

RACES Field Operations Course -Unit 10

“Fire Safety Awareness”

and Extinguisher Training



Developed in cooperation with the National Fire Protection Association and the Public Information and Life Safety Education Section of the

Fairfax County Fire & Rescue Department

4100 Chain Bridge Road, Fairfax, VA 22020

www.co.fairfax.va.us/ps/fr/general/Piolve.htm

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<http://www.ilpi.com/safety/extinguishers.html>

OUR AGENDA TODAY:

After viewing and discussing this module you should be aware of :

- **Fire Prevention Basics**
 - Home and Workplace
 - Fire Safety Checklist
 - Motor vehicle considerations
- **Personal Safety**
 - When NOT to fight a fire - *“Fight or Flight”* Analysis
 - Building Alarm and Evacuation Procedures
 - REACT upon discovery of fire or smoke
- **Common types of extinguishers**
 - How to use them EFFECTIVELY and SAFELY!
 - On what types of fires

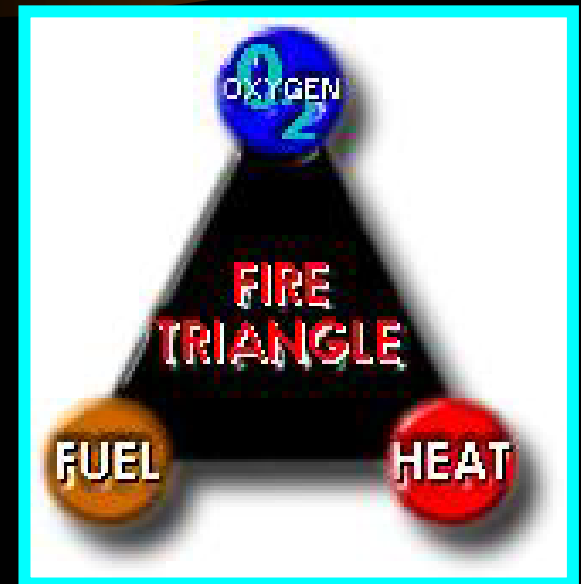


FIRE PREVENTION BASICS

Fire is the most common workplace and home hazard !

To protect yourself:

- **KNOW** how fires are caused
 - Oxygen + Fuel + Heat = ***FIRE!!***
 - Remove any one - you have no fire!
- **REPORT** unsafe conditions
- **PRACTICE** good housekeeping
- **LEARN** and **Practice** Emergency Procedures



AT HOME PRACTICE “EDITH”

- Exit Drills In The Home
 - Crawl low to avoid smoke
 - Exit the door
 - Meet outside



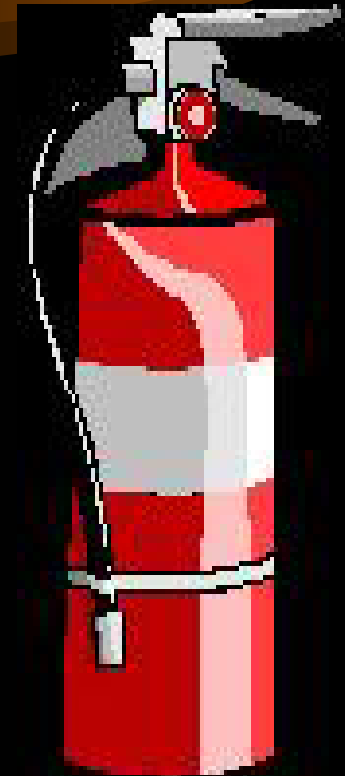


HOME SAFETY TIPS: *Everyone needs to have a family Evacuation plan discussion*

- **Two means of escape**, remote from each other
 - Exit doors or windows not locked or blocked
- **Safe meeting place** to account for everyone
- **SMOKE AND “CO” ALARMS**
 - Test weekly , change battery at least yearly
- **CLEARANCES** from combustibles
 - 3 feet from heat sources, appliances
- **STORAGE** - approved containers, housekeeping
 - Covered, fire resistant, rodent proof
 - Remove trash to outside daily

FIRE PREVENTION AT WORK :

- **EXITS** - means of egress clear
 - Clearances, Signage, Emergency Lighting
- **FLAMMABLE LIQUIDS**
 - Fire rated storage, clean up leaks, spills
- **VENTILATION** of fume sources
 - Battery banks, motorized equipment, backup generators, fuel or paint storage
- **SAFETY PROCEDURES**
 - Equipment, welding, soldering, electronics,
- **EXTINGUISHERS**
 - In plain view, of appropriate Type
 - Of adequate capacity, test annually
- **INSPECT** monthly
 - Building alarms, Smoke / CO detectors
 - Equipment, power connections




MOTOR VEHICLE CONSIDERATIONS:

- **If vehicle CARGO IS ON FIRE**
DO NOT open cargo doors
(air intensifies fire!)
- **If FIRE IN ENGINE COMPARTMENT**
DO NOT OPEN THE HOOD!
(air intensifies fire!)

