UNIT 2: TRIAGE, FIRE SAFETY & HAZARDOUS MATERIALS

IN THIS UNIT YOU WILL LEARN ABOUT:

- **Life-threatening Conditions:** How to recognize and treat an airway obstruction, bleeding and shock.
- **START Triage:** Principles of triage and how to conduct triage evaluations.
- **Fire Chemistry:** How fire occurs, classes of fire, and choosing the correct means to extinguish each type of fire.
- **Fire Hazards:** Potential fire hazards in the home and workplace, and fire prevention strategies.
- **Fire Safety:** How to evaluate fires, assess firefighting resources, and determine a course of action.
- **Portable Fire Extinguishers:** Types of portable fire extinguishers and how to operate them.
- **Fire Suppression Safety:** How to decide if you should attempt to extinguish a fire; how to approach and extinguish a fire safely.

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UNIT 2: TRIAGE, FIRE SAFETY & HAZARDOUS MATERIALS

INTRODUCTION & OVERVIEW FOR TRIAGE

The need for disaster medical operations is based on two assumptions:

- The number of victims will exceed the local capacity for treatment.
- Survivors will assist others. They will do whatever they know how to do. They need to know lifesaving or post-disaster survival techniques.

There are three phases of death from trauma:

- Phase 1: Death within minutes as a result of overwhelming and irreversible damage to vital organs
- Phase 2: Death within several hours as a result of excessive bleeding
- Phase 3: Death in several days or weeks as a result of infection or multiple-system failure (i.e., complications from the injury)

Peter Safer's research after earthquakes in Chile, Peru, and Italy indicated that more than 40 percent of disaster victims in the second and third phases of death from trauma could be saved by providing simple medical care.

CERT personnel are trained to provide:

- Treatment for life-threatening conditions—airway obstruction, bleeding, and shock—and for other less urgent conditions.
- The greatest good for the greatest number of victims by conducting simple triage and rapid treatment (START).

In a disaster, there will be more victims than rescuers and that immediate help will not be available. CERT groups must be able to function quickly and efficiently to save lives.

OBJECTIVES FOR TRIAGE MODULE

At the end of this unit, you should be able to:

- Identify the "killers."
- Apply techniques for opening the airway, controlling bleeding, and treating for shock.
- Conduct triage under simulated disaster conditions.

The goal of disaster medical operations is to do the greatest good for the greatest number. In a disaster with many victims, time will be critical. CERT members will need to work quickly and efficiently to help as many victims as possible.

INTRODUCTION AND OVERVIEW FOR TRIAGE (CONTINUED)

This unit will introduce you to the "three killers" and the principles of triage. Throughout the unit, you will have opportunities to practice the treatment techniques and, at the end of the unit, you will have the opportunity to conduct triage evaluations in a simulated disaster.

The first section will deal with treatment for life-threatening conditions: Airway obstruction, excessive bleeding and shock.

TREATING LIFE-THREATENING CONDITIONS

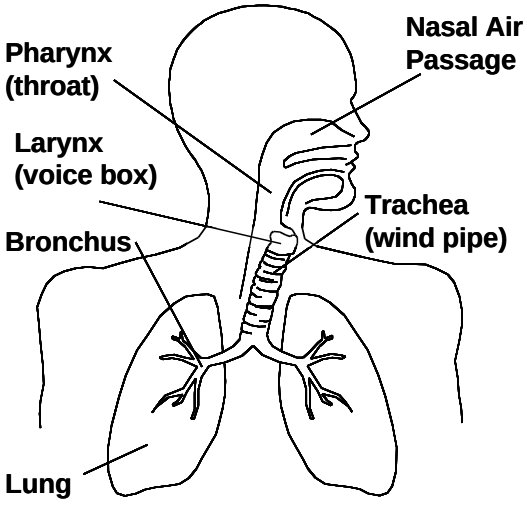
In emergency medicine, airway obstruction, bleeding, and shock are "killers." The first priority of medical operations is to attend to those potential killers by:

- Opening the airway.
- Controlling excessive bleeding.
- Treating for shock.

This section will train you to recognize the "killers" by recognizing their symptoms and their effects on the body.

Always wear safety equipment: Helmet, goggles, gloves, mask, and boots. A timesaving technique is to wear latex gloves under your work gloves. Then, when you find a victim, you can remove your work gloves and are ready to work with the victim.

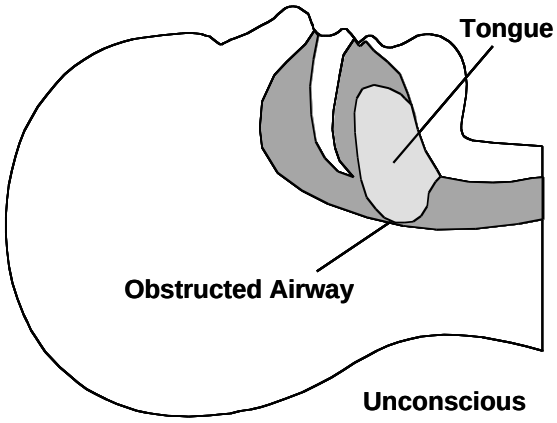
OPENING THE AIRWAY



Components Of the Respiratory System

Components of the respiratory system include the pharynx, nasal air passage, larynx, trachea, bronchus. The respiratory system includes airways, lungs and muscles.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)



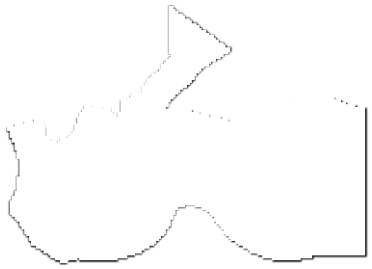
Airway Obstructed By The Tongue

The most common airway obstruction is the tongue. In an unconscious or semiconscious victim, especially one positioned on his or her back, the tongue—which is a muscle—may relax and block the airway. A victim with a suspected airway obstruction must be checked immediately for breathing and, if necessary, the airway must be opened.

When an airway obstruction is suspected, CERT members should clear the airway using the Head-Tilt/Chin-Lift method.

Head-Tilt/Chin-Lift Method for Opening an Airway

Step	Action
1	At an arm's distance, shake the victim by touching the shoulder and shout, "Can you hear me?"
2	If the victim does not or cannot respond, place the palm of one hand on the forehead.
3	Place two fingers of the other hand under the chin and tilt the jaw upward while tilting the head back slightly.
4	Place your ear over the victim's mouth, looking toward the victim's feet, and place a hand on the victim's abdomen.
5	*Look* for chest rise.
6	*Listen* for air exchange.
7	*Feel* for abdominal movement.



TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

ACTIVITY #1: OPENING AN AIRWAY

Instructions: This exercise allows you to practice using the Head-Tilt/Chin-Lift method. Follow the steps below to complete this activity:

- Work in pairs—one person will be the victim and the other person the rescuer.
- Victims should lie on the floor on their backs and close their eyes.
- The rescuer should use the Head-Tilt/Chin-Lift method on the victim to open the airway.

After the rescuer has made two or three attempts at using the Head-Tilt/Chin-Lift method, the victim and the rescuer should change roles.

Notes:

Part of your mission is to do the greatest good for the greatest number of people. For that reason, if breathing is not restored on the first try using the Head-Tilt/Chin-Lift method, CERT members should try again using the same method. If breathing cannot be restored on the second try, CERT members must ***categorize as Deceased*** and move on to the next victim.

If breathing has been restored, the airway still must be maintained. One option is to use a volunteer or walking wounded to hold the head in place. The airway also can be maintained by placing soft objects under the victim's shoulders to elevate the shoulders slightly and keeping the airway open. ***Categorize these patients Immediate.***

CONTROLLING BLEEDING

Uncontrolled bleeding initially causes weakness. If bleeding is not controlled, the victim will go into shock within a short period of time, and finally will die. An adult has about five liters of blood. Losing one liter can result in death.

