HBU Fire Safety Manual

INTRODUCTION

The University Safety & Police Department is tasked with the development and execution of the campus wide Fire Safety Program. This task is divided into two areas.

- Fire Prevention & Preparedness
- Emergency Fire Response

It is the intent of the University to provide a safe and hazard free environment and solicits the participation of all members of the University community to achieve that goal.

AWARENESS

It is the responsibility of all members of the University to be alert to potentially dangerous or hazardous conditions. When these conditions are identified or suspected, they should be immediately reported to the University Police.

REPORTING

When a potentially dangerous or hazardous condition is detected it should be reported to the University Police in one of two manners.

- If it is time critical, call **281-649-3911**. This is the EMERGENCY number for the University and will generate an immediate response.
- If the matter is not time critical, call 281-649-3314/3318. If an officer is available, explain the nature of the danger or hazard. If no one answers, leave the information on the voice mail along with your name and how you can be reached for follow- up information.
- In the event of a fire, call 281-649-3911, describe the location and condition. The University Dispatcher will call for the appropriate Fire Department Response. (Do not attempt to put the fire out; always call for assistance immediately) The University is best served by routing the call through our Emergency number rather than calling 911 directly.
- By calling 3911, this ensures an immediate response by the University Police and the proper direction of the fire fighting equipment. In this way the Police know where to expect the fire department arrival and can lead them directly to the scene. If there is a fire alarm pull station, pull the alarm. 3911 should always be called since most alarms are local alarms only and don't call the fire department.

WHAT IS A FIRE?

To ensure proper communication regarding fires, it is important to understand exactly to report.

- The smell of smoke should be reported as "I smell smoke in such and such area."
- Heat should be reported as "I have a door that is very hot to the touch".
- Flames should be reported as "There is a Fire"

All of the above should trigger an immediate response from the University Police and the Houston Fire Department.

WHAT TO DO AFTER REPORTING A FIRE

Do not attempt to put the fire out! Without placing yourself in danger, close doors and windows to the area affected. This will cut down the oxygen supply to the fire. Should the situation be one of leaking natural gas, open all doors and windows to allow dilution of the gas concentrated in the area.

If you have reported a "Fire" or there is noticeable smoke, begin alerting all persons in rooms in that section of the building on all floors.

Once you have done the above, standby for the arrival of a University Police Officer. Direct the Officer to the problem area. If the Officer arrives while you u are alerting people and the location is not obvious then stop alerting and direct the Officer.

FIRE SAFETY INSPECTIONS

All Deans and Department Heads are responsible for an annual Self-Inspection of their respective work areas. These inspections should include observations of work site safety and housekeeping issues, and should specifically address proper storage of chemicals and supplies, unobstructed access to fire extinguishers, and emergency evacuation routes.

They should have an emergency evacuation plan for their area to include accommodating persons with Disabilities, and their personnel should be familiar with the plan.

While it is the responsibility of the Deans and Department Heads to ensure the above, the Director of Safety & Police will be available to assist and research needed issues.

FIRE ALARMS

All parties should be aware that most alarms on the campus are Local Alarms Only. Therefore **3314/3318** should still be called and the emergency reported.

FIRE ALARM RESPONSE

If you hear a fire alarm or call to evacuate:

- Evacuate the area. Close windows, turn off gas jets, and close doors as you leave.
- Leave the building and move away from exits and out of the way of emergency operations.
- Assemble in a designated area.
- Report to the supervisor so he/she can determine that all personnel have evacuated your area.
- Remain outside until the University Police indicate it is safe to return.

EVACUATION ROUTES

- Learn at least two escape routes, and emergency exits from your area.
- Never use an elevator as part of your escape route.
- Learn to activate a fire alarm.
- If there is heavy smoke, remember to crawl on the floor. If there is any breathable air, it will be low down, as smoke rises.
- Always feel doors before opening them in a fire. If they are hot don't open them because the fire will be on the other side.
- Learn to recognize alarm sounds.
- Take an active part in fire evacuation drills.

SMOKE DETECTORS

Batteries should be replaced every six months by maintenance and inspected by a third party annually.

FIRE EXTINGUISHERS

Before ever using a fire extinguisher, call 3314/3318 and report the fire. Failure to do this could result in the lost of your life or significantly more damage to the property, should the fire get out of control and over whelm you.

It is the recommendation of the University that only University Police and other properly trained individuals attempt to extinguish fires with fire extinguishers.

