







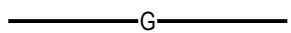

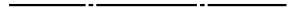
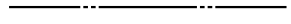
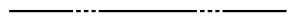
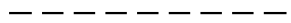



PLUMBING GENERAL NOTES

1. PLUMBING CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING WET COLUMN RISERS AND BRANCH PIPING PRIOR TO ANY CONNECTIONS.
2. NO WORK IS TO BE REMOVED WITHOUT APPROVAL OF BUILDING ENGINEERS.
3. PORTION OF MAINS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ACTIVE SHALL BE CUT AT CONVENIENT LOCATIONS, RE-ROUTED AND RECONNECTED.
4. THE CONTRACTOR SHALL NOTIFY THE BUILDING ENGINEER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS.
5. ALL EXISTING MATERIAL IN USEABLE CONDITION WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL BE PROTECTED AND REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THIS CONTRACTOR, AS DIRECTED BY THE BUILDING ENGINEER.
6. ARRANGE TO WORK CONTINUOUSLY, INCLUDE OVERTIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME OF ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
7. ALL SERVICE SHUT DOWN SHALL BE COORDINATED WITH THE BUILDING ENGINEER.
8. MAINTAIN CONTINUITY OF ALL EXISTING DOMESTIC WATER AND SYSTEM WHICH SERVE ADJACENT AREA AND ARE NOT AFFECTED BY THIS CONTRACT.
9. DURING DEMOLITION PHASE OF THIS PROJECT, CONTRACTOR SHOULD PROTECT EXISTING PIPING LOCATED IN THE STUD WALL.
10. THE CONTRACTOR SHALL REVIEW A REPORT FROM TENANT STRUCTURAL ENGINEER STATING THEY OBSERVED DURING SITE VISITS THAT ANCHORS WERE INSTALLED IN ACCORDANCE WITH THE SPECIFICATION AND SUBMITTALS.
11. THE GENERAL CONTRACTOR SHALL OBTAIN PERMISSION FROM THE B.L.D. MANAGEMENT AND TENANT BELOW FOR INSTALLATION OF SANITARY PIPING IN CEILING BELOW.
12. REFER TO ARCHITECTURAL DRAWING FOR PLUMBING FIXTURE SCHEDULE AND / OR COORDINATE WITH THE BUILDING STANDARDS.
13. ALL EXPOSED P-TAPS, STOPS, SUPPLIES AND ASSOCIATED PIPING THAT SHALL BE PROVIDED WITH TRAP WRAP.
14. ALL SINKS SHALL BE EQUIPPED WITH THERMOSTATIC MIXING VALVES.
15. ALL EXISTING PLUMBING ASSOCIATED PIPING SHALL BE PROTECTED DURING ALL PHASE OF CONSTRUCTION. PROVIDE LABELING ON ALL EXISTING PIPING COLD WATER, SANITARY AND VENT PIPING.
16. STRUCTURAL ENGINEERING SHALL SPECIFY TYPES OF ANCHORS/METHODLOGY TO USE FOR EVERY TYPE OF HANGING LOAD.(SANITARY PIPING, VENT PIPING AND WATER PIPING).
17. STRUCTURAL ENGINEERING SHALL REVIEW SUBMITTALS/CUT SHEETS FOR ALL ANCHORS TO BE USE FOR THE PLUMBING DRIVING INSTALLATION.
18. ALL NEW PLUMBING INSTALLATION, MATERIAL, SUPPORTS, HANGERS, CORE DRILLING, VALVE TYPE, PIPE TYPE, PIPE PRESSURE RATING, PRV, ETC. SHALL COMPLY WITH THE LATEST BUILDING SPECIFICATION/STANDARDS AND RULES & REGULATIONS.(LATEST EDITION), SEEK BUILDING APPROVAL ON ALL ITEMS PRIOR TO ANY INSTALLATION.




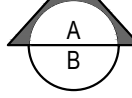








PLUMBING DEMOLITION GENERAL NOTES

1. PLUMBING CONTRACTOR TO FIELD VERIFY THE EXACT SIZE AND LOCATION OF EXISTING WET COLUMN RISERS AND BRANCH PIPING PRIOR TO ANY NEW CONNECTIONS.
2. NO WORK IS TO BE REMOVED WITHOUT THE APPROVAL OF THE BUILDING ENGINEERS.
3. PORTION OF MAINS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ACTIVE SHALL BE CUT AT CONVENIENT LOCATIONS, RE-ROUTED AND RECONNECTED
4. THE CONTRACTOR SHALL NOTIFY THE BUILDING ENGINEER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND SCHEDULE SO THAT REMOVAL AND RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS.
5. ALL EXISTING MATERIAL IN USEABLE CONDITION WHICH IS TO BE REMOVED UNDER THIS CONTRACT SHALL BE PROTECTED AND REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THIS CONTRACTOR, AS DIRECTED BY THE BUILDING ENGINEER.
6. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
7. ALL SERVICE SHUT DOWNS SHALL BE COORDINATED WITH THE BUILDING ENGINEER.
8. MAINTAIN CONTINUITY OF ALL EXISTING DOMESTIC WATER AND SYSTEMS WHICH SERVE THE ADJACENT AREA AND ARE NOT AFFECTED BY THIS CONTRACT.
9. DURING DEMOLITION PHASE OF THIS PROJECT, CONTRACTOR SHOULD PROTECT EXISTING PIPING LOCATED IN THE STUD WALL AND ALL PLUMBING RELATED TO THE RISERS.
10. FIELD VERIFY ALL PLUMBING PIPING LOCATIONS WITH THE BUILDING MANAGEMENT.
11. ALL EXISTING PLUMBING RISERS (IE. SANITARY, VENT, STORM, HOT AND COLD WATER) SHALL BE PROTECTED DURING ALL PHASES OF DEMOLITION AND CONSTRUCTION.

LINE REPRESENTATION

	NEW COLD WATER PIPING
	NEW HOT WATER PIPING
	NEW HOT WATER PIPING WITH TEMPERATURE MAINTENANCE CABLE
	NEW HOT WATER RECIRCULATION PIPING
	NEW VENT PIPING
	NEW SANITARY OR STORM WATER PIPING ABOVE GROUND
	NEW SANITARY OR STORM WATER PIPING BELOW GROUND
	NEW GAS PIPING
	NEW ACID WASTE PIPING
	EXISTING COLD WATER PIPING TO REMAIN
	EXISTING HOT WATER PIPING TO REMAIN
	EXISTING HOT WATER RECIRCULATION PIPING TO REMAIN
	EXISTING VENT PIPING TO REMAIN
	EXISTING SANITARY OR STORM WATER PIPING ABOVE GROUND TO REMAIN
	EXISTING SANITARY OR STORM WATER PIPING BELOW GROUND TO REMAIN
	EXISTING PIPE TO BE REMOVED



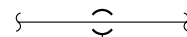
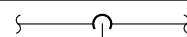
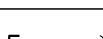



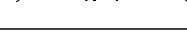
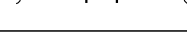
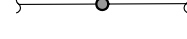
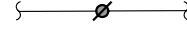
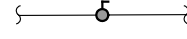



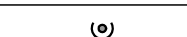
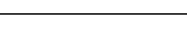
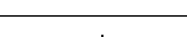

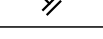
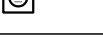








