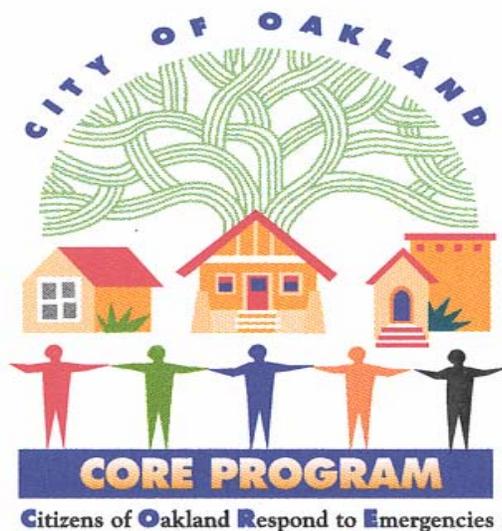


CORE III

Emergency Response Hands-On Training Manual Class A

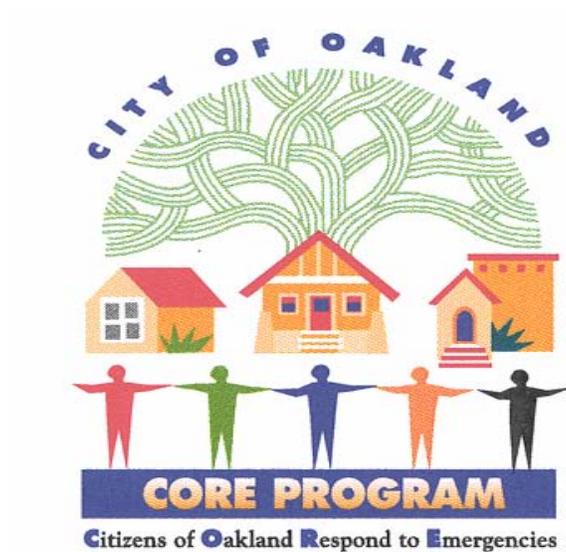


CORE III

Emergency Response

Hands-On Training

Class A



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Disclaimer:

Every reasonable effort has been made to ensure the accuracy of this manual. However, the City of Oakland and City employees assume no responsibility and disclaim any liability for any injury or damage resulting from the use or effect of the information, products or procedures specified in this manual.

This 2008 edition of the CORE III manual is split into three volumes, corresponding to our three classroom meetings. Instructors will cover CORE III subject matter according to the following schedule:

Class A:	Section One:	Fire Behavior and Suppression
	Section Two:	Damage Assessment
	Section Three:	Light Search and Rescue
Class B:	Section Four:	Disaster First Aid
	Section Five:	Disaster Psychology
Class C:	Section Six:	Assisting People With Special Needs
	Section Seven:	Neighborhood Emergency Communications

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INTRODUCTION

CORE teaches self-reliance skills and helps neighborhoods establish emergency response teams. With CORE training, you will:

- Develop self-confidence and peace of mind as you learn useful information and hands-on life-saving skills.
- Build community as you develop your skills and share your resources to protect yourself, your family and home, and your neighborhood.
- Create a lifeline between your family and neighbors and the City's emergency responders.

In CORE III you will build on your training in CORE I – Home and Family Preparedness and CORE II – Neighborhood Preparedness and Response. You will learn basic response skills and how to size up an emergency situation. Size-up is an ongoing process that enables CORE teams to make decisions and respond appropriately to do the greatest good for the greatest number of people.

In CORE III you will learn basic concepts and hands-on skills in:

- Fire Behavior and Suppression
- Damage Assessment
- Light Search and Rescue
- Disaster First Aid
- Disaster Psychology
- Assisting People with Special Needs
- Neighborhood Emergency Communications

During the hands-on training, you will form response teams and practice your skills in a simulated earthquake exercise.

The classroom instruction, hands-on training and practice exercises are conducted by firefighters at the Oakland Fire Training Center.

When you complete CORE I, II and III, you receive a certificate of completion, a CORE hat and vest with photo ID, and you are registered with the City of Oakland as a Disaster Service Worker.

Section One

Fire Behavior and Suppression



FIRE BEHAVIOR AND SUPPRESSION

Overview

During and immediately after a major emergency, the first priorities of firefighters are life safety and fire control. CORE teams may assist in fire-related emergencies and must be trained in fire behavior and suppression.

In this section, you will learn about:

Fire Behavior

- Fire chemistry and physics
- Fire phases
- Heat transfer
- Classification of fires

Fire Suppression

- Types and components of fire extinguishers
- Using fire extinguishers – P.A.S.S.
- Reducing household fire hazards
- Fire safety precautions

Hazardous Materials

- Types of Hazardous Materials
- Proper Storage
- Labeling

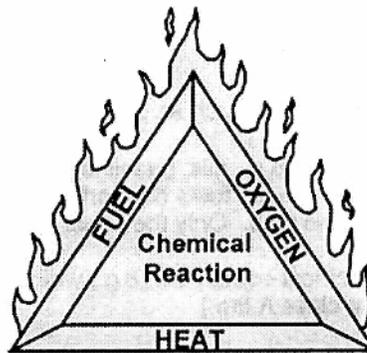
At the end of this section, you will have the knowledge to:

- Understand the basics of fire behavior
- Reduce or eliminate fire hazards
- Extinguish small fires

FIRE BEHAVIOR

Fire Triangle

There are three elements that must be present for a fire to occur, represented by the three sides of the Fire Triangle:



Heat is required to elevate the temperature of a material to its ignition point. When sufficient heat is present, materials will produce vapors. As the temperature rises, those vapors will begin to burn.

Fuel can be **solid**, such as wood, clothing and paper; **liquid**, such as oil, alcohol and turpentine; or **gas**, such as natural gas, propane, and butane.

The vapors produced by heat will not catch on fire unless there is at least 20% **Oxygen** available in the air. Fuels can be heated until they are completely vaporized, but the vapors will not ignite unless there is sufficient oxygen present.

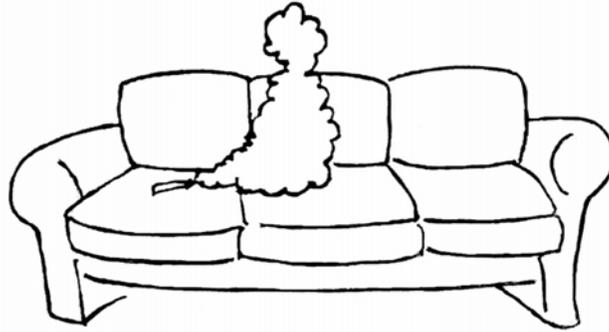
A fire will not continue to burn if any one of the elements, **Heat**, **Fuel** or **Oxygen**, is missing.

Fire Phases

As a fire burns, it goes through three distinct phases, each of which presents different challenges to the person trying to extinguish or control it. The **Free-Burning** and **Smoldering** phases present the greatest dangers.

- **Incipient Phase:** In the initial stages of a fire, very little of the room's oxygen will be depleted. The temperature of the room will be only slightly elevated.
- **Free-Burning Phase:** As the heated gases rise, the flame draws in oxygen-rich air. The hot, gaseous air, which can quickly sear the lungs, will spread out across the top of the room, gradually pushing downward. Cool air is also forced downward and the area closest to the ground will provide a temporary safe space to conduct fire extinguishment or to escape until the spreading gases eventually heat that air. This is the reason it is so important to stay low, below the hot smoky gases, when you are escaping from a burning room.
- **Smoldering Phase:** As the fire burns, eventually all of the combustible material in the upper levels of the room will ignite. The fire will reach the point where there is not enough oxygen in the air to react with the fuel. If a room is sealed airtight, burning will deplete oxygen in a room. The flames will eventually die out and only glowing embers will remain. During this smoldering phase it is common to see a room so filled with dense, black, carbon-filled smoke and gas that it begins to leak out from cracks and small openings. In the absence of oxygen, the fire will gradually be reduced to a smoldering state; however, while the oxygen has been reduced, the heat has not, and the fire only needs a supply of oxygen to begin to burn rapidly or explode into a **Backdraft** condition.

Upholstered furniture and mattresses are especially vulnerable to smoldering fires because of poor exchange of air in the upholstery. A lit cigarette, for instance, can smolder inside a sofa for a long time before it erupts into flames. If you have a fire in a sofa, chair or mattress, extinguish it thoroughly and then take the piece of furniture outside where it is safe to pull it apart. The more water you can get inside the upholstery, the more likely it will be that you will be able to completely extinguish the fire.



- **Backdraft:** During the **Smoldering Phase**, the fire is ready to explode back into flames if it is provided with oxygen. For this reason, it is very important to be aware of how a dense, smoky room is ventilated. If a door or window is opened suddenly, the air that rushes into the smoke-filled room can bring in enough oxygen to cause the smoldering embers to burst back into flames.

According to the International Fire Service Training Association, the following characteristics may be indications that a backdraft condition has developed:

- Smoke under pressure – the build-up of smoke in a closed room
- Black smoke becoming dense gray-yellow
- Little or no visible flame
- Smoke leaves the building in puffs or at intervals
- Smoke-stained windows
- Muffled sounds
- Sudden rapid movement of air inward when an opening is made.

To avoid a backdraft, the room or building should be ventilated at the highest point. This allows the hot gases and smoke to escape and reduces the chances for an explosion.

Fire fighting in Backdraft conditions should only be attempted by fully equipped, professional fire fighters.

Heat Transfer

Heat from a fire moves through a building in one of three ways:

- **Conduction**

Heat can be **conducted** between two objects that are in direct contact with each other. Some objects, such as metals, conduct heat quickly. Other materials, such as paper, wood and cloth do not conduct heat effectively. For this reason, when you touch a wooden door with a fire burning behind it, the wood will not feel as hot as the metal door handle.

*We use a potholder to protect our hands from **conducted** heat when we grasp the metal handle of a pot on the stove.*

- **Convection**

Heat can also be transferred by the movement of liquid or air. This is known as **convection**. When air is heated it moves upward and cooler air takes its place. Convection carries heat from one room to another; it also transfers heat from one floor to another in a multi-storied building by moving up stairwells, vents or shafts. Heated liquids or gases move within themselves.

*On a hot day we expect to find warm air in the attic rather than in the basement. The air in the attic will be warm because heat is **convected** upward and rises.*

- **Radiation**

Heat transferred by **radiation** is the warmth from a heat source that travels through the air to heat nearby objects. There doesn't need to be anything actually burning for this heat transfer to take place. Radiation is one of the primary ways that heat spreads.

