



AMERICAN SOCIETY OF SAFETY ENGINEERS

On/Off-Campus Fires: Statistics and Causes

July 2005-1

In an effort to reduce the incidence of on and off-campus fires, the American Society of Safety Engineers' (ASSE) Fire Protection Branch is providing key safety tips and resources for students and parents. Founded in 1911, ASSE is committed to protecting people, property and the environment. ASSE encourages students to work with their student organizations and their college administration to promote fire safety.

Statistics

- Each year, about 1,700 fires occur in collegiate housing – on and off campus(1) and about 150 fires occur each year in fraternity/sorority houses (Greek)(2).
- Average Greek housing property loss is \$580,000 per fire(3).
- The leading causes of fires in dormitories are reported as 1) arson, 2) cooking and 3) smoking(4).
- In 2001, the academic year with the most fatal fires between '00 and '05, there were 2,530 reported fires in dormitory properties causing six deaths, 82 injuries and \$48.5 million in estimated direct property damage(5).
- 33 percent of dormitory fires are the result of arson(4).
- Between 1999-2001, the leading area of origin for dormitory property structure fires was the kitchen (39 percent). Another 22 percent started in the bedroom; nine percent began in a hallway or corridor(5).
- 56 percent of injuries from dormitory fires occur when victims attempt to suppress the fire(4).
- Smoke alarms operated in 79 percent of dormitory fires. However, many times, the alarms are ignored by students who believe them to be false alarms(4).
- Approximately one-half of those who die in student housing fires have high blood alcohol count (BAC) values, a finding that is consistent with the disproportionate number of deaths that occur in house fires on weekends, when people tend to consume more alcohol, according to the U.S. Department of Health and Human Services Report titled 'Alcohol and Health'.

Causes (1999 – 2001)

- Arson is also the leading cause of Greek house fires(2) with open flames being the second leading cause.
- According to the U.S. Department of Health and Human Services' 'Alcohol and Health' report about half the adults who die in residential fires have high blood alcohol counts and that alcoholic burn victims had a mortality rate three times that of nonalcoholic victims. Drinking alcohol increases the chance of falling asleep while smoking in bed and greatly reduces one's ability to detect and respond to a fire and safely escape, the report notes. The U.S. Fire Administration's Fire Safety 101 fact sheet from March 1999 notes, "In cases where fire fatalities occurred on college campuses, alcohol was a factor."
- January, May, September and October are the peak months for fires in Greek houses, due in part to graduation parties and rush events. Most dormitory fires occur while school is in session(3).
- Evacuation efforts can be hindered since fire alarms are often ignored, and, vandalized and improperly maintained smoke alarms and fire alarm systems inhibit early detection of fires(6).

Resources:

- 1) *U.S. Fire Administration/FEMA 'Living with Fire' College Fire Survival 101 lists resource as NFPA International*
- 2) *U.S. Fire Administration/FEMA Topical Fire Research Series – March 2002 'Fraternity and Sorority House Fires*
- 3) *National Fire Sprinkler Association, B. Dewar's 'Fraternity and Sorority House Fire Safety' power point, attributed number to NFPA.*
- 4) *U.S. Fire Administration/FEMA Topical Fire Research Series, December 2001, 'Dormitory Fires'*
- 5) *National Fire Protection Association*
- 6) *U.S. Fire Administration's Fire Safety 101 fact sheet, March 1999*

For more information or copies please go to www.asse.org/newsroom or customer service at 847-699-2929 of customerservice@asse.org.



American society of safety engineers

How to Prevent On/Off-Campus Fires

July 2005-2

ASSE Fire Protection Branch suggested tips and suggestions to prevent fires while living in dormitories, off-campus housing and Greek houses.

- Students who live on-campus should always check with the residence life or safety department for policies related to fire prevention. Most residence life policies prohibit the use of candles, space heaters, torchiere halogen lamps or halogen bulbs; open heating elements and unapproved cooking appliances. Also, colleges/universities usually have procedures in place for residence halls evacuation and, often, for Greek housing that is college owned and/or managed.

Dormitories

- Keep stoves, hot plates and other cooking appliances out of the room.
- Do not have flammable and/or toxic materials in the rooms, such as lighter fluid.
- Open flames such as candles and incense should not be permitted in rooms.
- Smoking should not be allowed in the building.
- Do not put aluminum foil in the microwave.