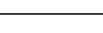
DRAWING NOTATIONS

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	SECTION DESIGNATION ON DRAWING WHERE SECTION IS CUT A-SECTION DESIGNATION B-DRAWING NO.
	POINT OF NEW CONNECTION TO EXISTING WORK
	POINT OF DEMOLITION
	REMOVE AND PATCH EXISTING WORK
	REVISION DELTA
	FIRE STANDPIPE RISER DESIGNATION
	PLUMBING RISER DESIGNATION
	STORM LEADER DESIGNATION
	PIPING FLOW DIRECTION

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
BFP	BACKFLOW PREVENTER
CM	COFFEE MAKER
CODP	CLEAN OUT DECK PLATE
CW	COLD WATER
DIA	DIAMETER
DN	DOWN
DF	DRINKING FOUNTAIN
EW	ELECTRIC WATER HEATER
FAI	FRESH AIR INLET
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FL	FLOOR
FS	FLOOR SINK
HB	HOSE BIBB
HW	HOT WATER
HWR	HOT WATER RECIRCULATION
IM	ICE MAKER
LAV	LAVATORY
LDR	LEADER
MIN	MINIMUM
MR	MOP RECEPTOR
RD	ROOF DRAIN
RPZ	REDUCED PRESSURE ZONE
RTU	ROOF TOP UNIT
S	SANITARY
SH	SHOWER SERVICE
SK	SINK
TP	TRAP PRIMER
UR	URINAL
V	VENT
VB	VACUUM BREAKER
VTR	VENT THRU ROOF
W	WASTE
WH	WALL HYDRANT
WC	WATER CLOSET

PLUMBING LEGEND

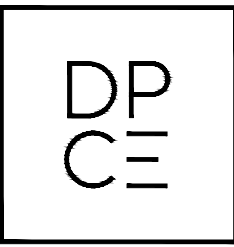
	PIPE UP
	PIPE DROP
	BOTTOM CONNECTION
	TOP CONNECTION
	CAP
	PLUG OUTLET
	CLEANOUT
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	GATE VALVE
	CHECK VALVE
	BALL VALVE
	O, S & Y VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	SHOCK ABSORBER
	VACUUM BREAKER
	PIPE GUIDE
	UNION
	VALVE WITH HOSE BIBB
	FLOOR DRAIN
	ELECTRONIC WATER COOLER
	WATER CLOSET
	LAVATORY
	PANTRY SINK
	SLOP SINK
	WATER CLOSET (FLUSH VALVE-WALL HUNG)
	URINAL
	LAVATORY
	MOP RECEPTOR (ELEVATION)
	LAVATORY (ELEVATION)
	WATER CLOSET (ELEVATION)
	SLOP SINK (ELEVATION)

DRAWING LIST

P-001	PLUMBING SYMBOLS AND NOTES
P-002	PLUMBING SPECIFICATIONS
P-101	PLUMBING FIRST FLOOR PLAN
P-501	PLUMBING DETAILS
P-601	PLUMBING SCHEDULES AND RISER DIAGRAMS



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JANUARY 10, 2022

JANUARY 19, 2022
CONSTITUTIONAL

1 CONSTRUCTION DOCUMENTS
JANUARY 26, 2022

DRAWN BY:

SL

PROJECT ENGINEER:

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DRAWING: PLUMBING SYMBOLS AND NOTES

SCALE:
NOT TO SCALE

SEAL



DRAWING NO.

P-001

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PLUMBING SPECIFICATIONS

SECTION 15055 - COMMON PIPING REQUIREMENTS

- PART 1 - GENERAL
- 1.1 SECTION REQUIREMENTS
1. COMPLY WITH THE REQUIREMENTS OF THE BUILDING CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION.

PART 2 - PRODUCTS

- 2.1 SUPPORT DEVICES
- A. HANGER AND PIPE ATTACHMENTS: FACTORY FABRICATED WITH GALVANIZED COATINGS; NONMETALLIC COATED FOR HANGERS IN DIRECT CONTACT WITH COPPER TUBING.
- B. BUILDING ATTACHMENTS: POWDER ACTUATED TYPE, DRIVE PIN ATTACHMENTS WITH PULLOUT AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS; UL LISTING AND FM APPROVAL FOR FIRE PROTECTION SYSTEMS.
- C. MECHANICAL ANCHOR FASTENERS: INSERT-TYPE ATTACHMENTS WITH PULLOUT AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS; UL LISTING AND FM APPROVAL FOR FIRE PROTECTION SYSTEMS.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL PIPING FREE OF SAGS AND BENDS.
- B. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS.
- C. INSTALL SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS, GYPSUM BOARD PARTITIONS AND CONCRETE FLOOR AND ROOF SLABS.
- D. EXTERIOR WALL, PIPE PENETRATIONS: MECHANICAL SLEEVE SEALS INSTALLED IN STEEL OR CAST IRON PIPES FOR WALL SLEEVES.
- E. FIRE BARRIER PENETRATIONS: SEAL PIPE PENETRATIONS WITH THROUGH-PENETRATION FIRESTOP SYSTEMS.
- F. INSTALL UNIONS ADJACENT TO EACH VALVE AND AT FINAL CONNECTION TO EACH PIECE OF EQUIPMENT.
- G. INSTALL DIELECTRIC UNIONS AND FLANGES TO CONNECT PIPING MATERIALS OF DISSIMILAR METALS IN GAS PIPING.
- H. INSTALL DIELECTRIC COUPLING AND NIPPLE FITTINGS TO CONNECT PIPING MATERIALS OF DISSIMILAR METALS IN WATER PIPING.
- I. PROVIDE FULL RING ESCUTCHEONS AT PLUMBING PENETRATIONS THROUGH WALLS OR CEILINGS. TIGHTLY SEAL ESCUTCHEONS TO THE ADJACENT SURFACE.

3.2 HANGERS AND SUPPORTS

- A. INSTALL BUILDING ATTACHMENTS WITHIN CONCRETE OR TO STRUCTURAL STEEL. INSTALL ADDITIONAL ATTACHMENTS AT CONCENTRATED LOADS, INCLUDING VALVES, FLANGERS, GUIDES, STRAINERS, EXPANSION JOINTS, AND AT CHANGES IN DIRECTION OF PIPING.
- B. INSTALL POWDER ACTUATED DRIVE PIN FASTENERS IN CONCRETE AFTER CONCRETE IS CURED. DO NOT USE IN LIGHTWEIGHT CONCRETE OR IN SLABS LESS THAN FOUR INCHES THICK.
- C. INSTALL MECHANICAL ANCHOR FASTENERS IN CONCRETE AFTER CONCRETE IS CURED. DO NOT USE IS LIGHTWEIGHT CONCRETE OR IN SLABS LESS THAN FOUR INCHES THICK.
- D. SUPPORT FIRE PROTECTION SYSTEM PIPING INDEPENDENT OF OTHER PIPING.
- E. LOAD DISTRIBUTION: INSTALL HANGERS AND SUPPORTS SO PIPING LIVE AND DEAD LOADING AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT.

