



18076069

REVIEWED FOR COMPLIANCE

Performance of this review is not relieving the applicant of full responsibility to comply with all applicable codes, ordinances and regulations.

10/29/18

**PLUMBING NOTES:**

- PLUMBING INSTALLATION SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND ALL UTILITY COMPANY REGULATIONS.
- PLUMBING CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND PAY ALL FEES RELATIVE TO THE INSTALLATION OF HIS WORK.
- CONTRACTOR'S PRE-BID SITE VISITS SHALL VERIFY ALL EXISTING CONDITIONS AND HE SHALL BE RESPONSIBLE FOR THE INCLUSION OF ALL REQUIRED DEMOLITION IN AREAS UNDERGOING MODIFICATION WHETHER OR NOT SUCH WORK IS INDICATED ON THE PLANS. DEMOLITION SHALL GENERALLY BE ARRANGED TO AGREE WITH THE ACCOMPLISHMENT OF WORK UNDER THE VARIOUS PHASES AND IN COORDINATION WITH THE WORK OF OTHER TRADES. CONTRACTOR SHALL EXAMINE ALL ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- THE PLUMBING CONTRACTOR SHALL OBTAIN A FULL SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT AND SHALL BE AWARE OF THE WORK OF ALL OTHER TRADES WHICH MAY REQUIRE COORDINATION.
- THE PLUMBING CONTRACTOR SHALL VERIFY POINT OF CONNECTIONS TO AND ELEVATIONS OF EXISTING PIPING PRIOR TO INSTALLATION OF NEW PIPING.
- PLUMBING CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF ALL OTHER CONTRACTORS BEFORE INSTALLATION OF HIS WORK IN CHASES, CEILING SPACES AND OTHER AREAS WHERE CONFLICTS MAY OCCUR.
- ALL EXISTING LINES AND CONDITIONS SHOWN ON THE DRAWINGS HAVE BEEN SHOWN IN GOOD FAITH, HOWEVER, THERE IS NO IMPLIED GUARANTEE AS TO THEIR SIZE, LOCATION, ELEVATION, COMPLIANCE WITH CURRENT CODES OR CONDITIONS. THE CONTRACTOR SHALL INVESTIGATE ALL EXISTING CONDITIONS AND SHALL MODIFY THE PROPOSED WORK AS REQUIRED OR DIRECTED.
- ALL PIPING SHOWN IS SCHEMATIC. IT IS NOT POSSIBLE TO INDICATE EVERY OFFSET, ELBOW, UNION, VALVE, TRAP, ACCESS PANEL, ETC., THAT IS REQUIRED FOR A PROPER WORKING SYSTEM. NO ADDITIONAL COST WILL BE ALLOWED FOR THESE FITTINGS THAT ARE REQUIRED TO INSTALL THE PIPING SYSTEM WITHIN THE SPACE PROVIDED AND THAT ARE REQUIRED FOR A COMPLETE WORKING SYSTEM IN ACCORDANCE WITH ALL OF THE REQUIREMENTS OF THE CODES AND REGULATIONS.
- SANITARY DRAIN PIPE AND FITTINGS INSTALLED BELOW SLAB ON GRADE FLOOR SHALL BE SERVICE WEIGHT CAST IRON BELL AND SPIGOT TYPE WITH NEOPRENE GASKET JOINTS. THE CONTRACTOR HAS THE OPTION OF USING SCHEDULE 40 PVC PIPE AND FITTINGS WITH SOLVENT WELD JOINTS IF SUCH MATERIAL IS APPROVED BY THE LOCAL PLUMBING AUTHORITIES.
- SANITARY DRAIN AND VENT PIPE AND FITTINGS INSTALLED ABOVE SLAB ON GRADE FLOORS LESS THAN 2 INCH SIZE SHALL BE TYPE "L" HARD COPPER TUBING AND WROUGHT COPPER SOLDER JOINT DRAINAGE FITTINGS. DRAIN AND VENT PIPING 2 INCH SIZE AND LARGER SHALL BE DWV CAST IRON "NO HUB" PIPE AND FITTINGS WITH NEOPRENE SLEEVE AND STAINLESS STEEL DRAW BAND JOINTS. THE CONTRACTOR HAS THE OPTION OF USING SCHEDULE 40 PVC PIPE AND FITTINGS WITH SOLVENT WELD JOINTS FOR ALL SIZES IF SUCH MATERIAL IS APPROVED BY THE LOCAL PLUMBING AUTHORITIES.
