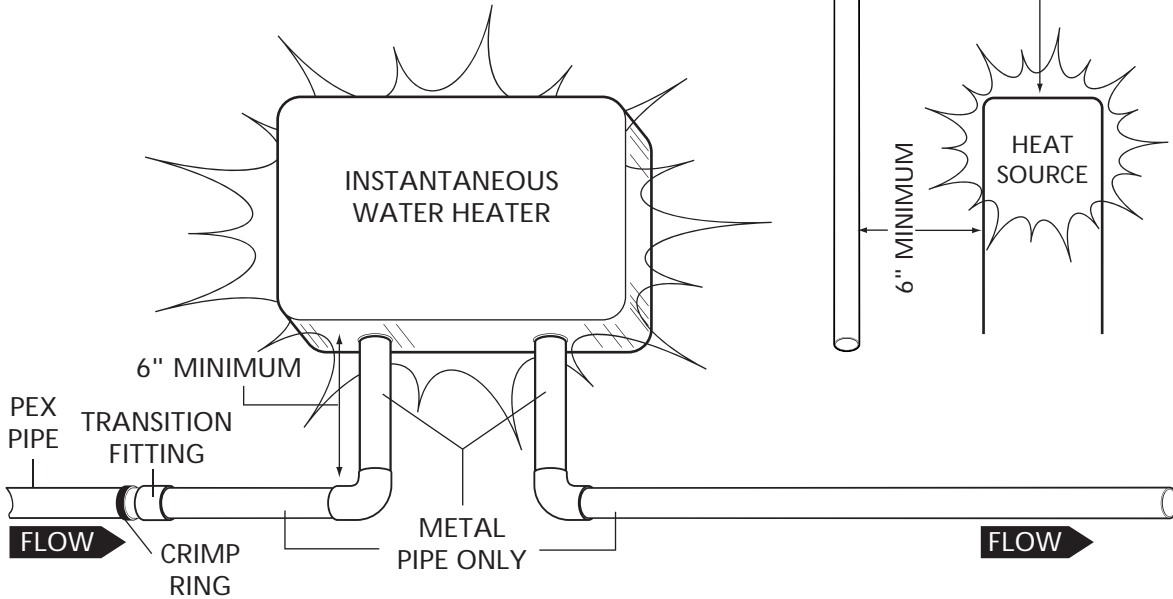




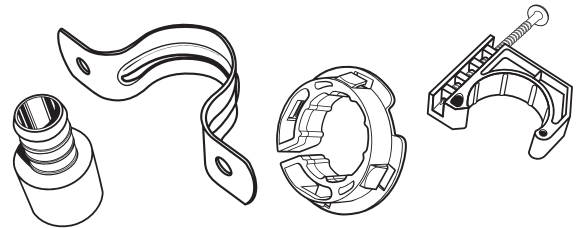
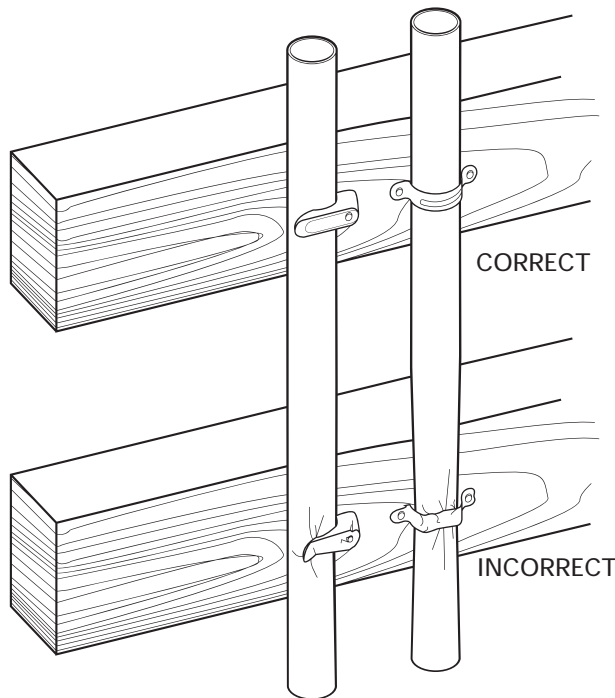
FLEXIBLE PIPE INSTALLATION PRACTICES

- Keep the pipe a minimum of 12" vertically or horizontally from high heat, such as recessed light fixtures, flue gas vents or heating appliances.



