

PLUMBING SPECIFICATIONS (CONT.)

- F. VALVES
- MANUFACTURERS: NIBCO, APOLLO, KEYSTONE, CENTERLINE, DEZURIK, CRANE, MUELLER, POWELL, VIEGA, GRINNELL, SIOUX CHIEF. LISTING OF MODEL NUMBER DOES NOT PRECLUDE OTHER ACCEPTABLE MANUFACTURERS FROM PROVIDING EQUIVALENT VALVES.
 - PROVIDE BRONZE VALVE FOR COPPER PIPE.
 - SHUTOFF VALVES 1" AND SMALLER
 - PEX BALL VALVE
 - APOLLO 77X SERIES
 - BRONZE THREE PIECE BODY, CHROME PLATED BRASS BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH VALVE EXTENSIONS FOR INSULATED PIPING, CRIMP JOINT ENDS, 200 PSI WOG, NSF 61 LISTED.
 - SHUTOFF VALVES 2" AND SMALLER
 - BRONZE BALL VALVE
 - SOLDERED: NIBCO S-685-66-LF.
 - PRESS FITTING: VIEGA SERIES 2970*ZL OR SERIES 2971*ZL
 - TWO PIECE, CHROME PLATED BRASS OR STAINLESS STEEL BALL, FULL PORT, REINFORCED PTFE SEATS AND STUFFING BOX RING, LEVER HANDLE WITH LOCKABLE HANDLE AND VALVE STEM EXTENSIONS FOR INSULATED PIPING, 250 PSIG NSF 61 ANNEX G LISTED.
 - MANUAL BALANCE VALVES 2" AND SMALLER
 - BELL & GOSSETT A-549LFP(C), CALEFFL NIBCO, FLOWSET, ARMSTRONG, AND IMI HYDRONIC ENGINEERING; BRONZE BODY WITH CALIBRATED BRASS ORIFICE OR VENTURIL MEMORY STOP, SOLDERED ENDS AND PRESSURE TAPS. 125 PSIG RATING AT 240 DEG F, NSF 61 ANNEX G LISTED LEAD FREE.
 - INSTALL 5 PIPE DIAMETERS DOWNSTREAM AND 2 PIPE DIAMETERS UPSTREAM OF A FITTING.
 - DRAIN VALVES: SHUTOFF VALVE WITH THREADED CAP, PROVIDE FOR COMPLETE SYSTEM DRAINAGE, NSF 61 LISTED.
 - SPRING LOADED CHECK VALVES
 - 2" AND SMALLER,
 - THREADED: NIBCO MODEL 480-Y-LF
 - BRONZE BODY, TFE SEAT AND DISC, STAINLESS STEEL SPRING, CLASS 125, NSF 61 ANNEX G LISTED LEAD FREE.

22 11 23 NATURAL GAS PIPING AND ACCESSORIES

- COORDINATE INSTALLATION OF GAS SERVICE WITH GAS UTILITY. CONTACT GAS UTILITY TO ARRANGE SERVICE AND ASSIST OWNER IN APPLYING FOR NEW SERVICE.
- PIPING
 - INSTALL, INSPECT, TEST, AND PURGE GAS PIPING IN CONFORMANCE WITH NFPA 54, UTILITY COMPANY AND ALL OTHER GOVERNING CODES.
 - MAKE BRANCH CONNECTIONS TO THE MAIN FROM THE TOP OR SIDE.
 - PAINT EXTERIOR GAS PIPING NOT LOCATED ON THE ROOF WITH TWO (2) COATS RUST RESISTANT PAINT, COLOR TO MATCH ADJACENT SURFACE.
- GAS VALVES
 - UL LISTED FOR USE AS NATURAL GAS SHUTOFF.
 - BALL VALVES (MANUFACTURERS: NIBCO 585/580-70UL, WATTS B6000UL): BRONZE BODY, THREADED ENDS, CHROME PLATED BRONZE BALL, FULL/CONVENTIONAL PORT, TEFLON SEAT, BLOWOUT-PROOF STEM, TWO-PIECE CONSTRUCTION, 150 PSIG WORKING PRESSURE.
- GAS PRESSURE REGULATORS
 - CAST IRON BODY, ALUMINUM SPRING CASE, ALUMINUM ORIFICE, BUNA-N DIAPHRAGM, INTERNAL RELIEF VALVE SET TO RELIEVE AT 7-10" W.C. ABOVE NORMAL OUTLET PRESSURE SETTING OF 7" W.C., TOPCOAT ENAMEL.
 - SENSUS MODELS 496
 - FOR REGULATORS INSTALLED INDOORS, PIPE THE RELIEF VALVE VENT FULL SIZE TO THE OUTSIDE OF THE BUILDING AT A NON-HAZARDOUS LOCATION. INCREASE VENT SIZE ONE PIPE SIZE IF VENT LENGTH EXCEEDS 10 FEET. TERMINATE WITH AN ELBOW DOWN WITH A SCREEN OVER THE OPENING. DO NOT COMBINE VENTS.
 - MAXITROL 325 SERIES WITH VENT LIMITER ARE PERMITTED FOR INDOOR APPLICATIONS WHERE SUPPLYING LESS THAN 300,000 BTUH.
 - FOR REGULATORS INSTALLED OUTDOORS, POSITION THE REGULATOR SO THE RELIEF VALVE VENT IS FACING DOWN OR INSTALL ELBOW FACING DOWN A MINIMUM 10 FEET FROM AN OUTSIDE AIR INTAKE AND 5 FEET FROM A GAS FLUE DISCHARGE.

