.

C. **Crosslinked Polyethylene (PEX) Tubing** – Nom 2 in. (51 mm) diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems.

D. **Rigid Nonmetallic Conduit (RNC)*** – Nom 2 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).

3. **Fill, Void or Cavity Material* - Sealant** – Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. At point contact location, a min 5/8 in. (16 mm) diam bead of fill material shall be applied to the wall/penetrant interface on both surfaces of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – FS-ONE Sealant or FS-ONE-MAX Intumescent Sealant

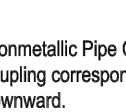
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

+ Bearing the UL Listing Mark



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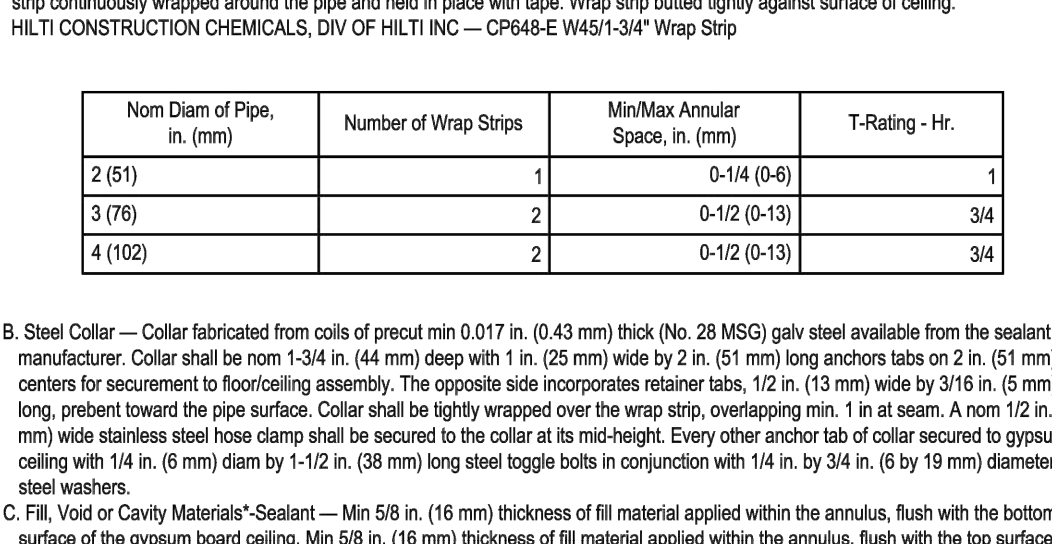
F Rating – 1 Hr
T Rating – 3/4 and 1 Hr (See Item 3)

FC 2232

System No. F-C-2232

F Rating – 1 Hr

T Rating – 3/4 and 1 Hr (See Item 3)



SECTION A-A

3. **Nonmetallic Pipe Coupling** – (Optional) Nom 4 in. (102 mm) diam (or smaller) Schedule 40 ABS or SDR13.5 CPVC coupling corresponding to pipe type installed such that the top of the coupling is flush with the bottom surface of the ceiling and extending downward.

4. **Firestop System** – The firestop system shall consist of the following:

A. **Fill, Void or Cavity Material*** – Wrap Strip – Nom 3/16 in. (5 mm) thick by 1-3/4 in. (44 mm) wide intumescent wrap strip. Layers of wrap strip continuously wrapped around the pipe and held in place with tape. Wrap strip butted lightly against surface of ceiling.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – CP648-E W451-3/4" Wrap Strip

Nom Diam of Pipe, in. (mm)	Number of Wrap Strips	Min/Max Annular Space, in. (mm)	T-Rating - Hr.
2 (51)	1	0-1/4 (0-6)	1
3 (76)	2	0-1/2 (0-13)	3/4
4 (102)	2	0-1/2 (0-13)	3/4

B. **Steel Collar** – Collar fabricated from coils of precut min 0.017 in. (0.43 mm) thick (No. 28 MSG) galv steel available from the sealant manufacturer. Collar shall be nom 1-3/4 in. (44 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchors tabs on 2 in. (51 mm) centers for securement to floor/ceiling assembly. The opposite side incorporates retainer tabs, 1/2 in. (13 mm) wide by 3/16 in. (5 mm) long, extend toward the pipe surface. Collar shall be lightly wrapped over the wrap strip, overlapping min. 1 in. in seam. A nom 1/2 in. (13 mm) wide stainless steel hose clamp shall be secured to the collar at its mid-height. Every other anchor tab of collar secured to gypsum ceiling with 1/4 in. (6 mm) diam by 1-1/2 in. (38 mm) long steel toggle bolts with 3/4 in. by 3/4 in. (6 by 19 mm) diameter steel washers.

C. **Fill, Void or Cavity Material* - Sealant** – Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the bottom surface of the gypsum board ceiling. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor. When ABS pipe is installed at point contact, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe/floor interface on top surface of floor.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – FS-ONE Sealant or FS-ONE-MAX SEALANT

4A. **Firestop Device*** – (Optional, Not shown) As an option to item 4, the firestop system shall consist of the following:

A. **Firestop Device*** – Galv steel collar lined with an intumescent material sized to fit the specific diam of pipe shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to the gypsum board ceiling with 1/4 in. diam by 1-1/2 in. (38 mm) long steel toggle bolts with 3/4 in. (19 mm) diam steel washers through hanger tabs provided.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – CP 643 50/1.5", CP 643 63/2", CP 643 90/3" or CP 643 110/4" Firestop Collar.

B. **Fill, Void or Cavity Material* - Sealant** – Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the bottom surface of the gypsum board ceiling. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor. When ABS pipe is installed at point contact, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe/floor interface, flush with top surface of floor.

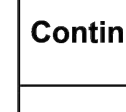
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – FS-ONE Sealant or FS-ONE-MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



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Page: 2 of 2



F Ratings – 1, 2, 3 and 4 Hr (See Item 1)
T Ratings – 1, 2, 3 and 4 Hr (See Item 1)

W-L-2126

Continued...

2. **Through Penetrants** – One nonmetallic pipe or tubing installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or tubing may be used:

A. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 2 in. diam (or smaller) SDR 11 CPVC pipe for use in closed (process or supply) piping systems. The annular space between pipe and periphery of opening shall be min 1/4 in. to max 1/2 in.

B. **Crosslinked Polyethylene (PEX) Tubing** – Nom 1-1/2 in. diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems. The annular space between tubing and periphery of opening shall be min 1/4 in. to max 3/8 in.

C. **Polyvinyl Chloride (PVC) Pipe** – Nom 2 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) piping systems. The annular space between pipe and periphery of opening shall be min 1/4 in. to max 1/2 in.

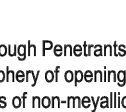
3. **Fill, Void or Cavity Material* - Sealant** – Min 5/8 in. thickness of fill material for a 1 hr rated wall assembly, min 1 in. thickness of fill material for 2, 3 and 4 hr rated assemblies applied within the annulus, flush with both surfaces of wall.

Passive Fire Protection Partners – 360DEX, 4800DW

*Bearing the UL Classification Marking



09/16 (2)



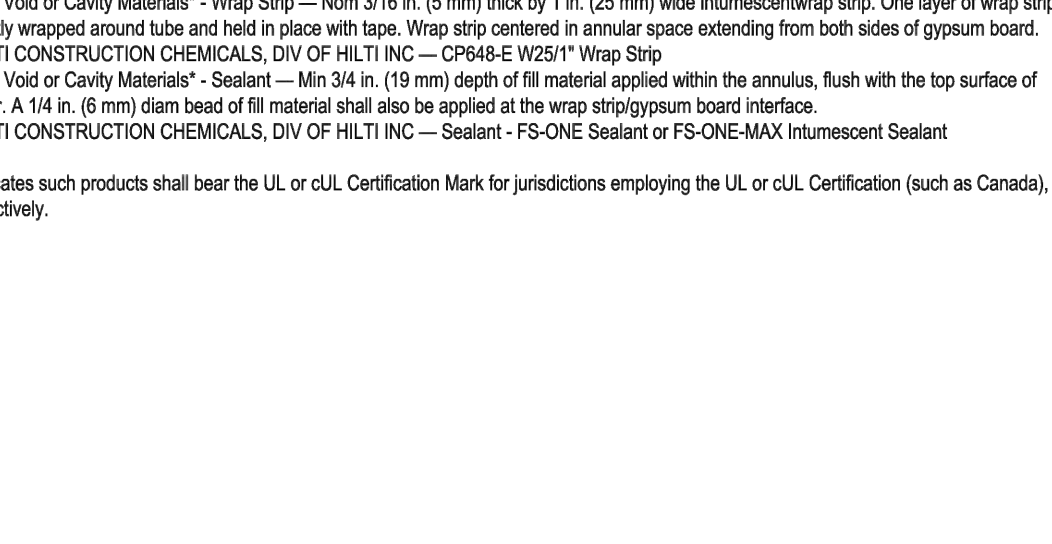
F Rating – 1 Hr
T Rating – 1/4 Hr

FC 2230

System No. F-C-2230

F Rating – 1 Hr

T Rating – 1/4 Hr



SECTION A-A

2. **Through Penetrants** – One non-metallic tube to be installed concentrically within the firestop system. Annular space between tube and periphery of opening shall be 1/4 in. (6 mm). Tube to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of non-metallic tubes or pipes may be used:

Crosslinked Polyethylene (PEX) Tubing – Nom 1 in. (25 mm) diam (or smaller) SDR9 PEX tubing for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

3. **Fill, Void or Cavity Material*** – Wrap Strip – Nom 3/16 in. (5 mm) thick by 1 in. (25 mm) wide intumescentwrap strip. One layer of wrap strip tightly wrapped around tube and held in place with tape. Wrap strip centered in annular space extending from both sides of gypsum board.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – CP648-E W251" Wrap Strip

4. **Fill, Void or Cavity Material* - Sealant** – Min 3/4 in. (19 mm) depth of fill material applied within the annulus, flush with the top surface of floor. A 1/4 in. (6 mm) diam bead of fill material shall also be applied at the wrap strip/gypsum board interface.

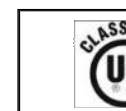
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – Sealant - FS-ONE Sealant or FS-ONE-MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



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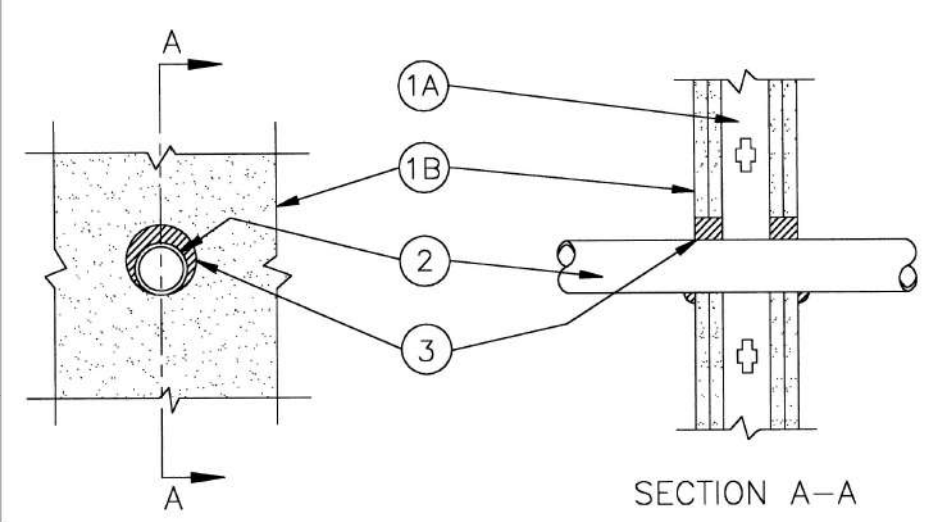
F Ratings – 1, 2, 3 and 4 Hr (See Item 1)
T Ratings – 1, 2, 3 and 4 Hr (See Item 1)

W-L-2126

ANSI/UL1479 (ASTM E814)

F Ratings — 1, 2, 3 and 4 Hr (See Item 1)

T Ratings — 1, 2, 3 and 4 Hr (See Item 1)



SECTION A-A

1. **Wall Assembly** – The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

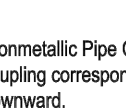
A. **Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3-5/8 in. wide and spaced max 24 in. OC.

B. **Gypsum Board*** – The gypsum wallboard type, thickness, number of layers, fasteners and sheet orientation shall be as specified in the individual U300 or U400 Series Designs in the UL Fire Resistance Directory. Max diam of opening is 3-1/8 in.

The hourly F and T Ratings of the firestop system is equal to the hourly fire rating of the assembly in which it is installed.



