



## *Case Study*

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## **FENWAY FIRE PROTECTION HOMERUN**

Fire detection and fire control functions are major considerations when it comes to sports arenas and other places of public assembly. In recent years it has become painfully obvious to civil authorities and private-sector stakeholders that voice evacuation systems specified today should do more than direct people to the nearest point of egress.

Life safety systems are now expected to protect against other threats in addition to fire, including weather, hazardous material and intruder-related emergencies. Having a ready means of notification capable of addressing specific risks using prerecorded and real-time announcements is viewed as a necessity. All of this is intended to place critical information in the hands of those who require it at a time when it is needed the most.

The upgrade of such a system was the primary objective behind the design and installation of an advanced fire alarm EVAC (emergency voice/alarm communications) network throughout the Boston Red Sox' historic Fenway Park and its surrounding buildings.

### **The Starting Lineup**

Boston's Fenway Park is one of the oldest, most notable ballparks in the United States. Prior to World War II, the stadium was some times packed to the point of standing room only. Soon thereafter, local officials adopted more stringent fire codes, setting lower occupancy limits. Today, Fenway has a listed capacity of 39,928.

Fenway's fire protection systems recently underwent a complete upgrade to accommodate system growth and new code considerations. Centralized control of new systems installed throughout the Park's facilities was another key element.

"It had come to a point where Fenway needed to upgrade their existing fire alarm

system because of the additional initiating and notification appliance devices they were routinely adding,” says Sales Manager Joe Golini with AFA Protective Systems of Boston, Mass.

Utilizing the Gamewell-FCI model E3 Series® EVAC system, AFA was able to satisfy all job specs with an advanced system of distributed intelligence, capable of integrating the Park’s existing initiating and notification devices.

The Fenway fire protection project encompassed the Park and other connected or nearby structures, including the executive offices, laundry building and restaurants. An E3 Series Expandable Emergency Evacuation system with integrated EVAC replaced the variety of existing head-end panels and bulk audio EVAC equipment, plus the specific peripherals used to provide initiating, notification and fire control input/output functions.

### **EVAC Line Drive**

This first phase of Fenway’s upgrade was a major one. Total cut-over of all independent controls and the bulk audio system to a new, single fire protection network with integrated voice loaded the bases for what is to come.

According to AFA Project Manager, Tim Moynihan, “The idea is to eventually have selective paging throughout the facility. Any new areas would have their own speaker circuits.”

With the historic Park celebrating its 100th anniversary in 2012, major renovations are expected in the near future. Adjacent structures, such as the laundry building, are expected to house new Park concessions. The E3 Series’ capacity and modular design will allow future Fenway restaurants, gift shops and other occupancies to integrate into its fire protection network seamlessly. Sizable renovations, as well as the adoption of new emergency communications codes, have led many to believe selective paging is also on the horizon.

“There are new fire alarm mandates coming out that require selective paging where you have more than one tenant,” says John Stofa, northeast regional manager with fire alarm/life safety systems manufacturer Gamewell-FCI, “While Fenway management was thinking fire alarm, we were thinking ahead to mass notification.”

These up and coming codes relate to the new NFPA 72®: National Fire Alarm & Signaling Code, 2010 Edition, requiring zoned audio for selective paging.

While capable of housing hundreds of pre-recorded messages, Fenway's new EVAC system also offers authorized users a means for delivering real-time announcements throughout the Park. One of the restaurants is a unique application, with its own "stand-alone" EVAC system and separate speakers connected to the Park's fire protection network to receive all alarm communications, including those generated within the Ballpark.

According to Moynihan, integration with Fenway's PA (public address) system was another key element of the project's EVAC capabilities, "Now with a push of a button, the fire alarm system can take over the Park's public address system so emergency personnel can address the entire Park, including the playing field, directly from the command center."

### **Profitable Double-Header**

Prior to its fire protection upgrade, the Fenway project encompassed more than 500 audio NAC (Notification Appliance Circuit) speakers and visual devices. An additional mix of nearly 500 initiating devices, ranging from manual fire pulls to automatic initiating, was also present.

"A real benefit was the fact that the Park had most of the initiating and notification devices they needed already installed throughout," says Stofa.

Although the present audio field requires a total of 400 Watts, AFA implemented an additional 800 Watts of audio power. In addition to serving as a source of back-up amplification, this extra power provides adequate headroom for sudden system demands and future growth. The audio field, as designed by AFA, uses 70V line to carry audio tones and verbal instructions throughout the park.

Higher levels of audio power also have a positive affect on the intelligibility of audio communications. Intelligibility is a principal requirement of EVAC systems, as outlined in NFPA 72.

Speaking of power, in the event of a power outage and to comply with current fire code, AFA installed enough battery power to operate the total system in standby for 24 hours with a subsequent alarm time of 15 minutes at full load.

Multiple brands of fire alarm systems acquired over time through general expansion protected the individual facilities, but with no means of centralized monitoring

or control. Since the E3 Series needs only one UTP (unshielded twisted-pair) conductor for complete system integration, existing wire installed throughout Fenway's facilities was able to be repurposed. The avoidance of multiple-conductor cable utilized by many current-day fire protection systems saved Fenway significant field labor and material costs.

To provide facilities personnel and first responders quick access to fire protection information, remote annunciators were installed throughout the Park. The control room's head-end panel includes an NGA (Network Graphic Annunciator), featuring touch-screen controls and an intuitive menu structure for easy operation and immediate supply of critical information. Six additional textural annunciators were placed in key locations, including the laundry building and at Gate D, the planned entryway for first responders.

### **Installation Home Run**

Translating and converting the original control panel's software program for use in the new E3 Series panels represented a huge challenge for Golini's group.

"Programming was the most difficult part of the project. This was a complicated installation, but we received great design and programming support from the professionals that comprise FSG (Honeywell's Fire Systems Group)," says Golini.

According to Golini, the Gamewell-FCI system's two-wire data bus delivers more than substantial cost savings, "The previous system represented technology that was more than 10 years old. The E3 Series is the most state-of-the-art system available today. For example, the new system carries data from node to node over a single pair of unshielded wires. The industry standard for data communications at this time is 100 to 318 baud, the E3 Series can communicate at 625K baud," says Golini.

From start to finish, AFA had only four months to complete an initial systems assessment, new system design, installation and testing. With both old and new systems being maintained simultaneously, finding space for new equipment became a challenge. Moreover, the Park's restrictive schedule caused AFA to perform a fast-paced cut-over of systems when allowed access to the Park.

"We could only work in certain areas at certain times," says Golini. "Our group had to work around their schedule, which essentially limited production to those times when the team was on the road."

The Fenway Park upgrade exemplifies how Gamewell-FCI's advanced fire protection solutions can be a home run for life safety without putting budgets on the DL (disabled list). Increased focus on emergency communications mixed with new EVAC system capabilities have created strong demand for these system types in more applications than just those of public assembly. Furthermore, as the 2010 Edition of NFPA 72 takes hold, many expect this scenario to be the norm, not the exception.

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