There are 3 types of bleeding and the type can usually be identified by how fast the blood flows:

- Arterial bleeding. Arteries transport blood under high pressure. Bleeding from an artery is spurting bleeding.

- Venous bleeding. Veins transport blood under low pressure. Bleeding from a vein is flowing bleeding.

- Capillary bleeding. Capillaries also carry blood under low pressure. Bleeding from capillaries is oozing bleeding.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

There are three main methods for controlling bleeding:

- **Direct pressure**
- **Elevation**
- **Pressure points**

Procedures For Controlling Bleeding

Method	Procedures
Direct Pressure	▪ Place direct pressure over the wound by putting a clean dressing over the wound and pressing firmly. ▪ Maintain pressure on the dressing over the wound by wrapping the wound firmly with a pressure bandage.
Elevation	▪ Elevate the wound above the level of the heart.
Pressure Points	▪ Put pressure on the nearest pressure point to slow the flow of blood to the wound. Use the: • Brachial point for bleeding in the arm. • Femoral point for bleeding in the leg. (See the figures on the following page for illustrations of these pressure points.) There are other pressure points that the Instructor may demonstrate.

Direct pressure combined with elevation will address most bleeding.
Demonstrate the procedure for controlling bleeding through direct pressure:

- Step 1: Place direct pressure over the wound by putting a clean dressing over the wound and pressing firmly.

- Step 2: Maintain pressure on the dressing over the wound by wrapping firmly with a pressure bandage.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

Direct pressure and elevation can take 5 to 7 minutes to stop the bleeding completely. The use of a dressing and pressure bandage allows the rescuer to move on to the next victim.

A pressure bandage should be tied with a bow, so that it can be loosened—rather than cut—to examine the wound, and then retied. This procedure helps to conserve supplies and saves time.

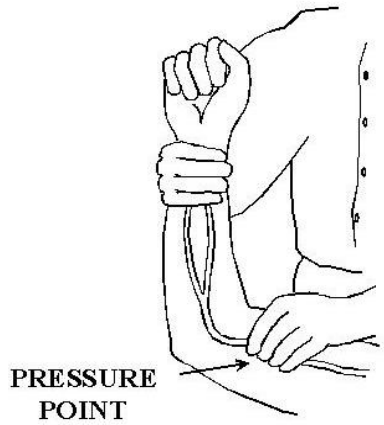
Bleeding can also be controlled through elevation: Elevating the wound above the level of the heart. Elevation is used in combination with direct pressure.

There are also pressure points that can be used to stem the flow of bleeding.

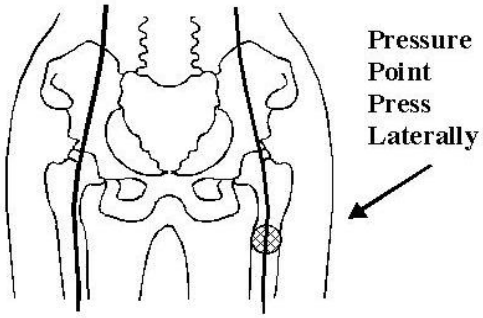
The pressure points most often used are the:

- Brachial point in the arm.
- Femoral point in the leg.

Remember: ask victims to help themselves, whenever possible.

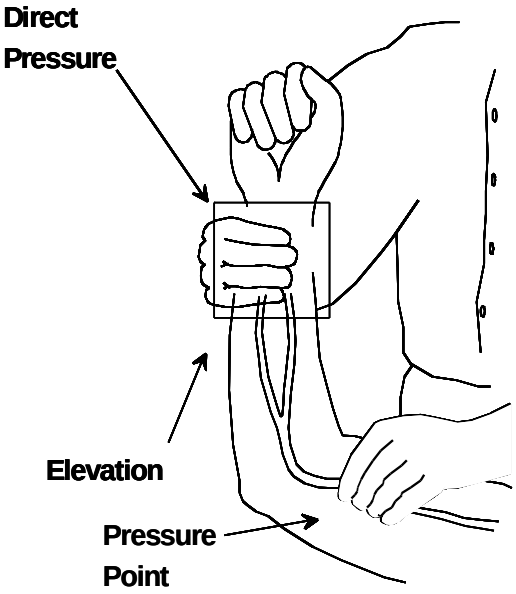


Brachial pressure point is located just above the elbow.



Femoral pressure point is located in the upper thigh.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)



Methods for controlling bleeding include using direct pressure on wound, elevation, and pressure points.

ACTIVITY #2: CONTROLLING BLEEDING

Instructions: This exercise allows you to practice the techniques for controlling bleeding. Follow the steps below to conduct this exercise:

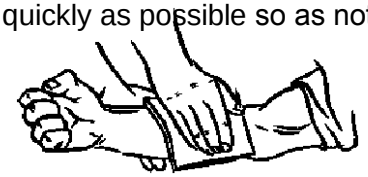
1. Work in pairs again – one person will be the victim and the other the rescuer.
2. Victims should sit in a chair and close their eyes.
3. The rescuer should use direct pressure to control bleeding from a simulated wound on the right forearm just below the elbow. The rescuer should:

   - Apply direct pressure to the wound site using a clean, dry cloth.
   - Elevate the arm.
   - Apply pressure to the Brachial Pressure Point.
   - Repeat the two steps for speed.

After the rescuer has made at least three attempts at using each technique, the victim and the rescuer should change roles.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

Bleeding must be controlled as quickly as possible so as not to endanger the victim's life from blood loss.



You should always wear your rubber gloves, goggles, and a mask as a protection against blood-borne pathogens, such as hepatitis and HIV.

Notes:

RECOGNIZING AND TREATING SHOCK

Shock is a disorder resulting from ineffective circulation of blood. Remaining in shock will lead to the death of:

- Cells
- Tissues
- Entire organs

The body will initially compensate for blood loss and mask the symptoms of shock. Therefore, it is important to continually evaluate patients for shock and monitor their condition.

The main signs of shock that CERT members look for are:

- Rapid and shallow breathing.
- Capillary refill of greater than 2 seconds.
- Failure to follow simple commands, such as, "Squeeze my hand."
- Changes in skin color.

Capillary refill is how long it takes for the color to return. This is called the "blanch test."

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

Although victims who are suffering from shock may be thirsty, they should not eat or drink anything, because they may also be nauseated.

Procedures For Controlling Shock

Step	Action
1	▪ Lay the victim on his or her back. ▪ Elevate the feet 6-10 inches above the level of the heart. ▪ Maintain an open airway.
2	▪ Control obvious bleeding.
3	▪ Maintain body temperature (e.g., cover the ground and the victim with a blanket if necessary).
4	▪ Avoid rough or excessive handling unless the rescuer and victim are in immediate danger.

Triage is a French term meaning “to sort.”

During triage, victims are evaluated, sorted by the urgency of the treatment needed, and set up for immediate or delayed treatment.

Triage was, in fact, initiated by the military and experience has shown that triage is an effective strategy in situations where:

- There are many more victims than rescuers.
- There are limited resources.
- Time is critical.

Triage occurs as quickly as possible after a victim is located or rescued.

TRIAGE (CONTINUED)

During triage, victims' conditions are evaluated and the victims are prioritized and labeled (tagged) and color coded into four categories:

- Minor (**M**): Coded GREEN. Walking wounded who were able to follow directions and respond to your voice upon initial contact.

- Delayed (**D**): Coded YELLOW. Injuries do not jeopardize the victim's life. The victim may require professional care, but treatment can be delayed.

- Immediate (**I**): Coded RED. The victim has life-threatening (airway, bleeding, or shock) injuries that demand immediate attention to save his or her life; rapid, life-saving treatment is urgent.

- Dead (~~**V**~~): Coded BLACK. No respiration after two attempts to open the airway. Because CPR is one-on-one care and is labor-intensive, CPR is not performed when there are many more victims than rescuers.

