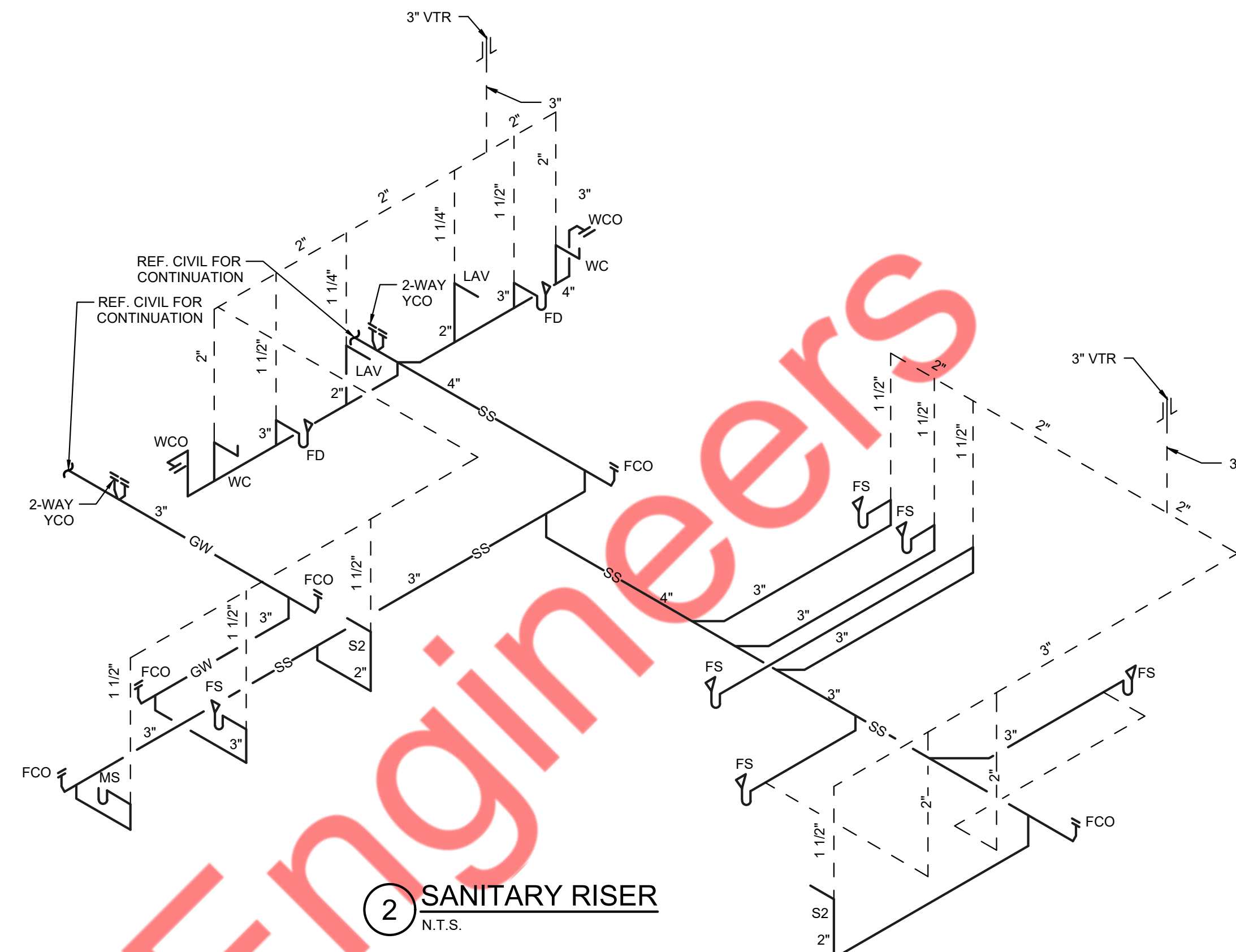


TAG	FIXTURE	MODEL	DESCRIPTION	NOTES
WHA	WATER HAMMER ARRESTOR	SILOUX CHIEF 652-A	CONFORM TO PDH-201. ASSE 1000; TEMP TO 200°F; MAX 350 PSIG WORKING PRESSURE	A
TMV	TEMPERATURE MIXING VALVE	WATTS LFUSC-8-M1	4" 3/4" UP TO 120°F; WITH BUILT-IN CHECK VALVES, BRASS BODY, AND COPPER THERMOSTAT	
---	TRAP PRIMER	SILOUX CHIEF 695	BRONZE PRIMER VALVE WITH REMOVABLE OPERATING PARTS INTEGRAL VACUUM BREAKER AND GAS-VENTED ACCESS COVER	
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER	WILKINS 975XL	BRONZE BODY WITH SHUT-OFF VALVES, 1" STRAINER, AND TEST COCKS	
FD	FLOOR DRAIN	SILOUX CHIEF 832-36PWC	3" LIGHT DUTY DRAIN WITH 7" SQUARE TOP; PVC BODY WITH NICKEL BRONZE RING AND STRAINER PROVIDED WITH 3" DRAIN AND 1 1/2" VENT	
FS	FLOOR SINK	SILOUX CHIEF 861	WHITE PVC 12" X 12" FLOOR SINK WITH 3/4" HEAVY DUTY PVC HALF GRATE, SEDIMENT BUCKET PROVIDED WITH 3" DRAIN AND 1 1/2" VENT	
FCO	FLOOR CLEANOUT	SILOUX CHIEF 851	PVC BODY; ROUND HEAVY-DUTY CAST IRON TOP; POLYPROPYLENE OR ABS PLUG; ADJUSTABLE TO FINISH SURFACE	B
YCO	YARD CLEANOUT	SILOUX CHIEF 834	DURA-COATED CAST IRON, DOUBLE-FLANGED HOUSING AND HEAVY-DUTY SCOTCHBRED DUCTILE IRON COVER	B
WCO	WALL CLEANOUT	SILOUX CHIEF 873	THREADED; COUNTERBURN BRONZE CLEANOUT PLUG; PROVIDE DRILLED TAP FOR CENTER SCREW AND STAINLESS STEEL COVER	
DRV	DRAIN VALVE	GRANZOW E2815-00V	ELECTRONIC DRAIN VALVE; TIMER SET TO 15 SECONDS ON, 15 MINUTES OFF; 1/4" CW CONNECTION; 120V AC CONNECTION	

NOTES:  
A. SIZE PER MANUFACTURER'S RECOMMENDATION  
B. CLEANOUT SHALL BE SAME SIZE AS PIPE BEING SERVED.  
C. THIS SCHEDULE IS COMPREHENSIVE. ALL MARKS MAY OR MAY NOT BE USED ON PLANS.