- DOMESTIC WATER PIPE AND FITTINGS WITHIN THE BUILDING SHALL BE TYPE "L" HARD COPPER TUBING AND CAST BRONZE OR WROUGHT COPPER SOLDER JOINT FITTINGS.
- SOLDER SHALL BE LEAD FREE, HAVING A COMPOSITION SIMILAR TO 95.5% TIN, 4% COPPER AND 0.5% SILVER AS MANUFACTURED BY ENGELHARD CORPORATION OR EQUAL.
- VALVES IN DOMESTIC WATER PIPING 2" SIZE AND SMALLER SHALL BE BRONZE BODY WITH FULL PORT STAINLESS STEEL BALL WITH LEVER HANDLE.
- INSULATION FOR DOMESTIC WATER PIPING SHALL BE 3/4" THICK PREFORMED FIBERGLASS WITH A VAPOR BARRIER JACKET FOR THE COLD WATER PIPING. AT CONTRACTOR'S OPTION, HE MAY USE 3/8" THICK PRE-MOLDED FOAM PLASTIC SIMILAR TO "ARMAFLEX" INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. HOT WATER PIPING INSULATION SHALL BE 1" FIBERGLASS.
- NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH BLACK MALLEABLE IRON THREADED FITTINGS. PROVIDE AN APPROVED GAS PLUG VALVE AND UNION AT EACH EQUIPMENT ITEM AS REQUIRED.
- PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL INDIRECT WASTE PIPING REQUIRED FOR KITCHEN EQUIPMENT ITEMS. REFER TO KITCHEN EQUIPMENT ROUGH-IN DRAWINGS FOR LOCATION, SIZE AND ROUTING. ALL INDIRECT SANITARY AND EXPOSED WATER PIPING SHALL BE INSTALLED A MINIMUM OF 6" ABOVE THE FLOOR AND 4" AWAY FROM ANY WALL.
- PROVIDE "WATTS" SD-3 ASSE 1022 BACKFLOW PREVENTER ON ALL WATER LINES SUPPLYING CARBONATORS, ICE MACHINES, COFFEE MAKERS, ESPRESSO MACHINES, BEVERAGE DISPENSERS AND WATER STATIONS. PROVIDE "WATTS" LF7 ASSE 1024 BACKFLOW PREVENTER ON ALL WATER LINES SUPPLYING DISH AND GLASS WASHING MACHINES.
- STERILIZE THE ENTIRE WATER DISTRIBUTION SYSTEM THOROUGHLY WITH A SOLUTION CONTAINING NOT LESS THAN 50 PARTS PER MILLION OF AVAILABLE CHLORINE. USE EITHER LIQUID CHLORINE CONFORMING TO FEDERAL SPECIFICATION BB-C-120 OR CALCIUM HYPOCHLORITE OR CHLORINATED LIME CONFORMING TO FEDERAL SPECIFICATION 9-C-114. INTRODUCE THE SOLUTION INTO THE SYSTEM IN AN APPROVED MANNER. ALLOW THE STERILIZING SOLUTION TO REMAIN IN THE SYSTEM FOR TWENTY FOUR (24) HOURS DURING WHICH TIME ALL VALVES AND FAUCETS SHALL BE OPENED AND CLOSED SEVERAL TIMES. AFTER STERILIZATION, THE SOLUTION SHALL BE FLUSHED FROM THE SYSTEM WITH CLEAN WATER UNTIL THE RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN 0.2 PARTS PER MILLION UNLESS OTHERWISE DIRECTED.
- ALL WORK SHALL BE IN ACCORDANCE WITH LANDLORD REQUIREMENTS.
- SUBMIT 5 COPIES OF SHOP DRAWINGS FOR ALL THE PLUMBING FIXTURES, PIPING, INSULATION, MIXING VALVES, WATER HEATER, FLOOR DRAINS AND SPRINKLER HEADS.
- PROVIDE CEILING ACCESS DOORS WHERE REQUIRED. "STEALTH PRODUCTS" FRAMED GFRG ACCESS DOORS OR EQUAL. NO ACCESS DOORS IN WOOD CEILING.
- RECIRCULATION PUMP - GRUNDFOS UP15-42FC. 3GPM @ 11'HD. 1/25HP. 120V. PROVIDE TIME CLOCK CONTROL, AQUASTAT AND MANUAL OVERRIDE SWITCH.