MOTOR VEHICLE SAFETY:

If vehicle catches fire during operation:


-  **IN A SAFE LOCATION !**
 - Such as an open field or parking lot,
 - NEVER at a gas station!

EQUIPMENT SAFETY:

If equipment catches fire during operation

- **TURN OFF THE EQUIPMENT!**
- **REMOVE COMBUSTIBLES**
 - **If you can without danger to yourself !**
- **CALL THE FIRE DEPARTMENT!**
 - **BEFORE** you try to put out the fire!
 - **THEN get help to fight the fire IF you...**
 - **HAVE** a proper extinguisher available
 - **...AND have been trained how to use it!**

PERSONAL SAFETY :

-  **DROP and ROLL**, if clothing catches fire
 - If co-worker catches fire, tackle and extinguish
 - Smother fire with heavy coat or blanket if available
- **BEFORE** Opening Door Feel for heat, Look for Smoke
 - Palms Out, NOT touching the door!
 - If HEAT or SMOKE coming from around or under door...
 - Use Alternative Exit, if you must exit through smoke...
 - STAY LOW , crawl near floor where air is clearer and cooler
- **NEVER** go back into a burning building! **GET OUT!!**
 - IMMEDIATELY and Call 911 !

EVACUATION PROCEDURE

- **ASSIST** any person in immediate danger
 - IF it can be done without risk to yourself
- **CALL 911!** and activate the building alarm
- **ENSURE** everyone is aware of the fire
 - And is EVACUATING!
- **ONLY AFTER** you have done the above...
 - You may make a “Fight or Flight” Analysis
- **RACES / CERT - NOT** *expected / trained to fight fires!*
 - IF YOU HAVE ANY DOUBT - DO NOT FIGHT THE FIRE!
 - **LEAVE** the building, relay information to firefighters

“FIGHT or FLIGHT ANALYSIS”

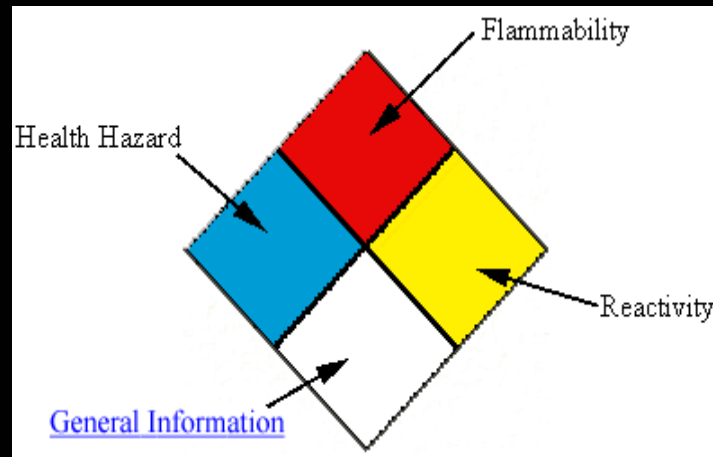
Use a fire extinguisher **ONLY** if:

- Building is being evacuated (*Fire alarm has been pulled*)
- Fire Department is being called (*Dial 911!*)
- The fire is small and contained (*not spreading*)
- **EXIT IS CLEAR**, and there is no imminent peril
 - Can you fight fire with your back to an exit ?
- You can stay low and avoid smoke
- The proper extinguisher is at hand, and...
 - You have read instructions and know how to use it!
 - You use “Buddy System” - have someone back you up!
 - **Get assistance BEFORE trying to fight a fire!**



DO NOT FIGHT A FIRE IF:

- You don't know what is burning!
 - Wrong extinguisher can make things worse
 - Risk of toxic fumes, explosion hazards
 - FEMA IS-5 Course “ Citizen Orientation to HAZMAT” - **Highly recommended !**
 - Note NFPA labels and placards!