Off-campus/Greek housing

- Extinguish candles and incense when leaving rooms.
- Keep combustible materials such as clothes, curtains, paper, books, etc. at least three feet away from heaters.
- If using a space heater, make sure to keep a three-foot clearance in all directions from the space heater and only use one that is Underwriters Laboratories, Inc. (UL) approved.
- Check smoke alarms regularly. Change batteries after each quarter.
- Develop and practice your fire escape plans with roommates or neighbors. Set up a post-fire meeting place.
- Keep barbecue grills away from the building.
- Never leave cooking food unattended.
- Learn how to use a fire extinguisher.
- Post emergency numbers such as 911 and the college emergency number on or near the phones.
- Avoid hanging combustible materials such as blankets, drapes, rugs, etc., on the walls, over beds, in hallways or on ceilings.

- Use artificial trees for the holiday season.
- Keep exterior fire escape doors unlocked, closed and accessible at all times.
- Arrange furniture to provide a clear way to the exit ways.
- Know the exit ways nearest you well enough so that if a fire hits, you will know how far you must go to escape.
- Practice fire drills regularly and learn to use the fire safety equipment.
- Place smoking materials in a non-combustible container. Do not place in plastic cups or other combustible containers.
- Inspect furniture for discarded smoking material after all parties.

Electrical Safety

- Replace or repair loose or frayed cords on all electrical devices.
- Use power strips with breaker protection. Each power strip must be plugged in directly in a wall outlet and not piggybacked with another power strip or extension cord. Do not place cords under carpet or rugs.
- Never use multi-plug extension cords or adapters. These are for temporary residential use only and should not be used in a dorm.
- Keep paper, books and boxes away from computers and electrical cords.
- If outlets or switches feel warm, have them checked by an electrician.
- Place lamps on level surfaces, away from things that can burn and use bulbs that match the lamp's recommended wattage.

Sources include the National Fire Protection Association, www.nfpa.org; Northwestern University, www.northwestern.edu; Western Washington University, www.wvu.edu; and U.S. Fire Administration, www.usfa.fema.gov. For more information or copies, please go to www.asse.org/newsroom or contact Diane Hurns at dhurns@asse.org, Rennie Heath at rheath@asse.org or customer service at 847-699-2929, customerservice@asse.org.



AMERICAN SOCIETY OF SAFETY ENGINEERS

Fire Escape Planning: What to Do In Case of a Fire

July 2005-3

Survival is top priority. Every second counts when a fire occurs and escape plans can help save lives if planned effectively. The ASSE Fire Protection Branch suggests these fire escape planning tips for those living in a dormitory, Greek and off-campus housing.

- Students who live on-campus should always check with the residence life department for policies related to fire prevention. Most residence life policies prohibit the use of candles, space heaters, torchiere halogen lamps or halogen bulbs; open heating elements and unapproved cooking appliances. Also, colleges/universities usually have procedures in place for residence halls evacuation and for Greek housing that is college owned and/or managed. In addition to calling 911 during an emergency, also know your college/university emergency phone number and keep it posted near the phone.

How to develop a fire escape plan:

- Draw a floor plan of your apartment and floor.
- List all possible exits.
- Show two possible exits of the room.
- Note any people who need assistance. This includes those with disabilities.
- Choose a meeting place outside the building
- And note to call the fire department and the college emergency office once outside the building.

When there's a fire:

- If your clothes catch on fire, cover your face with your hands, drop to the ground and roll over the flames — stop, drop and roll.
- Warn anyone near your area immediately about the fire.
- Never ignore fire alarms. Exit immediately.
- Before you open a door, feel the top of the door with the back of your hand. Do not open the door if it is hot.
- If the door is hot:

*Go to the window and call for help. Or, grab a light-colored material and wave it out the window to attract attention.

*Place a blanket or clothing at the bottom of the door to keep the smoke out of the room. Use a wet towel if possible.

- If possible, close all doors as you leave the building. This will delay the fire from spreading.
- Use the stairway to exit. Do not use elevators.
- Leave personal items behind.
- Knock on other room doors as you leave the building to alert others and urge them to get out.
- If smoke is present, crawl or remain low to avoid smoke.
- Take short breaths to avoid inhaling smoke, which can be deadly.
- Call 911 and the university police after you leave the building.
- Don't panic, stay calm.

For the Disabled:

- It is important to have a buddy system—a friend near your room or apartment to help in case of an emergency.
- Identify your primary and alternative exit routes and ramps of the building. Consult the owner or residential adviser for exit plans.
- If a buddy is not present and all exits have been blocked, stay calm and grab a light-colored material and wave it out the window to attract attention.

