



University of Colorado Denver

**FIRE & LIFE SAFETY**

## Guidance Note

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## Fire Safety & Extinguishers

Facilities Operations Department

# FIRE SAFETY & EXTINGUISHERS

Nobody really plans to have a fire...

The REAL question is: "Are you **PLANNING** to **NOT** have a fire?"

### GENERAL FIRE SAFETY

For most fires to occur, three things must come together in the correct proportions:

- ◆ Fuel
- ◆ Oxygen
- ◆ An ignition source

If these elements are combined, we have the uninhibited chemical chain reaction we know as "fire." Limiting the quantities of material that burn (fuel) will limit the size and scope of the fire; however, since fuels are found in most areas (in one form or another), if we are to completely prevent a fire we must prevent ignition.

The four common sources of ignition are:

- ◆ Thermal (something that is already hot)— Many devices produce heat, such as burning candles, torches, matches, hot plates, and other items that are hot enough to start fires. Keep these heat sources away from material that could be ignited.
- ◆ Electrical – Electrical arcing is much hotter than most people realize. Normal 110-volt current, when arced, produces temperatures of at least 6000<sup>o</sup> F. Check for overloaded wiring, frayed electrical cords, and other unsafe electrical components.
- ◆ Mechanical – Such things as sparks from compressor motors, friction, and compression may produce sufficient heat for a fire to occur. Use care when locating mechanical devices near locations where flammable and combustible material is stored.
- ◆ Chemical – Chemical reactions often produce enough heat to start other materials on fire. (Note that an explosion can occur if highly incompatible materials are mixed.) Segregate and control materials that are reactive with each other.

Keys to preventing or limiting a fire: eliminate/control ignition sources, and limit and properly store combustibles. Especially take care to control flammable liquids, which greatly accelerate a fire. Only keep on-hand the quantities of flammable liquids necessary for routine use. Do not order large quantities of these materials—you will greatly increase the potential for a large-scale incident. The University has listed allowable quantities of flammable and combustible liquids. These policies are listed on the Facilities Operations Department website. The University also has strict policies for evacuations, and all alarms are to be considered as real (since all fire drills are pre-scheduled).

Building fire safety policies and hallway storage policies are listed on the Facilities Operations Department website. Do not place anything in the hallways without first contacting the campus Fire and Life Safety Officer.



**FIRE / EMERGENCY ACTIONS (A-RACE)**

Should a fire occur in your area, there are several actions you should take:

- Alert—Notify others in the immediate area, then Dial 911
- Rescue – Assist injured or disabled out of area
- Activate—Pull the nearest fire alarm pull-box (usually at or near exit doors)
- Contain – Close doors and windows as you exit the area
- Evacuate—Follow exit signs to the shortest or safest route to safety

Fire extinguishers are intended to be used immediately, before the fire becomes larger. Use a hand-held extinguisher **ONLY** if it is safe to do so, and you have adequate training.

Know your alternate routes of escape, in the event the normal route is blocked by heat or smoke. **DO NOT ATTEMPT TO USE THE ELEVATORS.** (Note that most elevators on the campus automatically recall during any fire alarm in the building. The elevators would only be usable after resetting the system.)

Remember that most fire deaths are a result of smoke and toxic gas inhalation (carbon monoxide and other products of combustion). Crawl low if necessary, get out fast, and **DO NOT** go back into the building.

**FIRE EXTINGUISHER RULES TO LIVE BY**

If you decide to use an extinguisher, you must first understand what it can and cannot do for you. Take fire safety classes, and consider the following:

1. Know what is burning
2. Use correct fire extinguisher
3. Understand use and limitations
4. Small fires only (initial stage)
5. **ALWAYS** have an **ESCAPE PATH** behind you



(Never “test” a fire extinguisher—the expellant gas will leak out within a few weeks.)

**FIRE EXTINGUISHER CLASSIFICATIONS**

- A** Ordinary combustibles (wood, paper, rubber, plastic)
- B** Flammable liquids and gases, and most greases
- C** Energized electrical (it is best to shut off the power and then use an extinguisher)

Two other classifications exist, however they are not in general use on the university campus:

- D** Combustible metals
- K** Kitchen (commercial kitchens with deep fat fryers--new classification as of 1998)



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### **TYPES IN USE**

Most commonly, the University has 10 pound ABC multi-purpose dry chemical extinguishers. In certain areas, such as labs, CO<sub>2</sub> (carbon dioxide) extinguishers may have been approved for use. While the CO<sub>2</sub> units do not leave a dry powder after discharge, they are not nearly as effective or user friendly as ABC dry chemical units.

In very restricted locations (Telecommunication server rooms) so-called "clean extinguishing agents" (such as Halon or FM-200) may be found. These have the advantage of being rated for ABC hazards and they do not leave residue; however, they are very expensive and do not have the effectiveness of dry chemical extinguishers.

Prior to ordering CO<sub>2</sub>, Halon, or other clean extinguishing agents, please contact the campus Fire and Life Safety Officer for guidance.

### **LOCATIONS of FIRE EXTINGUISHERS**

In University buildings, fire extinguishers are located in the hallway fire cabinets. In addition, laboratories are required to have a fire extinguisher located within the lab. These are best mounted near an exit, so that persons can go to the door and then make a decision if it is safe to fight the fire. Only fight a fire if you understand the rules listed above.

For more information, or to schedule a fire safety class, contact:

Fire and Life Safety Officer  
303-742-0293