

Life safety in college residence halls (USA)

An early morning fire killed three and injured 62 in a university dormitory. One student was killed, 18 others injured in a residence hall fire started by smoke bombs...

Fire developed in a fraternity basement during the early morning hours after graduation celebrations; five of the six residents were killed, the other seriously injured...

From 1994 - 1998 there were an average of 1,600 fires per year in residence halls and housing sponsored by fraternity and sorority organizations (according to the NFPA). Some fires make national headlines, while others go unreported to the general public.

Surprisingly, fires of incendiary or suspicious origins accounted for 32 percent of all student housing fires, followed by cooking (19 percent) and smoking (12 percent). These statistics hold true in studies dating back to 1980.

The purpose of this document is to raise awareness of the potential for injury and loss of life in campus residence halls. It will also highlight effective controls and benefits that result from an integrated approach to managing life safety risks on campus.

Student safety is the highest of priorities for college administrators. Campus housing administrators are typically familiar with local and state codes. However, these codes may not fully recognize the elements of NFPA 101 *The Life Safety Code*. Local authorities may also give "grandfather" status to older facilities and not require life safety features to be brought to current codes. These situations often give administrators a false sense of security about the safety of residence facilities.

Fire protection and alarm systems

Automatic sprinkler systems are the single best defense against fire deaths and injuries. History indicates that a resident is one-half to two-thirds less likely to die in a fire when properly working sprinklers are in place. Additionally, the cost of installing sprinklers in a current building is reasonable and compares to the cost of carpeting with an average cost of \$2.50-\$3.50 per square foot.

Smoke alarms are also critical to protecting lives. Smoke alarms powered by the building's electrical system ("hard-wired") are far more reliable than battery operated units. In fact, battery powered alarms are **not** recognized by NFPA 101, *The Life Safety Code*, as being acceptable for residence halls. Residence halls should be equipped with smoke alarms in each sleeping room, and in all common areas. Single-station alarms are acceptable in sleeping rooms and do not need to activate the building's fire alarm system, but detectors in common areas should activate the fire alarm.

The combination of automatic sprinklers and hardwired smoke alarms are critical to residents' safety. Smoke alarms create urgency; sprinkler systems "buy time," allowing more time for the safe escape of those in the building. Ideally, these systems should also be monitored by an outside security company, or "central station", or by a 24/7 occupied location on campus, such as a Fire or Police Department.

In addition to sprinklers and smoke alarms, building features that are needed for the protection of life in residence halls are outlined in NFPA 101, *The Life Safety Code*. Several features are listed below:

- Protected means of exit
- Self-closing, fire-rated doors on sleeping rooms
- Automatic fire alarms and manual pull stations
- Emergency lighting and audible/ visual alarms throughout the facility

- Emergency evacuation diagrams in rooms and in common areas

Requirements for Greek housing may vary slightly based on the building construction features and the number of occupants. However, automatic sprinklers, fire alarm systems and hard-wired smoke alarms should ultimately be considered for all student housing facilities.

Causes

- Purposefully set fires (categorized as arson, incendiary, suspicious in nature) are the most common cause of fires in college housing.
- Cooking - fires both originate in centrally located kitchens, and in sleeping rooms.
- Smoking - improperly extinguished cigarettes often ignite trash can contents and room furnishings when residents fall asleep or leave the room.
- Candles - fires started by candles have increased in recent years due to their increasing popularity and availability.
- Electrical - fires most often result from the use of extension cords and power splitters, and may also result from the use of certain lamps, such as torch lamps with halogen bulbs.

Fuel sources are also prevalent, and are often unchecked. Highly combustible, upholstered furniture has been involved in many serious fires, as it burns very quickly and produces large amounts of smoke. Draperies, hanging decorations and trash are also common sources of fuel that ignite easily and spread fire quickly.

Prevention

Most of us do not fully realize the speed with which fire can travel through living quarters. Accidental fires can produce deadly conditions in less than three minutes. Incendiary fires can spread even faster. Recognizing and reducing potential fire sources is an important first step in providing fire safe student housing.

Steps that can be taken to minimize the potential for fire in residence halls, fraternity and sorority houses include:

- Common sense security measures can help reduce potential for arson fires. In addition, recent studies indicate a strong correlation between drinking and arson fires on college campuses. This is just one of many reasons that alcohol should be prohibited, or strongly regulated, on campus and at off-campus functions.
- Fire safety rules that address the most common causes of fire, such as prohibiting smoking, disabling of fire protection equipment, use of candles and heated cooking equipment, and the use of multi-outlet AC adapters.
- Control of furnishings is important so that combustible decorations are minimized. Upholstered furnishings should be made of fire retardant materials and designed for commercial use.
- Frequent, documented facility inspections that reinforce resident compliance with fire prevention rules.
- Enforcement of fire prevention rules with defined sanctions that are applied for rule violations. Disciplinary policies should be clear regarding prohibited activities, destruction of fire protection equipment, discharge of extinguishers and other applicable fire safety rules.

Awareness

It is essential to address occupant behaviors that cause fires. In addition to holding residents accountable for maintaining a safe living environment, awareness of potential severity of fires is also needed. Resident advisors should receive training in fire safety, inspection procedures, emergency procedures and the specific features of the fire protection systems in the building. Require residents to attend a fire safety orientation at the beginning of

each semester that focuses on fire prevention regulations and accountabilities, and emergency procedures for the residence hall. Participation in fire drills should also be a requirement for all residents. Floor diagrams placed in each room and in hallways serve as a good reminder of emergency procedures. Many colleges are also publishing emergency procedures on internal websites that can be accessed by students.

Other considerations

Inspection, testing and maintenance of sprinkler systems, alarm systems, emergency lighting and fire doors must be in place on a preventive basis to ensure systems work when needed.

Summer programs that target high school and junior high students often provide lodging in campus residence halls. These younger students are more likely to become disoriented during a fire because surroundings are unfamiliar. Each new group should be required to attend an orientation session, and to participate in an evacuation drill during the first 24 hours on campus.

Impacts

An integrated approach to residence hall life safety has obvious and very important benefits for the protection of students. There are also important legal and business impacts that should be considered in the development of life safety programs.

Legal impacts

Colleges and universities have a strict obligation to provide safe student housing. Additionally, recent legal cases have held colleges partially liable for Greek organizations' failure to meet basic life safety standards.

Currently, there are proposed amendments to the Campus Right to Know Act that will require colleges to include information on fire protection features, emergency drills and fire incidents occurring in residence halls.

Business impacts

Life safety features are beginning to impact enrollment decisions. Parents are increasingly aware of publicized fires on campuses across the country, and are educating themselves prior to making college commitments. There are also websites devoted to the education of parents and students that highlight residence hall fires and protective measures.

Automatic sprinklers and monitored smoke detection can also help minimize building damage, thus reducing the cost and inconvenience of student displacement after a fire event.

Conclusions

The development of an integrated approach to life safety in residence halls and Greek housing is crucial to the protection of life and prevention of injury. Risks are minimized by the presence of automatic sprinklers, automatic smoke alarms and other features outlined in the NFPA 101. The implementation of strong fire prevention procedures and awareness efforts can also significantly reduce risks.

The decision to provide the safest possible residence facilities can result in benefits that ultimately improve enrollment, and reduce the risk of loss and liability.

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