END OF SECTION 15055

SECTION 15080 - MECHANICAL INSULATION

- PART 1 - GENERAL
- 1.1 SECTION REQUIREMENTS
- A. SUBMITTALS: NONE
- B. QUALITY ASSURANCE: LABELED WITH MAXIMUM FLAME-SPREAD RATING OF 25 AND MAXIMUM SMOKE DEVELOPED RATING OF 50 ACCORDING TO ASTM E 84

PART 2 - PRODUCTS

- 2.1 PIPE INSULATION
- A. PREFORMED GLASS FIBER PIPE INSULATION: ASTM C 547, CLASS 1, WITH FACTOR APPLIED, ALL PURPOSE, VAPOR RETARDER JACKET.)
- B. POLYOLEFIN PIPE INSULATION: UNICELLULAR POLYETHYLENE, PREFORMED PIPE INSULATION. COMPLY WITH ASTM C 534, TYPE 1, EXCEPT FOR DENSITY.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL VAPOR BARRIERS ON INSULATED PIPES WITH SURFACE OPERATING TEMPERATURES BELOW 60°F.
- B. INSULATED FITTINGS, VALVES AND SPECIALITIES.
- C. SEAL VAPOR BARRIER PENETRATIONS FOR HANGERS, SUPPORTS, ANCHORS AND OTHER PROJECTS.
- D. COAT GLASS FIBER PIPE INSULATION ENDS WITH VAPOR BARRIER COATINGS.
- E. ROOF PENETRATIONS: APPLY INSULATION FOR INTERIOR APPLICATIONS TO A POINT EVEN WITH THE TOP OF THE ROOF FLASHING.
- F. EXTERIOR WALL PENETRATIONS: FOR PENETRATIONS OF BELOW GRADE EXTERIORS WALLS, TERMINATE INSULATION FLUSH WITH MECHANICAL SLEEVE SEAL.
- G. INTERIOR WALLS AND PARTITIONS PENETRATIONS: APPLY INSULATION CONTINUOUSLY THROUGH WALLS AND PARTITIONS, EXCEPT FIRE RATED WALLS AND PARTITIONS.
- H. FIRE RATED WALLS AND PARTITIONS PENETRATIONS: TERMINATE INSULATION AT PENETRATIONS THROUGH FIRE RATED WALLS AND PARTITIONS. SEAL AROUND PENETRATION WITH THROUGH PENETRATION FIRESTOP SYSTEMS.
- I. FLOOR PENETRATIONS: TERMINATE INSULATION AT THE UNDERSIDE OF THE FLOOR ASSEMBLY AND AT THE FLOOR SUPPORT AT TOP OF THE FLOOR. SEAL AROUND PENETRATION WITH THROUGH PENETRATION FIRESTOP SYSTEMS.
- J. GLASS FIRE INSULATION INSTALLATION: BOND INSULATION TO PIPE WITH ADHESIVE. SEAL SEAMS AND JOINTS WITH VAPOR BARRIER COMPOUND.
- K. INTERIOR PIPING SYSTEM APPLICATIONS: INSULATE THE FOLLOWING PIPING SYSTEMS:
1. DOMESTIC HOT AND COLD WATER
2. EXPOSED SANITARY DRAINS OF FIXTURES FOR THE DISABLED.
3. REFRIGERANT PIPING
- L. DO NOT APPLY INSULATION TO THE FOLLOWING SYSTEMS, MATERIALS AND EQUIPMENT:
1. FLEXIBLE CONNECTORS
2. FIRE PROTECTION PIPING SYSTEMS
3. SANITARY DRAINAGE AND VENT PIPING
4. CHROME PLATED PIPES AND FITTINGS, EXCEPT FOR PLUMBING FIXTURES FOR THE DISABLED
5. PIPING SPECIALITIES, INCLUDING AIR CHAMBERS, UNIONS, STRAINERS, CHECK VALVES, PLUG VALVES AND FLOW REGULATORS.
- M. PIPE INSULATION THICKNESS APPLICATION SCHEDULE: INSULATE PIPING WITH THE FOLLOWING MATERIALS AND THICKNESSES:
1. DOMESTIC HOT AND COLD WATER: 1/2 - INCH PREFORMED GLASS FIBER PIPE INSULATION.
2. SANITARY DRAINS: 1/2-INCH POLYOLEFIN PIPE INSULATION.

END OF SECTION 15080

SECTION 15110 - VALVES

- PART 1 - GENERAL (NOT APPLICABLE)
- PART 2 - PRODUCTS
- 2.1 GENERAL DUTY VALVES
- A. END CONNECTIONS: THREADS SHALL COMPLY WITH ASNI B 1.20.1. FLANGES SHALL COMPLY WITH ANSI B16.1 FOR CAST IRON VALVES AND ANSI B16.24 FOR BRONZE VALVES. SOLDER-JOINT CONNECTIONS SHALL COMPLY WITH ANSI B16.18.
- B. BALL VALVES: RATED FOR 150 PSIG SATURATED STEAM PRESSURE, 400 PSIG WOG PRESSURE; 2 PIECE CONSTRUCTION; WITH BRONZE BODY, STANDARD (OR REGULAR) PORT, CHROME PLATED BRASS BALL, REPLACEABLE "TEFLON" OR "TFE" SEATS AND SEALS, BLOWOUT PROOF STEM AND VINYL COVERED STEEL HANDLE.
- C. PLUG VALVES: RATED AT 150 PSIG WOG; BRONZE BODY, WITH STRAIGHTAWAY PATTERN, SQUARE HEAD AND THREADED ENDS.
- D. SWING CHECK VALVES: CLASS 125, CAST BRONZE BODY AND CAP, WITH HORIZONTAL SWING, Y-PATTERN, AND BRONZE DISC.
- E. VALVES FOR COPPER TUBE: SOLDER ENDS, EXCEPT PROVIDED THREADED ENDS FOR HEATING HOT HOT WATER AND LOW PRESSURE STEAM SERVICE.
- F. VALVES FOR STEEL PIPING: THREADED ENDS

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. USE GATE AND BALL VALVES FOR SHUTOFF DUTY AND BALL FOR THROTTLING DUTY.
- B. LOCATE VALVES FOR EASY ACCESS AND PROVIDE SEPARATE SUPPORT WHERE NECESSARY.
- C. INSTALL VALVES FOR EACH FIXTURE AND ITEM FOR EQUIPMENT.
- D. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE CENTER OF PIPE.
- E. INSTALL VALVES IN A POSITION TO ALLOW FULL STEM MOVEMENT.
- F. INSTALL CHECK VALVES FOR PROPER DIRECTION OF FLOW IN HORIZONTAL POSITION WITH HINGE PIN LEVEL.

END OF SECTION 15110

SECTION 15140 - DOMESTIC WATER PIPING

- PART 1 - GENERAL
- 1.1 SECTION REQUIREMENTS
- A. PERFORMANCE REQUIREMENTS: UNLESS OTHERWISE INDICATED MINIMUM PRESSURE REQUIREMENTS FOR WATER PIPING ARE AS FOLLOWS:
1. SERVICE ENTRANCE PIPING: 100 PSIG
2. DOMESTIC WATER PIPING: 80 PSIG
- B. COMPLY WITH NSF 14 "PLASTIC PIPING COMPONENTS AND MATERIALS"
- C. COMPLY WITH NSF 61 "DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS"

PART 2 - PRODUCTS

- 2.1 PIPES AND TUBES:
- A. HARD COPPER TUBE: ASTM B88, TYPES L AND M, WATER TUBE, DRAWN TEMPER.
- B. PVC PLASTIC, WATER PIPE: ASTM D 1785, SCHEDULE 80, PLAIN ENDS.
- 2.2 FITTINGS
- A. WROUGHT COPPER, SOLDER JOINT PRESSURE FITTINGS: ASME B 16.22
- B. CAST COPPER ALLOY SOLDER JOINT PRESSURE FITTINGS: ASME B 16.18
- C. BRONZE FLANGES: ASME B 16.24, CLASSES 150 AND 300
- D. COPPER UNIONS: ASME B 16.18, CAST COPPER ALLOW BODY, HEXAGONAL STOCK WITH BALL AND SOCKET JOINT, METAL TO METAL SEATING SURFACES AND SOLDER JOINT, THREADED OR SOLDER JOINT AND THREADED ENDS. THREADS COMPLYING WITH ASME B 120.1
- E. PVC PLASTIC, SCHEDULE 80, SOCKET TYPE PIPE FITTINGS: ASTM D 2467.
- 2.3 JOINING MATERIALS
- A. SOLDER FILLER METAL: ASTM B32, LEAD FREE
- B. BRAZING FILLER METALS: AWS A5.8, ALLOWS TO SUIT SYSTEM REQUIREMENTS.
- C. SOLVENT CEMENTS: AS RECOMMENDED BY MANUFACTURER
- D. PLASTIC PIPE SEALS: ASTM F 477, ELASTOMERIC GASKET.