DO NOT FIGHT A FIRE IF:

(continued)

- **You don't have adequate equipment**
 - And a “Backup Buddy”
- **Fire has started to spread**
 - Close windows and doors to slow its spread and LEAVE!
- **Your instincts tell you not to ~!@#&*% !**
 - Trust your intuition, it may save your life!
 - NEVER pass a fire to get to an extinguisher!
- **FINAL RULE** Always have an escape route at your back!
 - Leave immediately if anything unexpected happens

SAFETY SUMMARY:

REACT *upon discovery of fire or smoke*

Remove persons in immediate danger!

Ensure doors are closed ! (confine fire/smoke)

Activate the building alarm !

Call the Fire Department !

Treat ALL fires as **DANGEROUS!**

- **Continue** a complete building evacuation
- **Cautiously** fight a fire **ONLY** if your “fight or flight” analysis indicates that you can do so in reasonable safety

Fire Safety Awareness unit stops here...



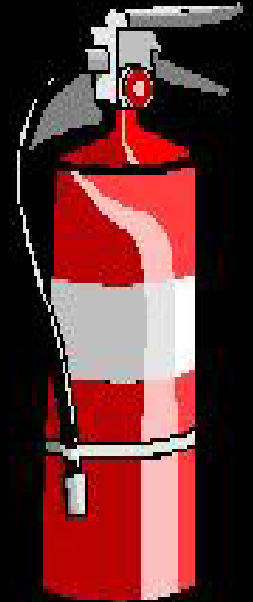
Take a short break or use this time to ask questions about the previous material...

**Fire Extinguisher Training Module
begins with the next slide.**

UNTRAINED PEOPLE

CAN'T use a fire extinguisher safely, because they are:

- UNABLE to evaluate a fire
 - “Fight or Flight” analysis
- UNAWARE of **DANGER** due to o...
- LACKING JUDGEMENT regarding:
 - **Limitations** of portable extinguishers
 - Capacity, range, duration
 - **Risk of re-ignition** of fire to be extinguished
 - Use of wrong extinguisher can intensify a fire!



WHY UNTRAINED PEOPLE Can't use a fire extinguisher safely

(continued):

- **INEXPERIENCED**

- Unfamiliar with proper use of extinguisher
- How to use - P.A.S.S. method
- Difficulty in removing extinguisher from wall
- Weight of extinguisher





Portable Fire Extinguishers

- Can be CARRIED to a fire - 5 to 30 pounds
- Limited in capacity, range and duration
 - 1.5 to 25 pounds of extinguishing agent
 - Typical range 3 to 15 feet
 - Discharge their contents in only 5 to 30 seconds!
- **NFPA rating**, Arabic numerals according to efficiency
 - 4A extinguishes twice as much Class A fire as a 2A
 - Coast Guard uses Roman numerals :
 - I - Smallest (recreational small craft)
 - V - Largest (high-hazard, commercial, ocean-going vessels)

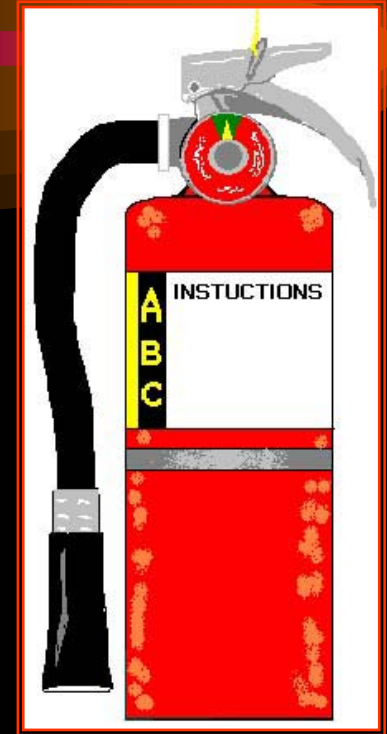
Extinguisher Common features

- Carrying handle / operating lever
- Locking pin
- Pressure gauge
- Discharge nozzle or horn
- Label :
 - Type (Water, CO2, Dry Chemical)
 - Instructions
 - Classification data
 - Special applications:



flammable metals

(Purple-K, Class-C for oil, gas, electric utility industries)



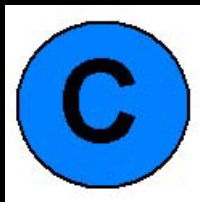
COMMON FIRE CLASSIFICATIONS



“Ordinary” combustibles
Paper, wood, most rubber,
plastics and textiles.