22 13 00 DRAIN PIPING AND VALVES

- PIPING INSTALLATION
 - INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - FIELD VERIFY EXISTING AND PROPOSED SEWER ELEVATIONS AND SIZES AND NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING OF ANY VARIATION OF THE ELEVATIONS BEFORE BEGINNING ANY SEWER AND BUILDING DRAIN WORK.
 - DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
 - ROUTE ABOVE GROUND PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
 - INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
 - INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT WITH RESPECT TO THE BUILDING AND PLUMBING SYSTEM.
 - PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES.
 - DO NOT ROUTE PIPING ABOVE TRANSFORMERS, PANELBOARDS, SWITCHBOARDS OR OTHER ELECTRICAL DISTRIBUTION EQUIPMENT.
 - PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
 - PROVIDE NO-HUB ADAPTER ON PVC PIPE WHERE USING NO-HUB COUPLINGS.
 - SLOPE SANITARY PIPE 2" AND SMALLER 1/4" PER FOOT; 3" AND LARGER PIPING 1/8" PER FOOT.
 - RUN ALL DRAIN LINES FROM EQUIPMENT OVERFLOW RECEIVERS, ETC. TO FLOOR / HUB DRAINS. DRAIN LINES SHALL BE HARD DRAWN COPPER INSTALLED WITH A MINIMUM OF 1/8" PER FOOT SLOPE. NO DRAIN LINE SHALL BE SMALLER THAN 3/4". INSTALL A TEE AT EACH ELBOW OF CONDENSATE DRAIN PIPING WITH A CLEANOUT PLUG ON THE BLIND TEE.
- SANITARY DRAIN PIPING TESTING: TEST DRAIN AND VENT PIPING PER CODE REQUIREMENTS.
- AIR ADMITTANCE VALVES NOT PERMITTED.

22 15 00 COMPRESSED AIR PIPING

- PIPING INSTALLATION
 - DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
 - ROUTE PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
 - INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
 - PROVIDE CLEARANCE FOR ACCESS TO VALVES AND FITTINGS.
 - PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
 - USE ONLY NEW MATERIAL, FREE OF DEFECTS, RUST AND SCALE, AND MEETING THE LATEST REVISION OF THE ASTM SPECIFICATIONS.
 - PREPARE EXPOSED UNFINISHED PIPE, FITTINGS, SUPPORTS AND ACCESSORIES FOR FINISH PAINTING.
 - SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN AT LOW POINTS.
 - ALL TAKEOFFS SHALL BE FROM THE TOP OF THE PIPING.
 - USE ECCENTRIC FITTINGS FOR CHANGES IN HORIZONTAL PIPE SIZES TO MAINTAIN BOTTOM OF PIPE LEVEL. CONCENTRIC FITTINGS MAY BE USED FOR CHANGES IN VERTICAL PIPE SIZES.
 - INSTALL VALVE STEM BETWEEN THE VERTICAL (UPRIGHT) OR HORIZONTAL POSITION.
 - DO NOT SUPPORT WEIGHT OF PIPING ON VALVE.
- PIPING PRESSURE TESTS
 - EACH TEST MUST BE WITNESSED BY THE OWNER'S REPRESENTATIVE. IF LEAKS ARE FOUND, REPAIR THE AREA WITH NEW MATERIALS AND REPEAT THE TEST.
 - TEST THE SYSTEM WITH AIR TO THE PRESSURE SETTING OF THE RELIEF VALVE FOR AN 8 HOUR DURATION.
 - WHERE MULTIPLE NEW PIPE BRANCHES ARE EXTENDED FROM AN EXISTING MAIN, TEST THE EXISTING MAIN AND NEW BRANCHES AT 1.5 TIMES THE SYSTEM OPERATING PRESSURE IN LIEU OF THE PRESSURE ABOVE.
 - WHERE NEW PIPING IS AN EXTENSION OF THE EXISTING SYSTEM, TEST THE NEW PIPING PRIOR TO CONNECTION TO THE EXISTING SYSTEM.