PART 3 - EXECUTION

- 3.1 VALVE APPLICATIONS
- A. INSTALL GATE VALVES CLOSE TO MAIN ON EACH BRANCH AND RISER SERVING TWO OR MORE PLUMBING FIXTURES OR EQUIPMENT CONNECTIONS AND WHERE INDICATED.
- B. INSTALL GATE OR BALL VALVES ON INLET TO EACH PLUMBING EQUIPMENT ITEM, ON EACH SUPPLY TO EACH PLUMBING FIXTURE NOT HAVING STOPS ON SUPPLIES AND ELSEWHERE AS INDICATED.
- C. INSTALL DRAIN VALVE AT BASE OF EACH RISER, AT LOW POINTS OF HORIZONTAL RUNS AND WHERE REQUIRED TO DRAIN WATER DISTRIBUTION PIPING SYSTEM.
- D. INSTALL SWING CHECK VALVE ON DISCHARGE SIDE OF EACH PUMP AND ELSEWHERE AS INDICATED.
- E. INSTALL BALL VALVES IN EACH HOT WATER CIRCULATING LOOP AND DISCHARGE SIDE OF EACH PUMP.

- 3.2 PIPING INSTALLATIONS
- A. INSTALL HANGERS AND SUPPORTS AT INTERVALS INDICATED IN THE APPLICABLE PLUMBING CODE AND AS RECOMMENDED BY PIPE MANUFACTURER.
- B. SUPPORT VERTICAL PIPING AT EACH FLOOR.

- 3.3 INSPECTING AND CLEANING
- A. INSPECT AND TEST PIPING SYSTEMS FOLLOWING PROCEDURES OF AUTHORITIES HAVING JURISDICTION.
- B. CLEAN AND DISINFECT WATER DISTRIBUTION PIPING FOLLOWING PROCEDURES OF AUTHORITIES HAVING JURISDICTION.

END OF SECTION 15140

SECTION 15150 - SANITARY WASTE AND VENT PIPING

- PART 1 - GENERAL
- A. MINIMUM PRESSURE REQUIREMENT OF SOIL, WASTE AND VENT: 10 FEET HEAD
- B. COMPLY WITH NSF 14 "PLASTIC PIPING COMPONENTS AND RELATED MATERIALS"

PART 2 - PRODUCTS

- 2.1 PIPES AND TUBES
- A. PVC PLASTIC, DWV PIPE: ASTM D 2665, SCHEDULE 40, PLAIN ENDS.
- 2.2 FITTINGS
- A. PVC PLASTIC, DWV PIPE FITTINGS ASTM D 2665, MADE TO ASTM D 3311; SOCKET TYPE: DRAIN, WASTE AND VENT PIPE PATTERNS.

PART 3 - EXECUTION

- 3.1 PIPE INSTALLATION
- A. INSTALL CLEANOUT AND EXTENSION TO GRADE AT CONNECTION OF BUILDING SANITARY DRAIN AND BUILDING SANITARY SEWER.
- B. LOCATE DRAINAGE PIPING RUNOUTS AS CLOSE AS POSSIBLE TO BOTTOM OF FLOOR SLAB SUPPORTING FIXTURES OR DRAINS.
- 3.2 INSPECTIONS
- A. INSPECT AND TEST PIPING SYSTEMS FOLLOWING PROCEDURES OF AUTHORITIES HAVING JURISDICTION.

END OF SECTION 15150

SECTION 15410 - PLUMBING FIXTURES

- PART 1 - GENERAL
- 1.1 SECTION REQUIREMENTS
- A. SUBMITTALS: NONE
- B. COMPLY WITH REQUIREMENTS OF PUBLIC LAW 102-486, "ENERGY POLICY ACT" REGARDING WATER FLOW RATE AND WATER CONSUMPTION OF PLUMBING FIXTURES.
- C. COMPLY WITH APPLICABLE STANDARD BELOW.
1. ENAMELED, CAST IRON FIXTURES: ASME A112.19.1M
2. NATIONAL SANITATION FOUNDATION CONSTRUCTION: NFS2
3. PORCELAIN ENAMELED FIXTURES: ASME A112.19.4M
4. SLIP RESISTANT BATHING SURFACES: ASTM F 462
5. STAINLESS STEEL FIXTURES: ASME A112.19.3M
6. VITREOUS CHINA FIXTURES: ASME A112.19.2M

PART 2 - PRODUCTS

- 2.1 REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL FITTING INSULATION KITS ON FIXTURES FOR THE DISABLED.
- B. INSTALL FIXTURES WITH FLANGES AND GASKET SEALS.
- C. INSTALL FLUSHOMETER VALVES FOR ACCESSIBLE WATER CLOSETS AND URINALS WITH HANDLE MOUNTED ON WIDE SIDE OF COMPARTMENT. INSTALL OTHER ACTUATORS IN LOCATIONS THAT ARE EASY FOR THE DISABLE TO REACH.
- D. FASTEN WALL HANGING PLUMBING FIXTURES SECURELY TO SUPPORTS ATTACHED TO BUILDING SUBSTRATE WHEN SUPPORTS ARE SPECIFIED, AND TO BUILDING WALL CONSTRUCTION WHERE NO SUPPORT IS INDICATED.
- E. FASTEN FLOOR MOUNTED FIXTURES TO SUBSTRATE. WITH FIXTURES HAVING HOLES FOR SECURING FIXTURE TO WALL CONSTRUCTION . FASTEN TO REINFORCEMENT BUILT INTO WALLS.
- F. FASTEN WALL MOUNTED FITTINGS TO REINFORCEMENT BUILT INTO WALLS.
- G. FASTEN COUNTER MOUNTED PLUMBING FIXTURES TO CASEWORK.
- H. SECURE SUPPLIES TO SUPPORTS OR SUBSTRATE WITHIN PIPE SPACE BEHIND FIXTURES.
- I. SET SHOWER RECEPTORS AND MOP BASINS IN LEVELING BED OF CEMENT GROUT.
- J. INSTALL INDIVIDUAL SUPPLY INLETS, SUPPLY STOPS, SUPPLY RISER AND TUBULAR BRASS TRAPS WITH CLEANOUTS AT FIXTURE.
- K. INSTALL WATER SUPPLY STOP VALVE SIN ACCESSIBLE LOCATIONS.
- L. INSTALL TRAPS ON FIXTURE OUTLETS. OMIT TRAPS ON FIXTURES HAVING INTEGRAL TRAPS. OMIT TRAPS ON INDIRECT WASTE, UNLESS OTHERWISE INDICATED.
- M. INSTALL ESCUTCHEONS AT WALLS, FLOOR AND CEILING PENETRATIONS IN EXPOSED, FINISHED, LOCATION AND WITHIN CABINETS AND MILLWORK. USE DEEP PATTERN ESCUTCHEONS WHERE REQUIRED TO CONCEAL PROTRUDING PIPE FITTINGS.
- N. SEAL JOINTS BETWEEN FIXTURES AND WALLS, FLOORS AND COUNTERS USING SANITARY TYPING, ONE PART, MILDEW RESISTANT, SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.
- O. INSTALL PIPING CONNECTIONS BETWEEN PLUMBING FIXTURES AND PIPING SYSTEMS AND PLUMBING EQUIPMENT. INSTALL INSULATION ON SUPPLIES AND DRAINS OF FIXTURES FOR THE DISABLED.
- P. GROUND EQUIPMENT, TIGHTEN ELECTRICAL CONNECTORS AND TERMINATE ACCORDING TO UL 486A AND UL 486B.

