

PLUMBING FIXTURE SCHEDULE						
MARK	FIXTURE	SAN.	VENT	C.W.	H.W.	REMARKS
ECS-1	COMBINATION EMERGENCY EYE WASH/SHOWER GUARDIAN G19SOP	-	-	1-1/4"	1"	PROVIDE WITH GUARDIAN EMERGENCY MIXING VALVE. INSTALL PER MANUFACTURERS GUIDELINES
SS-1	SERVICE SINK FIAT FL-1	2"	2"	1/2"	1/2"	PROVIDE WITH A-1 CHROME PLATED DECK TYPE FAUCET AND ALL ACCESSORIES FOR A COMPLETE SYSTEM. PROVIDE WITH MIXING VALVE SET OUTLET TEMPERATURE TO 120°
S-1	LOUNGE SINK DAYTON DPC12020100S4	2"	2"	1/2"	1/2"	PROVIDE WITH GOOSENECK, CAST BRASS, CHROME FINISH, MANUAL BLADE ADA TYPE FAUCET AND ALL ACCESSORIES FOR A COMPLETE SYSTEM. PROVIDE WITH MIXING VALVE SET OUTLET TEMPERATURE TO 110°
FD-1	FLOOR DRAIN J.R. SMITH 2010-A CAST IRON BODY, 7" DIAMETER STRAINER OF HEAVY DUTY NICKEL.	4"	2"	-	-	PROVIDE SURE SEAL TRAP GUARD SS4009
FS-1	FLOOR SINK JR SMITH 3240 CAST IRON BODY, 16"X16" DUCTILE IRON GRATE	4"	2"	-	-	
HB-1	HOSE BIBB WOODFORD M21	-	-	3/4"	-	CAST BRONZE WITH CHROME FINISH, NON-FREEZE WITH INTEGRAL VACUUM BREAKER, BACKFLOW PREVENTER AND AUTOMATIC PRESSURE RELIEF
WH-1	FROST PROOF WALL HYDRANT WOODFORD B67	-	-	3/4"	-	CAST BRONZE WITH CHROME FINISH, NON-FREEZE WITH INTEGRAL VACUUM BREAKER, BACKFLOW PREVENTER AND AUTOMATIC PRESSURE RELIEF
AC-1	AIR COMPRESSOR. CURTIS MODEL 1X618.	-	-	-	-	25 HP, 460 VOLT 3 PHASE. 120 GALLON TANK MOUNTED ROTARY SCREW COMPRESSOR WITH DRYER, COALESCING PRE-FILTER AND AUTO-TANK DRAIN. COORDINATE AND INSTALL PER MANUFACTURER'S GUIDELINES.
P-1	BELL & GOSSET PL-55 CIRCULATING PUMP	-	-	-	3/4"	115V 3250 RPM. PROVIDE WITH TC-1 AUTOMATIC TIMER KIT AND AQUASTAT.

WATER HEATER SCHEDULE									
MARK	MFR	MODEL	STORAGE	RECOVERY	F. RISE	VOLT/PHASE	HEAT INPUT	REMARKS	
GWH-1	A.O. SMITH	BTH-199	100 GAL	235 GPH	100	120/1	200 MBH	1	
1.	SET OUTLET TEMPERATURE TO 140°F								

PLUMBING SYMBOLS LEGEND	
— G —	GAS PIPING
— CD —	CONDENSATE DRAIN PIPING
— — —	COLD WATER PIPING
— — — —	HOT WATER PIPING
— — — —	SANITARY WASTE PIPING
— SW —	SOFT WATER PIPING
— — — — —	SANITARY VENT PIPING
VTR	VENT THROUGH ROOF
— DO —	PLUMBING TRAP
— — — — —	PIPE TURNING DOWN
— — — — —	PIPE TURNING UP
— — — — —	CHECK VALVE
— — — — —	UNION
AFF	ABOVE FINISHED FLOOR
CO	CLEAN OUT
— — — — —	PRESSURE REGULATING VALVE (PRV) (50 PSI)
— — — — —	BALL VALVE
— CA —	COMPRESSED AIR
— TW —	TEMPERED WATER
— EWF —	ELECTRIC WATER FOUNTAIN
GCO	GRADE CLEAN OUT
— — — — —	CIRCUIT SETTER BALANCE VALVE
— — — — —	POINT OF CONNECTION

GAS PIPING  
DRAWN—TEMPER COPPER TUBE: Comply with ASTM B 88, Type L

- Copper Fittings: ASME B16.22, wrought copper, and streamlined pattern.
- Bronze Flanges and Flanged Fittings: ASME B16.24, Class 150.
  - Gasket Material: ASME B16.20, metallic, flat, asbestos free, aluminum o-rings, and spiral-wound metal gaskets.
  - Bolts and Nuts: ASME B18.2.1, carbon steel or stainless steel.

JOINING MATERIALS

- A. Joint Compound and Tape: Suitable for natural gas.
- B. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.
- C. Brazing Filler Metals: Alloy with melting point greater than 1000 deg F complying with AWS A5.8/A5.8M. Brazing alloys containing more than 0.05 percent phosphorus are prohibited.

EXECUTION

1.01 EXAMINATION

- A. Examine roughing—in for gas piping system to verify actual locations of piping connections before equipment installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

1.02 PREPARATION

- C. Inspect gas piping according to NFPA 54 to determine that gas utilization devices are turned off in piping section affected.
- D. Comply with NFPA 54 requirements for prevention of accidental ignition.

1.03 OUTDOOR PIPING INSTALLATION

- A. Comply with NFPA 54 for installation and purging of gas piping.
- B. Copper Tubing with Protective Coating:
  - Apply joint cover kits over tubing to cover, seal, and protect joints.
- C. Install fittings for changes in direction and branch connections.

