

U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Standpipe Pressure Regulating Hose Outlets

Learning objective: The student shall be able to explain the difference between field-set and factory-set pressure regulating standpipe hose outlets.

NFPA 14, *Standard for the Installation of Standpipe, Private Hydrants, and Hose Systems*, allows the maximum operating pressure on a standpipe system to be 350 psi (2413 kPa), far in excess of what is safe to handle at the end of a hoseline. In some circumstances, these high pressures must be reduced to safe, workable levels while maintaining effective fire streams.

Critical components in high-pressure standpipe systems are valves categorized as pressure-regulating devices. These may be called pressure control valves (PCV) or pressure-regulating valves (PRV).

These valves are designed with one purpose: to reduce the downstream water pressure under flowing (residual) and nonflowing (static) conditions while maintaining adequate volume.

They must be properly set and installed so that the proper pressure is maintained at the hose outlet. Improperly set valves can result in inadequate streams or an uncontrollable amount of pressure.

For example, in a 50-story highrise building with the fire on the 10th floor, the head (pressure) developed from the water on the upper 40 floors could cause a firefighting hose to be unmanageable without a pressure-regulating device.



There are two methods of setting outlet pressures: **field set** and **factory set**. Field-set devices are designed and manufactured so their pressure settings can be adjusted after the device is installed on the standpipe riser. This gives the installer the greatest amount of flexibility to install the devices at any location and adjust them later.

Factory-set devices have the calculated outlet pressure set at the manufacturing facility, and it cannot be adjusted in the field. Therefore, it is essential that the installer match the preset device to the floor level that corresponds to its calculated pressure. Failure to do so may result in the wrong outlet installed at the wrong floor level, with potentially disastrous results. Inspectors must verify before an incident that pressure-regulating devices are properly installed, adjusted, and tested.

For additional information, refer to NFPA 14, *Standard for the Installation of Standpipe, Private Hydrants, and Hose Systems*.