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Chapter 1 – Overview

A. The Need for Training

Of all fire fatalities, 84% occur in a residential setting. Sadly, because of apathy, poor planning, and alcohol, many college students have lost their lives in dormitory, off campus, and spring break condo fires that could have been prevented. In over 50% of college fire fatalities alcohol is cited as a contributing factor. Apathy and lack of training are other significant factors. Knowledge and training is the key to preventing students from becoming *statistics*.

College is very exciting for college students, and for most it is the first extended time spent away from the safety and security of home and family. With minimal or no supervision, students are governing themselves for the first time, face many new experiences, and have a lot on their mind. It's no big surprise that fire and burn safety doesn't get much attention. But, the knowledge and training necessary to fire and burn safety is essential, and is now readily available and easy to acquire.

The result is increased safety awareness, lower risk of fire-related injury, and fewer fire fatalities. The fact that your University has chosen to offer this program demonstrates its commitment to your safety!

B. Course Objectives

- Increase students fire-safety awareness through an effective web based training program.
- Teach students how to prevent fires and fire related injuries, and create a fire safe environment.
- Enable students to effectively create and use a fire plan.
- Teach students to react correctly when a fire occurs.
- Enable student proficiency in inspecting available fire-safety equipment.
- Survival.

CHAPTER 2 – POTENTIAL FIRE HAZARDS

Chapter Objective: Increase your safety profile by learning about the potential hazards in every room of your house, apartment, or residence hall.

Overview:

Fire prevention is the best way to reduce fire related loss of life and injury. In this section you will increase your safety profile by learning about the potential hazards in every room of your house, apartment, or dormitory. Report potential fire hazards to your landlord or resident assistant.

Review the items listed in this course every year, and each time you move into a new house, apartment, or dormitory. In addition to checking the items listed in this course, you should verify that your dwelling is compliant with your school's fire-safety policies. Your safety review is easy and thorough with NIFAST's fire-safety *checklist*. Just print it and use it.

Statistics

Each year in the U.S. millions of people are burned, 120,000 people are hospitalized for burn-related injuries, and an additional 12,000 people die from burn injuries. One person is *seriously* burned every 25 seconds.

Ninety percent of burns in residential settings occur in the kitchen; 66% of these injuries involve arm and hand burns.

Kitchen

Kitchen fires are the primary cause of residential fires. To help prevent kitchen fires in your residence, check the safety of these appliances:

1. **Stove** – Verify that there are no loose or frayed wires on the stove or the main plug of the stove. Confirm that the automatic timer is connected and operating correctly.
2. **Gas Burners** – The burners should light promptly, and burn completely. The flame around the entire burner should be of equal intensity and size. If the holes from which the gas is released are blocked, an explosion or a buildup of noxious fumes may occur. Never light the stove burners with a match!
3. **Electric Heating Elements** – Elements must be completely and firmly connected. Gently shake the burner when it is off and cold to verify the connection. If the heat rings are not completely connected they may present an arc of electrical current, represented by a visible spark, which may cause electrocution or burns. If any of the stove components are not in proper working order, report the situation to your landlord or RA immediately.
4. **Oven** – Check the oven and broiler for prompt lighting and complete combustion. Do not store cookware in the oven. Verify that the oven’s spill protectors, broiler, fan, light, and grease filter are clean and free of grease buildup; if they are not, remove all grease buildup immediately. Some ovens remain “on” after the cook timer sounds, while others shut off automatically. It is important to understand which type of oven you are using. Confirm that the duct work, the component that vents the oven smoke and heat, has been cleaned. Set up and adhere to an oven cleaning schedule.
5. **Microwave Ovens** – Verify that the unit is correctly connected and that its timing device and other electronic features are functioning correctly.
6. **Fire Extinguisher and Smoke Detector** – Confirm that there is a working smoke detector located in or near the kitchen (not situated to create nuisance alarms), and a suitable in-service fire extinguisher located at the kitchen entrance. Perform a monthly inspection on the smoke detector and fire extinguisher. For more details on these inspections, see Chapter 4.

Cooking Safety

Below are simple principles and rules for kitchen cooking safety. When cooking, follow these common-sense guidelines and practices to prevent kitchen fires, the leading cause of fires in residential settings:

1. **Stay Put – Never Leave Cooking Food Unattended** – The leading cause of kitchen fires is food left unattended while it is cooking. It only takes seconds for a cooking fire to start. Never leave the kitchen while food is cooking, even to perform a simple and speedy task like checking on laundry, or visiting the restroom. Whether frying, grilling, or broiling, stay in the kitchen and monitor cooking food. Always use a timer to remain aware of the fact that you are cooking. Never leave the residence while food is cooking. Stay in the *kitchen* when you are grilling, frying, or broiling foods, and remain in the *house* when you are boiling, microwaving, or baking.
2. **Stay Alert and Pay Attention** – You must stay alert to prevent cooking fires. Do not cook if you are sleepy or under the influence of medication, alcohol or drugs that impairs your judgment. Use cooking timers to remind yourself to check on cooking food frequently.

3. **If in Doubt, Get Out!** – This is the guiding principle in the event of a cooking fire. The critical two minutes, discussed in Chapter 5, are relevant here as well. When a fire erupts, you have just two minutes to decide on the best course of action, and to exit the building.
4. **Stove Top Fires** – If a stove-top fire occurs, cover the pan with a lid and turn off the burner – if it is safe to do so. Once done, do *not* remove the lid until the pan has completely cooled. If the fire is too big to cover with a lid, extinguish the fire by using a Class K or Class B rated fire extinguisher, or baking soda. Never use flour, water, or sugar-based products to extinguish a cooking fire; they may cause the fire to intensify violently and spread.
5. **Stoves and Ovens** – Use rear stove burners for cooking whenever possible, and turn pot and pan handles toward the stove’s center, to avoid knocking items off the stove. Use caution when opening oven and broiler doors; stand back from such doors to avoid steam burns. Never use an oven to heat food wrapped in paper or in a cardboard container (don’t put a pizza box in the oven).
6. **Oven or Broiler Fire** – If possible, immediately turn off the oven or broiler. You may also use a fire extinguisher or baking soda on an oven or broiler fire.
7. **Reaching Over Burned Areas** – Never reach over a burning or burned area, even after the fire is extinguished - fires can reignite unexpectedly. Always call the fire department even if you have extinguished the fire, regardless of how silly the circumstances under which the fire started may be. Do not be embarrassed or hesitant to call the fire department.
8. **Apparel** – Do not wear loose-fitting or long-sleeve clothing. Instead, wear short sleeves and snugly-fitting clothes. Always use pot holders or oven mitts when cooking. To prevent slipping, don’t wear shoes that slide easily on the floor surface, and don’t use area rugs in the kitchen, especially near the stove.
9. **Microwave Ovens** – Never put foil or metal objects in the microwave. When cooking in a microwave always use microwave-safe dishes, and use an oven mitt when removing dishes from the microwave. Allow food to cool for one minute before removing it from the microwave to avoid steam burns. Place hot dishes on hot pads safely away from table edges.
10. **Deep Fat Fryers** – Use extreme caution when using deep fat fryers. Wear oven mitts and always use long-handle tongs to gently place food in a deep fryer. The grease in a deep fryer may be as hot as 400° Fahrenheit or more. It takes just **one second** to get a 3rd degree burn from a grease splatter caused by dropping food into hot grease.
11. **Appliances** –
 - a. Confirm that there are plenty of outlets to accommodate the number of appliances you plan to use, without using extension cords.
 - b. Check for signs of smoke, or burned areas near every outlet – these may indicate short circuits have occurred in the outlet recently.
 - c. Check the electrical cord on each appliance; make sure there are no exposed wires near the cord plug or where the cord attaches to the appliance. The cord must be smooth with no indented areas – indentations indicate the cord has been crushed, and may have breaks in the wiring inside that are not visible. Never plug a kitchen appliance into an extension cord. This can create an electrical overload and lead to a fire.
12. **Cleaning and Maintenance** – Keep the surface area of the stove, the oven, and the broiler clean and free of grease. If you have a range hood, clean it regularly to eliminate fire-causing grease buildup. Periodically check appliance and cooking utensil handles and ensure they are secure. This reduces the risk of the “hot pot drop.”

13. **Appliance Cords** – Use appliances with short cords when possible. Keep cords from dangling over counter edges, becoming tangled, or being caught on other things. Unplug all appliances when not in use. These actions help prevent hot appliances from being pulled off the counter, and spilling hot foods and liquids.
14. **Storage** – Store all flammable materials, such as towels, pot holders, and food storage containers in cabinets, away from the stove, microwave, and all other heat producing devices.

Grilling Safety

While outdoor grills and grilling may *seem* harmless, they pose their own set of fire-safety risks. The following practices will minimize grilling hazards and risks.

1. Always use caution and follow the manufacturer’s operating instructions and grilling recommendations.
2. **Using Coals** – Use only commercial charcoal starting fluid to light charcoal; never use gasoline or other flammable liquids. Never add starting fluid to hot coals, since this may cause the coals to explode. Thoroughly extinguish hot coals before you dispose of them.
3. **Gas Grills** – Before each use, check all hoses for cracks, brittleness, leaks, and wear, and check all connections for looseness. Never try to repair a gas grill yourself, unless you have the requisite mechanical experience. If you smell gas do not use the grill - you should never smell gas when grilling. Follow the sequence below when lighting a gas grill to avoid creating a gas buildup inside the grill prior to ignition that could cause an explosion.
 - Open the grill lid.
 - Turn on the gas supply ½ turn.
 - Turn the ignition burner to high.
 - Push the igniter button.
 - Turn on the second burner if needed.
4. **Location** – All grills, charcoal or gas, must be used at least 15 feet away from any buildings. Never use grills in an enclosed space such as a garage; this could lead to an explosive situation or a carbon monoxide hazard. Keep matches, cigarettes, or any open flame away from a leaking gas grill.
5. **Propane Tanks** – After grilling, always remember to *turn the tank off*. Never store gas cans, or spare propane tanks near grills. When transporting tanks make sure they are upright, closed, and secure. Never keep a filled tank in a trunk or inside a car for a long period of time.

