Copper in Architecture Handbook Keeps Pace with Technology

It’s still called a handbook, although some in the building community might refer to it as “the Bible.” And it’s still available in printed form—something someone will need to order it.

But over the past two decades, the Copper in Architecture Design Handbook has transformed multifamily and mass timber projects to the architecture and construction design project.

In today’s construction environment, architects, engineers and builders today have new materials of which to choose. Make it available. Make it easy.

This imperative extends throughout the building envelope to materials and building practices, and also to mechanical systems such as heating; air conditioning; and water supply systems, including fire sprinkler systems—a critical component of commercial and, increasingly, residential structures.

Various piping materials can be used for fire sprinkler systems; copper is often recommended, especially in systems or applications where the delivery of clean water from the system is deemed to be a priority, such as in the operation of the building’s HVAC systems.

Copper is recognized to be the “greenest” of all metals used in buildings and is generally considered a sustainable, recyclable and long-lived material that are key attributes that can enhance the longevity of the building.

There are many other reasons why copper tube and fittings are ideal for fire sprinkler systems.

Fire Resistance—Unlike some piping materials, copper does not burn, support combustion or emit toxic fumes when exposed to flame. It will not transport fire through floors, walls and ceilings. And, it has a low water pressure at which it operates.

Superior Flow—Providing a constant flow of water to a building or building component is critical to maximizing a system’s effectiveness. Thin-walled copper tubing offers superior flow rates compared to other, similar-size pipe materials. While copper’s flow rate is based on the specific inner surface of copper tubing as a protective oxide film prevents scaling that reduces the potential that a system will clog.

Ease of Installation—From initial delivery of the sprinkler heads to the installation of lightweight copper tubing helps get jobs done quickly. Copper is also extremely lightweight and easy to transport, stack and handle, unlike competing materials such as heavy steel pipe and rigid plastic systems. Copper’s weight is only a small fraction of that required to result in less damage to building structures. And, copper’s ability to maintain a constant temperature helps expedite work while minimizing occupant downtime.

Cost—In general, initial installation costs may be higher, the longevity, durability and value of copper systems makes them competitive and even lower in cost over the long run. In addition, all copper pipe and tubing sold in the United States comes with a 50-year warranty against failure. Copper is also 100 percent recyclable, so additional cost can be recovered when a building is demolished or the system is replaced.

In today’s green building environment, copper offers many advantages, not least of which is its sustainability and potential to reduce the building’s greenhouse gas emissions. Copper is also a “red” metal by those in the industry, in that virtually all copper tubing contains pre-recovered metals and caps, flashings, finials, ornamental band work and window trim. These can all be recycled and recovered as part of the building mission. Copper also offers many advantages, not least of which is its sustainability and potential to reduce the building’s greenhouse gas emissions.

According to Forbes, a combination of 20- and 24-gauge copper was used in the copper roofing system. Approximately 1,100 square feet of the roof was completed by the end of this year. It includes new metal roofing to the isle and cupola of the new building, and an outdoor pavilion complex overlooking Central Park, including 14 pavilions hosted under the reconstructed roof.

Some of the parts being built over the years and are being worked on at this site, such as the windows, doors and floor, will be put to good use. The program will provide space for future uses at the conservatory and library.

While HEATHER and Little has restored many landmark copper structures, the Plaza project is especially unique because it is an energy-efficient concept. Forbes says, “Just for the sake of the fact that these old buildings have been through there. It’s a beautiful building. The architecture is just great.”

Copper in Architecture Handbook

Kellen Communications
300 Lexington Avenue, 10th Floor
New York, NY 10017

For more information on the technical uses of copper in building construction, please contact the Copper Development Association at 212-251-7200 or visit the website at www.copper.org.