Backflow: Inspection, Testing, and Maintenance for Backflow Preventers in Fire Systems

One way to identify a problem with a backflow preventer is to determine if there is proper flow during the annual forward flow test. But most times, operational problems will be discovered during the 5-year teardown and inspection. Without annual testing and periodic internal maintenance of these devices, proper operation is unlikely. Your customers will appreciate that you perform the annual flow test and 5-year overhaul to ensure safety within their facilities. Contained is information that you can share and educate your customers that you are doing the proper inspection, testing, and maintenance (ITM) of their backflow prevention equipment.

Drinking Water Safety

Potable water, or drinking water, is safe for consumption by people in your community. That water must remain contaminant-free. A place for potential contamination is from the connection between the public water supply and to a building's fire system. Fortunately, your local plumbing code requires a backflow prevention assembly to connect to the public water supply. In its simplest form, a backflow preventer contains two independent check valves that allow water to flow in one direction only. The safety of the drinking water is ensured as the backflow assembly prevents contaminated fire system water from flowing in the reverse direction and into the public water supply.

> On an annual basis, backflow preventers are required to be forward flow tested at a minimum flow rate of system demand (NFPA 25, 13.7.2.1).

Annual Flow Test

Unlike domestic plumbing systems, fire suppression systems generally do not have any flow except during a discharge event or what is required for annual testing. The lack of consistent flow provides an environment for corrosion and bacteria to flourish causing contaminated water to lie stagnant in the fire system. Without regular flow and operation, the backflow assembly may become inoperable due to this contamination and buildup of debris inside of the backflow assembly. If there is enough buildup to affect the operation of the backflow assembly's check valves, they may not be able to open fully and allow the fire system to achieve its rated flow. This loss of flow could result in a devastating loss of life or excessive property damage during an actual fire.

5-Year Internal Inspection

The 5-year teardown of the backflow assembly is your chance to check the operation of the check valves and other backflow components, clean the debris and contamination from inside the assembly, and replace any necessary parts that help ensure it will function correctly for the next five years. You should not only replace seals, springs, and moving parts, in accordance with manufacturer instructions, but also check the condition of other parts and replace them as needed.

> Backflow preventers require an internal inspection every 5 years to verify that all components operate correctly, move freely, and are in good condition (25, 13.7.1.3).

Annual flow testing and performing the 5-year teardown will ensure that your customer's fire system backflow prevention assemblies are operational and code-compliant, ensuring safety by protecting the public water supply and providing adequate water flow through these devices as the system was designed. Go to https://www.brooksequipment.com/Backflow_Resources/ for more on backflow and backflow preventers.