The CERT program goal is to do the greatest good for the greatest number.

From triage, victims are taken to the designated medical treatment area (immediate care, delayed care, minor care or morgue).

(Note: If you have labeled your medical treatment areas using "M," "D," "I" and "X"(Dead), you can tell spontaneous volunteers to take the "I" victims to the "I" treatment area, etc. You can also direct them to the appropriate color code.)

Notes:

TRIAGE IN A DISASTER ENVIRONMENT

The general procedures for conducting triage are:

- Step 1: Stop, Look, Listen, and Think. Before you start, stop and size up the situation by looking around and listening. THINK about your safety, capability, and limitations, and decide if you will approach the situation and how.

- Step 2: Conduct voice triage. Begin by calling out, "Emergency Response Team. If you can walk, come to the sound of my voice." If there are survivors who are ambulatory, categorize them as "Minor", instruct them to remain at a designated location, and continue with the triage operation.

  (If rescuers need assistance and there are ambulatory survivors, then these survivors should be asked to provide assistance.) These persons may also provide useful information about the location of the victims.

- Step 3: Start where you stand, and follow a systematic route. Start with the closest victims and work outward in a systematic fashion.

- Step 4: Evaluate each victim and tag them **"M"** (minor), **"D"** (delayed), **"I"** (immediate), or **"~~V~~"** (dead). Remember to evaluate the walking wounded.

- Step 5: Treat **"I"** victims immediately. Initiate airway management, bleeding control, and treatment for shock for **"I"** victims.

- Step 6: Document triage results for:

  - Effective deployment of resources.
  - Information on the victims' locations.
  - A quick record of the number of casualties by degree of severity.

The rescuer's safety is paramount during triage. Wear proper protective equipment so as not to endanger your own health.

USES FOR WALKING WOUNDED AND BYSTANDERS:

- Stand outside to flag down help
- Help move patients
- Find first aid supplies
- Set up area for first aid & sort patients by color
- Help to calm someone
- Take down names of patients

TRIAGE (CONTINUED)

PERFORMING A TRIAGE EVALUATION

Step	Procedures
1	Size Up for Safety and Start where you stand.
2	Check **RESPIRATIONS** – Conscious Patient ▪ Check breathing rate. Abnormally rapid respiration (above 30 per minute) could indicate shock. Treat for shock and tag "I." ▪ If below 30 per minute, then move to Step 3.
2	Check **RESPIRATIONS** – Unconcious Patient ▪ Check for responsiveness ▪ Look, listen and feel in the position found. ▪ **If breathing:** Do not move the patient. ▪ **If not breathing:** Position the airway and look, listen, feel again. ▪ If the victim is not breathing after 2 attempts to open airway, then tag "DEAD."
3	Check **PERFUSION**. ▪ Take immediate action to control severe bleeding. ▪ Check circulation using the blanch test (for capillary refill). • Press on the nail bed until normal skin color is gone. • Time how long it takes for normal color to return. ▪ Treat for shock if normal color takes longer than 2 seconds to return, and tag "I."
4	Check **MENTAL STATUS**. ▪ Give a simple command, such as "Squeeze my hand." Inability to respond indicates that immediate treatment for shock is necessary. ▪ Treat for shock and tag "I".

Remember that everyone gets a tag.
All unconscious, breathing patients are "Immediate"

30-2-Can Do

Open Airway
Control Bleeding
Treat for Shock

Handout #1
Triage Flow Chart

TRIAGE (CONTINUED)

DOCUMENTING TRIAGE

Sample Triage Documentation

Status	Location			
	A	B	C	D
M	3	5	10	0
D	0	2	5	3
I	1	2	0	1
Dead	3	7	1	0

Triage pitfalls include:

- No team plan, organization, or goal.
- Indecisive leadership.
- Too much focus on one injury.
- Treatment (rather than triage) performed.

ACTIVITY #3: CONDUCTING TRIAGE

Instructions: This exercise is intended to allow you to practice conducting triage in a high-pressure situation. Follow the steps below to complete this exercise:

1. Work in groups. In each group, there will be victims and rescuers.
2. The "victims" should select a card from the Instructor and tape it to their shirts.
3. The victims should arrange themselves within the designated "disaster" area.
4. The "rescuers" will have 5 minutes to:
   - Conduct triage on each of the victims and determine how each should be tagged and treated.
   - Document the number of victims in each category of triage (immediate, delayed, minor and dead).

Hint: In place of Triage Tags, use colored electrical tape or marking pens to designate categories of victims. Colored Triage Tarps are also available for the treatment area.
Remove hysterical people – assign someone to stay with them
Assign a "**gatekeeper**" to stand at the door and keep people out
Maintain "**Poker Face**" and speak in positive terms

TRIAGE SUMMARY

The key points from this module include:

- CERT members' ability to open airways, control bleeding, and treat shock is critical to saving lives.
  - Use the Head-Tilt/Chin-Lift method for opening airways.
  - Control bleeding using direct pressure, elevation, and/or pressure points.
  - If there is a question about whether a victim is in shock, treat for shock.
- Triage is a system for rapidly evaluating victims' injuries and prioritizing them for treatment. The procedure for conducting triage evaluations involves checking:
  - Respiration
  - Perfusion
  - Mental status

Disaster medical operations require careful planning, teamwork, and practice. Take advantage of participating in community-wide disaster exercises whenever they are scheduled.

MODULE 2: FIRE SAFETY

INTRODUCTION AND OVERVIEW FOR FIRE SAFETY

During and immediately following a severe emergency, the first priorities of professional fire services are life safety and extinguishing *major* fires. They may be hampered by impassable roads, inadequate water supply, weather conditions, burning material, and inadequate resources.

CERT members play a very important role in fire safety by:

- 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.

- Preventing additional fires by removing fuel sources. This unit will also describe how to ensure that a fire, once extinguished, is completely extinguished.

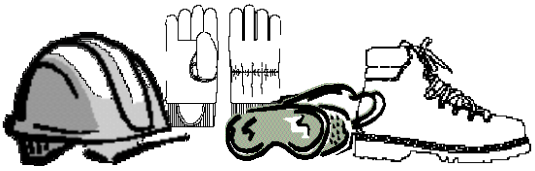
- Shutting off utilities, when necessary and safe to do so.

- Assisting with evacuations where necessary. When a fire is beyond the ability of CERTs to extinguish, CERT members need to protect life safety by evacuating the area, when necessary, and establishing a perimeter.

CERT members help in fire-related emergencies when professional responders (paid and volunteer) are delayed. When responding, CERT members should keep in mind the following CERT standards:

Rescuer safety is always the number one priority. Therefore, CERT members always:

- Work with a buddy.
- Wear safety equipment (gloves, helmet , goggles, mask, and boots).



The CERT goal is to do the greatest good for the greatest number.

INTRODUCTION AND OVERVIEW (CONTINUED)

UNIT OBJECTIVES

At the end of this module, you should be able to:

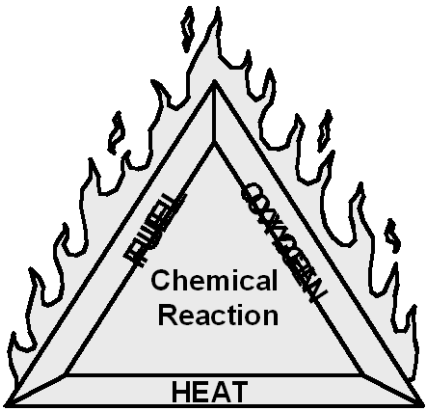
- Explain the role that CERT members play in fire safety.
- Identify and reduce potential fire risks in the home and workplace.
- Conduct a basic size-up for a fire emergency.
- Understand minimum safety precautions, including:
  - Safety equipment
  - Utility control
  - Buddy system
  - Back-up teams

- Extinguish small fires using a fire extinguisher.