TAG	FIXTURE	MANUFACTURER	MODEL	CW	HW	WASTE	VENT	DESCRIPTION
WC	WATER CLOSET	AMERICAN STANDARD	MADERA 3461 001 (BOWL) 606B 11 (FLUSHVALVE)	1"	---	4"	2"	FIXTURE AND HARDWARE PROVIDED BY FERGUSON ENTERPRISES, LLC. ATTN: <a href="mailto:plumbing@ferguson.com">plumbing@ferguson.com</a> . CONTRACT: JASON WADLES (77) 234-5204 (DIRECT); (773) 980-0144 (CELL). FIXTURE AND HARDWARE INSTALLED BY PLUMBING CONTRACTOR 10' ROUGH-IN, COLOR: WHITE AMERICAN STANDARD MADERA OPEN FRONT SEAT. NO COVER. 16-1/2" RIM HEIGHT. FOR HAND-CAPRED, HARD WIRED SENSOR OPERATED FLUSH VALVE. 1" GPF. WITH VACUUM BREAKER. MOUNT CONTROLS ON ACCESSIBLE SIDE OF TOILET. CONTRACTOR TO COORDINATE WITH FIXTURE SUPPLIER FOR LEFT-HAND FLUSH LEVER TO COMPLY WITH ADA REQUIREMENTS.
LAV	LAVATORY	KOHLER	KINGSTON K-2055	1/2"	1/2"	1 1/4"	1 1/4"	FIXTURE AND HARDWARE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR. WALL MOUNT WITH ZURN 7231 CONCEALED ARM CARRIER, 4" CENTERS WITH CHROME T&S MODEL EC-3103-TM MOTION ACTIVATED FAUCET (EP-1 ITEM #479), B-9199-03-NOS AERATOR (6.5 GPM); FAUCET INCLUDES ACIDIC CONTROL MODULE W/ INTEGRAL FLOW CONTROL. SETTING: TEMPERATURE CONTROL MIXING VALVE SET TO 109°F W/ INTEGRAL CHECK VALVES. 1/2" STAINLESS STEEL FLEXIBLE HOSES. INSTALL TRUBRO 8202 LAV-SHIELD SHROUD. REF ARCHITECTURAL DRAWINGS FOR ROUGH-IN ELEVATIONS.
MS	MOP SINK	FIAT	MSB-2424	1/2"	1/2"	3"	1 1/2"	FIXTURE AND HARDWARE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR. NO. 830A FAUCET WITH INTEGRAL VACUUM BREAKER, NO. 830-A HOSE AND BRACKET, NO. 14538B FLOOR STRAINER AND NO. 895-CC MOP HANGER. FIXTURE AND HARDWARE OWNER FURNISHED. INSTALLED BY PLUMBING CONTRACTOR. ADA COMPLIANT. STAINLESS STEEL FIXTURE. BRASS FAUCET & P-TRAP. PROVIDED WITH STOP VALVES, FLEXIBLE SUPPLY RISERS, TRUBRO LAV GUARD 2 PROTECTIVE PIPE COVERS ON EXPOSED HOT WATER AND DRAIN LINES AND TEMPERATURE-ACTUATING MIXING VALVE & SET TO 105°F.
S1	HAND SINK	---	---	1/2"	1/2"	1 1/2"	1 1/2"	FIXTURE AND HARDWARE OWNER FURNISHED. INSTALLED BY PLUMBING CONTRACTOR. ADA COMPLIANT. CUSTOM WALL MOUNT 10" FRONT TO BACK X 14" X 8" D HAND SINK (PRODUCTION LINE). PROVIDED WITH BRASS FAUCET SUPPLIER PART #B-1148 & P-TRAP. INSTALL TRUBRO LAV GUARD 2 PROTECTIVE PIPE COVERS ON EXPOSED HOT WATER AND DRAIN LINES. STOP VALVES AND TEMPERATURE-ACTUATING MIXING VALVE & SET TO 105°F.
S2	HAND SINK	JOHN BOOS	PBHS-W01410-SSLR	1/2"	1/2"	1 1/2"	1 1/2"	BOWL SIZE 12" X 16" X 12". FIXTURE AND HARDWARE OWNER FURNISHED. INSTALLED BY PLUMBING CONTRACTOR. PROVIDED WITH T&S MODEL MPV20V-080 8" FAUCET (EP-1 ITEM #600), P-TRAP AND STOP VALVES.
S3	3-COMPARTMENT SINK	TURBO AIR	TSA-3-D1-711	1/2"	1/2"	3"	2"	FIXTURE AND HARDWARE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR. CAST BRASS THREADED SILKLOCK WITH FLANGE, CAST IRON HANDWHEEL, AND TAMPER-PROOF VACUUM BREAKER. 3/4" N.P.T. INLET, AND 3/4" H.P.T. OUTLET. PROVIDED WITH 25 FOOT HOSE AND SPRAY GUN. MOUNT 24" AFF.
FPWH	FREEZE-PROOF WALL HYDRANT	JOSAM	71000	3/4"	---	---	---	FIXTURE AND HARDWARE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR. CAST BRASS THREADED SILKLOCK WITH FLANGE, CAST IRON HANDWHEEL, AND TAMPER-PROOF VACUUM BREAKER. 3/4" N.P.T. INLET, AND 3/4" H.P.T. OUTLET. PROVIDED WITH 25 FOOT HOSE AND SPRAY GUN. MOUNT 24" AFF.
HB	HOSE BIBB	WATTS	SC8	3/4"	---	---	---	FIXTURE AND HARDWARE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR. CAST BRASS THREADED SILKLOCK WITH FLANGE, CAST IRON HANDWHEEL, AND TAMPER-PROOF VACUUM BREAKER. 3/4" N.P.T. INLET, AND 3/4" H.P.T. OUTLET. PROVIDED WITH 25 FOOT HOSE AND SPRAY GUN. MOUNT 24" AFF.

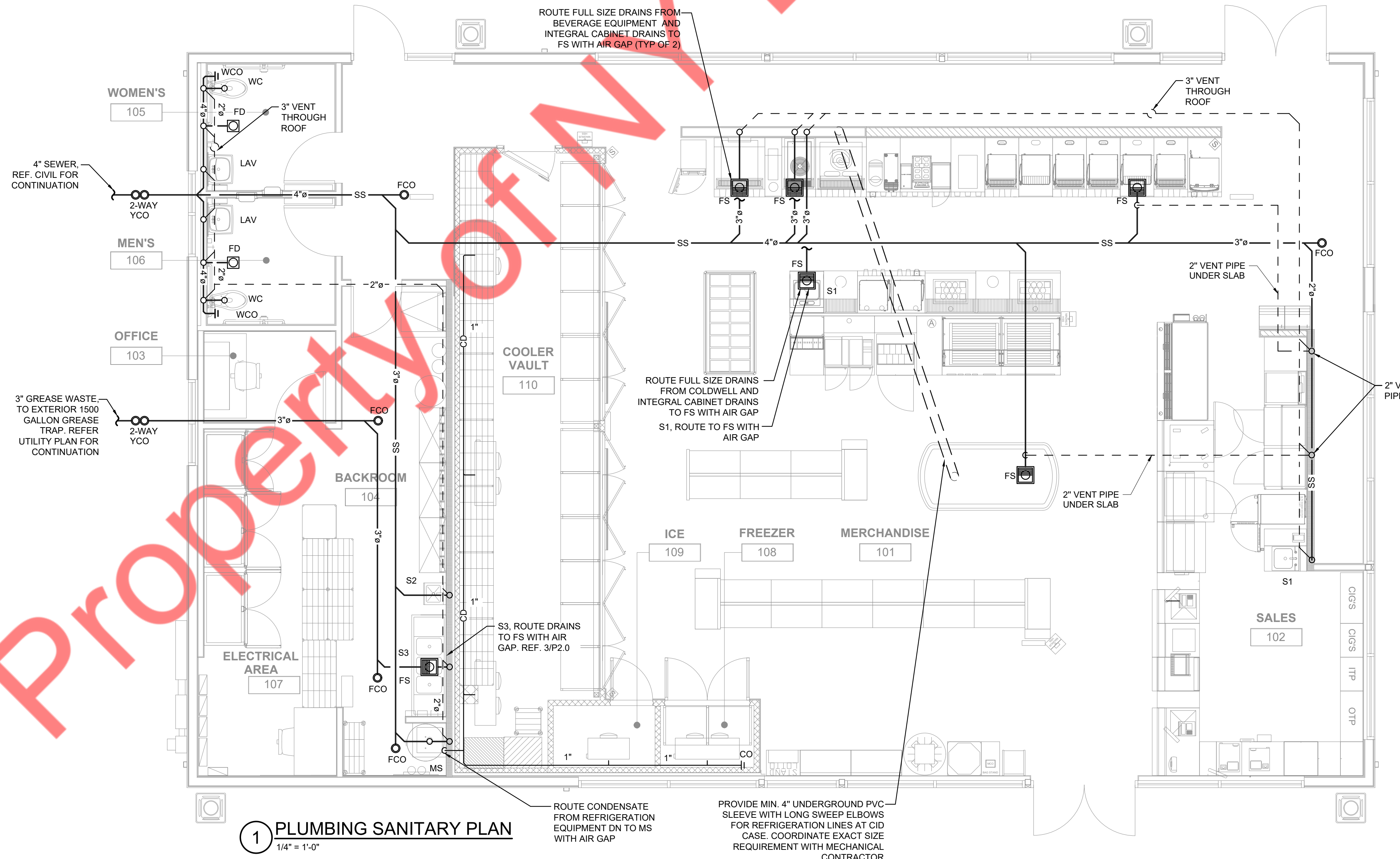
REFERENCE PLUMBING FIXTURE SCHEDULE FOR CONCEALED ARM CARRIER TO BE INSTALLED FOR WALL MOUNTING LAVATORY, REFER TO 11 & 12/A2.1.



