Case Study: Egyptian Theatre

Innovative Fire Detectors Help the Show Go On at Historic Theatre

A historic theatre receives a fire system upgrade with much needed nuisance immunity.

First opened in 1929, the Egyptian Theatre in DeKalb, Ill., is listed on the National Registry of Historic places and is operated and maintained by P.E.T. Inc., a 501(c)(3) organization. An Egyptian Art Deco movie palace, the theatre will host over 125 events during its September to June season, including films, live performances, and even a haunted house. This versatility and historic status make the Egyptian a key economic driver for DeKalb’s downtown area.

In 2010, the aging building and fire system were in need of upgrading and renovation. While the Egyptian’s existing fire/sprinkler system was grandfathered in from a code perspective, P.E.T. felt that this “jewel of the city” should not only receive an aesthetic and structural upgrade, it also required a more modern and effective life safety system to protect the historic structure and its patrons (1,400 at full capacity).

One major area of focus for the new fire alarm system was to eliminate false alarms. Because it hosts live performances that often use theater smoke, there is a high potential for theater smoke to seep through auditorium doorways and into the lobby, dressing rooms, and other areas. This could potentially cause
nuisance alarms in traditional smoke detection technologies. This type of nuisance alarm would not only require a performance stoppage, it would also require a potentially dangerous evacuation of large numbers of patrons, performers, and staff.

The danger of this type of false alarm event is increased because the 80-year-old building does not include air conditioning. “During a live event, the front doors of the theatre are often kept open,” says Alex Nerad, Executive Director of the Egyptian Theatre. “The downside is that air and theater smoke can be pulled out of the auditorium and into adjoining locations like the lobby, creating a higher potential for false alarms.”

In fact, during one previous haunted house, dust blew in through an open exterior door, causing three false alarms in the older fire detection system. While the existing system was up to code, due to the difficulty presented by these areas, large sections of the building, including the lobby, did not have fire detection installed.

Fire Safety Consultants, Inc. of Elgin, Ill., was contracted to design and specify a new fire system for the theatre. The goal was to provide coverage in the common areas’ service spaces with the ability to expand for full coverage detection in the future. Warren Olsen, Vice President at FSCI, worked with Chicago Metropolitan Fire Prevention Co. (CMFP) of Elmhurst, Ill., the firm that was called upon to install and program the new fire system. Connected to a NOTIFIER® NFS-320 panel, the new system now includes fire detection and notification devices manufactured by System Sensor for NOTIFIER.

One important goal of the new system was to cover key areas of the facility with fire detection, including the areas previously susceptible to nuisance alarms. For these areas, Olsen suggested the use of the award-winning System Sensor Advanced Multi-Criteria Fire Detector, branded as IntelliQuad™ by NOTIFIER, after having seen the detector in action at a recent NFPA convention. This detector combines four sensing technologies – smoke, carbon monoxide, heat, and light – with intelligent algorithms to maintain the highest sensitivity to real fire while rejecting nuisance conditions. The detector is ideal for the most challenging applications where accurate fire detection provides a serious challenge for traditional detectors – especially applications where nuisance alarms can threaten life safety or interrupt mission critical and revenue-generating activities, such as live performances.

“Once installed, we performed a test of the detectors by running a fog machine in the dressing room,” says Don Gilgenberg (NICET 121880, Fire Alarm Systems, Level IV) of CMFP. “The detector didn’t false alarm, even with the room filled with nuisance particulate. But the detectors still alarmed appropriately when we performed required testing for the system.”

The detectors were also put to a live test in October of 2011 when the Egyptian held its first haunted house since its reopening. For more than four hours, haze and fog was constantly pumped throughout the building. “During this event, the air throughout the facility was filled with nuisance particulate,” says Nerad. “Even though we had active smoke detection operating throughout the building, there were no false alarms. The system worked exactly as we expected.”

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