

## **Know Where You Need To Go!**

by Dean K. Wilson, P.E.

***Question:*** In consulting with the local fire marshal, we have come to somewhat of an impasse in trying to determine how precisely we should annunciate signals from a new fire alarm system we have designed for a large downtown office complex. Exactly what does the *National Fire Alarm Code* require?

*Answer:* How precisely any particular fire alarm system will annunciate the information and location from various fire alarm and supervisory initiating devices does depend on the requirements of NFPA 72-2002, *National Fire Alarm Code*. But, the precision of annunciation also depends on the nature of the specific fire protection plan for the particular building. I will discuss the *Code* requirements in the paragraphs that follow. However, I would caution you to make certain that the precision of annunciation you select will give the building owner, and those who must respond to signals from the fire alarm system, exactly the information they need. In some cases, the fire protection plan for a building will require more precise annunciation in order to effectively deal with the handling of signals from the fire alarm system. In other words, as one who might respond to signals from a fire alarm system, do you know where you need to go?

NFPA 72-2002, Section 4.4.3.3 requires that fire alarm signals, supervisory signals, and trouble signals annunciate distinctively and descriptively. So, these three general categories of signals must offer exclusive annunciation.

Section 4.4.3.6.1 requires that audible alarm notification appliances produce signals that offer a distinct sound from other similar appliances used for other purposes in the same area. This requirement insists on coordination between sounds to allow the fire alarm signal to remain clearly distinctive.

Section 4.4.3.6.2 continues by requiring fire alarm signals to remain distinct in sound from supervisory signals and trouble signals. This Section also requires supervisory signals to remain distinct in sound from trouble signals. An Exception permits the use of the same signal for supervisory and trouble signals, if the fire alarm system provides a distinct visible signal.

Section 4.4.6 has a number of requirements that all relate to the zoning of a fire alarm system. Section 4.4.6.1 offers a dependent permissive requirement—by beginning with the phrase “If required”—that the location of an operated initiating device shall be visibly indicated by building, floor, fire zone, or other approved subdivision by annunciation, printout, or other approved means of indication and shall not be canceled by the operation of an audible alarm silencing means. This particular Section allows the Authority Having Jurisdiction, such as the local fire marshal, to require whatever level of annunciation he or she deems appropriate for the particular building. It also allows the annunciation to fit the requirements of the building’s fire protection plan.

As a side note of interest, some have wrongly interpreted this latter requirement of Section 4.4.6.1 to mean that visible fire alarm notification appliances installed throughout a building must continue to operate even when an operator has silenced the audible fire alarm notification appliances. This section does not apply to the visible fire alarm notification appliances. Rather, it applies to visible means of annunciation, such as lamps, LEDs, or visible displays. Thinking about this logically, if an operator has determined that he or she can safely silence the audible fire alarm

notification appliances—removing the audible indication to evacuate—why should the visible fire alarm notification appliances continue to operate?

Section 4.4.6.1.1 requires whatever means of annunciation remain readily available to the persons responding to the signals. This would include building personnel, but especially the responding members of the public fire department.

Section 4.4.6.1.2 requires fire alarm systems with two or more zones to identify the zone of origin when an initiating device actuates. The system may do so by either annunciation or coded signal.

Section 4.4.6.1.3 requires that visible annunciators be able to display all zones in alarm. If the system does not simultaneously display all zones in alarm, it must provide an indication that other zones are in alarm.

Section 4.4.6.2 deals with emergency voice/alarm communications systems—used for partial of selective evacuation—which by definition employ a fire command center. This section requires both audible and visible annunciation at the fire command center.

Section 4.4.6.3 defines “zone” as each floor of a building. If the design of a building divides a floor into smoke or fire areas, and the evacuation plan employs partial of selective evacuation, each such area shall become a zone.

Section 4.4.6.4 requires fire alarm systems serving more than one building to treat each building as a separate zone.

As you can see, the actual requirements for annunciation in NFPA 72-2002, *National Fire Alarm Code*, provide rather straightforward direction. As will often happen, the requirements of the *Code* provide a beginning point on which to build an effective system. It remains in the hand of the

designer of the fire alarm system to work in harmonious concert with all of the Authorities Having Jurisdiction to provide a system that offers an appropriately precise annunciation.

Ultimately, the precision of annunciation makes certain that you know where you need to go when you receive a particular signal from a fire alarm system.

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