“Flammable liquids”
Oil, gasoline, solvents



“Energized circuits”
Electrical equipment
and computers

HOW THEY WORK:



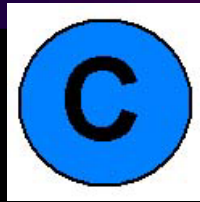
- Works by cooling.
- Numerical rating indicates amount of agent, duration, range of discharge on test fires.
- Area of Class A fire which a “non-expert” can extinguish, with training!
 - 1-A is equivalent on Class-A fire to five liters of water.
 - 2-A contains has twice as much extinguishing agent.

HOW THEY WORK:



- Works by blanketing the fuel.
- Interrupts chemical reaction at fuel surface.
- Class B ratings signify the area in square feet of flammable liquid fire which the unit will extinguish when used by a “non-expert.”

HOW THEY WORK:



- **Class “C” units have no numerical rating.**
- **A Class “C” rating doesn’t imply any capacity.**
- **Only indicates that the extinguishing agent is non-conductive, safe on energized equipment.**
- **Works by displacing oxygen, smothering fire.**

Specialized Units



- **Class “D” units have no numerical rating.**
- **Are NOT multi-purpose rated.**
- **Used ONLY for combustible metal fires.**
 - Magnesium, lithium, sodium, uranium, etc.
- **Are NOT recommended for home use.**

MOST COMMON TYPES OF FIRE EXTINGUISHERS:

- **WATER**
- **DRY CHEMICAL**
- **CO2 / Halon**

WATER

- **Class - A, Pressurized Water (APW)**
 - Water and compressed gas usually CO2
- **ONLY for Class A fires, wood/ paper**
- **NEVER for B,C,D**
 - Intensifies fire if used on burning liquids or reactive metals
 - Risk of electric shock if used on energized equipment!
- **Old soda-acid / water extinguishers**
 - ***OBSOLETE units should be replaced!***

DRY CHEMICAL

Multi-Purpose Rated, either B-C or ABC

- **ABC dry-chemical recommended for general use:**
 - Home, recreational marine, automotive (1-A/10BC)
 - Office, shop (2-A/15BC)
 - Public assembly / commercial vehicles (10-A/80BC)
- **Reduced risk of re-ignition**
 - Messy clean up is better than being burned up!
- **10 pound unit (2-A/15BC) discharges in 8-10 secs.**
 - Effective range 6 ft. (5lb. Unit), to 15 ft. (>10lb. Units)
- **Test only upon approach to fire**
 - Powder may clog nozzle if squeezed and released.

CO2

Most effective on Class B-C (liquids and electrical)

- **SHORT** range, typically 3 to 8 ft.
- **Discharges QUICKLY ! (5 to 10 seconds!)**
 - Use 1-2 second spurts
- **DISPERSES QUICKLY !**
- **CO2 less effective on Class A fires due to re-ignition**
 - Continue to apply after fire is out, as long as the gas lasts!
- **CO2 units get DANGEROUSLY cold - hold properly**
- **Dangerously *reactive* on Class D metal fires!**

Halon

B-C Type, best choice for valuable electronics

- **No residue, easy clean-up**
- **VERY SHORT range, only 3 to 6 ft.**
- **Discharges QUICKLY! (5 to 10 seconds!)**
 - Use 1-2 second spurts
- **Disperses QUICKLY!**
 - Continue after flames are extinguished
- **Halon weight-for-weight TWICE as effective as CO2**
 - Larger Halon 1211 extinguishers are also rated Class A

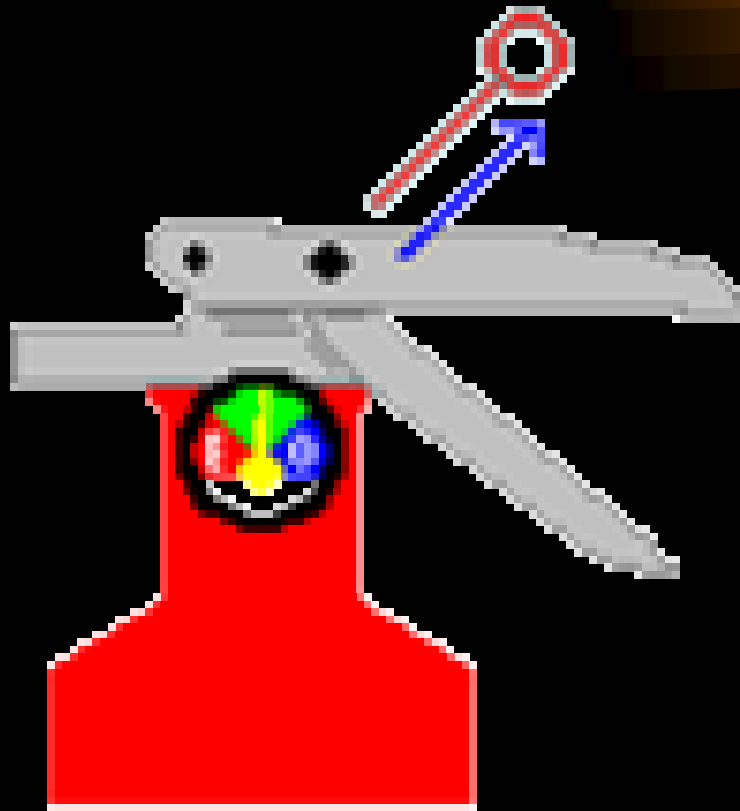
Remember the PASS word:

Keep your back to an unobstructed exit, stand at least 6 to 8 feet from the fire, then:

- Pull the pin
- Aim low
- Squeeze the lever
- Sweep side-to-side



PULL the pin



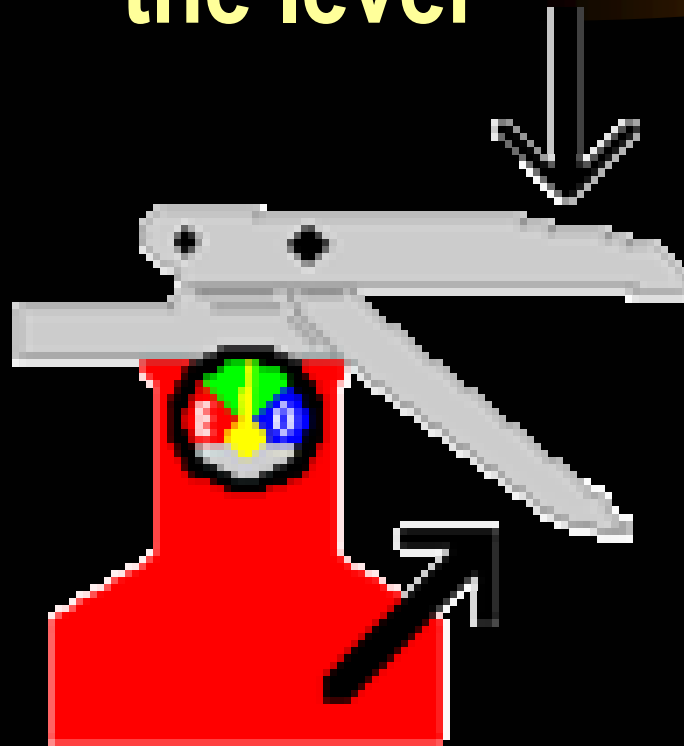
AIM

LOW at the base of the fire



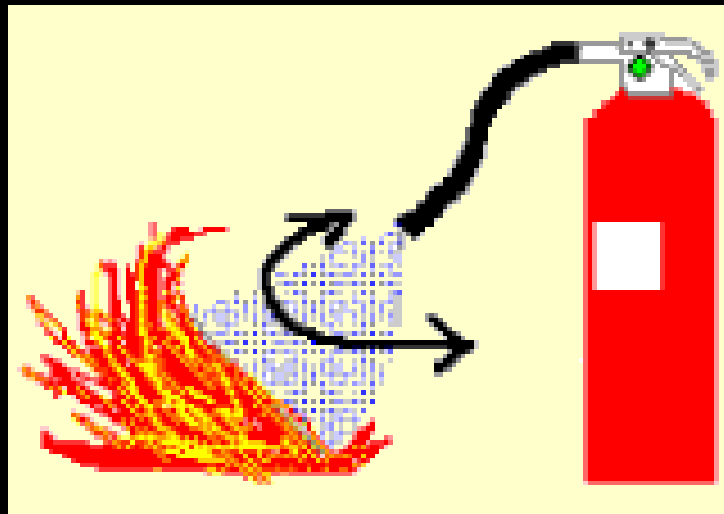
SQUEEZE

the lever



SWEEP

from side to side



OK, It's out... Now What?



- **WATCH** the fire area
 - If the fire re-ignites repeat
 - If you cannot control / confine the fire, **LEAVE!**
- **ENSURE** that fire department inspects the site
- **RECHARGE** or replace
 - Any fire extinguisher which has been used!



Recommended sources for further information:

<http://www.usfa.fema.gov/>

<http://www.nfpa.org/education/index.html>

<http://www.ilpi.com/safety/extinguishers.html>



OR . . . Contact Your Local Fire Department !

Thanks For Staying With Us!