09/16 (1)



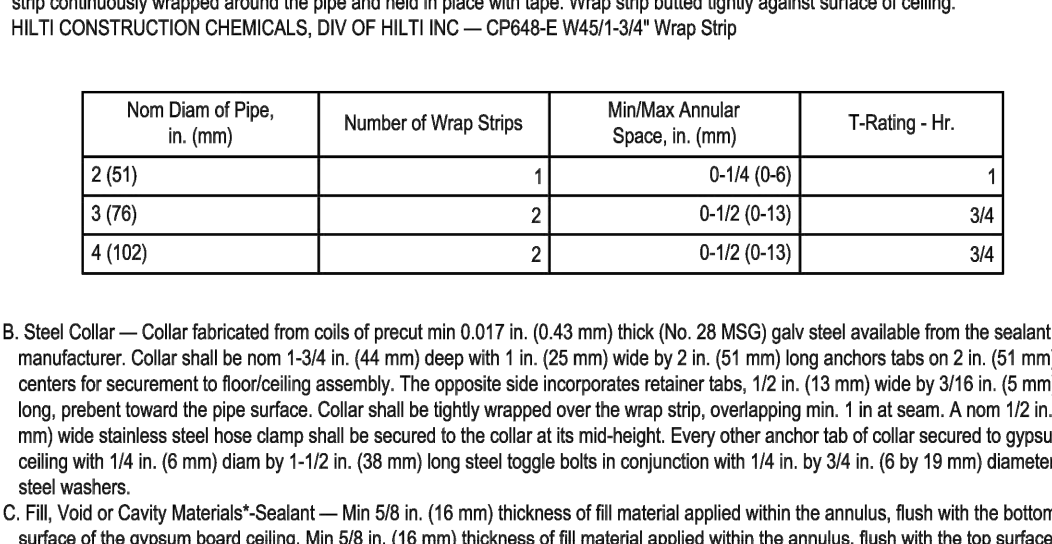
F Rating – 1 Hr
T Rating – 3/4 and 1 Hr (See Item 3)

FC 2232

System No. F-C-2232

F Rating – 1 Hr

T Rating – 3/4 and 1 Hr (See Item 3)



SECTION A-A

3. **Nonmetallic Pipe Coupling** – (Optional) Nom 4 in. (102 mm) diam (or smaller) Schedule 40 ABS or SDR13.5 CPVC coupling corresponding to pipe type installed such that the top of the coupling is flush with the bottom surface of the ceiling and extending downward.

4. **Firestop System** – The firestop system shall consist of the following:

A. **Fill, Void or Cavity Material*** – Wrap Strip – Nom 3/16 in. (5 mm) thick by 1-3/4 in. (44 mm) wide intumescent wrap strip. Layers of wrap strip continuously wrapped around the pipe and held in place with tape. Wrap strip butted lightly against surface of ceiling.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – CP648-E W451-3/4" Wrap Strip

Nom Diam of Pipe, in. (mm)	Number of Wrap Strips	Min/Max Annular Space, in. (mm)	T-Rating - Hr.
2 (51)	1	0-1/4 (0-6)	1
3 (76)	2	0-1/2 (0-13)	3/4
4 (102)	2	0-1/2 (0-13)	3/4

B. **Steel Collar** – Collar fabricated from coils of precut min 0.017 in. (0.43 mm) thick (No. 28 MSG) galv steel available from the sealant manufacturer. Collar shall be nom 1-3/4 in. (44 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchors tabs on 2 in. (51 mm) centers for securement to floor/ceiling assembly. The opposite side incorporates retainer tabs, 1/2 in. (13 mm) wide by 3/16 in. (5 mm) long, extend toward the pipe surface. Collar shall be lightly wrapped over the wrap strip, overlapping min. 1 in. in seam. A nom 1/2 in. (13 mm) wide stainless steel hose clamp shall be secured to the collar at its mid-height. Every other anchor tab of collar secured to gypsum ceiling with 1/4 in. (6 mm) diam by 1-1/2 in. (38 mm) long steel toggle bolts with 3/4 in. by 3/4 in. (6 by 19 mm) diameter steel washers.

C. **Fill, Void or Cavity Material* - Sealant** – Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the bottom surface of the gypsum board ceiling. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor. When ABS pipe is installed at point contact, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe/floor interface on top surface of floor.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – FS-ONE Sealant or FS-ONE-MAX SEALANT

4A. **Firestop Device*** – (Optional, Not shown) As an option to item 4, the firestop system shall consist of the following:

A. **Firestop Device*** – Galv steel collar lined with an intumescent material sized to fit the specific diam of pipe shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to the gypsum board ceiling with 1/4 in. diam by 1-1/2 in. (38 mm) long steel toggle bolts with 3/4 in. (19 mm) diam steel washers through hanger tabs provided.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – CP 643 50/1.5", CP 643 63/2", CP 643 90/3" or CP 643 110/4" Firestop Collar.

B. **Fill, Void or Cavity Material* - Sealant** – Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the bottom surface of the gypsum board ceiling. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor. When ABS pipe is installed at point contact, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe/floor interface, flush with top surface of floor.

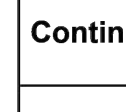
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – FS-ONE Sealant or FS-ONE-MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



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Page: 2 of 2



F Ratings – 1, 2, 3 and 4 Hr (See Item 1)
T Ratings – 1, 2, 3 and 4 Hr (See Item 1)

W-L-2126

Continued...

2. **Through Penetrants** – One nonmetallic pipe or tubing installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or tubing may be used:

A. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 2 in. diam (or smaller) SDR 11 CPVC pipe for use in closed (process or supply) piping systems. The annular space between pipe and periphery of opening shall be min 1/4 in. to max 1/2 in.

B. **Crosslinked Polyethylene (PEX) Tubing** – Nom 1-1/2 in. diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems. The annular space between tubing and periphery of opening shall be min 1/4 in. to max 3/8 in.

C. **Polyvinyl Chloride (PVC) Pipe** – Nom 2 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) piping systems. The annular space between pipe and periphery of opening shall be min 1/4 in. to max 1/2 in.

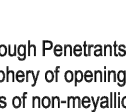
3. **Fill, Void or Cavity Material* - Sealant** – Min 5/8 in. thickness of fill material for a 1 hr rated wall assembly, min 1 in. thickness of fill material for 2, 3 and 4 hr rated assemblies applied within the annulus, flush with both surfaces of wall.

Passive Fire Protection Partners – 360DEX, 4800DW

*Bearing the UL Classification Marking



09/16 (2)



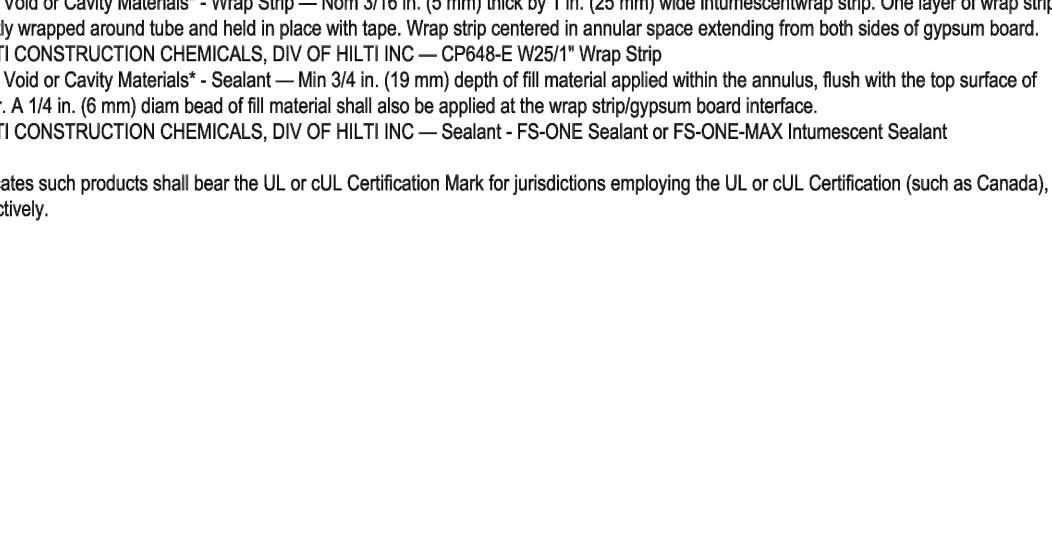
F Rating – 1 Hr
T Rating – 1/4 Hr

FC 2230

System No. F-C-2230

F Rating – 1 Hr

T Rating – 1/4 Hr



SECTION A-A

2. **Through Penetrants** – One non-metallic tube to be installed concentrically within the firestop system. Annular space between tube and periphery of opening shall be 1/4 in. (6 mm). Tube to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of non-metallic tubes or pipes may be used:

Crosslinked Polyethylene (PEX) Tubing – Nom 1 in. (25 mm) diam (or smaller) SDR9 PEX tubing for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

3. **Fill, Void or Cavity Material*** – Wrap Strip – Nom 3/16 in. (5 mm) thick by 1 in. (25 mm) wide intumescentwrap strip. One layer of wrap strip tightly wrapped around tube and held in place with tape. Wrap strip centered in annular space extending from both sides of gypsum board.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – CP648-E W251" Wrap Strip

4. **Fill, Void or Cavity Material* - Sealant** – Min 3/4 in. (19 mm) depth of fill material applied within the annulus, flush with the top surface of floor. A 1/4 in. (6 mm) diam bead of fill material shall also be applied at the wrap strip/gypsum board interface.

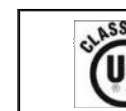
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. – Sealant - FS-ONE Sealant or FS-ONE-MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



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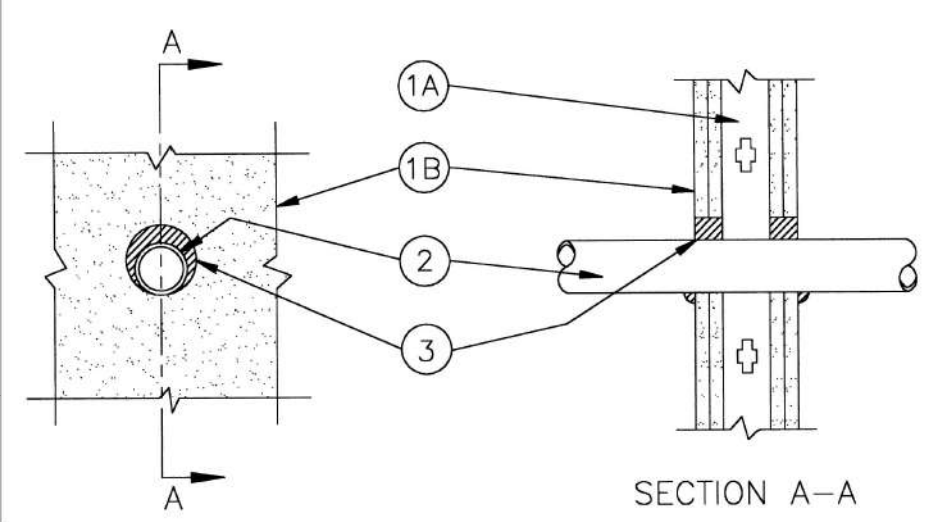
F Ratings – 1, 2, 3 and 4 Hr (See Item 1)
T Ratings – 1, 2, 3 and 4 Hr (See Item 1)

W-L-2126

ANSI/UL1479 (ASTM E814)

F Ratings — 1, 2, 3 and 4 Hr (See Item 1)

T Ratings — 1, 2, 3 and 4 Hr (See Item 1)



SECTION A-A

1. **Wall Assembly** – The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3-5/8 in. wide and spaced max 24 in. OC.

B. **Gypsum Board*** – The gypsum wallboard type, thickness, number of layers, fasteners and sheet orientation shall be as specified in the individual U300 or U400 Series Designs in the UL Fire Resistance Directory. Max diam of opening is 3-1/8 in.

The hourly F and T Ratings of the firestop system is equal to the hourly fire rating of the assembly in which it is installed.



