



Fire Extinguisher Safety

INNM



Pre-Fire

- A fire is the most common type of emergency for which organizations must plan.
- Small fires can often be put out quickly by a well-trained employee with a portable fire extinguisher.
- To do this safely, you must understand the uses and limitations of a portable fire extinguisher and the hazards associated with fighting fires.
- Know your facility's "Company Policy"



Use or Not to Use?



- When faced with a fire, the first and most important decision to make is to fight it or flee it
- Your organization's policies will also impact your decision – make sure you know what they are
 - Some organizations have a total evacuation policy
 - Others allow only designated, trained employees to fight fires
 - Others still allow any employee to fight a fire so long as they have had proper training
- Remember that everyone (including you) has their own limitations; don't attempt to do anything beyond your capabilities. Good intentions can easily turn into dangerous and potentially deadly results



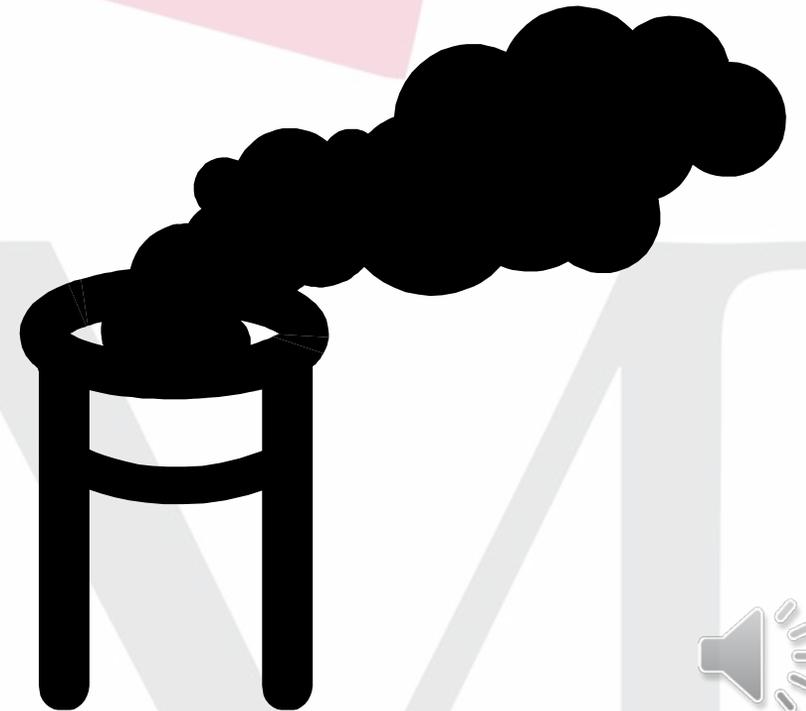
Evaluate the Situation

Is the fire too big?

Is the air safe to breathe?

Is the environment too hot or smoky?

Is there a safe evacuation path?



Fire

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

- Enough **oxygen** to sustain combustion
- Enough **heat** (or energy) to raise the material to its ignition temperature.
- Some sort of **fuel** or combustible material
- **Chemical Reactions**



Portable Fire Extinguishers



Portable fire extinguishers apply an extinguishing agent that will either:

- Cool
- Displace or remove oxygen
- Stop the chemical reaction

When the handle of an extinguisher is depressed, it opens an inner canister of high-pressure gas that forces the extinguishing agent from the main cylinder through a siphon tube and out the nozzle. A fire extinguisher works much like an aerosol can.



Classes of Fires

- **Class A fires are ordinary combustibles**, such as fires in paper, cloth, cardboard and wood.
- **Class B flammable liquids fires**, such as fires in gasoline, petroleum oils & grease.
- **Class C electrical equipment fires** in wiring, fuse boxes, energized electrical equipment.
- **Class D combustible metals** such as aluminum, magnesium and sodium require special extinguishers.
- **Class K fires involving cooking oils and greases**, such as animal and vegetable fats.



Fire Extinguisher Types

- Air-pressurized water and foam extinguishers
- Carbon dioxide (CO₂) extinguishers
- Dry-chemical extinguishers, sometimes called “multi-purpose” extinguishers

Others include:

- Wet chemical
- Halogen or clean agent
- Dry powder
- Water mist



Air Pressurized H₂O Extinguisher

- You can recognize an air-pressurized water extinguisher (APW) by its large silver container.
- They are filled about two-thirds of the way with ordinary water, then pressurized with air.
- APWs extinguish fire by cooling the surface of the fuel to remove the "heat" element of the fire.
- APWs are designed for **Class A** (wood, paper, cloth, rubber and certain plastics) fires ONLY.



Carbon Dioxide (CO₂) Fire Extinguisher

- Filled with Carbon Dioxide (CO₂), a non-flammable gas under extreme pressure
- These extinguishers put out fires by displacing oxygen, or taking away the oxygen element of the fire
- You can recognize this type of extinguisher by its hard horn and absent pressure gauge



Dry Chemical Fire Extinguisher

- Dry chemical extinguishers put out fires by coating the fuel with a thin layer of fire retardant powder, 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 Class A, B, and C fires.



