Advanced Smoke and Fire Detection Used at Temporary Facilities

By Ryan Sandler

Before the Patriots could take on the Rams in the Super Bowl, it was necessary to ensure the safety of assigned broadcast personnel and equipment at the Georgia World Congress Center Authority (GWCCA) convention center. Like other facilities located near the Mercedes-Benz Stadium in Atlanta, Georgia, the convention center was being used to accommodate the immense surplus of support personnel and equipment associated with the game.

When major events like these come to your campus, temporary facilities are often required to accommodate specialized equipment and support personnel. In the case of the GWCCA convention center, this meant building temporary offices within a large hall to accommodate everything. The offices included a broadcast control room, a room for storing engineering equipment, and a meeting area.

Despite being a temporary solution, the newly constructed office space had to remain compliant with fire codes, which meant that a complete fire detection system had to be installed and later removed.

Installing a "temporary" fire detection system is no small feat, however. Although traditional spot smoke detectors are easy to install, they require certified electricians to run electrical conduit and wire to each unit, which connect back to a central alarm panel.

Although the GWCCA convention center had its own traditional fire detection system, the decision was made to install a complete, stand-alone system, including a fire alarm panel.

"They were not going to accept the convention center's existing fire alarm system on its own," says Christian Santamaria, a cofounder of Intelligent Fire Systems & Solutions, Inc., a fire and life safety installation company involved with the project. "They wanted additional protection for the temporary structure within the center that was completely separate from the existing system, so it could be installed quickly and removed with ease after the event was over."

According to Santamaria, the fire marshal specifically recommended an advanced aspirating smoke detection (ASD) system for the application.

An ASD unit draws air in through tubing connected to small, unobtrusive sampling points located in each room. The air is analyzed to identify the presence of minute smoke particles in a continuous process using sophisticated laser-based technology built into the central unit.

The system can detect minor particles in the air much faster than traditional spot smoke detectors, even before a fire begins to flame and burn. In many cases, early warnings can speed evacuation and prevent fire spreading to other areas.

The technology, though advanced, is not new. Aspirating smoke detection technology has been used for decades in sensitive applications such as cleanrooms and data centers, where early smoke detection is critical.

Although the ASD system is often installed as a permanent solution, the ease of installation makes it ideal for operational smoke detection in temporary facilities or during construction or remodeling of any space. The ASD has already been installed for this purpose in schools, universities, hospitals, and medical office buildings.

Right: Air is analyzed using sophisticated laser-based technology at the central unit to identify the presence of minute smoke particles in a continuous process.

Below: To speed installation, the stand-alone fire detection and notification system was pre-assembled with aspirating smoke detection technology before it was shipped to Atlanta.

According to Santamaria, the ASD detector used for the GWCCA convention center application utilized six smoke detection sampling points, although a single detector allows for up to 40. He notes that the fire marshal specified that audible/visible alarms had to be installed inside and outside the temporary offices as well.

One of the most helpful factors in this project was the simplicity of the ASD system as compared to traditional methods, which usually involve running electrical wire and conduit.

"Depending on the size of the rooms, it can easily take a couple of days just to run electrical wire and conduit between rooms, which adds to cost and complicates removal," says Santamaria.

In contrast, an aspirating smoke detection system does not require a certified electrician to run its small, flexible tubes to the designated locations. The central unit also simplifies testing and monitoring of the system.

To speed installation, Intelligent Fire Systems & Solutions prefabricated and programmed the ASD aspirating system before it was shipped to Atlanta. "We also created a video to demonstrate how to install and test the system for the installation team onsite," explains Santamaria.

Although he was on standby to fly to the location if needed, the installation team was able to successfully install the ASD unit without difficulty. Once installed, the system was quickly inspected and approved by the fire marshal.

Since it was implemented as a stand-alone system and without running electrical wiring, the ASD unit was easy to remove. It is possible the system could be utilized at other events that have temporary structures requiring a fire alarm system, although this has not been determined yet.

"Because the aspirating smoke detection system is not tied into the facility's electrical or fire detection systems, it is easier to remove and reuse in different configurations and even with more sampling points if needed in the future," explains Santamaria. "That kind of flexibility is the reason the system works so well as an economical, temporary solution for events requiring supplemental smoke detection." ⑨

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