*Envision the heat transferred to your hands when you hold them in front of a fireplace. Your hands are warmed by **radiated** heat.*

CLASSIFICATIONS OF FIRES

There are four different classifications of fires. Each class of fire requires different substances to control and extinguish the burning material. The four classes of fire are:

- **Class “A”** Paper, wood, clothing, rubber, and plastic
- **Class “B”** Grease, liquid, gas
- **Class “C”** Live electrical wires, appliances or equipment
- **Class “D”** Combustible metals (unlikely in most home environments)

When you select a fire extinguisher for home use, look for one that is designed for “A,” “B” and “C” types of fires. Make sure that everyone in the house knows how to operate the extinguisher.

Fire Types, Extinguishing Agents, and Methods

Fire Type	Extinguishing	
	Agent	Method
Ordinary Solid Materials  A	Water	Removes heat
	Foam	Removes air and heat
	Dry chemical	Breaks chain reaction
Flammable Liquids  B	Foam CO ₂	Removes air
	Dry chemical	Breaks chain reaction
Electrical Equipment  C	CO ₂	Removes air
	Dry chemical	Breaks chain reaction
Combustible Metals  D	Special agents	Usually remove air

FIRE SUPPRESSION

Types of Fire Extinguishers

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

Each type of extinguisher has its own set of characteristics:

Water extinguishers: Class "A": Paper, wood, clothing, rubber, plastic

Common Characteristics:

- Capacity: Standard size is 2 1/2 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.

Dry chemical extinguishers:

- **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.

Common characteristics of dry chemical extinguishers:

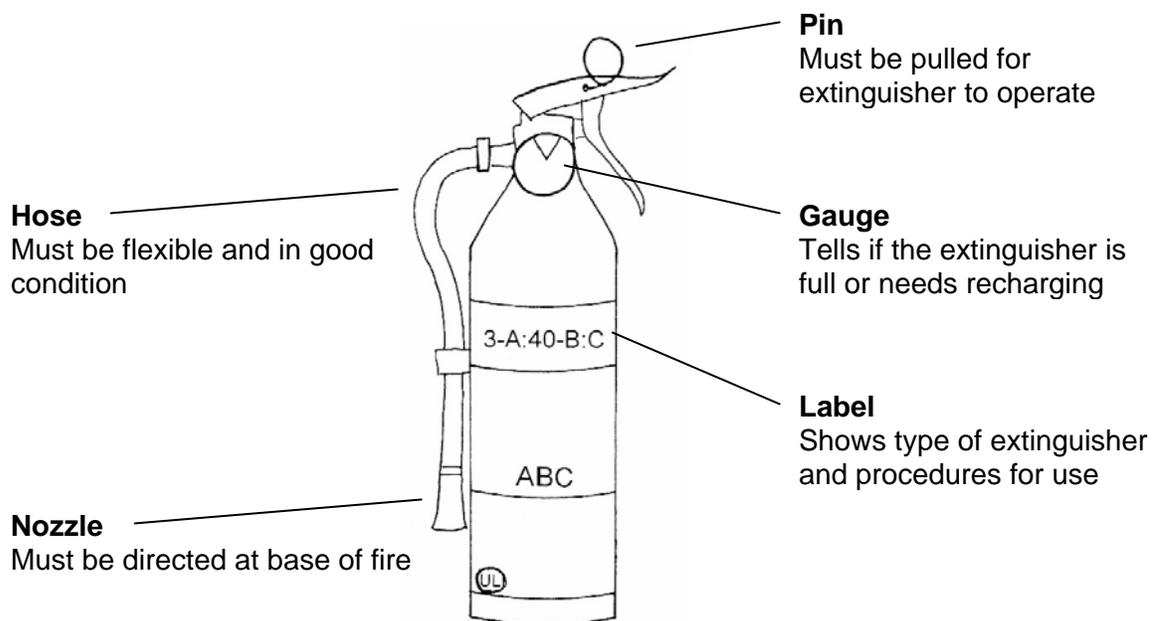
- Capacity: Approximately 10-20 seconds discharge time.
- Range: Standard range is 8-12 feet.
- Pressure: Standard range is 175-250 psi.

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

Carbon Dioxide extinguishers can be used on flammable liquids or electrical fires. Liquids present unique problems when they catch on fire since liquid assumes the shape of its container. Burning liquid on the ground can spread carrying flames with it.

Specialized Extinguishers are to be used on combustible metals, unlikely to be found in the home.

Components of a Fire Extinguisher



- **Gauge** - Tells if the extinguisher is full or needs recharging
- **Pin** - Must be pulled for extinguisher to operate
- **Hose** - Must be flexible and in good condition
- **Label** - Shows type of extinguisher and procedure for use
- **Nozzle** - Must be directed at the base of the fire

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

Should You Use Your Fire Extinguisher?

Before attempting to fight a fire with a fire extinguisher, you should ask yourself the following questions:

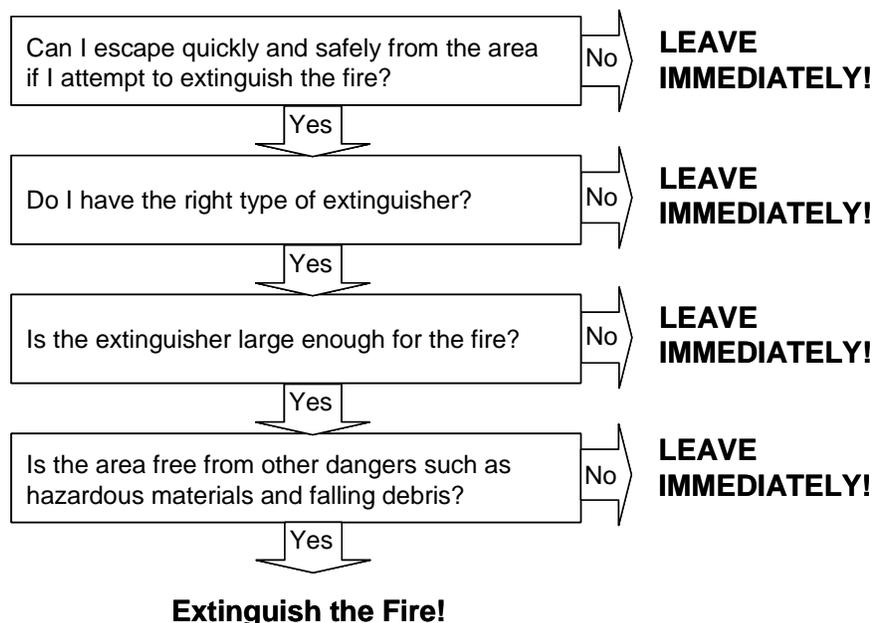
- **Can I escape quickly and safely if I attempt to extinguish the fire?**
- **Do I have the right type of extinguisher?**
- **Is the extinguisher large enough for the fire?**
- **Is the area free from other dangers such as hazardous materials and fallen debris?**

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 you answer, “**Yes**” to **all** of the questions you may attempt to extinguish the fire.

If for any reason you feel unable to extinguish the fire, you should leave immediately.

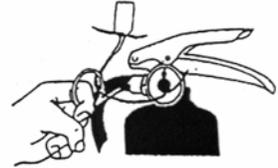


Operating a Fire Extinguisher

Use the acronym **PASS** (**P**ull, **A**im, **S**queeze, **S**weep) to help you remember these four steps:

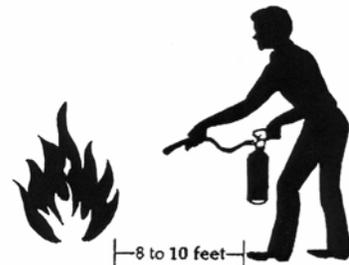
Pull out the pin at the top of the extinguisher.

- This must be done to operate the trigger handle.
- You may need to break a seal before you can remove the safety pin.
- Be careful not to squeeze the operating lever as you do this.



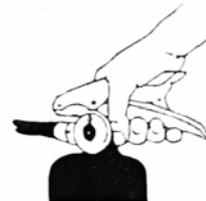
Aim toward the **base** or at an **edge** of the fire.

- Do not aim at the top or the center of the fire.
- Stay low to avoid inhaling extinguishing agent and heated gases.
- Keep the extinguisher upright.



Squeeze the handle.

- This releases the extinguishing agent.
- Start at a distance and move closer as the fire is extinguished.
- Direct the spray at the bottom of the fire.



Sweep from side to side at a moderate rate of speed until the fire is out.

- Be sure to cover the entire surface of the fire.
- If the fire re-ignites, repeat the use of the fire extinguisher.



Periodically check the gauge on your fire extinguisher to make sure it shows full capacity.

Once a fire extinguisher has been used, the internal pressure drops and the extinguisher will not be effective the next time you use it.

Always have your fire extinguisher serviced or replaced after it has been used.

Extinguishing Fires Around Your Home

Remember, to extinguish a fire you must remove one of the three components of the fire triangle, **Heat**, **Fuel** or **Oxygen**.

Keep a fire extinguisher close to the kitchen, workroom, garage and by the fireplace. This allows a quick response when fires are in their incipient stages and can be controlled by a fire extinguisher.

Kitchen Fires

You can extinguish a fire on your stovetop (often grease) by removing the **heat** and/or the **oxygen**.

- Turn off the stove to remove the **heat**.
- To remove the **oxygen**: cover the pan with a tight fitting lid, plate, cutting board or another pot, or by dusting the flames with baking soda.



Do not try to carry a flaming pan to the sink. The burning liquid could splash on you and cause serious injuries. The burning liquid could also splash on to other flammable materials and rapidly spread the fire.

You can also reduce the **heat** in a stove fire by using a fire extinguisher. If grease is burning, stand back from the fire to prevent being splashed by the flaming oil.

Never use water on oil or grease fires. Water can turn to steam under the surface and cause the grease to splash or spread.

If there is a fire in your oven, keep the oven door closed and turn off the oven.

Around the Home

Sand, dirt or kitty litter are useful materials for smothering a flame.

Use the water from your garden hose to reduce the **heat** in a yard or incipient (early stage) house fire.

Tools such as buckets, shovels, axes and handsaws can be used to help extinguish small fires by reducing **oxygen** or **fuel**.

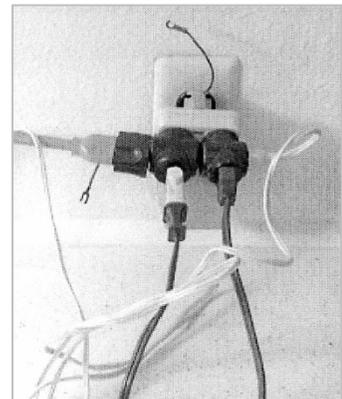
Smother fires in metal trashcans by covering with a lid to cut off the oxygen supply to the fire.