Classification of Fire Extinguishers:

- **Class A** fires involve materials such as wood, paper, and clothe which produce glowing embers or char.
- **Class B** fires involve flammable gases, liquids, and greases, including gasoline and most hydrocarbon liquids, which must be vaporized for combustion to occur.
- **Class C** fires involve fires in live electrical equipment or in materials near electrically powered equipment.
- **Class D** fires involve combustible metals, such as magnesium, potassium, and sodium.

INSPECTION OF EXTINGUISHERS

Extinguishers will be inspected once a quarter by the Safety & Police department. The condition of each will be noted and maintenance requested where needed.

SAFETY MEASURES

A Fire Warden will be established for each floor of each building on campus. This individual will assist in distributing the established policies and procedures regarding fire and fire safety. The Fire Warden will be responsible for calling for evacuation of their respective floor. The Fire Warden will be the last person out, insuring that the floor is completely evacuated. The Fire Warden will be notified by the University Police when it is safe to return to the building.

All storage rooms must be maintained in an orderly manner. Stored combustible materials should be kept to a minimum. This means the following good housekeeping practices must be employed:

- Loose storage (paper, books, or files) must be kept off floors and either put into boxes or stacked in an organized manner on shelves.
- Aisles, at least 24" wide, must be maintained to access storage and must be clear and free of tripping hazards at all times. These aisles will also act a route of escape in an emergency.
- Storage may not be stacked within 18" of a sprinkler head in areas that are protected by an automatic sprinkler system. In areas not protected by sprinklers storage must be 24 inches from the ceiling.

Electrical Safety

The following good practices must be applied to all electrical appliances/equipment:

- All electrical appliances/equipment must be in good repair and cords and exterior cases must be free of damage.
- All appliances/equipment must be directly plugged into wall outlets or power strips equipped with either a fuse or circuit breaker.

- All building electrical equipment (e.g., circuit breakers, distribution panels, outlets, lights, etc.) must be free from damage and appropriately covered (e.g., wall plates or junction box covers in place, circuit breaker panel doors in place, etc.) and must be accessible (not blocked) at all times.
- All wiring must be routed above ceiling or housed in conduit below the ceiling.
- Multi-plug adapters are prohibited.
- Extension cords may only be used on a temporary basis.

Space Heaters

Space heaters are strongly discouraged due to their inherent safety problems. If space heaters must be used, they are approved by Underwriter Laboratories (UL) or Factory Mutual (FM) can be used in offices, labs, or other enclosed areas. No fuel-supported heaters can be used. Heaters should have ceramic elements and a tilt switch. The heaters must be in good condition; no frayed cords, etc.)

Areas where heaters are used must be open and free from combustible materials (i.e., paper, wood, cloth, etc.)

Heaters must be turned off when the area is unoccupied. Deans and Department Heads are encouraged to enact a *No Space Heater* rule in their area or responsibility.

Exits

Exits, including main corridors and stairways, shall not be obstructed in any manner and shall remain free of any material that would obstruct the exit or render the exit hazardous.

- All main building corridors must have a minimum 44" clear width maintained at all times.
- Storage may not be located in corridors, even temporarily.

Mechanical Rooms

Mechanical and electrical rooms are **not** storage rooms. They are only intended to house equipment that supplies services to the building (heating, cooling, electrical distribution, communications, etc.). Access to all equipment must be unimpeded and the spaces must be free of any extraneous material.

Mechanical rooms must be locked at all times. The keys for these areas are under the control of the Maintenance Department and Police Department.

Theatrical Productions

No scenery, props, decorations, displays, seating equipment, or packing equipment may be placed so that it in any way obstructs an exit.

Exit lights must be illuminated and visible during any production.

Only non-combustible materials or fire retardant pressure treated wood may be used for stage scenery or props. Non- flame retardant materials can be treated with flame retardant.

Backdrops, curtains, draperies, decorations and similar furnishings/materials shall be flame resistant.

The use of pyrotechnics or theatrical smoke **must** have the approval of the City of Houston Fire Marshall and the Director of Safety and Police.

Flammable and Combustible Materials

Substitution
In some instances relatively safe materials ma y be substituted for flammable liquids in order to reduce the risk of fire. This should be done wherever possible. Any substituted material should be stable and nontoxic and should either be nonflammable or have a high flashpoint.

Storage
Flammable and combustible liquids require careful handling at all times. The proper storage of flammable liquids within a work area is very important in order to protect personnel from fire and other safety and health hazards.