The unit will provide you with the knowledge and skills that you will need to reduce or eliminate fire hazards and extinguish small fires. The areas that you will learn about include:

- How fires start and what keeps them burning.
- Identification of fire hazards in the home, neighborhood and workplace.
- How to conduct a fire assessment, or size-up.
- The main firefighting resources that are available to CERT members and how to use them.
- Procedures for safe firefighting.

FIRE CHEMISTRY



Fire Triangle

Fire Triangle: Fuel, oxygen, and heat create a chemical reaction, which causes fire.

Fire requires three elements to exist:

- Heat: Heat is required to elevate the temperature of a material to its ignition point.
- Fuel: The fuel for a fire may be a solid, liquid, or gas. The type and quantity of the fuel will determine which method should be used to extinguish the fire.
- Oxygen: Most fires will burn vigorously in any atmosphere of at least 20 percent oxygen. Without oxygen, most fuels could be heated until entirely vaporized, yet would not burn.

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.

To aid in extinguishing fires, fires are categorized into classes based on the type of fuel that is burning:

- Class A Fires: Ordinary combustibles such as paper, cloth, wood, rubber, and many plastics.
- Class B Fires: 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.)
- Class C Fires: Energized electrical equipment (e.g., wiring, motors). (When the electricity is disconnected, the fire becomes a class A fire.)
- Class D Fires: Combustible metals (e.g., aluminum, magnesium, titanium)

It is extremely important to identify the type of fuel to select the correct method and agent for extinguishing the fire.

FIRE CHEMISTRY (CONTINUED)

REDUCING FIRE HAZARDS IN THE HOME AND WORKPLACE

Part of CERT planning is to identify hazards in the area that would affect residents in an emergency. This information is important to professional responders when they arrive on scene.

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

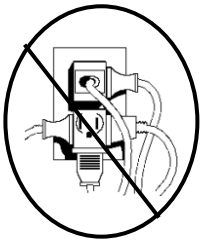
Homes and workplaces can and do have other hazards, including incompatible materials stored in close proximity to each other.

Simple fire prevention measures will go far in reducing the likelihood of fires:

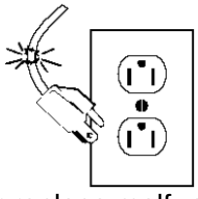
- First, *locate* potential sources of ignition.
- Then, do what you can to *reduce or eliminate* the hazards.
- Install smoke detectors in every bedroom and on every level of your home! Check batteries monthly and replace each year.
- Teach family members to Stop, Drop and Roll!

ELECTRICAL HAZARDS

Simple ways that common electrical hazards can be reduced or eliminated include:



- Avoid the "electrical octopus." Eliminate tangles of electrical cords. Don't overload electrical outlets. Don't plug power strips into other power strips.
- Don't run electrical cords under carpets.



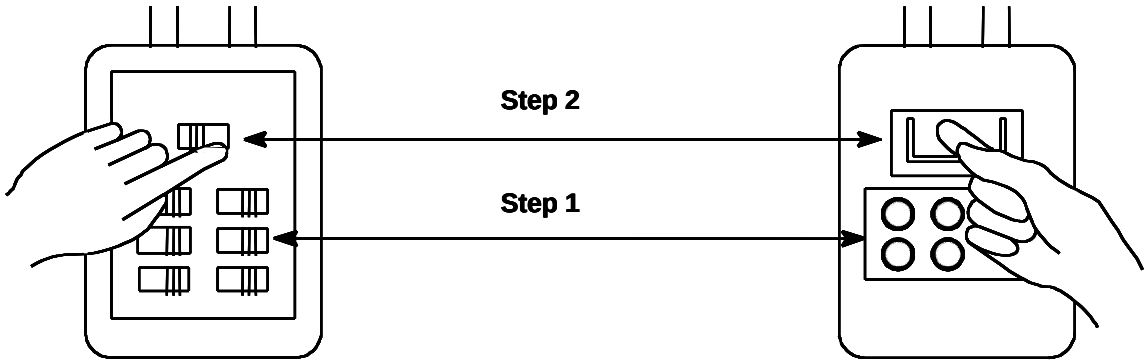
- Replace broken or frayed cords immediately.
- Maintain electrical appliances properly. Repair or replace malfunctioning appliances.

REDUCING FIRE HAZARDS IN THE HOME AND WORKPLACE (CONTINUED)

Emergencies sometimes occur despite our best efforts. In the event of an electrical emergency:

- Know where the power shut-offs for electrical appliances are.
- Know where the power shut-off for circuit breakers or fuses is and how to shut off the power.
- Unscrew individual fuses or switch off smaller breakers first, then pull the main switch or breaker.
- When turning the power back on, turn on the main switch or breaker first, then screw in the fuses or switch on the smaller breakers.

You should not enter a flooded basement to shut off the electrical supply, because water conducts electricity.



Circuit Box Showing Shutoff Steps.

STEP 1: SHUT OFF INDIVIDUAL BREAKERS.
STEP 2: SHUT OFF MAIN BREAKER.

Fuse Box Showing Shutoff Steps.

STEP 1: PULL OUT INDIVIDUAL FUSES.
STEP 2: PULL OUT MAIN FUSE.

REDUCING FIRE HAZARDS IN HOME AND WORKPLACE (CONTINUED)

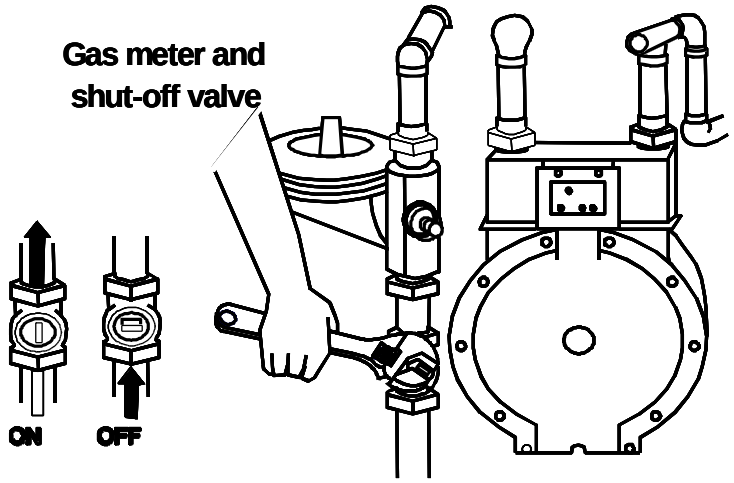
NATURAL GAS HAZARDS

Natural gas presents two types of hazards. It is an:

- Asphyxiant that robs the body of oxygen.
- Explosive that can easily ignite.

To reduce natural gas hazards:

- Install a natural gas and/or carbon monoxide detector. Test the detectors monthly.
- Locate and label the gas shutoff valve(s).



Natural Gas Meter With Shutoff

The gas meter shut-off diagram indicates the shut-off valve location on the pipe that comes out of the ground. To turn off the valve, use a wrench to turn the valve clockwise one-quarter turn.

Handout #3
Carbon Monoxide Poisoning

INTERESTED IN PURCHASING A NATURAL GAS OR CARBON MONOXIDE DETECTOR?

Visit your local hardware store or go to:

All Web Discounts	www.allwebdiscounts.com	1.877.570.6961
Safe Home Products	www.safehomeproducts.com	1.888.607.9902
Safety Hero	www.safetyhero.com	1.866.626.SAFE

REDUCING FIRE HAZARDS IN HOME AND WORKPLACE (CONTINUED)

In a disaster, if you smell gas, leave the building immediately. If there is a fire, turn off the gas from outside the building. After service is turned off, however, it can be restored only by a trained technician (Contact PG&E to restore service).

Never enter the basement of a structure that is on fire to turn off any utility.

CERT SIZE-UP

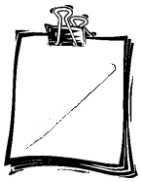
CERT size-up is a continual data-gathering process that will dictate whether to attempt fire suppression and planning for extinguishing the fire.