END OF SECTION 15410

SECTION 15425 - PLUMBING SPECIALITIES

PART 1 - GENERAL

- 1.1 SECTION REQUIREMENTS
- A. MINIMUM WORKING PRESSURE RATING FOR PRODUCTS:

1. WATER DISTRIBUTION PIPING: 80 PSIG.
- B. SUBMITTALS: PRODUCT DATA

PART 2 - PRODUCTS

- 2.1 REFER TO FIXTURE SCHEDULE

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL BACKFLOW PREVENTERS AT EACH WATER SUPPLY CONNECTION TO MECHANICAL EQUIPMENT AND WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION.
- B. INSTALL HOSE BIBBS WITH INTEGRAL OR FIELD INSTALLED VACUUM BREAKER
- C. INSTALL FLOOR DRAINS AT LOW POINTS OF SURFACE AREAS AND WHERE INDICATED. SET TOPS OF DRAINS FLUSH WITH FINISHED FLOOR.
1. TRAP DRAINS CONNECT TO SANITARY BUILDING DRAIN.
2. INSTALL DRAIN FLASHING COLLAR OR FLANGE SO NO LEAKAGE OCCURS BETWEEN DRAIN AND ADJOINING FLOOR. MAINTAIN INTEGRITY OF WATERPROOF MEMBRANES.

END OF SECTION 15425

SECTION 15554 - FLUES AND VENTS

PART 1 - GENERAL

- 1.1 SECTION REQUIREMENTS
- A. SUBMITTALS: NONE

PART 2 - PRODUCTS

- 2.1 GAS VENTS
- A. VENT/AIR INTAKE FOR HIGH EFFICIENCY DOMESTIC WATER HEATER. SIZE PER MANUFACTURERS RECOMMENDATION.
- B. ACCESSORIES: TEES, ELBOWS, INCREASERS, DRAFT HOOD CONNECTORS, METAL CAP WITH BIRD BARRIER, ADJUSTABLE ROOF FLASHING, STORM COLLAR, SUPPORT ASSEMBLY, THIMBLES, FIRESTOPPING SPACERS AND FASTENERS; FABRICATED OF SIMILAR MATERIALS AND DESIGNS AS VENT-PIPING STRAIGHT SECTIONS.

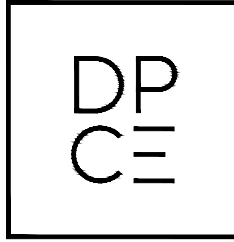
PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL VENTS ACCORDING TO STIPULATED MINIMUM CLEARANCES FROM COMBUSTIBLES.
- B. SEAL BETWEEN SECTIONS OF POSITIVE PRESSURE VENTS USING ONLY SEALANTS RECOMMENDED BY MANUFACTURER.
- C. SUPPORT VENTS AT INTERVALS TO SUPPORT THE WEIGHT OF THE VENT AND ALL ACCESSORIES, WITHOUT EXCEEDING LOADING OF APPLIANCES.

END OF SECTION 15554

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PROJECT ENGINEER:
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DRAWING:
PLUMBING
SPECIFICATIONS

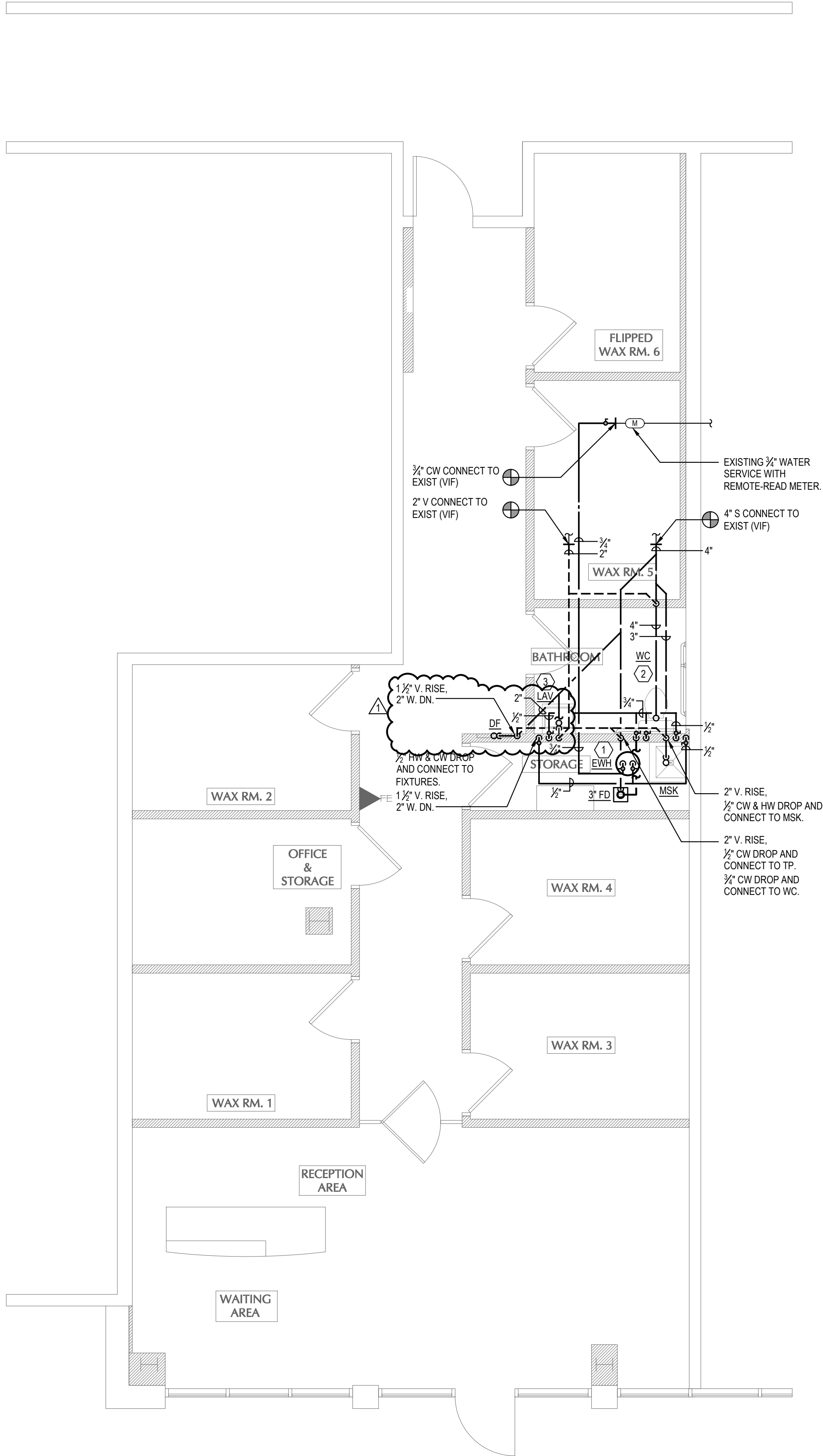
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DRAWING NOTES