Electrical Safety

1. **Electrical** – Typical student living involves a variety of electrical hazards.
 - a. **Extension Cords** – [Note: Extension cords are not strip plugs.] Some universities, building owners or managers prohibit extension cords in student residences. Where permitted, extension cords typically must be at least 16 gauge and are for temporary use (for a maximum of 90 days) only. Spliced cords and octopuses are also usually prohibited. Never use extension cords as a permanent solution to a lack of electrical outlets.
 - b. **Power Strips** – [Note: Power Strips (aka strip plugs) are not extension cords.] Unlike extension cords, UL-listed power strips with built in circuit breakers *can* be used in most student housing (these are often called “surge protectors”). Only UL-listed power strips with built in

circuit breakers may be used to increase an outlet's number of plugs, but the surge protector must not be overloaded. *Do not* attach an extension cord to a power strip (surge protector), and don't use more than 2 power strips in any room.

- c. **Electrical Cords** – Never run any electrical cord under carpeting or through doorways; hidden from site, a cord's condition can degrade without notice. Regularly check all electrical cords on appliances and electronic equipment for indents, bare wiring, and damage. Never splice an electrical cord. Never staple wires or extension cords. Always secure the assistance of a certified electrician to repair damaged electrical cords.
- d. **GFCI's** – Ground fault circuit interrupters (explained in detail in Chapter 4) prevent shock and electrocution by detecting electrical shorts and killing power in 1/40 of a second. GFCIs are mandatory in bathrooms (where water and electrical devices are used in close proximity). Students must make sure their residence hall room, apartment, or house is equipped with GFCIs; if your building is not GFCI-equipped report this to the RA, facilities manager, or building owner. Where GFCIs are not built in, students should acquire and use portable GFCIs (see description in Chapter 4). Ask your RA, property manager or owner if the residence hall, apartment or house has (issues) portable GFCIs for use by residents.
- e. **Other Pointers** –
 - Look for the UL Mark on any electrical product you use (to ensure safe design).
 - Do not overload extension cords, power strips, or outlets.
 - Be wary of cords and electrical outlets that are too hot to touch.
 - Do not connect multiple extension cords together.
 - Use light bulbs with correct wattage for lamps.

General Safety

These useful general safety practices will also keep you fire safe.

1. Keep all flammables such as clothes, boxes, and trash bags a minimum of 3 feet away from heat producing devices.
2. Never move burning objects while they're burning, including candles and space heaters.
3. **Candles** – Burning candles creates a huge potential fire risk! *Do not* burn them in your bedroom. NIFAST strongly recommends that students **never** burn candles in on or off-campus dwellings. Before burning candles, students must verify their university's or property owner's candle-burning policy. For those who are permitted, and chose, to burn candles in on-or-off-campus housing, NIFAST recommends these essential safe candle-burning practices and preventive measures to minimize the fire-safety risk:
 - a. Always place candles, including those in glass containers, on a non-combustible vessel, like a plate or metal sheet, which will serve as a catch area for melting and dripping wax. The catch area holding the candle should be large enough to catch *all* the melting wax.
 - b. Place candles in a safe location, away from other combustibles (e.g., curtains, blankets, lampshades, books, carpets, etc.), and out of the flow of traffic through the room so they will be less likely to be knocked over accidentally. Never place a burning candle within 3 feet of combustibles, and keep multiple candles separated from each other by 3 or more inches (so they don't melt each other).
 - c. Never move a burning candle, even if you are using the candle as a light source during a power outage.

- d. Never leave a burning candle unattended, or out of view.
 - e. Always place candles away from travel paths or other areas where they can be accidentally knocked over, and away from air currents or drafts (e.g. open windows / curtains).
 - f. Always *fully* extinguish candles before leaving the room or going to bed (verify the wick ember is completely out). Use a candle snuffer to extinguish a candle; never extinguish candles with water.
4. **Combustibles** – Clothing, pictures, and decorations are combustible. Make sure all combustibles are kept away from candles, heaters, lamps, and any other heat-producing device. Do not hang items near, or drape them over lamps; they will eventually catch on fire. If you use seasonal decorations, check package labeling to ensure they are treated with a fire-retardant material. When storing combustibles, store them at least 18 inches below the ceiling to create an air gap, and to ensure that you don't block any detection or sprinkler device. Store combustibles at least 3 feet away from any heat-producing device.
 5. **Electronic Equipment** – Be sure there are adequate electrical outlets for your electronic equipment. Do not overload an electrical outlet (don't plug a TV, computer, stereo, and DVD all into the same outlet). Never use extension cords as a permanent solution to a room's shortage of electrical outlets. Use surge protectors to compensate for an outlet shortage, but don't overload the surge protector, and don't attach an extension cord to a surge protector.
 6. **Hidden or Damaged Wiring** – Never run wire under carpeting. Hidden wiring can be (or become) damaged and may never be noticed until it is too late. Periodically check all cords, plugs, wiring, and cables for damaged, frayed, or exposed wiring. Replace any wiring that appears damaged immediately. If a plug is broken or missing a prong, do not use it - replace it. Shut down and unplug any equipment not in use.
 7. **Appliances** – Appliances include curling irons, hair driers, clock radios, electric razors, etc. As with electronic equipment, ensure that there are sufficient outlets for the appliances. Do not overload outlets with small appliances. While they are small, appliances are usually high wattage and need adequate outlet space. To determine wattage of an appliance consult the owner's manual.
 8. **Space Heaters** – Space heaters are a significant potential fire risk. Do not use them in your bedroom. If you chose to use a space heater in your residence and ignore this recommendation, take these preventive measures to minimize the fire-safety risk:
 - a. Only use space heaters approved by your university.
 - b. Keep combustibles at least 36 inches away. Keep space heaters 3 feet away from anything that can burn, including the wall.
 - c. Space heaters *must* be turned off when you are sleeping, and when you leave the room or the residence.
 - d. Strictly follow manufacturer's recommendations. Some universities or cities prohibit the use of space heaters because they are deemed too hazardous.

Bedroom Fire Safety

Your sleeping room has many potential fire hazards, including electronic equipment, appliances, and candles. To ensure your safety, be *diligent* about identifying and eliminating potential fire hazards in your personal and private space. Follow these guidelines:

1. **Close the Door** – Always sleep with your bedroom door closed! This act alone will consistently make the difference between life and death in the event of a night fire by preventing smoke from entering your room.
2. **Smoke Detectors** – Have both an operable photoelectric smoke and carbon monoxide detector in your bedroom. The smoke detector and carbon monoxide detector may be a combined unit, but the smoke detector must be photoelectric.
3. **Electric Blankets** – If an electric blanket is more than 10 years old, do not use it. Before using an electric blanket, read the manufacturer’s instructions and recommendations. Check the blanket for scorch marks, exposed elements, sharp creases, and damp areas. If you do not find any problems with the blanket, turn it on and make sure there are no cold spots or areas of the blanket that do not heat up properly. Incomplete heating may be a warning sign of damaged or broken wiring inside the blanket. If you are unsure, do not use the blanket.

Common Area Fire Safety

Bathrooms, hallways, living rooms, dens, basements, kitchens, and laundry rooms are all common areas. Because these rooms are shared by all residents, teamwork is a must for avoiding potential fire hazards in these areas.

1. **Hallway** – Do not use the hallway as a storage area for anything, including bikes and backpacks. The hallways are the primary way out of the building in the event of a fire, so keep them clear of obstacles.
2. **Living Room** – The guidelines for “general safety” above are appropriate in the living room and family room as well. Place furniture at least 3 feet away from heat producing devices. If people smoke, provide ashtrays, and dispose of smoking materials properly.
3. **Bathroom** – The bathroom can be one of the most dangerous rooms in your residence due to the combination of water and electricity (small, high powered appliances). To reduce fire hazards in the bathroom, check the following items:
 - a. Determine if you have GFCI (Ground Fault Circuit Interrupter) outlets. These are an important safety precaution, because they prevent you from overloading an electrical outlet.
 - b. Make sure there are no leaks on the sink, tub, shower, or toilet, and if there are, have the leaks repaired.
 - c. Do not leave appliances plugged in or on surfaces that can be permeated by water, like a bath towel. This could cause the appliance to short out the next time it is used.
 - d. Store appliances on a storage shelf or cabinet, not on the edge of the sink or tub.

Furniture, Carpeting, and Decorations

All students like to decorate their dorm rooms and apartments, some to more of an extreme than others. Netting, posters, streamers, chairs, couches, and throw rugs all fall into this category. Big empty wire spools are sometimes used as coffee tables. When furnishing your residential space, follow these fire-safety precautions:

1. Review your building manager's or university's specific requirements and prohibitions concerning decorations and furniture types.
2. Make sure that furniture like couches, stools, and chairs (and any throw rugs) are fire retardant or have been treated with fire retardant.
3. Painted furniture should be painted with water-based paint.
4. Never place furniture over heater vents and keep dangling items at least 3 feet away from such vents.
5. Do not use wood furniture that is rotted, peeling, unpainted, or unvarnished.
6. Before purchasing decorations, verify that they are fire retardant. Coat untreated wood with a fire retardant spray.
7. Situate furniture to allow clear paths to the primary and secondary escape routes. Do *not* place furniture in hallways.
8. When hanging decorations, pictures, etc. keep them clear of and *never* cover any safety equipment. Do not permit them to interfere with such equipment's operation.
9. Position rugs so that they do not become tripping or slipping hazards, especially in emergency circumstances.
10. Avoid use of plastic furniture; it produces dangerous toxic gases and will melt when burning. Melting plastic is a severe burn hazard.
11. Never use upholstered furniture outdoors on porches, balconies, or deck. Cigarette and grill embers can readily ignite such upholstery and cause a rapidly expanding fire, and block a primary escape route. Use only metal, non-combustible, or treated outdoor furniture in these outdoor settings.

Utility Room and Basement

The furnace, fuse box, breaker panel, and dehumidifier are usually located in the basement or utility room. Due to their remote location and status, a fire can smolder undetected in these areas. That there may only be one way in and out of the basement further increases the risk factor in these rooms. While university personnel typically maintain such facilities on-campus, students living off campus are wise to conduct a periodic check of the basement or utility room.