2 SANITARY RISER  
N.T.S.

PLUMBING SYMBOLS

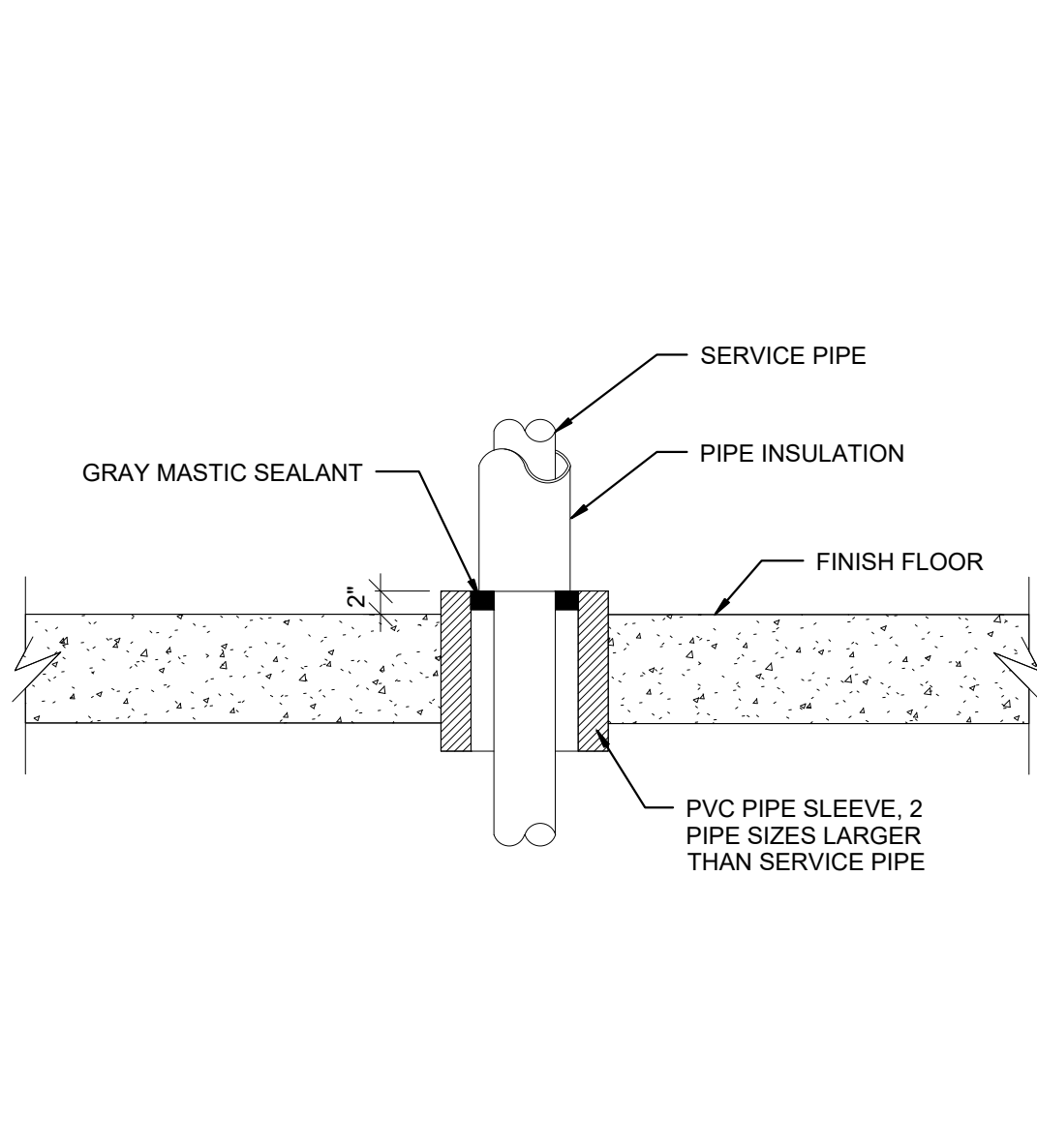
SS	SANITARY SEWER
GW	GREASE WASTE
GI	GREASE INTERCEPTOR
---	DOMESTIC COLD WATER
---	DOMESTIC HOT WATER
---	DOMESTIC HOT WATER RETURN
FW	FILTERED WATER
G	NATURAL GAS
CD	CONDENSATE DRAIN
---	PLUMBING VENT
U	UNION
E	ELBOW - TURNED DOWN
E	ELBOW - TURNED UP
T	TEE - TURNED DOWN
T	TEE - TURNED UP
B	BALL VALVE
S	SHUT-OFF VALVE IN VERTICAL LINE
P	BACKFLOW PREVENTER
FD	FLOOR DRAIN
FS	FLOOR SINK
FCO	FLOOR CLEANOUT
YCO	YARD CLEANOUT
FPWH	FREEZE PROOF WALL HYDRANT
HB	HOSE BIBB
WCO	WALL CLEANOUT
GR	GAS PRESSURE REGULATOR
GC	GAS COCK



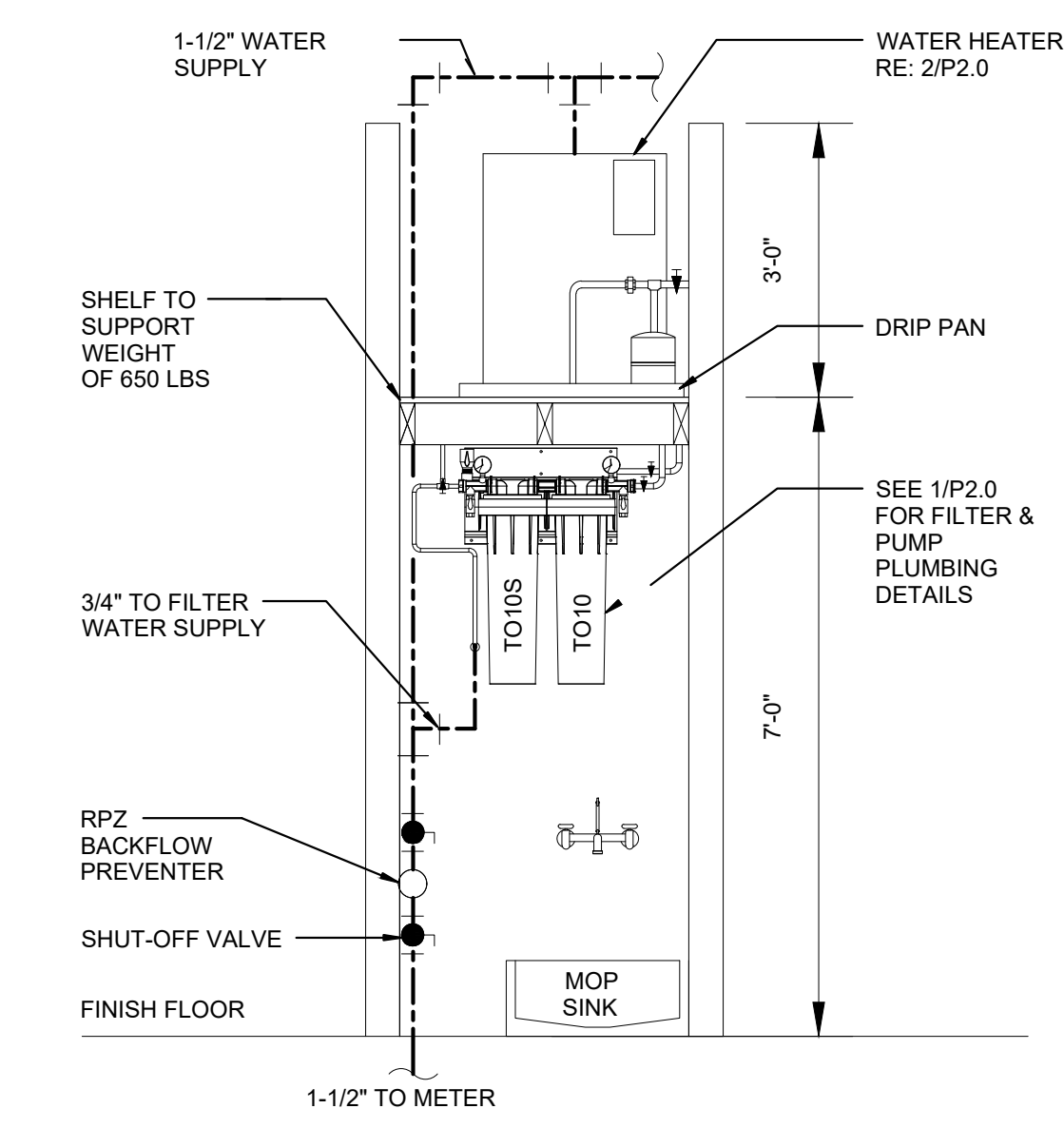
1 PLUMBING SANITARY PLAN  
1/4" = 1'-0"