1. THE PLUMBING CONTRACTOR SHALL COORDINATE ALL NEW WORK WITH THE EXISTING CONDITIONS AND THE NEW WORK OF ALL OTHER TRADES ON THE JOB SITE AND SHALL BE RESPONSIBLE TO REPAIR AND REPLACE ANY EXISTING SUSPENDED CEILINGS AND/OR FINISHES DAMAGED BY THE INSTALLATION OF EQUIPMENT, PIPING, FIXTURES, ETC. UNDER THE PLUMBING CONTRACT.
2. ALL REQUIRED CLEANOUTS SHALL BE INSTALLED AS PER 2015 INTERNATIONAL PLUMBING CODE.
3. ROUTING OF WASTE, VENT AND DOMESTIC WATER PIPING IS SHOWN DIAGRAMMATICALLY ONLY. PLUMBING CONTRACTORS MUST DETERMINE EXACT ROUTING OF NEW PIPING COORDINATED WITH ALL NEW AND EXISTING CONDITIONS
4. THE HOT WATER SYSTEM DESIGN COMPLIED WITH ASSE 1070 WHICH LIMITS THE HOT WATER SUPPLY TEMPERATURE TO 120°F.
5. ALL PIPE, PIPE FITTINGS, TRAPS, FIXTURES, MATERIAL AND DEVICES USED IN THE PLUMBING SYSTEM SHALL BE LISTED OR THIRD PART CERTIFIED BY AN APPROVED LISTING AGENCY AND SHALL CONFORM TO APPLICABLE RECOGNIZED STANDARDS REFERENCED IN THE OHIO PLUMBING CODE.
6. ALL TENANT WASTE LINES SHOULD BE NEW AND CONNECT TO THE BASE BUILDING SANITARY WASTE RISER, CONTRACTOR SHALL NOT REUSE ANY EXISTING HORIZONTAL WASTE LINES.
7. EACH PLUMBING VENT SHALL TERMINATE NOT LESS THAN 10 FEET OR AT LEAST 3 FEET ABOVE ANY WINDOW, DOOR, OPENING OR AIR INTAKES.

PLUMBING KEY NOTES

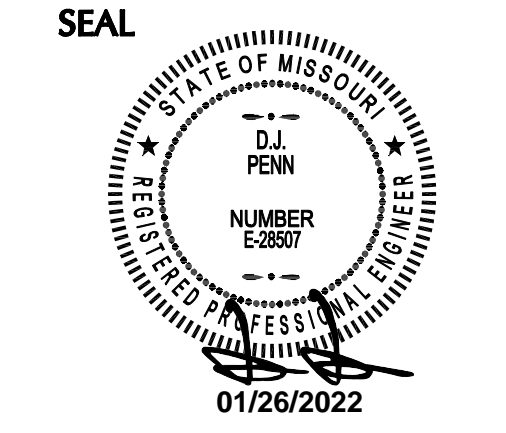
- ① NEW ELECTRIC WATER HEATER, 3 KW, 12 GALLON CAPACITY. PROVIDE 3/4" WATER CONNECTIONS TO HEATER. PROVIDE DRAIN PAN PIPED TO ADJACENT FLOOR DRAIN. PROVIDE THERMOSTATIC MIXING VALVE. PROVIDE AMTROL MODEL # ST-5C EXPANSION TANK.
- ② INSTALL NEW WATER CLOSET. PROVIDE 3/4" CW CONNECTION WITH WATER HAMMER ARRESTOR. BOTTOM DISCHARGE TOILET CONNECT 4" SANITARY PIPING.
- ③ INSTALL NEW LAVATORY. PROVIDE 1/2" CW & HW CONNECTIONS AND 2" SANITARY PIPING. PROVIDE 1" VENT AND LOCAL THERMOSTATIC MIXING VALVE WITH NO LEAD SET AT 105°F.

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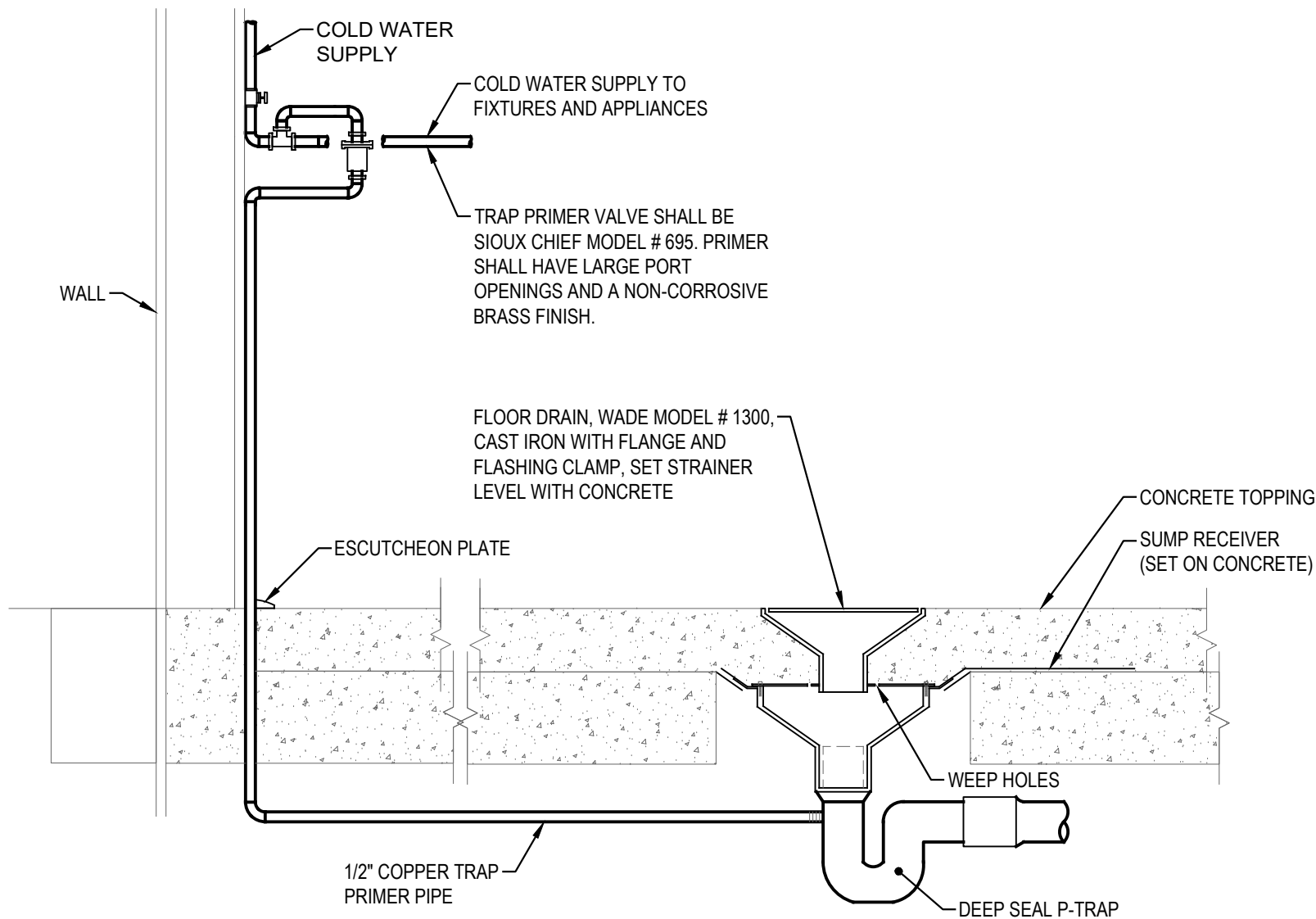
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SL
PROJECT ENGINEER:
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DRAWING:
PLUMBING
FIRST FLOOR PLAN
SCALE:
1/4" = 1'-0"



