NFSA NATIONAL FIRE SPRINKLER ASSOCIATION
The Voice of the Fire Sprinkler Industry

TechNotes

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This edition of TechNotes was written by Vince Powers, ITM Specialist for the NFSA.

Best Of NFPA 25 Expert of the Day

The NFSA processes over 1,200 informal interpretations a year from its members. This is done through the Expert of the Day (EOD) program, where members ask the industry's top fire sprinkler subject matter experts questions on fire sprinkler related rules, codes, and standards.

EOD questions are one of NFSA's most used member benefits and are answered by Codes, Standards, and Public Fire Protection Staff members. If you have a question for the NFSA EOD submit your question online through the "My EOD" portal. It should be noted that the following are the opinions of the NFSA Engineering, Codes, and Standards staff, generated as members of the relevant NFPA and ICC technical committees and through our general experience in writing and interpreting codes and standards. They have not been processed as formal interpretations in accordance with the NFPA Regulations Governing Committee Projects or ICC Council Policy #11 and should therefore not be considered, nor relied upon, as the official positions of the NFSA, NFPA, ICC, or its Committees. Unless otherwise noted the most recent published edition of the standard referenced was used.

One of the important NFPA standards for our industry is NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems. The following are some of the common questions to our EOD program for Inspection, Testing and Maintenance and based on NFPA 25 requirements:

- Testing
- Internal Inspection
- Inspections
- Fire Pumps
- Inspection Deficiencies
- Forward Flow Testing

Recalled Sprinklers

A common question posed to the EOD is regarding "recalled" sprinklers and asks:

Does NFPA 25 have any requirements for recalled or voluntary replacement components?

Prior to the 2020 edition of NFPA 25, recalled or voluntary replacement of sprinklers or other components are not specifically cited in the body of NFPA 25. Section 4.1.5.1 in the 2017 edition does state that all deficiencies and impairments shall be corrected by the owner or their representative. This section sends the user of the standard to the annex section for further explanation, and this is where recalled and voluntary replacement sprinklers are noted with the language that these components "should be replaced." The annex cannot be cited and is not enforceable, so technically it is not a deficiency within NFPA 25. However, not replacing recalled and defective equipment is a direct violation of the *International Fire Code* (IFC). Section 901.10 of the IFC states that any recalled or voluntary replacement component shall be replaced with listed components.

In the 2020 edition of NFPA 25, this annex language is moved to the body of the standard in the owner's section (4.1) which still cannot be cited by the inspecting contractor but does change the "should" replace or repair to "shall" replace or repair.

Qualifications to Perform ITM

Quite often, NFSA receives an EOD question regarding the required qualification to perform ITM services.

Like most NFPA standards, NFPA 25 does not directly address the specific qualifications required to perform ITM services. NFPA 25 states that the tasks must be completed by a person who is qualified.

Qualified is defined in NFPA 25 as someone who is competent and capable through training and experience for a specific task and is acceptable to the AHJ.

In many cases there are local or state requirements for specific training or certifications to perform ITM services and these requirements should be verified with the applicable AHJ.

Quick Reference Tables

Each of the chapters within NFPA 25, except for chapter 12, includes a reference table in the beginning of the chapter. Each table is referenced by the chapter number then 1.1.2, for example, 5.1.1.2 for Chapter 5 and 13.1.1.2 for Chapter 13. These tables are meant to be a quick reference table and are not to be used as the rule.

As an example, Table 13.1.1.2 states that control valves shall be inspected weekly then the next item states that control valves with locks and electronic supervision shall be inspected monthly. These

tables also reference the section number for the actual requirement. Once a reference is found in the table it is good practice to verify what the table states aligns to what the referenced section states. In this example, sections 13.3.2.1 and 13.3.2.1.1 are referenced in the table. The section(s) states that electrically supervised control valves require inspections quarterly in the 2017 edition of NFPA 25.

The inspection requirements for gauges were cited in several chapters of NFPA 25 until the 2017 edition when all gauge requirements were moved to chapter 13. The inspection frequency requirements for gauges are different depending on if they are monitoring water or air pressure. These requirements for the 2011 edition can be found in Section 5.2.4.

Size of Forward Flow Connection for Backflow Prevention Devices

A common EOD question is regarding the lack of an adequate means to conduct a forward flow test on an installed backflow prevention device. There are situations where a sprinkler system does not include an adequate means to perform a forward flow test of an installed backflow device and it is often asked if NFPA 25 would require that a properly sized forward flow test connection be added to a system.

NFPA 25 requires an annual forward flow test at the “minimum flow rate of system demand”; however, NFPA 13, as the installation standard for sprinkler systems, is the standard that dictates that a means to conduct this test must be provided.

In cases where a proper connection is not present, NFPA 25 simply states that the test must be performed at the maximum flow rate possible. NFPA 25 does not require a means to provide a forward flow test be added to a system although one may be advantageous to the owner moving forward.

NFPA 13 traditionally did not specifically state a size for the test and only states a means must be provided to flow at a minimum of system demand. Since 1996, NFPA 13 has required a means for conducting the forward flow test and provides suggestions in the annex such as a hose header or a bypass around the fire department check with a normally closed control valve.

The 2019 edition of NFPA 13 expanded on the text stating that the means must be installed so that the system does not have to be removed from service and now the 2022 edition of NFPA 13 requires a hose valve to be installed for each 250 gallons of system demand. Also note that a means of conducting the forward flow could be utilizing hose valves on the standpipe system if installed.

NFPA 25 has required an annual forward flow test of backflow prevention devices since 1992.

Flow Testing of Manual Wet Standpipes

Section 6.3.1.1 in the 2011 edition (and earlier) of NFPA 25 required that all automatic standpipes be flow tested every five years. The 2014 edition replaced the term “automatic” with “all” which extended this requirement to manual standpipes. Many have questioned the intent of flow testing a manual wet standpipe and noted that this requirement may require the use of a fire department pumper truck.

The committee statement for the 2014 edition of NFPA 25 to add flow testing of all Class I and III standpipe systems, including manual, back into the standard is to verify unobstructed flow as well as to ensure that the system is operable during a crisis. In the 2017 edition, the requirement to flow all Class I and III standpipe systems was changed to require flow testing of only automatic standpipe systems and included Class II as well.

Fire Pump Testing Less Than 150% of Rated Flow IBC Sprinkler Thresholds

Multiple EOD questions have been submitted regarding flow testing of fire pumps. Specifically, questions were raised regarding fire pump flow tests that did not flow 150% of the fire pumps rated flow due to the risk of property damage or low suction pressure.

NFPA 25 does not specifically state that the fire pump test can be stopped due to potential for damage, but Section 8.3.3.4 in the 2020 edition states that if the suction supply is not available to flow at 150% of rated pump capacity, then the pump can be flowed at the rated pump flow rate and at the maximum flow at the lowest permissible suction pressure. In accordance with Section 8.3.7.2.3, the pump test results are considered acceptable provided that each flow point (churn, 100%,150%) are within 95% of the data plate or manufacturer’s test curve.

In the 2017 edition, language was added, stating, where applicable speed and velocity pressure adjustments must be made to the net flow data to determine the compliance with Section 8.3.7.1.3.

Internal Assessment with Multiple Sprinkler Systems

As NFPA defines the sprinkler system at each floor of a building equipped with a floor control valve assembly as a separate sprinkler system, multi-floor buildings include multiple sprinkler systems.

EOD questions have been submitted asking how this applies to the internal assessment requirements found in Chapter 14 of NFPA 25, especially if the systems were a mix of both wet pipe and dry pipe systems. Chapter 14, Section 14.2.2 allows for every other wet pipe system to be internally assessed every 5 years. This only applies to wet pipe systems; all other systems are required to have an internal assessment every 5 years in accordance with Section 14.2.1.

For example, if a building includes four wet systems and two dry systems, every five years two wet and both dry would require a 5-year internal assessment, the subsequent 5 year internal would require the other two wet systems and both dry would require an internal assessment.

Antifreeze Systems

As the “grandfather clause” for replacing legacy antifreeze systems with listed antifreeze solutions has passed, questions have been submitted if all solutions must be replaced or can the existing unlisted solutions remain.

In accordance with NFPA 25, 2020 edition, all existing antifreeze solution must be replaced with a listed antifreeze by September 30, 2022, or the system must be changed to a different type of system such as a dry pipe system.

However, it must be noted that the 2023 edition of NFPA 25, which is now available, does allow existing antifreeze to remain in service. Previous editions allowed for concentrations of antifreeze up to 50% glycerin and 40% glycol provided a deterministic risk analysis is completed, the 2023 edition will not allow this higher concentration and is limited to 30% glycol and 38% glycerin.

For jurisdictions that have adopted an earlier edition of NFPA 25, the AHJ would need to be consulted.

Date of Service vs the Date of Manufacture for Fire Sprinkler Components

Certain components such as sprinklers and gauges are required to be tested or replaced at certain intervals. Questions have been submitted asking is the time frame based upon the date the component is placed in service or the date of manufacture. It has also been asked if the date that the component is placed in service needs to be marked on the component.

There is nothing in NFPA 25 that requires the date of service to be marked on gauges or sprinklers when installed. A gauge or sprinkler is considered new until the date that it is placed in service, and it is good practice to put some type of marking on a gauge to determine the in-service date; however, with sprinklers it is much more difficult and not practical to do this. In most cases the date of the as built drawings or the acceptance test certificates could be used as the in-service date. NFPA 25 does not specifically address gauges but does have some annex information in section A.5.3.1 stating that if the date of service cannot be determined then the manufactured date should be used. This could be interpreted to apply to gauges as well.

Immediate Resources and a Free CEU!

Join us for Tech Tuesday on **November 15th for the Best of NFSA's Expert of the Day: NFPA 25 – ITM**. For this session, the most frequently asked and top questions regarding the inspection, testing, and maintenance of fire sprinkler systems in NFPA 25 are being presented and discussed. This event is free to all members and qualifies as 1 CEU by most acrediting agencies.

Register for Tech Tuesday Here

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You will receive access to Layout Technician: Fundamentals in your My eLearning dashboard within 72 hours of registration for Layout Technician: Application. **You must complete Layout Technician: Fundamentals before you attend Layout Technician: Application.**

The content for Layout Technician: Fundamentals will be released to participants following registration.

Registration closes November 8, 2022.

Start Date: Dec 6, 2022 08:00 AM (ET)
End Date: Dec 8, 2022 05:00 PM (ET)

Exact Location TBD

Register Here

National Fire Sprinkler Association

514 Progress Dr, Ste A,
Linthicum Heights, MD 21090
1-800-683-NFSA (6372)