Sources include the National Fire Protection Association, www.nfpa.org; Northwestern University, www.northwestern.edu; Western Washington University, www.wvu.edu; University of Illinois, www.uiuc.edu; The Fire Safe Council, www.firesafecouncil.org; and U.S. Fire Administration, www.usfa.fema.gov. For more information or copies, please go to www.asse.org/newsroom or contact Diane Hurns at dhurns@asse.org, Rennie Heath at rheath@asse.org or customer service at customerservice@asse.org or 847-699-2929.



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Fire Safety Equipment for Off-Campus and Greek Housing

July 2005-4

The ASSE Fire Protection Branch suggests having and knowing how to use the following fire safety equipment. For off-campus housing make sure fire prevention equipment such as smoke alarms, kitchen fire extinguishers, accessible exits, etc. are available before signing a rental agreement, and ask the landlord whether fire code inspections are done by the town or the city.

Fire Escape Ladder: For two-story residences, this ladder offers another escape route if the planned route has been blocked due to the fire. It should be stored somewhere close to a window on the second floor for easy access, such as under the bed. One should practice setting it up and using it before an emergency occurs.

Fire Extinguisher: When using a fire extinguisher, people often refer to the P.A.S.S. method-- pull, aim, squeeze and sweep.

- **Pull** the pin. Hold the extinguisher with the nozzle pointing away from you, and release the locking mechanism.
- **Aim** the extinguisher at the base of the fire.
- **Squeeze** the lever/trigger slowly and evenly.
- **Sweep** the extinguisher from side-to-side, covering the area of the fire.

It is important to read all the instructions on a fire extinguisher before a fire occurs and to also have one installed in the cooking area.

Fire Extinguisher Ratings: Each extinguisher has a rating, located on the canister, that explains what type of fire it's suitable for. Here are the ratings

- Class A: This is suitable for small fires involving wood, paper, cloth, rubber and some plastics
- Class B: For small fire involving oil, gasoline, kerosene, and other flammable liquids.
- Class C: For small fires involving electrical equipment.

It is important to check the pressure of the fire extinguisher. Make sure the arrow points to the full section of the canister. If the extinguisher has a green pressure check button, press the button and if it pops back up, your fire extinguisher has adequate pressure.

Smoke Alarms: Tips to Maintain a Working Smoke Alarm

- Test your alarm to see if it is working properly.
- Change batteries every quarter.
- Do not borrow the smoke alarm batteries for other use.
- Do not hit or disable the smoke alarm if it starts to sound due to unrelated fire smoke, such as steam or cooking fumes. Instead, wave the smoke away from the alarm with a piece of cloth or towel until the alarm stops.
- Smoke detectors/alarms should be placed in each sleeping area, adjacent to sleeping areas, the cooking area and on every level of the residence.

- When purchasing a smoke detector, purchase a combination detector -- should be both an ionization and photoelectric type -- and be UL-approved.

Fire Detection Alarms

Automatic fire detection systems can significantly reduce property damage, personal injuries, and loss of life from fire in the workplace. Their main function is to quickly identify a developing fire and alert building occupants and emergency response personnel before extensive damage occurs. Automatic fire detection systems do this by using electronic sensors to detect the smoke, heat, or flames from a fire and providing an early warning.

Heat Detectors:

This is ideal for areas where flammable gasses and liquids are handled or any area where a fire will quickly cause a large change in the surrounding temperature. Heat detectors are also suitable for:

- * Dirty, dusty or smoky environments.
- * Indoor areas without winds or drafts that can prevent heat from reaching the detector.
- * Areas where combustible materials are normally present, such as in kitchens, furnace rooms, utility rooms, and garages or where ovens, burners or vehicle exhaust gases are present.

Sources include the First Alert, www.firstalert.com; the Occupational Safety and Health Administration, www.osha.gov; and U.S. Fire Administration, www.usfa.fema.gov. For more information or copies please contact customer service at customerservice@asse.org or 847-699-2929.



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Parents Guide to Fire Safety: what you need to know when your child leaves home for college

July 2005-6

When a child heads for college, the parents and the child should be armed with information on fire prevention and become familiar with the fire safety program and protection features of the buildings they will occupy. This information will save lives and prevent injuries. The following is a guide to the questions you should ask when moving into on-campus housing or to an off-campus rental property.

When considering moving to on-campus housing, ask and get answers to these questions:

1. What type of fire safety program does the college or university have?
2. What type of fire and life safety training is conducted for students? When and how often?
3. How often are fire drills conducted?
4. What type of training has the resident hall staff received in fire safety?
5. Are the rooms inspected on a regular basis for fire hazards?
6. Are halogen lamps, candles and other hazardous equipment and materials prohibited?
7. Does the building have fire protection and life safety systems and features required by applicable codes, such as a fire alarm system, fire doors and exit signs? Are they maintained on a regular basis?
8. Are there smoke detectors in individual rooms?
9. Does the fire alarm system notify the fire department or campus security? If not, how are fires discovered?
10. How do students make notification of a fire?
11. Do your residence halls have sprinklers? If not, what are the provisions to extinguish fires?
12. How many fires occurred on campus last year?

Walk and talk your child through the following:

1. Learn the procedures to follow in case of a fire including location of exits, fire alarm pull stations, proper evacuation techniques, the importance of not re-entering a building until instructed to do so and how to report an emergency.
2. Learn how the building fire protection-systems and features work, and, the impact of tampering with them.
3. Understand the impact of alcohol and drugs in causing fires and preventing one's ability to detect and safely escape.
4. Understand that setting fires under any circumstances can be considered arson, can result in death and will carry severe penalties.
5. Recognize the hazards of smoking, using candles and incense, cooking in unapproved locations or without proper precautions and overburdening electrical outlets and extension cords. Talk with your children about how they can reduce these hazards by practicing safe behaviors.

Off-campus housing: some questions to ask before you sign a rental agreement

1. Are smoke alarms installed and working?
2. How often are the smoke alarms checked and batteries changed?
3. Are there at least two ways to exit the living space and the building?
4. Are exits clearly marked where necessary and free from obstruction?
5. Do the upper floors have a fire escape or ladder available for each bedroom?
6. Are fire extinguishers available and working?
7. Is there a sprinkler system installed?
8. Is the electrical wiring adequate? What is the electrical panel rated (200 amps or above)?
9. Are there ground fault interrupters (GFIs) in the bathroom and kitchen?
10. Do the windows easily open?
11. If the windows are secured with security bars, is there a quick release from the inside?
12. If there are dead bolt locks on doors, can they be opened without a key?
13. Is the building regularly inspected by the local fire department or college safety, health and environmental or emergency management office?
14. What is the owner's policy and method for correcting safety problems in the building?
15. Has there ever been a fire in this building? If so, identify the cause.
16. Request a walk through of the appliances so the student knows how to properly use them.
17. Where is the nearest fire hydrant on the street? Who is responsible for keeping it cleared in the winter?
18. Did the school recommend the housing for students?
19. Is the owner a member in good standing in a landlord/tenant association or other housing association?
20. Has the city and/or college or university received any safety complaints regarding this building?

For more information, please go to www.asse.org/newsroom or contact Diane Hurns at dhurns@asse.org, Rennie Heath at rheath@asse.org, ASSE customer service at customerservice@asse.org or 847-699-2929 or contact the American Burn Association at www.ameriburn.org.



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On/Off-Campus Fires: Key Safety Resources

July 2005-7

The following are resources on fire safety and prevention. ASSE encourages students, parents and administrators to review the resources below to prevent future fires and tragedies.

- U.S. Fire Administration, www.usfa.fema.gov/safety/atrisk/campus , 301-447-1000 -- for facts, PowerPoint presentations and more.
- U.S. Occupational Safety and Health Administration (OSHA), www.osha.gov, 1-800-321-OSHA.
- Fire Safety, www.firesafety.gov , 301-447-1000 – a resource for eliminating residential fire deaths.
- The National Association of State Fire Marshals, www.firemarshals.org , 877-996-2736-- handle fire safety code adoption and enforcement, fire and arson investigation, public fire protection education and more.
- Underwriters Laboratories, Inc., www.ul.com , 847-272-8800.
- Fire Safety and Directory, www.firesafe.com -- contains national and international fire protection information links.
- Fire Safe Council, www.firesafecouncil.org .
- American Society of Safety Engineers, www.asse.org, 847-699-2929.
- For a list of states with retrofit sprinkler laws, please visit the National Fire Sprinkler Association website at <http://www.nfsa.org/info/retrofit.html>.
- The National Fire Protection Association, www.nfpa.org, 617-770-3000.

In addition, contact the campus safety, health and environmental department or the local fire department for important information about fire prevention. For more information or questions about fire safety on colleges/universities, please contact:

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