PLUMBING NOTES

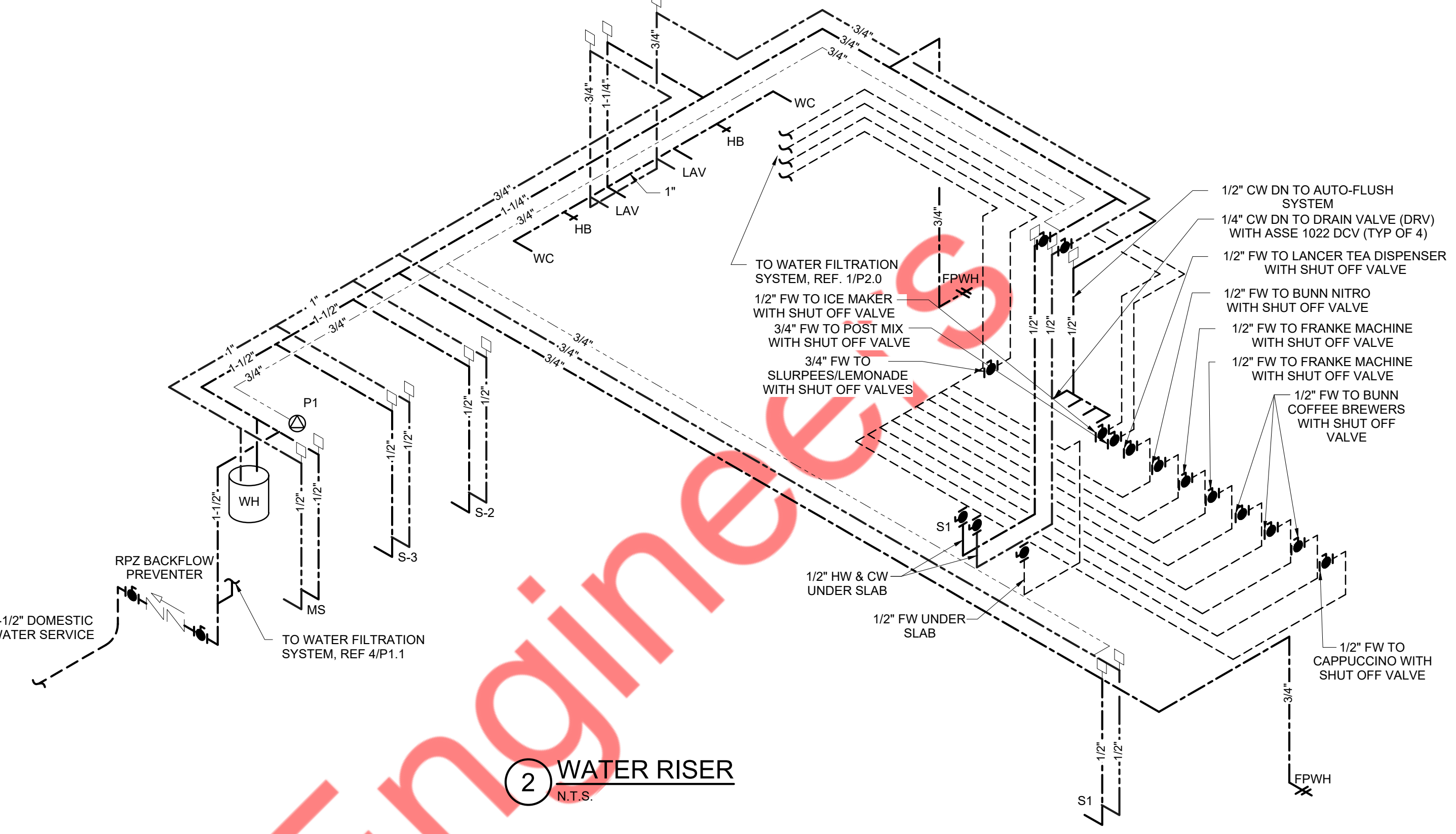
- NOTES APPLY TO ALL PLUMBING SHEETS.
- EACH CONTRACTOR IS RESPONSIBLE FOR HAVING THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS AS THEY RELATE TO THIS WORK. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED DUE TO LACK OF THIS KNOWLEDGE.
- PROVIDE ALL MATERIALS FOR A COMPLETE INSTALLATION IN ALL RESPECTS READY FOR INTENDED USE AND IN STRICT ACCORDANCE WITH STATE AND LOCAL CODES AND MANUFACTURER'S RECOMMENDATIONS.
- COORDINATE SEWER AND WATER CONNECTIONS WITH CIVIL AND AHJ. PROVIDE PRESSURE REDUCING VALVE AND BACKFLOW PREVENTER AS SHOWN OR REQUIRED BY AHJ. VERIFY INVERT AND SLOPE OF INCOMING SANITARY SEWER BEFORE TRENCHING.
- REFER TO RISER DIAGRAMS AND PLUMBING FIXTURE SCHEDULE FOR ALL PIPING AND PIPE SIZES NOT SHOWN ON PLAN.
- SANITARY AND STORM SEWER PIPING SHOWN IS BASED ON 1/4" PER FOOT FALL FOR ALL PIPE SMALLER THAN 3" DIAMETER AND 1/8" PER FOOT FALL FOR PIPE 3" DIAMETER AND LARGER.
- ALL SEWER PIPING BELOW SLAB TO BE 2" DIAMETER MINIMUM.
- PROVIDE ACCESS DOORS TO ALL CONCEALED VALVES AND CLEAN-OUTS; AND NOT ABOVE AN ACCESSIBLE CEILING.
- PROVIDE TRAP SEAL PRIMERS AND 1/2" COPPER TUBING CONNECTION TO ALL FLOOR DRAINS AS SHOWN OR AS REQUIRED BY AHJ. CONTRACTOR SHALL VERIFY REQUIREMENTS.
- INSTALL VTR'S, EXHAUST FANS, AND FLUES A MINIMUM 5'-0" FROM PARAPET OR OUTSIDE WALL AND 10'-0" MINIMUM FROM EQUIPMENT WITH OUTSIDE AIR INTAKE.
- INSTALL WATER PIPE ON INSIDE OF EXTERIOR WALL INSULATION TO PREVENT FREEZING.
- WHEN DEEP FROST LOCATIONS ARE ENCOUNTERED, ROUTE SANITARY LINES UNDER BUILDING AS MUCH AS POSSIBLE.
- PROVIDE PVC SLEEVE FOR ALL COLD/HOT WATER FLOOR PIPE PENETRATIONS. MAKE SLEEVE LARGE ENOUGH FOR INSULATION. SEAL WITH GRAY MASTIC AND ENSURE OF NO WATER PENETRATIONS.
- PROVIDE AND INSTALL WATTS 8A VACUUM BREAKER ON ANY THREADED EXTERIOR OR INTERIOR FAUCETS.
- ALL WATER SHUT-OFF VALVES SHALL BE "BALL LOCK" TYPE. PROVIDE SHUT-OFF VALVES AT EACH TERMINATION POINT OF ASSOCIATED EQUIPMENT.
- PROVIDE SEISMIC BRACING BASED ON APPROPRIATE SEISMIC ZONE REQUIREMENTS PER LOCAL AND NATIONAL CODES. CONTRACTOR'S RESPONSIBILITY INCLUDES STRUCTURAL ENGINEER'S CERTIFICATION ON DETAILS SUBMITTED FOR PERMITTING.



**3 PIPE SLEEVE DETAIL**  
3/4" = 1'-0"



**4 PLUMBING CONNECTION DETAIL (SIM)**  
1/2" = 1'-0"



**2 WATER RISER**  
N.T.S.

WATER HEATER SCHEDULE						
MARK	MANUFACTURER	MODEL	TANK SIZE	KW	V/Ph	NOTES
WH	RHEEM	ELDS52	47	9	208/3	A, B, C

GENERAL INFORMATION (ALL UNITS):  
1. 120 DEG. F. OUTLET TEMPERATURE.

NOTES:  
A. PROVIDE AMTROL (OR EQUAL) EXPANSION TANK AND DRAIN PAN SIZED PER MANUFACTURER'S RECOMMENDATIONS.  
B. MOUNT WATER HEATER ON SUPPORT PLATFORM, REF. 2/P2.0.  
C. WIRED FOR SIMULTANEOUS OPERATION.