**AUTOMATIC WET PIPE FIRE SPRINKLER SYSTEM NOTES:**

**SCOPE OF WORK:**  
THE EXISTING FIRE SPRINKLER SYSTEM SHALL BE MODIFIED AS REQUIRED TO ACCOMMODATE THE NEW CEILING PLAN AND NEW PARTITION LAYOUT. THE SPRINKLER CONTRACTOR SHALL REFER TO THE BASE BID DOCUMENTS AND SPECIFICATIONS FOR SPRINKLER SYSTEM REQUIREMENTS BEFORE PROCEEDING WITH WORK.

THE SPRINKLER CONTRACTOR SHALL VERIFY LOCATIONS AND QUANTITIES OF EXISTING SPRINKLER HEADS IN THE FIELD, AND RELOCATE, DELETE AND/OR ADD SPRINKLER HEADS AS REQUIRED TO PROVIDE ADEQUATE COVERAGE.

**CODES:**  
THE ENTIRE MODIFICATION TO THE EXISTING FIRE SPRINKLER SYSTEM SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH NFPA 13 AND ALL LOCAL REQUIREMENTS.

**FEES AND PERMITS:**  
THE SPRINKLER CONTRACTOR SHALL MAKE ALL APPLICATIONS, OBTAIN AND PAY FOR ALL PERMITS AND FEES, AND SHALL PROTECT AND SAVE HARMLESS THE OWNER FROM ALL FINES AND PENALTIES RESULTING FROM THE SPRINKLER CONTRACTORS NEGLIGENCE TO COMPLY WITH LAWS, ORDINANCES, RULES AND REGULATIONS REQUIRED FOR THE EXECUTION OF THIS WORK.

**EXISTING CONDITIONS:**  
THE EXISTING SPRINKLER SYSTEM WATER SUPPLY MAIN HAS BEEN DESIGNED, SIZED AND INSTALLED UNDER A PREVIOUS CONTRACT. ALL ASPECTS OF THAT WATER SUPPLY SYSTEM SUCH AS: SOURCE OF WATER, AVAILABILITY OF WATER, WATER MAIN SIZING, WATER PRESSURE, CAPACITIES, ETC., WERE NOT MADE AVAILABLE TO THIS ENGINEER IN ORDER TO DETERMINE EXACT DESIGN REQUIREMENTS FOR THE SPRINKLER SYSTEM REQUIRED BY THIS CONTRACT. THEREFORE, NO RESPONSIBILITY IS TO BE CHARGED TO THIS ENGINEER FOR NON-COMPLIANCE WITH ANY STATE OR LOCAL AUTHORITIES CODES, RULES OR REGULATIONS. ALL MODIFICATIONS, CHANGES OR ADDITIONS TO THE SPRINKLER SYSTEM, REQUIRED BY THE AUTHORITY HAVING JURISDICTION, LOCAL WATER PRESSURE OR SUPPLY RESTRICTIONS OR OTHER LIKE CAUSES SHALL BE REPORTED TO THE ARCHITECT IN WRITING FOR A DETERMINATION OF THE MANNER IN WHICH TO PROCEED.

THE SPRINKLER CONTRACTOR SHALL OBTAIN CURRENT WATER PRESSURES AND FLOW TEST CAPACITIES AT THE TIME OF HIS DESIGN OF THIS SYSTEM IN ORDER TO DETERMINE THE PROPER SIZE OF THE INTERIOR MAINS AND BRANCHES. COORDINATE THE OBTAINING OF THE REQUIRED INFORMATION AND THE PROPER PIPE SIZING WITH THE PROJECT SCHEDULE.

