Fire Extinguisher Safety

Monthly Safety Meeting Topic

Important!

Use of a fire extinguisher is

VOLUNTARY!

Chemistry of fire

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

- 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** that is fire.

Take away any of these and the fire will be extinguished

How fire spreads

1. Direct burning – chemical reaction
2. Convection
3. Radiation
4. Conduction

Fire Creep

Burning material falling onto other combustible materials

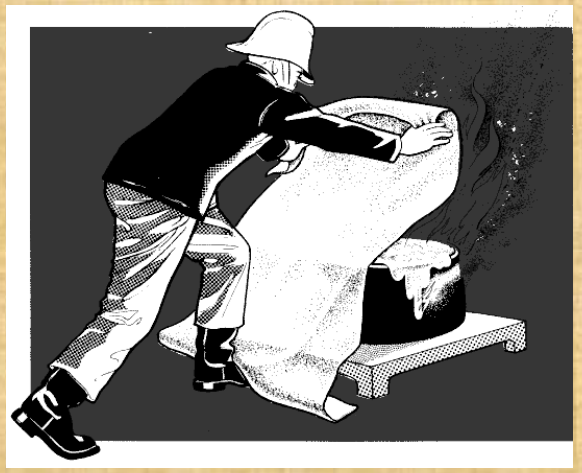
Flashover

Ways of fighting fire:

1. **Leave it to the experts!**

2. Cooling

3. Suffocating



4. Removing the fuel (Starving)

Classes of fire

Fires are classified according to the type of fuel that is burning.

Using the wrong type of fire extinguisher on a fire may make matters worse.

The five different fire (fuel) classes…

- **Solids** – class **A** fire – paper, cardboard, wood, textiles, ordinary combustibles
- **Liquids or liquefiable solids** – class **B** fire - gasoline, diesel, hydrocarbons
- **Live Electrical Equipment** – class **C** fire – wiring, outlets, electric panels, motors
- **Combustible Metals** – class **D** fire – Magnesium, Titanium, (laboratories)
- **Commercial Cooking** – class **K** – deep fat fryers, commercial kitchens, etc.

What about fires in electrical equipment?

1. example
2. example
3. example

- Look around your office for examples of electrical hazards.
- Do you see any on the next 3 pages in your department?

1. They may be caused by a heater plugged into an extension cord or surge protector.

2. They may be caused by a surge protector plugged into another surge protector.

3. They may be caused by a refrigerator or microwave oven plugged into a surge protector or extension cord.

extension cords and surge protectors cannot handle the energy that large appliances such as refrigerators and microwaves consume and will overheat or even melt.

How an extinguisher works

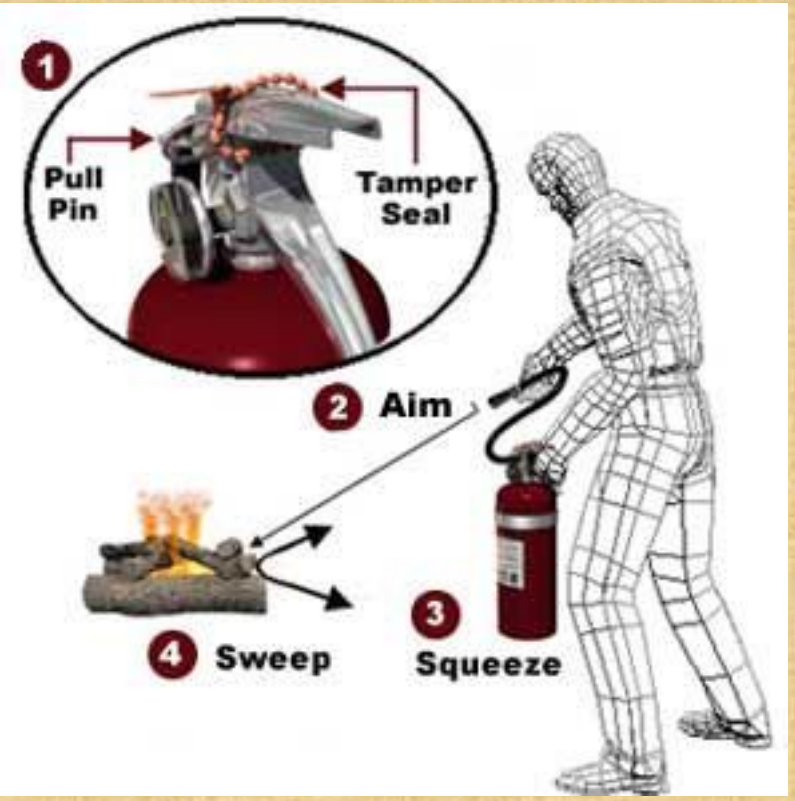
Portable fire extinguishers apply an extinguishing agent that will either:
- cool burning fuel
- displace or remove oxygen, or
- stop the chemical reaction so a fire cannot continue to burn.

