

Fire Engineering®

Construction Concerns: Postindicator Valves

Article and photos by Gregory Havel

January 26, 2015

By Gregory Havel

Automatic fire sprinkler and wet standpipe system control valves must be of an indicating type (see the codes listed at the end of this article for the few exceptions). When control valves are located inside buildings, the outside stem and yoke (OS&Y) valve is commonly used.

A postindicator valve (PIV) (photo 1) is commonly used as the valve operator for automatic fire sprinkler and standpipe systems, where the system main valve is located underground outside the building. PIVs may be located in paved or landscaped areas. If located they are located in a paved area, PIVs must be protected from damage by traffic. If located they are located in a landscaped area, PIVs must not be allowed to be overgrown with shrubbery.



(1)

The PIV is arranged to be locked in its open or shut position by locking or sealing the operating handle in its stored position. In photo 1, the handle is stored with the valve open and has a wire seal for security rather than a padlock. To operate the PIV, the seal or padlock is removed, the handle is removed from its stored position, and the opposite end is placed on the operating nut of the PIV (like a hydrant wrench on a hydrant).

Photo 2 shows a cutaway of the connection between the postindicator and its valve. The bottom flange of the postindicator is bolted to the top flange of the valve on the water supply pipe to the fire sprinkler or standpipe system. The square black socket at the top of the cutaway is the bottom of the operating shaft and fits over the square head of the valve stem.



(2)

Photo 3 shows a cutaway of the top of the postindicator and the “OPEN” and “SHUT” indicator. A threaded sleeve is attached near the top of the operating shaft, with the indicator rising and falling as the shaft is turned to show through the indicator glass whether the valve below is fully open or shut.



(3)

A variation of the PIV is the wall postindicator valve (WPIV), which is used when the valve is located inside a building but must be operated outside the building. Photo 4 shows a pair of WPIVs supplying an automatic fire sprinkler system and a wet standpipe system. The indicator mechanism is identical to that of the PIV. The differences are that the WPIV operates a valve inside the building rather than underground, the postindicator is bolted to the wall instead of to the top flange of the valve, and the postindicator is equipped with a handwheel rather than a locking wrench.

WPIVs are commonly secured with chains and padlocks, while more modern installations also incorporate tamper switches that are connected to the sprinkler alarm and/or fire pump controller. The WPIVs in photo 4 have both tamper switches and padlocked chains. (These systems were not yet in service. The fire sprinkler installers set the valves in these positions for the purposes of the photo.)



(4)

Photo 5 shows the square socket on the end of the WPIV operating shaft fitting over the square head of the valve stem.



(5)

January 26, 2015

Like PIVs, WPIVs must be kept accessible in landscaped areas (photo 6), and must be protected from damage in paved areas with traffic. Photo 7 shows a recessed WPIV that is located in an alley with truck and rail car traffic.



(6)



(7)

According to National Fire Protection Association codes, automatic fire sprinkler and standpipe control valves must be operated through their full range and returned to the open position (annually, at least). OS&Y valves, PIVs, and WPIVs must be backed off $\frac{1}{4}$ turn from fully open to prevent the valve from jamming in that position.

These control valves must also be inspected at the following regular intervals:

- Control valves with seals must be visually inspected weekly.
- Control valves with chains and padlocks must be visually inspected monthly.
- Control valves that are electrically supervised by tamper switches must be visually inspected quarterly.

For detailed information on the use, inspection, and maintenance of PIVs and WPIVs, see the following:

- NFPA 24, *Installation of Private Fire Service Mains and Their Appurtenances*, 2013 edition.
- NFPA 13, *Installation of Sprinkler Systems*, 2013 edition.
- NFPA 14, *Installation of Standpipe and Hose Systems*, 2013 edition.
- NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2014 edition.



Gregory Havel is a member of the Town of Burlington (WI) Fire Department; retired deputy chief and training officer; and a 30-year veteran of the fire service. He is a Wisconsin-certified fire instructor II, fire officer II, and fire inspector; an adjunct instructor in fire service programs at Gateway Technical College; and safety director for Scherrer Construction Co., Inc. Havel has a bachelor's degree from St. Norbert College; has more than 30 years of experience in facilities management and building construction; and has presented classes at FDIC.

[CLICK HERE](#) for more 'Construction Concerns' articles!

MORE CONSTRUCTION CONCERNS

- [Building Features and Size-Up](#)
- [Hollow Core Precast Concrete Plank](#)
- [Trenching and Excavating](#)
- [Adhesives in Manufactured Lumber](#)
- [Door Reinforcements](#)
- [Electrical Needs](#)
- [Hazard Communication in Construction](#)
- [Firewall Penetrations](#)
- [Roofing Materials Test](#)
- [Fire Extinguisher Testing](#)