Fire-Resilient Infrastructure Depends on Concrete Pipe

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Wildfires pose one of the costliest and most dangerous of disasters affecting every region of the United States. Following the recent fires in California, revised building codes have focused on aboveground structures and dwellings in an effort to provide for greater resistance to both fire and the heat generated from those fires. Engineers and specifiers must also carefully plan fire-resilient infrastructures for the safety and future survival of their communities. All roadways, especially designated evacuation routes, are critical lifelines - providing a safe pathway out for residents before the event and an important access point in for emergency responders following a fire.

In the design of those roadway systems, it is important to consider how each component will react to fire and heat. A burned or melted storm drainage pipe under or adjacent to a roadway will not only compromise the integrity of the drainage system, it can cause a roadway failure, potentially stranding evacuees. **Concrete pipes don’t burn or melt.**

While some agencies permit the specification of plastic products in pipeline construction, pipes made from plastic present a serious threat to infrastructure and the welfare of communities in fire-related events. Simply put, plastic pipes burn. It is the design engineer who is ultimately responsible for the system’s performance throughout the design life of the project. The engineer should not be required to accept liability each time he or she stamps plans and specifications. It is incumbent upon both the specifying agency and the design engineer to ensure that evacuation routes continue to function before and after fire-related incidents.

**Did you know?**

Wildfires are a reality in all parts of the United States, not just a few regions. Nearly half of the country’s population reside in states affected by wildfire. Here are the top 10 states for wildfires as ranked by the Insurance Information Institute (2017):

[Top 10 States For Wildfires Ranked By Number Of Fires And By Number Of Acres Burned, 2017](#)

**The Real Dangers of Plastic Pipe**

When plastics ignite, they burn hotter and faster than other fires and release harmful chemicals to the environment. PVC, High Density Polyethylene and Polypropylene Pipe all have a melting temperature below 170°F and ignition temperatures ranging from 350°F to 570°F. An ordinary match burns at 600°F to 800°F.

In response to the 2017 I-85 fire in Atlanta, the Georgia State Fire Marshal Dwayne Garriss said: “Plastic products are petroleum based and basically when it starts heating up, it starts deforming from a solid to a liquid. Once it becomes heated up to a certain temperature, it becomes basically a liquid fire. Three-dimensional fire is what we call it, and it flows.”

After the 2018 Santa Rosa fire, firehouse.com stated, “…residents reported a foul smell in their water supply. An investigation determined that the underground PVC piping was damaged by the fire and began leaching. Plastic is permeable and prone to seepage and leaching. Scientists discovered that the pipes had emitted benzene, a carcinogen and petrochemical used in HDPE plastic pipes.”

**Know the Risk**

It’s vital in these times of fiscal responsibility, uncertain weather patterns and man-made catastrophes that we understand the alarming difference between concrete and plastic pipes. Minimize the risk to critical, underground infrastructure in a fire-related event. **CHOOSE CONCRETE PIPE.**

Link to Fire Key Issue Statement