- REMOVE RELIEF VALVE DURING TESTS.
 - RELIEVE PRESSURE IN SYSTEM AFTER PRESSURE TESTS.
- UNIONS AND FLANGES
 - COPPER PIPE 2" AND SMALLER: BRONZE, SOLDERED JOINTS.
 - VALVES
 - MANUFACTURERS: NIBCO, APOLLO, HAMMOND, MILWAUKEE, KEYSTONE, CENTERLINE, DEZURIK, CRANE, MUELLER, POWELL, AND GRINNELL.
 - MAIN PIPING
 - BALL VALVES 2" AND SMALLER:
 - NIBCO MODEL T-585-70
 - TWO PIECE, FULL PORT, THREADED ENDS, BRONZE BODY.
 - CHROME PLATED BRASS BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE; 600 PSI WOG.
 - VALVES TO EQUIPMENT
 - TWO PIECE, FULL PORT, THREADED ENDS BRONZE BODY.
 - CHROME PLATED BRASS BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE, SAFETY VENT FOR PRESSURE RELIEF OF DOWNSTREAM PIPING TO EQUIPMENT; 600 PSI WOG.
 - BALL VALVES 1" AND SMALLER: NIBCO MODEL T-585-70-SV

22 40 00 PLUMBING FIXTURES

- FIXTURES
 - SEE SCHEDULES FOR ADDITIONAL INFORMATION.
 - LIKE FIXTURE TYPE (FAUCETS, WATER CLOSETS, LAVS) SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.
 - SAFETY COVERS OVER EXPOSED WASTE AND SUPPLY PIPING AT ADA ACCESSIBLE FIXTURES SHALL BE LAV-GUARD BY TRUEBRO OR EQUIVALENT.
- INSTALLATION
 - INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - PROVIDE CHROME PLATED RIGID SUPPLIES TO FIXTURES WITH STOPS, REDUCERS, AND ESCUTCHEONS UNLESS OTHERWISE NOTED IN SCHEDULES AND DETAILS.
 - SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH MILDEW-RESISTANT SILICONE SEALANT, COLOR TO MATCH FIXTURE.
 - INSTALL BARRIER-FREE FIXTURES IN COMPLIANCE WITH LOCAL CODES AND FEDERAL ADA ACCESSIBILITY GUIDELINES.
 - EXPOSED TRAPS, PIPING, AND ESCUTCHEONS SHALL BE CHROME PLATED BRASS UNLESS OTHERWISE NOTED IN SCHEDULES AND DETAILS.
 - ADJUST LAVATORY THERMOSTATIC MIXING VALVE TO 105 DEG F MAXIMUM OUTLET TEMPERATURE.

NOTE:
 *P.C. SHALL PROVIDE PRODUCT SUBMITTALS TO ADMIFOR REVIEW AND APPROVAL IF PEX PIPE IS USED IN LIEU OF COPPER.