PUMP SCHEDULE					
MARK	MANUFACTURER	MODEL	HEAD (FT)	V/Ph	NOTES
P1	BELL & GOSSETT	NBF-9U/LW	11 @ 5 GPM	120/1	A-D

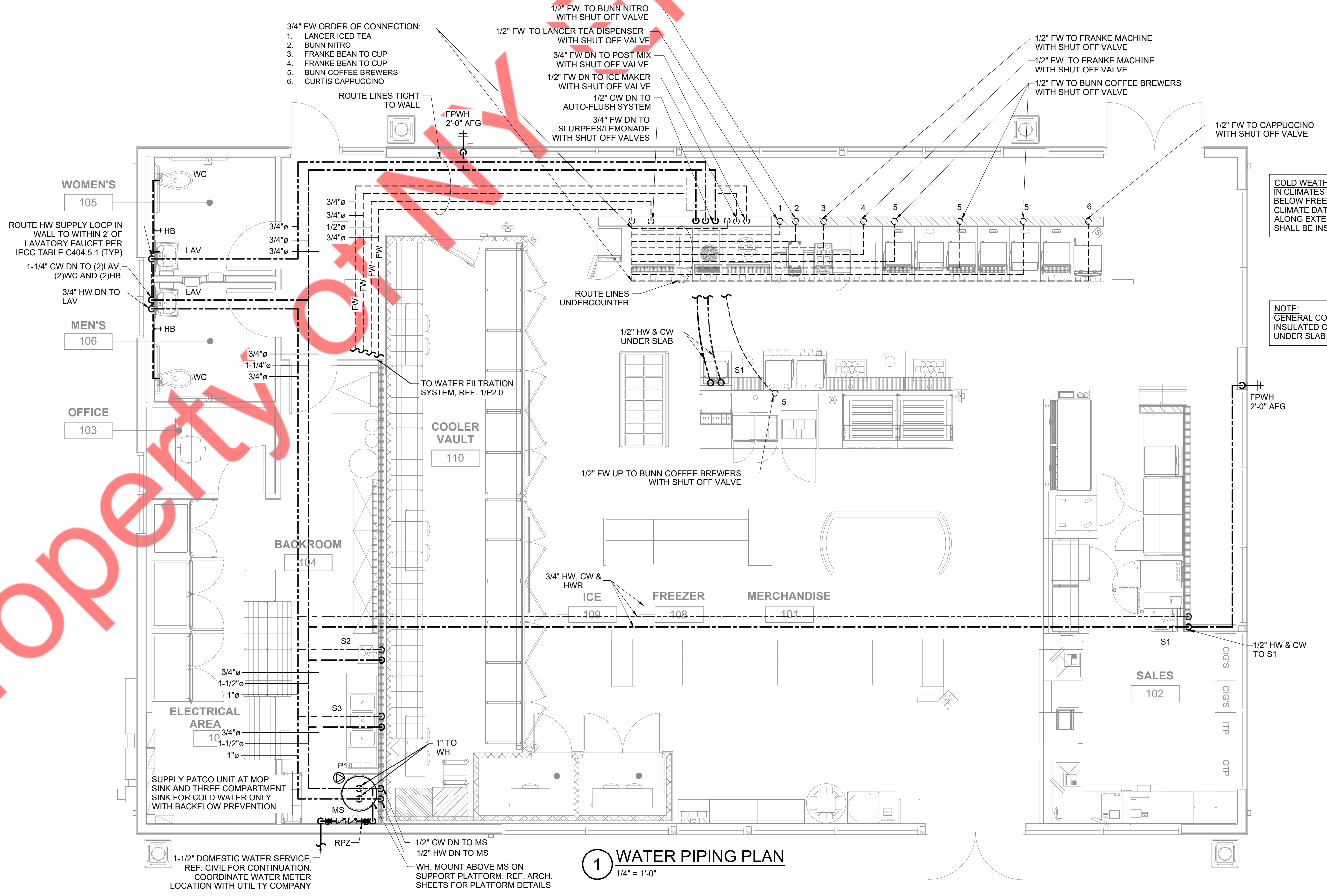
NOTES:  
A. LEAD FREE CONSTRUCTION.  
B. PROVIDE WITH FLEXIBLE PLUG-IN CORD.  
C. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.  
D. PROVIDE WITH FLOW AND TEMPERATURE SENSORS FOR ON-DEMAND CIRCULATION CONTROLS PER 2015 IECC C404.7, REF. 2/P2.0.

WATER ROUGH-IN HEIGHTS			
MARK	SERVICE	SIZE	HEIGHT (AFF)
WC	COLD WATER	1"	28"
LAV	HOT & COLD WATER	1/2"	22"
MS	HOT & COLD WATER	1/2"	36"
S1	HOT & COLD WATER	1/2"	18"
S2	HOT & COLD WATER	1/2"	18"
S3	HOT & COLD WATER	1/2"	24"
HB	COLD WATER	3/4"	24"

NOTES:  
A. FIELD VERIFY ROUGH-IN REQUIREMENTS PER MANUFACTURER'S RECOMMENDATIONS.

**ENERGY CONSERVATION NOTES**

- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE C404.4, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE OF MINIMUM PIPE INSULATION THICKNESS.
- | FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F) | MINIMUM PIPE INSULATION THICKNESS                  |                            | NOMINAL PIPE OR TUBE SIZE (INCHES) |              |              |          |
|--|--|----------------------------|------------------------------------|--------------|--------------|----------|
|  | CONDUCTIVITY BTU · IN / (H · FT <sup>2</sup> · °F) | MEAN RATING TEMPERATURE °F | < 1                                | 1 to < 1 1/2 | 1 1/2 to < 4 | 4 to < 8 |
| 141-200  | 0.25-0.29  | 125                        | 1.5                                | 1.5          | 2            | 2        |
| 105-140  | 0.21-0.28  | 100                        | 1.0                                | 1.0          | 1.5          | 1.5      |
| 40-60  | 0.21-0.27  | 75                         | 0.5                                | 0.5          | 1.0          | 1.0      |
- HOT WATER SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE C404.5. THE HOT WATER VOLUME FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER MAXIMUM PIPING LENGTH TABLE.
  - AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE, AUTOMATIC CONTROLS SHALL BE INSTALLED THAT LIMITS THE OPERATION OF A RE-CIRCULATING PUMP AND THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE.
  - AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE C404.7, PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
    - THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
    - THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).
  - AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE C404.3, WATER HEATING EQUIPMENT NOT SUPPLIED WITH INTEGRAL HEAT TRAPS AND SERVING NON RE-CIRCULATING SYSTEM SHALL BE PROVIDED WITH HEAT TRAPS ON SUPPLY AND DISCHARGE PIPING ASSOCIATED WITH EQUIPMENT.



**1 WATER PIPING PLAN**  
1/4" = 1'-0"

COLD WEATHER CLIMATES: IN CLIMATES WHERE TEMPERATURES CAN DROP BELOW FREEZING (0°C / 32°F), REFER TO ASHRAE CLIMATE DATA AT 99% WATER PIPING INSTALLED ALONG EXTERIOR WALLS AND ABOVE CEILING SHALL BE INSULATED TO PREVENT PIPE FREEZING.

NOTE: GENERAL CONTRACTOR TO USE TYPE 'K' INSULATED COPPER CONDUIT FOR WATER PIPES UNDER SLAB.



**PLUMBING SPECIFICATIONS**

**1. INTRODUCTION**

1.1 THE CONTRACTOR FOR INSTALLATION OF PLUMBING SYSTEMS WILL BE ACCOMPLISHED IN THE FIELD AT THE DIVISION LEVEL (IN CASE OF A CONFLICT BETWEEN THIS SPECIFICATION AND THE CONTRACT DOCUMENTS AND/OR WRITTEN OR VERBAL INSTRUCTIONS PROVIDED BY THE CONSTRUCTION MANAGER, THE DIVISION'S INSTRUCTIONS SHALL PREVAIL). HEREAFTER IN THIS SPECIFICATION, THE WORD "PLUMBING CONTRACTOR" SHALL REFER TO THE INSTALLING PLUMBING CONTRACTOR AND "OWNER" SHALL REFER TO 7-ELEVEN.

