

Instructor Guide to Unit Three:
Fire Safety

1. The goal of this unit is to understand types of fires and how to extinguish them when it is safe to do so. It will emphasize evacuation and removing fuel sources as well.

2. This is the content for Unit Three:

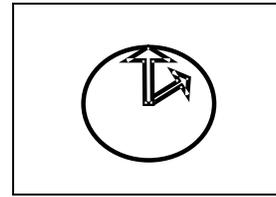
- a. Fire Chemistry
- b. Reducing fire hazards in the home and workplace
- c. CERT Size-up
- d. Firefighting resources
- e. Fire suppression safety
- f. Hazardous Materials
- g. Exercise: suppressing small fires

3. Supplies needed for Unit Three:

- LCD projector
- Computer linked to LCD projector
- Computer disk containing Unit Three power point presentation
- Instructor Guide for Unit Three
- Participant's Manual for CERT
- Safety equipment for suppressing small fires
- Burn pan

4. Instructional staffing requirements:

One instructor is required for this unit, although team teaching is encouraged. The support of the local fire department is needed for the final exercise. A firefighter is the most suitable instructor for the exercise.



5. Unit Three is scheduled for 3 hours (depending on class size).

This is the suggested time-line:

- a. 20 minutes
- b. 20 minutes
- c. 20 minutes
- d. 20 minutes
- e. 20 minutes
- f. 20 minutes
- Break to go outside
- g. 1 hour, or until all participants have had the opportunity to extinguish at least one small fire.



The clock is found throughout the instructor guide it indicates how many minutes it is suggested be spent on each subject area.

Time spent on each unit can be maneuvered by dropping content and referring to its placement in the take-home materials. This permits flexibility on the part of the instructor and encourages participants to question or discuss course matters. It also holds the instructor to the time limit for the unit without expecting participants to stay overtime or to have instructors who follow to give up their time.



CERT plays an important role in fire safety by training people to:

- a. Extinguishing small fires before they become major fires. This unit will provide training on how to use an extinguisher to put out small fires and how to recognize when a fire is too big to handle.
- b. Preventing additional fires by removing fuel sources. This unit will also describe how to ensure that a fire, once extinguished, is completely extinguished.
- c. Shutting off utilities, when necessary and safe to do so.
- d. Assisting with evacuations where necessary. When a fire is beyond the ability a person to extinguish, CERT individuals need to protect life by evacuating the area, when necessary, and establishing a safety perimeter.

The unit will provide participants with the knowledge and skills that they will need to reduce or eliminate fire hazards and extinguish small fires.

Community Emergency Response Training Unit 3: Fire Safety



Community Emergency Response Training

Introduction and Unit Overview

The role of CERTs in fire safety:

- Put out small fires.
- Prevent additional fires.
- Shutoff utilities
- Assist with evacuations where necessary.



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Unit Objectives

- Explain the role of CERTs in fire safety.
- Identify and reduce potential fire risks in the home and workplace.
- Conduct a basic sizeup for a fire emergency.
- Understand basic safety precautions.
- Identify hazardous materials in the home and community.
- Extinguish small fires using a fire extinguisher.



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The Fire Triangle represents the three elements fire requires to exist. Fuel, oxygen and heat create a chemical reaction which causes fire.

Working together, these three elements, called the fire triangle, create a chemical exothermic reaction, which is fire. If any of these elements is missing or if any is taken away, fire will not occur or will extinguish.

1. Class A Fires are from ordinary combustibles such as paper, cloth, wood, rubber and many plastics.

2. Class B Fires are from flammable liquids (e.g., oils, gasoline) and combustible liquids (e.g., charcoal lighter fluid, kerosene). These fuels burn only at the surface because oxygen cannot penetrate the depth of the fluid. Only the vapor burns when ignited.

3. Class C Fires are from energized electrical equipment (e.g., wiring, motors). When the electricity is turned off the fire becomes a Class A fire.

4. Class D Fires are from combustible metals (e.g., aluminum, magnesium, titanium).

Part of CERT planning is to identify hazards in the area that would affect residents in an emergency.

The Fire Triangle

- Heat
- Fuel
- Oxygen

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Fire Chemistry

Classes of fire:

- A: Ordinary combustibles
- B: Flammable and combustible liquids
- C: Energized electrical equipment
- D: Combustible metals

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Reducing Fire Hazards in Home and Workplace

- Avoid the "electrical octopus"
- Don't run cords under carpets
- Replace broken or frayed cords
- Maintain appliances

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Each of us has some type of fire hazard in our home or workplace. Most of these hazards fall into three categories:

- Electrical hazards
- Natural gas hazards
- Flammable or combustible liquids

Homes and workplaces can and do have other hazards, including incompatible materials stored in close proximity to each other.

You should extinguish a flammable liquid using a portable fire extinguisher rated for that class of fire. Ratings for portable extinguishers will be addressed later in this unit.



CERT size-up is a continual data-gathering process that will dictate whether to attempt fire suppression and planning for extinguishing the fire. CERT size-up answers the questions on this slide.

Reducing Fire Hazards in Home and Workplace

- Install a natural gas detector
- Locate and label gas shutoffs




Reducing Fire Hazards in Home and Workplace

- Read labels
- Use L.I.E.S. storage procedures (Limit, Isolate, Eliminate, Separate)




CERT sizeup

Answer these questions:

- Can my buddy and I fight the fire safely?
- Do we have the right equipment?
- Are there other hazards?
- Is the building structurally damaged?
- Can we escape?




