

## Integrating ECS into Fire Systems

*Fire and life safety systems are well positioned to incorporate emergency communications and mass notification messaging. NFPA 72-2012 offers more specific guidance on how all the pieces should work together.*

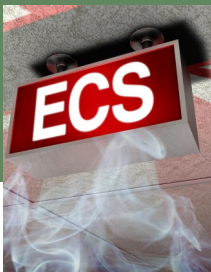
*By Roopa Shortt, Audible Visible Marketing Manager, System Sensor*

# MNS

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Every facility has different occupancies, structural components and assets. When it comes to communicating an emergency event, however, the goal of grabbing attention and getting the right message to the right people at the right time is universal. It's the design and execution of that messaging strategy that shifts to suit each application.

The concept of notifying large numbers of people in emergency situations is not new. Arenas, convention centers, universities, business complexes and other environments depend on emergency communication systems (ECSs) for these purposes. Codes covering the deployment and integration of ECSs with other building systems, especially in conjunction with mass notification

systems (MNSs), have changed recently, however.

Let's back up in order to clear any confusion about the distinction between an ECS and an MNS. An ECS can be defined as a system that indicates the existence of an emergency situation and communicates information necessary to facilitate an appropriate response. An MNS provides information and instruction using intelligible voice communications, and it can include visible signals, text, graphics and other onsite or mobile communication methods.

Simply stated, the ECS is the overall system to detect and communicate information to occupants, while an MNS is a subsystem of an ECS. The question then becomes: How does fire and life safety fit into this mix?

Some believe an MNS only involves retrofitting a fire alarm system to communicate non-fire emergency signals, while others think of it as a system of loudspeakers located on the exterior of a building. Yet, to be an effective tool, the MNS should be developed as part of an ECS that easily and effectively notifies occupants of an emergency and actions that should be taken.

Ultimately then, an ECS should integrate fire, security and communications systems for immediate, responsive and effective notification of fire, dangerous weather conditions, intrusion and many other important emergency situations.

### Balancing Needs

The reality is that every ECS and therefore MNS and fire and life safety system is unique. There is no one-

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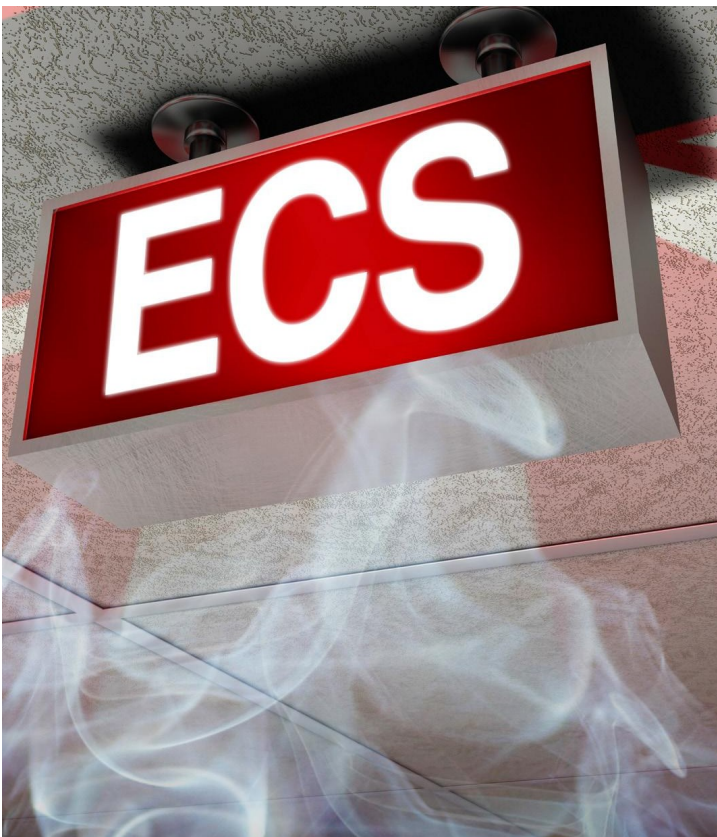
size-fits-all solution for each situation. But there are similar aspects that can formulate a complete system to efficiently integrate fire, security and

devices can be integrated, including amplifiers, speakers, horn strobes, cell phones, pagers and much more. Fire alarm systems incorporating voice

locations simultaneously. In essence, workstations that are connected to the fire and life safety system can send emergency messages to one or many.