CERT size-up answers the questions:

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

STEPS FOR SIZE-UP



STEP 1 **GATHER FACTS**
What has happened? What is the current situation?
Are the structures occupied? How many people are involved (if you know)?
What type(s) of structure(s) and construction are involved?
Are hazardous materials involved?

STEP 2 **ASSESS AND COMMUNICATE THE DAMAGE**
Take a lap around the building to evaluate the situation.
Is the damage beyond the CERT's capability?
How will your safety be affected? Will weather conditions impact your safety?
Are normal communication channels functioning?

STEP 3 **CONSIDER PROBABILITIES**
What is likely to happen? What could happen through cascading events?
Does the fire's path jeopardize other areas?

STEP 4 **ASSESS YOUR OWN SITUATION**
Are you in immediate danger?
Have you been trained to handle the situation?
Do you have the equipment that you need?
What resources are available with which you can suppress the fire?
What equipment is available?

CERT SIZE-UP (CONTINUED)

STEP 5 ESTABLISH PRIORITIES

Are lives at risk? Can you help? Remember, life safety is the first priority!
Can fire suppression be *safely* attempted by CERT members? If no, do *not* attempt.
Are there other, more pressing needs at the moment?

STEP 6 MAKE DECISIONS

Base your decisions on the answers to Steps 1 through 3 and in accordance with the priorities that you established.
Where will deployment of available resources do the most good while maintaining an adequate margin of safety?

STEP 7 DEVELOP PLANS OF ACTION

Develop a plan that will help you accomplish your priorities. Simple plans may be verbal, but more complex plans should always be written.
Determine how personnel and other resources should be deployed.

STEP 8 TAKE ACTION

Execute your plan, documenting deviations and status changes so that you can report the situation accurately to first responders.

STEP 9 EVALUATE PROGRESS

At intervals, evaluate your progress in accomplishing the objectives in the plan of action to determine what is working and what changes you may have to make to stabilize the situation. Continually size up the situation to identify changes in the:

- Scope of the problem
- Safety risks
- Resource availability
- Adjust strategies as required

FIREFIGHTING RESOURCES

The most common firefighting resources are:

- Portable fire extinguishers.
- Interior wet standpipes.

Portable fire extinguishers are invaluable for putting out *small* fires only. 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 1-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.

There are also other firefighting resources available that are less common:

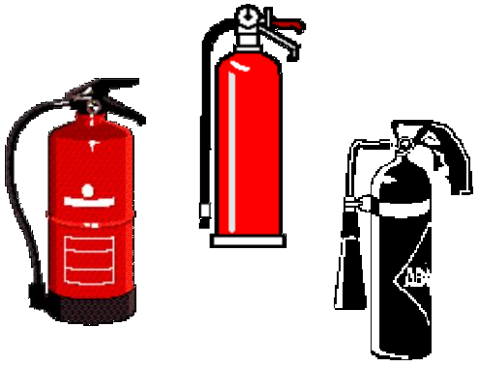
- In interior spaces, it is possible to *confine* a fire and restrict the spread of smoke and heat by closing doors to rooms and hallways.
- Other *creative* resources may also be available:
  - Swimming pool or spa water and buckets
  - Sand or dirt and shovels
  - A garden hose

The type of fuel that is burning will determine which resources to select to fight a fire.

TYPES OF FIRE EXTINGUISHERS

There are four types of extinguishers:

- Water
- Dry chemical
- Carbon dioxide
- Specialized fire extinguishers



Fire Types, Extinguishing Agents and Methods

Fire Type	Extinguishing Agent	Extinguishing Method
Ordinary Solid Materials  	Water	Removes heat
	Foam	Removes air and heat
	Dry chemical	Breaks chain reaction
Flammable Liquids  	Foam CO_2	Removes air
	Dry chemical	Breaks chain reaction
Electrical Equipment  	CO_2	Removes air
	Dry chemical	Breaks chain reaction
Combustible Metals  	Special agents	Usually remove air

Common characteristics of water extinguishers include:

- Capacity. Standard size is 2 gallons.
- Range. Standard range is 30-40 feet.
- Pressure. Standard pressure is 110 pounds per square inch (psi).

Use extreme caution when using a water extinguisher to ensure that the water, which is under pressure, does not scatter lightweight materials and spread the fire.

Common characteristics of dry chemical extinguishers include:

- Capacity. Approximately 10-20 seconds discharge time.
- Range. Standard range is 8-12 feet.
- Pressure. Standard range is 175-250 psi.

- Dry chemical extinguishers have a sodium bicarbonate base and are effective on Class B and C fires.

- Multipurpose dry chemical extinguishers have a monoammonium phosphate base and are effective for Class A, B, and C fires.

- **CERT recommended extinguisher size 3A 40:BC**

While still in use, carbon dioxide, Halon and other specialized extinguishers are less common.

FIREFIGHTING RESOURCES (CONTINUED)

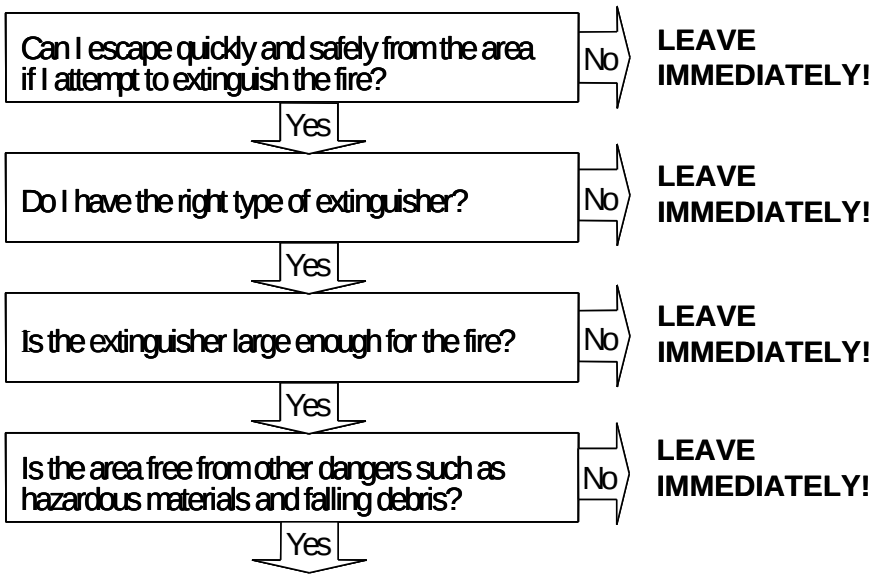
DECIDING TO USE A FIRE EXTINGUISHER

There are a series of questions that you should ask yourself before attempting to fight a fire with a fire extinguisher.

If you answer "**NO**" to any of these questions, you should:

- Leave the building immediately.
- Shut all doors as you leave to slow the spread of the fire.

If all of the answers to the questions are "YES," you may attempt to extinguish the fire. Even if you answer "YES" to all of the questions, but feel unable to extinguish the fire, you should leave immediately.



Deciding to Use a Fire Extinguisher

This flowchart illustrates the decision making process for determining whether to use a fire extinguisher. The decision is based on four questions:

1. **Can I escape quickly and safely if I attempt to extinguish the fire?**
2. **Do I have the right type of extinguisher?**
3. **Is the extinguisher large enough for the fire? *(Fire bigger than trash can?)***
4. **Is the area free from other dangers such as hazardous materials and fallen debris?**

If the answer to all questions are "yes," CERT members should attempt to extinguish the fire.
If the answer to any questions are "no," CERT members should leave.