If a room is on fire, eliminate the **oxygen** supply by closing the door as you exit. Remember to close the doors to stairwells and hallways as you leave the building to go call for help.

Electrical Fires

Electrical fires in the home are very common. Most electrical fires can be prevented by being aware of the hazards and by using electrical plugs and appliances only as recommended.

- Avoid the “electrical octopus.” Eliminate tangles of electrical cords. Do not overload electrical outlets or plug power strips into other power strips.
- Do not run electrical cords under carpets.
- Do replace broken or frayed cords immediately.
- Maintain electrical appliances properly. Repair or replace malfunctioning appliances.
- Turn off appliances when you are not using them,
- When you use appliances that heat up such as irons, toaster ovens, electric blankets and space heaters, be sure to turn them off when they are not in use.



FIRE SUPPRESSION SAFETY

As CORE members responding to a disaster you may need to respond to a fire in your neighborhood. Your personal safety should always be your first concern. If you become injured you will be unable to help in the response.

Fire Suppression Safety Rules:

- Wear safety equipment and clothing, such as goggles, sturdy shoes, heavy work gloves, helmet and dust masks, long pants and a long-sleeved shirt.
- Use a **buddy system**. This is especially important in a disaster environment.
- Always have **two ways to exit** the fire area.
- **Feel closed doors with the back of your hand**, working from the bottom of the door to the top; **do not** touch the door handle before feeling the door. If the door is hot there is probably a fire behind it and you are feeling the radiant heat from a fire on the other side. **Do not open the door!**
- **Confine the fire** whenever possible by keeping doors closed.
- **Stay as close to the ground as you can** in a smoky environment. Smoke will naturally rise, so keeping low to the ground will provide you with fresher air to breathe.
- **Be alert** to the conditions that lead to a backdraft. If those conditions are present, **get out** of the area as quickly as you can.
- If your fire extinguisher cannot reach the far side of a fire, **move around the perimeter** of the fire, away from the smoke.
- **Tear or break apart** a burned object to make sure that no embers are overlooked and the fire is really out.
- If your clothes catch on fire, cover your face and **Stop, Drop and Roll** to smother the flames.

Remember, as CORE team members, you are not professional fire fighters and it is important to know your limitations when there is a fire.

- **Do not get too close.** Stay near the outer range of your extinguisher. If you feel the heat, you are too close.
- **Do not try to fight a fire alone.** Your first priority is your personal safety. Don't put yourself at risk.
- **Do not try to suppress large fires.** If the fire is taller than you are, leave it for the professional fire fighters.
- **Do not enter smoke-filled rooms.** CORE team members do not have the proper safety equipment.

EXERCISE: EXTINGUISHING SMALL FIRES

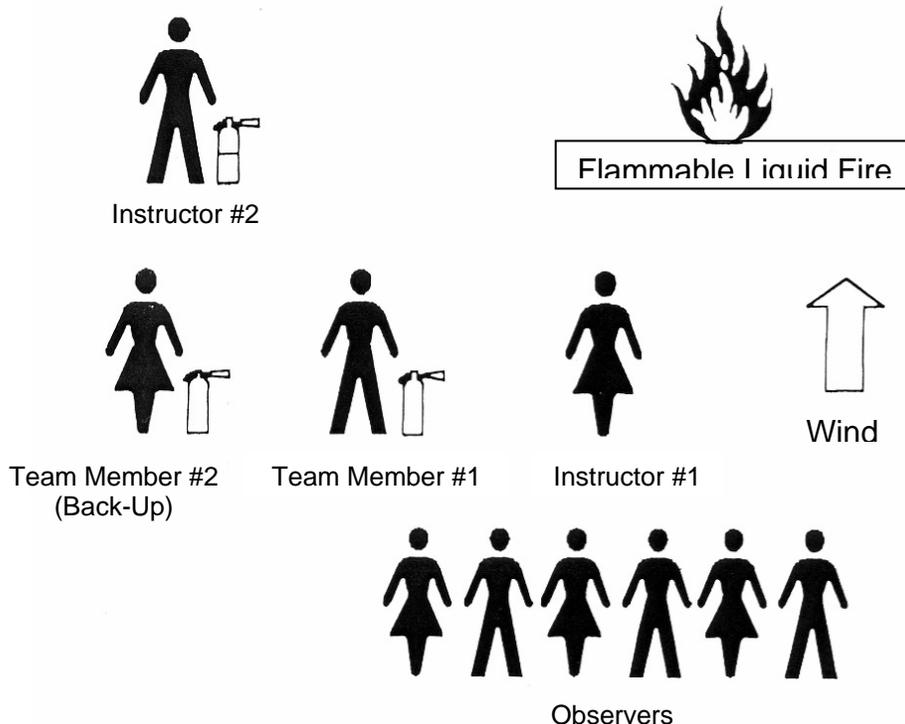
This exercise will provide you with experience using a portable fire extinguisher to suppress a small fire, and practice safety and teamwork in fire suppression. Each team member will be provided with a portable fire extinguisher.

1. Work in two-person teams. Team members must communicate with each other.
2. Team Member 1 should assume the “ready” position, with pin pulled, extinguisher aimed and upright, approximately 20 to 25 feet from the fire.

When ready to approach the fire, Team Member 1 should say, “Ready.”

Team Member 2 should repeat, “Ready.”

As Team Member 1 begins to move forward, he or she should say, “Going in.” Team Member 2 should repeat the command and stay within reach of Team Member 1.



Both team members should walk toward the fire. Team Member 1 should watch the fire and Team Member 2 should stay close to Team Member 1, keeping his or her hand on Team Member 1’s shoulder. Team Member 2’s job is to protect Team Member 1.

3. 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.
4. Team member 1 should sweep the base of the fire until it is extinguished.

When Team Member 1 is exiting the fire area, he or she should say, "Backing out." Team Member 2 should repeat the command.

Team Member 2 should guide Team Member 1 from the area with his or her hands as Team Member 1 continues facing the fire and looking for hazards.

After the fire is extinguished, trade positions and repeat the exercise.

HAZARDOUS MATERIALS

A **Hazardous Material** is a chemical substance or combination of substances that will cause injury or illness. A hazardous material may cause harm to people, property, the environment or a combination of the above.

Hazardous materials can be found in almost every household and workplace in varying amounts.

It is important for CORE team members to have basic knowledge to recognize hazardous chemicals, where they may be found, and what to do, or not do, about hazardous materials spills.

Hazardous materials:

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

Exposure to hazardous materials occurs through:

- **Inhalation** – through breathing, the most rapid way of ingestion
- **Absorption** - through skin or eyes
- **Ingestion** – Swallowing
- **Injection** – Penetrating skin or falling on something

Know what hazardous materials you have at home and at work:

- Make a list of all hazardous materials
- Read the labels
- Separate materials and store or dispose of them properly
- Know what to do if chemicals are spilled
- Secure and separate all containers at work

Hazardous materials typically found in the home:

- Kitchen: Oven cleaners, drain cleaners, ammonia, bleach, disinfectants
- Laundry: Bleach, spot removers, cleansers
- Garage: Gasoline, solvents, pesticides, herbicides, paints, paint removers, thinners

Checklist for Proper Storage:

- Keep substances in the original containers
- Store hazardous materials in a cool dry place outside your home, in a locked storage shed, with an earthquake proof latch
- Keep a list of stored hazardous products that you have in your home; include product name and date of purchase
- Keep products out of reach of children and pets
- Store flammables away from open flames, sparks and hot surfaces
- Store corrosives such as chlorine bleach and ammonia in separate places

Disposal of Home Hazardous Waste

If you have hazardous materials that you no longer need, contact Alameda County Household Hazardous Waste online at www.stopwaste.org for information on proper disposal or call (800) 606-6606.

The Oakland Hazardous Waste facility is at 2100 East 7th Street, off of 23rd Avenue. Be sure to call first for days and hours of operation at (800) 606-6606.

Some local hardware stores have boxes near the register where you can drop off used batteries for proper disposal.

If you suspect a **Hazardous Materials spill**, remember the acronym:

SIN (Safety, Isolation, Notification)

Safety:

- Always assume that spilled chemicals are extremely toxic
- Do not approach a spill; stay at a safe distance
- Mixtures of chemicals can be very dangerous (for example: bleach mixed with ammonia creates toxic fumes)

Isolation:

- Close off the room and/or building and mark the outside of the building

Notification:

- Notify the Incident Commander

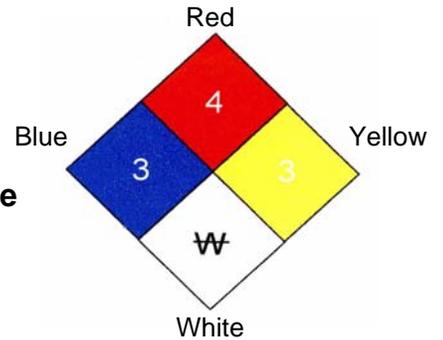


Identifying Stored Hazardous Materials

The identification system instituted by the National Fire Protection Association is an **NFPA 704 Diamond**. 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** such as an industrial or commercial site.

National Fire Protection Association 704 Diamond

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**.

The **white** quadrant indicates **Special Information**:

W Indicates a material that shows unusual reactivity with water (i.e., should never be mixed with water or have water sprayed on it).

COR Indicates that the material is corrosive

OX Indicates a material that possesses oxidizing properties

ACID Indicates that the material is an acid

ALK Indicates that the material is a base

 Indicates that the material is radioactive

The numbers within the 704 Diamond are for professional firefighter use only.

CORE members should consider these placards to be a “stop sign.”

The only action CORE 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.

Hazardous Materials on Roadways

Hazardous materials transported on roadways must carry a Department of Transportation (DOT) warning label on the package. Vehicles transporting quantities of hazardous materials must have DOT placards affixed to all sides of the vehicle. Bulk shipments, such as gasoline tanker trucks, will have a four digit numeric code instead of the hazard class in the center of the placard. This number can be referenced in the DOT's *Emergency Response Guide* to determine the identity and the emergency handling requirements of the chemical involved.

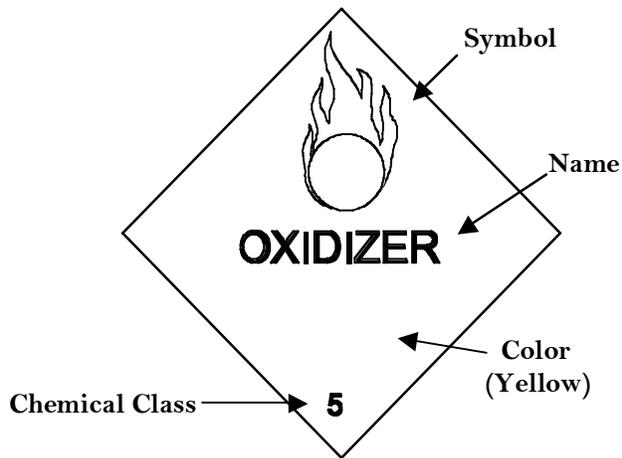


DOT Warning Placards

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; 8, Corrosive; 9 Miscellaneous dangerous substances.