09/16 (1)



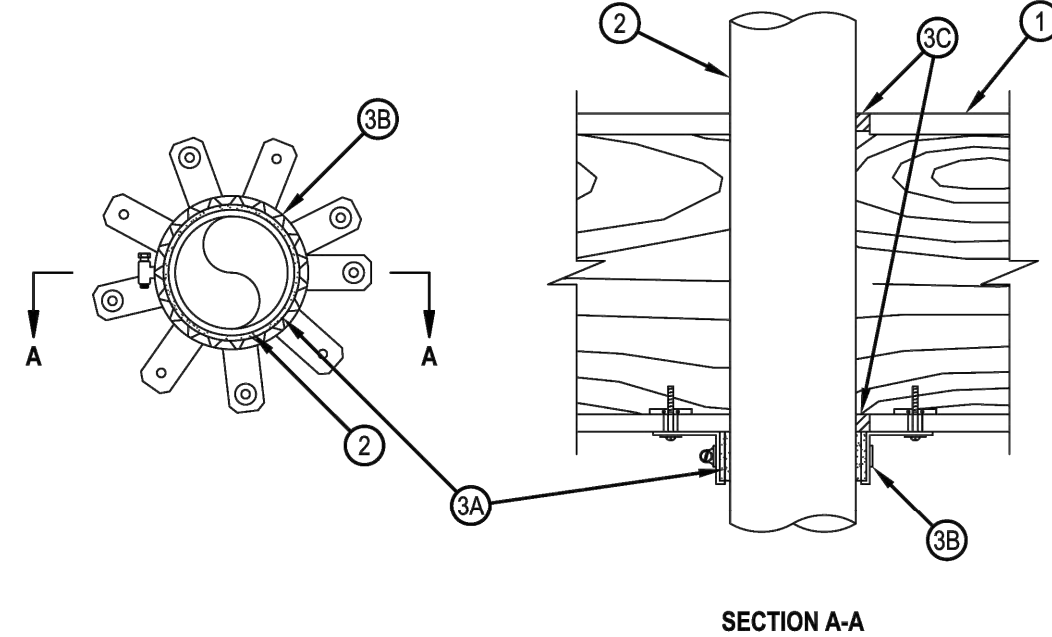
F Rating – 1 Hr
T Rating – 3/4 and 1 Hr (See Item 3)

FC 2232

System No. F-C-2232

F Rating – 1 Hr

T Rating – 3/4 and 1 Hr (See Item 3)



SECTION A-A

1. **Floor-Ceiling Assembly** – The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:

A. **Flooring System** – Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 5 in. (127 mm).

B. **Wood Joist*** – Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.

C. **Gypsum Board*** – Nom 5/8 in. (16 mm) thick, 4 ft (122 cm) wide as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 5 in. (127 mm).

2. **Through Penetrants** – One nonmetallic pipe or conduit to be installed concentrically or eccentrically within the firestop system. Annular space between pipe or conduit and edge of opening to be min 0 in. (point contact) and max 1/2 in. (13 mm). Pipe or conduit to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

A. **Polyvinyl Chloride (PVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) piping systems.

B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 4 in. (102 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

C. **Acrylonitrile Butadiene Styrene (ABS) Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.



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Page: 1 of 2



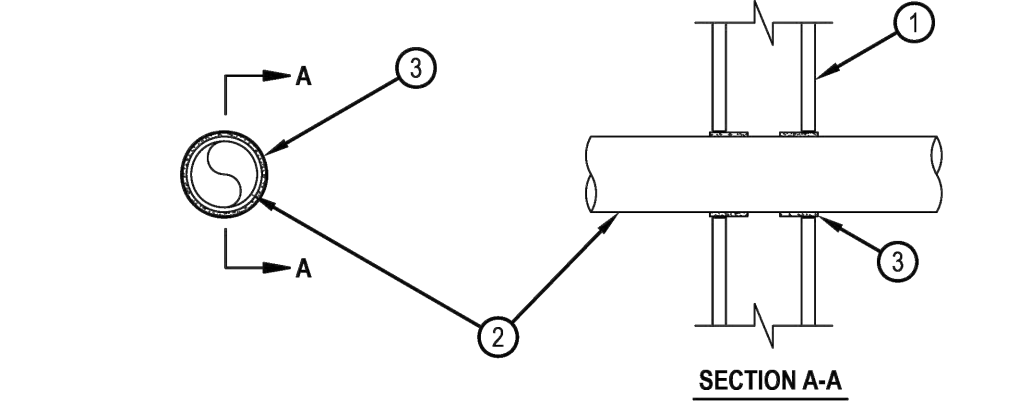
F Rating – 1 Hr
T Rating – 1 Hr

W-L-2284

System No. W-L-2284

F Rating – 1 Hr

T Rating – 1 Hr



SECTION A-A

1. **Wall Assembly** – The 1 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** – Wall framing shall consist of wood studs or steel channel studs. Wood studs to consist of 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3-1/2 in. wide and spaced max 24 in. OC.

B. **Gypsum Board*** – Min 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers and orientation shall be as specified in the individual U300 or U400 Wall and Partition Design. Max diam of opening is 4 in.

2. **Through Penetrants** – One nonmetallic pipe to be centered within the firestop system. An annular space of 3/16 to 1/4 in. is required within the firestop system. Pipe to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes may be used:

A. **Polyvinyl Chloride (PVC) Pipe** – Nom 3 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** – Nom 3 in. diam (or smaller)

Design Specification Sheet

FR 12 Fire Resistant Ice Box

IPS CORPORATION

202 Industrial Park Lane
Collierville, TN 38017
(901) 853-5001

202 Industrial Park Lane
Collierville, TN 38017
(901) 853-5001

ASTM-E814 - 1 Hour (F), 1 Hour (T)
CAN/ULC - S115 1 Hour (F/TH), 1 Hour (FT/FTH)
ASTM-E814 - 2 Hour (F), 1.25 Hour (T)
CAN/ULC- S115 2 Hour (F/TH), 1.25 Hour (FT/FTH)
Firestop Device, Design No. IPS/PV 120-01

Models 82408 to 82444, 82462 to 82470

1. Wall Construction

- Wood Or Steel Stud
- 1 Hour firewall construction consisting of each stud face being finished with 5/8 gypsum
- 2 Hour firewall construction consisting of each stud face being finished with 2 layers of 5/8 gypsum

2. Box Mounting

- Box should be securely fastened to stud with screws or nails
- Box units cannot be installed back to back within the same wall cavity

3. Piping Options

- Supply tubing may be metallic or plastic

4. Valve Options

- Quarter Turn Valves with or without hammer arresters

5. Intumescent Pad

- The IPS FR12 Series Ice Box is manufactured from special frame resistant resin with an intumescent pad factory installed on the back of the box (do not remove).
- Gaps between the box and the gypsum may be filled up to ½" with dry wall plaster.

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ASTM-E814 - 1 Hour (F), 1 Hour (T)
CAN/ULC - S115 1 Hour (F/TH), 1 Hour (FT/FTH)
ASTM-E814 - 2 Hour (F), 1.25 Hour (T)
CAN/ULC- S115 2 Hour (F/TH), 1.25 Hour (FT/FTH)
Firestop Device, Design No. IPS/PV 120-01

Models 82353 to 82399

1. Wall Construction

- Wood Or Steel Stud
- 1 Hour firewall construction consisting of each stud face being finished with 5/8 gypsum
- 2 Hour firewall construction consisting of each stud face being finished with 2 layers of 5/8 gypsum

2. Box Mounting

- Box should be securely fastened to stud with screws or nails
- Box units cannot be installed back to back within the same wall cavity

3. Piping Options

- Drains may be nominal 2" or larger PVC, ABS or metallic pipe
- Supply tubing may be either metallic or plastic
- All plumbing within the wall must be secured

4. Valve Options

- Single Lever with or without hammer arresters
- Quarter Turn Valves with or without hammer arresters

5. Intumescent Pad

- The IPS FR Series washer box is manufactured from special flame resistant resin with an intumescent pad factory installed on the back of the box (do not remove).
- Gaps between the box and the gypsum may be filled up to ½" with dry wall plaster.

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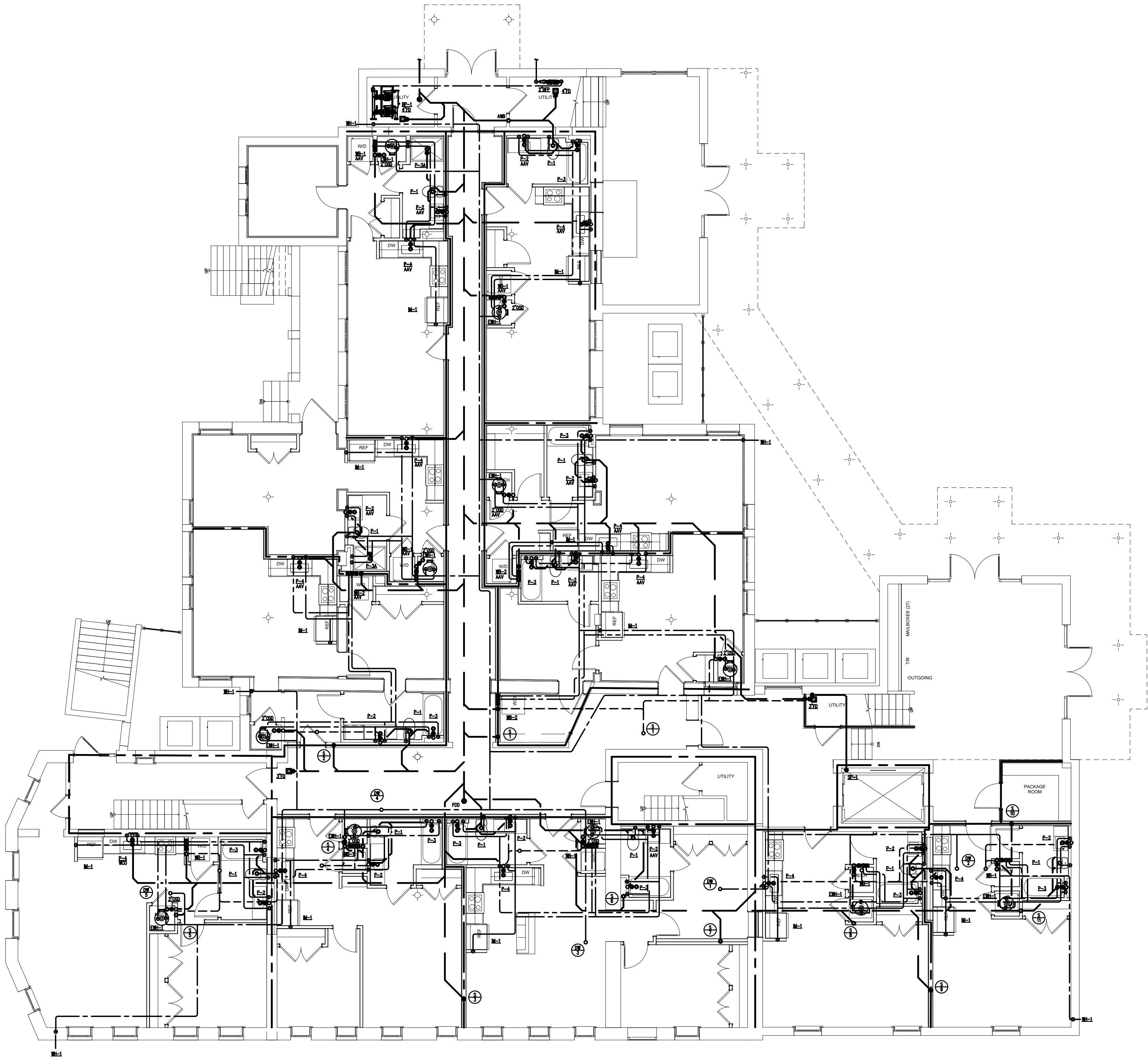
PROJECT #:	Q007
DATE:	06-JUN-2025
SCALE:	NONE
DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING FIRESTOP
DETAILS

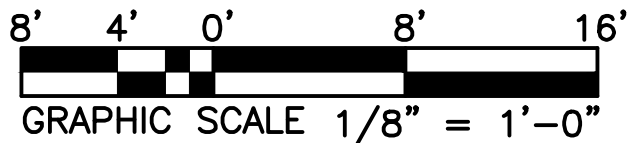
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P.004

VENABLE ST



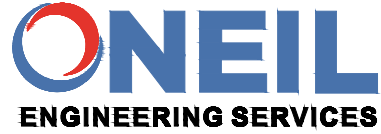
1 PLUMBING OVERALL 1ST FLOOR PLAN
P.201 1/8" = 1'-0"



