

Fire Sprinkler Systems and Backflow Prevention

Among water purveyors, state and federal regulators, and the fire protection community there has been a great debate regarding the type and amount of backflow protection needed on fire sprinkler systems. Fire sprinkler systems should be considered non-potable as a result of the poor quality of water found in them.

There are many concerns that the city must address when dealing with a fire sprinkler system because of the contamination and cross connection they create. Listed below are several examples.

1. The growth of offensive microorganisms in the stagnant water in the piping, which create taste and odor problems.
2. The piping material is subject to corrosion, which leaves a considerable amount of particulate matter deposited in the water. This matter can contain regulated metals such as zinc, cadmium, iron, copper, and lead.
3. The addition of corrosion inhibitors, antifreeze, and "slippery water" created when chemicals are added to water to

make it more efficient in extinguishing a fire.

4. Dry systems that contain compressed air or nitrogen.
5. Fire sprinkler systems that are constructed with unapproved water piping or other materials.
6. A fire system connection to a supplemental source of water that allows a foreign substance to be pumped in the fire safety system can pose a hazard.
7. A loss of pressure on the potable water supply main, or an increase in pressure on the consumer's system, which allows water from these fire systems to enter the potable supply.

The first step is to install a backflow assembly on the piping. Second, for the fire sprinkler system to protect the potable water supply from contamination, it is essential that the assembly be properly inspected, maintained, and tested. All mechanical devices are subject to wear and tear; all require some servicing to ensure that proper functioning of the device continues. Testing of a backflow assembly on a fire sprinkler system requires careful coordination with the fire department to ensure that the building is fully protected during the

test and to document that the water was properly returned to the fire sprinkler system after the test. This has to be done by a licensed fire sprinkler contractor and can be coordinated with the fire marshal's annual test of the system.

There is no doubt that the fire sprinkler system protects property and saves lives when extinguishing fires in their early stages. The fire sprinkler industry has documented that a fire within a sprinklered building will be extinguished with 3 to 5 sprinkler heads.

Whenever an unprotected or improperly protected fire sprinkler is connected to the public water system, the potential for an unintended or improper use of that connection can result in the contamination of the public water system. All fire sprinkler systems that are connected to the city's water supply must be isolated with an approved backflow prevention assembly and tested annually. The level of backflow protection must be commensurate with the degree of hazard.

For more information, please contact Greg Schrempp at 676-7408 or Gary Nolan at 769-2220 ext 818.