1. **Storage** – Do not use utility rooms for storage; they lack space and harbor potential hazards. Storing items in the basement is acceptable, if you follow these guidelines:
 - a. Use only designated storage areas, and never block exits.
 - b. Do not stack items higher than 18 inches from the basement ceiling, and do not block the fire safety equipment with stored items.
 - c. Keep all stored items at least 3 feet away from the hot water heater, furnace, and breaker panel or fuse box.

2. **Laundry Room** – Dormitories and some off-campus housing have centralized laundry rooms. The laundry room should have a fire extinguisher near the entrance, and emergency lighting. Check these items monthly. Make sure that you have a clear path to the primary and alternate exits. Note: empty your pockets before doing laundry ... a lighter in a pocket in a dryer is a *bad idea*.
3. **Clothes Dryer** – Clothes dryers can be very dangerous. Safe practices include:
 - a. Turn the dryer off immediately if you note a burning odor.
 - b. Notify responsible parties if lint trap has tears or holes. Proper air flow through the lint trap prevents overheating. Run water over the lint trap to test air flow: if water flows through, so will air. (Note: if water doesn't run through the trap, hot air won't either).
 - c. Check behind the dryer and make sure it is free of lint and dust build up.
 - d. Do not use the top of the dryer as a storage shelf.
4. **Washing Machines** – Water and electricity are a volatile combination; a leaky washing machine can be very dangerous. Check the plug, hoses and connections for leaks, and replace any leaking components immediately. Do not use the top of the washing machine as a storage shelf. Position a trash can by the washing machine and dryer for the disposal of pocket garbage, the washer filter, and the lint from the dryer lint trap.
5. **Furnace** – Simple preventative maintenance can make a furnace safer, and reduce your heating bills. The furnace should have a tag or a sticker on it stating when it was last serviced, and by whom. The furnace should be serviced annually, and checked periodically for the following items:
 - a. Make sure the pilot light is working, and check the furnace filter, which should be changed every six months. Make sure your furnace is serviced annually by a certified technician.
 - b. Locate the access panel, and determine an access point from which you could extinguish a furnace fire. The access panel is usually a hinged door, or a slide panel on the duct work near the furnace.
 - c. Do not store combustibles within 36 inches of the furnace.
 - d. Test the furnace and the furnace fan by raising the temperature on your residence thermostat until you hear and feel the furnace turning on.
 - e. Check for the smell of gas near the furnace, which could indicate one of three things: incomplete combustion, a malfunctioning pilot light, or a gas leak. Report any of these issues to your landlord, RA, or building manager immediately.
 - f. Make sure there is a carbon monoxide detector near the furnace: test it monthly.
6. **Fuse Boxes and Breaker Panels** – Older structures may have a fuse box rather than a breaker panel. Never cover a fuse with foil, copper, or wedge a penny behind a fuse in an attempt to fix the fuse.

A breaker box should, like a fuse box, have a legend posted on it that clearly identifies which rooms in the house are supplied by each breaker. If a breaker is tripped, meaning you have overloaded the supply to a specific room, you should flip the switch back to on. If the same switch consistently becomes overloaded, you should notify an electrician or university maintenance personnel, who can determine the nature of the problem.
7. **Hot Water Heater** – Make sure the pilot light is working on the hot water heater. Check for the smell of gas near the hot water heater, which could indicate incomplete combustion, a malfunc-

Student and College Parties

Everyone likes to have fun, but the normal reckless abandon of college parties can lead to “fire stupidity.” Alcohol impaired judgment is one of the 4 most common factors contributing to loss of life in college fires. Over 50% of fire fatalities in dormitory and off-campus housing fires are persons who were under the influence of alcohol.

1. **Designated Partiers** – Designate individuals who will remain **sober** at the party. This may seem like a thankless assignment, but “designated partiers” are vital and necessary. This dramatically increases the odds that at least one **sober** person will hear a smoke alarm or fire alarm sounding, or notice danger, during or after the party. Designated partiers should be involved in party preparation, monitor the party while it is in progress, and perform post-party checks for potential hazards.
2. **Pre-Party Preparation** –
 - a. **Exits** – All exit and escape routes must be clear; don’t place furniture or kegs in doorways and stairwells.
 - b. **Candles** – Burning candles pose a huge potential fire risk. Never burn candles at your parties.
 - c. **Decorations** – Use only decorations that have been treated with fire retardant material. Keep all decorations away from heat generating devices. Never place decorations where they block or obscure Exit signs, emergency lighting, smoke detectors, extinguishers, and exits.
 - d. **Grilling** – If you use the grill, make sure it is at least 15 feet away from any buildings while in use.
 - e. **Smoking** – Provide sufficient ashtrays in appropriate locations so that smokers do not leave ashes on floors or furniture. Place several empty metal cans outside the building into which ashtrays may be safely emptied.
 - f. **Appliances** – Unplug all kitchen appliances, including the stove and microwave.
3. **After the Party** – Designated partier actions after the party are vital to your safety and that of your friends and fellow students. The post-party site review conducted by **sober** partiers can detect and eliminate potential fire risks that would otherwise go unnoticed.
 - a. **Smoking Materials** – Ensure that all smoking materials and charcoals are completely extinguished and have been disposed of properly, not carelessly emptied into a trash can.
 - b. Verify that all candles are completely extinguished.
 - c. Check all smoke detectors and carbon monoxide detectors. Ensure they were not disconnected during the party.
 - d. Clean up any spills that could cause someone to fall when evacuating the building, and clear all exit paths.
 - e. **Sleeping Partiers** – Make sure you know where everyone is sleeping, and verify that they have not fallen asleep while smoking. In nighttime fires time is critical, so knowing who is sleeping where in the house is vital in an emergency.

Holiday Decorations

All holiday and party decorations such as streamers, and banners should be made of fire retardant material. Check for this when you purchase decorations. For items not made of fire retardant material, you can purchase spray treatment (It is imperative that you follow the manufacturer's instructions). Regardless of the holiday or decorations used, never block escape routes, exits, detectors, or fire extinguishers with your seasonal decorations. Keep all decorations away from heat sources such as illuminated pumpkins, light bulbs, candles, space heaters, and ashtrays.

1. **Christmas** – If you have a live Christmas tree, water it frequently, and take it down before you leave. Turn off all Christmas lights when you leave the premises or go to sleep.
2. **4th of July** – Never use fireworks as part of a prank, and never use fireworks indoors at all! That's just stupid. If you're going to use fireworks, wear gloves.

Additional Hazards

Additional common fire-safety hazards that you must be aware of are described below. Failure to wisely manage these items could be disastrous.

1. **Fireplaces** – Chimneys should be swept by a certified chimney sweep once a year. Always use a spark screen when burning a fire.
2. **Open flames** – Open flames are very dangerous in a limited area. Use of lighters, incense, oil lamps, Sterno cans, decorative torches, lanterns, kerosene heaters are examples of open flames.
3. **Fireworks** – Use of fireworks at all is highly risky, and can have disastrous results, especially when mixed with alcohol.
4. **Smoking Materials** – Careless disposal of smoking materials is the sixth leading cause of fires in student housing. Ashtrays should only be emptied into an approved metal container outside for this purpose. Smoking materials should never be left sitting unattended. Never smoke in bed, or while lying down.
5. **Outdoor Grills** – Grills in use, and for 24 hours after use, should always be a minimum of 15 feet away from any building. Use extreme caution with charcoal grills, especially when you apply lighter fluid to the coals. Never put additional fluid on coals that are already burning, and never use any flammable liquid other than charcoal starter fluid. Leave burned coals covered for an additional 24 hours to ensure they are completely extinguished.
6. **Gas grills** – Gas grills pose different hazards. The auto ignition must be in proper working order. Never light the gas grill with a match. Failure of the auto ignition can create a gas buildup that will flash when lit by a match. Always turn the grill controls and propane tank *off* when finished using the grill. Leaving a tank turned on can permit gas to escape, which a single spark could ignite. Do not move the grill within 15 feet of the building until it has cooled down.

Chapter 3 – Fire Classes, Extinguishing Agents, and Extinguisher Use

Objective: Proficiency in inspecting and using fire extinguishers.

A. Elements of Fire – Classes of Fire

A recent 2-year study found that fire extinguishers were effective in extinguishing 93% of fires when the fires were found and action was taken within 2 minutes of ignition. Understanding the elements necessary to fire combustion and how fires are classified is important to effectively using different extinguishers and agents to control fire.

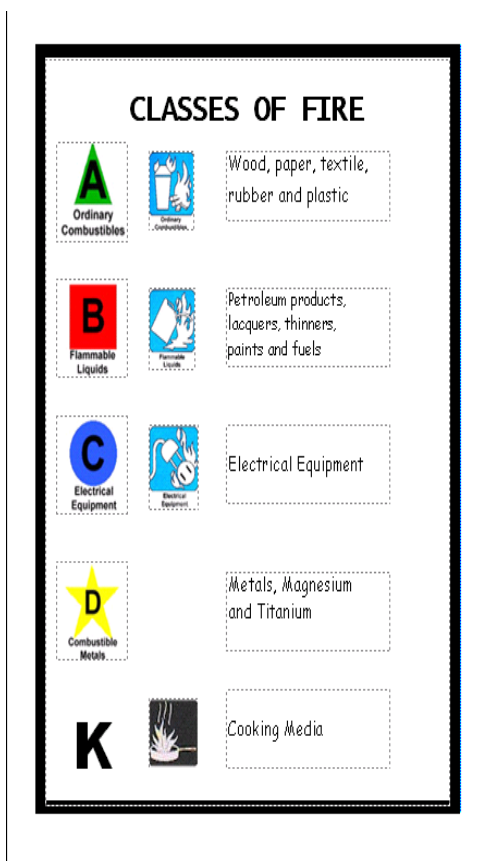
1. ELEMENTS OF FIRE (What is Fire?)

Three elements are needed for combustion: Heat, Fuel, and Oxygen. The right mixture of these 3 elements triggers a chemical chain reaction igniting fire.

Fire extinguishers extinguish fires by doing one or more of three things. They remove heat (cooling), take away oxygen (smother), or by breaking up the chemical chain reaction.

2. CLASSES OF FIRE

There are 5 fire classes. Each class includes certain hazard types. No fire extinguisher will extinguish more than 3 fire classes. Each class is assigned a letter and a symbol. Symbols are located on a fire extinguisher's front side. If a symbol has a red diagonal line through it, the extinguisher *cannot* be used on that class of fire. The Fire Classes are:



Class A = Solids. Includes wood, paper, textiles, plastics, and rubber.

