Specialized Underwriting & Risk Evaluation

RISK MANAGEMENT ALERT

Sure Schools

SCHOOL RISK MANAGEMENT ADVISORY

Utica National Insurance Loss Control Department Bulletin

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Delays in Fire Detection & Fire Department Notification Spell Disaster in Schools

BACKGROUND: Your buildings can be subject to a serious fire at any time,but records show that serious fires happen most often after the building is closed and is unoccupied. During this time, a small fire can start and grow undetected until it becomes an uncontrolled menace that spells disaster for your school.

The solution lies in providing a system to monitor the fire safety of your buildings at all times and in notifying the fire department automatically when trouble is detected.

An alarm system can be provided in your school at a relatively low cost. The system can be used to detect a fire, sound an evacuation alarm, shut down ventilation equipment, activate fire-extinguishing systems, and notify the fire department.

Basic components of an alarm system include:

- Control panel
- Signalling devices
- Auxiliary devices
- Alarm-initiating devices
- Power sources

Alarm-initiating devices are the sensors of the system and are very important. The devices may be manually activated, such as the hallway pull-box stations, or they may monitor products of combustion given off by all fires. Most commonly used are heat and smoke detectors.

There are different types of these two basic detectors; they all offer advantages. It should be kept in mind that smoke-detection devices tend to be more sensitive while heat detectors may be slower to react but tend to generate fewer false alarm signals. Where life safety situations are concerned, such as exist in assembly areas, etc., smoke detectors are preferred, while in other areas heat detection is suitable.

The system should cover all parts of the building to be effective.

Notifying the fire department is of critical importance. The early detection of a fire is of little value unless action is taken to suppress the fire. If a fire is undetected until it gets large enough to be visible from outside a school building, the chances of successful extinguishment are very slim.

There are various ways of achieving fire department notification with alarm systems. Most commonly, the school is directly connected to the local fire station using equipment designed for that purpose, which sounds an alarm or notifies a dispatching center.

Other methods include use of a central-station alarm company, automatic telephone dialer, or digital communication. You should select a reliable method that is acceptable to local fire department officials.

All of the components in a fire detection and alarm system should be listed by a nationally recognized testing laboratory such as Underwriters' Laboratories, Inc. (UL, Inc.) or Factory Mutual (FM) to assure reliability.

Alarm systems should be inspected and maintained according to manufacturers' recommendations and in compliance with the standards of the National Fire Protection Association.

LOCAL-ALARM SYSTEM

A local-alarm system is a combination of alarm components designed to detect a fire and to transmit an alarm on the immediate premises. The purpose of a local-alarm system is to alert the occupants and ensure their life safety.

Products-of-combustion detectors include the group of devices generally called fire detectors. Their operation is designed to occur when one of the four major groups of detectable products of combustion occur.

A pull-box is an electrical switch set in a frame in such a manner that when the box is pulled the switch opens or closes.

REMOTE AND AUXILIARY ALARM SYSTEMS

Although the main purpose of municipal fire alarm systems is to allow the public to notify the fire department of an incident, alarm systems may be connected to a fire department either by direct lines or through the municipal fire alarm system.

PROPRIETARY-ALARM SYSTEM

A proprietary-alarm system is widely used in large commercial or industrial occupancies.

Signals transmitted over a proprietary system are received and automatically and permanently recorded at a constantly attended proprietary supervising station located either at the protected premises or at another location of the property owner. In very simplistic terms, a proprietary system is similar to a central-station system, but with the supervising station owned and operated by the property owner and located at the protected premises or another location of the property owner.

CENTRAL–STATION ALARM SYSTEM

Central-station systems monitor and receive alarms that are then re-transmitted to a local fire department. These systems are usually operated by commercial companies that provide automatic detection and alarm service to many customers. Generally, there is a monthly fee associated with this type of monitor.