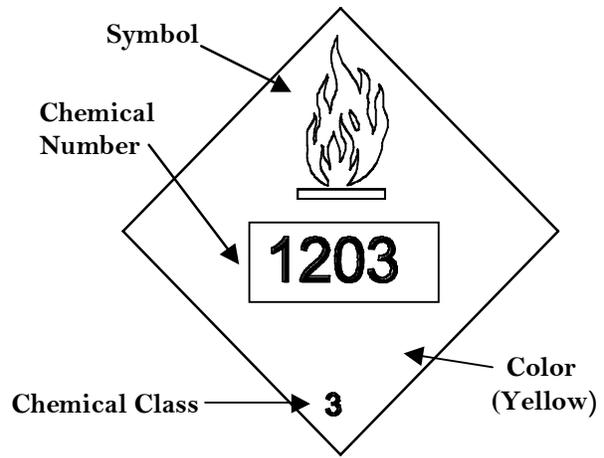
Color Coding of Labels and Placards:

Orange	Explosive
Red	Flammable gas and liquid
White	Poison
Black/white	Corrosive
Yellow	Oxidizer
Green	Nonflammable gas
Yellow/white	Radioactive



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. 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. **Use extreme caution when approaching any vehicle that has been in an accident.**
- The DOT placard color is also significant.
- You should always err 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 if possible.
- Treat any unknown situation as a hazardous materials incident.

Signs of Hazardous Material Spills:

- Overturned containers with DOT labels, especially on roadways.
- A pungent or noxious odor.
- Bubbling liquid vapor – anything that is letting off a vapor is having a reaction and should be avoided.

If you see one or more of these signs of a hazardous materials spill on a roadway or at a fixed facility, remember “**SIN**” - Safety, Isolation and Notification.

- Get uphill, upwind and a safe distance away from the spill.
- Evacuate the surrounding areas if possible, but do not put yourself in danger of exposure to the spill.
- Notify authorities as quickly as possible.

It is important to recognize hazardous materials. The 704 diamonds are placed on buildings or storage areas containing hazardous materials. DOT, UN and NA placards are placed on vehicles; DOT labels are placed on packages. Being able to recognize warning signs and being able to recognize that a hazardous condition exists may save your life and the lives of others.

SUMMARY



Fire

Fire requires heat, fuel and oxygen to exist.

As a fire burns, it goes through three distinct phases: **Incipient**, **Free-burning** and **Smoldering**.

If a fire in the smoldering phase is provided with oxygen, it will burn rapidly or explode into a **Backdraft** condition, which should be handled by professional firefighters.

There are four classifications of fires and there are **four types of extinguishers**. It is important to identify the class of fire and to select and use the proper extinguisher.

When using portable fire extinguishers, remember **P.A.S.S.** - Pull, Aim, Squeeze, Sweep.

When attempting to suppress a fire, **always follow the safety rules. Know your limits** and when it is not safe for you to extinguish the fire.

Hazardous Materials

A hazardous material is a chemical substance that may cause harm to people, property or the environment. A hazardous material may be flammable, corrosive or toxic.

You may be exposed to chemicals through inhalation, absorption, ingestion or injection.

When dealing with hazardous materials, remember SIN -- Safety, Isolation, Notification.

Industrial and Commercial Buildings that contain hazardous materials are identified with the 704 Diamond System.

Hazardous Materials transported on roadways must carry a DOT, UN or NA warning placard.

Remember to dispose of your household hazardous waste properly.

Section Two

Damage Assessment



DAMAGE ASSESSMENT

Overview

The damage caused by natural and human-caused disasters, such as earthquakes, fires, floods or chemical accidents affects communities on all levels. Damage from disasters may vary dramatically from one neighborhood to another. CORE team members are expected to assess damage in their neighborhood and respond appropriately.

In this section, you will learn:

- The role of the Damage Assessment Team
- What to look for when assessing damage
- How to rate severity of damage
- How to prioritize the response

At the end of this section, you will have the knowledge to:

- Gather information about extent of damage in your neighborhood
- Differentiate between light, moderate and heavy damage
- Keep findings organized using a status board
- Prioritize the response

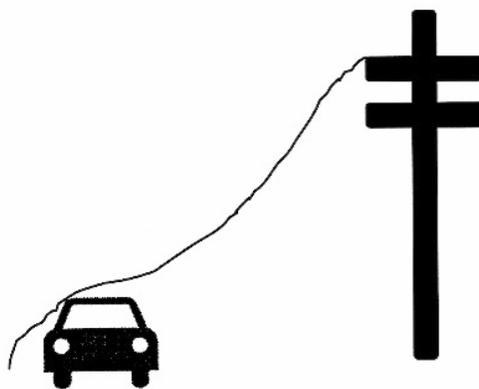
DAMAGE ASSESSMENT

Before your neighborhood can begin the process of restoring order after an earthquake or other disaster, it is vital to assess the extent of damage, existing hazards and the possibility that people may be trapped or injured. **Damage Assessment** is a critical procedure for supplying the Incident Commander (IC) with the information necessary to prioritize your neighborhood's disaster response.

The **Damage Assessment Team** will be one of the first teams deployed by the Incident Commander. It is possible that many of the CORE members/responders will be assigned to this team for the first few hours after a disaster strikes.

The **Damage Assessment Team** has two functions:

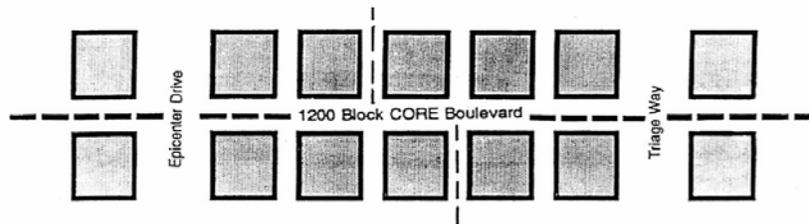
- The **preliminary responsibility** is to gather information about the extent of damage in your neighborhood so that the Incident Commander can prioritize the neighborhood response.
- The **second responsibility** entails gathering detailed, post-disaster information about damage and injuries to be used by the City's Emergency Operations Center (EOC) to evaluate the severity of the disaster and to strategize its response.



CONDUCTING DAMAGE ASSESSMENT

The **Incident Commander** establishes the location of the Incident Command Center (ICC). As CORE members and other neighbors report to the ICC, the Incident Commander will:

- Provide teams with copies of the **Preliminary Damage Assessment** form and the **Neighborhood Utilities Map**.
- Use the **Neighborhood Utilities Map** to divide the neighborhood into manageable assessment areas. Use natural geographic boundaries or divide blocks into small sections if necessary, depending upon the size of the incident. Discuss these boundaries **before** a disaster and include them in your Neighborhood Disaster Plan.



- Assign **Damage Assessment** teams of two or three people to assess specific areas. Make sure that one person is the Team Leader and another person maintains contact with the Incident Command Center.
- Use a **Status Board** to keep track of incoming information.

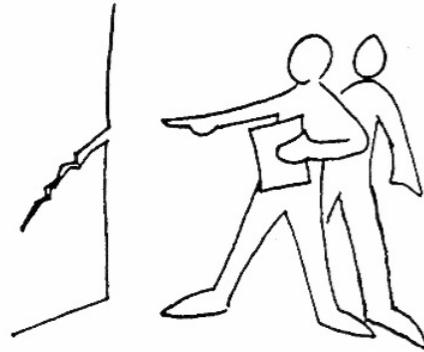
Teams:

- Should assess only areas to which they have been assigned.
- Need to send information about damage or hazards to the ICC using radios or runners so that the Incident Commander can prioritize the response.
- Should spend only a short time doing a **Damage Assessment** at each address.
- Need to remember that the purpose of the **Damage Assessment Team** is to gather information. Stop only to handle situations such as:
 - A small fire that can be easily extinguished
 - A lightly trapped victim who is exposed to an imminent hazard
 - A person with special needs who should to be escorted to the **First Aid Treatment Area**.
- Should report back to the ICC when they complete their assigned area unless the Incident Commander gives them other instructions.

What Do We Look For?

The **Damage Assessment Team** will be looking for:

- Fire
- Damaged gas lines or the smell of leaking gas
- Downed power lines
- Broken water pipes
- Major cracks in streets or sidewalks
- Structural damage
 - Houses off the foundations
 - Collapsed roofs or walls
 - Damaged or fallen chimneys
 - Cracked windows
- Uninhabitable structures
- Trapped or injured victims
- Fallen trees
- Obstruction in streets
- Deceased victims



Use the **Preliminary Damage Assessment** form to record specific hazards or damage.

RATING THE SEVERITY OF DAMAGE

There are general guidelines for assessing and rating damage. **Damage Assessment** teams need to rate the damage that they find with standardized terminology used by other response agencies in order to communicate effectively, and to receive assistance as quickly as possible.

Light Damage:

- Superficial damage such as cracked or fallen chimneys (when chimney has fallen on or away from the house)
- Cracked exterior walls, falling plaster
- Broken windows
- Minor damage to building contents

Moderate Damage:

- The stability of the structure is questionable because the building has slipped partially off the foundation
- Walls are cracked or tilting
- Decorative work is damaged or fallen
- Possibility of trapped victims
- Major damage to building contents

Note: A moderately damaged building is still attached to its foundation.

This information should be reported to the ICC as quickly as possible to establish search priorities and to rope off hazards.

Heavy Damage:

- Walls, ceilings or roofs are partially or totally collapsed and the structure is obviously unstable
- Heavy smoke or fire
- Hazardous materials inside
- Gas leaks
- Rising or moving water

Note: A building with heavy damage is not attached to the foundation.

The location of a heavily damaged building should be quickly reported to the ICC. The Incident Commander will send a **Hazard Reduction Team** to secure the perimeter of the building and/or area.

Do not enter a building with heavy damage. Leave this for professional rescuers.

PRIORITIZING THE RESPONSE

The Incident Commander will prioritize the information that is reported by the **Damage Assessment** teams and others arriving at the ICC. The **Status Board** will help keep information organized and accessible, so that it can be used to develop a strategy.

- Where are the problems?
- What are the problems?
- What is the priority of each problem?
- What needs to be done to handle the problems?
- Do we have enough qualified people to safely accomplish what needs to be done?

