

Notifying the Masses

by Dean K. Wilson, P.E.

***Question:* An architect with whom we work quite frequently has asked us to quote on a Mass Notification System for a fairly large urban college campus. Where in the world do we begin to gather information on such a system?**

Answer: One of the new additions to NFPA 72-2007, *National Fire Alarm Code*, consists of a significant amount of information regarding Mass Notification Systems.

Section 3.3.102 defines a Mass Notification System as follows:

3.3.102* Mass Notification Systems. A system used to provide information and instructions to people, in a building, area, site or other space.

Additional information in Appendix A states:

A.3.3.102 A mass notification system may use intelligible voice communications, visible signals, text, graphics, tactile, or other communications methods. The system may be used to initiate evacuation or relocation or to provide information to occupants. The system may be intended for fire emergencies, weather emergencies, terrorist events, biological, chemical or nuclear emergencies, or any combination of these. The system may be automatic, manual, or both. Access to and control of the system may be from a single, on-site location or may include multiple command locations, including some remote from the area served. Systems may be wired, wireless, or some combination of the two.”

As you can see, a Mass Notification System provides the ability to notify people concerning an emergency. Such an emergency may include a fire, but may also include a variety of other life-

threatening situations. You can imagine from this definition and supplemental information how an urban college campus may wish to implement such a system to provide an appropriate level of life safety for the persons on that campus.

NFPA 72-2007, Section 6.8.6, “Fire Alarm and Mass Notification System Notification Outputs,” contains several requirements as follows:

6.8.6.1 Occupant Notification. Fire alarm and mass notification systems provided for evacuation or relocation of occupants shall have one or more notification appliances listed for the purpose on each floor of the building and so located such that they have the characteristics described in Chapter 7 for public mode or private mode, as required.

6.8.6.2 Notification Appliances in Exit Stair Enclosures, Exit Passageways, and Elevator Cars. Notification appliances shall not be required in exit stair enclosures, exit passageways, and elevator cars in accordance with 6.8.6.2.1 through 6.8.6.2.4.

6.8.6.2.1 Visible signals shall not be required in exit stair enclosures and exit passageways.

6.8.6.2.2 Visible signals shall not be required in elevator cars.

6.8.6.2.3 The evacuation signal shall not be required to operate in exit stair enclosures and exit passageways.

6.8.6.2.4 The evacuation signal shall not be required to operate in elevator cars.

6.8.6.3 Notification Zones.

6.8.6.3.1 Notification zones shall be consistent with the emergency response or evacuation plan for the protected premises.

6.8.6.3.2 The boundaries of notification zones shall be coincident with building outer walls, building fire or smoke compartment boundaries, floor separations, or other fire safety subdivisions.

6.8.6.4 Circuits for Addressable Notification Appliances.

6.8.6.4.1 Circuit configuration for addressable notification appliances shall comply with the applicable performance requirements for notification zones.

6.8.6.4.2 In protected premises with more than one notification zone, a single open, short-circuit, or ground on the system installation conductors shall not affect operation of more than one notification zone.

6.8.6.4.3 Riser conductors installed in accordance with 6.9.10.4.2 that are monitored for integrity shall not be required to operate in accordance with 6.8.6.4.2.

6.8.6.5 Distinctive Evacuation Signal.

6.8.6.5.1* To meet the requirements of 4.4.3.6, the fire alarm audible signal pattern used to notify building occupants of the need to evacuate (leave the building) shall be in accordance with ANSI S3.41, *American National Standard Audible Emergency Evacuation Signal*.

Exception: Where approved by the authority having jurisdiction, use of the existing consistent evacuation signaling scheme shall be permitted.

6.8.6.5.2 The use of the American National Standard evacuation signal shall be restricted to situations where it is desired that all occupants hearing the signal evacuate the building immediately. It shall not be used where, with the approval of the authority having jurisdiction, the planned action during a fire emergency is not evacuation, but rather is the relocation of occupants or their protection in place as directed by the building fire protection plan or as directed by fire-fighting personnel.

6.8.6.5.3* The American National Standard evacuation signal shall be synchronized within a notification zone.

The members of the Technical Committee on Protected Premises Fire Alarm Systems have expanded the requirements in this section from previous editions of the *Code* to apply to Mass Notification Systems, as well as to fire alarm systems providing notification to occupants of the presence of a hostile fire.

To get to the real heart of the kind of information you might need to provide the architect with a competent design for such a system, you need to refer to the newly created Appendix E. The material in this Appendix offers all of the information on this subject that the various Technical Committees developed through the NFPA consensus standards-making process. You may wonder why this valuable information appears as an Appendix rather than in the body of the requirements of the *Code*. Many times over the years, the Technical Committees have placed a large body of new material in an Appendix to give users an opportunity to validate the information before it became a part of the requirements of the *Code*. The Appendix material does not contain requirements. It

merely provides advisory information. Thus, users can sort through the recommended material and later offer comments for improvement in the text before it becomes enforceable requirements.

Appendix E contains a great deal of helpful information to someone designing, installing, and using a Mass Notification System. I would strongly suggest that you become very familiar with this material. You will also want to become familiar with the following sections of the *Code*: 7.12 and 10.7. These two sections—from the Chapters on “Notification Appliances for Fire Alarm Systems” and “Testing and Maintenance of Fire Alarm Systems,” respectively—simply refer to user to Appendix E.

I suspect that as time passes, we will see many more large area building complexes consider installing a Mass Notification System to allow the building managers to notify occupants of various emergencies, including, but not limited, to fire emergencies.

I offer a “hats off” to the members of the various Technical Committees who oversee the development of the requirements for the *National Fire Alarm Code*, that they have included material on this subject in the latest edition.

IMSA member Dean K. Wilson, P.E., FSFPE, C.F.P.S., now retired on disability, formerly worked as a Senior Engineer in the Erie (PA.) office of the fire protection engineering and code consulting firm, Hughes Associates, Inc. (www.haifire.com.). The opinions expressed in this article are strictly his own. You can reach him by e-mail at deanwilson@adelphia.net or by telephone at 814-897-0827.