**1.2 SCOPE OF WORK**

1.2.1 PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL PLUMBING FIXTURES, ACCESSORIES, AND ATTENDANT PIPING AS STATED HEREIN. REFER TO THE PLUMBING PLANS AND THE "MATERIALS" PORTION OF THIS SPECIFICATION FOR EQUIPMENT TO BE FURNISHED. EXACT LOCATION OF ALL EQUIPMENT SHALL BE DETERMINED BY REFERENCE TO THE PLANS AND MEASUREMENTS AT THE BUILDING SITE AND IN COOPERATION WITH OTHER CONTRACTORS AND IN ALL CASES SHALL BE SUBJECT TO THE OWNERS APPROVAL.

**1.3 GENERAL**

1.3.1 ALL SAFETY PRECAUTIONS SHALL BE TAKEN TO PROTECT PERSON, PROPERTY, AND EQUIPMENT.

1.3.2 NO COMPENSATION FOR WORK PERFORMED OVER AND ABOVE PROJECTS SUM SHALL BE ALLOWED DUE TO CONDITIONS WITH WHICH THE PLUMBING CONTRACTOR SHOULD HAVE BEEN FAMILIAR.

1.3.3 ANY DEVIATION BY PLUMBING CONTRACTOR FROM THE PLANS AND SPECIFICATIONS, OR ANY SUBSTITUTION OF EQUIPMENT FROM THAT SPECIFIED, SHALL FIRST RECEIVE OWNER'S APPROVAL.

**1.4 OPERATIONS AND INSTALLATION**

1.4.1 ALL DELIVERIES TO COINCIDE WITH CONSTRUCTION SCHEDULE. MATERIALS SHALL BE STORED WHERE AND/OR AS DIRECTED BY THE GENERAL CONTRACTOR. STORAGE MUST BE IN SUCH A PLACE AS TO AVOID ACCIDENTAL MUTILATION BY EQUIPMENT BY ANY CONTRACTOR WHILE PERFORMING THEIR WORK, WHETHER ON SITE OR OFF.

1.4.2 ALL UNDER FLOOR PIPING SHALL BE INSTALLED IN CONJUNCTION WITH THE GENERAL CONTRACTOR'S WORK SCHEDULE. NO UNDERGROUND WORK SHALL BE COVERED OR ENCLOSED UNTIL IT HAS BEEN INSPECTED AND TESTED.

1.4.3 PLUMBING CONTRACTOR SHALL DO THE NECESSARY TRENCHING, SHORING AND BACKFILLING REQUIRED TO FULFILL HIS CONTRACT. BOTTOMS OF TRENCHES SHALL BE CUT TO GRADE.

1.4.4 ALL OPENINGS AND STUB-UP FOR PLUMBING PIPING AND FIXTURES SHALL BE CAREFULLY LOCATED AND COORDINATED, OTHERWISE, PLUMBING CONTRACTOR SHALL CUT NEW OPENINGS AT HIS OWN EXPENSE, AND REIMBURSE OTHER SUBCONTRACTORS FOR ANY DAMAGE DONE TO THEIR WORK.

**1.5 CODE AND PERMIT REQUIREMENTS**

1.5.1 ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES, AND CODES, WHICH SHALL BE DELINEATED, AND ALL MODIFICATIONS REQUIRED BY THE INSPECTION AUTHORITIES SHALL BE MADE BY PLUMBING CONTRACTOR WITHOUT ADDITIONAL COST TO OWNER.

1.5.2 PLUMBING CONTRACTOR SHALL OBTAIN, PAY FOR AND FURNISH ALL PERMITS REQUIRED BY LOCAL OR STATE ORDINANCES OR CODES, AND THESE COSTS SHALL BE STATED SEPARATELY ON THE PLUMBING CONTRACTOR'S INVOICES.

**2. MATERIALS**

**2.1 DOMESTIC WATER PIPING**

2.1.1 ABOVE AND BELOW GRADE WATER PIPING SHALL BE PEX TUBING CONFORMING TO ASTM F877 CROSS-LINKED POLYETHYLENE TUBING HOT AND COLD WATER DISTRIBUTION SYSTEMS, ASTM F876 CROSS-LINKED POLYETHYLENE TUBE, ASTM F1807 FITTING AND ASTM F2159 FITTINGS, COMPLY WITH NSF STANDARD 14 AND 61, AND COMPLY WITH ASTM E84 AND CAN/ULC S102.2. PEX TUBING SHALL BE WATTS WATERPEX CROSS-LINKED POLYETHYLENE OR EQUAL. ALL PEX TUBING BELOW GRADE SHALL BE SLEEVED WITH PVC PIPE. 2.1.1.1 FITTINGS: FITTINGS SHALL BE MECHANICAL CRIMP FITTINGS IN COMPLIANCE WITH ASTM F1807 AND F2159. PEX FITTINGS SHALL BE WATTS BRASS CRIMPING FITTINGS USING EITHER WATTS COPPER CRIMPING OR STAINLESS STEEL CINCHCLAMP OR EQUAL. INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

2.1.2 ABOVE AND BELOW GRADE WATER PIPING SHALL BE TYPE "L" AND "M" HARD DRAWN SEAMLESS COPPER TUBING CONFORMING TO ASTM B88.

2.1.2.1 COPPER UNIONS: CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY, WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACE AND SOLDER-JOINT. JOINING MATERIAL SHALL BE ASTM B813 WATER-FLUSHABLE, LEAD-FREE FLUX ALLOY SOLDER.

**2.2 FILTERED WATER PIPING**

2.2.1 ABOVE AND BELOW GRADE FILTERED WATER PIPING SHALL BE CPVC TUBING CONFORMING TO ASTM D2846 AND CSA B137 CHLORINATED POLY (VINYL CHLORIDE) PLASTIC HOT AND COLD WATER DISTRIBUTION SYSTEMS, ASTM D1784 RIGID AND CHLORINATED PVC COMPOUNDS, ASTM F493 SOLVENT CEMENTS, COMPLY WITH NSF STANDARD 14 AND 61, AND COMPLY WITH ASTM E84 AND CAN/ULC S102.2. CPVC TUBING SHALL BE FLOWGUARD GOLD CPVC CTS OR EQUAL.

2.2.1.1 FITTINGS: FITTINGS SHALL BE SOCKET TYPE JOINTS IN COMPLIANCE WITH ASTM D2846 AND CSA B137. CPVC FITTINGS SHALL BE FLOWGUARD GOLD CPVC CTS FITTINGS OR EQUAL. JOINING MATERIAL SHALL BE ASTM F493 SOLVENT CEMENT. INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

**2.3 SOIL, WASTE AND VENT PIPES**

2.3.1 ABOVE AND BELOW GRADE SOIL, WASTE AND VENT PIPING SHALL BE PVC PLASTIC, SCHEDULE 40 DWV PIPE CONFORMING TO ASTM D2665 WITH PLAIN ENDS. CELLULAR (FOAM) CORE PVC NOT ALLOWED. INSTALL PER ASTM D2665 AND ASTM D2321.

2.3.1.1 FITTINGS SHALL BE PVC SOCKET-TYPE DWV PIPE FITTINGS; ASTM D2665 MADE TO ASTM D3311 DRAIN, WASTE AND VENT PATTERNS.

2.3.2 ABOVE AND BELOW GRADE SOIL, WASTE AND VENT PIPING SHALL BE HUB-AND-SPIGOT CAST-IRON SOIL PIPE AND FITTINGS CONFORMING TO ASTM A74 WITH ASTM C564 RUBBER GASKETS. INSTALL CAST-IRON SOIL PIPING ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK," CHAPTER IV, "INSTALLATION OF CAST IRON SOIL PIPE AND FITTINGS."

2.3.3 ABOVE GRADE SOIL, WASTE AND VENT PIPING SHALL BE ALLOWED TO BE COPPER DRAINAGE TUBING CONFORMING TO ASTM B306 AT PLUMBING CONTRACTOR'S OPTION.

**2.4 FLASHING: SHEET LEAD, 4 POUNDS PER SQUARE FOOT, MINIMUM.**

**2.5 INSULATION**

**2.5.1 DOMESTIC COLD WATER (WITHIN BUILDING):**

COPPER PIPE: 1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTED, OWENS-CORNING OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS)

PEX TUBING: IN CLIMATES WHERE TEMPERATURES CAN DROP BELOW FREEZING (0°C / 32°F) INSTALL 1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTED, OWENS-CORNING OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS).

EXCEPTION: FOR NON-RECIRCULATING HOT WATER SYSTEM, PROVIDE 1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTED, OWENS-CORNING OR ARMSTRONG ON THE FIRST 8 FEET OF INLET PIPING AT WATER HEATER.