Examples of **High Priority Situations**:

- Smoke coming from a structure
- Gas leak
- Partial or total collapse of buildings where people are unaccounted for
- Lightly trapped victims
- Triage patients who are tagged “**Immediate**” or who have numerous injuries

Examples of **Moderate Priority Situations**:

- Downed power lines
- Triage patients who are tagged “**Delayed**” or “**Minor**”

Examples of **Low Priority Situations**:

- Broken water pipe
- People trapped in elevator
- Missing persons reports
- Large house fire when the Fire Department is not available
- Cracked windows, exterior walls
- Total building collapse with no one inside
- Deceased victims

If your neighborhood has suffered major damage or has life threatening situations, the Incident Commander or Communications Team should contact the City's Emergency Operations Center (EOC) Message Center to communicate status of your neighborhood by:

- Phone at 238-7000 or 238-6000
- Amateur Radio in your neighborhood
- The Amateur Radio operator located at the nearest Fire Station

If the damage is minimal, the neighborhood status report can be transmitted within a couple of days.

When the initial response slows down, a detailed **Damage Assessment Survey** will need to be carried out with the information compiled on the **Disaster Information Summary**. This information can be transmitted to the EOC via Amateur Radio. Your neighborhood information will be combined with that of other areas to request outside aid as needed.

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

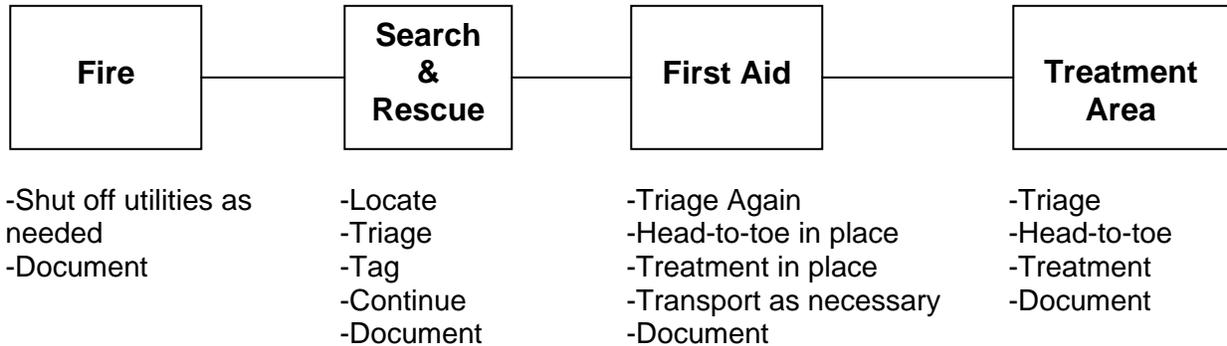
STRATEGIES FOR DAMAGED STRUCTURES

Light	Moderate	Heavy
<i>Superficial damage, broken windows, fallen plaster, major damage is to contents of building</i>	<i>Visible signs of minor structural damage; decorative work that is damaged or fallen; many visible cracks in plaster; building still attached to foundation; major damage is to contents of building</i>	<i>Partial or total collapse of walls and/or ceilings; obvious structural instability; tilting; off foundation; heavy smoke or fire; gas leaks; hazardous materials inside; rising or moving water</i>
<ol style="list-style-type: none"> 1. Secure building utilities (as needed). 2. Establish and coordinate search and rescue teams with medical triage personnel. 3. Establish "I" Immediate and "D" Delayed treatment areas. 4. Primary Mission: Locate, triage, and prioritize removal of victims to designated treatment area. 5. Continue evacuation process until all victims have been removed and accounted for. 6. Reassess structural stability and available resources for heavy rescue problems. Communicate and document location of trapped and/or missing persons to emergency personnel. 	<ol style="list-style-type: none"> 1. Secure building utilities (gas, electrical, water). 2. Gather information (victim locations). 3. Establish control person at exit and entry points. 4. Establish and coordinate two- to four-person rescue teams. 5. Primary Mission: Locate, stabilize, and immediately evacuate victims to a safe area while minimizing the number of rescuers inside the building. 6. Perform triage and other medical care in a safe area. 7. Continue rescuing lightly trapped victims until complete or no longer safe. 8. Continue size-up. 9. Communicate and document the location of heavily trapped or deceased victims. 	<ol style="list-style-type: none"> 1. Communicate the location and extent of damage to emergency services personnel. 2. Secure building perimeter and warn untrained and well-intentioned volunteers about danger and entry into building. 3. From the exterior of the building, attempt to shut off gas (if it is possible and safe to do so). 4. Gather available information from survivors or witnesses for professional rescue teams.

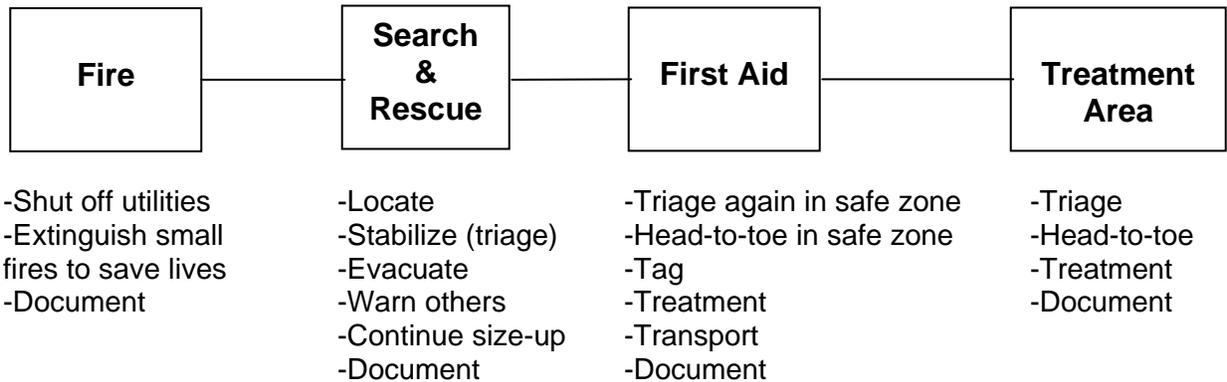
Team Tasks Based On Damage Level

Tasks required of Fire, Search and Rescue, First Aid and Treatment Area teams based on the degree of damage to the structure:

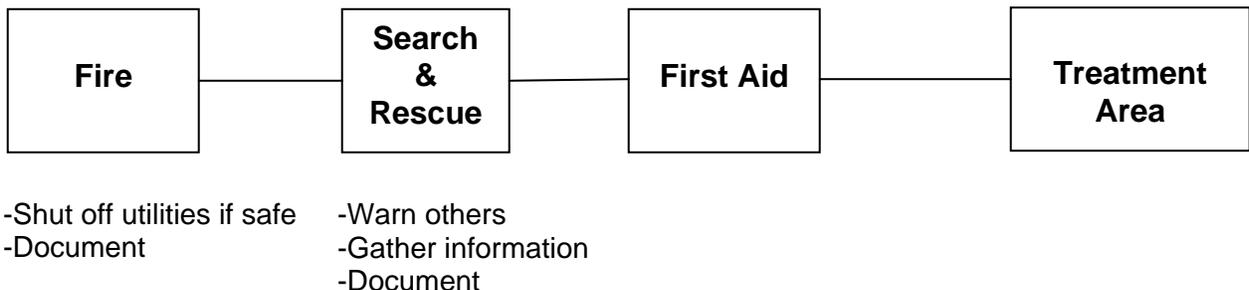
Light Damage



Moderate Damage



Heavy Damage



EXERCISE: POSSIBLE DISASTER SCENARIOS

Your neighborhood CORE group can use the following hypothetical scenarios to help you think about possible disaster response plans.

1. A house at 3709 CORE Boulevard has a badly cracked chimney. As you approach the house, you can hear voices from inside. The occupants are shouting that they cannot open either the front or back doors to the house. You call out to see if they are injured, and they respond that they are not hurt but they are frightened.

- ***What do you do now? What will you do later?***
- ***Are the occupants in immediate danger?***
- ***What other escape routes are available to them?***
- ***Will they be harmed if you do not rescue them right away?***

2. You detect a strong smell of natural gas outside the house at 1004 Triage Way. You knock loudly on the door and call out your neighbors' names, but no one answers. A neighbor tells you that the owners are both at work in San Francisco.

- ***What do you do?***
- ***Do you have a walkie-talkie or a runner so that you can get the information to the ICC?***
- ***Are members of the Hazard Reduction team available?***

3. A house at 5972 Epicenter Drive has slipped off of its foundation. A neighbor tells you that he saw all five members of the family in the house a few hours before the earthquake. You shout, "Is anybody here? Is everyone okay?" but no one answers you.

- ***What do you do?***
- ***What can you do to be sure that no one is inside the house?***
- ***If you are sure that the house is empty, how can you get that information to the ICC?***
- ***With no lives at stake, what response priority will this be given?***
- ***What might be the role of the Hazard Reduction team?***

4. A power line has fallen across the road at 233 Safety Street.

- ***What do you do?***
- ***Who should be notified as soon as possible?***
- ***What devices can be used to secure the power line to prevent death and/or injuries?***

5. A car has crashed into a retaining wall near the corner of CORE Boulevard and Epicenter Drive. There are two victims trapped inside the car. Both of them are unconscious and bleeding badly.

- ***What do you do?***
- ***What additional hazards are threatening the victims or rescuers?***
- ***What are your neighborhood First Aid resources?***
- ***What rescue resources are available?***

6. An elderly man is found wandering across the nearby schoolyard. He does not appear to be injured, but he is dazed and starting to cry.

- ***What do you do?***
- ***What facilities or resources are available in the neighborhood for providing psychological first aid?***
- ***What can be done immediately to help reassure and comfort this man?***

7. A neighbor was able to escape from his third story condominium after the earthquake struck by climbing through a small bathroom window. Shortly after he reached the ground, an aftershock badly damaged the only stairway in the building. The power is out so the elevator is not operational. The neighbor is a diabetic and says that he will need a shot of insulin within three hours. The only insulin he has is still in his condo.

- ***What do you do?***
- ***Were this man's medical needs listed on the Special Needs: Medical and Other form or were they on his CORE Family Questionnaire?***
- ***Has the Sheltering & and Special Needs team, or the First Aid team identified potential medical resources in the area?***

8. None of the residential phones in your area are working and you need information about which Red Cross shelter sites are open and the availability of medical facilities. You also need to relay critical damage assessment reports to the City's Emergency Operation Center (EOC).

