


TECHNICAL BULLETIN CITY OF RALEIGH, N.C. www.raleighnc.gov				OFFICE OF THE FIRE MARSHAL	
Subject	Bulletin #	SECTION	PAGE	EFFECTIVE DATE	
Backflow replacement guidelines	TB-4	NFPA 13	1 of 2	5/1/2006	
		PREPARED BY Office of the Fire Marshal			Revision Date 06/01/2019

1.0 **Purpose**

The purpose of this policy is to provide a code compliant method of installing Retro-fit and replacement backflow prevention assemblies on existing fire sprinkler systems without compromising the integrity of the fire protection system.

2.0 **Organization(s) Affected**

Raleigh Fire Department (Office of Fire Marshal), Licensed Utility, Plumbing contractors and licensed fire sprinkler contractors.

3.0 **References**

Current adopted edition NFPA 13, NFPA 72, and National Electrical Code.
 Raleigh Fire Department fire protection detail drawings FP-16 thru FP-19.

4.0 **Definitions**

Backflow preventer is a UL listed cross connection device designed to meet federal requirements for cross connection protection. All backflow prevention devices must be approved by the City of Raleigh prior to use.

5.0 **Requirements**

- 5.1) Drawing showing layout and all pertinent equipment and piping
Inclusive of site utilities.
- 5.2) See City of Raleigh website for most current approved fire line backflows (RPDA)
<https://fccchr.usc.edu/list.html>
- 5.3) Heater permanently installed (listed with the hot box) with conduit and **weather-tight wiring, boxes 12" above finished floor**, to building.

- 5.4) Tamper switches with wiring to the building Fire Alarm Control Panel (separate conduit for power wiring)

Fire Department Connection (must be storz connection) and show connection to the system. If FDC is installed at hot box, there is 4' of empty pipe required between check valve and outside of box. (See Detail Drawing FP-17, FP-18) *

If building has a fire pump, FDC must be connected on the system side of the pump and not at the Hot Box

The FDC cannot be installed on the supply at the street if the backflow preventer is inside the building (no outlet prior to backflow preventer)

- 5.5) Back Flow preventer
Name / Model # _____ Type _____

- 5.6) Detail showing Roding, blocking and [restraint between the elbows where the pipe is turned up from the underground to the hot box (when the old valves were underground)].

- 5.7) Provide Hydraulic calculation per NFPA 13 for the Fire Protection system:
 - a) Thorough hydraulic analysis of the system.
 - b) New fire flow data.
 - c) Make all necessary modifications to accommodate the additional friction loss.

6.0 **Goal:**

- a) To provide backflow protection for all fire sprinkler systems as required by the city's cross connection ordinance.
- b) To reduce or eliminate the potential for reducing the fire sprinkler supply below the system design. Older sprinkler systems were not designed to have the additional friction loss of a backflow preventer installed into the system. Our goal is to ensure that adequate safety factors are still in place after the addition or replacement of the backflow prevention device.