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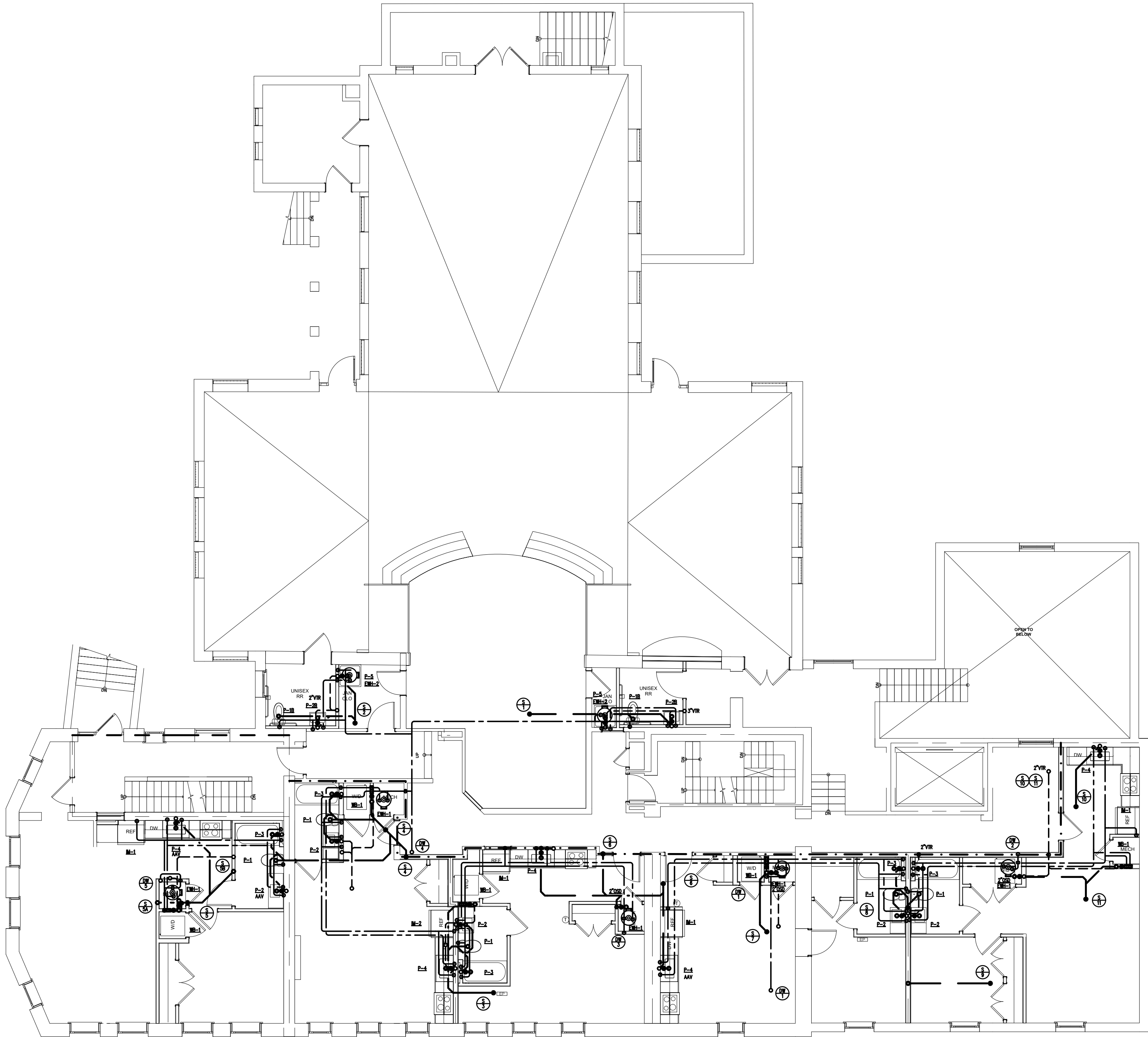
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DATE:	06-JUN-2025
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DRAWN BY:	JCS
APPROVED BY:	PJO

**PLUMBING OVERALL
1ST FLOOR PLAN**

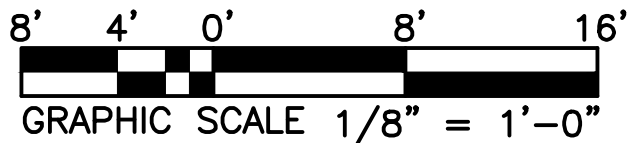
SHEET:

P.201

VENABLE ST



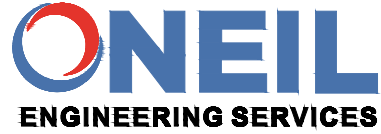
1 PLUMBING OVERALL 2ND FLOOR PLAN
P.202 1/8" = 1'-0"



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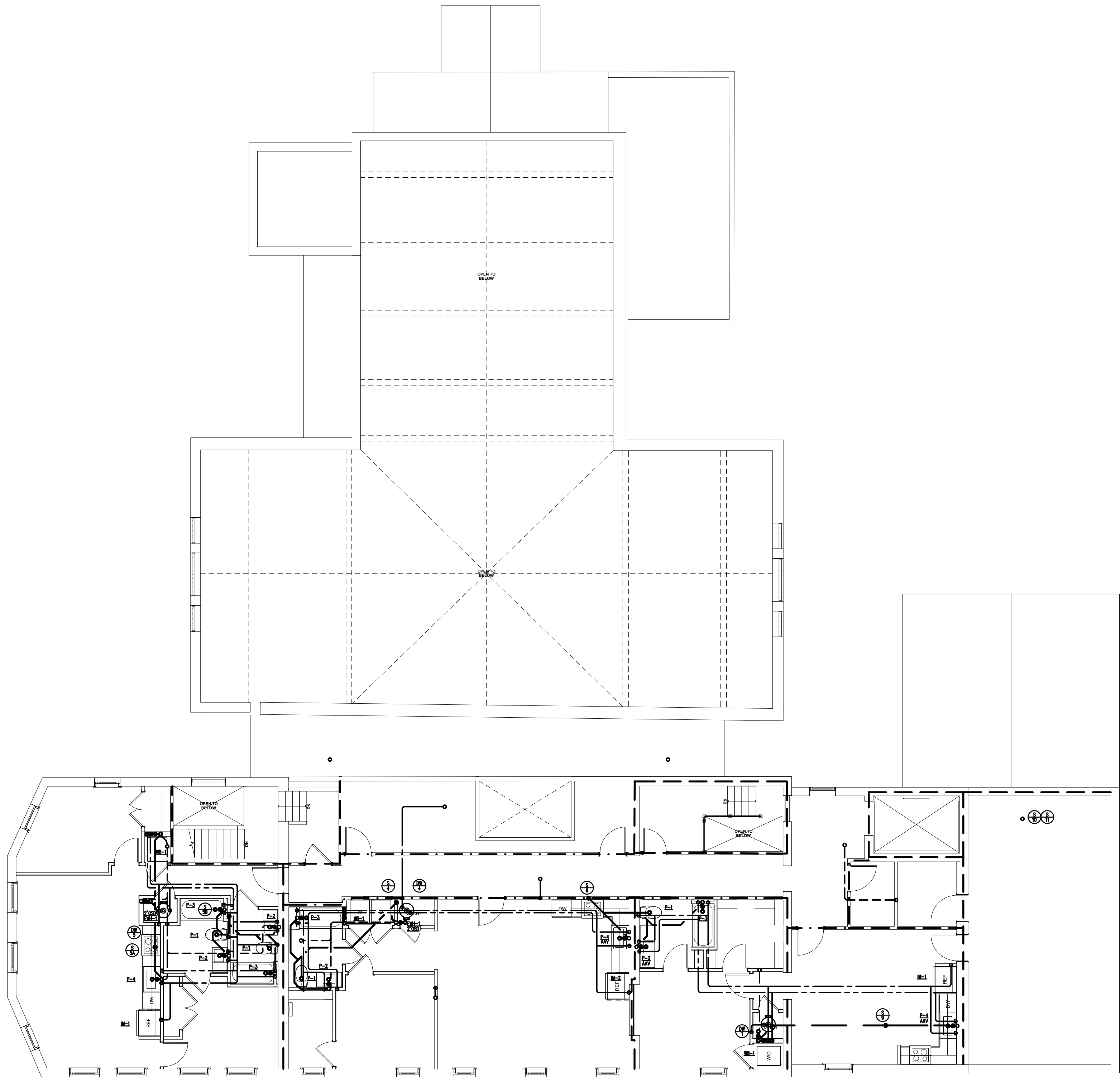
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DATE:	06-JUN-2025
SCALE:	1/8" 1'-0"
DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING OVERALL
2ND FLOOR PLAN

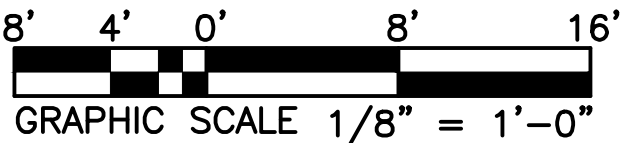
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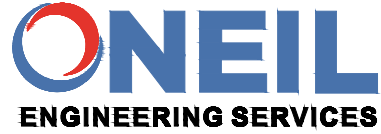
1 PLUMBING OVERALL 3RD FLOOR PLAN
P.203 1/8" = 1'-0"



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DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING OVERALL
3RD FLOOR PLAN

SHEET:

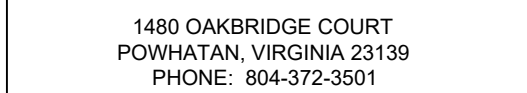
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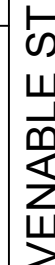
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PLUMBING OVERALL
ROOF PLAN

P.204

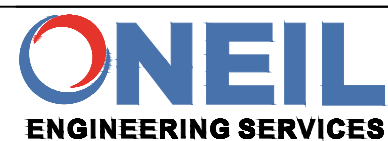




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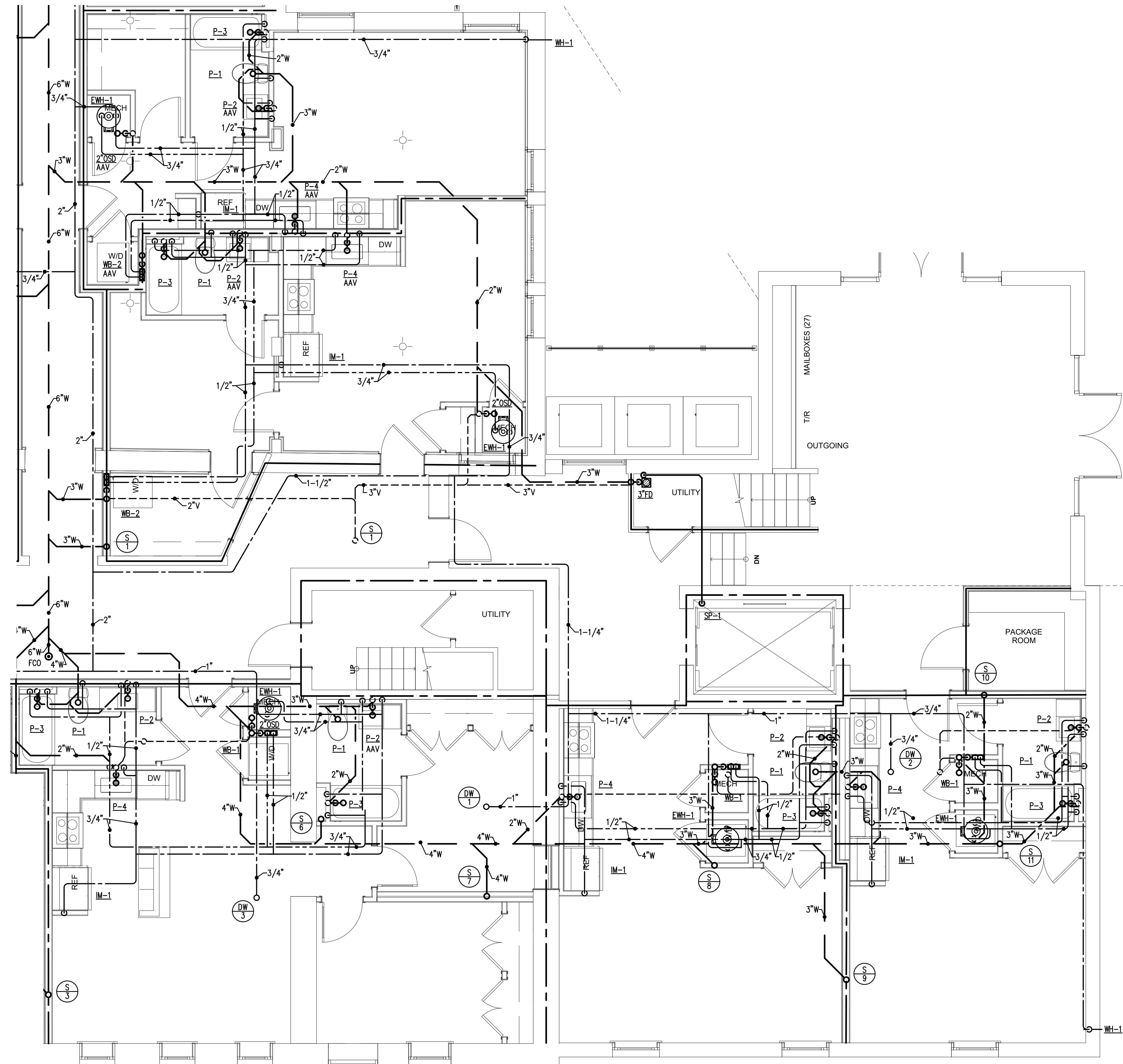
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DATE:	06-JUN-2025
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APPROVED BY:	PJO