Class B = Flammable Liquids and Gases. Includes gasoline, kerosene, lacquers, natural gas, and propane.

Class C = Electrical. Includes anything that is energized, e.g., stereo equipment, hair dryers, computers, and microwaves. Class C rated extinguishers must contain a “non-conductive” agent, i.e., one that doesn’t conduct electricity (e.g., if you spray water on an electrical fire, the water conducts the electricity and may cause electrocution). Class C fires are sparked by electricity but feed on class A or B materials, so Class C rated extinguishers are always *also* rated for one or two other classes. Once the power is cut off (disconnected) the hazard becomes a Class A or Class B hazard.

Class D = Flammable Metals. Includes lithium, titanium, magnesium, and other flammable metals. Class D fires normally occur in an industrial setting.

Class K (stands for Kitchen) = Cooking Media. Includes Peanut oil, olive oil, vegetable oil, and lard. Class K is the newest class of fire, and emerged as a wet chemical solution was determined to be much more effective than dry chemical on cooking fires, especially in commercial applications. (Note: cooking grease fires were formerly considered Class B hazards, which required Class B rated dry chemical extinguishers.)

B. Common Agents

Many distinct agents are used to extinguish fires, and each works differently. The key is to know which agent is in a particular fire extinguisher, and what it’s used for. Depending on the agent it is loaded (charged) with, extinguishers are used for different fire types. Fire extinguishers are generally NON-securing, which means the fire can reignite exposed fuel. Class K (and foam) are “securing,” which means that their use prevents a fire from re-igniting.

Be aware of the distinctions, for applying the wrong extinguishing agent can spread or aggravate a fire. For example, water will quickly put out a wood or paper blaze, but it will spread a grease fire, and water on an electrical fire risks electrocution. The most common extinguishing agents are listed below.

1. MULTI-PURPOSE DRY CHEMICAL

The most common agent found in fire extinguishers today is multi-purpose dry chemical. It is the only agent rated for use on three classes of fire – A, B, and C – regardless of size. It extinguishes a fire by disrupting the chemical chain reaction. Dry chemical also adheres to class A materials and prevents re-ignition. Effective against multiple fire types (including all likely to be found in a housing environment), dry chemical eliminates guesswork about which agent to use, and is most likely the extinguisher you will find in off-campus housing and dormitories. Dry Chemical's range is 6 - 10 feet depending on extinguisher size. The rule of thumb to use is stand back 10 feet. Drawback: Multipurpose dry chemical decreases visibility (creates a cloud) when used. This is a non-securing agent.



2. WATER.



The old standby agent, water, is not commonly found in extinguishers today, but still has its applications. Water extinguishes a fire by cooling action and is the best at penetrating deep-seated fires (e.g., mattresses, chairs, and tires). Water is *only* rated for Class A fires and can only be mounted (stored) where temperatures are above 40 degrees (to avoid freezing). Drawback: water extinguishers can only be used on Class A fires. A water extinguisher's range is 15 feet. The rule of thumb is stand back 15 feet to start, then move forward as necessary.

3. REGULAR DRY CHEMICAL.

Regular dry chemical is *only* rated for Class B and C fires. Its main ingredient is Sodium Bicarbonate, commonly known as baking soda, and it extinguishes fires by stopping the chemical chain reaction. This agent is very effective on small kitchen fires and pressurized fuel fires. Drawback: Dry chemical extinguishers decrease visibility and lack a Class-A rating. The range is 6-10 feet. The rule of thumb is stand back 10 feet to start. Dry chemicals are a mild corrosive. They extinguish a fire by breaking up the chemical chain reaction.



4. WET CHEMICAL

Wet chemical is a very effective agent used primarily for commercial cooking fires, although most are rated for Class A *and* K fires. Wet chemical extinguishes a Class K fire in two ways: it lowers the grease's temperature and creates a frothing action that seals the vapors, thus preventing re-ignition. Wet chemical is a securing agent (prevents re-ignition).



C. Extinguisher Operation

1. GENERAL RULES

Regardless of the agent you're using or the type of fire you're fighting, these general rules always apply when operating fire extinguishers.

- Only use in emergencies. Always notify fire department *before* attempting to extinguish the fire.
- Extinguishers are intended to be used within the first 2 minutes of a fire's ignition. After 2 minutes, the fire's size and intensity significantly reduce



the prospect of fully extinguishing it. If you doubt that you can effectively extinguish a fire, get out and don't attempt extinguishment.

- Operate in an *upright* position, regardless of size.
- Manually aim the fire extinguisher hose and control its direction. *Fully* squeeze the handle while controlling the hose.

2. DO's

The 3 basic rules you must follow to succeed in extinguishing fires with a fire extinguisher are:

- Use the wind to your advantage.** Always approach the fire upwind; the wind should be at your back. Rule of thumb: if the smoke is blowing in your face you're not approaching it correctly.
- Aim at the base of the fire.** The base is always the fire's front edge as you approach it and the lowest *visible* point of the flame.
- Use a sweeping back and forth motion.** Sweep with your arms and the hose while hitting the base of the fire. You must continue to cover the entire area until the fire is out.
 - Because the agents used are NON-securing the flame can wrap around and re-ignite exposed fuel that is no longer burning.

3. DON'Ts

When extinguishing a fire, you should *never* do the following:

- Never turn your back on a fire.** Remember, with non-securing agents a fire can re-ignite. If re-ignition occurs when your back is turned your clothing could catch on fire. To give yourself a safety margin, always back away 3 - 4 feet before turning around. This also applies if the extinguisher runs out of agent. Don't panic. Back away and *then* turn and evacuate.
- Never agitate the fire.** You can agitate a fire by being too close when you shoot the extinguisher or by using the wrong agent (such as a water extinguisher, or flour, on a grease fire). An agitated fire will intensify and spread. Note: a fire can also spread if you use the correct agent *improperly*. Step No.2 on an extinguisher's front instruction panel always identifies your safe shooting distance (i.e., how far back you should stand). This distance is the range of the discharge. If the instruction panel says 10 feet, the agent will discharge 10 feet, even if you're standing 3 feet away from the fire. If you're standing closer than the safe discharge distance, the agent causes the burning material to splash and spread. If you're unsure it's better to start farther back and then move closer if necessary. If you're too close back away quickly.
- Never position yourself so that the fire is between you and your exit.** If your attempt to extinguish a fire requires that you do this, evacuate immediately instead. An exception: if the fire is blocking you from escape and you have no other way out, you may be able to use the extinguisher to diminish the fire and allow you to escape.



4. P.A.S.S.

In an emergency you must be able quickly operate the extinguisher to stop the fire in its incipient stage (within the first 2 minutes). Remembering the acronym **P.A.S.S.** enables you to do that. **P.A.S.S.** stands for:

Pull, Aim, Squeeze, Sweep

P = PULL Before pulling the pin, first stabilize the extinguisher by setting it on a table or the floor and holding its shell rather than the handle (holding the handle while attempting to pull the pin may complicate pin removal). Once stabilized, **pull** the pin, and remove the hose from its holster.



A = AIM Aim the extinguisher and the hose for the *base* of the fire. **Remember:** the base of the fire is the leading edge and the lowest *visible* point of the flame. Did you get it right?

S = SQUEEZE Squeeze the handle *completely*. Partially squeezing the handle affects its range and prevents the complete discharge of the firefighting agent.

S = SWEEP Remember: sweep quickly from side to side using the 6 inch rule. Sweep 6 inches outside the fire area on each side to insure you cover the entire area. Never narrow the sweep width until the fire is out.

D. Extinguisher Inspection and Maintenance

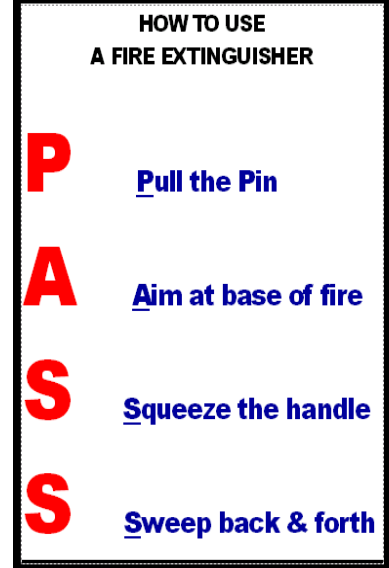
Having a basic understanding of fire extinguishers is important, but also essential is performing monthly inspections to determine if maintenance is necessary.

1. INSPECTION

An inspection is a quick check performed monthly that provides a reasonable assurance that the extinguisher will work. Check the following items when performing a monthly inspection:

- A. Anti-tamper seal – Verify that an anti-tamper seal is securely in place around the pin.
- B. Gauge – The gauge needle should be in the green (operable) range or the 12 o'clock position.
- C. Mounting – The extinguisher should be mounted securely in its designated location, be clearly visible and marked, and accessible and unobstructed.
- D. Placement – Place extinguishers in the kitchen (Class K), laundry room, one on each floor, the basement, furnace room, garage, and near a grill. Except for the kitchen, ensure that each is a multipurpose dry chemical (the most usable for common residential fires).

To ensure that all extinguishers are fully and safely operational, report apparent extinguisher damage, deficiencies, or discharge to university service, or your property owner



or manager, or fire-safety personnel immediately.

2. MAINTENANCE

Maintenance is a thorough examination of a fire extinguisher that provides maximum assurance that the extinguisher will work. Maintenance is performed annually or when identified by a monthly inspection or use.

- Remember: any time you use an extinguisher, it must be maintained (re-charged and serviced) immediately.
- Report any occurrence of use of an extinguisher to the property owner or authorized maintenance or fire-safety personnel.
- If monthly inspection reveals damage or discharge, arrange service of the unit immediately.

Chapter 4 – Safety Equipment

Here we identify essential fire-safety equipment (beyond fire extinguishers), and how to inspect, operate, and maintain it. We also review additional safety equipment, its locations, what students can do to ensure safety equipment operates. We point in many cases to common sense that can save lives.

Overview: Safety equipment must be properly maintained to operate correctly when needed. When students occupy a new residence, it's essential that they perform monthly safety equipment inspections to verify that equipment is installed correctly and works.