Maximum allowable capacity of containers and portable tanks

Container Type	**IA**	**IB**	**IC**	**II**	**III**
Glass or approved plastic	1 pt	1 qt	1 gal	1 gal	1 gal
Metal (other than DOT drums)	1 gal	5 gal	5 gal	5 gal	5 gal
Safety Cans	2 gal	5 gal	5 gal	5 gal	5 gal
Metal Drums (DOT specs)	60 gal	60 gal	60 gal	60 gal	60 gal
Approved portable tanks	660 gal	660 gal	660 gal	660 gal	660 gal

- Nearest metric size is also acceptable for the glass and plastic
- One gallon or nearest metric equivalent size may be used if metal and labeled with their contents.

Definitions

"Flashpoint" means the minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with the air near the surface of the liquid.

"Combustible liquid" means any liquid having a flashpoint at or above 100 degrees Fahrenheit.

This includes Class II and Class III liquids.

"Flammable liquid" means any liquid having a flashpoint below 100 degrees Fahrenheit. This includes class I liquids.

"Class IA" shall include liquids having flashpoints below 73 degrees Fahrenheit and having a boiling point at or above 100 degrees Fahrenheit.

"Class IB" shall include liquids having flashpoints below 73 degrees Fahrenheit and having a boiling point at or above 100 Fahrenheit.

"Class IC" shall include liquids having flashpoints at or above 73 degrees Fahrenheit and below 100 degrees Fahrenheit.

"Class II liquids" shall include those with flashpoints at or above 100 degrees Fahrenheit and below 140 degrees Fahrenheit.

"Class III liquids" shall include those with flash points at or above 140 degrees Fahrenheit.

- Cabinets
  - Not more than 120 gallons of Class I, Class II, and Class IIIA liquids may be stored in a storage cabinet. Of this total, not more than 60 gallons may be Class I and II liquids. Not more than three such cabinets (120 gallons each) may be located in a single fire area except in an industrial area.
- Containers
  - The capacity of flammable and combustible liquid containers will be in accordance with Table 1.
- Storage Inside Buildings
  Where approved storage cabinets or rooms are not provided, inside storage will comply with the following basic conditions:
  - The storage of any flammable or combustible liquid shall not physically obstruct a means of egress from the building or area.
  - Containers of flammable or combustible liquids will remain tightly sealed except when transferred, poured or applied. Remove only that portion of liquid in the storage container required to accomplish a particular job.

- If a flammable and combustible liquid storage building is used, it will be a one-story building devoted principally to the handling and storing of flammable or combustible liquids. The building will have 2-hour fire-rated exterior wall having no opening with 10 feet of such storage.
- Flammable paints, oils, and varnishes in 1 or 5 gallon containers, used for building maintenance purposes, may be stored temporarily in closed containers outside approved storage cabinets or room if kept at the job site for less than 10 calendar days.

Ventilation

Every inside storage room will be provided with a continuous mechanical exhaust ventilation system. To prevent the accumulation of vapors, the location of both the makeup and exhaust air openings will be arranged to provide, as far as practical, air movement directly to the exterior of the building and if ducts are used, they will not be used for any other purpose.

Elimination of Ignition Sources

All nonessential ignition sources must be eliminated where flammable liquids are used or stored. The following is list of some of the more common potential ignition sources:

- Open flames, such as cutting and welding torches, furnaces, matches, and heaters-these sources should be kept away from flammable liquids operations.
- Cutting or welding on flammable liquids equipment should not be performed unless the equipment has been properly emptied and purged with a neutral gas such as nitrogen.
- Chemical sparks-these sparks can result as a reaction of two or more substances.
- Electrical sources of ignition such as D.C. motors, switched, and circuit breakers-these sources should be eliminated where flammable liquids are handled or stored. Only approved explosion-proof devices should be used in the areas.
- Mechanical sparks-these sparks can be produced as a result of friction.
- Only non-sparking tools should be used in areas where flammable liquids are stored or handled.
- Static sparks-these sparks can be generated as a result of electron transfer between tow contacting surfaces. The electrons can discharge in a small volume, raising the temperature to above the ignition temperature. Every effort should be made to eliminate the possibility of static sparks. Also proper bonding and grounding procedures must be followed when flammable liquids are transferred or transported.

Removal of Incompatibles

Materials that can contribute to a flammable liquid fire should not be stored with flammable liquids. Examples are oxidizers and organic peroxides, which on decomposition can generate large amounts of oxygen.

Flammable Gases

Generally, flammable gases pose the same type of fire hazards as flammable liquids and their vapors. Many of the safeguards for flammable liquids also apply to flammable gases, other properties such as toxicity, reactivity, and corrosively also must be taken into account. Also, a gas that is flammable could produce toxic combustion products.

Bonfires

Student Life, the Fire Marshal, and the Director of Safety and Police must approve all bonfires.