- ***What plans and alternatives do you have for getting information to and from these places?***
- ***What communication devices have been identified by the Communications team?***
- ***Are cellular or pay phones available?***
- ***Does anyone in the neighborhood have access to an amateur radio?***
- ***What runners are available for a sustained absence from the neighborhood?***

These are only a few possible disaster scenarios. Evaluate your own neighborhood to see if any of these possibilities might happen to you. If not, what other problems and issues might your CORE group face? The more planning you do now, the greater your chances are for survival and safety in a real disaster.

SUMMARY

The responsibility of the **Damage Assessment Team** is to gather information about the extent of damage in the neighborhood and report their findings to the Incident Commander.

Light Damage is superficial damage, such as broken windows, fallen plaster and damage to building contents. Primary mission is to locate, triage and prioritize removal of victims.

Moderate Damage is minor structural damage; fallen or damaged decorative work, cracks in plaster; building still attached to its foundation. Primary mission is to locate, stabilize and remove victims.

Heavy Damage is partial or total collapse of walls and/or ceilings; structural instability; tilting; building off its foundation; heavy smoke or fire; gas leaks, hazardous materials inside, rising or moving water. Primary mission is to report location and extent of damage to professional emergency responders and to secure perimeter. **Do not enter a heavily damaged building.**

Use a **Status Board** to keep information organized and to help the Incident Commander prioritize the responses into High Priority, Moderate Priority or Low Priority.

A copy of the Status Board can be found in the Appendix. Please make copies of this blank form for use in the exercise and for your use in a real disaster.

Section Three

Light Search and Rescue



LIGHT SEARCH AND RESCUE

Overview

In a large-scale disaster, ordinary citizens who see a problem will take charge and perform more than 50% of the initial Search and Rescue. Unfortunately, many of these people with good intentions have **no** training and expose themselves to hazards and risk serious injury, becoming victims themselves.

In this section you will learn the basics of Light Search and Rescue operations at the neighborhood level, including:

- Search and Rescue Plan
- “Creative” Search and Rescue Tools
- Systematic Search Strategies
- Voids
- Rescue Operation Phases
- Rescue Strategies
- Documentation
- Building Security
- Hands-On Skills and Strategies

At the end of this section, you will have the knowledge to:

- Size up the situation and follow safety guidelines for search and rescue
- Conduct a systematic search
- Document findings
- Lift heavy objects safely
- Move, lift and carry victims safely

We encourage you to **practice** the skills you learn in class. The more that you and your CORE group practice, the safer and more successful you will be when lives are at stake.

SEARCH AND RESCUE PLAN

The goal of **Search and Rescue** is to rescue the **greatest number of people in the shortest amount of time while maintaining rescuer safety**.

The safety of CORE members is always the first priority in a Search and Rescue operation and will dictate some of your other priorities. For example, removing or mitigating known hazards must be completed before teams begin to search. Think through the situation logically to determine how you should approach the operation.

Size-Up

When you “Size Up” a situation, consider the following factors:

- Time of day, day of the week and weather
- Type of construction
- Probable occupancy (home, office, retail, commercial)
- Are there special considerations (e.g. children, elderly, disabled)?
- Are there potentially life-threatening hazards? (Gas leaks, fires)
- Walk around the building. Is the damage within the CORE team’s capability?
- What is the skill level of available rescuers?
- Size of the area to be searched and number of possible victims
- Possible access to interior of the building
- Escape routes and signals. Is your communication working?
- Slope or terrain

Remember, “Size-up” is an on-going process. Stop frequently to re-evaluate the safety of the situation.

“Size up” each damaged structure before you attempt to enter. Ask yourself:

- What hazards are we facing? Hazards might include damaged utilities, fire, broken glass or plaster, the probability of aftershocks, weather changes or hazardous materials.
- Will we be in danger if we enter this structure? If this building is a threat to you or your partner, **do not attempt the rescue**. This is a “no go” situation.
- Did an earthquake threaten the stability of this building? Check the doorjamb and the walls around the door for large cracks. These are indications that the building is not safe to enter.
- What additional damage could occur during an aftershock?
- Is this rescue something that my partner(s) and I can handle?
- Do we have the necessary resources or tools?
- What are our chances for success?
- What is the probability of getting a victim out alive?

If Structural Damage Is . . .	Then The CORE Goal Is . . .
Light	To locate, triage, and prioritize removal of victims to designated treatment areas by the medical operation teams.
Moderate	To locate, stabilize, and immediately evacuate victims to a safe area while minimizing the number of rescuers inside the building .
Heavy	To secure the building perimeter and warn others about the danger of entering the building.

SEARCH AND RESCUE SAFETY GUIDELINES

Follow these **Safety Guidelines** during all Search and Rescue operations:

- Use a **buddy system**: Always work with at least one partner; **never** attempt a search or rescue alone. One person will search the building while the other will wait outside the door. A third person can be a runner or communicate with the ICC by radio.
- **Be alert for hazards**: power lines, natural gas leaks, hazardous materials, sharp objects, etc.
- **Always wear protective clothing**: heavy work gloves, helmets, long-sleeved shirts, long pants, sturdy shoes and a dust mask.
- **Know your limitations** and constantly reassess your physical state. Remember, fatigue often leads to injury. Don't be embarrassed to ask for help or to take a break.
- **Plan your search strategy** before entering the building. **Know what you are going to do ahead of time. Know how you will get out** of a building before you go into it.
- **Only search or attempt a rescue in structures that have been assigned to you by your team leader**. If you find a potential search/rescue situation that has not been reported, **send a runner** or **use your radio** to communicate the information to the ICC.
- Make a practice of **checking the door** with the back of your hand to see if it is hot before you enter a building. If the door is hot, do not open it. Alert the **Hazard Reduction Team** to the potential fire. If the door is cool, open it **slowly and cautiously**. You do not know what hazards are behind the door.
- Before you enter a structure, **sniff the air** for possible gas leaks. If you smell or hear gas leaking, do not enter the building until the gas has been shut off at the main valve and the building has been ventilated by opening as many doors and windows as possible. Wait until the smell of gas is gone before entering the building or attempting a search or rescue.
- While you are searching a building, **stay low** and watch for hazards.
- Do not touch any **electric cords** or wires until you are sure that the power has been turned off at the main box.

- **Before you lift or move debris**, be aware of the effect that the movement might have on everything around it. Visualize the consequences of your actions before you start. Is the piece that you are planning to move holding up something else? If you step on a piece of debris, might the other end pop up like the opposite end of a teeter-totter? Is there a possibility that someone is trapped under the debris?

Search and Rescue can be emotionally distressing work. Be aware of your own **emotional needs**, and the well being of your team members. Offer each other support and make sure that people **take breaks** to rest, get refreshments and share feelings.

If you become injured during a search, let your partners know and report to the **First Aid Station** immediately. Your team needs you back in good condition as soon as you are able.

“CREATIVE” SEARCH AND RESCUE TOOLS

You and your neighbors will probably find many common items in your homes that can be used for a rescue effort. Look for things such as:

- Crow Bars
- Shovels
- Chain Saws
- Tire Jacks
- Axes
- Ladders
- Carpentry Tools
- Flashlights/Light sticks
- Blankets
- Ropes
- Blocks of Wood
- Duct tape or masking tape
- Marking pens, lipstick, masking tape, charcoal, crayon, spray paint, lumber crayon, carpenter’s chalk, light reflective tape, or something that is easy to see from the street



Know where these supplies are stored and how you can gain access to them.

SYSTEMATIC SEARCH STRATEGIES

Remember, do not attempt any rescue unless you have been assigned to do so by the Incident Commander or your Search and Rescue Team Leader.

Search

Before entering a building, room or hallway, make a bold, readily visible, single diagonal slash next to or on the door to indicate that a rescuer is inside the structure. Use marking pens, lipstick, masking tape, charcoal, crayon, spray paint, lumber crayon, carpenter's chalk or something that is easy to see from the street.

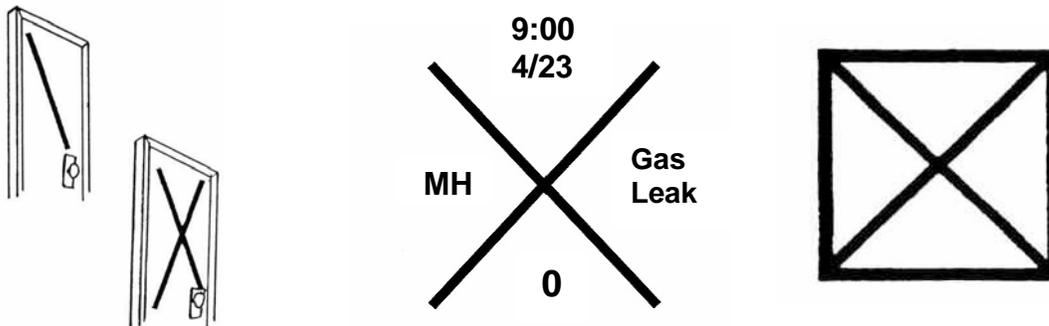
Make a second diagonal slash, forming an "X" when leaving the building. The finished "X" should be at least 2' x 2.'

Use the four quadrants of the "X" as shown in the diagram:

- Top quadrant – Time/Date of the search
- Right quadrant – Hazards and Actions taken - important information that other people need to know
- Bottom quadrant – Number of Victims – use a zero if no victims are found
- Left quadrant – Initials of the Searcher(s)

Put a box around the "X" if the building is not safe to conduct search and rescue efforts.

Use a large arrow → to point to a safe entrance if the primary entrance is jammed, dangerous or badly damaged.



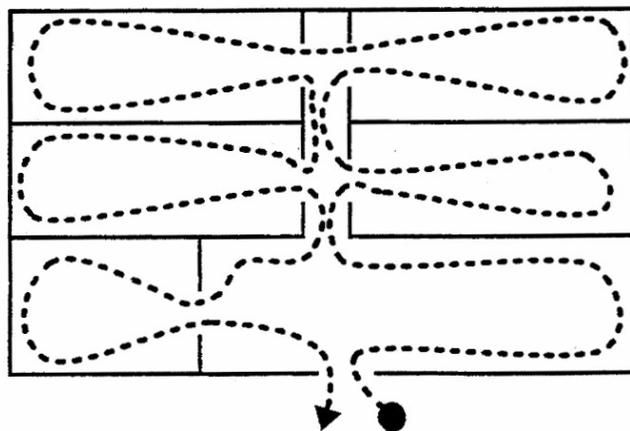
Before you start your search, **reduce the noise** as much as possible. This will help you to hear victims and for victims to hear you.

Before you enter someone's house **call out**, "It's your neighbor" and give your name. **Shout, tap, and listen** for any cries or moans. Tap on the wall and listen for tapping back; the sound of tapping on the walls will often carry farther than a voice. Ask if the person needs help and keep talking as you move through the building. "Do you need help?" Listen for an answer. The victim's voice or sounds that they make will help guide you to them, or might alert you to unseen hazards. Keep talking to the person as you move through the building.

