



QUICK RESPONSE

*Saving life and property through effective licensing, plan review,
and inspection of fire protection systems.*

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BONDING AND GROUNDING

Bonding and **grounding** are frequently confused and often the terms are mistakenly used interchangeably. However, **bonding** and **grounding** are two different things, with different purposes. In regard to fire sprinkler systems, while **bonding** of the sprinkler system piping is acceptable, using the sprinkler system piping as a **grounding** electrode is prohibited per **NFPA 13** and **NFPA 24**.

Bonding is the connection of two or more conductive objects to one another by means of a conductor such as a wire or a pipe. **Bonding** ensures that these two things will be at the same electrical potential. That means you would not get electricity building up in one and not in the other.

Grounding is a special form of **bonding**. It is the act of connecting something to the ground (earth), so it has zero electrical potential. Everything that is grounded is connected to the ground and can have no electrical energy stored in it.

An explanation of **bonding** is that it is done to prevent you from being shocked/electrocuted when your left hand touches one metal component, and your right hand touches another metal component. By running a wire (**bonding** wire) from one metal component to another, stray electricity, for example from a short, will equalize through the **bonding** wire and one metal component will not have a greater voltage in it than another metal component. **Grounding** on the other hand is to give the stray electrical current a place to go (other than you).

A metal pipe fire sprinkler system is usually **bonded** automatically through its metallic components. Most fittings are metal-to-metal and are **bonding** devices. Also, the metal hangers that attach metal sprinkler pipes to metal structural members **bond** the sprinkler system and the building structure.

As stated earlier, utilizing a fire sprinkler system for **grounding** is prohibited. This is to protect and prevent the fire sprinkler system from the increased potential for stray electrical currents and increased galvanic corrosion (electrolysis).

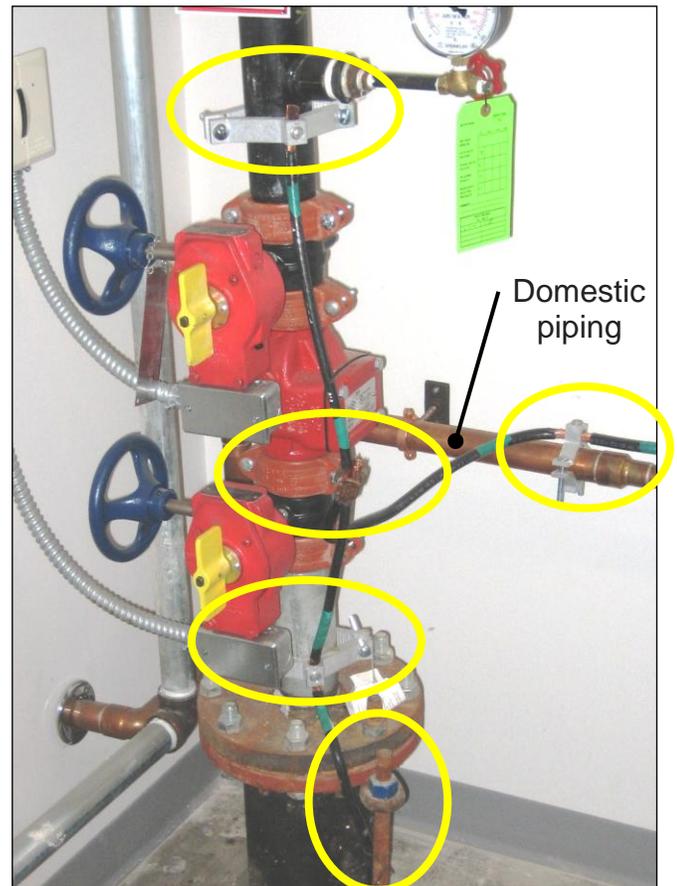


Exhibit 1: Fire sprinkler system improperly utilized for **grounding**.