

ST. TAMMANY FIRE FIRE PROTECTION DISTRICT NO. 11

Fire Prevention

Portable Fire Extinguishers

A fire is the most common type of emergency other than medical emergency's that you may face. A critical decision that must be made for is whether you should fight a small fire with a portable fire extinguisher or immediately begin evacuations. Small fires can often be extinguished rather quickly by a well-trained employee or home owner with a portable fire extinguisher.

To extinguish a small fire with a portable fire extinguisher safely, you as an employee or home owner must understand the use and the limitations of a portable fire extinguisher and the hazards associated with fighting a fire.

Should you attempt to extinguish small fires or begin evacuating?

In few cases would it be our encouragement to make an attempt to extinguish a small fire. A portable fire extinguisher has two main functions; to control or extinguish a small or incipient stage fire and to protect or clear and evacuation route of burning or smoldering material.

To extinguish a fire with a portable extinguisher, you must have immediate access to the fire extinguisher, know how to use the extinguisher, and know how to apply the agent effectively. Attempting to extinguish even a small fire carries some risk. A fire can increase in size and intensity in a matter of seconds and block the exit paths of yourself and then create a hazardous atmosphere. In addition to blocking exits and creating a hazardous atmosphere, portable fire extinguishers carry a limited amount of extinguishing agent and can be discharged rather quickly. Therefore, you should only attempt to fight a very small or incipient fire or make a decision to begin safe evacuations.

Here are some questions you may ask yourself and answers to those questions that may help you make a quick decision to extinguish or evacuate.

Is the fire too big?

Attempt to extinguish if: The fire is limited to the original material ignited, it is contained (such as in a waste basket) and has not spread to other materials. The flames are no taller than you.

Do NOT attempt to extinguish if: The fire involves flammable solvents, has spread over more than 60 square feet, is partially hidden behind a wall or ceiling, or can not be reached from a standing position.

Is the air safe to breathe?

Attempt to extinguish if: The fire has not depleted the oxygen in the room and is producing only small quantities of toxic gases. No respiratory protection equipment is required.

Do NOT attempt to extinguish if: Too much smoke and toxic gases are released and the fire can not be properly extinguished without respiratory protection.

Is the environment too hot or smoky?

Attempt to extinguish if: Heat is being generated, but the room temperature is only slightly increased. Smoke may be accumulating on the ceiling, but visibility is good. No special protective equipment is required.

Do NOT attempt to extinguish if: The heat is easily felt on exposed skin making it difficult to approach within 10-15 feet of the fire. (The 10-15 feet is the range of the portable fire extinguisher.) Do not attempt if you must crawl on the floor to avoid heat and smoke. Smoke is quickly filling the room.

Is there a safe evacuation path?

Attempt to extinguish if: There is a clear evacuation path that is behind you as you extinguish the fire.

Do NOT attempt to extinguish if: The fire is not contained, and fire heat or smoke may block your evacuation path.

Fire and Extinguisher Operation:

Fire Triangle:



To understand how a portable fire extinguisher works, you need to understand a little about fire. Fire is a very rapid chemical reaction between oxygen and a combustible material, which results in a release of heat, light, flames, and smoke.

For fire to exist, the following four elements must be present at the same time:

- Enough **oxygen** to sustain combustion,
- Enough **heat** to raise the material to its ignition temperature.
- Some sort of **fuel** or combustible material, and
- The Chemical reaction occurs creates – **FIRE**.

How a portable fire extinguisher works:

Portable fire extinguishers apply an extinguishing agent that will either cool burning fuel, displace or remove oxygen, or stop the chemical reaction so a fire cannot continue to burn.

When the handle of an extinguisher is compressed, it opens an inner canister of high-pressure gas that forces the extinguishing agent from the main cylinder through a



siphon tube and out of the nozzle. A fire extinguisher works much like a can of hair spray.

Types of portable fire extinguishers:

Class A: Ordinary Combustibles

Fire in paper, cloth, wood, rubber, and many plastics that require a water type extinguisher labeled A.



Class B: Flammable Liquids

Fires in oils, gasoline, some paints, lacquers, grease, solvents, and other flammable liquids require an extinguisher labeled B.



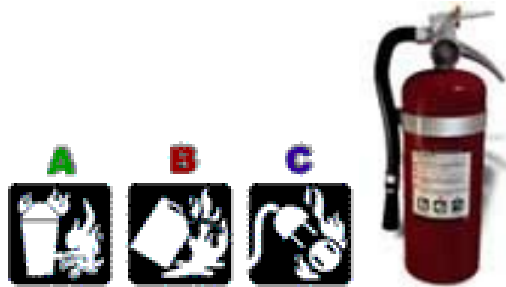
Class C: Electrical Equipment

Fires in wiring fuse boxes, energized electrical equipment, computers, and other electrical sources require an extinguisher labeled C.



