

Executive Summary

This report summarizes full-scale flow testing of multiple types of FDCs. For an automatic standpipe, an FDC is defined as, “A connection through which the fire department can pump the secondary water supply to an automatic standpipe system at the required system demand. Supplemental water can also be provided into the sprinkler system or other system furnishing water for fire extinguishment to supplement existing water supplies.”¹ In the case of a manual standpipe, the FDC is defined as, “A connection through which the fire department can pump primary water supply to a manual standpipe system at the required system demand.”² Industry standards, such as National Fire Protection Association (NFPA) 14, *Standard for the Installation of Standpipe and Hose Systems*, and NFPA 13, *Standard for the Installation of Sprinkler Systems*, require FDCs be installed on standpipe systems and automatic sprinkler systems, respectively.

Since 2007, NFPA 14 has required one (1) 2.5-inch diameter FDC inlet for every 250 gallons per minute (gpm) of water flow to satisfy the standpipe system demand; however, there is currently a lack of supporting scientific documentation to substantiate this flow limitation per. Flow testing to characterize the maximum actual flow rate that can be achieved for each 2.5-inch FDC inlet is required to support the current 250 gpm requirement or recommend a change to the standard.

In summary, this project involved full-scale flow testing of multiple FDCs to determine actual flow characteristics and pressure loss associated with various FDC assemblies. The tests utilized suppression equipment consistent with real-world installations in structures and typical procedures for emergency response to a structure fire, including the use of a fire department pumper apparatus and hose to connect and flow water through the FDC assemblies.

The overriding goal of this research project was to provide a technical basis to the NFPA 14 Technical Committee for a possible change to the standard. A full listing of project observations as they relate to the current NFPA guidance is provided in Section 8 of this report.

¹ NFPA 14-2013, Section 3.3.3.1.1.

² NFPA 14-2013, Section 3.3.3.1.2.