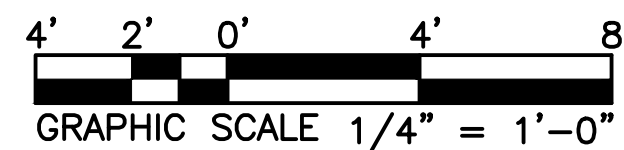
PLUMBING PARTIAL
FIRST FLOOR PLAN -
AREA A

SHEET:

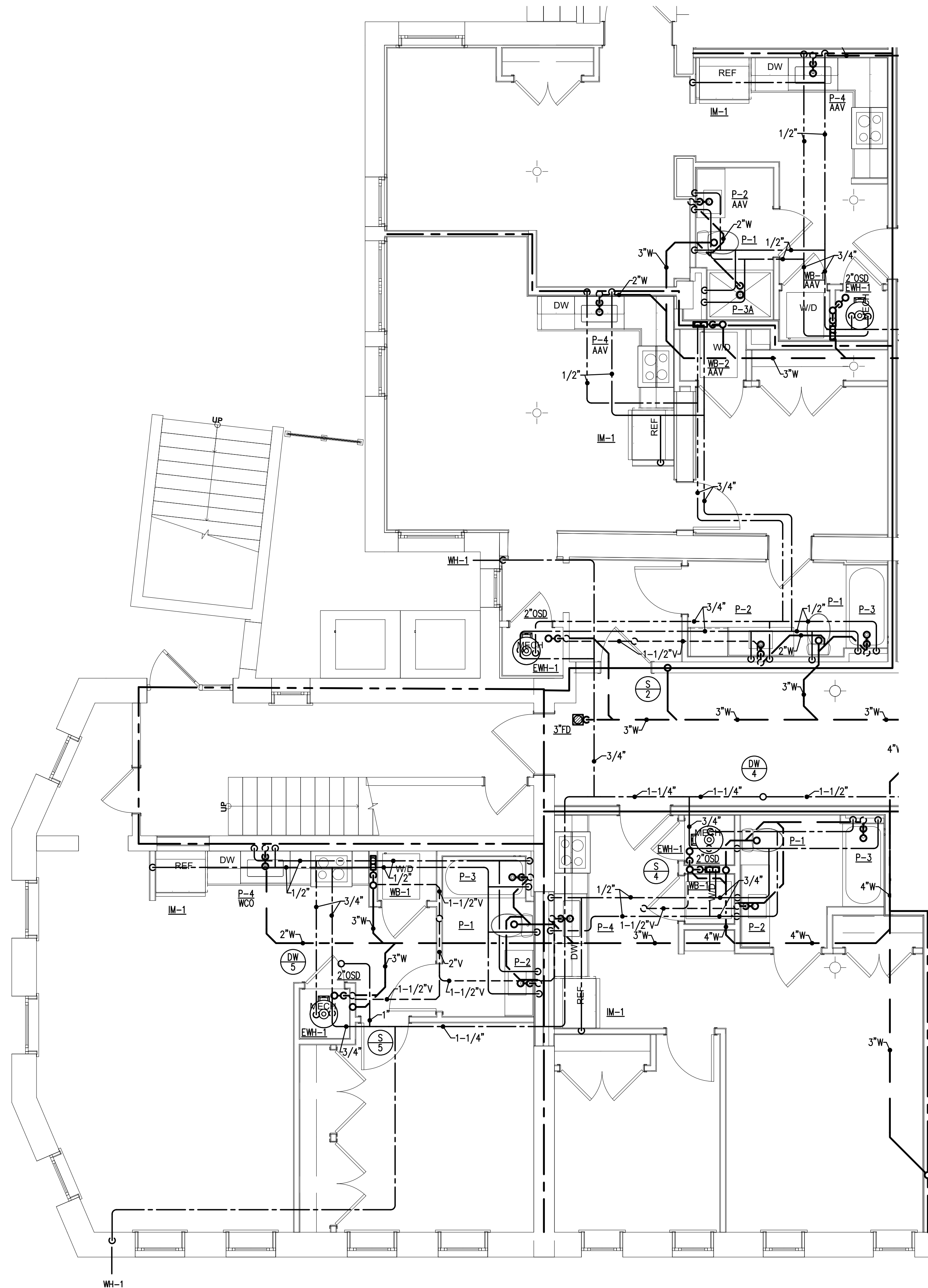
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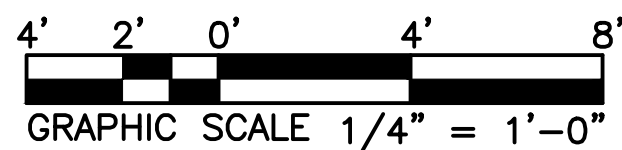
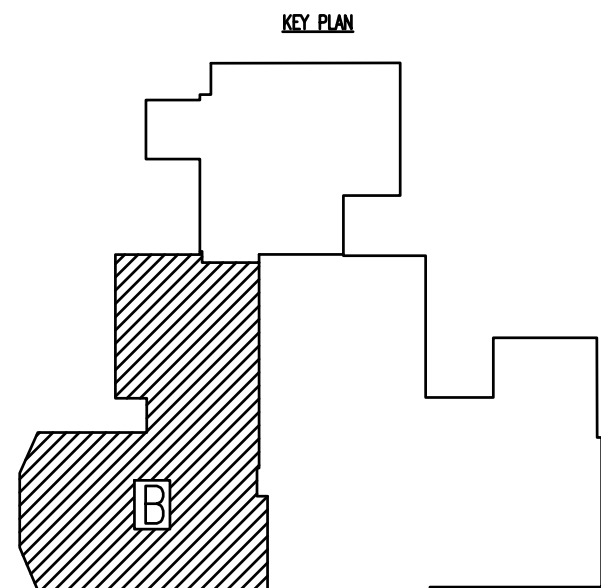
1 PLUMBING PARTIAL FIRST FLOOR PLAN - AREA A
P.220 1/4" = 1'-0"



VENABLE ST



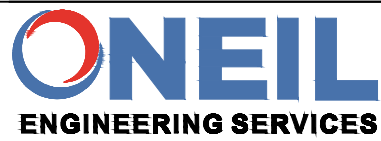
1 PLUMBING PARTIAL FIRST FLOOR PLAN - AREA B
P.221 1/4" = 1'-0"



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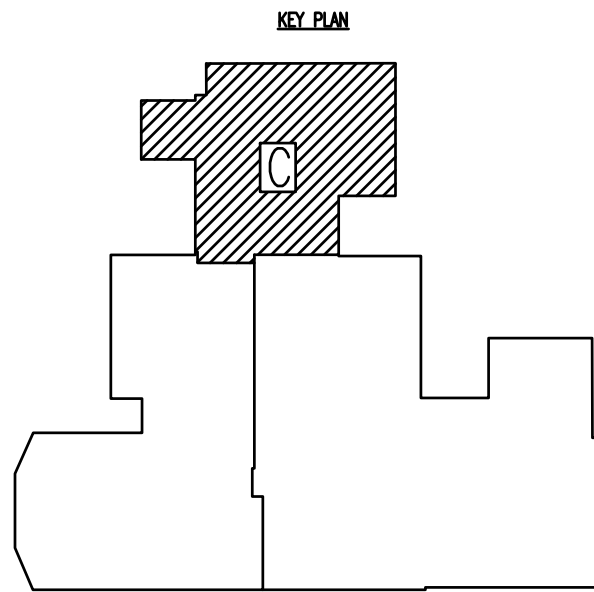
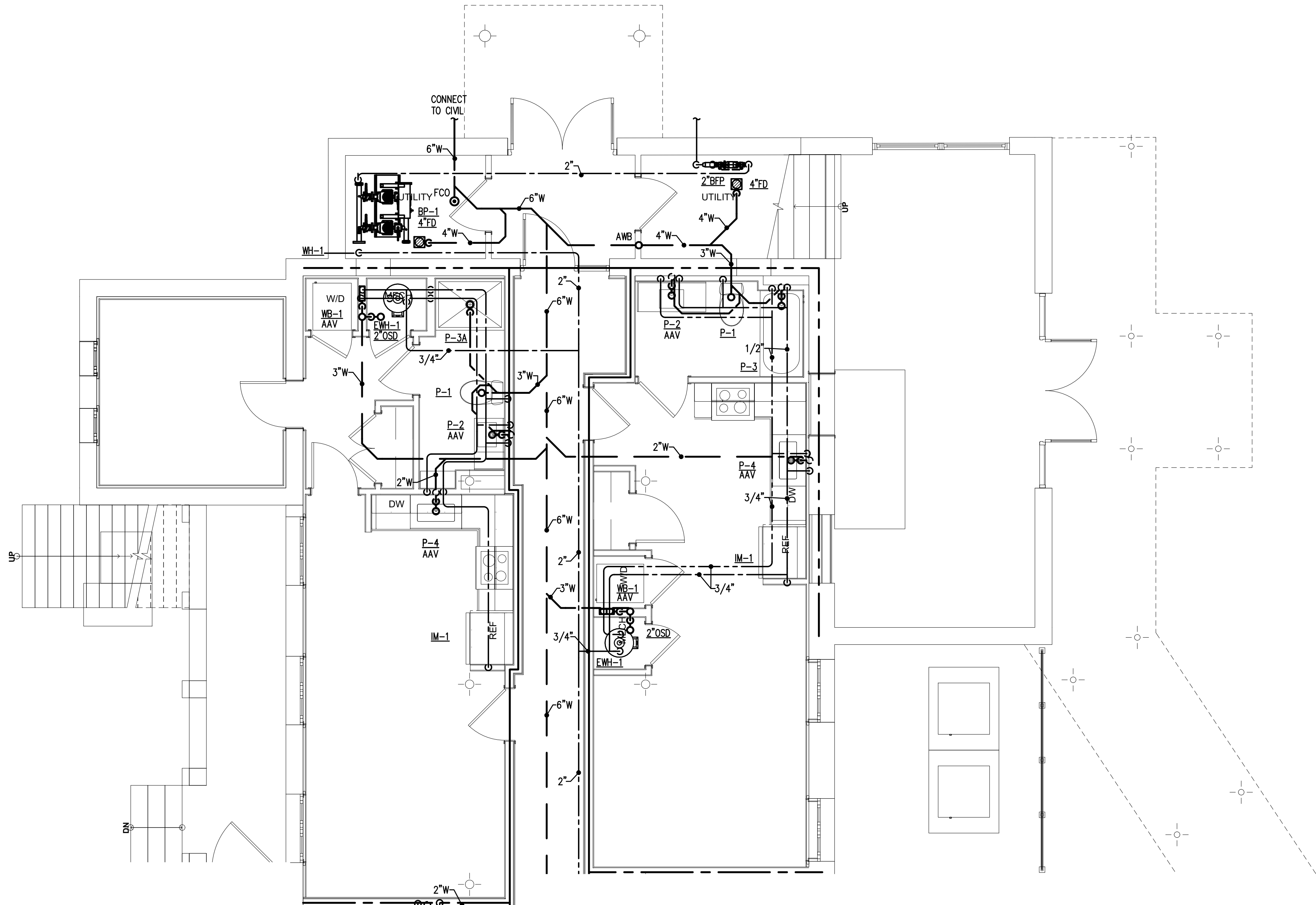
PLUMBING PARTIAL
FIRST FLOOR PLAN -
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SHEET:
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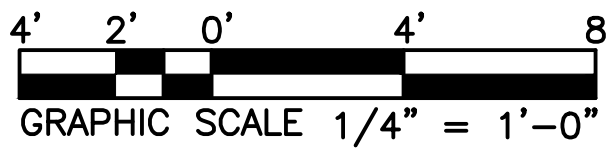
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1 PLUMBING PARTIAL FIRST FLOOR PLAN - AREA C
P.222 1/4" = 1'-0"