PRIMARY & SECONDARY SCHOOL FIRES

Elementary school fire

At 3:15 a.m., a signal was received by the school's central station alarm service from a fire alarm system in the elementary school. The volunteer fire department was alerted and responded to find a fire in the basement storage area ignited by an electrical short circuit in a sump pump. The fire was extinguished quickly, and the loss was less than $1,000. The school was able to open the following morning with no interruption to classes.

High school fire

At a high school insured by Utica National, two students became disgruntled with the administration and ignited a Christmas tree located on the stage in the auditorium. Although the fire was detected fairly quickly, it had escalated sufficiently to cause severe smoke and heat damage to the auditorium, resulting in a loss of about $1.5 million.

An older school building with a newer addition containing various classrooms…

This fire occurred at an older school building with a more recent addition containing various classrooms. A fire occurred as a result of the malfunction of an electrical device (chick hatchery) located in one of the classrooms. The fire remained relatively small and was confined to just the classroom. Smoke detectors in a corridor outside the classroom detected the fire and activated smoke doors, which closed to isolate the fire area from the rest of the building. Loss was limited to $20,000; it could easily have been several million.

Elementary school fire

Compare the above loss to a fire in a suburban elementary school. This fire also started in a classroom in the middle of the night, but because there were no smoke detectors nearby it spread and caused damage — estimated at over $100,000 — to the rest of the building. This loss could have been limited if the 1960s-era building had contained smoke detectors (connected to a central station alarm) in the hall and smoke doors to isolate the building into sections.

High school fire

In this case, a fire started in an addition constructed adjacent to the school and spread heat and smoke to the main school's ventilation intake. The fire occurred at approximately 2:00 a.m. and went unnoticed by nearby neighbors and passersby until it had burned through the roof of the addition. The ventilation system carried the smoke throughout the main school building. This happened because the ventilation system lacked the recommended smoke detectors within the ductwork designed to shut down the system under such conditions. Hallway smoke detection devices eventually detected the fire and sent an alarm to the local fire department. The loss exceeded $3 million in smoke damage, and the school was closed for several months for cleaning and repainting. The loss associated with the original building fire in the addition was less than $100,000.

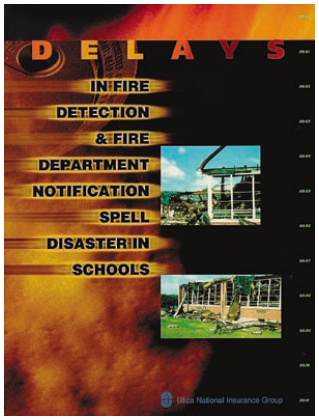
College dormitory fire

A fire ignited in a large plastic trash container located in a laundry room on the first floor of a dormitory building occupied by approximately 300 students sometime after midnight. Campus security officers responded first and fought the fire for five minutes. They then called the city fire department, which arrived six minutes later (or 11 minutes after the fire was first detected). The building, built in the mid-1970s, was a wooden-roof structure. The fire had gutted the first- floor laundry room, and damage due to smoke and water extended into other areas. The loss originally was estimated at $275,000, but extra costs drove it up to $360,000.

The exact cause of the fire was never determined, but it is suspected that a carelessly discarded cigarette may have initiated it. Hallway smoke detectors operated quickly and activated the building's fire alarm system and sent a signal to the campus security force. The security officer responded to the location prior to the fire department being notified. The delay in notifying the fire department resulted in smoke damage on all levels of the four-story building. All occupants escaped safely; however, it is likely that the fire loss would have been lessened had the fire department been notified when the alarm was received.

It is interesting to note that the same dormitory building experienced a second fire, similar to the above situation, nine months after the building had been repaired. This second incident also appears to have been caused by the careless disposal of a cigarette. The fire spread heavy smoke, generated by burning plastic, into the upper part of the building, which required extensive cleaning and repainting. This loss amounted to approximately $55,000.

Lastly, during the same time period as our two losses, there were three college students killed in a dormitory fire in the Southeast. This fire resulted in legislation requiring automatic sprinklers for all college dorms, regardless of age.



Utica National Insurance Group Publications containing this information and more are 5-B-7 (left) and 5-R-203 (right).