Plastics Pipe Institute
BUILDING & CONSTRUCTION

PPI Continuing Education Program

Designing PEX Plumbing Systems to Optimize Performance and Efficiency

Course Outline: Crosslinked polyethylene (PEX) tubing has been used for plumbing systems in North America for over 25 years, providing safe delivery of potable water and protecting the health of building occupants. A result of modern polymer technology, PEX tubing performs in ways that provide excellent safety, durability, and reliability. The properties of PEX tubing and fitting systems can improve the health, safety, and welfare of building occupants.

When designing PEX plumbing systems, some planners use sub-optimal piping layouts, potentially delaying delivery of hot water to fixtures and increasing installation costs. Installers that construct PEX plumbing systems in the same manner as rigid piping systems without taking advantage of inherent material flexibility can inadvertently increase construction time and installation costs.

This course explains piping design methods that can provide faster delivery of hot water to fixtures, improve overall system efficiency, optimize use of materials, and improve installation efficiency. Design examples are illustrated and compared. Empirical test data is used to provide answers about the best ways to design PEX plumbing systems to optimize performance.

Course content is based on PPI's Design Guide: PEX Water Supply Plumbing Systems

Learning Objectives: By the end of this 90-minute course, participants will be able to:

1. Explain how the properties of PEX tubing and fittings can improve health, safety, and welfare through improved plumbing materials
2. Describe three distinct plumbing layouts using PEX systems and compare advantages and disadvantages of each
3. Apply test data from published research to demonstrate how design of the plumbing layout can improve system performance and provide faster delivery of hot water with reduced water waste
4. Direct an installer on correct installation techniques for PEX systems to ensure long-term safety and performance
5. Discuss how to access industry resources for design and installation questions

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