Multi-Purpose: Ordinary Combustibles, Flammable Liquids, or Electrical Equipment

Multi-purpose dry chemical is suitable for use on class A, B, and C.



Class D: Metals

Combustible metals such as magnesium and sodium require special extinguishers labeled D.

Air-Pressurized water extinguisher (APW):



Water is one of the most commonly used extinguishing agents for type A fires (Ordinary Combustibles). You can recognize this extinguisher by its large silver container. They are filled about two-thirds of the way with water, then pressurized with air. In some cases, detergents are added to the water to produce foam. They are about 2-3 feet tall and weigh approximately 25 pounds when full.

Air-Pressurized water extinguishers extinguish fires by cooling the surface of the fuel to remove the **heat** element of the fire triangle.

WARNING:

Flammable Liquid Fires: Water is extremely ineffective at extinguishing this type of fire and could in fact worsen the situation by spreading the fire.

Electrical Fire: Water conducts electricity and may lead to electrocution. If electrical equipment is unplugged and not energized then water may be used to extinguish the fire.

Carbon Dioxide (CO2) Extinguishers:



This type of extinguisher is filled with Carbon Dioxide (CO₂), a non-flammable gas that is under extreme pressure. These extinguishers extinguish fire by **displacing oxygen**, or taking away the **oxygen** element of the fire triangle. Because of its high pressure, when you use this extinguisher piece of dry ice shoot from the horn, which also has a cooling affect on the fire.

You can recognize this type of extinguisher by its hard horn and absent pressure gauge.

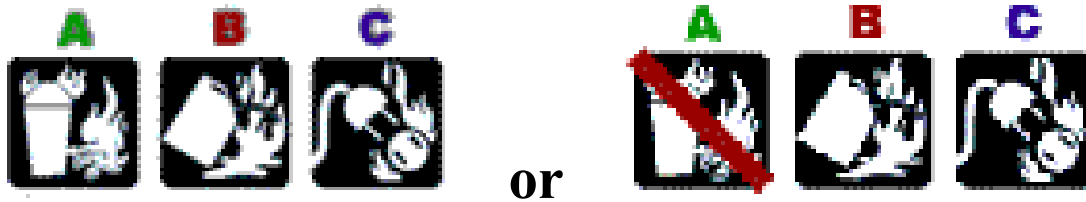
CO₂ cylinders are red and range in size from 5 to 100 pounds or larger.

IMPORTANT:

- CO₂ is not recommended for Class A fires because they may continue to smolder and re-ignite.
- Never use CO₂ extinguishers in a confined space while people are present.

CO₂ extinguishers will be found in industrial vehicles, mechanical rooms, computer labs, and flammable liquid storage areas.

Dry Chemical Extinguishers:



Dry chemical extinguishers put out fires by coating the fuel with a thin layer fire retardant power, separating the **fuel** from the **oxygen**. The powder also works to interrupt the **chemical reaction**, which makes these extinguishers extremely effective.

Dry chemical extinguishers are usually rated for class B and C fires and may be marked multiple purpose for use in A, B, and C, fires. They contain an extinguishing agent and use a compressed, non-flammable gas as a propellant.

ABC fire extinguishers are red in color, and range in size from 5-20 pounds.

Dry chemical extinguishers will have a label indicating they may be used on class A, B, and/or C fires.

Dry chemical extinguishers will be found in a variety of locations including;

- Public hallways
- Laboratories
- Mechanical rooms, break rooms
- Chemical storage areas
- Offices
- Commercial vehicles
- Storage areas with flammable liquids

Using a fire extinguisher:

The following steps should be followed when attempting to extinguish a small or incipient stage fire:

- Sound the fire alarm and/or call the fire department.
 - o The alarm will alert other employees or other people. Have someone else call the fire department to make sure they are en

route. Do this by dialing 9-1-1 and telling the dispatcher you need to report a fire.

- Identify a safe evacuation path before approaching the fire. Do NOT allow the fire, heat, or smoke to come between you and your evacuation path.
 - o Never turn your back on the fire.
- Select the appropriate type of fire extinguisher to do the job.
- Discharge the extinguisher within its effective range using the **P.A.S.S.** technique (**P**ull, **A**im, **S**queeze, **S**weep). Aim at the base of the fire and sweep the nozzle back and forth rapidly.
- Back away from the extinguished fire in case it flames up again.
- Evacuate immediately if the extinguisher is empty and the fire is not out.
- Evacuate immediately if the fire progresses beyond the small or incipient stage.