Size-up is a continual nine-step process that enables first responders to make decisions and respond appropriately in the areas of greatest need. The nine steps in size-up are covered on this slide and detailed on page 11 of 32 in the participant's manual in unit 3.



Portable fire extinguishers - are invaluable for putting out small fires. A well-prepared home or workplace will have at least two portable fire extinguishers.

Interior wet standpipes - are usually found in commercial and apartment buildings and consist of 100 feet of 1½-inch jacketed hose with a 3/8-inch nozzle tip. They deliver up to 125 gallons of water per minute.

Always work in three-person teams when using an interior wet standpipe. One person handles the hose, another bleeds the air from the line and the third person controls the water pressure. Other creative resources may also be available:

- Swimming pool or spa water
- Sand or dirt and shovels
- A garden hose

Common characteristics of water extinguishers include:

- Capacity. Standard size is 2½ gallons.
- Range. Standard range is 30-40 feet.
- Pressure. Standard pressure is 110 pounds per square inch (psi).

CERT Sizeup

1. Gather Facts
2. Assess Damage
3. Consider Probabilities
4. Assess Your Situation
5. Establish Priorities
6. Make Decisions
7. Develop Action Plan
8. Take Action
9. Evaluate Progress



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Firefighting Resources

Resources available:

- Portable fire extinguishers
- Wet standpipes
- Confinement
- "Creative resources"



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Types of Fire Extinguishers

- Water
- Dry chemical
- Carbon dioxide
- Specialized



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The acronym for operating a fire extinguisher is P.A.S.S.: pull, aim, squeeze and sweep.

To ensure that the extinguisher is working properly, test it before approaching any fire.

Aim at the base of the fire.



As a CERT member, fire suppression will be one of your roles. However, even following a disaster, your personal safety must be your number one concern. You will be unable to help anyone if you are injured through careless size-up or unsafe acts.

1. Don't get too close. Stay near the outer range of your extinguisher. If you feel the heat, you are too close.

2. Don't try to fight a fire alone. Remember that your first priority is your personal safety. Don't put yourself at risk.

3. Don't try to suppress large fires. Learn the capability of your equipment, and do not try to suppress a fire that is clearly too large for the equipment at hand (i.e., a fire that is larger than the combined ratings of available fire extinguishers).

4. Don't enter smoke-filled areas. Fire suppression in smoke-filled areas requires equipment that CERTs don't have.

P.A.S.S

- Pull
- Aim
- Squeeze
- Sweep

Test the extinguisher before approaching any fire

Fire Suppression Safety

Do:

- Use safety equipment
- Work in a buddy system
- Have a backup team
- Have two ways to exit
- Maintain a safe distance
- Overhaul the fire

Fire Suppression Safety

DON'T

- Try to suppress large fires
 - Get too close
 - Fight it alone
- Enter smoke-filled areas



Knowledge that hazardous materials are present helps to protect CERT members' safety and is also valuable size-up information for first responders.

Hazardous materials pose an ever-present danger. They are stored in all types of locations and are transported by a variety of means.

The figure in this slide is an NFPA 704 Diamond—the identification system instituted by the National Fire Protection Association. The NFPA 704 Diamond is a concise system for identifying the hazards associated with specific materials.

The red quadrant describes the material's flammability.

The blue quadrant indicates health hazard.

The yellow quadrant indicates reactivity.

The white quadrant indicates a material that is a specific hazard (such as elements that have an unusual reactivity with water and never be mixed with water or have water sprayed on them).

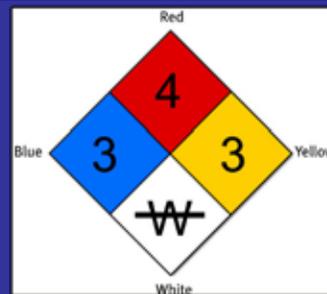
Hazardous Materials . . .

- Corrode other materials
- Explode or are easily ignited
- React strongly with water
- Are unstable when exposed to heat or shock
- Are toxic to humans, animals, or the environment



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Identifying Stored Hazardous Materials



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Identifying Stored Hazardous Materials

NFPA 704 Diamond-White Quadrant:

- **W** Shows unusual reactivity with water
- **OX** Possesses oxidizing properties



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The United States Department of Transportation has a system for identifying hazardous materials that are being transported. The system involves a color coded placard with symbols. The colors and symbols are understood by professional firefighters. Like the NFPA 704 Diamond, the DOT placards should be a "stop sign" for CERT members. You should always err on the side of safety.

Don't risk becoming a victim yourself. Do not assume that, because there is no placard, no hazardous materials are present.

The North American Numbering System (visual right on screen)

- Shows the hazard class in the bottom corner
- The chemical number in a white box in the center
- The hazard symbol at the top of the placard

The United Nations Placarding System (visual left on screen)

- Shows the hazard class in the bottom corner
- The chemical category in the center
- The hazard symbol at the top of the placard.

If your CERT class continues on the same day, take your break and return to this classroom.

Or

If your CERT class continues on another day (next week or next month) Your **Homework Assignment** is to read Unit Four: Disaster Medical Operations Part One.