- DO NOT install PEX pipe downstream of any instantaneous type (coil or immersion) water heater, or closer than 6" upstream.
 - DO NOT install PEX within 18" of any hot water heater.
- Use a metallic water heater connector or suitable metallic transition.

PIPE SUPPORT SELECTION AND INSPECTION

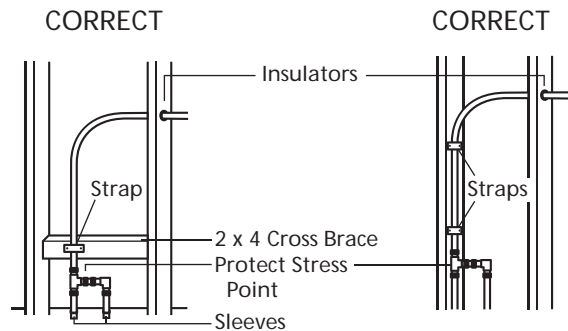
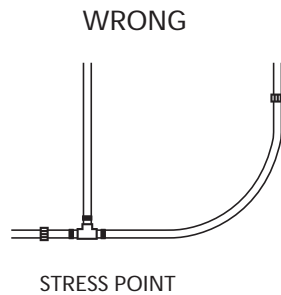
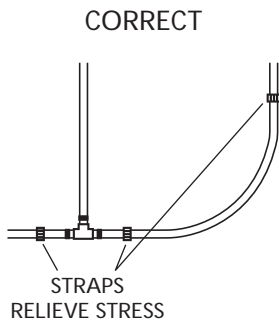


- Plastic hangers and straps are recommended, however, metal supports designed for use with plastic pipe can be used.
- Supports must not pinch or cut the pipe. They should allow lateral movement.
- Supports must not have any sharp edges that would result in abrasion during lateral movement.
- Inspect all the supports prior to installation to ensure that any sharp edges not exist that can damage the pipe.
- Never use defective or damaged supports - always replace them.

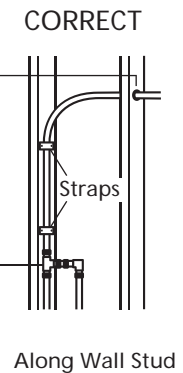


FLEXIBLE PIPE INSTALLATION PRACTICES

- When joining, piping must be installed without placing stress on the joint. See illustrations that follow for appropriate methods of stress relieving.



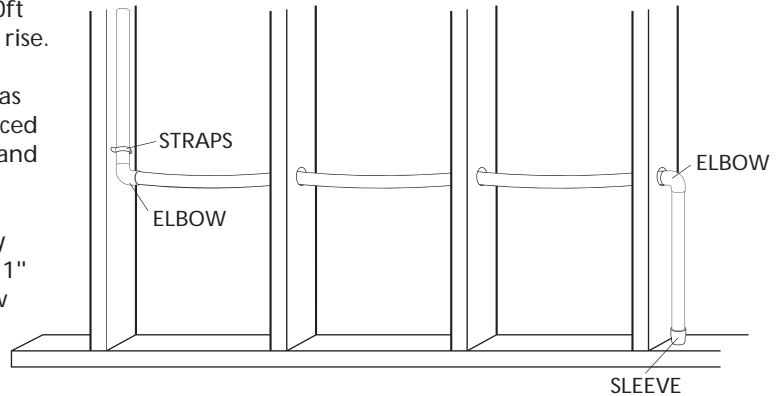
Out of Slab or Floor



Along Wall Stud

PIPE EXPANSION AND CONTRACTION

- PEX pipe expands approximately 1" per 100ft of length for every 10 degree F. temperature rise. Therefore, do not pull PEX pipe tight during installation so as to prohibit pipe movement as this will result in unnecessary stress being placed on fittings and connections when pipe cools and contracts. Allow about 1/8" slack per foot on installed pipe.
- Expansion can usually be accommodated by pipe's flexibility for sizes up to and including 1" diameter pipe. For long lengths, a four-elbow expansion loop or continuous pipe loop will accommodate large expansion within a small space.



HYDRAULIC SHOCK

- For normal plumbing installations (4 to 8 fps velocity), air chambers or water hammer arresters are not necessary with a PEX piping system. However, local codes must be respected, and may require the use of a water hammer arrester.

