

FIRE EXTINGUISHERS

Fairfax County Fire and Rescue Department 1

Instructors

- Talkers
 - Rich Hall
- Workers
 -

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Agenda – *Good News and Bad News*

- Lecture (Bad News -Boring)
 - But Short and to the point
- Fill Fire Extinguishers (Bad News – Work For You)
- Extinguish Fires (Good News - Fun)
- Clean Up (Bad News – More Work For You)
 - Welcome to the F&RD

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References:

- Delmar; Firefighter's Handbook-Chapter 2
- IFSTA Essentials 5th Edition – Chapter 6
- NFPA 10; Portable Fire Extinguishers

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Homework Assignments

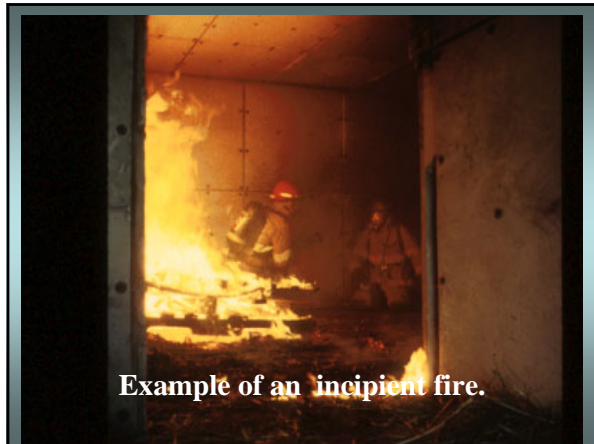
- Read more about extinguishers from either FF Handbook.
- Practice at your station
- On-Line Training Material – search the web there are many sites available
 - http://ehs.uky.edu/classes/fire/Fire_Extinguisher_Training_files/frame.html
 - <http://www.maricopa.edu/learn/fire/>

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Introduction

- Portable fire extinguishers are designed to fight small incipient fires.
- What is a small incipient fire?

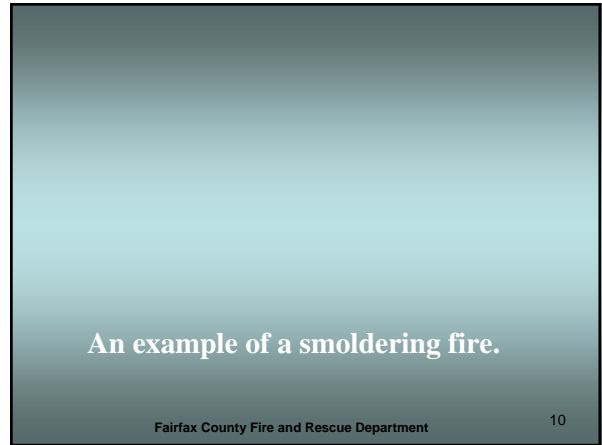
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Objectives


- Learn how to use extinguishers and be able to teach others.
- Use extinguishers correctly to improve department effectiveness.
- To reduce damage costs and reduce injuries.
- Learn extinguishers come in a variety of types and sizes.
- Know the extinguishers carried on our apparatus and where they are.
- Be able to answer citizens requests for information and training on the use of extinguishers.

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Is This A Fire Extinguisher Fire?

For me?
yes, maybe



For you?
no, probably

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Decisions

Before Using a Fire Extinguisher

Fight or Flight (Size of fire/gear)?

**** Risk / Benefit Ratio ****

Do I Have The Answers to All The Questions

Answers

You Must Know Before
Using a Portable Fire Extinguisher

Location of the fire

Extent

Risk/benefit

Which fire extinguisher

Location of exit?



Not An Extinguisher Fire

- Too Big
- Too wide an area
- Location of/exit unknown



Extinguisher?

- Person trapped up stairs and the engine is 7 minutes out
- One room
- See location
- Ground floor
- Exit door
 - Gear Up



Strategies

- Shoot through window
- Shoot through door
- Hold stairwell



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Fire Extinguisher?

