

New Report Urges Rethink of Materials Used in Fire-Sprinkler Systems

South Carolina, April 2025 – Safe Piping Matters released a new report, *Fire-Sprinkler Systems: Issues and Considerations*, offering architects, engineers, and construction professionals critical insights into system design, material performance, and safety risks related to fire-sprinkler piping. "This report helps building teams understand why code compliance isn't enough," said Paul Hagar, Executive Director of Safe Piping Matters. "Research shows deeper performance issues can compromise life safety when materials are poorly chosen."

Based on technical guidance from the American Society of Plumbing Engineers (ASPE), the National Fire Protection Association (NFPA), and other industry experts, the report is designed to help building teams move beyond cost and code minimums to make fully informed decisions. It covers four system types – wet, dry, pre-action, and deluge – and offers analysis of materials used in piping networks. It highlights five key differences between metal and plastic pipes:

- 1. Metal pipes (steel and copper) resist fire and extreme heat; plastic pipes (CPVC and PEX) can melt or burn at temperatures well below those of a typical structure fire.
- 2. Metal requires fewer fireproofing assemblies in plenum spaces.
- 3. Plastic piping is more vulnerable to damage from routine maintenance chemicals.
- 4. Metal systems offer superior long-term durability and lower liability risks.
- 5. Copper and steel can be recycled at high rates, while plastic pipes are rarely recyclable and contribute to landfill waste.

The publication looks at:

- **System Types:** Explaining how different fire-sprinkler systems function and where they may be used.
- **Material Considerations:** Describing differences in fire resistance, chemical compatibility, and long-term reliability of piping materials.
- **Code Compliance:** Reviewing NFPA 13, 13R, and 13D, and special requirements for pipe penetrations and plenum spaces.
- **Maintenance Challenges:** Noting operational issues that occur after building commissioning, including how exposure to common maintenance products can lead to building-wide failures.
- **Recommendations:** Listing action steps to improve system safety, reduce liability, and align material choices with building performance goals.

"This report is an important step in helping the AEC community avoid preventable system failures," added Hagar. "We encourage building professionals to share and discuss our findings, and use them to create better outcomes in their projects."



Download the full report and explore additional resources at: www.safepipingmatters.org

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About Safe Piping Matters

Safe Piping Matters is a nonprofit organization dedicated to providing design and construction professionals the best information on safe, resilient, and sustainable piping. We believe systems should not only improve building performance, but also protect the health of the people who live and work in them. Details at SafePipingMatters.org.