**SHOP DRAWINGS:**  
THE SPRINKLER CONTRACTOR MUST MAKE HIS OWN HYDRAULIC CALCULATIONS AND SHOP DRAWING SHOWING NEW CONNECTIONS TO EXISTING PIPING, ACTUAL LENGTHS OF PIPE, ELEVATIONS OF PIPING ABOVE FINISHED FLOOR OR CEILING, PIPE SIZES, OFFSETS, RISES, DROPS, LOCATION OF SPRINKLER HEADS AND COORDINATION NOTES INDICATING STRUCTURAL MEMBERS, PIPE DUCTS, DIFFUSERS, CONDUIT, LIGHTING FIXTURES, CEILING GRID AND ALL OTHER ITEMS OF POTENTIAL INTERFERENCE WITH THE SPRINKLER SYSTEM, INCLUDING VARIOUS CEILING HEIGHTS AND BULKHEADS. THIS SHOP DRAWING SHALL BE SUBMITTED TO THE LOCAL FIRE MARSHAL FOR APPROVAL, AND SHALL BE APPROVED BY THE FIRE MARSHAL PRIOR TO SUBMITTING THE SHOP DRAWING TO THE ARCHITECT FOR REVIEW.

THE SPRINKLER CONTRACTOR SHALL BE AWARE OF THE MINIMAL WORKING SPACE ABOVE THE FINISHED CEILING, AND MUST COORDINATE HIS PIPING WITH EXISTING AND NEW DUCTWORK, NEW LIGHTING, CONDUIT AND ALL OTHER ITEMS OF POTENTIAL INTERFERENCE WITH THE INSTALLATION OF NEW SPRINKLER PIPING. COORDINATE WITH ALL OTHER TRADES AND PROJECT MANAGER.

**MATERIALS:**  
SPRINKLER PIPING SHALL BE SCHEDULE 40 MALLEABLE IRON PIPE WITH THREADED CAST IRON FITTINGS. AT CONTRACTOR'S OPTION, HE MAY USE GROOVED END PIPE AND GROOVED END DUCTILE IRON FITTINGS WITH MECHANICAL COUPLINGS. OPTIONAL PIPING MATERIALS MAY BE USED DEPENDING ON THE MAGNITUDE OF THE WORK AND THE CLASSIFICATION OF THE SYSTEM. OPTIONAL MATERIALS INCLUDE LIGHT WALL STEEL PIPE (THREADED OR ROLL GROOVED), TYPE "L" COPPER TUBING WITH WROUGHT COPPER SOLDER JOINT FITTINGS, AND SCHEDULE 40 CPVC PIPE AND FITTINGS WITH SOLVENT WELD JOINTS AND PROTECTIVE COVERING, ALL AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.