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communications capabilities have been used for decades to provide mass notification to warn building occupants of fire conditions, as well as other emergency situations, such as severe weather or chemical spills.

The regulated and code-driven reliability of a fire detection system makes it a highly effective platform for an ECS solution, as the rules, testing procedures and installation practices have already been established.

### Code Guidelines

Voice-enabled fire detection systems inherently provide mass notification to warn building occupants of emergency situations. Some fire and life safety systems have expanded their voice messaging to incorporate ECS and MNS features. These systems have the ability, via a local - or wide-area network or the Internet, to send real-time emergency messages to multiple remote

NFPA 72 continues to evolve to address new technologies and applications for fire alarms and ECSs. The NFPA 72-2010 Fire Alarm Code tackles ECS challenges in the new Chapter 24: Emergency Communication Systems. The chapter, which incorporates requirements for emergency voice alarm/communications systems, has been expanded to include requirements for the design and installation of all emergency communication equipment,

communications.

Because a balanced system needs to include protection systems, alerting systems and action plans, a wide variety of technologies and

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including mass notification.

A significant new requirement is completion of a risk analysis prior to beginning ECS design. A

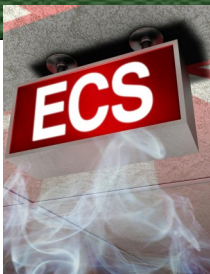
tone or voice message any time the priority is granted to the mass notification control unit.

Operation of an ECS/MNS

existing life safety infrastructure, most notably its fire alarm system, can be leveraged to help meet the emergency

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risk analysis is defined as a process used to evaluate the potential for severe incidents associated with natural or manmade disasters or other events requiring emergency response. In addition, analysis must prioritize those events in the context of all foreseeable emergencies. The analysis must also identify when the system will be required 0-09 to operate (i.e., before, during or after an event).

Once the assessment is complete, a comprehensive system can be developed based on the findings. Chapter 24 offers a complete set of requirements for ECSs, including EVAC and two-way communications. If an event requiring emergency response occurs, it permits the MNS to take control of fire alarm notification appliances - including amplifiers, speakers and strobes - and requires a

system is also based on a comprehensive emergency response plan. Clear intelligibility of voice messages must meet specific requirements, and visual notification is to be achieved through strobes, textual, graphic or video displays. Note that the current requirements for two-way emergency communication service, such as telephone and radio, have been moved to Chapter 24. This includes communication criteria for areas of refuge and a central control point.

These systems can be stand-alone or integrated with the fire alarm system. If there isn't a staffed central control point, the system can communicate offsite to a supervising station, 9-1-1 center or other approved monitoring location.

It is important to keep in mind that a building's

communications requirements.

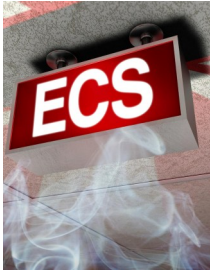
### Four Major Sections to NFPA 72, Chapter 24

The new NFPA 72-2010 Emergency Communications Systems chapter is subdivided into four major sections:

- **One-way communication:** Until now, fire alarm systems have generally been allowed to provide only occupant notification of fire events. NFPA 72 now addresses one-way emergency communications in a much broader way, including systems in buildings, wide-area notification and distributed notification.
- **Two-way communication:** New two-way telephone requirements and specific locations have been identified to coordinate with the expansion of radio



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communication enhancement systems. This includes firefighter and warden telephones and the elimination of common talk.

- **Command and control:** The central control location may be a single location or multiple locations where the mass notification system is operated. Depending on

the notification area, multiple central control locations may be required so that a control facility is available during events.

- **Performance-based design:** An important section of the new ECS chapter covers performance-based design. This section, which provides flexibility in the design of an ECS, outlines

the methodology for developing a performance-based design of a mass notification system. It also provides the general goals and objectives for the system.

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