Be aware of what you say. People who are trapped can often hear the rescuers even though the rescuers cannot hear the victims. Be sensitive to the impact of your words.

Use a systematic search pattern. **Ensure that all areas of the building are covered.**

Systematically search each room, moving along the wall to your right as you go. Use the wall as your "life line." If you must go into the center of a room, leave an extra light stick or flashlight to mark your place on the wall.



If you or your partner becomes disoriented, reverse your steps, staying close to the wall until you get back to the doorway. Throughout your search, maintain voice contact with your partner so you do not get separated.

In **dark rooms** use your **flashlight** to carefully look under furniture and beds; children often hide there when frightened. Also check stairwells, tubs, showers and closets. Periodically stop and listen for noise. Use your flashlight to continually check ceilings, walls and floors for danger signs.

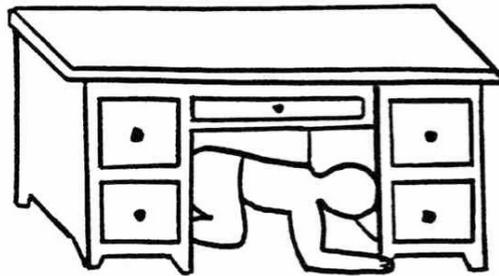
When climbing **stairs** in a damaged building stay as close to the wall as possible.

Pay attention to **Individual Voids** such as desks and tables or those formed by collapsed walls or tall furniture that has tipped over.

VOIDS

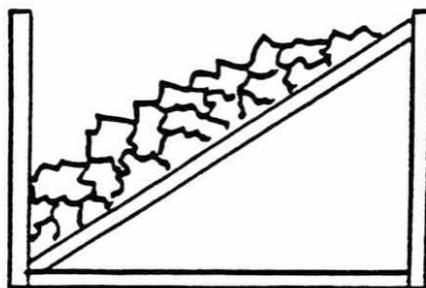
Individual Voids

Individual voids are spaces into which a victim may have crawled for protection. Examples of individual voids include bathtubs and the space underneath desks. Children may seek shelter in small spaces like cabinets or under a bed.



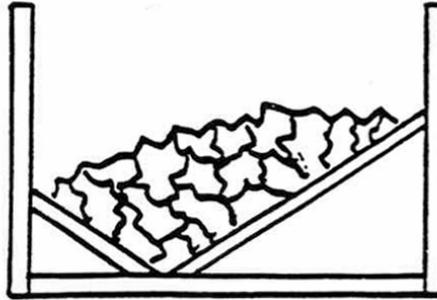
VOIDS in Collapsed Buildings

Most wood frame buildings collapse in predictable ways. As the floors and walls of the structure collapse, voids are often formed. These are open areas where victims might be trapped. Some commonly found voids are pictured below. Be aware that **the following voids are beyond the capabilities of CORE team members** and should be searched only by trained professionals. If you find any of these voids, **leave the building immediately** and report the location to the ICC.



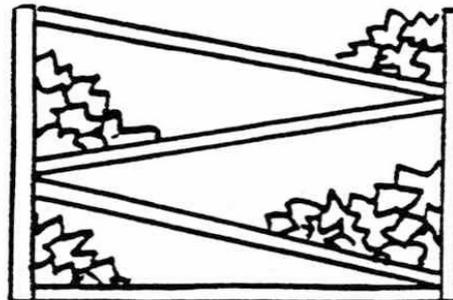
Lean-to voids are created when a collapsed wall or floor is resting against an outside wall. A victim trapped in a lean-to void has the greatest chance of being alive.

Lean-to voids also indicate structural instability. If CORE members see lean-to voids, they should **leave the building immediately** and report the location to the ICC. This is a job for the professionals.



“V” shaped voids are created by a “V” collapse of a floor or wall (the middle collapses and the ends lean against an outside wall). A “V” shaped void creates two lean-to voids, one on either side of the collapse, in which victims can be trapped—but the sloping floor caused by the “V” collapse presents a severe potential hazard to the rescue team.

If CORE members encounter “V” shaped voids, they should **leave the building immediately** and report the location to the ICC. This is a job for the professionals.



Pancake voids are most common in buildings that were constructed before 1933. Weakening or destruction of load-bearing walls allows the floors to collapse into each other. Pancake voids are the most difficult and time-consuming to search.

If CORE team members see pancake voids, this is considered heavy damage. They should **get out immediately** and report the location to the ICC. This is a job for professionals.

Remember: **Lean-to, V-Shaped and Pancake Voids** are considered **Heavy Damage**. If CORE team members see these voids, they should **get out immediately** and report the location to the ICC. These jobs are for professional rescuers.

RESCUE OPERATION PHASES

According to FEMA, the Federal Emergency Management Agency, there are five phases of a rescue operation at the site of a building collapse.

- Phase I** Assess the area around the collapse for:
- Possible victims (on the surface or buried)
 - Structural stability
 - Damaged utilities
- Phase II** Surface victims are removed as quickly as safety will allow.
- Phase III** Voids and accessible spaces are searched for viable victims (stop-tap-listen).
- Phase IV** Carefully remove selected debris in areas where you suspect victims might be trapped.
- Phase V** Remove general debris (clean up) after all known victims have been extricated. Remove deceased victims. **Professional rescuers will probably conduct this phase.*

There may be multiple rescue opportunities but not enough rescuers to respond to each situation. If that occurs, the Incident Commander and the Search and Rescue Team Leader will work together to prioritize the rescue efforts based on the following information:

- Victims' chances for survival
- Difficulty of the rescue and the amount of time it will take
- Number of victims who can be saved at each rescue site
- Potential hazards to rescuers

Rescue Efforts Based On Degree Of Damage

Degree of Damage	Should Rescue Be Attempted?
Heavy	No. Too dangerous to enter. Warn people to stay away.
Moderate	Yes, but perform only quick and safe removals. Limit onsite medical care to checking for breathing, stopping major bleeding, and treating for shock. Minimize the number of rescuers inside the building.
Light	Yes. Locate, triage and prioritize removal of victims to the designated treatment area.

RESCUE STRATEGIES

Remember safety comes first

- **Size up** all rescue situations before entering the structure. Reassess the situation continuously.
- **Do not** enter any building that is in danger of collapse, fire or explosion.
- **Do not** take unnecessary risks.
- **Do not attempt** a rescue unless you feel certain that you and your partner will be able to remove the person safely.

Rescue and Victim Safety

Assist **trapped or injured** victims in the following sequence:

- Ambulatory victims
- Lightly trapped victims
- Heavily trapped victims

If there are many people walking through the area to be searched, recruit volunteers or the **Hazard Reduction/ Utilities Team** to ensure that people do not walk on unsearched wreckage or debris.

- When you find victims, evaluate their condition to determine whether or not they can be moved safely. When it is possible, administer first aid for life-threatening conditions (e.g. not breathing, bleeding while unconscious) before you begin the rescue.
- If you need to leave victims where they are:
 - Clear dust and grit from the victim's mouth to facilitate breathing.
 - Use blankets or tarps to protect the victim from dust or falling debris. Consider moving a table over them for protection.
 - Offer reassurance that someone will come back for them.
 - Keep the victim warm to prevent shock.
- Maintain voice contact with victims who can be heard or seen but who cannot be rescued immediately. Reassure them that help is on the way.
- Report Injuries to the ICC using two-way radios or runners, and request help from the **First Aid Team** if needed.

- Be aware of people in your neighborhood who have Special Needs and notify the **Sheltering and Special Needs Team** or the **First Aid Team** if those people need assistance.
- Notify the ICC if you need **additional help** for a rescue.
- If a deceased person is found, notify the ICC and leave the body until all rescues are completed.

Documentation

Record your search information on the **Search and Rescue: Victim's Log** and the **Status Cards**. Communicate this information to the Incident Commander on a timely and regular basis.

Search & Rescue: Victim's Log



Use this document to record information before the victim is taken to the First Aid Station.

When completed, it should be returned to the ICC. Later, the information will be included in the Disaster Information Summary.

Date: _____

Time	Victim's Name (M/F, A/C)	Address	Victim's Condition	Comments	Rescuers

STATUS CARD

Address: _____

Date: _____ Time: _____

Utilities Checked

Gas: OK Turned Off

Water: OK Turned Off

Electricity: OK Turned Off

House Searched

Exterior: Yes No Interior: Yes No

If no, explain: _____

Victims removed: Yes No Number: _____

Comments: _____

Dwelling checked by: _____

Team: _____

Return this form to the Incident Command Center ASAP.

Building Security

Anytime you enter someone's private property to do a search and/or rescue, secure the property when leaving. Shut the door and lock it as you leave. If doors or windows were broken, get help to secure – cover or board-up – the openings to protect the property.



Security

Following a major disaster, there are, unfortunately, some people who will take advantage of the resulting chaos. Uninhabited homes and unlighted areas invite looters and thieves.

As soon as you determine that emergency vehicles do not need access to your street, park cars across the ends of the street and post people there to monitor people coming through your block. Merely having someone there to ask, "Who are you visiting?" may deter unwanted visits. The fact that the block is being watched works in much the same way as Neighborhood Watch deters crime. Neighbors watching out for neighbors works! Neighbors may sign up for watches until lighting is restored and an air of normalcy prevails.

Be sure to wear your CORE hat, vest and ID badge for identification as an emergency responder.

Cleaning Up

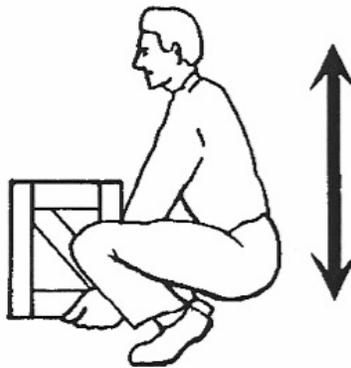
It is difficult to go into your home and see your things broken and your kitchen a mess. Help each other with the clean up. Set a work time to clear the streets, sidewalks, and common use areas.

HANDS-ON SKILLS AND STRATEGIES

Guidelines for Safe Lifting

There are six principles of good body mechanics that will help you to lift safely.

- Place your feet at least 18 inches apart. Make sure you are balanced.
- Bend your knees and squat – do not bend at the waist. Don't lift more than you need to.
- Tighten your abdominal (stomach) muscles before you lift.
- Keep the weight of the load close to your chest.
- Push up from your legs; don't lift with your back.
- Keep your back straight and avoid twisting movements when lifting or setting things down.



Proper Body Position for Lifting showing the back straight and lifting with the knees.

