

FIRE HYDRANTS – OPENING & CLOSING BEST PRACTICES

Standing guard like a lonely sentry on street corners, the fire hydrant goes unnoticed by most residents. However, the fire hydrant represents something more significant to firefighters. They are, arguably, the most critical link in effective fire suppression. Firefighters know this crucial link to effective fire suppression is only reliable if properly maintained and used correctly.

Fire hydrants present the hazardous energies of static water pressure and the kinetic energy of hundreds of gallons of water flowing per minute. Most fire hydrants have static, or head pressure, of between 50 and 100 pounds per square inch (PSI). When open, hydrants can flow up to more than 1,500 gallons per minute (GPM). Opening, flowing, and closing fire hydrants have the potential to cause damage to underground piping or cause serious injury to firefighters.

Fire departments will vary how they utilize or "make up" a fire hydrant for attaching their supply hose lines for fire suppression. Best practice is using a 4-inch or 5-inch large diameter hose (LDH) as their main supply line, using a four-way hydrant assist valve, or sometimes "hooking up" the engine directly to the fire hydrant utilizing a "soft sleeve" supply hose. In either instance, the connection is made to the "steamer" or 4½" discharge. Before "hooking up" to a fire hydrant, best practice dictates a firefighter will unscrew the "steamer cap" and open the fire hydrant to confirm it is working correctly and flushing out any debris.

Water utilities should follow the NFPA Standard for color-coding the bonnets of fire hydrants.

Blue: >1,500 GPM

Green: 1,000 – 1,500 GPM

Orange: 500 – 999 GPM

Red: <500 GPM

A gate valve should be used on one or both 2½" discharges. This will permit additional supply lines to be laid without interrupting the flow of the hydrant and can relieve head pressure in the supply lines during breakdown. For example, the forward hose lay may be up a hill. The hydrant drain orifice is small and may not drain quickly. Due to gravity, the residual pressure in the hydrant and the supply hoses may be hazardous. **Firefighters have been seriously injured trying to use a hydrant wrench with "brute" strength to remove an unused discharge cap or the hose connected to the "steamer" to relieve residual water quicker. This has resulted in struck-by injuries when the cap or hose connection strikes the firefighter due to the hazardous energy of water.**

Discharge caps that will not be immediately used should be confirmed as tight by the firefighter tightening them with the hydrant wrench. **This action can prevent serious injury to the firefighter and avoid disruption in fire suppression. Injuries have occurred when firefighters turning on the fire hydrant have been hit by discharge caps that were not tightened.**

Fire service leaders should refresh the best practices of using the under-appreciated fire hydrant with their crews. Work with the local water purveyors to track hydrant test results and be alert to significant changes in performance.

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Forward Hose Lay

The firefighter takes a hydrant bag of tools (hydrant wrench, spanner wrench, and one or two 2½“ gate valves when they leave the truck with the LDH.



The firefighter wraps the hydrant, stands behind the hydrant, and signals the apparatus operator to proceed to the fire scene.

When the pressure of the hose from the apparatus is slacked, the firefighter starts to prepare the hydrant for use.



The firefighter removes the steamer cap and opens the hydrant to confirm it is a working hydrant and to flush any debris from the barrel of the hydrant.



The firefighter “makes up” the hydrant by connecting the LDH (or 4-way valve) to the steamer connection and attaching one or two gate valves to the 2½“ discharges.

Any hydrant caps not used should be tightened using the hydrant wrench to prevent them from striking the firefighter, a bystander, or an object when the hydrant is opened.



Before disconnection supply hose lines, relieve any residual pressure by using the 4-way valve’s relief valve or by opening the 2½“ gate valve.