PIPE SCHEDULE

SERVICE	LOCATION	COPPER				PEX				CAST IRON				STEEL				
		C12200 TUBE	FITTINGS	JOINTS	PIPE	FITTINGS	JOINTS	PIPE	FITTINGS	JOINT	PIPE	FITTINGS	JOINTS	PIPE	FITTINGS	JOINTS		
WATER	ABOVE GROUND	X	X	X	X	X	X	X	X									
	BELOW GROUND																	
SANITARY, SEWER, DRAIN, WASTE AND VENT	ABOVE GROUND		X	X	X	X	X	X	X									
	UNDER BUILDING																	
AIR	ABOVE GROUND	X			X		X											
VACUUM	BELOW GROUND		X	X	X													
	INSIDE BUILDING																	
GAS	ABOVE GROUND															X	X	X

- ALL MATERIALS SHALL COMPLY WITH THE LATEST VERSION OF LISTED STANDARD. ALL IMPORTED MATERIAL SHALL BE CERTIFIED BY A DOMESTIC THIRD PARTY FOR COMPLIANCE WITH STANDARD.
 (1) NO JOINTS PERMITTED UNDERGROUND.
 (2) PROVIDE PRESSURIZED LEAK STOP SOCKET LONG SWEEP AND WYE TYPE PATTERN FITTINGS. NO SHORT SWEEP 90'S OR TEES PERMITTED.

INSULATION SCHEDULE

SERVICE	LOCATION	INSULATION THICKNESS & TYPE (1)	INSULATION JACKET
COLD WATER	GENERAL BUILDING <1 1/2"	1/2" RIGID F.G. OR ELAST. FOAM (10)	NR
COLD WATER	GENERAL BUILDING =>1 1/2"	1" RIGID F.G. OR ELAST. FOAM (10)	NR
COLD WATER (PEX)	ALL	NR	NR
HOT WATER MAIN & HOT RETURN RECIRC. LOOP	GENERAL BUILDING <1 1/2"	1" RIGID F.G. OR ELAST. FOAM (10)	NR
HOT WATER MAIN & HOT RETURN RECIRC. LOOP	GENERAL BUILDING =>1 1/2"	1 1/2" RIGID F.G. OR ELAST. FOAM (10)	NR
HOT WATER BRANCH NOT ON RECIRC. LOOP	GENERAL BUILDING	1" RIGID F.G. OR ELAST. FOAM (10)	NR

NR = NOT REQUIRED
 COLD WATER = HARD, SOFT, IRRIGATION, HOSE STATION, ETC. COLD WATER AT ALL PRESSURES.
 HOT WATER = ALL WATER SYSTEMS OPERATING AT TEMPERATURES GREATER THAN 105 DEG F.
 (1) WHERE INSULATION IS PROVIDED ON PIPING INSULATE METERS, VALVES, BACKFLOW PREVENTERS AND ALL INLINE EQUIPMENT.
 (10) INSULATION NOT REQUIRED FOR EXPOSED FINAL PIPING CONNECTIONS TO FIXTURES.

PIPE SIZE	STEEL			COPPER			PVC	CAST IRON (2)	PEX	MIN. ROD
	VAPOR	NAT. GAS	MIN. ROD	WATER	VAPOR	MIN. ROD				
1/4" - 1/2"	8"	6"	3/8"	5"	6"	3/8"	4"	5"	32"	3/8"
3/4"	9"	8"	3/8"	5"	7"	3/8"	4"	5"	32"	3/8"
1"	9"	8"	3/8"	6"	8"	3/8"	4"	5"	32"	3/8"
1 1/4"	9"	10"	3/8"	7"	9"	3/8"	4"	5"	32"	3/8"
1 1/2"	12"	10"	3/8"	8"	10"	3/8"	4"	5"	32"	3/8"
2"	12"	10"	3/8"	8"	11"	3/8"	4"	5"	-	3/8"
2 1/2"	12"	10"	3/8"	9"	12"	3/8"	4"	5"	-	3/8"
3"	12"	10"	3/8"	10"	12"	3/8"	4"	5"	-	3/8"
4"	12"	10"	3/8"	12"	12"	3/8"	4"	5"	-	3/8"
MAX VERT. (1)	15'	10'	-	10'	10'	-	10'	15'	10'	-

(1) SUPPORT AT MINIMUM EVERY FLOOR LEVEL OR SPACING LISTED.
 (2) SPACING MAY BE INCREASED TO 10' FOR 10' PIPE LENGTHS.



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COLLABORATION



PROJECT INFORMATION

TENANT BUILD-OUT FOR:
ASPEN DENTAL
 660 W. LINTON BLVD., STE. 380 • DELRAY BEACH, FL 33444

PROFESSIONAL SEAL

SHEET DATES

ISSUE DATE: MAY 29, 2019

REVISIONS

JOB NUMBER

1931400

SHEET NUMBER

P0.2