

PEX Piping: *Speeding Installation*

Builder's Experience



Challenges: Finding experienced plumber, objective information

Would he do it again? Yes

PATH Attributes:

- Affordability
- Energy Efficiency
- Quality/Durability
- Environmental Performance

Builder Tips: "If you kink the piping, it's easy to fix using only a heat gun."

Owner/Builder:

Keith Peterson
West Pasco, Washington

The Technology:

PEX Water Supply Piping

The Project:

Peterson's 2,480 square-foot home built with insulating concrete forms features PEX piping and radiant floor heating.

Keith Peterson didn't want to use copper for his plumbing because of the taste it can leave in the water. He selected cross-linked polyethylene (PEX) piping for its ease of installation and cost savings, and even tied a REHAU fire suppression system into his cold water pipes.

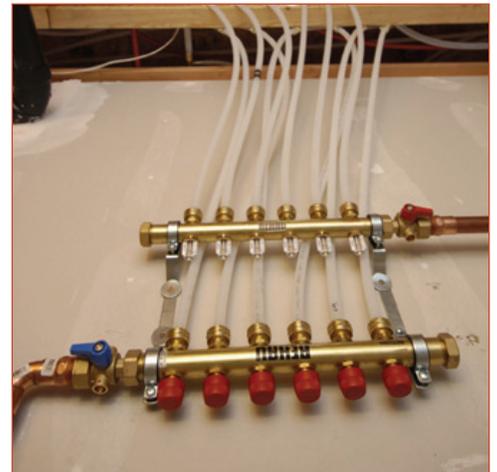
"PEX is quiet, it doesn't scale, and you don't get that copper taste."

– Keith Peterson

PETERSON'S STORY

"Traditional copper piping is a good product, but it's not inert," says Keith Peterson. "When water sits in it for a while, you get sediment build-up and that copper taste. You avoid all that with PEX. There's also a smaller pressure drop than for copper piping, so the water pressure at different fixtures doesn't fluctuate so much."

"Some earlier plastic piping products made from butyl gave plastic piping a bad rap. But PEX doesn't have the problems that butyl did. Neither does CPVC, but I had already chosen to use PEX for my radiant floor heating, and so saw its advantages – rapid and flexible installation and a more fail-safe, quality product – for supplying drinking water as well."



Peterson can conveniently turn off the water to any individual fixture at the plumbing manifold.

"When I was installing PEX on my radiant heat system, I had to repair some kinks, which was really easy. You just use a heat gun to heat up the PEX until it turns clear, and then you let it cool and it's back to normal. You can't do that with any other piping."

"The real challenge with PEX was getting objective information about the product locally. In the building industry, most people are into 'tried and true' technologies, so many plumbers use copper and nothing else. Fortunately, the plumber that I selected to do the waste and vent work was also familiar with PEX. He uses plastic piping almost exclusively because he likes how fast it is to install and he thinks it's a quality product."



Keith Peterson is a certified sustainable building advisor and a senior research scientist at Pacific Northwest National Laboratory. He has more than 11 years experience in deploying green building technologies. He acted as the general contractor for the construction of his own home through the help of UBuildIt, an owner-builder consultant group.

Peterson, on why he used PEX:

"Installing PEX is like stringing electrical wire. It's that fast. I minimized installation time and got a superior product at the same time."



Home sweet home.

TECHNOLOGY HIGHLIGHTS

This project included the following PATH-profiled technologies:

- Insulating concrete forms (ICFs)
- PEX piping
- Radiant floor heating

The Partnership for Advancing Technology in Housing (PATH) brings together builders, manufacturers, researchers, government agencies, and other members of the housing industry. PATH partners work to improve the quality and affordability of new and existing homes. The program is administered by the U.S. Department of Housing and Urban Development's Office of Policy Development and Research.

To learn more, visit www.pathnet.org. To learn more about these technologies, visit www.toolbase.org/techinv



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SIMPLE INSTALLATION

"Installing PEX is like stringing electrical wire," Peterson says. "It's that fast. You just pull the PEX through the house, and you have hardly any fittings or splicing to do—way fewer than with copper. From your supply, you often don't need any fittings until you get to a fixture or to your drop."

"My plumber ran my lines from the mechanical room up the walls and then through the attic space or the floor joist space. They ran all of the tube for the integrated fire suppression and cold water system in 3 or 4 hours (that was including installing the 50 fire suppression sprinkler tees). Depending on the brand of PEX product you choose, you can pressurize or test a line either as soon as the fittings are installed, or after a short 'reshaping' time as the PEX fully compresses into the fittings."

LOWER LABOR COSTS

Most builders find that they can reduce their plumbing rough-in costs by switching from copper to PEX piping. Although material costs are about the same, the savings come from labor due to significantly reduced installation time.

"I found material costs to be roughly equivalent to copper," Peterson says. "Depending on the manufacturer, the fittings are substantially more expensive than copper fittings, but a PEX system requires only 10 to 20% the number of fittings as

traditional plumbing systems. And there is an obvious savings on installation costs with PEX because of how fast it goes in."

"Each manufacturer has its own patented fitting system, requiring an investment in that manufacturer's installation tools. However, many plumbing supply houses will rent the tools out to plumbers. Also, the technology uses no acetylene, solder, or glues, contributing to safer working conditions."

INTEGRATED FIRE SUPPRESSION SYSTEM

"My first choice for PEX was to use a home run plumbing system with a manifold for my domestic water supply," Peterson says. "But REHAU offers an innovative fire suppression system that is integrated with the domestic water supply plumbing through a circulating pipe layout. Their design offers a cost-effective way to add fire protection to a home, but requires a different water supply layout from a homerun plumbing system."

"REHAU's fire suppression design is integrated with the domestic cold water supply, so all of my cold water fixtures are dropped from the loop in the ceiling that supplies the fire suppression sprinkler heads. Any time you use a faucet or flush the toilet, it circulates the water in the sprinkler lines, always keeping those lines fresh."

"I estimate that one would want to budget an additional \$3,000 to \$7,000 to the plumbing costs to include this type of fire suppression system to a residence. It did give me about a 15% reduction on my homeowner's insurance, though."