A. Equipment Types and Locations

Essential fire-safety equipment includes smoke detectors, carbon monoxide detectors, fire extinguishers, escape ladders, first aid kits, emergency lighting, and alarm and sprinkler systems.

1. **Smoke Detectors** – Smoke detectors are often the difference between life and death in a fire; they save thousands of lives per year. Statistics show that in fatal fires, working smoke detectors were only present and functional in a mere 23% of the fires. It's essential to verify that all detectors are operable and not damaged when you move in - smoke detectors must work correctly 24 hours a day. The two most common detector types are "photoelectric" and "ionization." Both types are powered by a 9-volt battery, a lithium battery, or 120-volt house wiring.

Best Practices – Generally, *always* follow the manufacturer's installation and maintenance instructions, replace smoke detectors every 10 years to assure reliability and current or best technology (Note: the date of manufacture is identified on the detector's inside cover), and replace detector batteries every 6 - 12 months. Verify that detectors are securely attached, and not cracked, and when in doubt have the maintenance done by professionals.

Smoke Detector Location – Detector location is very important, and should conform to these guidelines:

- Smoke detectors should be placed in each hallway, on each floor, and in each regularly occupied or sleeping room. Sleeping areas need the most protection.
- Smoke detectors should be placed at the top of each stairwell and at the end of each long hallway. One detector in a short hallway outside the bedroom area is usually adequate. Hallways longer than 30 feet should have one detector every 30 feet.

- Because smoke rises, wall mounted smoke detectors must be placed high on the wall, 12" away from the ceiling, and 18" away from dead air space near corners, or areas in which the detector's entire circumference can't detect smoke.
- Detectors mounted on a ceiling should be at least 18" away from dead air space near corners, to ensure that the detector's entire circumference is able to detect smoke.
- Detectors should not be placed less than 3 feet from an air register or ceiling fan that may re-circulate smoke, or near doorways or windows where drafts could impair detector operation.
- To prevent nuisance alarms, detectors should not be located near fireplaces, wood stoves, cooking fumes, or smoking areas.

2. **Carbon Monoxide (CO) Detectors** – What is carbon monoxide, and what produces it? Carbon Monoxide, (CO), is an odorless, colorless poisonous gas that is a common byproduct of fossil fuel combustion. It is produced by the incomplete burning of solid, liquid, or gaseous fuels. Carbon monoxide can affect you before you even know it is present, and is the #1 cause of poisoning in the U.S. today, according to the Poison Control Center.

Potential carbon monoxide sources include furnaces, water heaters, stoves, ovens, kerosene space heaters, wood and gas fireplaces, wood-burning stoves, portable generators, and automobile engines. When properly installed and maintained, fuel-burning equipment usually produces little CO, and safely vents combustion by-products to the outside. However, if the vent process is blocked, or the burning process is impaired or lacks sufficient oxygen, CO production can quickly reach dangerous levels.

CO detectors are found in residence halls and other buildings with gas-fired heating, dryers, hot water heaters, or cooking appliances; they activate an alarm *before* CO levels become dangerous. All CO detectors operate in the same way, are manufactured to similar standards, and are either battery-powered or plug-in. If you install a plug-in CO detector, be sure it has a battery backup. All CO detectors must be UL listed.



CO Detector Location – NIFAST guidelines call for CO detectors in each floor's hallway, in sleeping rooms, and in furnace rooms. Install CO detectors in high positions, where CO accumulates. While CO and air are the same weight, CO is emitted by heat producing devices (e.g., furnaces, hot water tanks), and rises with the heat. CO detectors must be located not less than 15 feet, nor more than 30 feet, from gas-fired heat-producing devices. Ideal spacing is 15 – 20 feet, and never *above* a heat producing device.

Annual inspection of your furnace, stove, water heaters, and dryers by certified personnel can verify that all equipment capable of producing CO is working efficiently, reducing the chance of CO poisoning. The correct placement of CO detectors will also reduce this risk.

3. **Escape Ladders** – Escape ladders are essential to surviving a fire. Some are permanent, some are portable (temporary); both work, and either is acceptable.

Permanent Ladders - Affixed to a building's exterior, permanent ladders are highly and readily usable; they're always in position. Always check your building premises to familiarize yourself with the existence, location, and operation of permanent escape ladders.

Temporary Ladders - Temporary ladders are portable and affordable – they’re usually owned by individuals for their personal safety (i.e., they’re not commonly part of a building’s public safety apparatus like mounted extinguishers and fire hoses). Residents should stow temporary ladders under their bed (or elsewhere *in the room*) for quick and easy-to-find access in an emergency.



Important features include the ladder’s height (reach), its weight *capacity*, its weight and storability, and its ability to attach securely to your window sill. As part of your advance planning, assure that your escape ladder fits over your window sill (or roof eave) and reaches close to the ground, that your window opens easily, and that the temporary ladder is in a safe (strength tested), functional condition.

4. **Emergency Lighting** – Emergency lighting is any lighting activated or visible during a fire that can be used to aid in a safe exit. Familiar examples include red exit signs, battery powered lights triggered by power failure (usually located high on walls at the ceiling), and strip lighting along steps and hallways, and, of course, your trusty flashlight. In a fire, emergency lighting will lead you to an exit. Always:

- a. Look for and follow the red exit signs.
- b. Look for strip lighting – it will indicate the way out when you can’t see. Strip lighting is designed to be on continuously (like a red fire-exit sign).
- c. Have a flashlight close at hand (which can be used as a signal too).

In most buildings combination emergency exit lights / signs must be located at primary exits. Exit signs should be located at any exit that leads to the outside. Emergency lighting must be located along the primary escape routes. All emergency lighting is required to have a battery backup. To maximize your safety, if your room does not have emergency lighting fixtures, you can acquire emergency lighting with 110v plugs to provide safe lighting should you lose power.

5. **Additional Fire Protection Systems** – Common fire protection systems include:

- a. Fire alarm systems, which consist of a fire alarm panel normally located at the main entrance, and Horn / Strobes located in main hallways (red horn, white strobe). Fire alarm panel boxes are usually red.
- b. Sprinkler systems, which are comprised of a series of individually heat-activated sprinkler heads in the ceiling in all or selected rooms, with a main valve in a utility room. Sprinklers only activate in areas where fire sufficiently heats the head’s temperature sensitive device to release.
- c. Kitchen systems, which are located above the stove in the hood or in a cupboard. The system’s nozzles protrude from the hood to cover the stove’s surface area, and are activated by a fusible link, or a manual pull-station. [Refer to Chapter 8 for more detail on these systems in dormitory and multi-unit settings.]

Recognizing the Systems – Fire protection systems are usually automatic and are maintained by certified professional technicians. Students should be aware of these systems and note their presence or absence. When fire protection systems are present, inquire as to whether they are operational and reliable – knowing the facts enhances your safety.

What if Fire Systems are Triggered? – If any fire protection system activates, or emergency lighting goes on, quickly and cautiously exit the building. An activated sprinkler system usually

triggers the alarm system. Again, if you hear the alarm, get out – don't wait around to see what others are doing. Ensure that the fire department is called.

- 6. Ground Fault Circuit Interrupters (GFCI's)** – A “ground fault” is an unintentional electric path between a source of current and a grounded surface, and occurs when electrical current leaks from its normal path. If your body provides a path to the ground for this leakage, you could be injured, burned, severely shocked, or electrocuted. GFCI's are designed to prevent shock or electrocution by constantly monitoring the electrical flow and instantly switching the power off when *any* change in that flow is detected. By detecting ground faults, GFCIs can also prevent some electrical fires and reduce the severity of others by interrupting the flow of electric current.

Ground fault examples include: a plugged in hair dryer falls into a bath, a loose metal wire touches a curling iron casing, water from a sink is splashed on an electric shaver. GFCI's are available in three types:

- Receptacle type (normally found in bathrooms). This outlet replaces standard outlets and is equipped with test and reset buttons.
- Portable GFCI. Where permanent GFCI's are not practical or present, portable GFCI's should be used. Portable GFCIs contain the GFCI circuitry in a plastic enclosure, which can be plugged into an outlet; electrical devices are in turn plugged into the GFCI. Another type is portable; an extension cord with a GFCI installed.



B. Equipment Inspection

Inspecting fire-safety equipment can mean the difference between life and death. It is one of the most important, and simple, things students can do to insure that safety equipment functions properly in an emergency. Inspection is a quick check, performed monthly, that provides a reasonable assurance that the equipment functions properly, or determines that maintenance is needed.

If your inspection reveals inoperative, damaged, vandalized, or missing equipment, notify your landlord, property manager, resident assistant, or student advisor immediately to remedy the situation. The university or building owner must immediately remedy the situation, and any repair is solely the owner's responsibility.

Listed below are simple, widely recognized safety equipment inspection procedures for you must follow each month.

- 1. Smoke Detectors** – Push the test button on each detector and hold for 20 seconds. When the button is depressed, the alarm should sound, and it should sound for the entire 20 seconds. Make sure the sound is continuous (not interrupted) and that it is sufficiently audible in the vicinity. If the detector fails to sound while the button is depressed, and for the duration of the hold, further maintenance is needed (perhaps a simple battery replacement).
- 2. CO Detectors** – Push the test button and hold for the amount of time prescribed in the equipment manual, or for 30 seconds. A bad battery will normally stop functioning within 30 seconds. Ensure the unit is free of dust or blockage and is positioned correctly.



3. **Escape Ladders** – Visually inspect temporary escape ladders for rotting, tears, and other damage monthly. Completely extend each ladder and practice using it (verifying its full functionality) at least every 6 months.
4. **Emergency Lighting** – Push and hold each lighting unit’s test button for at least 30 seconds. LED lighting units will dim when the test button is pushed. If the lights fail to illuminate or shut off when the test button is pushed, maintenance is required. Inform the landlord, property manager, or your student advisor so the problem can be quickly remedied.
5. **Fire Protection Systems** – For the professionally maintained systems listed below, students can and should visually check the indicated items monthly (and when moving in), and if something’s not right, notify the landlord or your student advisor so the problem can be quickly remedied.
 - a. **Kitchen suppression system** – Power is on, nozzles are not caked with grease, and system has a current inspection tag issued by inspection authorities or professionals.
 - b. **Fire Alarm system** – Power is on, system is not in trouble (amber light), and panel has a current inspection tag.
 - c. **Sprinkler system** – No leaks, system is inspection tagged.