Install pressure gage upstream and downstream from each service regulator.

1.04 INDOOR PIPING INSTALLATION

- A. Comply with NFPA 54 for installation and purging of gas piping.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- C. Arrange for pipe spaces, chases, slots, sleeves, and openings in building structure during progress of construction, to allow for mechanical installations.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Locate valves for easy access.
- F. Install gas piping at uniform grade of 2 percent down toward drip and sediment traps.
- G. Install piping free of sags and bends.
- H. Install fittings for changes in direction and branch connections.
- I. Verify final equipment locations for roughing—in.
- J. Comply with requirements in Sections specifying gas-fired appliances and equipment for roughing—in requirements.
- K. Sediment Traps: Install drips at points where condensate may collect, including service-meter outlets. Locate where accessible to permit cleaning and emptying. Do not install where condensate is subject to freezing.
  - Construct sediment traps using tee fitting with bottom outlet plugged or capped. Use nipple a minimum length of 3 pipe diameters, but not less than 3 inches long and same size as connected pipe. Install with space below bottom of drip to remove plug or cap.
- N. Extend relief vent connections for service regulators, line regulators, and overpressure protection devices to outdoors and terminate with weatherproof vent cap.
- O. Prohibited Locations:
  - Do not install gas piping in or through circulating air ducts, clothes or trash chutes, chimneys or gas vents (flues), ventilating ducts, or dumbwaiter or elevator shafts.
2. Do not install gas piping in solid walls or partitions.

- Q. Use eccentric reducer fittings to make reductions in pipe sizes. Install fittings with level side down.
- R. Connect branch piping from top or side of horizontal piping.
- S. Install unions in pipes NPS 2 and smaller, adjacent to each valve, at final connection to each piece of equipment. Unions are not required at flanged connections.
- T. Do not use gas piping as grounding electrode.
- U. Install strainer on inlet of each line-pressure regulator and automatic or electrically operated valve.
- V. Install pressure gage upstream and downstream from each line regulator.
- W. Install sleeves for piping penetrations of walls, ceilings, and floors.
- X. Install sleeve seals for piping penetrations of concrete walls and slabs.
- Y. Install escutcheons for piping penetrations of walls, ceilings, and floors.

EQUIPMENT SCHEDULE	
EQUIP NO.	DESCRIPTION
100	HYDRAULIC/PNEUMATIC TRAINERS
200	CNC VERTICAL MACHINE—VFOE
201	CNC VERTICAL MACHINE—VF3
202	CNC VERTICAL MACHINE—VF2
203	CNC MINI MILL
204	SAND BLASTER
213	CNC LATHE—ST10
214	CNC LATHE—EZ PATH SD
223	BUFFER
224	BUFFER
239	HYDRAULIC PRESS
VERIFY EXACT NUMBERS AND LOCATIONS WITH EQUIPMENT DRAWINGS PRIOR TO WORK	

ALTERNATE GAS PIPING  
Viega, ProPress copper ½-inch thru 4-inch with EPDM Sealing Element, or approved equal.

Other

REFERENCES:

- ASME B16.51 (2011) Copper and Copper Press-Connect Pressure Fittings
- IAPMO PS117 (2005) Press Type or Plain End Rubber Gasketed With Nail Connection Copper And Copper Alloy Fittings For Installation On Copper Tubing
- ASME B31.1 (1998) ASME Code For Pressure Piping (Power Piping)
- ASME B31.3 (2004) ASME Code for Pressure Piping (Process Piping)
- ASME B31.9 (2004) ASME Code for Pressure Piping (Building Services Piping)

PRODUCT DATA:

Viega, ProPress Fittings: copper shall conform to ASME B16.51, IAPMO PS117, ICC LC1002 and NSF 61, NSF 61—G or NSF 372. ProPress fittings ½-inch thru 4-inch for use with ASTM B88 copper tube type K, or L and ½-inch up to include 1-1/4-inch annealed copper tube. ProPress fittings shall have an EPDM sealing element and Smart Connect (SC) feature. 2-1/2-inch thru 4-inch shall have a 420 stainless steel grip ring, PBT separator ring, EPDM sealing element and Smart Connect (SC) feature.

EXECUTION:

Viega, ProPress copper fittings: Tube ends shall be cut on a right angle (square) to the tube. Tube ends shall be reamed and chamfered, oil grease, oil or dirt shall be removed from the tube end with a clean rag. Visually examine the fitting sealing element to ensure there is no damage, and it is properly seated into the fitting. Insert tube fully into the fitting. Make a mark with a felt tip pen on the tube wall at the face of the fitting. Always examine the tube to ensure it is fully inserted into the fitting prior to pressing the joint. ProPress fittings ½-inch thru 4-inch shall be joined using Ridgid ProPress Tools. 2-1/2-inch thru 4-inch ProPress copper fittings shall utilize Ridgid ProPress XLC Rings. ProPress fittings shall be installed according to the most current edition of the Viega installation guidelines. Installers shall attend a Viega ProPress installation training class. Sealing elements shall be verified for the intended use.

TEST:

After ProPress fittings have been installed a 'step test' shall be followed. Pressurize the system with air, or dry nitrogen between 5 psi and 45 psi, or with water between 15 psi and 85 psi. Check the pressure gauge for pressure loss. If the system does not hold pressure, walk the system and check for un-pressed fittings. When you identify the un-pressed fitting/s ensure the pipe is fully inserted into the fitting and press the fitting. After appropriate repairs have been made, retest the system per local code or specification requirements.