



**In order to understand the basic principles of fire safety, you first need to know a little bit about fire.**

Four things must be present at the same time in order to produce fire:

- Enough oxygen to sustain combustion,
- Enough heat to raise the material to its ignition temperature,
- A fuel or combustible material, and
- A chemical, exothermic reaction.

Oxygen, heat, and fuel are frequently referred to as the fire triangle. Add in the fourth element, the chemical reaction, and you actually have a fire "tetrahedron." The important thing to remember is: keep these four things separated, and you will not have a fire.

Since oxygen is usually abundant in the air around us, **fire safety, at its most basic, is based upon the principle of keeping fuel sources and ignition sources separate.**

Fire Tetrahedron



It is important to examine your home or workplace and take note of potential heat sources and volatile fuels, such as gasoline.

### Classification of fires

Fires are also classified according to type.



**Class A:** Wood, paper, cloth, rubber, and certain plastics.

**Class B:** Flammable liquids or gases - gasoline, oil, grease, propane, paint thinner.

**Class C:** Electrical fires - any energized piece of electrical equipment.

### Preventing Fires

**Class A fires:** Make sure combustible materials do not come in contact with potential heat sources such as floor furnaces, pilot lights, light bulbs, space heaters, and electrical sources. Practice good housekeeping...don't let piles of newspapers or oily rags build up. Dispose of cigarettes properly. Keep matches and other lighters away from children.

**Class B fires:** Always be careful when using flammable or combustible liquids. Most of these liquids emit fumes that are heavier than air. These fumes can travel long distances and may be ignited by ignition sources such as pilot lights, electrical sparks or even static discharges. Store gasoline in approved safety cans only. Wait until gasoline powered equipment has cooled off before refueling.

**Class C fires:** Don't overload wall outlets. Make sure cords and wires are in good condition. Replace them if they become frayed or damaged. Don't run cords under carpets or through doors or windows.



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### In Case of Fire

Assist any person in immediate danger to safety, if it can be accomplished without risk to yourself. The first priority in a fire is ensuring your own safety.

Immediately activate the building fire alarm system. This will automatically notify the fire department and get help on the way. It will also sound the fire alarm bells/horns to evacuate others from the building, and it will shut down the air handling units to prevent the spread of smoke. It is best to have the fire department respond and not be needed than to have them arrive too late to make a rescue.

If your building does not have a fire alarm system, dial 911 from a safe location.

If you decide to attempt to fight the fire with a fire extinguisher, you may have someone pull a pull box or call 911 for you. Attempt to fight the fire *only* if it is small enough, and you have an appropriate fire extinguisher on hand.

#### **Do not attempt to fight a fire if the following conditions exist:**

- You don't know what's burning.
- You can't see it.
- The fire is spreading rapidly.
- The fire might block your escape if you don't get out immediately.
- You don't have the proper equipment.
- You might inhale toxic smoke.
- Your instincts tell you not to do so.

If any of these conditions exist, it is best to just evacuate the building immediately. (Crawl low if smoke is present. Check doors for heat before opening.)

Doors, and if possible, windows, should be closed as the last person leaves a room or area.

Do not use elevators, use building stairwells.

Upon evacuation of the building, proceed to a designated meeting area where head counts can be taken.

Never reenter a building without permission from the fire department.



*Did you know that different kinds of fire extinguishers are designed for different classes of fires?*

**Find out what type of extinguishers are located in your work area!  
Contact EHS at 744-7241 or email [ohsp@okstate.edu](mailto:ohsp@okstate.edu) to arrange Fire Safety Training and/or Hands on "Live Fire" Extinguisher Training.**