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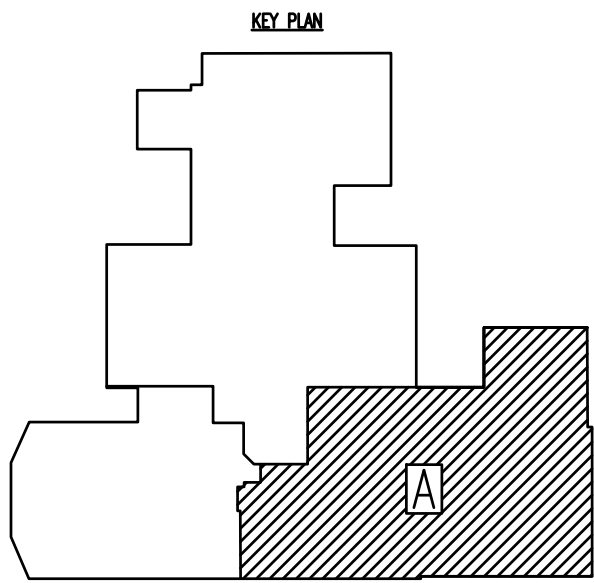
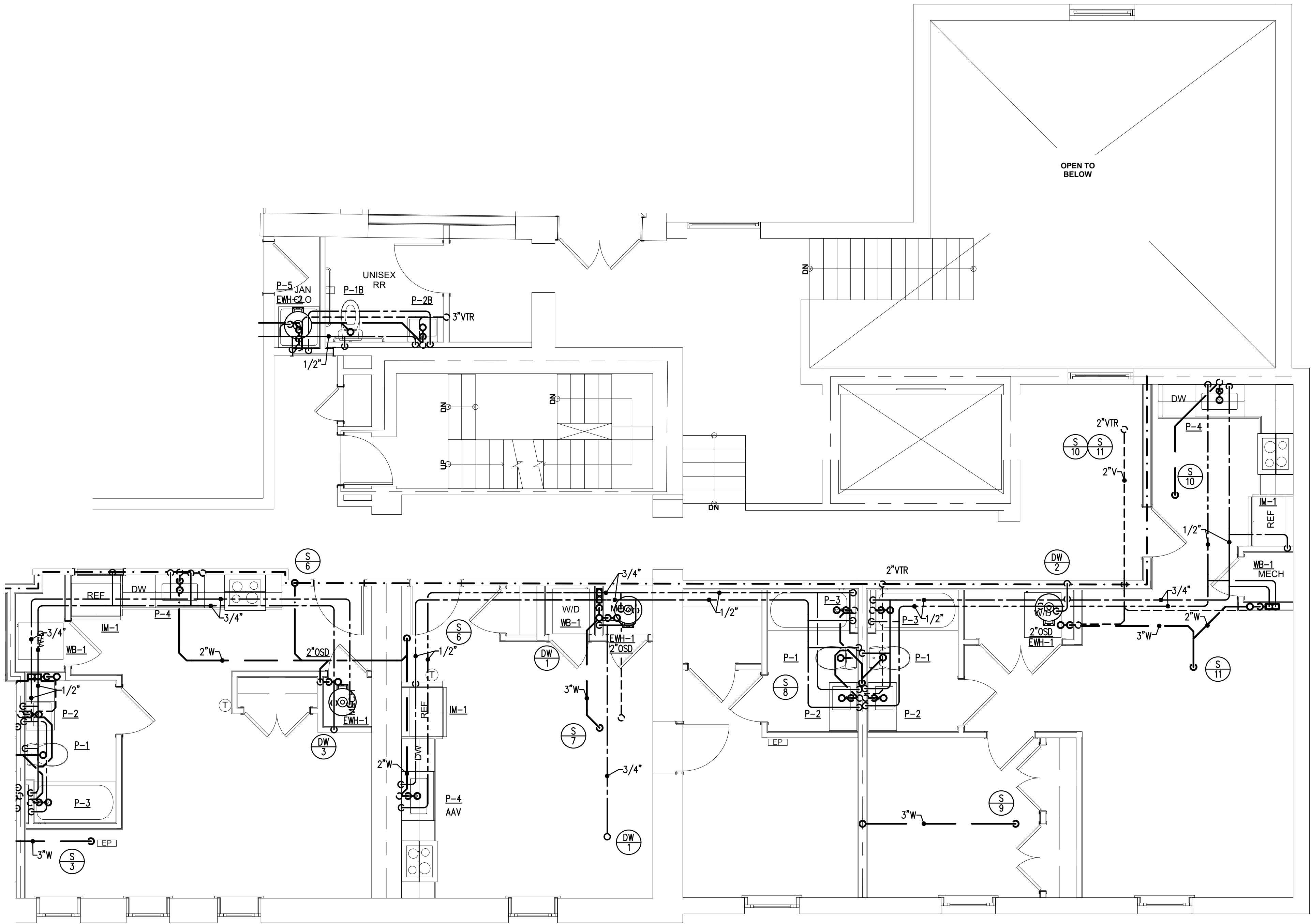
PLUMBING PARTIAL
FIRST FLOOR PLAN -
AREA C

SHEET:
P.222

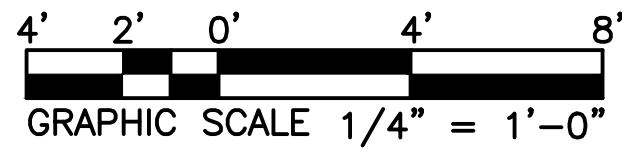
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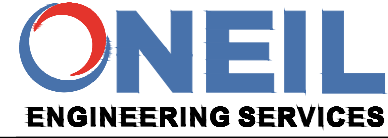


1 PLUMBING PARTIAL SECOND FLOOR PLAN - AREA A
P.223 1/4" = 1'-0"



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PLUMBING PARTIAL
SECOND FLOOR PLAN -
AREA A

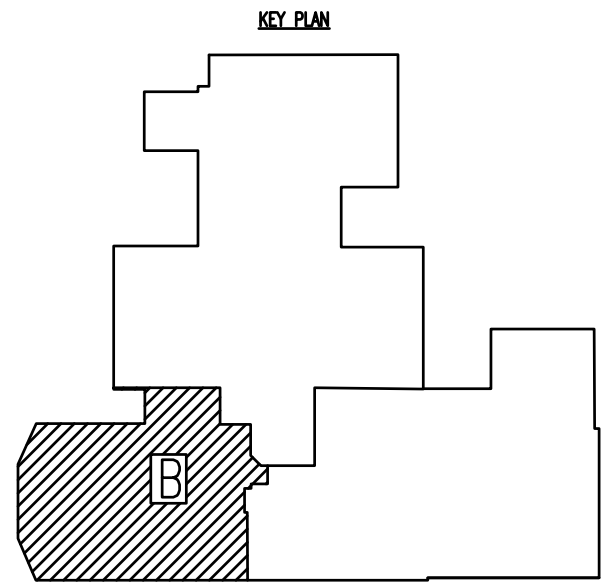
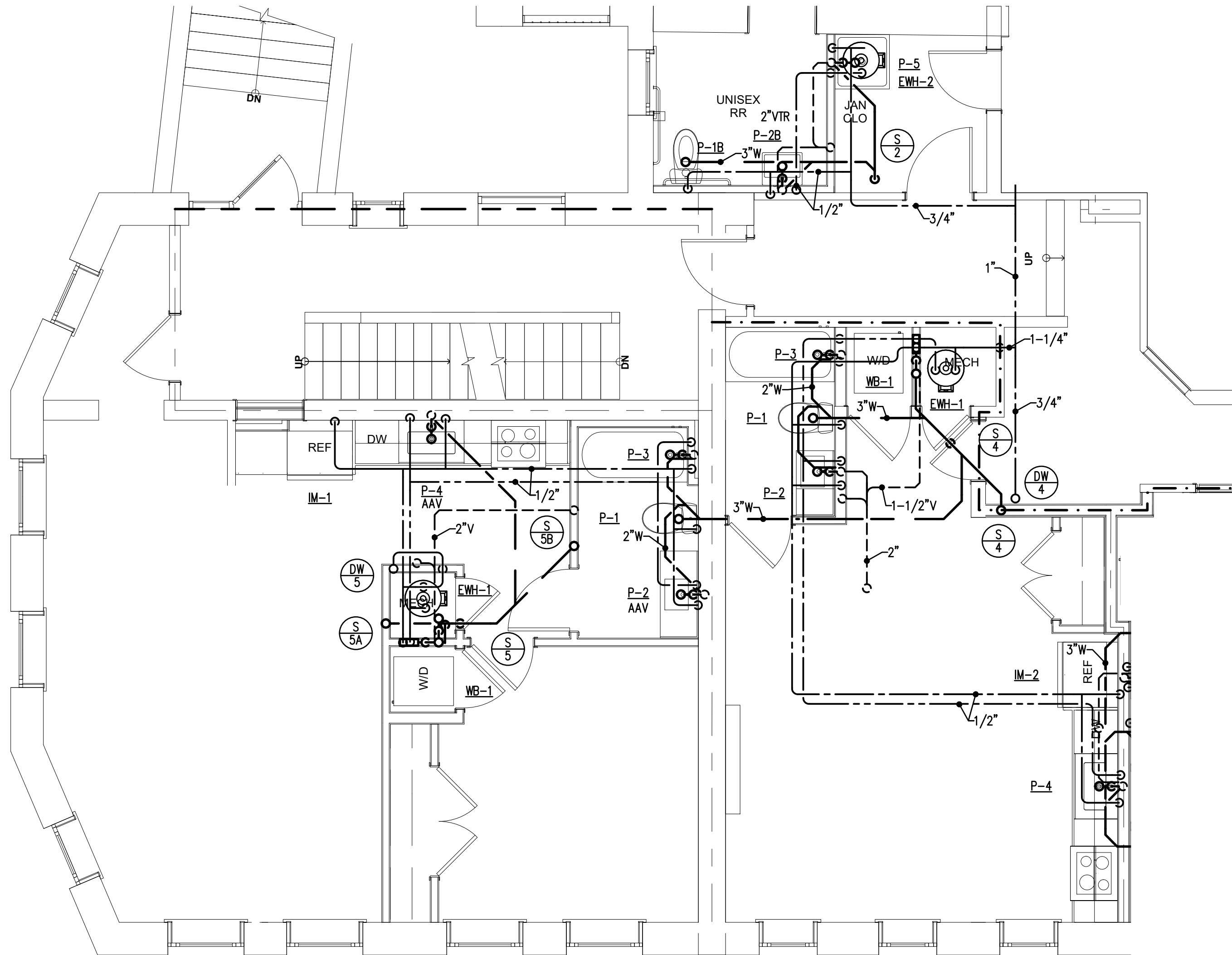
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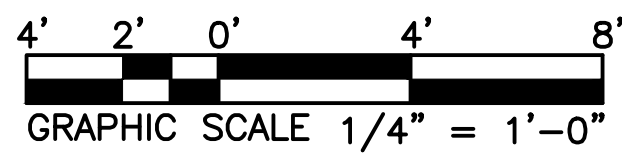
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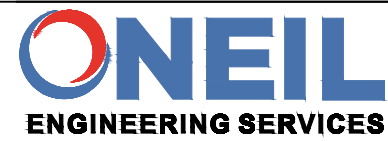


