

PLUMBING SPECIFICATIONS

1. INTRODUCTION

1.1 THE CONTRACTING 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). HEREINAFTER 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 CONDUCE 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. 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 CRIMPRING FITTINGS USING EITHER WATTS COPPER CRIMPRING 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. 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 CSP'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: NO INSULATION REQUIRED.

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 INLET AND OUTLET OF INLET PIPING AT WATER HEATER.

CPVC TUBING: NO INSULATION REQUIRED.

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 REHEAT 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.

SPECIALTY PLUMBING FIXTURE SCHEDULE					
TAG	FIXTURE		MODEL	DESCRIPTION	NOTES
WHA	WATER HAMMER ARRESTOR	SIQUX CHIEF	652-A	CONFORM TO PDI WH-201, ASSE 1010; TEMP TO 250°F; MAX 350 PSIG WORKING PRESSURE	A
TMV	TEMPERATURE MIXING VALVE	WATTS	LFUSQ-B-M 1	+/- 3°F UP TO 120°F, WITH BUILT-IN CHECK VALVES, BRASS BODY, AND COPPER THERMOSTAT.	
TP	TRAP PRIMER	SIQUX CHIEF	695	BRONZE PRIMER VALVE WITH REMOVABLE OPERATING PARTS INTEGRAL VACUUM BREAKER, AND GASKETED ACCESS COVER.	
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER	WILKINS	975XL	BRONZE BODY, WITH SHUT-OFF VALVES, Y STRAINER, AND TEST COCKS.	
FD	FLOOR DRAIN	SIQUX CHIEF	832-36PNO	3" LIGHT DUTY DRAIN WITH 7" SQUARE TOP, NICKEL BRONZE RING PVC BODY WITH DRAIN AND 1 1/2" VENT, PROVIDED WITH 3" AND STRAINER.	
FS	FLOOR SINK	SIQUX 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	SIQUX CHIEF	851	PVC BODY, ROUND HEAVY-DUTY CAST IRON TOP, POLYPROPYLENE OR ABS PLUG, ADJUSTABLE TO FINISH SURFACE.	
YCO	YARD CLEANOUT	SIQUX CHIEF	834	DIPEA-COATED CAST DOUBLE-FLANGED HOUSING, AND HEAVY-DUTY SOCRATED DUCTILE IRON COVER.	
WCO	WALL CLEANOUT	SIQUX CHIEF	873	THREEDRILL COUNTERSUNK BRONZE CLEANOUT PLUG, FORMER DRILLED TAP FOR CENTER SCREW AND STAINLESS STEEL COVER.	

A. REFER 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.

PLUMBING SYMBOLS	
SS	SANITARY SEWER
GW	GREASE WASTE
-----	DOMESTIC COLD WATER
-----	DOMESTIC HOT WATER
-----	DOMESTIC HOT WATER RETURN
--- FW ---	FILTERED WATER
G	NATURAL GAS
CD	CONDENSATE DRAIN
-----	PLUMBING VENT
U	UNION
C	ELBOW - TURNED DOWN
o	ELBOW - TURNED UP
C	TEE - TURNED DOWN
o	TEE - TURNED UP
+	BALL VALVE
H-C	SHUT-OFF VALVE IN VERTICAL LINE
N	BACKFLOW PREVENTER
FS	FLOOR SINK
FS	FLOOR SINK
FCO	FLOOR CLEANOUT
YCO	YARD CLEANOUT
FPWH	FREEZE PROOF WALL HYDRANT
HB	HOSE BIBB
WCO	WALL CLEANOUT
⊗	GAS PRESSURE REGULATOR
⊕	GAS COCK

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 JUNE 27, 2019

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PROJECT NO: 2018.0891  
 DATE: FEBRUARY 26, 2019

P2.0  
 PLUMBING DETAILS AND SPECIFICATIONS

CHECKED: MM DRAWN: LE

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