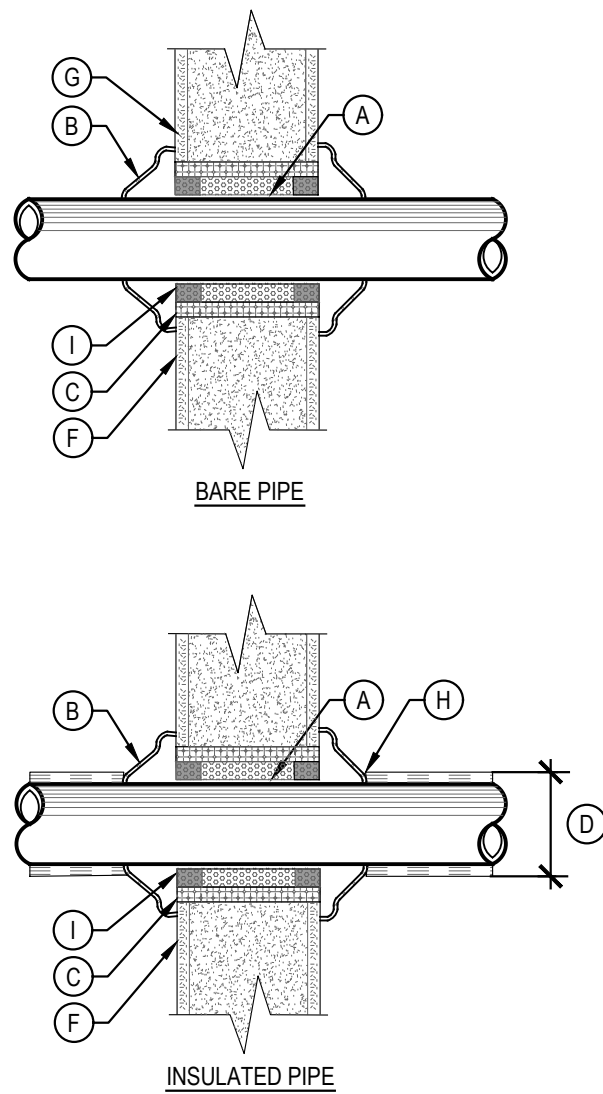
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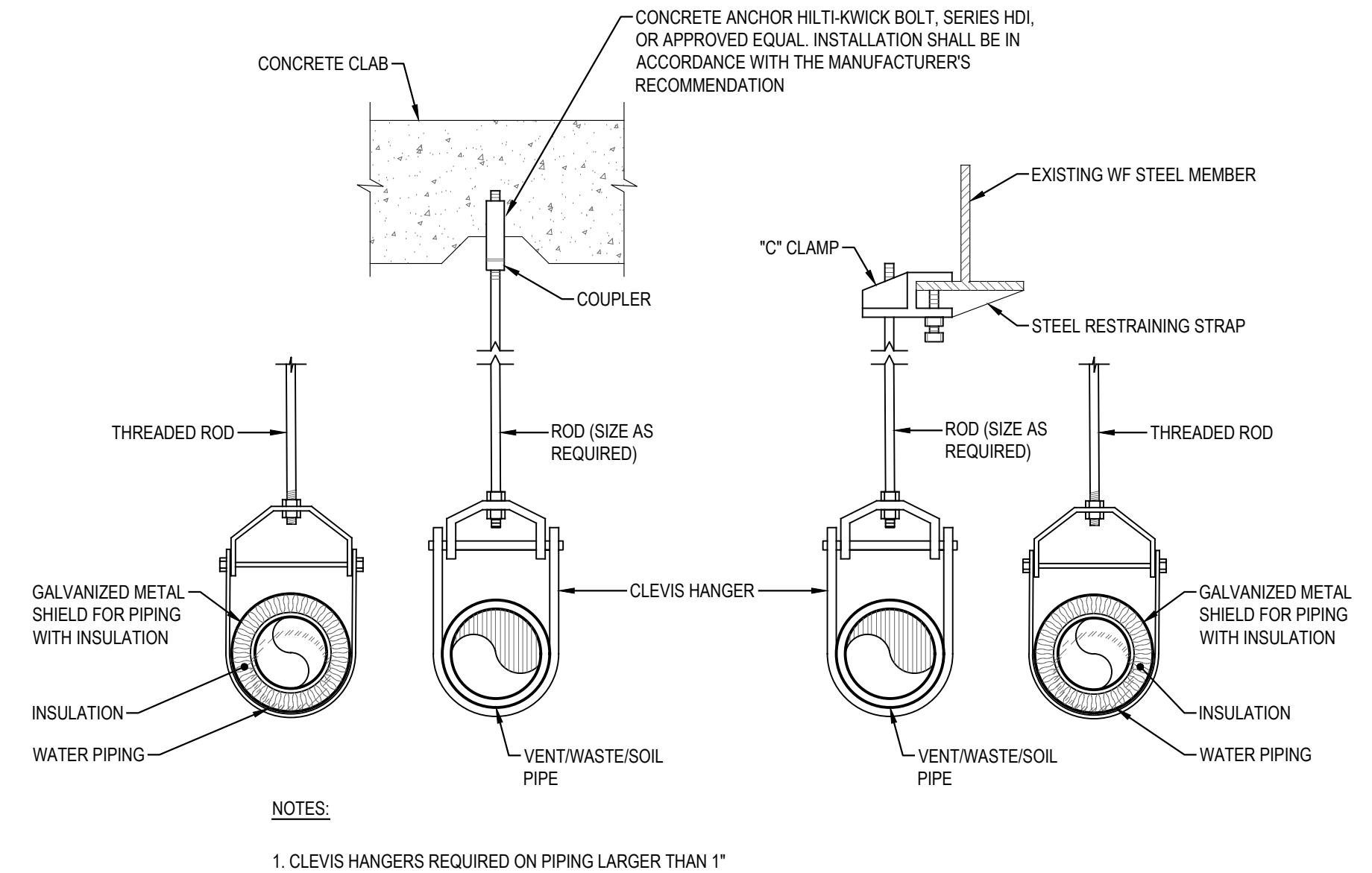
FLOOR DRAIN TRAP PRIMER DETAIL