1 PLUMBING PARTIAL 2ND FLOOR PLAN - AREA B
P.224 1/4" = 1'-0"



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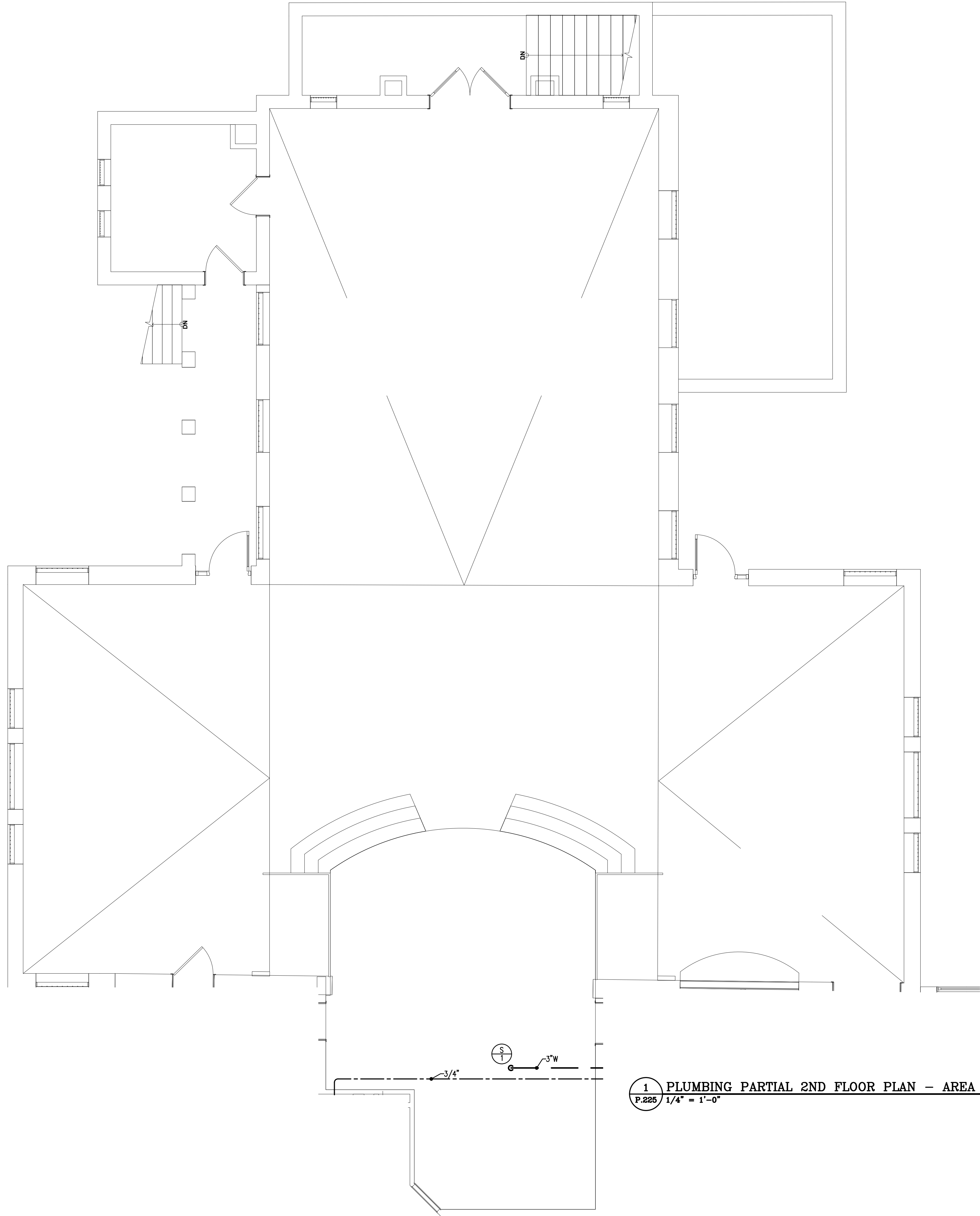
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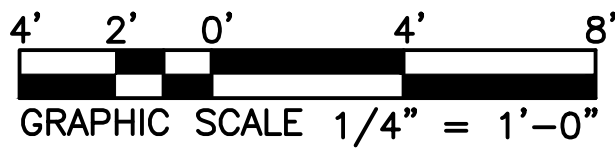
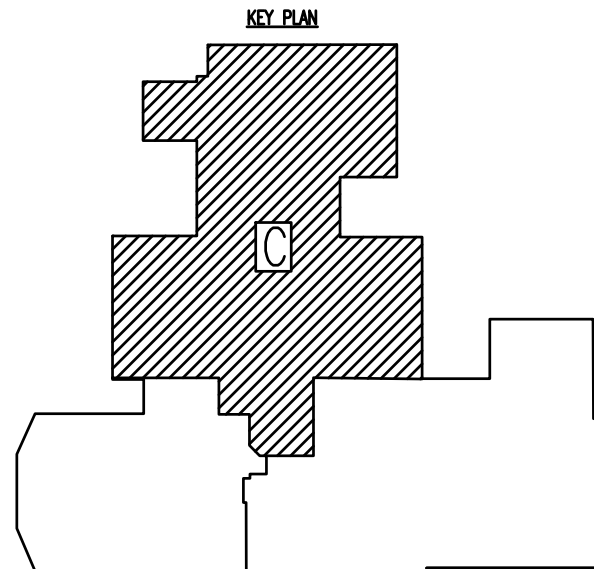
PLUMBING PARTIAL
2ND FLOOR PLAN -
AREA B

SHEET:
P.224

VENABLE ST



1 PLUMBING PARTIAL 2ND FLOOR PLAN – AREA C
P.225 1/4" = 1'-0"



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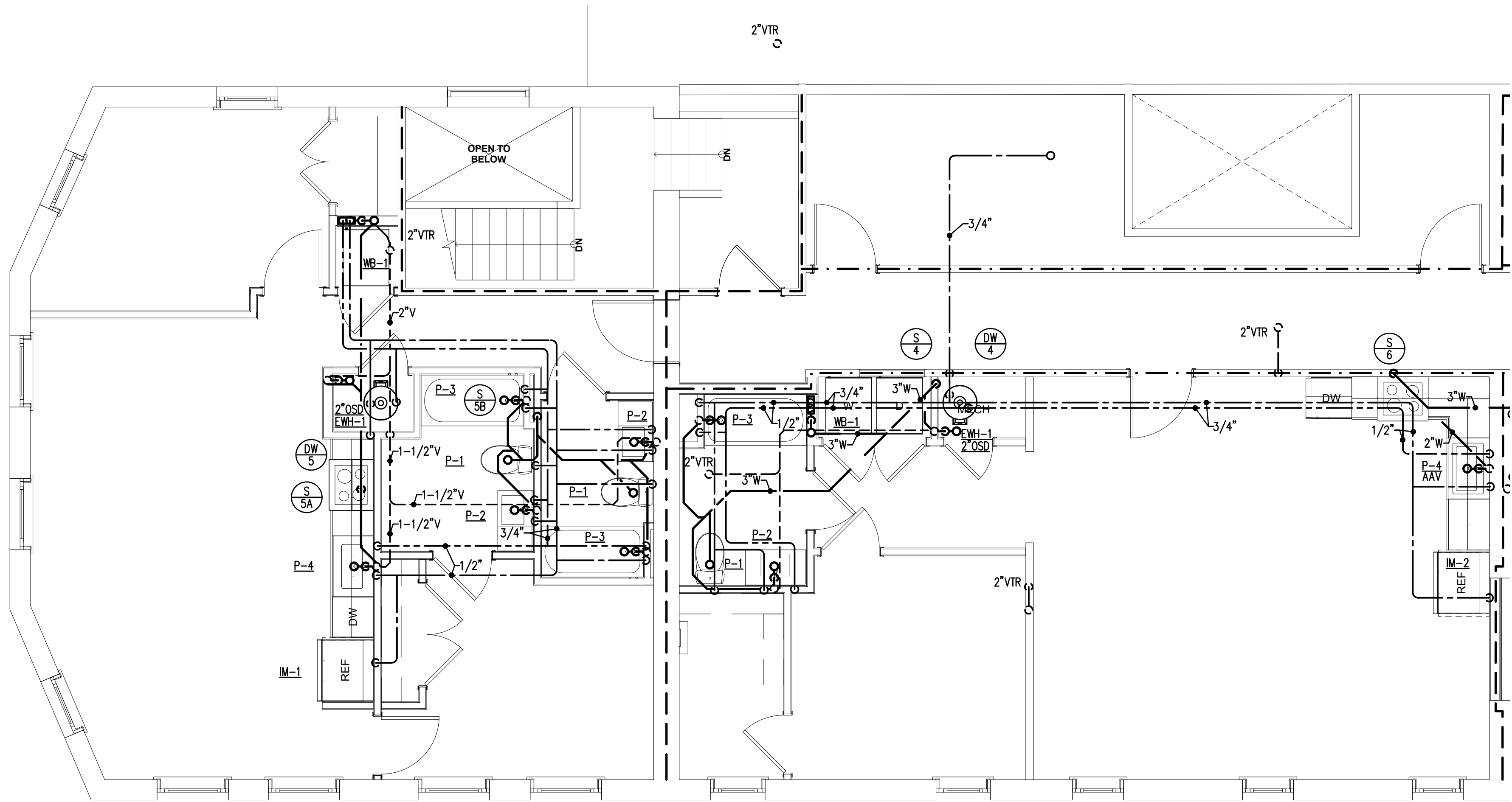
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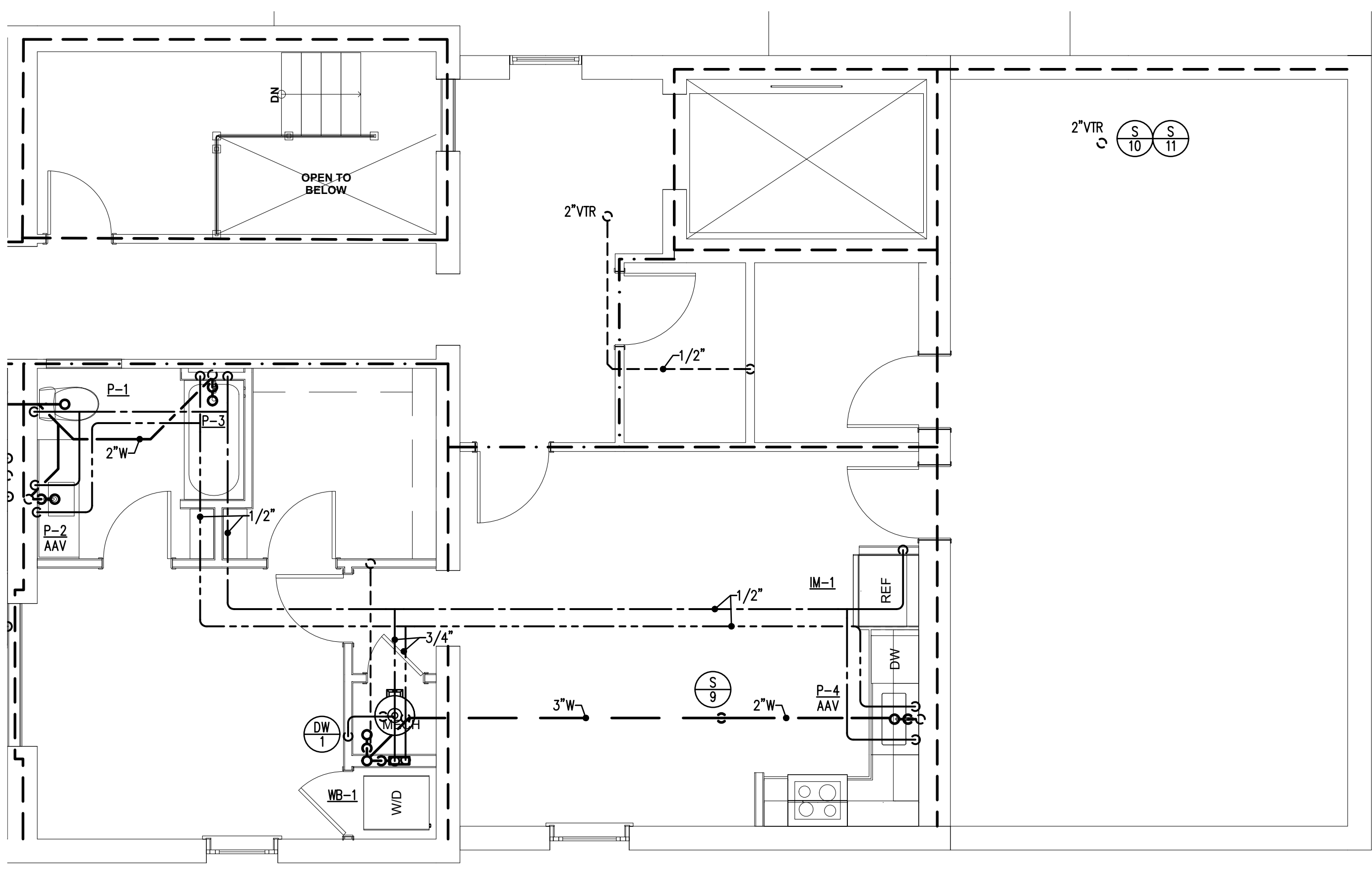
PLUMBING PARTIAL
2ND FLOOR PLAN -
AREA C

