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BUILDING SERVICES MANAGEMENT

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LIFE-CYCLE WASTE MANAGEMENT

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Smoke Detector Alternative

Earlier Detection, Less Disruption in Healthcare Settings

For decades, traditional smoke detectors have been used to protect patients and personnel at healthcare facilities from the danger of smoke and fire; protection that is mandated by the NFPA (National Fire Protection Association).

Now, however, a new approach using more sophisticated, established smoke detection technology is contributing substantial benefits for healthcare facilities: lower overall costs, earlier detection and less disruption to patients during mandated annual inspection and testing.

Traditional spot smoke detectors are installed in each room or space and connected to a central fire alarm panel by low voltage electrical wiring. When a significant amount of smoke accumulates in the chamber of one of these smoke detectors, an alarm sounds. Although there are addressable systems on the market that can identify the specific room where such a threat occurs, many are not addressable

and so only identify the zone.

While spot smoke detectors are reliable and relatively easy to install, NFPA regulations also mandate annual inspection and testing of each unit. This tedious and time-consuming process requires a fire alarm contractor to enter each room, introduce smoke directly into the detector and verify that it functions properly. This is often covered under ongoing maintenance contracts where fire alarm contractors make a significant amount of their profit.

In a healthcare environment, however, this can be extremely disruptive to patients, doctors, nurses and hospital personnel. The problem is exacerbated in psychiatric wards or hospitals, or for those in drug recovery, that are potentially even more sensitive to interruptions. Surgical rooms, NICUs, PICUs and emergency rooms are also an issue, given the sterile environment.

For Jeremy Robison, facilities director/Safety officer at Sonora Behavioral Health

of Tucson, Ariz. which is part of the larger Acadia Healthcare Group, the annual inspections required significant planning.

"For our patients, anything out of the ordinary, such as loud noises, can set them off," Robison explains.

Once he became aware the maintenance provider would be coming for an inspection, Robison said he would send out advanced notifications by e-mail to alert both personnel and patients, as well as to warn them of possible loud noise associated with testing.

He would then have to figure out how to ensure that staff and patients were out of the rooms at specific times – a process that often required some creativity.

"One of the things I would try to do is schedule inspections for mealtimes, when the entire unit would be in the dining room," said Robison.

Aspirating Technology

In smoke detection, more advanced

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technologies that provide earlier warning detection exist. These systems work by aspirating – or drawing in air – from each room through small, flexible tubing. The air is then analyzed to identify the presence of minute smoke particles in a continuous process.

For almost 40 years, aspirating smoke detectors (ASD) have been used for the most sensitive applications where early detection of smoke or gas is critical, such as in cleanrooms, data centers and telecom facilities.

Among the pioneers in ASD technology was the VESDA (Very Early Smoke Detection Apparatus) system first introduced in the early 1980s by Xtralis. The technology has evolved to offer a system that combines the reliability and early detection of VESDA with addressability in each room.

The system, called the VESDA-E VEA, consists of small, flexible tubes that draw air through small, unobtrusive sample points in each room. The air is analyzed using sophisticated laser-based technology at the central unit located within 300 feet.

As a multi-channel, addressable system, the VEA central unit can pinpoint the location of the alarm. A single system sup-

ports up to 40 sample points and can be extended to 120.

For Robison, the addressability of the system had great appeal. He says the VEA system was installed after it was specified by a consulting engineering firm during construction of a new building at the site in November of 2016.

"I like how, if a smoke detector goes off in room 401, it tells you there is issue in room 401," he said. "I don't have to go through the entire unit, checking every one until I finally come across it."

The system is also sophisticated enough to allow for three levels of sensitivity to differentiate a fire from a patient smoking in a room, for example. This further minimizes disruption by reducing false alarms.

Even with these benefits, one of the primary advantages of an aspirating smoke detector system is its ease of maintenance, inspection and servicing.

In compliance with NFPA 72 Chapter 14 requirements, systems like VEA do not require the contractor to enter each room. Instead, servicing and testing can be performed at the central unit and only takes a few seconds per sample point. In this way, the fire alarm contractor can complete the

inspection at any time without having to move patients or access restricted areas.

By some estimates, this can greatly reduce maintenance and inspection costs and reduce the total cost of ownership of the fire alarm system by up to 60 percent.

Finally, since the VEA sample points are much smaller than regular smoke detectors, they appear less obtrusive. They can also be placed where spot smoke detectors would be difficult to reach, such as high ceilings, in restricted areas, or where new electrical wiring installation would be costly.

Sampling points can even be fully concealed, for instance behind ventilation covers or within fixtures, eliminating any hygiene issues.

Because of the ease of installation, maintenance, inspection and servicing and the reduction in a smoke detection system's total cost of ownership, aspirating smoke detectors are an excellent alternative to spot smoke detectors. The added benefit of minimal disruption to patients and personnel make them a perfect choice for healthcare facilities. **BSM**

For more information, go to www.xtralis.com/vea; call 619-252-2015; or email Sales@xtralis.com.

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