

Fire Safety

Applying NFPA 25 and NFPA 72 Standards: The Five Things You Need to Know

White Paper | September 2015

Executive Summary

To help ensure your fire safety systems will operate properly in the event of a fire—detecting fires, warning occupants, and extinguishing flames—inspection, testing, and maintenance (ITM) need to be performed regularly. Two key National Fire Protection Association (NFPA) standards for the ITM of fire safety systems are NFPA 25, which is the standard for Water-Based Fire Protection Systems, and NFPA 72, which is the standard for National Fire Alarm and Signaling Code.

This white paper provides insight into five key areas that will help you keep your fire safety systems in compliance with NFPA 25, NFPA 72, and other ITM standards. It provides clarification of the fire safety ITM requirements and outlines best practices that will assist in streamlining the compliance process.

The Five Things You Need to Know

An accidental fire occurs every 23 seconds. Every 31 minutes, someone is injured from a fire. Every 3 hours, there is a fatality due to a fire. That's why regular ITM service for fire safety systems is essential; it helps ensure your systems are ready to protect your building occupants, facilities, and continuity of your business in the unfortunate event of a fire.

The goal of this document is to help you gain a clearer understanding of ITM standards and learn about some best practices that will help you meet fire safety compliance requirements.

The five key areas this white paper provides clarification and guidance on are as follows:

1. Which standards should be used
2. When services need to be performed
3. Who can perform services
4. What documentation is required
5. How to develop an ITM service agreement



NFPA's mission is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education.

Why is it important to properly maintain fire safety systems and equipment?

Before we discuss the five key topics, it's important to understand why ITM standards are needed and the value of performing ITM services. A recent NFPA report titled U.S. Experience with Sprinklers by John R. Hall, Jr. highlighted the most common faults in fire sprinkler systems throughout the country. The data shows that when fire sprinklers failed to operate, the most common reason was because the system had been shut off (64% of failures). Other leading causes include manual intervention that defeated the system (17%), damaged components (6%), lack of maintenance (6%), and an inappropriate system was in place for the type of fire that occurred (7%).

DID YOU KNOW?

76% of fires could have been avoided with a proper ITM regimen.

When sprinklers operated but were ineffective, the reason usually had to do with an insufficiency of water applied to the fire, either because water did not reach the fire (53%) or because not enough water was released (18%). Other leading reasons were system component damage (9%), manual intervention that defeated the system (9%), lack of maintenance (8%), and an inappropriate system for the type of fire (3%).

According to a recent survey conducted by Facility Executive, respondents found regular ITM to offer a variety of benefits to organizations, including:

- Increasing the probability of systems functioning properly; thereby, protecting building occupants, assets, and business continuity

- Reducing risk and liability
- Decreasing citations and noncompliance fines
- Reducing emergency repairs

Key survey finding: 76% of fires could have been avoided with a proper ITM regimen. This finding supports the need for developing and adhering to an ITM plan, and demonstrates how tasks such as checking for damage components and verifying that the sprinkler valve is in the correct position can have a very positive impact on reducing fires.

1. Which fire codes and standards should be used?

There are several different standards for ITM. In addition, your city, state, federal, and local Authorities Having Jurisdiction (AHJs) may adopt different editions of the standards. As such, knowing the current requirements and keeping up to date of the changes, can be challenging. Following are some examples of standards that your fire safety systems may need to meet:

1. National Fire Protection Association (NFPA)

- NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
- NFPA 72: National Fire Alarm and Signaling Code

2. Federal – Code of Federal Regulations

- Occupational Safety and Health Association (OSHA)
- Centers for Medicare and Medicaid Services (CMS)

3. State Administrative Codes

- Office of the State Fire Marshal
- Department of State Health Services

4. City Administrative Codes

- Fire Code
- Building Code

5. Other

- ISO 9000 Quality Management System
- The Joint Commission Accreditation
- Insurance Underwriter

