



Plastic Pipe and Fittings Association

# PUBLICATIONS | PEX

## **PEX Piping Systems**

### PEX vs. Copper Comparison

Published by the  
Plastic Pipe and Fittings Association  
800 Roosevelt Road  
Building C, Suite 312  
Glen Ellyn, Illinois 60137  
[ppfahome.org](http://ppfahome.org)

## PEX Is The Piping Of Choice:

PEX (Cross-linked Polyethylene) is a type of plumbing material used in plumbing systems that offers many advantages over traditional copper hot- and cold-water distribution systems. Because of the many benefits offered by PEX, it has become a preferable plumbing system to copper for home builders nationwide; and PEX has gained wide acceptance in commercial construction applications as well. PEX systems originated in Europe over thirty years ago and have been used in North America for about thirty years in hydronic applications and over fifteen years in hot- and cold-water distribution systems during which time they have demonstrated excellent performance and durability. Homeowners, builders, and plumbing contractors can all benefit from the use of PEX plumbing systems.

## No More Annoying And Potentially Damaging Water Hammer Noise:

PEX is a quiet plumbing system. It virtually eliminates water hammer noise caused by rapidly opening and closing valves and damps out noise caused by water flowing in the tube.

## PEX Offers Resistance To Freeze Damage:

PEX is resistant to freeze damage compared to copper. In the event of a freeze, PEX will typically expand to accommodate the expansion of the water (when it turns to ice) and then return to the original size when the water thaws. Rigid piping materials do not have such flexibility.

## No More Corrosion Stains, Deposits Or Leaks:

Unlike copper plumbing systems, PEX is not susceptible to corrosion and the resulting leaks that can occur due to corrosion. Whereas copper systems often suffer from build-up of deposits on its interior surfaces, PEX remains smooth and virtually deposit-free. Thus, the flow characteristics of PEX do not deteriorate over time, and the home owner enjoys full flow of water over the lifetime of the system. PEX plumbing systems are essentially maintenance free offering the homeowner cost savings and peace of mind. Because of its versatility, it is possible to install a PEX plumbing system in a configuration that minimizes waiting time for hot water, thereby providing the home owner with both convenience and energy and water savings.

## Installers Like PEX:

Installers (plumbing contractors) like PEX, too. Because PEX tube is flexible it is easily bent around corners, thus minimizing fittings and speeding up the installation process compared to copper. When it is necessary to install a fitting (e.g., "tee") in a PEX plumbing system, the fitting is attached without the use of a torch and solder/flux as would be used with copper. Instead, PEX tubing is joined to fittings with various types of mechanical connections. Job site safety can be improved and insurance costs can be reduced during construction because torches do not have to be used in the structure. PEX is easily and quickly cut with a blade type cutter and because it should be installed with some slack, precise measurements are not required as with rigid tubes such as copper. The joining systems for PEX do not require any lubricants, sealants, glues or adhesives either and plumbers like the cleanliness of the systems. Furthermore, PEX is light weight, making it easier to handle it on the job site.

# Builders Recognize The Many Benefits Of PEX:

Builders recognize the benefits of PEX plumbing systems and many builders specify that only PEX systems be installed in their homes. In today's market, builders are carefully watching costs to deliver the maximum value to the homeowner and PEX plumbing systems are typically far more cost effective than copper. Material costs are always increasing but in recent years, the cost of copper has risen much more rapidly than other materials. The cost increases of PEX have been much less than copper thus providing better price stability than copper systems. Because PEX is not a re-sale material, it is not subject to job-site theft as is the case with metal materials like copper.

## PEX is Green:

A study<sup>1</sup> has shown that PEX requires less energy to produce and has an overall lower carbon footprint than copper. Since PEX is a comparatively new material, post consumer recycling has not yet been necessary because very few buildings with PEX have been demolished. In the future, recovered PEX could be used as a material source in other products or as a fuel source for power generation.

In summary, PEX offers advantages for home owners, commercial building owners, builders, and installers. PEX is virtually immune to corrosion damage; is readily installed without the problems and potential danger of torches; does not affect the quality of water; and provides a quiet low-maintenance plumbing system. PEX is cost-effective and environmentally-friendly.

<sup>1</sup> "Life Cycle Inventory of the Production of Plastic Pipes for Use in Three Plumbing Applications", Franklin Associates, 2008

[http://ppfahome.org/PPFA\\_Manufacturing\\_LCI\\_Report.pdf](http://ppfahome.org/PPFA_Manufacturing_LCI_Report.pdf)

Published on: July 2, 2015

This document can be viewed online at:

**[http://ppfahome.org/attach/ppfa\\_pex\\_copper.pdf](http://ppfahome.org/attach/ppfa_pex_copper.pdf)**

© 2015 PPFA. All Rights Reserved.