

## White Paper



by Honeywell

# Combining Fire Alarm and Mass Notification

Today we think of firefighters less in terms of putting out flames and more as "first responders" to emergencies. We think of fire safety systems in an entirely new light, and the broader term "emergency notification" has become a greater priority in evacuation. Mere fire alarms are no longer enough.

The federal government has attempted to rapidly address these clearly warranted fears. The National Strategy of Homeland Security outlined a vision for future security which described a need for "communication and delivery systems indispensable to our national effort to detect, prevent, and, if need be, respond to terrorist attacks." That same year, the Department of Defense (DOD) developed Unified Facilities Criteria (UFC) in its Minimum Antiterrorism Standards for Buildings.

Central to UFC was the need for mass notification systems that would "provide a timely means to notify (building) occupants of threats and instruct them what to do in response to those threats."

### Beyond the alarm

In developing this UFC, the DOD determined that most basic fire alarm systems were lacking in their ability to communicate with people in the event of non-fire emergencies such as terrorist attacks or weather emergencies. The NFPA developed new standards for mass notification systems, and as a result, manufacturers of voice evacuation systems must address the task of producing systems to meet today's mass notification needs.

The DOD requires mass notification systems to include a paging component that allows live audio to be instantaneously transmitted throughout a protected facility. These mass evacuation systems should also include self-monitoring capabilities for failures or disruptions of service. Additionally, new systems must be able to automatically report any failures or disruptions to a central station and/or remote stations.

It's easy to understand why fire alarm systems are inherently the right choice for use in mass notification. Fire alarm systems are code-driven and regulated. The circuitry is fully supervised, and the systems are periodically tested using NFPA guidelines. The rules, testing procedures and installation practices are already established, so fire alarm companies are able to hit the road running. Also, the first responders are already familiar with the fire alarm equipment, many with years of hands-on experience.

While the purpose of a fire alarm system is to evacuate the building safely in the event of a fire, a mass notification system (MNS) is designed to keep occupants informed of the type of emergency and direct them on what to do and where to go. However, they share a common goal – to warn people of danger and provide information to stay safe.

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For this reason, the NFPA 72 code now recommends the use of a single integrated combination Emergency Communication System (ECS). However, not only must the system comply with NFPA 72, it must also be designed to meet the combined system requirements as outlined in the UL 2572 Standard, which went into effect in April 2015.

Having a combined fire alarm and mass notification system not only offers substantial cost savings advantages, but the new standards allow for better coordination of the system functions, which is vital in minimizing confusion and panic during emergency situations.

## Peerless peer-to-peer advantages

Not all panels are created equal. Certain panels possess unique advantages over other fire alarm-based systems, making them better suited for handling a variety of emergency situations. Reliable operation is foremost among them. Specifiers should seek out a panel that meets UL 2572 and utilizes peer-to-peer network technology, ensuring that if any one part goes down, the rest of the system is unaffected. Many systems may feature peer-to-peer in their detection and control components, but most of these use one box for centralized messaging. The ideal fire systems' messaging should be distributed out to the field, so that each transponder has a copy of the system's messages. Thanks to this distributed messaging, with no primary or "head-end" message box, the messages will always get delivered.

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## Delivering the right message

In an emergency situation, one broad-reaching message does not always apply to every floor or section of a facility. Also, different scenarios demand different messages. NFPA 72 code now allows mass notification systems to take precedence over fire alarms. For example, these systems are able to override the fire signal to tell people to remain in a building to protect them from terrorists outside, or to move to a shelter for protection from an impending tornado.

It is possible for fire alarm systems to be perfectly in sync with the new code. Some existing multi-channel fire alarm systems have such robust distributed messaging capabilities that they allow users to create customized messages for practically any type of scenario. Ideally, the system can be programmed to put out messages that can automatically change as the situation changes.

## Notification for education

School systems are also installing speakers and audio evacuation with messaging instead of standard horn strobes. In a personal emergency situation at a school; for example, a school shooting, a station can be triggered that delivers messages such as "stay in your classroom" and "close the doors" or perhaps "exit via windows."

## The sound of safety

The NFPA 72 code guidelines also address the issue of intelligibility. Approaching node connections using a simple twisted wire pair affords systems the marketplace's greatest degree of intelligibility and fidelity, according to Gamewell-FCI project engineer, Dick Aldrich. He explains, "The sound reproduction is near high fidelity quality, so that messages are delivered clearly and better understood. The speed of the message delivery is also unsurpassed – the system can be ready to broadcast a voice message within one or two milliseconds for near-instantaneous communication. Also, a system with a fiber optic communication network defies jamming or any other kind of outside interference."

## The technology is here

Many of the technologies designed to address our nation's homeland security needs are still in development. But fortunately, this is not the case with mass notification and emergency evacuation systems. Mass notification systems have arrived.

### NOTES:

Reference NFPA 72, Chapter 24 for more details on current voice evacuation requirements.

For more information on UL 2572 requirements, visit the [UL web site](#).