Wet Chemical Extinguishers

- Wet chemical extinguishers put out fires by removing the heat and prevent re-ignition by separating the fuel from the oxygen with a wet chemical barrier.
- Wet chemical or **Class K** extinguishers are used on fires involving cooking oils and greases, such as animal fats and vegetable fats.
- These extinguishers can be found in commercial kitchens and cooking operations



Fire Extinguisher Standards

- All portable fire extinguishers must be approved by a nationally recognized testing laboratory such as Underwriters Laboratories, Inc. (UL) or Factory Mutual Research (FM) to verify compliance with applicable standards 1910.157(c)(2)
- Equipment that passes the laboratory's tests is labeled and given an alpha-numeric classification based on the type and size of fire it will extinguish



Labels On Fire Extinguishers

- The letters (A, B, and C) represent the type(s) of fire for which the extinguisher has been approved
- The number in front of the A rating indicates how much water the extinguisher is equal to and represents 1.25 gallons of water for every unit of one
 - E.g., a 4-A rated extinguisher would be equal to five (4 x 1.25) gallons of water
- The number in front of the B rating represents the area in square feet of a class B fire that a non-expert user should be able to extinguish
 - Using this example, a non-expert user should be able to put out a flammable liquid fire that is as large as 10 square feet



P A S S

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

- 1. PULL...** Pull the pin. This will also break the tamper seal
- 2. AIM...** Aim low, pointing the extinguisher nozzle (or its horn or hose) at the base of the fire
 - **Note:** Do not touch the plastic discharge horn on CO2 extinguishers, it gets very cold and may damage skin
- 3. SQUEEZE...** Squeeze the handle to release the extinguishing agent
- 4. 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 fight a fire...EVACUATE IMMEDIATELY!



Inspection

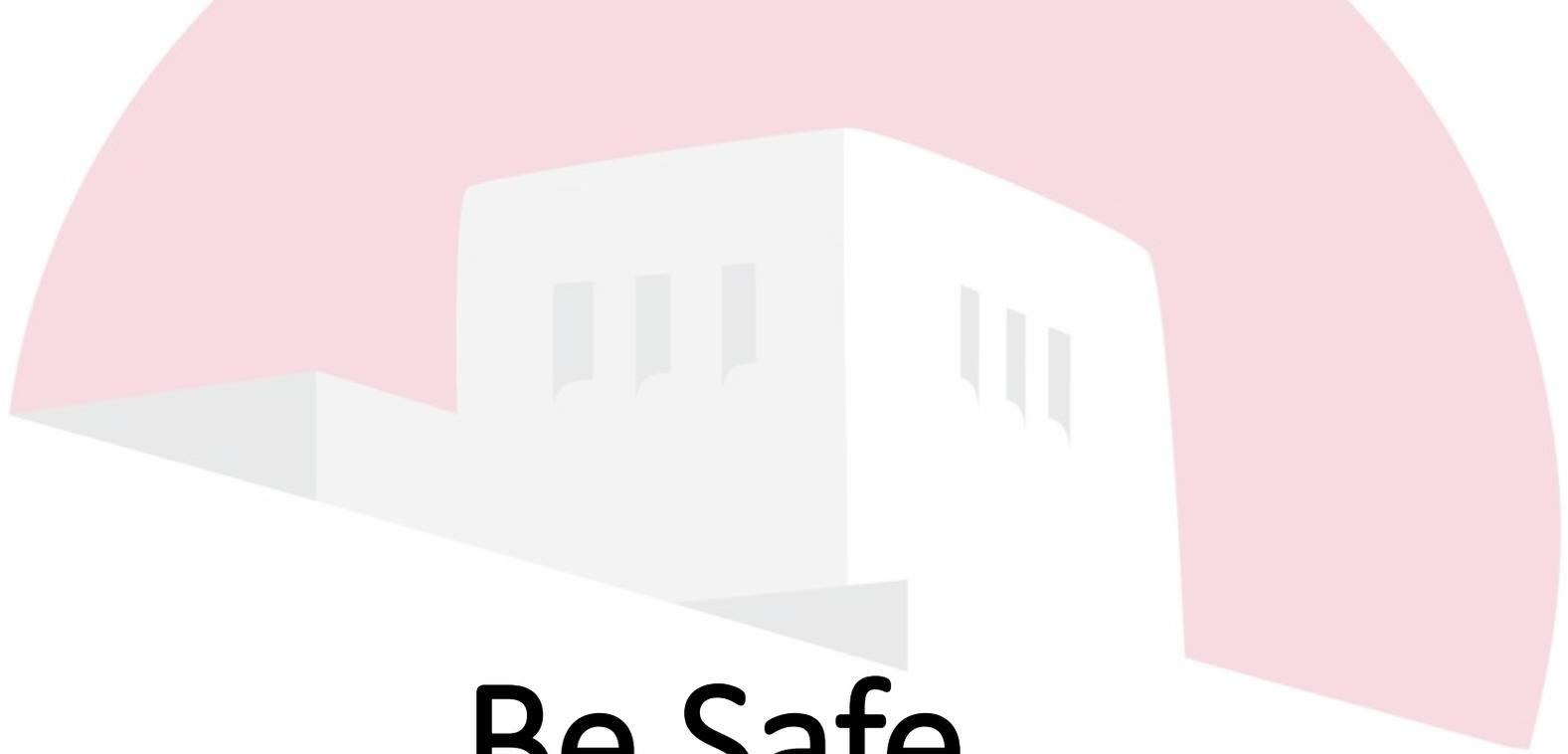
- All fire extinguishers should be inspected every 30 days and logged on the inspection tag.
- Fire extinguishers should be:
 - Easily visible and readily accessible. Don't stack materials in front of extinguishers
 - The right Class of extinguisher for the materials in the area
 - In good working condition with no signs of rust, damage, or leakage with a legible label and operating instructions
 - Fully pressurized and equipped with an intact safety seal
- Extinguishers must be maintained on a regular basis to ensure proper operational readiness.
- Thorough inspection and maintenance should be done at least annually by a fire service professional.



UNM Fire Extinguisher Policy

- See UNM's Fire Extinguisher Policy for details





Be Safe

INNM



Acknowledgement

I _____, have completed the Fire Extinguisher Safety training.
(Print Name)

Date: _____

Please print the acknowledgement sheet, fill in requested information and email to srsweb@unm.edu to complete training.