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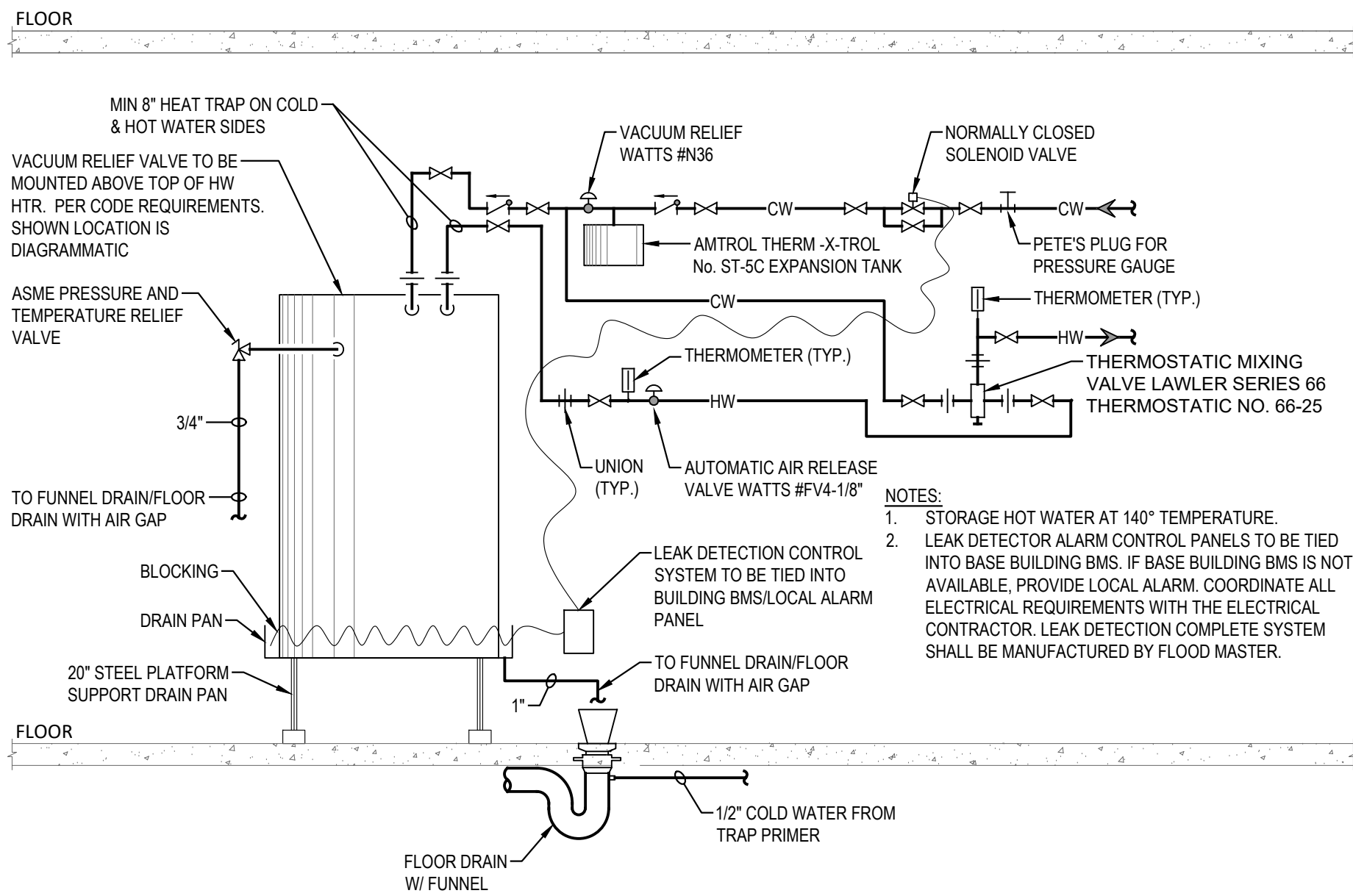
PIPING PIERCING FIRE RATED PARTITIONS, WALLS AND FLOORS DETAILS

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TYPICAL HANGER DETAILS

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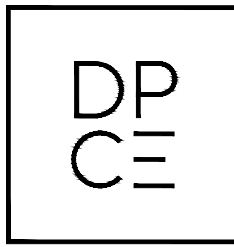


NEW FLOOR MOUNTED ELECTRIC WATER HEATER INSTALLATION DETAIL

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P-501

ITEM	LOCATION	STORAGE CAPACITY (GAL)	RECOVERY RATE (GPH)	WORKING PRESSURE (PSIG)	TEMP. RISE (°F)	ELECTRICAL			MAXIMUM OPERATING WEIGHT (LBS)	MANUFACTURER/ MODEL	NOTES
						V/PH	KW	QUANTITY OF ELEMENTS/TYPE			
EW1	STORAGE	12	12	--	100	208/3	3	2/ROD	--	BRADFORD WHITE LE112T3-1	1,3,5,
ELECTRIC TANK WATER HEATER SCHEDULE NOTES:											
1. PROVIDE WITH PRESSURE AND TEMPERATURE RELIEF VALVE, MAGNESIUM ANODE ROD AND BAKED ENAMEL FINISH OUTER JACKET. 2. PROVIDE DRIP PAN. 3. TANK SHALL BE ENCLOSED WITH FOAM INSULATION AND SHALL MEET OR EXCEED THE REQUIREMENTS OF ASHRAE STANDARDS FOR ENERGY DEFICIENCIES. 4. PROVIDE EXPANSION TANK. AMTROL ST-5 OR SIMILAR. 5. PROVIDE LEAK DETECTION.											

SERVICE	PIPE	REMARKS
DOMESTIC WATER SYSTEM	HARD DRAWN COPPER TUBING, ASTM B88	TYPE K FOR UNDERGROUND USE
DOMESTIC COLD WATER SYSTEM	SEAMLESS COPPER TUBING, TYPE L HARD DRAWN, ASTM B88	ABOVE FLOOR USE
SOIL, WASTE AND VENT	COPPER DWV PIPE WITH SOLDERED FITTINGS	ABOVE GROUND (EXPOSED)
SOIL, WASTE AND VENT	PVC PLASTIC DWV PIPES AND FITINGS	ABOVE FLOOR USE (CONCEALED), BELOW GROUND
1. NOT ALL PIPING LISTED WITHIN THIS SCHEDULE WILL BE UTILIZED ON THIS PROJECT.		

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	TABLE CA03.2.10: MINIMUM PIPE INSULATION THICKNESS (IN INCHES) a,c							
	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)					
	CONDUCTIVITY BTU IN/(h x ft² x °F)	MEAN RATING TEMPERATURE, °F	<1	1 TO <1 1/2"	1 1/2" TO < 4	4 TO < 8	≥8	SELECTED ITEM
>350	0.32 - 0.34	250	4.5	5.0	5.0	5.0	5.0	
251 - 350	0.29 - 0.32	200	3.0	4.0	4.5	4.5	4.5	
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0	
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0	
105 - 140	0.21 - 0.28	100	1.0	1.0	1.5	1.5	1.5	
40 - 60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0	
< 40	0.20 - 0.26	50	0.5	1.0	1.0	1.0	1.5	

MINIMUM PIPE INSULATION THICKNESS SCHEDULE (IN INCHES) NOTES:

- FOR PIPING SMALLER THAN 1 1/2" INCHES AND LOCATED IN PARTITIONS WITHIN CONDITIONED SPACES, REDUCTION OF THESE THICKNESSES BY 1" SHALL BE PERMITTED (BEFORE THICKNESS ADJUSTMENT REQUIRED IN FOOTNOTE B) BUT NOT TO THICKNESS LESS THAN 1 INCH.
- FOR INSULATION OUTSIDE THE STATED CONDUCTIVITY RANGE, THE MINIMUM THICKNESS (T) SHALL BE DETERMINED.



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