



Case Study: University Housing

NEW, ADVANCED FIRE DETECTION

The life safety industry is in the midst of one of the biggest changes in its history due to new UL standards governing smoke detectors. Published in 2016, UL 268—Standard for Smoke Detector Systems, 7th edition, as well as UL 217—Standard for Smoke Alarms, 8th edition, will take fire detection to advanced levels that will result in faster detection with fewer nuisance alarms, designed to help save more lives. The significant revisions to UL 268 incorporate three new test methods, including a new cooking nuisance alarm test and two polyurethane foam tests for smoldering and flaming fires. All UL-certified smoke detectors are required to meet the enhanced requirements by June 30, 2024.



Edwards Signature Optica Detector

LEADING THE WAY

In September 2018, Edwards became the first multi-criteria smoke detector manufacturer to receive certification to the UL standard for Fire Alarm Systems UL 268, 7th edition. Its new Signature Optica smoke detectors are able to distinguish between different types of fires, enhancing the protection of people and property, while reducing the number of false alarms that cause business interruption and unnecessary responses by fire departments.

RELATED CASE STUDY

SITUATION

A large public research university in New Jersey experienced frequent nuisance fire alarms within a multi-student housing complex that were an on-going disruption and concern. The housing complex, constructed in 2004, consists of over 100 apartments, with 3 floors per unit.

Franklin Alarm Company Inc., located in Franklinville, New Jersey, has had the pleasure of working with and serving the university campus for 27 years. They helped the university research and find a potential solution to their frequent nuisance alarms—new Edwards Signature Optica detectors.

ANALYSIS

Nuisance fire alarms, most often due to cooking, were a weekly, if not daily, occurrence within the housing complex. From September 2018 through April 2019, there were more than 60 nuisance fire alarms, as can be seen in the table below.

MONTH	NUMBER OF ALARMS
September 2018	20
October 2018	8
November 2018	16
December 2018	7
January 2019	—
February 2019	—
March 2019	5
April 2019 (through 4/9)	7

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Whenever an alarm sounded, the entire student housing unit needed to evacuate and remain displaced until the local fire department arrived, investigated and restored the system. These nuisance alarms disrupted the tenants, and disciplinary actions were taken if a tenant did not evacuate from an adjoining unit during an alarm. An accident or injury during a false alarm evacuation could have presented a liability issue.

SOLUTION

In an effort to reduce the rate, frequency and number of nuisance or false alarms, the university contracted with Franklin Alarms to install over 100 new Edwards Signature SIGA-OSD Optica smoke detectors in the housing complex. They were installed over the course of two days in April 2019 on the first floor of the complex. According to Joe Petsch, president of Franklin Alarms, installation went smoothly and only labor was required to replace the existing smoke detectors with the Signature Optica smoke detectors. The installation was not disruptive to the tenants, and no system hardware or programming changes were required.

RESULTS

Per Franklin Alarms, results to date have exceeded expectations, reducing the number of related false alarms to zero for Optica units that were installed in over 100 apartment units that had been experiencing weekly and/or daily nuisance alarms. There were no cooking or other nuisance alarms reported for the Optica detectors between April 10, 2019 (the first day of the Signature Optica installation) and November 1, 2019.

One nuisance cooking alarm was reported post-installation by an older detector on the second floor (as referenced in the table below). However, the newly installed Optica detector adhered to its advanced technological design—discriminating against that specific smoke signature—and did not sound. An older device on the second floor without the capability to differentiate between smoke signatures sounded, thus resulting in the false alarm.

MONTH	NUMBER OF ALARMS
April 2019 (4/10–4/30)	1*
May 2019	0
September 2019	0
October 2019	0

*One alarm was reported from an older detector on the 2nd floor that was not replaced

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Proper function was further confirmed by Edwards personnel, who analyzed stored data information from five Optica units installed at the housing complex. Analysis showed frequent nuisance events in which the old detectors would have sounded alarms, whereas the new Optica detectors responded accordingly by not alarming. The five Optica detectors were then re-installed and subjected to a UL-listed aerosol smoke test in which a non-nuisance smoke event was detected and all of the Optica detectors went into alarm as required.

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