FIREFIGHTING RESOURCES (CONTINUED)

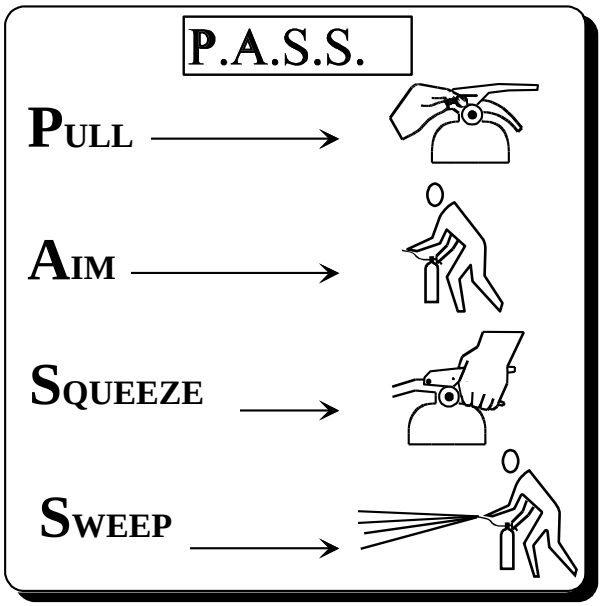
OPERATING A FIRE EXTINGUISHER

You should always operate portable fire extinguishers in an upright position.

The acronym for operating a fire extinguisher is **P.A.S.S.**:

- **P**ull the pin
- **A**im the extinguisher
- **S**queeze the handle
- **S**weep side to side at the base of the flames

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



P.A.S.S. = Pull, Aim, Squeeze, Sweep (from side to side)

Fire is black – don't expect to be able to see
Crawl low, under the smoke
Cover your mouth and nose with a mask or cloth – the smoke and fumes can kill!
If the fire is too large for your extinguisher, leave immediately – you only have seconds!

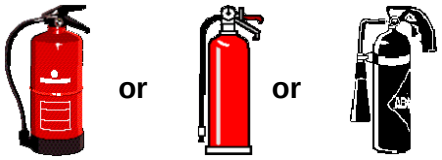
FIRE SUPPRESSION SAFETY

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.

Fire suppression safety rules include:

- Use safety equipment at all times.
  Wear your helmet, goggles, dust mask, leather gloves, and heavy shoes. If you are not equipped to protect your personal safety, leave the building.

- Have the right fire extinguisher. Be sure you have the right type of extinguisher for the class of fire and that you know how to use it.

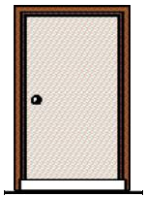


- Work with a buddy. Buddies serve an important purpose. They protect your safety. Don't ever try to fight a fire alone.

- Have a backup team, whenever possible. A backup team just makes good sense.
  A backup team can support your fire suppression efforts and can provide help if you need it.

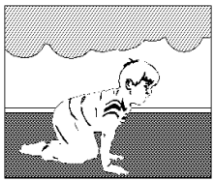
- Stay between the fire and an exit.
  Maintain a way out in case the fire gets out of control.

- Feel closed doors with the back of the hand, working from the bottom of the door up.
  If the door is hot, there is fire behind it. Do not enter! Opening the door will feed additional oxygen to the fire. Use an alternate exit for escape.



- Confine the fire, whenever possible, by keeping doors closed.

- Stay low to the ground. Smoke will naturally rise.
  Keeping low to the ground will provide you with fresher air to breathe.



- Maintain a safe distance. Remember the effective range of your fire extinguisher.
  Don't get closer than necessary to extinguish the fire.

- Overhaul the fire to be sure that it is extinguished. A fire may re-ignite or may still be smoldering where you can't see it.

ACTIVITY #1 : CERT PROCEDURES

Instructions: This simulation exercise will provide you with experience using a portable fire extinguisher to suppress a small fire and applying teamwork to fire suppression. Follow the steps below to complete this exercise.

Work in two-person teams. Team members must communicate with each other. The emphasis is on safety and teamwork.

1. Team Member 1 should assume the "ready" position, with pin pulled, extinguisher aimed and upright, approximately 15 to 20 feet from the fire target. Team Member 1 should say, **"Ready."** Team Member 2 should repeat, **"Ready."**

2. As Team Member 1 begins to move forward, he or she should say, **"Going in."** Team Member 2 should repeat the command.

3. Team Member 1 should watch the fire and Team Member 2 should stay close, keeping his or her hand on Team Member 1's shoulder or belt.

4. Team Member 1 should approach the fire from the windward side (i.e., with the wind to the team member's back). When approximately 10 feet from the fire, Team Member 1 should begin to discharge the extinguisher at the base of the fire, continuing the approach until the range for the extinguisher is optimal.

5. Team Member 1 should sweep the base of the fire side to side until it is extinguished.

6. When Team Member 1 is exiting the fire area, he or she should say, "**Backing out."** Team Member 2 should repeat the command. Participant 2 should guide Participant 1 from the area with his or her hands as Participant 1 continues facing the fire and looking for hazards.

FIRE SAFETY SUMMARY

Effective fire suppression depends on an understanding of:

- The type of fuel involved.
- The elements required for fire to exist.
- The class of fire.
- The resources required and available to extinguish each type of fire.
- Effective fire suppression techniques.

Fire requires heat, fuel, and oxygen to exist.

There are four types, or classes, of fire:

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

It is extremely important to identify the class of fire to select the proper extinguisher for the class.

Portable fire extinguishers are most frequently used for suppressing small fires. Their labels tell the types of fires for which they are effective and the area that they can suppress.

When using portable fire extinguishers, remember P.A.S.S.: Pull, Aim, Squeeze, and Sweep.

When suppressing a fire, always follow the safety rules established for CERT Members..

IDENTIFYING HAZARDOUS MATERIALS

MATERIALS ARE CONSIDERED HAZARDOUS IF THEY HAVE ANY OF THESE CHARACTERISTICS LISTED BELOW:

FLAMMABLE: FUELS (GASES, SOLIDS AND LIQUIDS) THAT CAN EASILY IGNITE

- Acetone (nail polish remover)
- Butane (aerosol hair spray propellant)
- Gasoline (petroleum products, kerosene)
- Toluene (paint remover, paint thinner)

CORROSIVE: CHEMICALS OR CHEMICAL VAPORS THAT CAUSE DAMAGE TO BODY TISSUES

- Sodium hydroxide (oven cleaner)
- Hydrochloric add (pool add)
- Muriatic add (used to clean bricks and concrete)

TOXIC: MAY CAUSE INJURY OR DEATH IF INHALED, INGESTED OR ABSORBED BY THE SKIN

- Methylene chloride (paint stripper)
- Chlorodahe and DDT (pesticides)
- Pentachlorophenol (wood preservative)

REACTIVE: REACTS STRONGLY WITH WATER OR IS UNSTABLE WHEN EXPOSED TO HEAT OR SHOCK

- Caldum carbide (welding material)
- Zinc phosphide (rodent control).
- Mixtures of materials; e.g. brake fluid and cola

HAZARDOUS MATERIALS INCLUDE, BUT ARE NOT LIMITED TO:

- Explosives.
- Flammable gases and liquids.
- Poisons and poisonous gases.
- Corrosives.
- Nonflammable gases.
- Oxidizers.
- Radioactive materials.

COMMON HOUSEHOLD MATERIALS

AEROSOL SPRAYS

Aerosol sprays contain a high proportion of organic solvents-mist particles enter the lungs and blood stream. There is a danger of aerosol cans exploding.

- Aerosol sprays
- Air fresheners

AUTOMOTIVE PRODUCTS

Automotive products such as motor oil, transmission and brake fluids and antifreeze all contain hazardous chemical compounds. Used motor oil contains lead and other metals. Antifreeze is sweet tasting and may attract children and pets; it is a poison.