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 the nozzle. A fire extinguisher works much like a can of hair spray.

How to use an extinguisher … 1

Always raise the alarm first

1. **Pull** the safety tag and pin
2. **Aim** at the base of the fire
3. **Squeeze** the handle levers
4. **Sweep** the jet from side to side

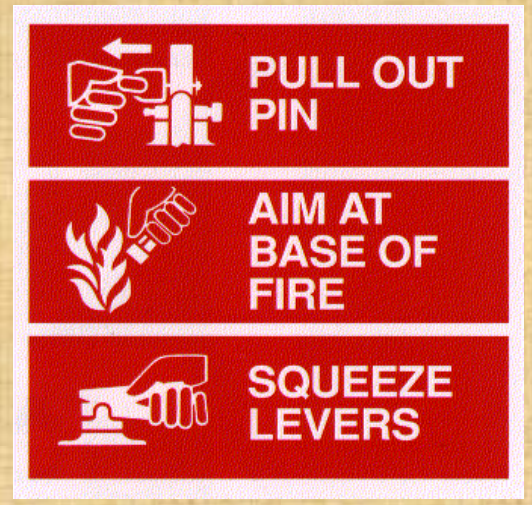


If you have the slightest doubt about your ability to fight a fire....
EVACUATE IMMEDIATELY!

How to use an extinguisher …2

1. Use the right type of extinguisher
2. Keep your escape route clear and your back to it
3. Get within effective range but stay safe
4. Always be prepared to abandon the fight - if you don't think it's safe, escape!
5. Speed is important
6. Beware - Noise, visibility, steam!

Samples of Instructions



Types of extinguisher

For use on solid organic (**Class A)** fires

Normally 9 litre, weight about 12kg

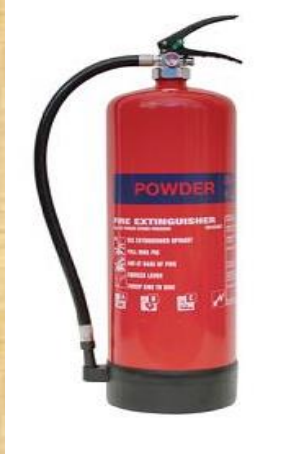
Must last 45s minimum, most only last around 90s

Don't use on oils, fats, live electrics

For use on **Liquids** (**Class B)** fires and fires in **electrical equipment**
Black band denotes CO2
Normally 2kg or 5kg
Noise! Cold! Lasts around 30s

Types of extinguisher

For use on **Class A or B** fires
Foam or AFFF denoted by the cream band
Usually 6 or 9 litre
Ineffective on deep cooking oil fires, don't use on live electrics



For use on **Class A, B or C** fires

Blue band denotes powder

Normally 2kg, 4kg or 6kg

Can be similar size to water or foam/AFFF

Messy! Visibility!

Types of extinguisher

For use on **Class A or B** fires

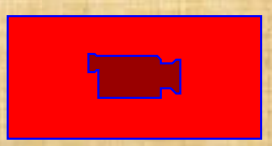
Make sure blanket covers fire!

Other means of fire fighting: Sand buckets,

Hose reels,

Beware …!

1. Fires involving gas will reignite if the source is not isolated – explosion risk!
2. If possible, turn off power before tackling a fire in electrical equipment
3. When is a fire small enough to tackle … or too large to deal with?
4. One fire = One extinguisher
5. Be prepared to abandon the fight if you don't start to control the fire quickly



People fires …

STOP, DROP, ROLL

Don’t use extinguishers (maybe water mist?)

Don’t flap or slap at the burning clothes

React rapidly / urgently but stay calm

Don’t become a victim yourself

6ft fire blankets in some laboratories

Risk Assessment?

Is the fire too big?

Is the environment too hot or smoky?

Locate a safe evacuation path?

If you don't feel safe – don't put yourself at risk … escape and call out the experts

Review

Using a fire extinguisher!

How to use it – P.A.S.S.

Pull the pin out.

Aim at the base of the fire.

Squeeze the trigger.

Sweep from side to side.

Get close enough, stay low.

Practical assessment

To fight a fire and extinguish you must use the right extinguisher and use it properly

Don’t take too long!

Your speed is important for success

Be prepared for a re-ignition!

Be prepared to abandon if you feel the fire is too severe.

Any Questions?

Email the Grambling State University

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