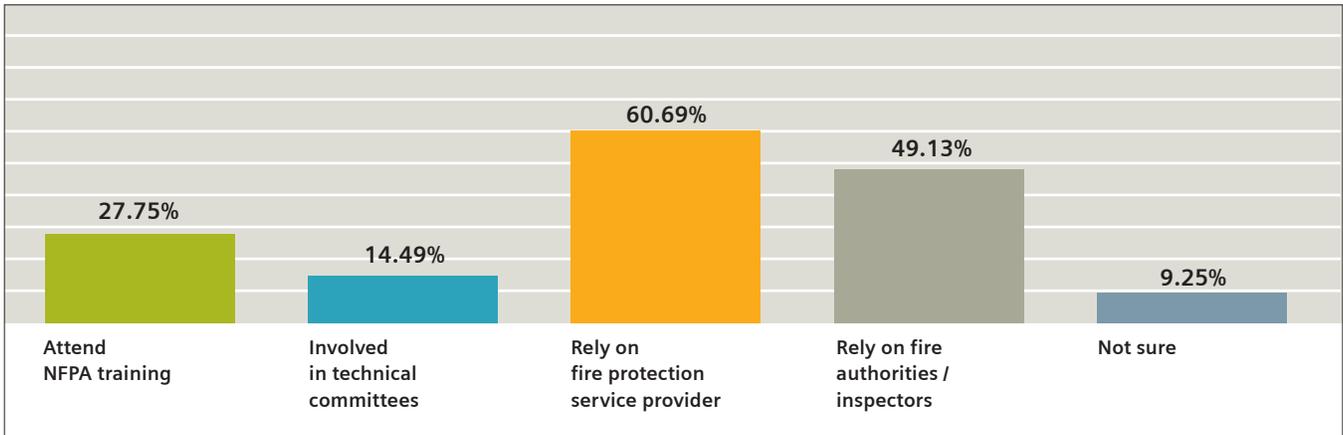


Figure 2: How does your organization stay up to date with the changes in standards and code (select all that apply)? Source: Facility Executive.

Knowing which standards to apply can also get a bit confusing. For example, in most states, the building and fire department codes are generally based on the International Code Conference (ICC) family of codes. But in healthcare, hospital accrediting agencies such as The Joint Commission (TJC), Det Norske Veritas Healthcare, Inc. (DNV), and Healthcare Facilities Accreditation Program (HFAP), base their requirements for compliance on NFPA 101: Life Safety Code.

Evolving requirements

Standards and requirements are constantly evolving, making compliance even more challenging for building owners. In the Facility Executive survey, respondents shared how they stay on top of evolving requirements. The survey showed that most organizations (61%) rely on third parties, particularly their fire safety service provider. Therefore, selecting the right service provider is key to implementing a successful ITM program.

DID YOU KNOW?

Selecting the right service provider is critical to the success of an ITM program.

Recently, NFPA 25 was updated to the 2014 edition. Although some AHJs may rely on previous editions, the 2014 edition contains many clarifications, new definitions, changes to inspection and testing frequencies, and adjustments to terminology.

2. When does equipment need ITM?

The NFPA’s mission is to reduce the worldwide burden of fire. The NFPA strives to balance the required tasks in relationship to the probability that performing these tasks will help ensure fire safety systems function as they were designed to perform. The NFPA establishes the minimum ITM frequency that devices and components must meet. If the NFPA does not specify the frequency in which ITM must be performed for a particular device or component, then service shall be completed according to the “Manufacturer’s Recommendation.” Note that the NFPA establishes the minimum frequencies, but there may be several additional requirements or more stringent frequencies required by the AHJ specific to your jurisdiction, industry, or both.

According to the Facility Executive survey, the vast majority (81%) of respondents said their insurance provider requires regular inspection, testing, and maintenance of their fire protection systems. And, an additional 13% of respondents’ insurance providers may required ITM for their fire protection systems.

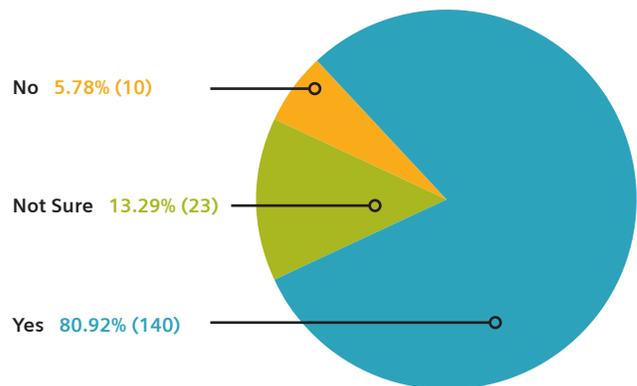


Figure 3: Does your insurance provider require ITM? Source: Facility Executive.

If a building owner does not meet their insurance provider’s ITM requirements and a fire were to occur, the insurance company may not be responsible for providing compensation for any related injuries, losses, or damage. This could have devastating consequences and puts building owners at great risk. Thus, understanding and meeting your insurance provider’s ITM requirements is essential for minimizing your risk and liability.

Establishing a clear ITM scope of work for all your devices and components as well as the integration and functionality for all your fire safety systems is also a critical factor. The best approach for developing a compliance plan is to create a matrix that outlines all of the ITM requirements for your insurance, national, federal, state, city, local, and other requirements. Then, design and implement a service plan that will satisfy the most stringent requirements.

3. Who can perform ITM services?

According to NFPA 25 and NFPA 72, service personnel shall be qualified and experienced in the ITM of fire safety systems—the person performing the work may need to have specialized training, licensing, knowledge, and/or certifications. NFPA 25 3.3.34 defines “qualified” as a competent and capable person or company that has met the requirements and training for a given field acceptable to the AHJ.

DID YOU KNOW?

If a building owner fails to meet the insurance provider’s ITM requirements and a fire were to occur, the insurance company may not be responsible for providing any compensation for related injuries, losses, or damage.

If a facility staff member has the bandwidth and decides to perform some or all of the ITM in house, rather than outsourcing to a qualified service provider, it’s essential that the individual:

- Is “qualified,” which may require specialized training, licensing, and certification
- Is knowledgeable about the NFPA ITM procedures
- Can operate, maintain, and troubleshoot the equipment per the manufacturer’s instructions

Examples of qualified personnel are as follows:

- Factory-trained and certified
- Certified by a state or local authority
- NICET Certified (National Institute for Certification in Engineering Technologies): Third party testing industry that creates criteria in order to certify individuals based on passing a test of competencies; NICET provides the most popular certification in the field.
- Union sprinkler fitters: very well-trained individuals who may also be STAR or NICET certified.

Many building owners have found synergies in implementing service agreements for both fire alarm and fire sprinkler systems with a single service provider. In fact, 67% of survey respondents said a single service provider performs their ITM for both their fire alarm and fire sprinkler systems.

Outsourcing ITM to a single service provider can:

- Reduce strain on building staff by coordinating schedules for performing ITM
- Help ensure requirements are met for all fire safety AHJs
- Provide a single point of contact for all fire safety systems
- Streamline the ITM documentation
- Simplify procurement processes

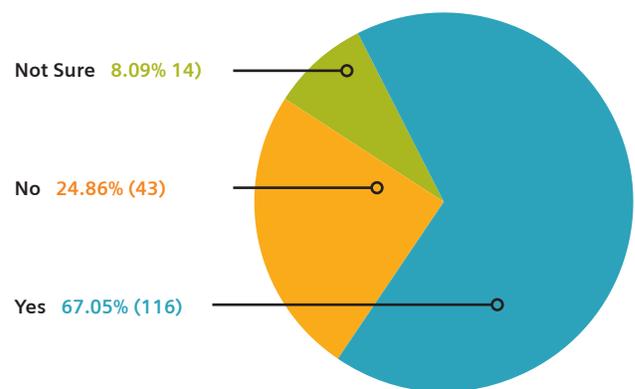


Figure 4: Does the company that provides your ITM services for your fire alarm system also provide these services for your fire sprinkler system? Source: Facility Executive.

4. What documentation is required?

There are some important factors to consider when preparing ITM documentation: The original, current, and last cycle documentation must be maintained by the building owner. For the life of the system, the building owner must also retain the following records: as-built drawings, hydraulic calculations, original acceptance test records, and manufacturers’ cut-sheets.

NFPA 72 requires a documentation cabinet on the building’s premises; the cabinet is a red box labeled “fire alarm documentation,” and it should be located near the fire

alarm panel. Many times, documentation will be kept on a flash drive, but the cabinet encourages building owners to retain the documentation and helps with proactive fire safety management. Subsequent records shall be retained for a period of one year after inspection, testing, and maintenance.

The NFPA outlines the minimum information that must be documented on ITM reports:

- The procedure/activity performed
- The organization that performed the activity
- The required frequency of the activity
- The results and date
- The name and contact information of the qualified contractor or owner, including lead person for the activity

Figure 5 is a sample of Siemens documentation that is provided as part of our ITM service. This report meets NFPA requirements and shows your AHJs that your fire safety systems and devices are being properly maintained with regular inspections and testing by a qualified company.

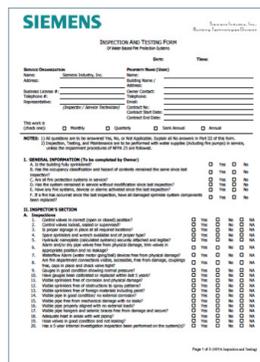


Figure 5: Sample ITM documentation provided to Siemens customers

5. How should a service agreement be developed?

Once building owners have an inventory of their fire systems, devices, and components, and understand what and when services are required by their AHJs, they need to assess the bandwidth and technical abilities of their staff in order to determine how best to meet ITM requirements. Typically, if the staff is properly trained, they will perform the weekly visual inspections, but the system performance testing, which may need to be completed on a quarterly, semi-annual, annual, three-year, or five-year basis, is usually outsourced to a service provider.

The seven steps below provide an outline for effectively developing a successful ITM service plan:

1. Inventory all systems and components
2. Determine required services
 - Inspection, testing, maintenance, and repairs
3. Identify service frequency requirements
 - Quarterly, semiannually, per manufacturer, etc.
4. Assess business needs
 - Will ITM service need to be performed during, before, or after business hours?
 - What level of response is needed for emergency repairs and nonemergency work?

5. Create a scope of work based on above requirements
6. Determine which tasks will be performed by staff and which tasks will be outsourced
7. Develop service agreement based on defined scope of work

Finding the right service provider

Just as important as developing an effective service agreement is finding the right service provider. Companies have found the following criteria to be advantageous in selecting an ITM service provider:

- Be local, responsive, and reliable
- Provide NICET-certified professionals
- Have expert knowledge of technologies as well as the local standards and regulations
- Have service delivery capabilities to meet your most stringent requirements
- Offer comprehensive fire safety services
- Have a single point of contact for fire protection, security, and building automation

What are key questions to ask a service provider?

It's important for building owners to have a clear plan for communicating with their service provider on a regular basis. This plan needs to include structured status reports from the provider, in addition to regularly scheduled face-to-face meetings. These meetings provide an opportunity to address any potential needs or concerns and help establish a strong working relationship.

When evaluating service providers, be sure to ask questions that will help you assess their technical expertise, their technical expertise, their ability to meet your specific service needs as well as their knowledge of compliance requirements that are specific to your business. Following are some types of question that will help you evaluate service providers:

- Who is on my account team?
- What are their skill levels/certifications?
- How do they stay up to date with code requirements?
- How and when are services scheduled; does an early start cost extra?
- What documentation will I receive? Is it electronic? What does it look like and how is it organized? Will it include deficiencies, impairments, observations, and recommendations? Are there face-to-face meetings to review the results and findings?

Evaluating service providers and selecting the right partner will provide you with peace of mind. In fact, 92% of Facility Executive survey respondents said their service provider gives them peace of mind regarding building fire life safety.

Summary

A top priority must be ensuring your fire safety systems meet the requirements of NFPA 25, NFPA 72, and other standards for inspection, testing, and maintenance. Performing ITM on a regular basis will help ensure your systems are in compliance and are ready to protect your people, property, and business. However, due to the varying requirements from the NFPA, federal, state, city, local, and other agencies, staying in compliance can quickly become a complicated task. Not only do the agencies adopt different editions of the standards, but the requirements are constantly evolving. Thus, it's important to have an up-to-date and complete understanding of what and when ITM services need to be performed—not only for your devices and components, but also for the integration and functionality of your fire safety systems. Developing a matrix of this information will enable you to determine all of your services needs and assist you in developing a service plan that will satisfy the most stringent requirements.

DID YOU KNOW?

92% of Facility Executive survey respondents said their service provider gives them peace of mind regarding building fire life safety.

Per NFPA, the person performing ITM must be qualified and may require specialized training, licensing, and certification. In addition, NFPA outlines standards for ITM documentation. Due to these requirements and often limited bandwidth of internal staff, organizations find that it is best to outsource some or all of their ITM services. Partnering with a responsive and reliable service provider that has expert knowledge of the standards and regulations for both your industry and jurisdiction will provide you with peace of mind and streamline the compliance process.

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For more information on Siemens Fire Sprinkler Service, visit www.usa.siemens.com/firesprinkler

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