CPVC TUBING: IN CLIMATES WHERE TEMPERATURES CAN DROP BELOW FREEZING (0°C / 32°F) INSTALL 1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTED, OWENS-CORNING OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS).

**2.5.2 DOMESTIC HOT WATER:**

COPPER PIPE: 1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTED, OWENS-CORNING OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS)

PEX TUBING: 1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTED, OWENS-CORNING OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS)

FOR HOT WATER PIPING BEING SERVED BY SYSTEM WITH RECIRCULATING PUMP, PROVIDE 1" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTED, OWENS-CORNING OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS)

**2.5.3 INDIRECT AND CONDENSATE DRAIN PIPING (WITHIN BUILDING):**

COPPER PIPE: PROVIDE 1" FLEXIBLE UNICELLULAR INSULATION BY ARMACELL.

PVC PIPING: NO INSULATION REQUIRED.

FOR PIPING AT HANGERS, PROVIDE 8" LONG SECTIONS OF HIGH DENSITY, HIGH TEMPERATURE CALCIUM SILICATE BY JOHNS-MANVILLE, FIBERGLASS BY KNAUF, OR 8" LONG STYROFOAM BILLETS BY DOW. INSULATION SHALL BE CONTINUOUS ALONG THE PIPE SURFACE, EXCEPT AT VALVES, UNIONS, AND WHERE PIPING IS EXPOSED AT FIXTURES.

FOR HOT AND COLD WATER PIPING EXPOSED, CONCEALED IN WALLS, AND/OR INSTALLED INSIDE MASONRY UNITS OF WALLS, COVER FITTINGS WITH ZESTON, KNAUF, OR EQUAL ONE-PIECE PVC PREMOLDED INSULATING COVERS. FITTING COVERS, JACKETS AND ADHESIVES SHALL NOT EXCEED FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPMENT RATING OF 50 PER ASTM E84. AT ALL ELBOWS AND TEES, FILL VOIDS BETWEEN COVERS AND PIPING WITH FIBERGLASS INSULATION AND TAPE JOINTS. INSTALL PIPE INSULATION IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS. WHERE PREMOLDED INSULATING FITTINGS ARE NOT APPROVED BY LOCAL AUTHORITIES, MITER INSULATION AT FITTINGS.

**2.6 INDIRECT AND CONDENSATE DRAIN LINES:**

PROVIDE HARD DRAWN, TYPE "M" OR "L" COPPER PIPE FOR ALL CONDENSATE DRAIN PIPING FROM COOLER AND FREEZER EVAPORATORS. PROVIDE HEAT TRACE FOR ALL CONDENSATE DRAIN PIPING LOCATED IN FREEZERS, AND ROUTE TO FLOOR DRAIN IN BUILDING.

PROVIDE PVC PIPE FOR ALL OTHER INDIRECT AND CONDENSATE DRAIN PIPING FROM HVAC, PLUMBING, AND BEVERAGE EQUIPMENT, AND ROUTE TO FLOOR DRAIN IN BUILDING.

**3. TESTING AND INSPECTION:**

3.1 THE ENTIRE PLUMBING SYSTEM SHALL BE TESTED BEFORE COVERING OR ENCLOSING.

3.2 INSPECTION:

WORK SHALL BE INSPECTED FOR COMPLIANCE WITH CODES, ORDINANCES, REGULATIONS AND ADHERENCE TO CONTRACT DOCUMENTS. PLUMBING CONTRACTOR SHALL SUPPLY OWNER WITH SIGNED FORMS OR PROOF OF ACCEPTANCE BY THE LOCAL AUTHORITY BEFORE CONTINUING FROM ONE STAGE TO ANOTHER. FINAL APPROVAL SHALL BE OBTAINED BEFORE FINAL PAYMENT IS MADE ON THE CONTRACT.

**3.3 PERFORMANCE REQUIRED:**

3.3.1 PLUMBING CONTRACTOR SHALL INSTALL ALL PLUMBING SYSTEMS LEAK FREE AND AS PER PLANS AND SPECIFICATIONS.

3.3.2 ALL EXPOSED EQUIPMENT SHALL BE INSTALLED IN A WORKMANLIKE MANNER AND WILL BE SUBJECT TO ARCHITECTURAL INSPECTION FOR AESTHETIC APPEARANCE.

**4. CUTTING AND CLEANING:**

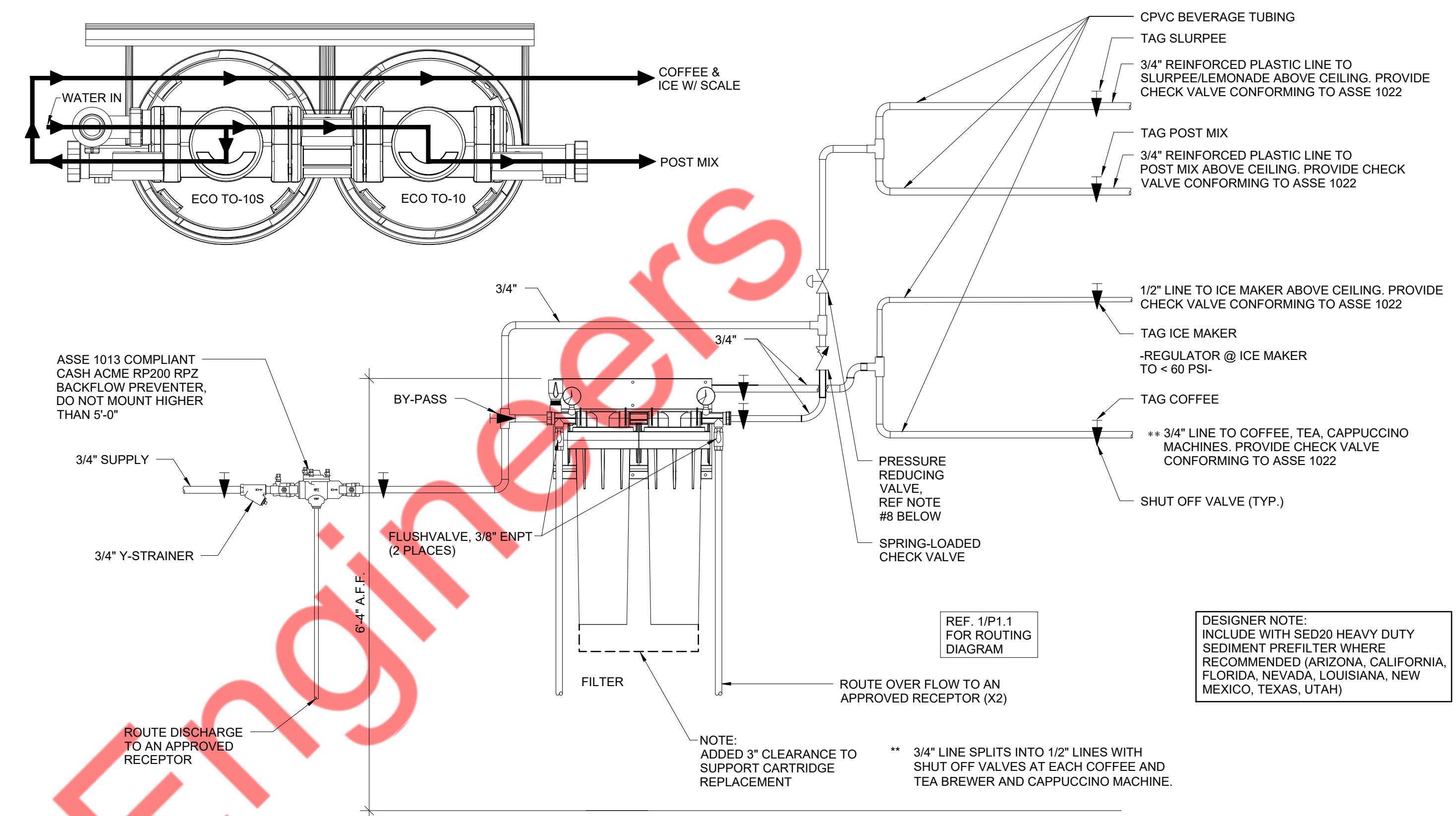
4.1 PLUMBING CONTRACTOR SHALL CLEAN ENTIRE SITE OF DEBRIS, TOOLS AND EQUIPMENT RELATED TO THIS WORK.