These systems all require inspection tags certifying that maintenance has been done in accordance with the law. Observe that the professionals have certified the system. NIFAST suggests that students participate in an awareness effort regarding these fire systems, even though inspecting and maintaining the equipment is not their responsibility. Don’t be apathetic (apathy = increased risk); be aware of your environment, and all elements of fire safety in that environment. Doing so reduces fire risks and increases safety.

C. Equipment Operation

Here we address how equipment works, and general safety equipment operating procedures. Knowing how to operate available safety equipment is critical to your safety. Familiarity improves your confidence and ability to act in an emergency, thus reducing your risk. Be proactive; if equipment demonstrations are available (either in person or online), take the time to participate and learn. Also, every equipment manufacturer issues user manuals containing operational instructions, which are usually stowed with the equipment or in a manager’s office, and are available for viewing on the manufacturer’s website; abbreviated operating instructions commonly appear on the safety equipment itself. Take the time to read these and learn.

1. **Escape Ladders** – Escape ladders can mean the difference between life and death. Don’t assume that *having* an escape ladder is enough to assure your safety; this can be a grave mistake. Because there are many different types of escape ladders, practicing the use of *your* ladder is essential to assure your familiarity with how *it* works. Read the directions and familiarize yourself with your ladder’s specific operation. The time to do these things is *in advance*. At minimum, ensure that you can quickly install the ladder on the window sill and can deploy it. By doing this you determine if it fits the window and works.
2. **Fire Alarm System** – Fire alarm panels have a minimum of 3 LED’s; one green, one yellow, and one red. If the alarm system is functioning correctly only the green LED is illuminated. If the yellow LED is on or the green LED is off, the system is in trouble and requires maintenance immediately. If the

red LED is illuminated, the system has detected a fire condition, and the horn / strobes should also be sounding and flashing. Fire Alarm systems also have a battery backup.

3. **Kitchen System** – The system should have a power light to indicate that the system is “on,” i.e., powered up. Kitchen systems can be activated either by the detector or by the manual pull station. Temperature sensors or links activate when a certain temperature is reached (360 or 500 degrees), which then triggers the system. If the system is “chirping,” this indicates that the system is in trouble or the battery is low; in either case maintenance by a trained Technician is needed. When activated, the system will dump for approximately 90 seconds. If the system is activated immediately follow the **R.A.C.E.** procedure.
4. **Sprinkler System** – A sprinkler system is water supplied through piping to a head with a temperature rated cover or bulb, which, when melted by hot gasses from a fire, allows the sprinkler to dump water on a fire at the rate of 10-18 gallons per minute, often helped by a low-pressure pump. Generally one activated head will control or extinguish the fire. Residential sprinkler heads are much smaller than commercial ones.

Chapter 5 – Developing and Using a Fire-Exit Plan

What is a Fire-Exit Plan? – A Fire-Exit Plan is a visual diagram depicting the safest way out of a building during a fire emergency. It is a strategy for safely exiting your residence and clearly identifies:

- Primary and secondary escape routes from every room.
- The location of fire hoses, fire extinguishers, ladder access, and other safety equipment.
- Assembly areas.
- Fire escape plan.
- Emergency phone numbers.
- Special Instructions.

Who Develops a Fire-Exit Plan? – Dwelling occupants are together responsible for developing the Fire-Exit Plan. It’s a team effort. Participation in this process reinforces understanding and encourages new ideas. If a residence does not have a Fire-Exit Plan, each occupant is responsible for ensuring that one is developed and implemented. If a Fire-Exit Plan already exists, each occupant is responsible for ensuring that it is current, accurate, and complete. (We are all responsible for our individual and collective fire safety – it’s not someone else’s responsibility.)

How is a Fire-Exit Plan Used? – Creating the Fire-Exit Plan is the essential first step. Subsequent essential steps are:

- Write and illustrate the plan and post it on common area walls in a highly visible manner. Post the plan in a way that ensures its continuing presence.
- Distributing the Plan to all occupants. The plan is distributed to all new occupants on move in, and on a recurring basis throughout the tenancy.
- Reviewing the Plan monthly.
- Practicing the Plan at least every six months.

Safe Practices When Exiting a Burning Building –

First, know the Fire-Exit Plan, and know where your fire-safety tools (e.g., flashlight) are located. Don’t panic. Think.

Second, stay low, listen, and assess the circumstances. Staying low minimizes the risk of breathing toxic fumes. If you're awakened from sleep, roll to the floor *before* sitting up or standing up. If you hear the smoke alarm, get to the floor. Listening carefully for sounds of danger, sounds of rescue personnel, or other voices will help you identify a safe exit. Call to others and let them know your status.

Before moving to evacuate, gather your flashlight and other needed fire-safety tools. When moving during evacuation *stay* close to the ground.

Third, assess the viability (safety) of the primary escape route. The primary escape route is always the most direct (shortest) route to a building exit, through main hallways, and as few rooms as possible.

Before grabbing any door handle, touch it with the back of your hand to ensure it's safe and won't burn you. Always feel the doorknob before opening it, even if smoke is not visible. **Always use the back of the hand!** The palm of your hand will *reflexively* grip a hot object; the back of your hand will *reflexively* jerk away.

If a door handle is hot, *do not open* the door – because fire is on the other side. Instead, use the secondary escape route. If the door is safe (not hot), open it and ascertain if the primary escape route is clear. If the primary route appears safe, slowly and carefully exit the building.

Fourth, The secondary escape route is any outside window or door opposite the smoke or flame (i.e., which leads you in the opposite direction). If the primary route is blocked or appears unsafe, exit in the opposite direction via the secondary escape route.

To be prepared for a secondary escape, and as part of your plan, verify that windows, other possible exits, and [emergency ladders](#) are operational and readily accessible (e.g., under your bed, or otherwise immediately available in your room).

Common Mistakes in a Fire Emergency – Common mistakes in a fire emergency include:

1. Ignoring a sounding smoke alarm (e.g., assuming it is malfunctioning because you don't see or smell smoke or fire). Hint: you won't necessarily see smoke that the detector detects.
2. Not having or understanding a Fire-Exit Plan.
3. Not identifying ladder access.
4. Assuming that no smoke indicates the primary escape door and hallway are safe.
5. Reaching for and opening the primary escape door before checking it.
6. Not having proper safety equipment in accessible locations.
7. Failing to verify that potential secondary exits are functional.
8. Attempting to extinguish the fire before sounding the alarm.
9. Not calling the fire department after putting a small fire out.

Avoiding these common mistakes is critical to safely escaping a burning building.

Chapter 6 – What to Do When a Fire Occurs

OVERVIEW – We’ve studied statistics, hazards, the PASS procedure, and fire-exit plans. Here we explain what to do in a real fire. This is where your study, planning and practice pay off! Since no two fires are alike, we concentrate on necessary actions in *likely* circumstances, and address:

- When the fire occurs (Night vs. Day Fires)
- **Rescue, Alarm, Contain, Extinguish (RACE)**
- Tips for combating specific fires
- Scenarios

Survival is your first priority. The “prime directive” is get out and save yourself. When in doubt, get out.

1. **NIGHT vs. DAY FIRES - WHEN THE FIRE OCCURS** –The time of day a fire occurs directly affects the action necessary to survive. It is unlikely that you will detect a fire when you are sleeping. Contrary to popular belief, you can’t smell smoke when you’re sleeping, and it is unlikely that smoke will wake you up. This is why smoke detectors are so important. So, in nighttime fires you are likely to be awakened from sleep by a smoke detector alarm, and you must react quickly to that alarm even though you’re still not fully awake. Daytime fires, however, are much more likely to be discovered before a smoke alarm is triggered. Survival must be your top priority.
2. **R.A.C.E.** This acronym can save your life. It is an easy, ordered, step-by-step procedure to follow in a fire. Always follow the R.A.C.E. steps in order.

Rescue

Alarm

Contain

Extinguish

- A. **Rescue.** Remove others and yourself from danger. Toxic smoke and gases can incapacitate people before they become unconscious, even if they are outside the fire area. Fear of fire will immobilize others. Rescue includes taking action to lead these others to safety. Don’t attempt risky heroism. Entering a smoke-filled room to pull another out could kill you too. Rescue is your *prudent* effort to prompt others to evacuate to a safe area, or to secure their evacuation. Rescue includes sounding the alarm, or otherwise notifying others to evacuate.
- B. **Alarm.** Always sound the alarm. This notifies others that there is a fire and can alert the fire department. There are two steps to sounding the alarm:
 - **One**, alert occupants of the danger, using the method specified in your fire-exit plan (e.g., pulling a manual pull station, yelling “FIRE!”, or sounding a canned Air-horn).
 - **Two**, notify the fire department, *after* evacuating. Never assume that a sounding alarm has notified the fire department. Be prepared to give pertinent information (e.g., what is burning, the fire’s exact location, and unaccounted for persons). Remain connected until the fire dispatcher concludes the call.
- C. **Contain.** Contain (compartmentalize) the fire. Keep the fire in one place, stopping smoke and toxic gases from travelling. If you see fire in one room, close the door. If a door is closed and you know fire is on the other side or see smoke, *leave the door closed!* Air entering through open windows or doors fuels the fire. Closing the door or leaving the door closed can save lives. Closed doors slow the spread of smoke, toxic gases, and fire, and can prevent those sleeping from being overcome by smoke or toxic gases. Other ways to contain fire include closing windows and placing towels or other barriers at the foot of doors to prevent air flow. Cut off the supply of oxygen. Contain the fire in a space, but never close yourself in a room with fire.

- D. **Extinguish.** This is the *last* step. *After* first completing the other R.A.C.E. steps, attempt to extinguish the fire, but only if you are confident you can do so safely. Don't assume you can easily extinguish a fire; if you doubt that you can extinguish the fire because it's too big or has been burning more than 2 minutes, be safe and evacuate!