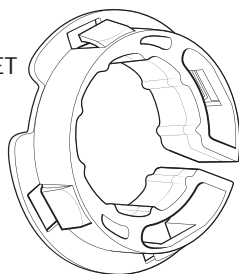
SUPPORT SPACING

- Spacing between supports is the same up 1" CTS.
- Maximum spacing is as follows: Horizontal: 32" Vertical: 48"

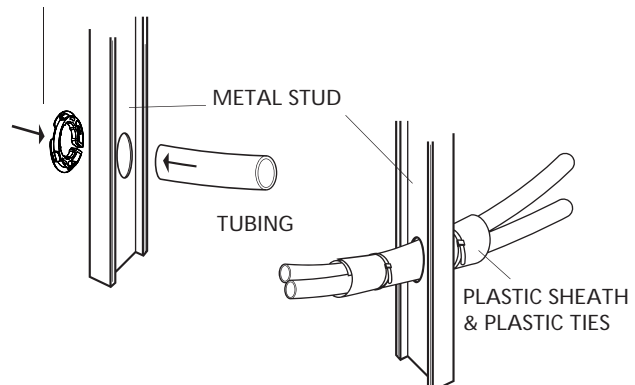
ADDITIONAL SUPPORT

- Use protective sleeves or bushings on pipe:
 - When penetrating floors.
 - At beginning and end of straight runs of piping which penetrate studs or joists.
 - At significant changes in direction.

PROTECTIVE GROMMET FOR METAL STUD



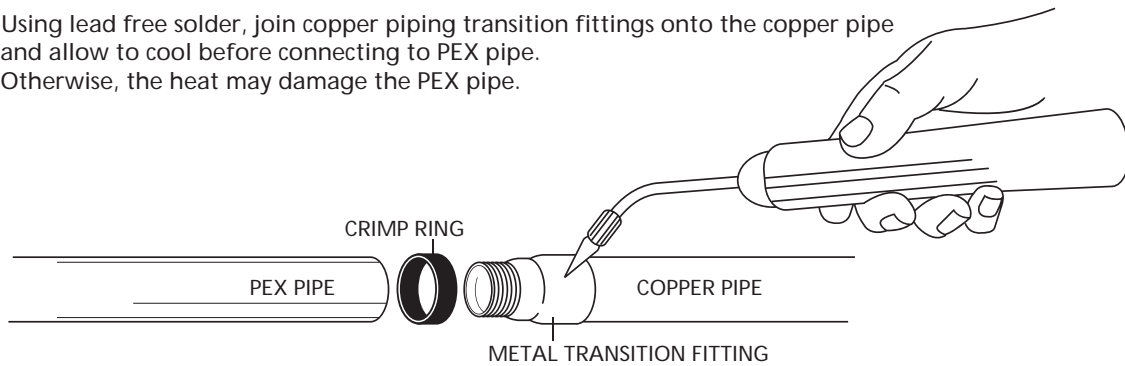
PLASTIC GROMMET FOR METAL STUD





CONNECTION (TRANSITION) TO OTHER PIPING MATERIAL

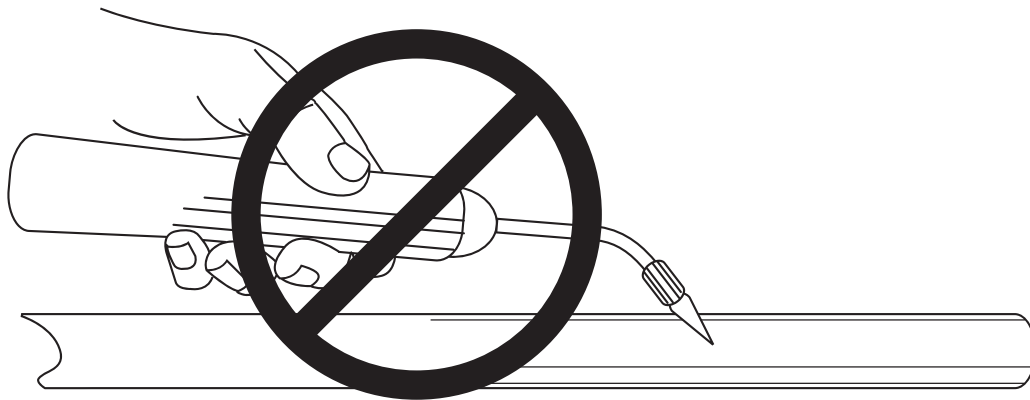
- Using lead free solder, join copper piping transition fittings onto the copper pipe and allow to cool before connecting to PEX pipe. Otherwise, the heat may damage the PEX pipe.