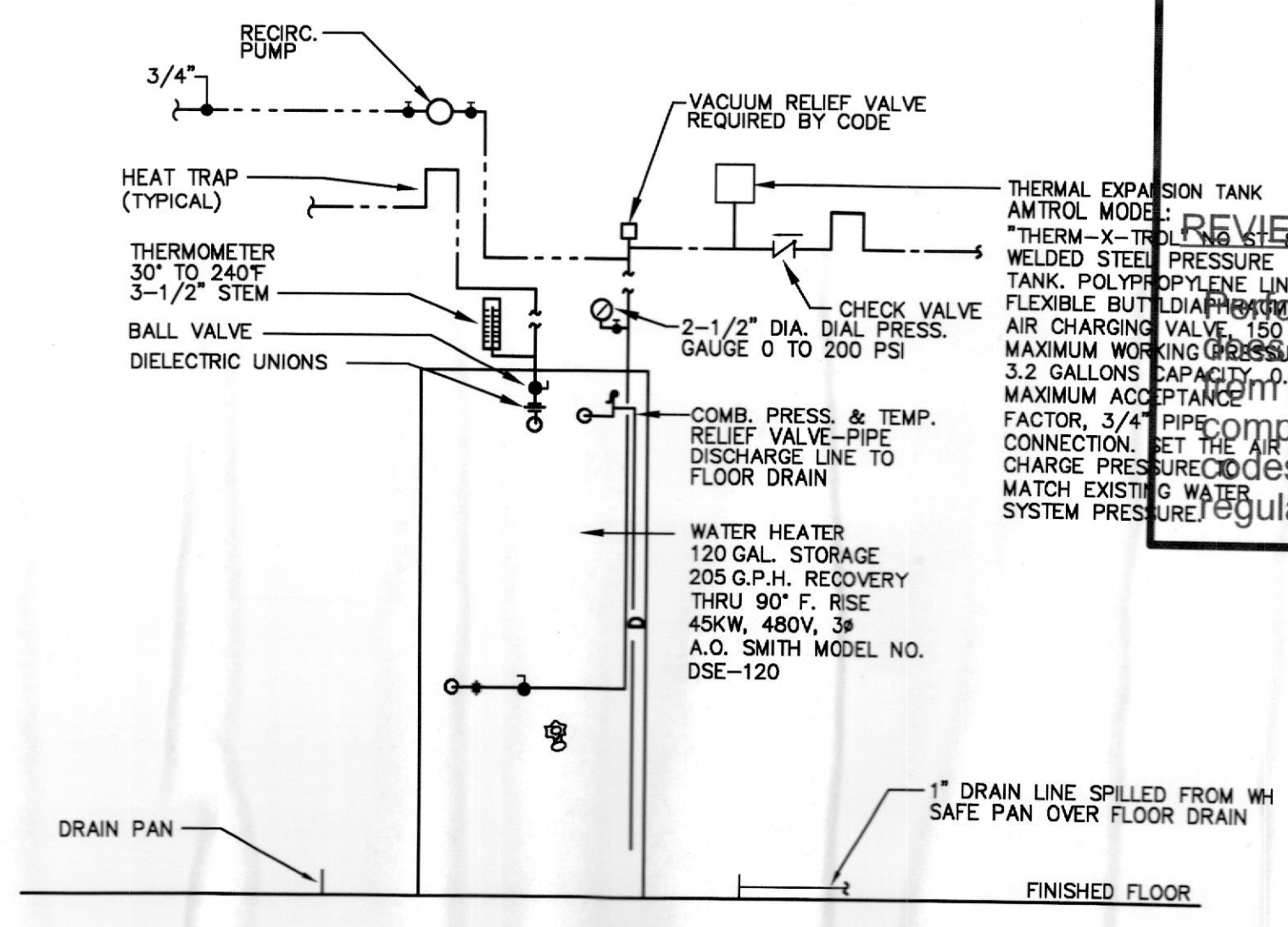
SPRINKLER HEADS SHALL MATCH EXISTING OR SHALL BE STANDARD, FULLY-RECESSED PENDENT CHROME PLATED, RATED AT 165°F UNLESS OTHERWISE NOTED, OR SHALL BE OF A TYPE AND STYLE AS NOTED ON THE DRAWINGS OR AS APPROVED BY THE OWNER.

**CLOSEOUT:**  
THE CONTRACTOR SHALL VERIFY THAT ALL MAIN AND ZONE VALVES ARE IN THE "OPEN" POSITION AND THAT THE SPRINKLER SYSTEM IS TOTALLY OPERATIONAL. HE SHALL ALSO VERIFY THAT ALL REPORTING AND ALARM SIGNALS ARE FUNCTIONING.

PROVIDE FULLY RECESSED SPRINKLER HEADS IN FINISHED CEILINGS THROUGHOUT ENTIRE PROJECT AREA.