The first 2 minutes after a fire ignites are critical. When fire is found within the first 2 minutes an extinguisher is likely to be effective (studies show that this is true 93% of the time). But once a fire has been burning for 2 minutes studies show that it becomes too intense, rendering extinguishers ineffective, unable to compete. Why? A higher intensity fire consumes the extinguishing agent. Plus, extinguishers have a *limited* capacity; if the fire is too big, this lack of capacity means that you won't put out the fire.

Extinguishing a fire is a last Step. When using a fire extinguisher, follow the P.A.S.S. procedure and the safety tips described in the NIFAST fire extinguisher chapter. If you have *immediate* access to water, use it, but only if doing so is likely to fully extinguish the flames.

3. TIPS FOR SPECIFIC FIRES – Even small fires can be challenging, so use these helpful safety tips when extinguishing them.

- A. **Kitchen fires** – As a general rule, never leave the kitchen while you're cooking. Cooking fires are the most common cause of residential fire. To ensure safety, never leave the *kitchen* when you're frying, grilling or broiling; don't leave the *building* if you're microwaving, boiling or baking. Caution, when using small appliances like crock pots, put them on a metal surface (like a cookie sheet – not like tin foil) to diminish the risk of fire.

- i. **Stove Top Fires** – *Never* attempt to move a burning pan. By moving it you risk 2nd and 3rd degree burns, and risk spreading fire to other parts of the kitchen and yourself. Turn the burner off immediately. Recommended remedies include using a Class B rated or Class K rated fire extinguisher, or baking soda, or salt, in that order. *Never* put flour, water, or sugar on a grease fire – doing so causes a violent reaction that may rapidly spread the fire.

When applying baking soda or any other agent to the fire, *never* reach over the fire. Reaching your arms over an area that has burned can re-ignite the fire and cause serious burns.

- ii. **Oven Fires** – When oven contents burst into flames (e.g., when you're basting a turkey) your best option is to use a fire extinguisher. *Do not move the turkey!* The second-most efficient way to extinguish an oven fire is to *close the oven door*, which cuts off the fire's oxygen. Then, turn the oven off, follow your R.A.C.E. procedure, and do not open the oven door again. Your turkey may be a total loss, but you will save your residence!
- iii. **Appliance Fires** – Because they're often high wattage, simple mistakes with kitchen appliances can cause fires, e.g., tin foil in a microwave, a toaster not popping up, or a fry daddy set too high. First response, unplug the appliance. Second, use a *Class C rated* fire extinguisher to extinguish the fire. If the appliance on fire is an electric skillet or a fry daddy (or something similar to any stove top pot or pan) follow the rules for stove top fires. For microwaves, turn it off and unplug it, and leave the microwave door closed. Follow your R.A.C.E. procedure every time.

- B. **Outlet Fires** – Electrical outlet fires can deceive, which heightens their danger. Many fire victims mistakenly assume that an outlet fire is extinguished because they don't see smoke or flame, when in fact fire is still burning inside the wall cavity. To avoid this risk, use a Class C rated fire

extinguisher to extinguish outlet fires, and always call the fire department. Fire professionals can *verify* that the fire is extinguished. Remember, always follow R.A.C.E.

- C. **Trash Can Fires** – Trash can fires can occur any time, day or night, and are always caused by carelessness. Thus, they're entirely preventable. Careless disposal of something hot or that was burning (e.g., ash tray contents, a candle, coals, or a matchstick) frequently ignites other trash can contents. Also, rags soaked with oil or any flammable substance can ignite spontaneously. *You* must be careful and wary of these risks.

Never move a burning trash can. Don't remove any burning object (e.g., trash can) until the fire is out. Also, it's dangerous to assume that a trash can fire will just burn itself out. Three ways to extinguish a trash can fire are:

- i. **Extinguisher** - If using an extinguisher, know the extinguisher's range (don't get too close), use it carefully and avoid blowing (or pushing) burning material out of the trash can. An extinguisher's pressure at close range can spread the fire. When applying a multi-purpose dry chemical (explained in Chapter 4) note that only the top portion of the contents are coated, and lower contents may still be burning; so stir or churn the trash can contents (with a long metal pole – e.g., broom handle) to ensure that the chemical agent has coated *all* trash can contents, thus preventing re-ignition.
 - ii. **Water** - If an extinguisher isn't at hand, use water to douse the flames, but only if water is immediately available (e.g., at a nearby sink). If getting the water takes too much time, the fire will grow.
 - iii. **Trash Can Lid** - If the trash can lid is nearby and can safely be put on the burning can, do so – it suffocates the flame. (Note: trash can lids should always be on or near the can ... just for this reason.)
- D. **Open-Flame Fires** – Open-flame fires are the second leading cause of residential fires (the first is cooking fires). Open flames include candles, fireplaces, hurricane lamps (aka oil or kerosene lamps), incense, and fondue pots. Never leave an open flame burning when you aren't present or are asleep. Never move an open flame. If you must move it blow it out first. 38% of candle fires occur in the bedroom. *Never* fall sleep with candles burning; always extinguish candles before sleeping.

CHAPTER 7 – WHAT IF YOU'RE TRAPPED?

When you find yourself in a fire emergency and both the primary and secondary escape routes are blocked leaving you no apparent safe exit, you must nonetheless follow these essential safety procedures:

First, stay calm, stay alert, and focus.

Determine – Are you in bed or not in bed?

Determine – Is it light or dark, can you see or can you not see?

Second, if you can't see, drop to the floor to avoid toxic fumes. If you can see, stay low to avoid invisible toxic fumes.

Third, if you can reach and pull a fire alarm, or call the fire department, do so. If you can yell "FIRE!" or sound a horn, do so. Remember, general response time for a fire department is 3 minutes.

Fourth, if smoke is entering your space (e.g., through or under doors or vents), close the doors or vents and place wet towels or anything over the point of entry to prevent the smoke from coming in. Block the smoke's entry.

Window Escape / Signaling – If your secondary escape route is a window, open the window. If the window won't open, break it open with something (like a flashlight, or a chair, but not your hand). If you can do so safely, climb out, and make sure authorities are notified. Use the [temporary ladder](#) you've stowed in your room.

If you can't climb out safely, call out for help and yell "FIRE!", make other noise, and use the flashlight or other brightly colored object as a signal until you are noticed. Pay attention and don't give up.

If you can't break the window open, or if it's not *safe* to open due to the fire's presence, attempt to signal anyone on the outside by waving your arms, waiving the flashlight beam or other brightly colored object, and by banging on the window. Get the attention of anyone on the outside, and make sure people know you're alive and need rescue. Pause and listen for and respond to any fire assistance personnel. Pay attention and don't give up.

Windowless Spaces / Signaling – If you are trapped in an interior or windowless space stay low and in the room's center. Shield yourself, but don't hide. Listen carefully for rescuers (e.g., breathing apparatus sounds). Whether you hear anyone else or not, yell to the fire department or others and make as much noise as you can to get outsiders' attention. Do anything possible to ensure the fire department and others know your location (e.g., pounding on the floor, walls, air ducts, pipes, or ceiling). Pay attention and don't give up.

CHAPTER 8 – RESIDENCE HALL AND MULTI-UNIT LIVING

What is a Dormitory or Residence Hall?

The terms "Dormitory" and "residence hall" are used interchangeably. In the college campus setting, both are on-campus multistory facilities that house sleeping and living quarters for large numbers of people; they are usually divided into many individual rooms or suites. Most dorm environments are a unique combination of living *and* sleeping space, and many contain common area kitchens, restrooms, and showers. While many of the fire hazards and risks found in residence halls are the same as those in off-campus housing, there are important and very different fire-safety issues unique to these structures. Each year in the United States there are an estimated 1,500 fires in high school, private and prep school, and university dormitories.

Note: While this chapter is framed around residence halls, readers are urged to consider most points explained here as applying equally to off-campus multi-unit residential environments like multi-story apartment complexes, boarding houses, cooperatives, etc. that house large numbers of students. Where applicable, when we refer to Resident Assistants or university officials, please substitute "property owner or manager."

Why are residence hall and multi-unit structures unique? – Because hundreds of students can reside in a single building while attending university, and all college dormitory residents are students, except for supervisors or employees of the institution. Moreover, dormitory occupants are typically inexperienced at living away from home, are on their own for the first time, and pose an increased risk of youthful indiscretions and mistakes. With so many young students under one roof, fire-safety knowledge and preparation are even more important because one person's actions or failure to act can impact the lives

of many other people. If just one student does something wrong it can spell disaster for everyone in the structure, and if just one student does something right it can save many lives and prevent disaster.

Applicable Fire Safety Rules – When occupying an on-campus university-owned dormitory, students must pay close attention to, understand, and abide by the university’s fire-safety rules issued for *that facility*. Likewise, when occupying an off-campus apartment, students must pay close attention to, understand, and abide by the owner’s fire-safety rules issued for *that facility*. Safety and occupancy rules vary from one university or owner to another, and may vary from one dormitory to another. It is incumbent on, and NIFAST strongly encourages, students to seek site-specific fire-safety information and policy from those in charge (e.g., the dormitory’s Resident Advisor, Campus Fires Safety Officials, other supervisory university staff, or the building manager), and to ensure their own familiarity with that policy and information. Students should also consult their school’s Student Handbook and Residence Hall and other student housing Policies and Procedures for policy detail on all matters discussed in this Chapter.

Challenges – Dormitory and multi-unit living presents some unique fire-safety challenges. The number of occupants can affect your safety, since all occupants are dependent on the conduct of others. Even if you are a model of fire safety, careless and less diligent co-residents can expose you to dangerous fire-safety risks. The key to your safety is vigilance. You must always be aware of your surroundings and the risky practices of others, and correct problems or report them (e.g., a bicycle or keg blocking an exit, fire doors propped open). Don’t just assume that “the RA will handle this.” Be proactive; safety is everyone’s responsibility. Depending solely on RAs poses its own risks, since they can’t be everywhere at once. They need your help. Pro-active students who abide by safe fire prevention practices significantly increase their own and others’ fire-safety profile.