Most fire extinguishers operate using the following P.A.S.S. technique.

1st, PULL... Pull the pin. This will also break the tamper seal.

2nd, AIM... Aim low, pointing the extinguisher nozzle (or its horn or hose) at the base of the fire

SPECIAL NOTE: Do NOT touch the plastic discharge horn on the CO2 extinguishers, it gets very cold and may damage your skin.

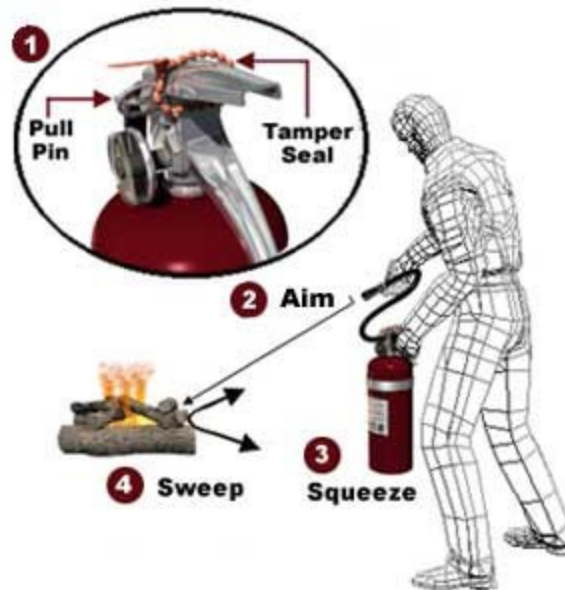
3rd, SQUEEZE... Squeeze the handle to release the extinguishing agent.

4th, SWEEP... Sweep from side to side at the base of the fire until it appears to be out. Watch the area. If the fire re-ignites, repeat steps 2 – 4

IF YOU HAVE THE SLIGHTEST DOUBT ABOUT YOUR ABILITY TO EXTINGUISH THE FIRE SAFELY AND PROPERLY...

EVACUATE IMMEDIATELY!

Forget the P.A.S.S. and haul @\$



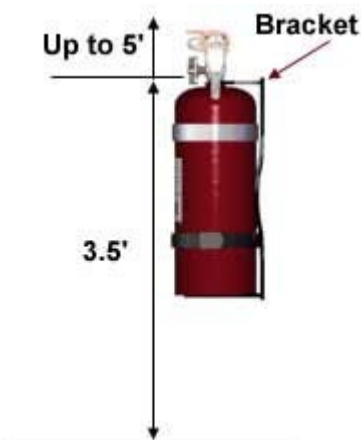
Fire Extinguisher Placement:

Portable fire extinguishers can be an effective early response to a developing fire, if they are installed and used properly. If employees use portable fire extinguishers to fight small fires, they must be installed in all areas of the workplace. At home, you should place a fire extinguisher in different places throughout your home including garage, kitchen and laundry room.

To avoid putting workers in danger, fire extinguishers should be located throughout the workplace and readily accessible in the event of a fire. You can usually find them in hallways, laundry rooms, meeting rooms, kitchens, mechanical/electrical rooms, and near exit doors.

To prevent fire extinguishers from being moved or damaged, they should be mounted on brackets or in wall cabinets with the carrying handle placed 3 ½ to 5 feet above the floor. Larger fire extinguishers need to be mounted at lower heights with the carrying handle about 3 feet from the floor.

Before fire extinguishers are installed, the label should be checked to be sure it is approved by a nationally recognized testing laboratory such as Underwriters Laboratory (UL) or Factory Mutual (FM)



Care and Maintenance:

Regular maintenance and inspections of your portable extinguishers will provide assurance that they will operate and safely if they are needed.

Inspect all extinguishers at least once a month. Use the following checklist as a guide.

1. Is each extinguisher in its designated place, clearly visible, and not blocked by equipment, coats or other objects that could interfere with access during an emergency?
2. Is the nameplate with operating instructions legible and facing outwards.
3. Is the pressure gauge showing that the extinguisher is fully charged (the needle should be in the green zone)?
4. Is the pin and tamper seal intact?
5. Is the extinguisher in good condition and showing no signs of physical damage, corrosion, or leakage?
6. Have all dry power extinguishers been gently rocked top to bottom to make sure the powder is not packing?

NOTE: If you did not answer yes to all of these questions, have the extinguisher fixed or replaced immediately!



Questions or comments?

If you have any questions or comments please feel free to contact us.

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Or stop by and visit us at any of our stations: