Plastics Pipe Institute
BUILDING & CONSTRUCTION

PPI Continuing Education Program

Polypropylene Piping Materials for Plumbing & Mechanical Applications

Course Outline: Specifiers and designers of plumbing and mechanical systems have several options when selecting the optimal pipe and fitting material for each application. Each material has its unique advantages and benefits to the specifier and end-user.

Polypropylene (PP) pressure piping systems are high-temperature polyolefin materials that were first used in the 1980s in Europe for hydronic heating, then in the 1990s for plumbing. PP pressure piping systems were introduced to North America in the early 2000s. The controlling product standard is ASTM Standard Specification F2389, which was first published in 2004.

Two types or grades of PP material available: **PP-R** and **PP-RCT**

This course addresses the similarities and differences between PP-R and PP-RCT. It explains why polypropylene pressure piping systems are preferred alternatives to traditional metal piping materials (e.g., copper, steel) for common applications such as hot- and cold-water plumbing distribution, hydronic heating and cooling, chilled water, and district energy applications.

The course provides details on both types of PP materials, including their pressure and temperature capabilities, joining techniques, standards, and code compliance. Installation topics will be addressed, including how to combine PP piping with other materials, with the goal of integrating polypropylene piping systems for plumbing and mechanical applications.

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

1. Describe polypropylene piping materials in terms of history, standards, material properties, capabilities, and code compliance
2. Demonstrate polypropylene joining techniques
3. Indicate where and how to use these materials in applications such as plumbing distribution, hydronic heating and cooling, chilled water, and district energy applications
4. Explain how to access industry resources related to selecting and specifying polypropylene piping material for various applications

For more information, contact **Lance MacNevin, P.Eng.** lmacnevin@plasticpipe.org

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