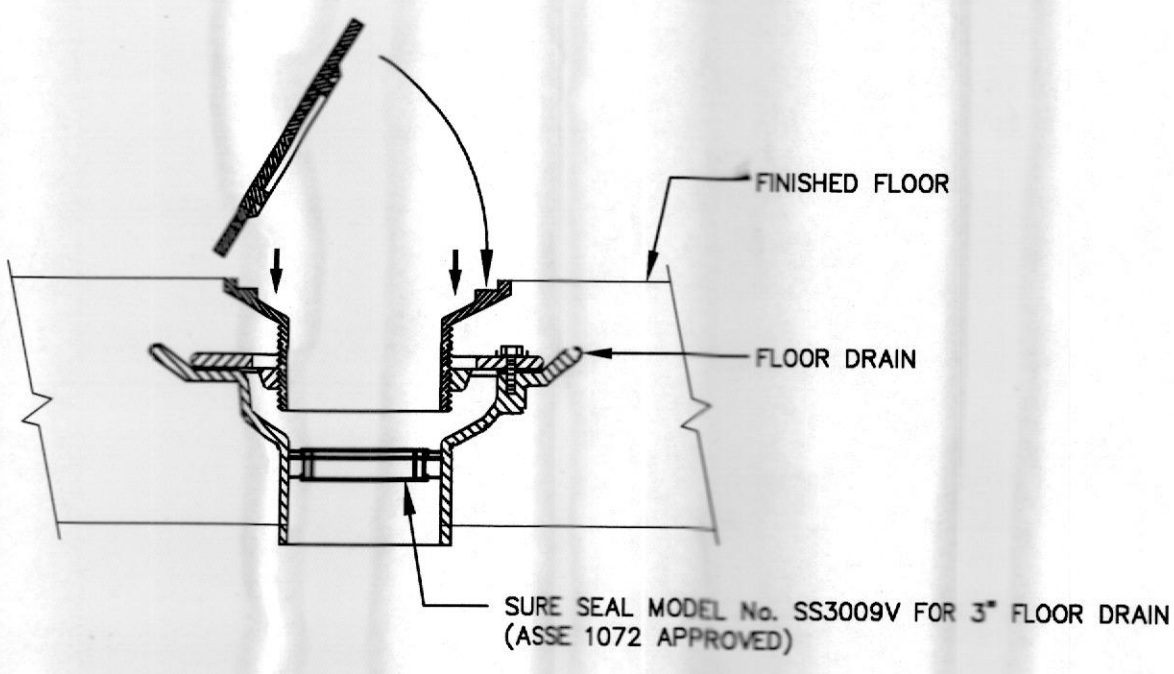
**PLUMBING SYMBOL LIST**

SYMBOLS	DESCRIPTIONS
---	NEW SANITARY PIPE (WASTE OR SOIL)
---	EXISTING SANITARY PIPE (WASTE OR SOIL)
---	NEW GREASE WASTE PIPE
GW	EXISTING GREASE WASTE PIPE
---	NEW VENT PIPE (V)
---	EXISTING VENT PIPE
---	NEW COLD WATER (CW)
---	EXISTING COLD WATER
---	NEW HOT WATER (HW)
---	NEW HOT WATER RETURN (HWR)
G	NEW GAS PIPE (G)
G	EXISTING GAS PIPE
CC	"P" TRAP
○	PIPE TURNING UP
○	PIPE TURNING DOWN
○	FLOOR CLEANOUT (FCO)
⊗	THERMOSTATIC TEMPERATURE VALVE
⊕	GAS COCK
⊖	SHUT-OFF VALVE
⊕	EMERGENCY GAS SHUT-OFF VALVE
□	FLOOR SINK (FS)
⊗	FLOOR DRAIN/FUNNEL FLOOR DRAIN (FD)/(FFD)
⊕	POINT OF CONNECTION BETWEEN NEW AND EXISTING.
ABV	ABOVE
BLW	BELOW
CLG	CEILING
DN	DOWN
ETR	EXISTING TO REMAIN
FL	FLOOR
VF	VERIFY IN FIELD
BFP	BACK FLOW PREVENTER DEVICE
(E)	EXISTING
WH	WATER HEATER
TS	BARRIER-TYPE TRAP SEAL DEVICE CONFORMING TO ASSE 1072
H.B.	HOSE BIBB
AAV	AIR ADMITTANCE VALVE