- Automotive cleaning products
- Gasoline/diesel fuel
- Car batteries
- Antifreeze
- Motor oil
- Transmission/brake fluid

CAUSTICS/CORROSIVES

Caustic/corrosive materials are effective cleaners, but they can cause severe eye and skin damage. Any acid or alkaline product is corrosive and is also poisonous if ingested. Never mix chlorine bleach with ammonia or acid or toilet bowl cleaners, as toxic fumes result.

- Drain openers/cleaners
- Oven cleaners
- Chlorine bleach
- Abrasive scouring powders
- Ammonia & Acid
- Rug and upholstery cleaners
- Photographic chemicals (may contain chlorine, can be corrosive and poisonous)

PAINT PRODUCTS

Methylene chloride is used extensively in paint removers, and is very dangerous if heart ailment exists. Oil-based paint products are combustible. Latex and water-based paints don't require solvent thinners (they may still have toxic substances, but lack volatile hydrocarbon solvents).

- Paint
- Paint solvents and thinners
- Paint removers
- Art supplies (including oil based paints, lead, cadmium, turpentine & rubber cement)

PESTICIDES AND HERBICIDES

Pesticides and herbicides are poisons and may cause serious damage to skin, eyes or internal organs; some are flammable.

- Ant & roach control
- Garden insect sprays
- Snail and slug killers
- Chemical fertilizers
- Houseplant insecticide
- Pet care products

COMMON HOUSEHOLD MATERIALS CONTINUED

SOLVENTS

Solvents are fast-drying substances which dissolve something else. Breathing of these vapors or accidental drinking can be harmful or even fatal. Some solvents are flammable. Avoid products containing highly toxic ingredients such as nitrobenzene, trichloroethane, dinitrobenzene (carcinogens), and oil of cedar. Keep out of reach of children and pets. Always use in a well-ventilated area away from an ignition source.

- Furniture and floor polish
- Shoe polish
- Silver polish
- Spot remover
- Moth balls

MIXING HOUSEHOLD MATERIALS

Some household products when mixed with others may become a serious health hazard.

CLOROX

When mixed with toilet bowl cleaners, swimming pool acid, ammonia, rust remover, or any acid-type substance, creates a hazardous gas.

HOUSEHOLD AMONIA (AMMONIUM HYDROXIDE)

When combined with bleach, pool ammonia or Liquid Plumber creates a toxic gas.

OVEN CLEANER

May contain sodium hydroxide (commonly known as lye) and can cause bums to skin, eyes, and mucous membranes. Fumes are extremely dangerous to wearers of contact lenses. Produces extreme heat when mixed with sulfuric acid (liquid Plumber) or hydrochloric acid (toilet bowl cleaner).

LIQUID PLUMBER

Contains sulfuric acid. When mixed with bleach, pool chlorine, or any other chloride based substance, can create a very toxic gas, chlorine.

PROPER STORAGE OF HOUSEHOLD HAZARDOUS MATERIALS

LIMIT AMOUNT OF HAZARDOUS MATERIAL IN STORAGE

ISOLATE PRODUCTS IN APPROVED CONTAINERS, STORED AWAY FROM IGNITION SOURCES

ELIMINATE PRODUCTS THAT ARE NO LONGER NECESSARY BY PROPER DISPOSAL

SEPARATE INCOMPATIBLE MATERIALS SUCH AS AMMONIA AND CHLORINE

REDUCING HOUSEHOLD HAZARDOUS MATERIALS

REDUCE
Buy non-toxic alternatives if available
Buy only what you need
Use the products completely
Store products to prevent spills and spoilage

- Leak-proof containers away from direct sunlight
- Away from children and pets
- Store flammables away from heat and other chemicals
- Store most hazardous materials at floor level
- Store containers on anchored shelves with lip, strap or cord

RE-USE
Give products to some who can use them
Visit the County's re-use program

RECYCLE
Bring wastes to the HHW drop-off events

DISPOSING OF HOUSEHOLD HAZARDOUS MATERIALS

The County of Santa Clara and local cities provide periodic free of charge household hazardous waste drop-off events. For more information contact:

Santa Clara County Hazardous Waste Recycling & Disposal Program
408.299.7300
www.hhw.org

Cleanup California, Earth 9-1-1
1.800.C L E A N U P or 1.800.253.2687
www.cleanup.org

The California Poison Control System (CPCS) is the statewide provider of immediate, free and expert treatment advice and assistance over the telephone in case of exposure to poisonous, hazardous or toxic substances. The CPCS is accessible toll-free, 24 hours a day, 7 days a week, 365 days a year.

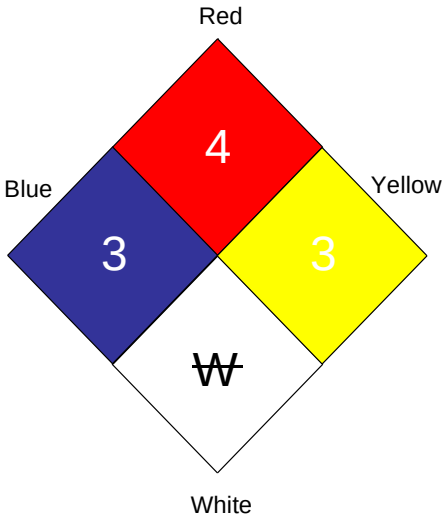
CPCS also provides free information and materials on poisoning prevention and first aid for poisoning.

California Poison Control
1.800.8POISON
1.800.876.4766
www.calpoison.com

IDENTIFYING STORED HAZARDOUS MATERIALS

Knowledge that hazardous materials are present helps to protect CERT members' safety and is also valuable sizeup 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.



National Fire Protection Association 704 Diamond

The NFPA 704 Diamond, showing four quadrants and hazard ratings.

The figure above 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. This placard would be found on a fixed facility.

The diamond is divided into four colored quadrants, each with a rating number inside of it, and that number indicates the degree of risk associated with the material. **The higher the number, the higher the risk!**

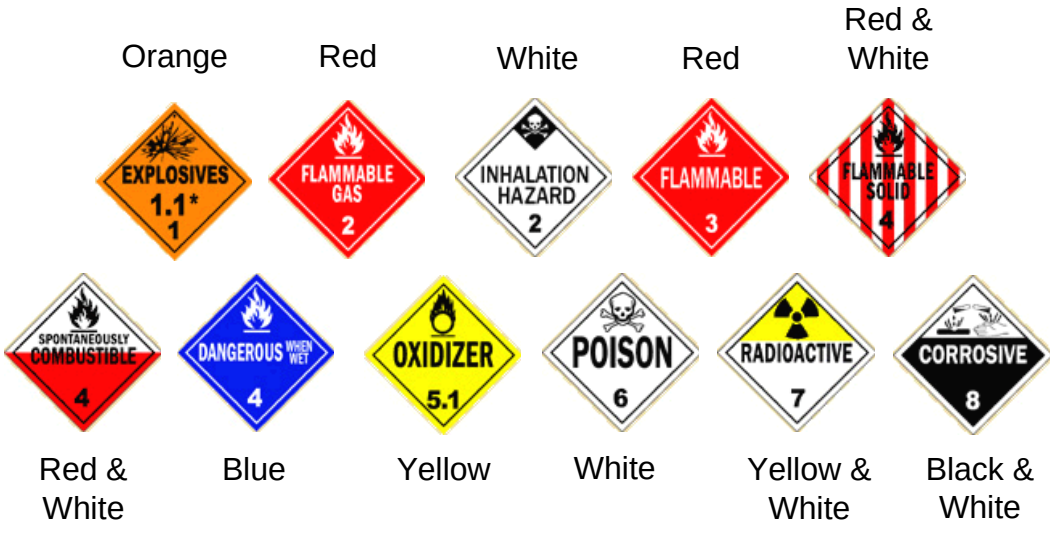
- The red quadrant describes the material's flammability.
- The blue quadrant indicates health hazard.
- The yellow quadrant indicates reactivity.

IDENTIFYING STORED HAZARDOUS MATERIALS CONTINUED

Quadrant	Rating	Meaning
White	W	Indicates a material that shows unusual reactivity with water (i.e., should never be mixed with water or have water sprayed on it). Magnesium metal is an example of a material that is reactive to water.
	OX	Indicates a material that possesses oxidizing properties. Ammonium nitrate is an example of a material with oxidizing properties.
	ACID	Indicates that the material is an acid.
	ALK	Indicates that the material is a base.
	COR	Indicates that the material is corrosive.
	☢	Indicates that the material is radioactive.

The numbers within the 704 Diamond are for professional firefighter use only. CERT members should consider these placards a "stop sign." The only action CERT members should take when a facility is placarded with an NFPA 704 Diamond is to evacuate persons who are downwind, as necessary, to an uphill and upwind location.

IDENTIFYING HAZARDOUS MATERIALS IN TRANSIT



DOT Warning Placards

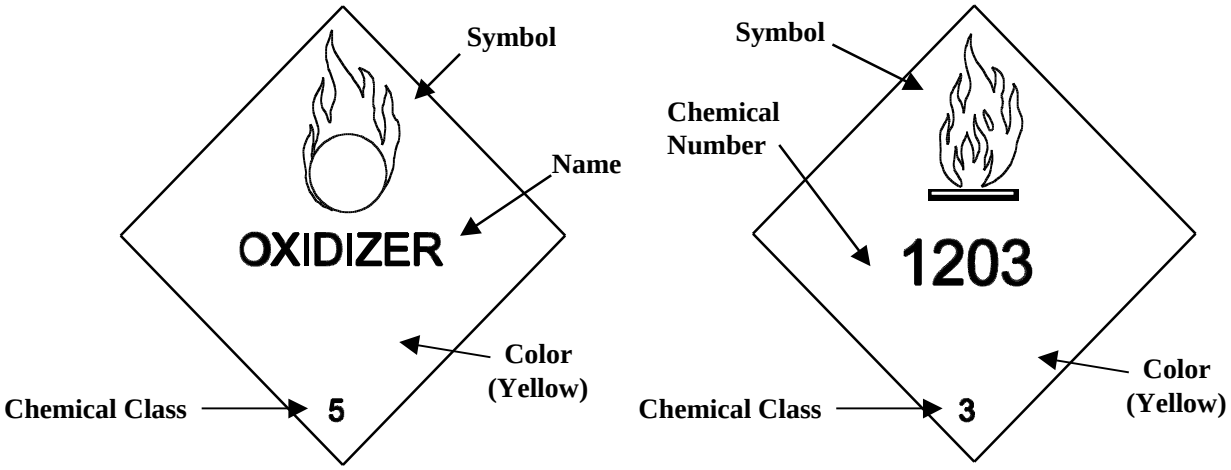
DOT Warning Placards: 1.1, Explosives; 2, Flammable Gas; 2, Inhalation Hazard; 3, Flammable; 4, Flammable Solid; 4, Spontaneously Combustible; 4, Dangerous When Wet; 5.1, Oxidizer; 6, Poison; 7, Radioactive; and 8, Corrosive.

IDENTIFYING HAZARDOUS MATERIALS IN TRANSIT CONTINUED

These are Department of Transportation (DOT) placards. The DOT placard is one of three ways that hazardous materials are marked and identified while in transit. The other two ways are:

- The United Nations (UN) system.
- The North American (NA) warning placards.

HAZARDOUS MATERIALS (CONTINUED)



UN Placarding System

UN Placarding System, showing the hazard class in the bottom corner, the chemical category in the center, and the hazard symbol at the top of the placard.

NA Numbering System

NA Numbering System, showing the hazard class in the bottom corner, the chemical number in a white box in the center, and the hazard symbol at the top of the placard.

These placards can be on any vehicle, not only tankers. Also:

- No placard is required for less than 1,000 pounds of many hazardous materials.
- Certain hazardous materials (e.g., anhydrous ammonia) are placarded as a nonflammable gas for domestic transport but as a flammable gas for international transport. (Anhydrous ammonia is a flammable gas!)
- Sometimes drivers forget to change the placard when they change their cargo. The group should use extreme caution when approaching any vehicle in an accident.

The DOT placard color is also significant.

You should always error on the side of safety. Do not assume that, because there is no placard, no hazardous materials are present.

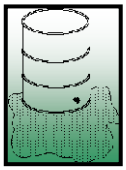
- Talk to drivers or train crew members whenever possible.
- Treat any unknown situation as a hazardous materials incident.

Like the NFPA 704 Diamond, the DOT, UN, and NA placards should be a "stop sign" for CERT members.

HAZARDOUS MATERIALS INCIDENT RECOGNITION

Many hazardous materials incidents are not initially reported as hazmat incidents (traffic accident, fire, medical aid).

Initial emergency scene may not indicate the presence of hazardous materials, look for signs:



- Placards/signs indicating hazardous materials
- People collapsed or feeling nauseous
- Evidence of liquid spills, fire, smoke, or vapors with unusual colors/odors
- Loud roar or increased pitch of an operating relief valve

Be cautious. Treat materials as hazardous (don't touch or inhale) until identification is confirmed and follow these steps:

- Approach from uphill, upwind & upstream
- Maintain a safe distance using the rule of thumb (when held upright, thumb should cover the incident scene)
- Isolate and deny entry
- Do not eat, drink or smoke in the incident area
- Do not use ignition sources (including flares) near incident area
- Notify authorities

HAZARDOUS MATERIALS DECONTAMINATION

Hazardous materials can be released accidentally or intentionally. It is Important that you know what to do if you suspect you have been contaminated; and how to remove the hazard.

Discovering a hazardous contamination at home:

- Stay calm, warn others inside the house
- Get out of the affected area, stay out, isolate the area (close doors and windows, turn off fans and air conditioning if safe to do so.)
- Take frequent shallow breaths as you exit the contaminated area
- Call 9-1-1
- Decontaminate yourself (in a safe location) if necessary
- Don't taste, smell or touch anything in the contaminated area prior to decontamination
- Provide information to responders and record your observations

Self-Decontamination

- Put contaminated clothing in a plastic garbage bag
- Wash affected areas with lots of tepid water and soap. Wash for at least three minutes.
- Call 9-1-1

HAZARDOUS MATERIALS DECONTAMINATION (CONTINUED)

Decontamination Process Conducted by First Responders:

- If there is time, decontamination will include setting up privacy tents, removing your clothing into plastic bags, showering and dressing in paper coveralls.
- If time is critical (because your life is at risk) you will be asked to take off your clothes and participate in a mass shower.

If you are in a public place:

- Stay calm
- Don't leave the scene until told to do so
- Follow the directions of responders
- Provide your phone number and address for later contact if needed
- Offer eyewitness accounts of the event
- Don't leave the scene unless you have been decontaminated or "cleared"
- Be sure you receive proof of decontamination, or verification that decontamination was not necessary, from the responders

Note:

- **Removing clothing over your head may cause contamination around the eyes, nose and mouth**
- **Removing your outer clothing will remove 80% of most contaminants**
- **Oily liquid contamination should be blotted off before washing**
- **Powdery contamination should be brushed off and/or moistened, to prevent inhalation, before removing clothing**

HAZARDOUS MATERIALS SHELTER IN PLACE

If it becomes necessary to shelter in place, do the following:

- Lock all doors and windows for a better seal
- Turn off heating/air conditioning systems
- Close vents/fireplaces dampers
- Move to an interior room
- Seal gaps around doorways and windows
- Turn on your radio

REMEMBER…YOUR SAFETY IS #1!

UNIT SUMMARY

Homework Assignment

To help understand the types of materials, there are several methods of placarding hazardous materials being stored or transported, including NFPA, DOT, UN, and NA. When faced with accidents involving materials that are placarded as hazardous—or when the material is unknown—keep away and call for professional help immediately.

Before the next session, you should:

- Read and familiarize yourself with Unit 3: Disaster Medical