- No
 - Why?
- Yes
 - Why and When?



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Questions

You Must Know The Answers to Before
Using a Portable Fire Extinguisher

Location of fire.

Do I have the right extinguisher?

Do I know how to use it?

Do I have the exit to my back?

Risk/benefit ratio is +

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How Is Fire Extinguished

1. Remove fuel – burn house to the ground or remove logs from fireplace
2. Remove Oxygen
3. Remove heat
4. Break Chain Reaction

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EXTINGUISHER RATING SYSTEM

5-9



LETTERS indicate the fuel class on which the extinguisher will be effective.



NUMBERS indicate the relative effectiveness of the extinguisher:

For example,

- A 2-A extinguisher extinguishes twice as much fuel as a 1-A extinguisher.
- A 20-B extinguisher extinguishes 20 times as much fuel as a 1-B extinguisher.

Numbers are used with letters on Class A and Class B extinguishers only.

How Much Is 1?

Ratings A & B

What do they really mean?

1A

- Same fire fighting capability as 1.25 gallons of water = one cubic foot crib

Math Quiz

- 10 A
- Fire engine 500 gallons

Rating 1 B

- Non-expert 1 square foot of flammable liquids

Ready for the test?

20 B

= how many gallons?

Rating 10 BC

- How big a class B fire?
- How big a class C fire?

Bonus Question

- Explain a 4-A 20 B: C

EXTINGUISHER MARKINGS

5-10



Ordinary
Combustibles



Flammable Liquids
and Gases



Live Electrical
Equipment

TYPICAL PICTOGRAPHS

5-11



Pictographs for
extinguishers suitable
for Class B and
Class C fires, but not
for Class A fires



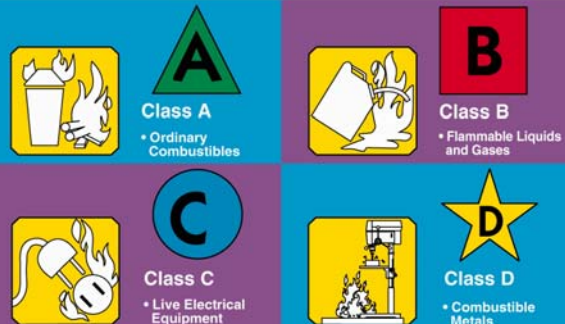
Pictographs for
extinguishers suitable
for Class A fires, but
not for Class B and
Class C fires



Pictographs for
extinguishers suitable
for Class A and
Class B fires, but not
for Class C fires

FIRE/FUEL CLASSES

5-8



ORDINARY COMBUSTIBLES-Class A



PUMP-TANK WATER

5-1



Backpack



Pump Can

Size
1½ gal to 5 gal
(6 L to 20 L)

Application
Class A Only

Operating Principle
Hand Pump

Pump-Tank Water

- Stream Reach: 30-40 Feet
- Discharge Time: 45 Seconds - 3 Minutes

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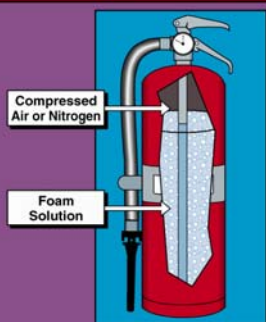
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FLAMMABLE LIQUIDS-Class B



AFFF

5-3



Most Common Size
2½ gal
(10 L)

Application
Classes A and B

Operating Principle
Stored Pressure

AFFF Foam

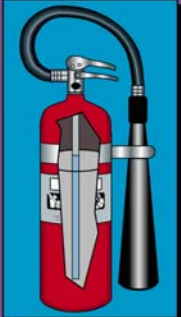
- Stream Reach:
 - 20-25 Feet
- Discharge Time:
 - 50 Seconds