SHEET:
P.225

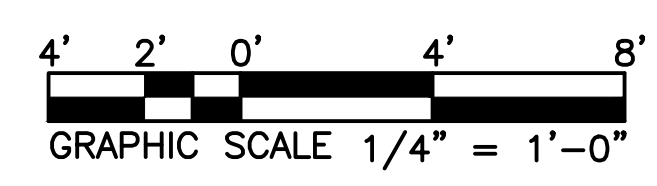
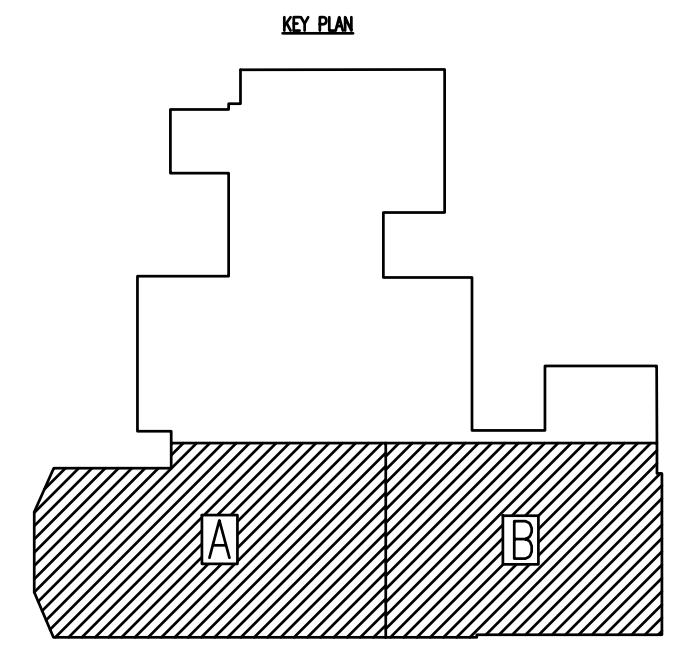
VENABLE ST



1 PLUMBING PARTIAL THIRD FLOOR PLAN - AREA A
P.226 1/4" = 1'-0"



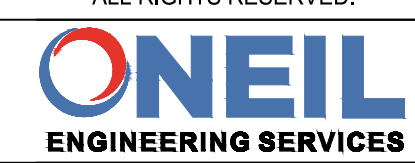
1 PLUMBING PARTIAL THIRD FLOOR PLAN - AREA B
P.226 1/4" = 1'-0"



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DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING PARTIAL
THIRD FLOOR PLAN -
AREA A&B

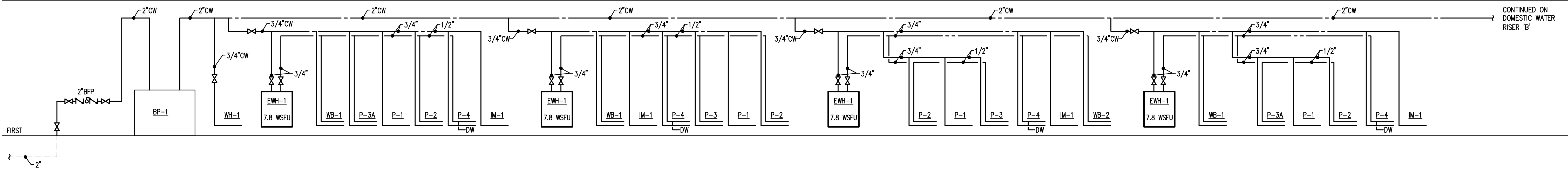
SHEET:
P.226

VENABLE ST

ROOF

THIRD

SECOND



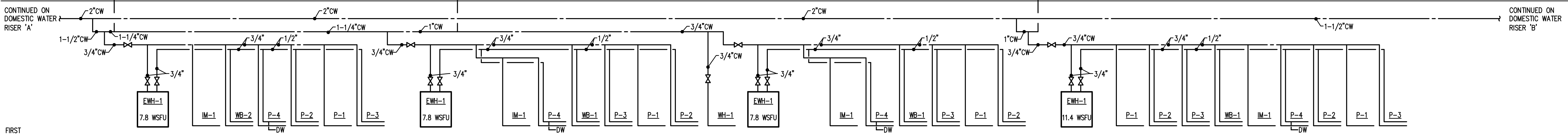
DOMESTIC WATER RISER 'A'

NOT TO SCALE

ROOF

THIRD

SECOND



DOMESTIC WATER RISER 'B'

NOT TO SCALE



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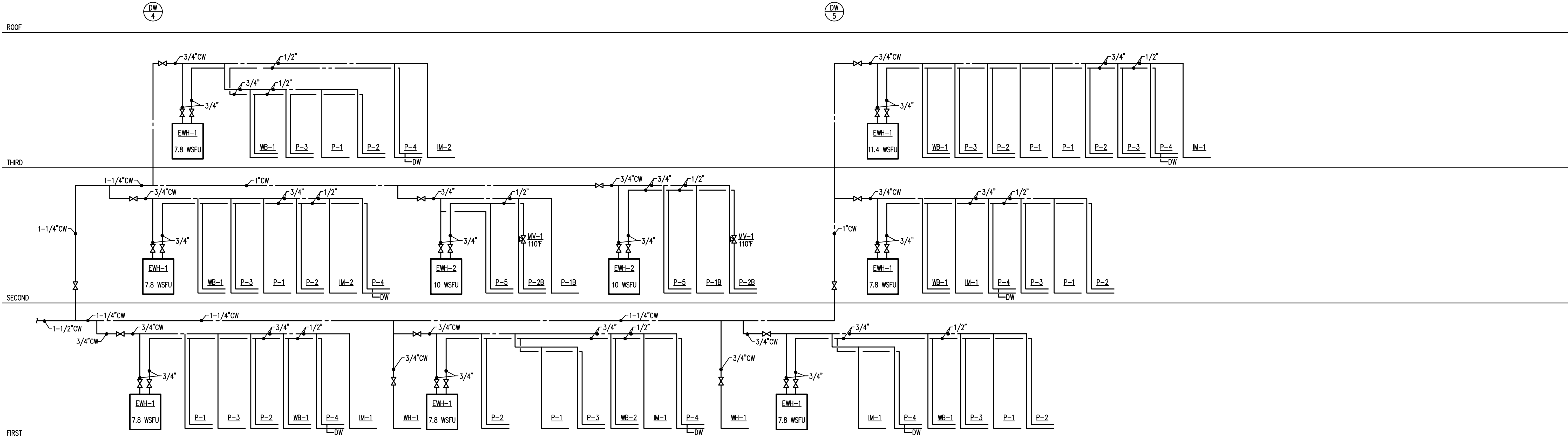
PROJECT #:	Q007
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SCALE:	NONE
DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING DOMESTIC
WATER RISERS
A AND B

SHEET:

P.301

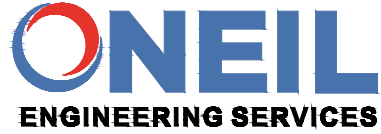
VENABLE ST



VENABLE STREET CHURCH
2101 Vanable St.
Richmond, VA 23223

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PHONE: 804-372-3501

PROJECT #:	Q007
DATE:	06-JUN-2025
SCALE:	NONE
DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING DOMESTIC
WATER RISER B

SHEET:

P.302

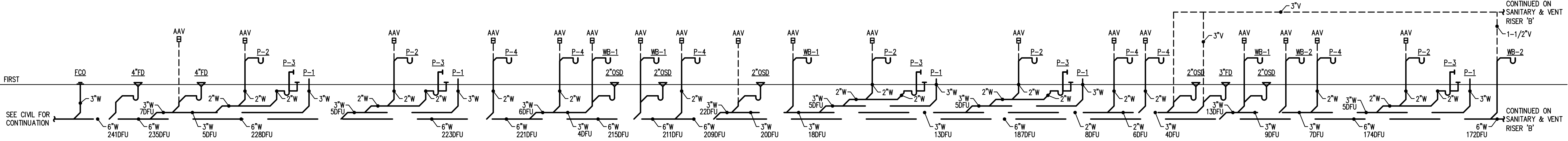
VENABLE ST

ROOF

THIRD

SECOND

FIRST



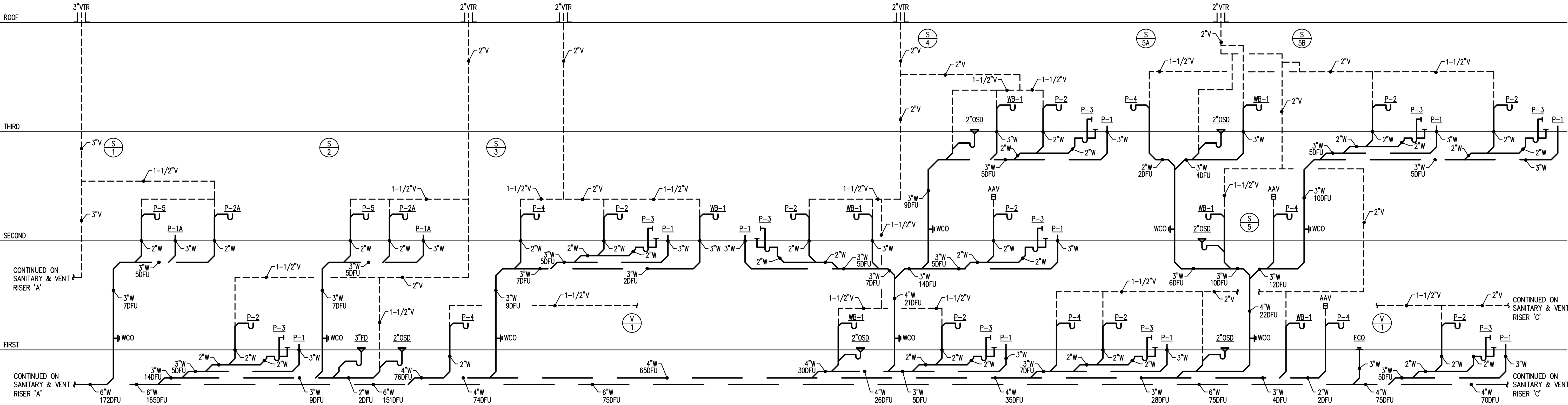
SANITARY AND VENT RISER 'A'
NOT TO SCALE

ROOF

THIRD

SECOND

FIRST



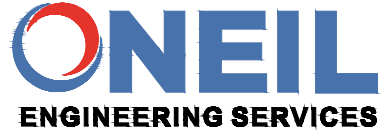
SANITARY AND VENT RISER 'B'
NOT TO SCALE



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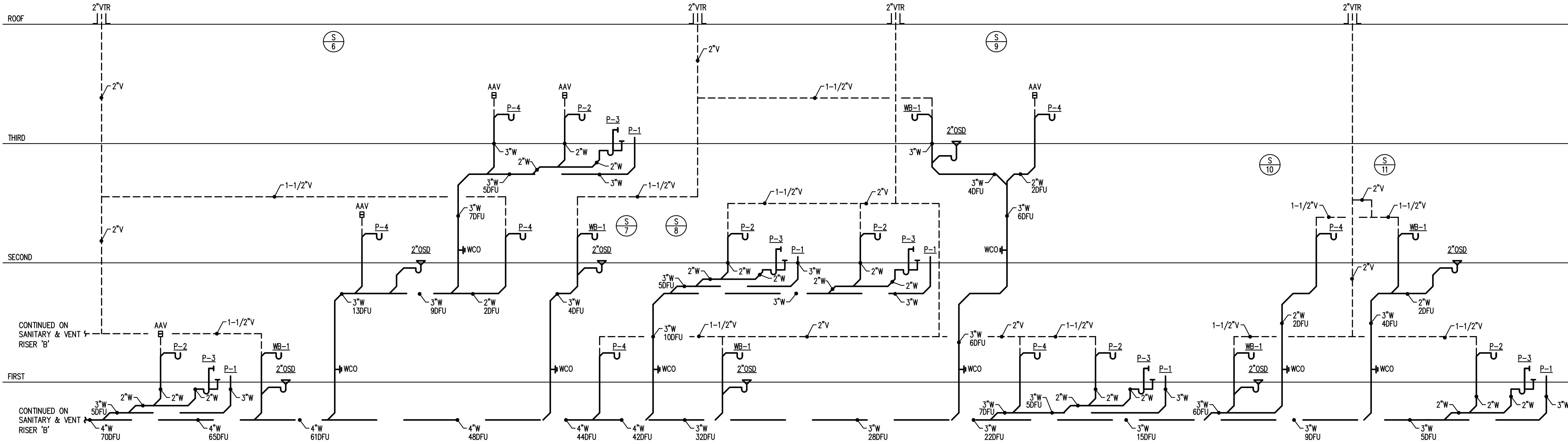
PROJECT #:	Q007
DATE:	06-JUN-2025
SCALE:	NONE
DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING SANITARY
AND VENT RISERS
A AND B

SHEET:

P.401

VENABLE ST



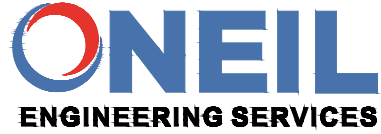
SANITARY AND VENT RISER 'C'
NOT TO SCALE



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PROJECT #:	Q007
DATE:	06-JUN-2025
SCALE:	NONE
DRAWN BY:	JCS
APPROVED BY:	PJO

PLUMBING SANITARY
AND VENT RISER C

SHEET:
P.402

VENABLE ST