

**WAC 296-307-48037 How must service piping systems be installed?**

(1) Distribution lines must be installed and maintained in a safe operating condition.

(2) Piping may be above or below ground. All piping must be run as directly as practical, protected against physical damage, with an allowance for expansion and contraction, jarring and vibration. Pipe laid underground in earth must be below the frost line and protected against corrosion. After assembly, piping must be thoroughly blown out with air or nitrogen to remove foreign materials. For oxygen piping, only oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used.

(3) Only piping that has been welded or brazed must be installed in tunnels, trenches or ducts. Shut-off valves must be located outside such conduits. Oxygen piping may be placed in the same tunnel, trench or duct with fuel-gas pipelines, if there is good natural or forced ventilation.

(4) Low points in piping carrying moist gas must be drained into drip pots constructed to permit pumping or draining out the condensate at necessary intervals. Drain valves must be installed for this purpose having outlets normally closed with screw caps or plugs. Open end valves or petcocks are prohibited, except that in drips located outdoors, underground, and not readily accessible, valves may be used at such points if they have means to secure them in the closed position. Pipes leading to the surface of the ground must be cased or jacketed where necessary to prevent loosening or breaking.

(5) Gas cocks or valves must be provided for all buildings at points where they will be readily accessible for shutting off the gas supply to these buildings in any emergency. Underground valve boxes or manholes should be avoided wherever possible. There must be a shut-off valve in the discharge line from the generator, gas holder, manifold or other source of supply.

(6) Shut-off valves must not be installed in safety-relief lines in such a manner that the safety-relief device can be rendered ineffective.

(7) Fittings and lengths of pipe must be examined internally before assembly and, if necessary, freed from scale or dirt. Oxygen piping and fittings must be washed out with a suitable solution that will effectively remove grease and dirt but will not react with oxygen.

Note: Hot water solutions of caustic soda or trisodium phosphate are effective for this purpose.

(8) Piping must be thoroughly blown out after assembly to remove foreign materials. For oxygen piping, oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used. For other piping, air or inert gas may be used.

(9) When flammable gas lines or other parts of equipment are being purged of air or gas, open lights or other sources of ignition are prohibited near uncapped openings.

(10) No welding or cutting must be performed on an acetylene or oxygen pipeline, including the attachment of hangers or supports, until the line has been purged. Only oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used to purge oxygen lines.

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