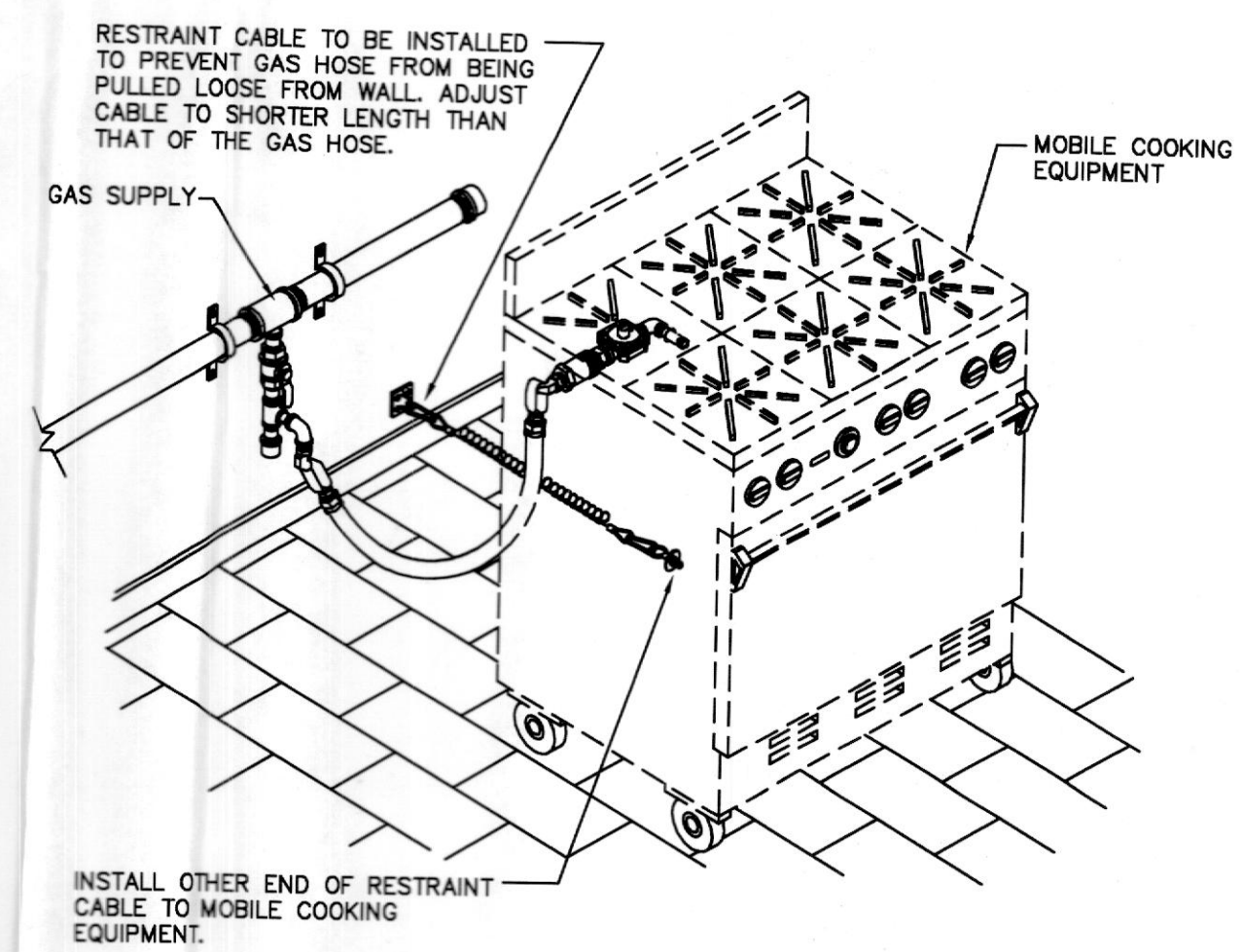


**1 ELECTRIC WATER HEATER PIPING DETAIL (WH-1.2)**  
P.01 NOT TO SCALE

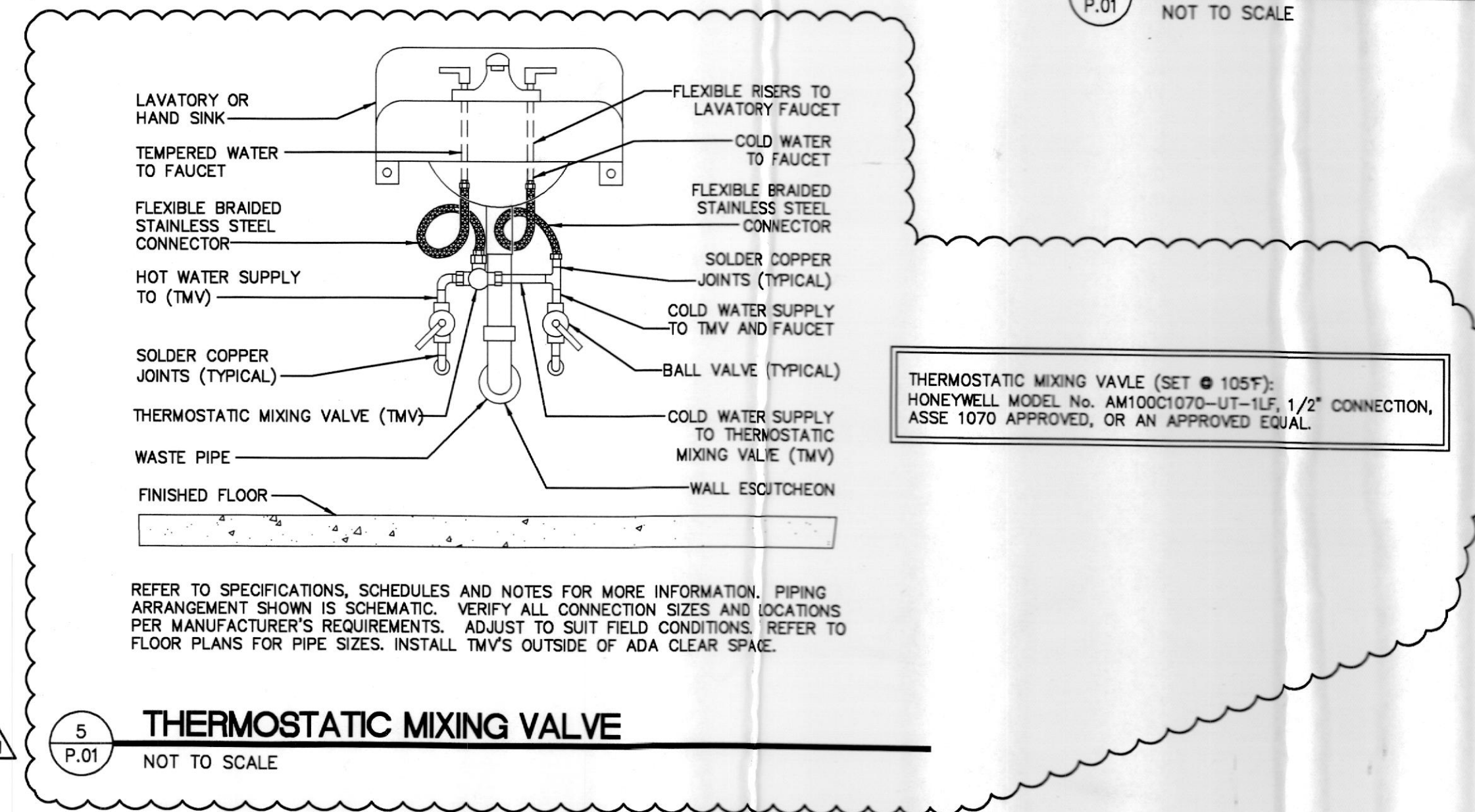
**2 EXISTING SMALL EXPANSION TANK**  
P.01 NOT TO SCALE



**3 FLOOR DRAIN TRAP SEAL DETAIL**  
P.01 NOT TO SCALE



**4 TYPICAL NATURAL GAS PIPING CONNECTION**  
P.01 NOT TO SCALE



**5 THERMOSTATIC MIXING VALVE**  
P.01 NOT TO SCALE

**DOMESTIC HOT WATER SYSTEM MINIMUM PIPE INSULATION THICKNESS (IECC 2015 TABLE C403.2.10)**

WATER TEMP °F	CONDUCTIVITY (BTU-IN/(h-FT²-F))	MEAN RATING TEMP °F	NOMINAL PIPE OR TUBE SIZE				
			<1"	1 TO <1.5"	1.5 TO <4"	4" TO <8"	>8"
105-140	0.21 - 0.28	100	1.0	1.0	1.5	1.5	1.5
141-200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0

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4444 WESTHEIMER RD, HOUSTON, TX 77027  
PROJECT NO. JBW17108

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS.  
PE LICENSE #: 129510, EXPIRATION DATE: DECEMBER 31, 2018  
FIRM LICENSE #: F19815, EXPIRATION DATE: MARCH 31, 2019

REV	DATE	ISSUED FOR	REV	DATE	ISSUED FOR
	05/16/2018	PROGRESS SET			
	06/11/2018	PERMIT SET			
	08/30/2018	PERMIT COMMENTS			

**PLUMBING NOTES, SYMBOLS AND DETAILS**  
**P.01**