Residence Hall Fire Safety Essentials

1. **Candles** – NIFAST strongly recommends that students *never* burn candles in dormitory rooms. While some universities permit candle burning in dormitories, *most prohibit it*, and for good reason: candles start thousands of fires every year, especially in sleeping areas (like dorms). In some cases, students may use candles for display, provided the candle is wickless (or the wick is cut and removed) or the wick is white and unused. Before burning candles, students must verify their university’s candle-burning policy for dormitories. For those who choose to burn candles in a dormitory (assuming the university permits it), NIFAST recommends reviewing the essential safe candle-burning practices in Chapter 2.
2. **Cooking** – Because dorm rooms are not designed to safely accommodate the use of cooking devices, students should never cook in dorm rooms, except in designated cooking areas. College fires are no different than fires elsewhere: the majority of fires are cooking related. Dorm rooms are often small areas, with little space. Therefore, use of the devices listed below in a dorm rooms is unsafe:

- a. **Hot Plates** – Hot plates are unsafe and must never be used.
- b. **Toasters** – Although seemingly harmless these are heat producing devices
- c. **Toaster ovens**
- d. **Microwaves**
- e. **Electric grills, griddles, and frying pans**
- f. **Crock pots**

Dormitory Fire Prevention Tips

With hundreds of students living under one roof, residence hall fire prevention is extremely important. NIFAST believes in being proactive. Students who learn safety practices unique to dormitories and how to prevent fires significantly improve their safety profile. All lives can depend on the fire safe practices or failures of each dorm resident.

1. **Hot plates** – While they seem harmless, their exposed heating elements can ignite combustibles even without direct contact. A dorm’s limited space increases this risk. Despite their convenience, NIFAST discourages their use. If hot plates are permitted, use these safe practices:
 - a. Place a metal plate underneath the hot plate.
 - b. Make *sure* all combustibles are *at least* 3 feet away.
 - c. Never leave unattended when in use.
 - d. Verify that the device has a UL listing (otherwise, don’t use it).
 - e. After use, *always* unplug the device. Do not store until cool to the touch.
2. **Toasters and Toaster Ovens** – These heat-producing devices can easily cause food to burn.
 - a. Never leave unattended when in use, and clean the device regularly.
 - b. Place a metal plate underneath the toaster.
 - c. Verify that the device has a UL listing (otherwise, don’t use it).
 - d. After use, *always* unplug the device. Do not store until cool to the touch.
3. **Microwave Ovens** – Although generally very safe, Microwaves can cause serious problems. Burnt popcorn causes numerous fire alarms in dormitories. While the tendency is to just set the timer, walk away, and wait for a buzzer, a microwave’s high wattage and inexact cooking times require close attention.
 - a. Remain in area while cooking
 - b. Never cook with foil or metal
 - c. Plug Microwave directly into an outlet

Residence Hall Safety Systems

Residence halls and multi-unit apartments have many systems designed to keep students safe. It is important for you to have a basic understanding of how these systems work and how to prevent accidental

activation of or damage to these systems. If this information is not provided when you move in, your Resident Assistant or Campus Safety Office or Director can explain which fire-safety systems are present in your residence hall, how they function, and whether they automatically notify the fire department (this information may also be available on the dorm's or the safety director's websites).

1. **Detectors** – Each dorm room or apartment is equipped with a smoke detector or combination heat / smoke detector, which may be connected to a central alarm panel that, when activated, sounds an alarm locally (within the building), and sends a signal to the main alarm panel. The main alarm panel in turn often sends an alarm directly to the fire department. The local alarm normally sounds at 85db, or 15 db above normal, enabling all to hear it under normal conditions. Most manufacturers recommend detectors be replaced every 10 years. All detectors must be UL listed. For a detailed discussion of all detectors, please review Chapter 4.



2. **Fire Alarm Panels** – (Also Review operational explanation of fire alarm panels in Chapter 4.) There are many different sizes and types of fire alarm panels, depending on the number of “zones” the panel serves (there can be many zones in one building). An alarm panel functions as a central receiving point for signals from designated detectors located throughout the dormitory building (in-room detectors may or may not be connected to the alarm panel). The panel activates a building-wide alarm and notifies the fire department. Some alarm panels also tell the fire department which zone or specific device within the building triggered the alarm, which improves their response capability. In a dorm setting, the alarm panel is essential to prompt evacuation, enabling all residents to exit safely before a fire spreads.

[Note: If your in-room detector is not connected to the alarm panel, and it “goes off” in a real emergency, you must also pull the closest fire alarm (manual pull station) to alert other students. When in doubt about whether you’re facing a real fire emergency or a false alarm, pull the general fire alarm.]

While this very important life-saving device is commonly overlooked, residence hall occupants should pay attention and be aware whether an alarm panel is beeping or flashing. A beeping panel is accompanied by a flashing light or a digital message, which usually indicates a fault in the system or that the alarm is dysfunctional. If you see this on an alarm panel, report it to your RA immediately (if not remedied, the panel may not work properly when needed).

3. **Sprinkler Systems** – Sprinkler systems are activated by heat, not smoke (unlike the way some movies have depicted sprinkler systems). All sprinkler heads have a colored bulb or a “fusible link” that holds the air or water pressure. Heat from a fire reaches a prescribed temperature, which causes the bulb or link to melt and activates (opens) the sprinkler head. When triggered, the sprinkler system sends a signal to the alarm panel, which sounds the general alarm and notifies the Fire Department.



4. **Kitchen Systems** – Some residence hall kitchens have fire protection systems installed (usually in newer



buildings), but many do not. Students should determine if their kitchens are equipped with fire protection systems. The system is activated when heat from a fire melts a link in the cable, releasing the cable and causing the control head to discharge the fire-suppression agent over the protected area through discharge nozzles positioned above each appliance. Pulling the “manual pull station” handle also activates the system. If a dormitory kitchen has a fire protection system students should locate the manual pull station and ascertain how to use it (but don’t *actually* pull it). The pull station is clearly identified as “kitchen system.”

Additional Dorm Fire-Safety Equipment and Features

There are several other fire-safety features found in residence halls, some of which you may not realize are there. They can, however, mean the difference between life and death.

1. **Fire Extinguishers** – Fire extinguishers have been described as the first line of defense, and can be very effective when used correctly. Students must always remember “if in doubt, get out,” and to follow the extinguisher operation rules and procedures in Chapter 3.
 - a. When you move in:
 - Locate the extinguishers in your building, and determine the nearest extinguishers in proximity to your room.
 - Verify that the pressure gauge needle is in the green zone or in the 12 o’clock position.
2. **Doors** – Doors in a multi-unit building can mean the difference between life and death for you and others. There are a variety of important doors within a dorm building that are designed to maximize fire safety. Students should check with their RA to determine which doors are self-closing, and which doors can be left open. Doors must *never* be blocked or made inaccessible.
 - a. **Room Doors** – Room doors are full length and can greatly slow the spread of toxic (deadly) smoke and gases. It is critical to keep these doors closed and know how to check them before opening when a fire occurs (*see*, Chapter 5).
 - b. **Stairwell Doors** – Most stairwells are equipped with fire doors. Never prop open a self-closing fire door under any circumstance. Keeping these doors closed when not in use prevents the spread of smoke, gases, and fire into the stairwell. Stairwells should never be used as storage space.
 - c. **Section Doors** Never prop open fire separation /cross corridor doors.
 - d. **Outside exit doors** – Doors exiting to the outside are sometimes alarmed and labeled “emergency exit only – alarm will sound.” Avoid propping open outside exit doors because the fresh air can help feed a fire, causing it to intensify and spread much faster.
 - e. **Elevator Doors** – For residence halls with elevators, take note: elevator doors must not be opened, and elevators must not be used, during a fire. Elevator shafts can act as fire conduits, carrying fire from one part of a building to another. Elevators used during a fire can break down and strand occupants.

What to do if a Fire Occurs in Your Residence Hall

In Chapter 6 we covered basic rules regarding what to do if you are trapped, the R.A.C.E. procedure, and tips for specific fires. In a dormitory setting, students face additional challenges when a fire occurs.

1. **Evacuating Safely From a Dormitory** – First, ascertain if the dormitory has a prescribed evacuation (fire-exit) plan. If such a plan is not posted in the building, ask your RA or the campus fire-safety offices to provide you with the plan. Second, study and understand the evacuation plan, paying particular attention to the primary and secondary escape routes, and assembly areas. Third, remember that you are responsible for ensuring that anyone visiting you during an emergency evacuates and follows the required procedures.
2. **Escape Routes** – Dormitory buildings typically have a number of different escape routes, and it is very important for hall residents to understand in advance *all* possible exit paths, the location of stairwells, and how to get to them in an emergency.
 - a. Primary Escape Routes – These are generally the main hallway paths to the closest outdoor exit or stairwell. If it appears safe and there is no smoke or very little smoke, the primary escape route is the preferred evacuation route.
 - b. Secondary Escape Routes – The secondary routes are different travel paths from the primary route. If the primary escape route is filled with smoke, evaluate secondary escape route options in another direction toward other exterior doors and stairwells, based on speed and apparent safety to exit the building. If the preferred secondary routes also appear unsafe, *then* use window exits and escape ladder options.
 - c. Attention to Your Room Location – Depending on the size of your dorm, your location within the building and on a particular floor can greatly affect your path to a safe exit and the time required to exit safely. Students are encouraged to measure and understand the quickest exit path from their location within the building.
 - d. Other Dorm Escape Pointers – If feasible, knocking on room doors and alerting others as you evacuate is a good practice, but don't permit this to compromise your own safety by slowing down your exit. Elevators are never a viable option as a primary or secondary escape route because they may stop working or rapidly fill with toxic smoke and gases. Jumping out windows is a very bad idea. If you're trapped, follow the procedures covered in Chapter 6.
3. **Assembly Area** – Students must know which of several out-of-building assembly areas, and the individual, they are expected to report to. Once outside the building, while making your way to the designated assembly area, guide those who appear disoriented or in need of help to an appropriate assembly area, and ensure the party you're assisting is reported to those in charge. If you have pertinent information about a dorm resident who is not present (e.g., resident is out of town or on another part of campus), relay that information to the person in charge.
4. **Post Incident Procedures** – After an emergency do not re-enter the Dorm until clearance is given by an appropriate authority. Where fires occur the area will be secured until an investigation is conducted. Any disruption of the fire area can adversely affect evidence and hamper the investigation. If your possessions have been damaged, take photos and report the damage or loss to your insurance carrier (you do have renter's insurance don't you?) via an appropriate claim. Advise your RA or Campus Fire Safety Official if you believe there is fire, smoke, or water damage that they are not aware of.