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CARBON DIOXIDE 5-5



Size
2½ lb to 20 lb
(1 kg to 9 kg)

Application
Classes B and C

Operating Principle
Liquefied
Compressed Gas

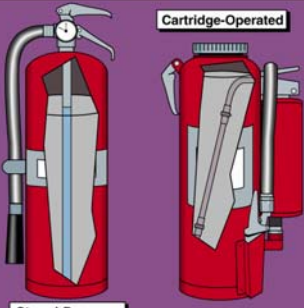
Carbon Dioxide

- Stream Reach:
 - 3-8 Feet
- Discharge Time:
 - 8-30 Seconds



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DRY CHEMICAL 5-6



Size
2½ lb to 30 lb
(1 kg to 14 kg)

Application
Ordinary Base —
Classes B and C
Multipurpose —
Classes A, B, and C

Operating Principle
Stored Pressure
or Gas Cartridge

Shake Before Use

- Remember to also do this during daily checks.

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War Story

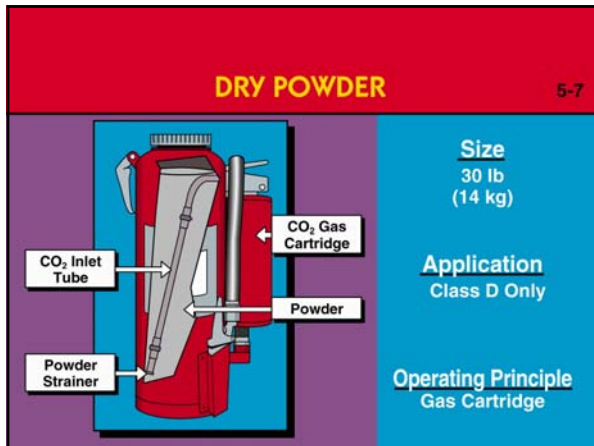
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Dry-Chemical

- Stream Reach:
 - 5-20 Feet
- Discharge Time:
 - 8-25 Seconds



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Dry-Powder

- Stream Reach:
– 4-6 Feet
- Discharge Time:
– 20-30 Seconds

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ELECTRICAL EQUIPMENT-Class C

Best Way To Fight A Class C Fire

- De-energize and treat as Class A (or Class D)

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COMBUSTIBLE METALS-Class D

KITCHEN MEDIA- Class K

Kitchen Wet-Chemical AFFF

5-3

Size
6 Liter or 2^{1/2} Gallon

Application
Class A
Limited on Class B
Class C
and
Class K

Operating Principle
Stored Pressure

Kitchen Wet-Chemical AFFF

- Stream Reach:
– 2-4 Feet
- Discharge Time:
– 45-60 Seconds

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Pull

Aim

Squeeze

Sweep

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FIRE EXTINGUISHER INSPECTIONS

- Check for Location
- Check for Inspection Date
- Check for Hydrostatic Date
- Check Nozzle for Obstructions
- Check for Damage
- Check for Presence of Pin/Seal
- Check Gauge
- Check Condition of Hose

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Obsolete Extinguishers

- Soda acid.
- Chemical foam (except film-forming.)
- Vaporizing liquids.
- Cartridge-operated water or loaded stream.
- Copper or brass extinguishers.

Never Operate Obsolete Extinguishers.

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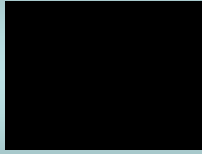
Review

- Wood fire
- Propane fire
- Diesel fire
- Dryer fire
- McDonalds French fryer
- Trash fire
- Oven fire

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Effects of using wrong agent



Class That Fire

Flammable liquid
Wood, rubber, paper
Cooking oil
Magnesium
Car
Couch
TV

Name That Can

Test Time

Skilled/Unskilled

- We will definitely demo the unskilled use of an extinguisher
- And maybe we will demo the skilled use of three types of fire extinguishers

Any Questions

Take 5 Minute Break
And Report To The High Bay