4.2 PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF HIS WORK WHICH MAY BE REQUIRED TO RELIEVE THE WORK OF OTHER CONTRACTORS.

**5. GUARANTEES:**

5.1 PLUMBING CONTRACTOR SHALL GUARANTEE ALL OF THE WORK AND THE COMPLETE OPERATION WILL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS. PLUMBING CONTRACTOR AGREES TO REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY PART OF HIS WORK ON THIS INSTALLATION WHICH PROVES TO BE DEFECTIVE WITHIN ONE (1) YEAR AFTER ACCEPTANCE OF THE WORK.

REV 03/03/15



**ECOLAB HIGH CAPACITY SPLIT TWIN FILTERED WATER SYSTEM**

1. WATER SUPPLY MUST BE 3/4" INCH.
2. WATER SHUT-OFF VALVE SHALL BE "BALL LOCK" TYPE. POSITIVE ON-OFF.
3. DRAIN MUST BE PROVIDED TO PERMIT FLUSHING OF FILTERS.
4. ECOLAB HIGH CAPACITY ECO-T010 FILTER WILL BE REPLACED AS REQUIRED BASED ON GALLONAGE.
5. WATER FOR ICE MAKERS, COFFEE MAKERS AND CAPPUCCINO MACHINES SHALL BE ROUTED THROUGH THE ECOLAB ECO-T010S FILTER.
6. WATER FOR FSD AND FCB SHOULD NOT BE ROUTED THROUGH THE ECOLAB ECO-T010S (WILL REDUCE CARBONATION).
7. ECO-T010 OR ECO-T010S FILTERS MAY BE CHANGED INDIVIDUALLY / ADDITIONALLY AS NEEDED. NOTE: ECOLAB ECO-T010S WILL PROVIDE UP TO 50,000 GALLONS OF SCALE CONTROL.
8. HONEYWELL PRESSURE REDUCING VALVE MODEL DSOSC1030 (SET AT 65 PSI) INSTALLED BEFORE FIRST TEE TO BEVERAGE EQUIPMENT.
9. ECOLAB RECOMMENDS MINIMUM INLET PRESSURE OF 45 PSI AND WILL REPORT BACK / CALL OUT ANYUNITS WITH INLET FLOW BELOW 45 PSI FOR REVIEW. IN THIS CIRCUMSTANCE GRUNFOS MQ3-35BOOSTER PUMP ASSEMBLY IS RECOMMENDED.
10. ECOLAB SED 20 PREFILTER IS AVAILABLE -ONLY REQUIRED IN EXTREME WATER CONDITION AREAS AND WILL REQUIRE EXTRA SINGLE MANIFOLD IN FRONT OF STANDARD SYSTEM.

**ECOLAB RECOMMENDATIONS FOR COFFEE RELATED EQUIPMENT ON 3/4" SPLIT TWIN FILTERED WATER SYSTEM**

**REQUIREMENTS FOR COFFEE RELATED EQUIPMENT:**

- 3/4" FILTERED WATER LINE TO COFFEE RELATED EQUIPMENT IS IN THE FOLLOWING ORDER OF CONNECTION:
1. LANCER ICE TEA
  2. BUNN NITRO
  3. FRANKIE BEAN TO CUP (A1000)
  4. FRANKIE BEAN TO CUP (A800)
  5. BUNN COFFEE BREWERS
  6. CURTIS CAPPUCCINO

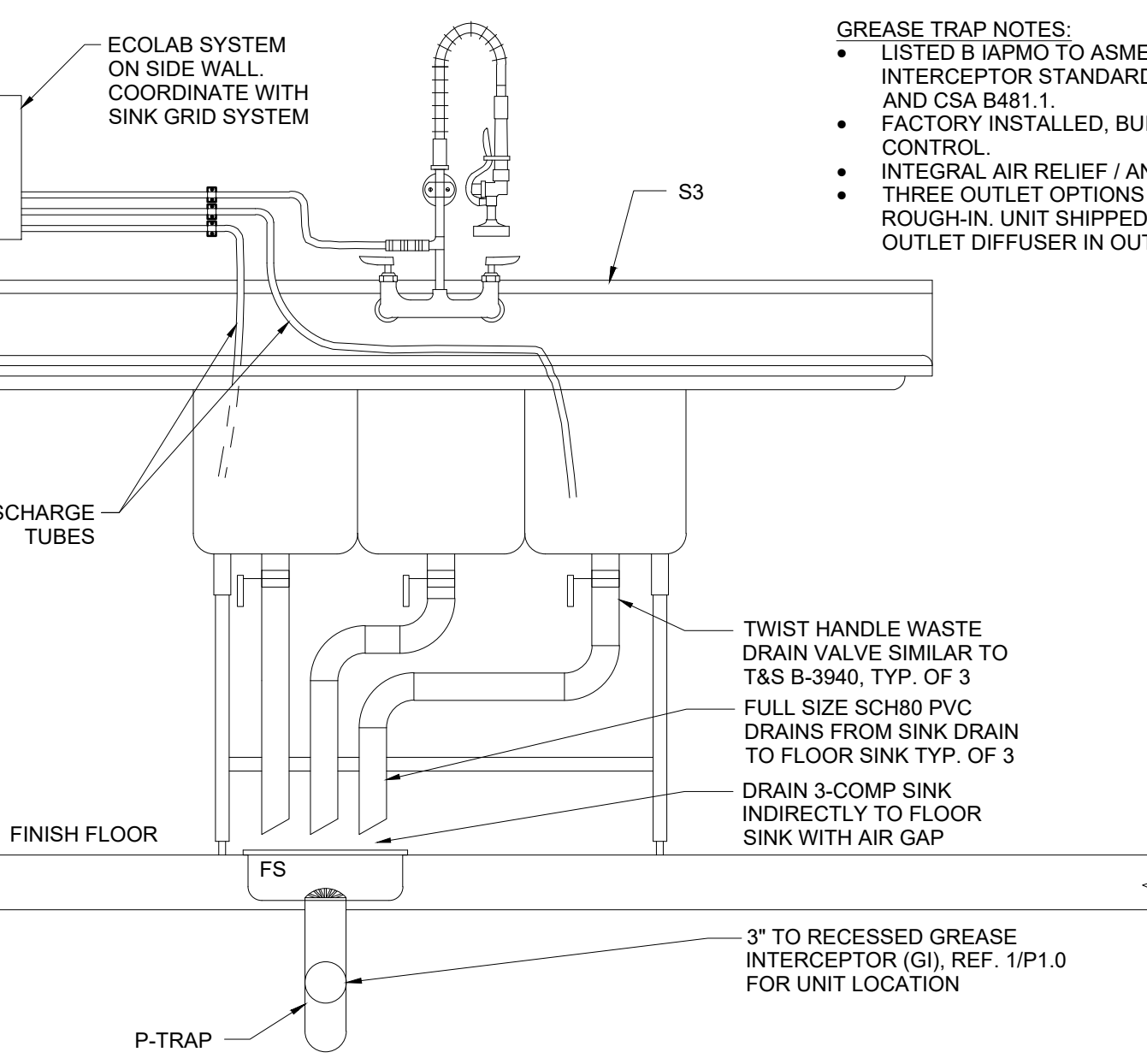
ECOLAB ECO-T010 OR ECO-T010S (WITH SCALE CONTROL) WILL SUPPORT COFFEE FILTRATION APPLICATION.

ECOLAB HIGH CAPACITY ECO-T010S FILTER WILL BE REPLACED AS REQUIRED BASED ON GALLONAGE.

ECOLAB RECOMMENDS A SEPARATE ECO-T010S (SCALE CONTROL FILTER) INSTEAD OF THE SS-1MF SCALE STICKS FOR UNITS REQUIRING 15,000 GALLONS OR MORE OF SCALE CONTROL OR WHERE THE RAW WATER HARDNESS EXCEEDS 10 GPG HARDNESS TO PROTECT EQUIPMENT FROM EXCESS WATER HARDNESS SCALE BUILD-UP.

ECOLAB HIGH CAPACITY T010 TO T010S FILTERS PROVIDE 0.5 MICRON AND 50,000 GALLONS AT 5 GPM.

**1 ECOLAB WATER PURIFICATION SYSTEM**  
N.T.S.



**3 3-COMPARTMENT SINK DETAIL**  
N.T.S.

**4 LAV SHROUD**  
N.T.S.

**2 WATER HEATER**  
N.T.S.

