Shared goals, unified technologies

Why fire alarm systems are ideally positioned to offer the best value and most efficient implementation of emergency communications.

June 25, 1996: The destruction of Khobar Towers Building #131 in Saudi Arabia begins a chain of events that would eventually lead to the development of modern emergency communications.

Not so long ago bells, horns, and sirens alerted building occupants to danger. More recently, pre-recorded broadcasts and flashing strobes provided warning. Today a new solution is emerging; a solution that takes into account the intensifying nature of threats and the increasing complexity of built space.

The development of emergency communications, also known as mass notification, as we know it today can be traced to June 25, 1996 when terrorists exploded a fuel truck adjacent to a housing complex in Khobar Saudi Arabia. The eight-story building housed U.S. Air Force personnel. In all, 19 servicemen and one Saudi were killed, and 372 others were wounded.

A year later, then Secretary of Defense, William Cohen, issued the Khobar Tower Report. This document concluded that there were lapses in force protection, no effective alarm systems, no emergency communications capabilities, and that damage and loss of life could have been minimized if there had been a plan in place to respond to the threat.

Requirements established

The DoD document that brought emergency communications to the forefront of modern building design is *Unified Facilities Criteria 4-021-01: Design and Operation of Mass Notification Systems*. This document establishes minimum requirements for emergency communications to be used for the design, construction, operation, maintenance, and modernization of all DoD facilities. UFC 4-021-01 defines emergency communications (mass notification) as:

"…the capability to provide real-time information and instructions to people, in a building, area, site, or installation using intelligible voice communications including visible signals, text, and graphics, and possibly including other tactile or other communication methods."

UFC 4-021-01 §1-1

In the DoD context, emergency communications is primarily focused on terrorist attacks. But the concept has been championed by other government agencies and regulators to include risk management for environmental accidents and natural disasters as well.

Common Ground

While fire alarm and emergency communications address different kinds of dangers, they share similar objectives.

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Fire is a specific threat that usually has a single point of origin from which it spreads. Fire alarm systems are designed to manage building evacuations based on this scenario, and may incorporate the use of voice audio communications in many facilities.

Emergency communications, on the other hand, deals with different threats. It acknowledges that building evacuation isn't always the best solution in the face of coordinated terrorist attacks, or sweeping risks from chemical spills, or all-encompassing dangers of natural disasters. These situations require different management strategies that take a multi-dimensional approach.

Mandated survivability

While fire alarm and emergency communications systems appear to serve different purposes, they both share a common goal – to warn people of danger and provide them with information they need to stay safe. More importantly, fire alarm and emergency communications systems share a need for the same basic equipment and other requirements including: recorded and live messages, HVAC control, integrity monitoring, routine maintenance, and agency listings.

These common requirements permit leveraging the mandated survivability and inherent reliability of fire alarm systems for emergency communications purposes. Thanks to its functional pedigree, the fire alarm infrastructure is eminently well-suited to provide the robust backbone needed for emergency communications activity.

Backup power supplies, supervised wiring, and fail-safe peer-to-peer networks — time-tested features of fire alarm systems — are also essential to well-designed emergency communications systems. Meanwhile, code-driven development and stringent standards-driven testing provide the built-in quality that makes fire alarm panels and devices among the most reliable electronic equipment available today.

Even emergency communications appliances bear a striking resemblance to fire alarm devices. In fact, intelligible emergency communications speakers can be used to meet NFPA 72 audibility requirements, while strobe lights are subject to NFPA 72 and ADA standards. Emergency communication systems today typically use an amber colored strobe light to indicate an emergency or alert condition and a clear lens strobe light to provide evacuation signals to facility occupants.

Emergency communications requires the system to manage information and provide a coordinated response that takes in the full 360-degree view of an unfolding situation. From smoke detectors and fire doors to motion sensors and CCTV cameras, information needs to be gathered — and processed intelligently — in order for an effective response strategy to be executed. Leveraging existing equipment such as command and control interfaces, speakers, and strobes, leads to an effective means of response in the face of real danger.

Go with what you know

Emergency communications demands a robust infrastructure that goes far beyond what's typically found among garden variety paging systems. Even output devices like speakers and strobes require special consideration. In fact, circuit integrity monitoring — a long established fire alarm requirement — provides the reliability necessary to ensure that the emergency communications system remains viable and ready for use at all times.

So it comes as little surprise that a fire alarm based solution is the most economical choice when adding emergency communications applications to basic building fire alarm requirements. As with most critical purchase decisions, it's best to go with what you know; with what's been purpose-built for the application.

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