Fire Extinguisher Maintenance and Inspection

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Fire extinguishers are devices commonly found indoors and are used to douse fire and prevent its spread. They are small metal canisters that contain compressed gas (usually nitrogen) that, when activated, propel a directed spray of flame-retardant chemicals. Fire extinguishers are only effective if building occupants understand where and why they are used.

Fire Type

Fire extinguishers are distinguished based on the types of fires on which they are effective. These fires are classified by their fuel source and assigned identifying letters as follows:

“A” class – Fires that result from ordinary combustibles, such as wood and paper.
“B” class – Fires that result from combustible liquids, such as kerosene, gasoline, oil, and grease.
“C” class – Fires of an electrical nature. These result from the combustion of circuit breakers, wires, outlets, and other electrical devices and equipment. Extinguishers designed to handle this type of fire cannot use chemicals that are conductive since conductive agents increase the risk of electric shock to the operator.
“D” class – Fires resulting from combustible metals, such as sodium, potassium, titanium, and magnesium. These fires occur mostly in chemical laboratories and are rare in most other environments.
“K” class – These types of fires consume vegetable oils, animal fats, and generally happen in kitchens.

*Note* Although, technically, the letter rankings listed above refer to fire types, these symbols can also be used to identify the extinguishers themselves. For instance, an extinguisher that uses CO2 can be called a “CO2 extinguisher” or a “BC extinguisher.”

Extinguisher Types

No fire extinguisher can be safely and effectively used for every type of fire. Some contain chemicals that are ineffective in certain situations and can even cause harm to the operator if misapplied. To prevent confusion, extinguishers are classified by the type of chemical agents they contain. A few of the most common extinguisher types are listed below:
Dry Chemical — There are two types of fire extinguishers that use a dry chemical. One is called “multi-purpose dry chemical” and uses ammonium phosphate as the extinguishing agent, which is effective on “A,” “B,” and “C” class fires. This chemical is corrosive and must be scrubbed from surfaces after use. These types of extinguishers are very common and are found in schools, homes, hospitals and offices. Sodium bicarbonate is used in extinguishers known as “regular dry chemical,” which are capable of handling “B” and “C” class fires. These extinguishers are found in garages, kitchens and laboratories. Sodium bicarbonate is easy to clean and non-toxic.

Carbon Dioxide — These extinguishers contain liquid CO2 that is expelled as a gas. They are effective against “B” and “C” class fires. Unlike other chemicals, CO2 does not leave a harmful residue and is environmentally friendly. It also poses very little danger to electronics and is effectively employed in laboratories, computer rooms, and other areas with sensitive equipment.

Water Extinguishers — These extinguishers are most suited for “A” class fires. However, they cannot be used in “B,” “C” or “D” class fires. In “B” and “D” class fires, the water will spread the flames. In a “C” class fire, the water is conductive and poses a risk of electric shock to the operator. However, the misting nozzle of a "Water Mist" extinguisher breaks up the stream of deionized water so that there is no conductive path back to the operator. Since the agent used is water, these types of extinguishers are inexpensive and environmentally friendly.

Wet Chemical Fire Extinguishers — These devices are designed to combat “K” class fires and commonly use potassium acetate. They are appropriately employed in commercial kitchens and restaurants, especially around deep fryers. The chemical is emitted as a fine mist that does not cause grease to splash onto other surfaces. They can also be used in “A” class fires.
When To Fight The Fire...

Fight the fire only if all of the following are true:

- Everyone has left or is leaving the building.
- The fire department is being called.
- The fire is small and confined to the immediate area where it started (wastebasket, cushion, small appliance, etc.).
- You can fight the fire with your back to a safe escape route.
- Your extinguisher is rated for the type of fire you are fighting and is in good working order.
- You are trained to use the extinguisher and know you can operate it effectively.

If you have the slightest doubt about whether you should fight the fire — DON'T! Instead, get out and close the door behind you.

PROTECT YOURSELF AT ALL TIMES!

Stay low. Avoid breathing the heated smoke and fumes or the extinguishing agent.

If the fire starts to spread or threatens your escape route, get out immediately!

Remember:

If you are called on to use an extinguisher, just think of the word “P.A.S.S.”

PULL

the safety pin at the top of the extinguisher.

Aim

the nozzle or hose at the base of the flames. Stay between six and eight feet away from the flames.

SQUEEZE

or press the handle.

SWEEP

from side to side at the base of the fire until it goes out.

By following these procedures, a fire can be extinguished in the quickest and safest manner possible.