

I Need a Roadmap!

by Dean K. Wilson, P.E.

I represent a security alarm company that has begun to expand our business to include the design, installation, testing, and maintenance of fire alarm systems. For some time, I have been reading your articles. In the last issue of *IMSA Journal*, you wrote about the importance of training. We truly want to train our technicians properly. But, as newcomers to the fire alarm industry, we still find the interrelationship between the various codes and standards somewhat confusing. Can you help us?

I'm very glad you're reading the *IMSA Journal*. And, I am honored you would seek help from me. So, I will try to give you as much of an explanation as space in this issue allows.

NFPA 72, the *National Fire Alarm and Signaling Code*[®], has existed as a code since 1993. It was formed by merging several preexisting standards into a single document. It contains the requirements that an installer must follow when installing a fire alarm system.

Although many believe differently, NFPA 72 does not require that any building have fire alarm system installed. Rather, the model building codes—as adopted in various jurisdictions—along with NFPA 101, *Life Safety Code*[®], contain the actual stated requirements for “when” a building owner must install a fire alarm system. These requirements vary depending on the occupancy classification of a particular building. However once some other code or standard decides that the owner must install a fire alarm system, the design, installation, testing, and maintenance of that fire alarm system must follow the requirements contained within NFPA 72.

The National Fire Protection Association's Technical Committees for each chapter of NFPA 72 continually revise the requirements to reflect both the latest technology and installation techniques that emerge in the fire alarm industry. The work of these Technical Committees is overseen by the NFPA Correlating Committee on Signaling Systems for the Protection of Life and Property.

The stated scope and purpose of NFPA 72 is as follows:

1.1 Scope.

1.1.1 *NFPA 72* covers the application, installation, location, performance, inspection, testing, and maintenance of fire alarm systems, supervising station alarm systems, public emergency alarm reporting systems, fire warning equipment and emergency communications systems (ECS), and their components.

1.1.2 The provisions of this chapter apply throughout the Code unless otherwise noted.

1.2* Purpose.

A.1.2 Fire alarm systems intended for life safety should be designed, installed, and maintained to provide indication and warning of abnormal fire conditions. The system should alert building occupants and summon appropriate aid in adequate time to allow for occupants to travel to a safe place and for rescue operations to occur. The fire alarm system should be part of a life safety plan that also includes a combination of prevention, protection, egress, and other features particular to that occupancy.

1.2.1 The purpose of this Code is to define the means of signal initiation, transmission, notification, and annunciation; the levels of performance; and the reliability of the various types of fire alarm systems, supervising station alarm systems, public emergency alarm reporting systems, fire warning equipment, emergency communications systems, and their components.

1.2.2 This Code defines the features associated with these systems and also provides information necessary to modify or upgrade an existing system to meet the requirements of a particular system classification.

1.2.3 This Code establishes minimum required levels of performance, extent of redundancy, and quality of installation but does not establish the only methods by which these requirements are to be achieved.

1.2.4* This Code shall not be interpreted to require a level of protection that is greater than that which would otherwise be required by the applicable building or fire code.

A.1.2.4 The intent of this paragraph is to make it clear that the protection requirements are derived from the applicable building or fire code, not from *NFPA 72*.

As you can see from 1.2.1, *NFPA 72* intends “to define the means of signal initiation, transmission, notification, and annunciation; the levels of performance; and the reliability of the various types of fire alarm systems...” *NFPA 72* in 1.2.3 also “establishes minimum required levels of performance, extent of redundancy, and quality of installation but does not establish the only methods by which these requirements are to be achieved.”

The members who serve on the individual chapter Technical Committees intend to use their experience, background, and knowledge to develop these minimum requirements that will ensure a consistency with each fire alarm system installation.

Unfortunately, a large number of individuals involved in system installations seem unaware of *NFPA 72* and the necessity to follow its requirements. By simply asking the question you have asked, you have already set your company apart from other companies in the fire alarm industry.

Whether you work as an Authority Having Jurisdiction (AHJ), a contractor, or a fire protection engineer, you have an obligation to not only own a copy of the most recent edition of *NFPA 72*, but to ensure that those with whom you come in contact know of *NFPA 72*'s existence, use, and importance.

The Technical Committees developing *NFPA 72* assume individuals who will use this document will possess a basic understanding of electrical installation techniques. This includes knowledge of *NFPA 70*, *National Electrical Code*[®].

In addition, as you already noted in the article I wrote for the previous issue of *IMSA Journal*—which you stated that you had read—*NFPA 72* has very specific requirements regarding the knowledge, skills, and training of fire alarm system designers, installers, testers, and

maintainers of fire alarm systems. You should review the specific requirements from NFPA 72 that I included with that article. They form a very important part of the roadmap that you asked about in your question.

Unfortunately while all fifty states license hairdressers and barbers, most of those same states do not license fire alarm system designers and fire alarm system contractors. Therefore, one cannot assume all fire alarm system contractors know NFPA 72, the relevant building code and fire code for their jurisdiction, or even NFPA 70. Nor can one assume that all of these contractors have achieved proficiency in electrical installations.

Therefore, Authorities Having Jurisdiction should always question designers, installers, testers and maintainers who either submit fire alarm system designs or become part of the process of installing, testing, and maintaining those fire alarm systems. This questioning by the AHJs should determine if only qualified individuals will perform the necessary design, installation, testing, and maintenance. Often checking with other jurisdictions where the fire alarm systems designer or contractor has worked will help to verify a particular contractor's qualifications.

Conformance with the requirements contained within NFPA 72 by itself will provide some help with ensuring minimum levels of quality. However, the AHJ must enforce the use of the NFPA 72 to obtain those minimums.

NFPA 72 states in the latter part of 1.2.3 that it "...does not establish the only methods by which these requirements are to be achieved." As a result, designers and installers must submit technical documentation to the AHJs in order to demonstrate equivalency in meeting the stated requirements.

Upon review of such documentation, if the AHJ finds that those systems, methods, devices, or appliances offer equivalent protection, NFPA requires the official to approve their use. However, the AHJ has the responsibility to determine that equivalence.

Unfortunately many AHJs do not have any electrical background and, therefore, cannot properly determine the quality of a contractor's installation capabilities, nor adequately determine the "equivalence" of a substitution to an NFPA 72 requirement. Because the design of fire alarm systems most often provides life safety, an AHJ must take great care when asked to make these equivalency judgments.

So, I hope you will use this brief description to develop the roadmap you need. NFPA 72, *National Fire Alarm and Signaling Code*[®], establishes the base level of quality and reliability for fire alarm system installations. But, it can do this only when contractors and designers follow its requirements; and when AHJs understand the NFPA 72 requirements and enforce those minimum requirements.

All of us in the fire protection profession must make every effort to promote the use of NFPA 72.

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