- When making connection to CPVC pipe or fittings, use only approved mechanical joints such as Push'N'Turn™.
- Do not apply lubricants, pipe dope, or any other chemical onto an insert fitting.
- Make water heater connections with connection which provide, at least 18" between PEX pipe and the water heater.

FREEZING AND THAWING PIPE SYSTEMS

- PEX pipe systems should never be intentionally subjected to freezing. Freeze protection is a basic element for good plumbing and is a code requirement.
- Do not use open flame or excessive heat to thaw PEX pipe. Pipe failure or damage are likely results.

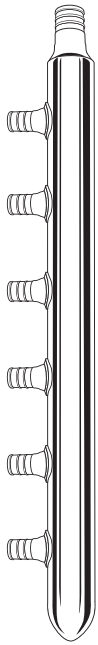


DO NOT USE OPEN FLAME OR EXCESSIVE HEAT TO THAW PEX PIPE

- There are several suitable methods to thaw PEX pipe. They are listed below as follows:
 1. Commercial system which pumps heated water through a tube to the ice blockage, and returns the cooled water for reheating.
 2. Wet hot towels.
 3. Hot water.
 4. Hand-held hair dryer.
 5. Low wattage electrical heating tape.

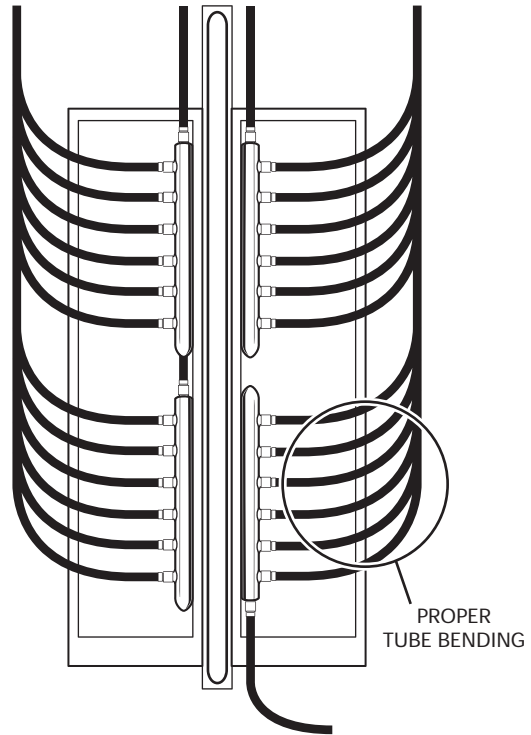


MANIFOLD PLUMBING SYSTEM



• The following information applies to Manifold systems in addition to the general limitations and installation information on PEX pipe fittings in this manual:

1. Manifolds can be installed in a horizontal or vertical position.
2. In larger installations, branch manifolds may be remotely located to handle a number of outlets.
3. Each faucet or water outlet is fed by its own supply line from the manifold which may be located near the water supply or water heater.
4. Tubing shall be run continuously and as directly as possible between the fixture and the manifold locations.
5. Tubing shall not be pulled tight. Leave some slack to allow for expansion and contraction.
6. Install tubing cautiously to avoid binding, kinking or also abrasions of pipe.
7. Leave excess tubing at the beginning and end of the runs for the connection to the fixtures and manifolds.
8. When running lines to a group of fixtures, they may be bundled together-however, they must be bundled loosely enough to allow individual movement of pipe. Bundle cold and hot waterline separately. You may use plastic ties. Do not tape to bundle pipe, since it may restrict movement of an individual pipe run.
9. When bundled lines pass through conventional structural members with a hole at the centerline of the member. Consult the code for maximum hole size permitted.
10. Identify and permanently mark all lines at the manifold for ease of installation, testing and repair.



HYDROSTATIC TESTING AND INSPECTION OF COMPLETE SYSTEM

- Test all the installations with ambient temperature water.
1. Use of an air pump to maintain pressure on a water filled piping system is acceptable, however, not of an air-filled system. Do not use compressed gas for testing, since the explosive force of the gas can be extremely dangerous in the event of a system rupture.
 2. A test pressure should be at least 100psi (pounds force/square inch), but not greater than 225psi.
 3. A test duration of 2 hours is recommended.
 4. Do not use any soap or detergent solutions for leak detection.

