Benefits of CPVC Water Distribution Systems

by Tina Massel

Since its introduction to the market nearly fifty years ago, chlorinated polyvinyl chloride (CPVC) pipe has proven to be a viable alternative to metal pipe in residential, commercial and industrial applications thanks to its unique combination of benefits. The use of CPVC for potable water conveyance is permitted by all major plumbing codes, and cost considerations and greater demand for sustainable products have made this high-performance, specialty plastic the material of choice for many contractors.

The advantages of using CPVC materials include the following.

- **Reliability and long-term performance.** CPVC will never pit or corrode, even in the most aggressive water conditions.
- **Lower installed cost.** CPVC pipe can be quickly and easily installed using a solvent cement bonding system. Depending on the size of the project, this can result in as much as a 50-percent labor savings compared to other materials.
- **Natural thermal superiority.** Overall, plastic materials have a lower coefficient of thermal conductivity when compared with metallic materials. As a result, it is often not necessary to insulate CPVC water lines within conditioned buildings. In fact, CPVC has proven to remain free of condensation under many of the same conditions that cause metal pipe to sweat and drip.
- **Convenience.** CPVC pipe is only one-sixth the weight of metal pipe, making it easier to maneuver on the job site. In addition, it can be installed using a small number of inexpensive hand tools.
- **Safety.** Because no soldering torch is required to bond CPVC pipes and fittings, the risk of fire is virtually eliminated.
- **Quiet operation.** CPVC pipe minimizes water flow noise and water hammer. This is especially important for apartments, dorms and hotels.
- **Consistent water quality.** CPVC is certified safe by NSF International—which holds Collaborating Center designations from the World Health Organization for Food and Water Safety and Indoor Environment—for use with potable water of all pH levels.
- **Fire safety.** With its superior flame and smoke characteristics, CPVC is considered a fire-safe material. It exhibits low smoke and generation characteristics and will not sustain a flame.
- **Eco-friendly.** CPVC compares favorably to most other piping materials when it comes to environmental concerns. Its production requires considerably less energy than competitive materials, and the small amount of waste that is generated can easily be recycled. In addition, it requires less energy to transport due to its light weight. Once installed, its natural thermal efficiency, smooth interior surface and comparatively large inside diameter help reduce energy costs.

Around the country and across the globe, CPVC piping systems have been subjected to—and passed—more stringent tests and been held to higher standards than traditional plumbing materials. In today's highly competitive, fast-paced building industry, they represent the ultimate in efficiency—helping engineers and contractors keep projects on time and on budget. ◆

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