



**Course FP100 – BACKFLOW PREVENTERS (BFPs) 101 FOR
AUTOMATIC FIRE SPRINKLER SYSTEM**

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Course Description & Outline

Backflow preventers (BFP) are one of the most important components of an automatic fire suppression system. Not only are they required by state code and health jurisdiction to protect our drinking (potable) water supply but a single failure of them can result in catastrophic failure of the entire sprinkler system. There is little understanding of their purpose and why they are so important. This one hour course will provide the fundamental knowledge on backflow preventers, their history in fire protection systems, their importance with relation to public water supply, the different type of BFP devices available, NFPA 13 fire protection requirements for BFP, pressure loss and flow characteristics, their location and testing requirements.

A multiple-choice quiz must be completed at the end of this course to achieve a certificate. The quiz is provided to make sure the attendee understands the materials and to enhance the understanding of the course materials.

Learning Objective

At the conclusion of this course, the attendee will understand:

- The terminology: backflow, cross-connection, backsiphonage
- Code requirements for backflow preventers (BFP)
- Different types of devices associated with BFP
- BFP requirement in relation to NFPA 13
- Installation requirements for BFP
- Flow Characteristics and Friction Loss through BFP
- Inspection Maintenance and Testing for BFP

Intended Audience

This course is intended for AHJ, engineers and contractors.

Course Length

1 hour

Benefit for Attendee

Attendee of this course will be able to appropriately incorporate backflow preventers in design of automatic fire protection system. Furthermore, they will be

able to review documents/cut sheets for compliance, perform inspections and understand testing results.

Course Introduction

If you have ever been exposed to automatic fire sprinkler system, there is a very good chance that you have heard the term backflow preventers (BFPs). BFPs are a critical requirement of automatic fire sprinkler systems and are found in all, with exception of a few cases (which will be discussed in this course), when the system is connected to potable (drinking) water supply. BFPs are placed on the fire line between the portable water supply and the sprinkler system. Although backflow preventers are used throughout various system, this course will focus on requirements of backflow for sprinkler system mainly in *NFPA 13 Standard for the Installation of Sprinkler Systems* with connection to portable water supply.

In this course, we will define backflow, codes requirements for backflow prevention, different backflow devices, effect of backflow on system demand, flow characteristics, friction loss, and finally testing requirements.

Course Content

Link to content file

Course Summary

Backflow preventer are a critical component of an automatic fire suppression system. Not having a clear of understanding of how they work, their installation and testing can render the entire sprinkler system compromised thus leaving the occupants and property unprotected. AHJ, engineers and contractors must thoroughly examine BFP during design, installation and testing to verify compliance with codes and standards.

Related Links/References

- NFPA 13 – Standard of Installation of Sprinkler System 2016
- NFPA 24 – Standard of Installation of Private Fire Services Mains and Their Appurtenances provide installation and testing guidelines 2014
- International Plumbing Code IPC-2012. International Code Council
- Commonwealth of Kentucky (2015). Energy and Environment Cabinet **Department for Environmental Protection** retrieved 10/15/2015 from <http://water.ky.gov/DrinkingWater/Pages/BackflowBacksiphonage.aspx>

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- M14 Backflow Prevention and Cross-Connection Control: Recommended Practices, Fourth Edition by American Water Works Association (AWWA)
- Isman, Kenneth. 2007. Layout, Detail and Calculation of Fire Sprinkler Systems. National Fire Sprinkler Association, Inc