MOVING VICTIMS

It is usually best to allow ambulatory victims to extricate themselves. However, sometimes ambulatory victims are not as strong or uninjured as they think that they are. You may need to assist victims to leave the structure after freeing them from entrapment.

Lifts

Members of your CORE group should **practice** these lifts regularly. Make sure that you are comfortable with many different carries so that regardless of the situation, you will be ready to help.

Two-Handed Seat Carry



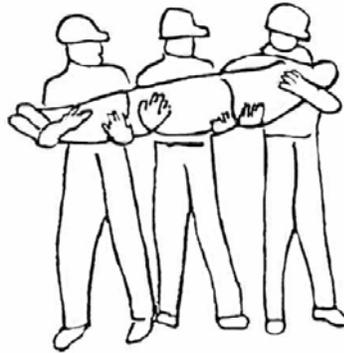
Can be used for conscious or unconscious victims. Use a hook grip, or cushion the pad of your hand with a strip of cloth. Do not use this carry if you suspect spinal injuries.

Four-Handed Seat Carry



Good for carrying conscious victims. Practice good body mechanics before lifting.

Three-Person Lift and Carry



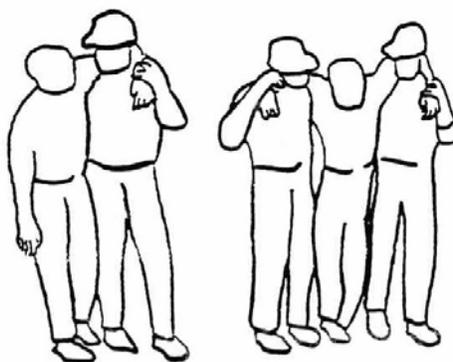
Advisable for seriously injured victims when there is no stretcher available. Provide good support for the neck and back. Do not use this carry if you suspect spinal injuries.

Chair Carry



The victim is placed in a chair and tilted backward as rescuers lift the victim. This carry requires two rescuers. If the victim might have a neck injury, immobilize the head, neck and spine with a cervical board before putting the victim in the chair.

Human Crutch



Useful for lightly injured victims.

Piggy-Back Carry



Use only with conscious victims. Practice good body mechanics before lifting.

Two-Person Carry



Rescuer 1 squats at the victim's head and grasps the victim from behind at the midsection. Rescuer 2 squats between the victim's knees, grasping the outside of the knees. Both rescuers rise to a standing position.

Do not use this carry if victim has leg or spinal injuries. Can be used for conscious or unconscious victims.

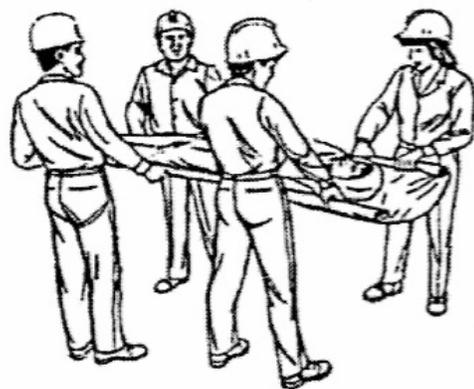
Stretchers

When utilizing a stretcher, assign at least four people to carry the victim whenever possible. Use ropes, duct tape or long strips of cloth to strap the victim to the stretcher, especially if they will be carried over debris or uneven ground.

Blanket Stretchers

If a stretcher is not available, one can be improvised by using a blanket. The blanket stretcher requires six rescuers to ensure stability for the victim, and one rescuer must be designated as the lead person:

- Lay a blanket next to the victim.
- Tuck the blanket under the victim, and roll the victim into the center of the blanket.
- Roll the long edges of the blanket towards the victim to create “handles.”
- With three rescuers squatting on each side and grasping a “handle,” the lead person checks the team for even weight distribution and correct lifting position.
- The lead person calls out, “Ready to lift on the count of three: One, two, three, lift.”
- The team lifts and stands in unison - keeping the victim level - and carries the victim feet first.



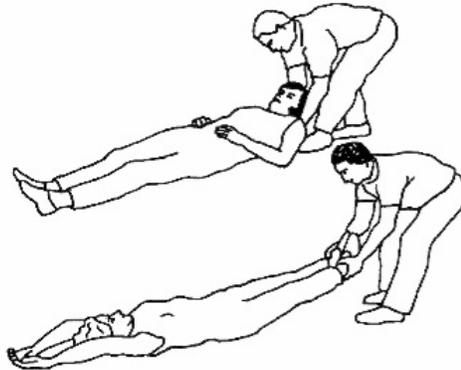
Improvised Stretchers

Ladders, doors, wood planks, coffee tables, tin roofing sheets and other items can be used as stretchers. Make sure the items you choose can support the weight of a victim and will fit through doorways. Identify potential stretchers in a neighborhood search of attics, garages, basements and tool sheds before a disaster strikes.

Drags

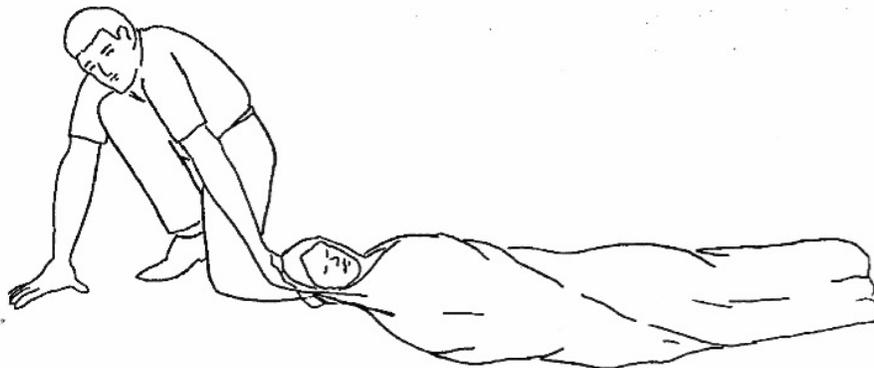
Rescuers can also drag a victim out of a confined area by grasping either under the arms or by the feet and pulling across the floor. However, unless there is no other way to remove the victim and the victim is in imminent danger, you should not use this drag where debris may cause additional injury.

Drag Technique



Correct Drag Technique, showing the rescuer grasping the victim by either the feet or shoulders and dragging him or her clear of the hazard.

One Person Blanket Drag



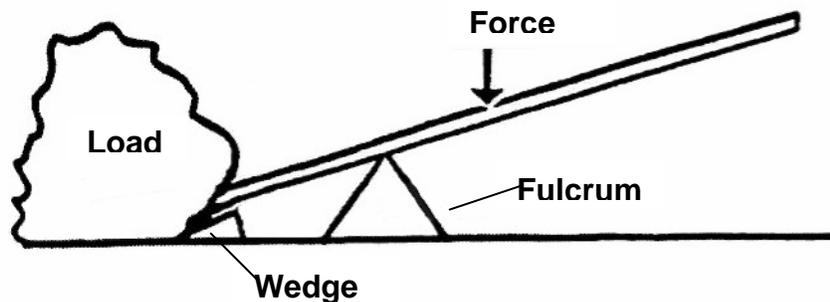
Blanket Drag, showing the victim wrapped in a blanket with the rescuer squatting at the victim's head. The rescuer grasps the blanket behind the victim's head and drags him or her clear of the hazard.

MOVING HEAVY OBJECTS

When a victim is trapped under a heavy object, you might need to lift the object before attempting the rescue. Use a **simple lever** to make the job of lifting easier and safer.

The use of a lever and fulcrum will help you to lift things that are considerably heavier than what you could lift with your hands alone. When using a lever to lift heavy objects, make sure you are in a stable position, with both feet on the ground.

If you need to lift an object more than a few inches, study, practice and use the cribbing techniques that follow before you begin.



Tools for Cribbing:

- Levers: crowbars, 4" x 4"s or pipes
- Fulcrum: blocks, bricks, books
- Cribbing: blocks, boards, bricks, books, concrete blocks or other sturdy objects with flat surfaces
- Spacers/wedges: blocks, boards, bricks, books, concrete blocks or other sturdy objects with flat surfaces

Be creative in identifying materials that will fit these functions.

Before a disaster strikes, identify and gather as many objects in your neighborhood as you can that can be used as cribbing material.

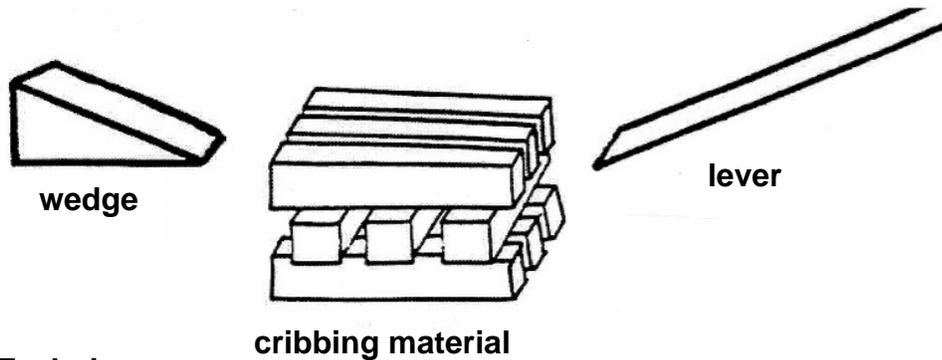
Cribbing

Cribbing is a way to temporarily stabilize heavy objects as they are being lifted. Proper cribbing ensures that the object will not fall back on top of the victim and the rescuer, so it is a critical safety step in the rescue effort.

Cribbing Strategy

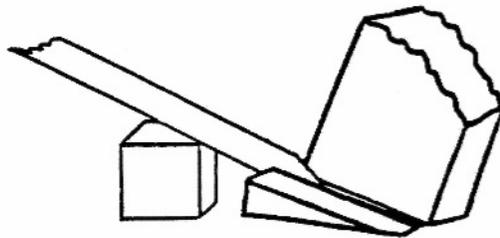
- Have one person in charge and formulate a plan of action based upon available information and materials.
- Identify where to lift and crib. Visualize the way objects will move when you lift them and **be sure that your actions will not tip the object onto the victim.**
- Have someone available to remove the victim.
- Gather the necessary materials and distribute them to be readily accessible during the lifting operation.
- Use cribbing materials to stabilize the object prior to lifting.
- Initiate the lift, using the mechanical advantage of the lever and fulcrum.
- Add cribbing as the object is lifted. Build on the foundation of the box crib.
- When the object is adequately supported, remove the victim.
- Reverse the process by which the crib was built and begin removing cribbing materials.
- Lower the object to the ground as you systematically remove the cribbing.
- Reassemble the lifting/cribbing supplies for the next time they are needed.

To insert cribbing under an object you will need:

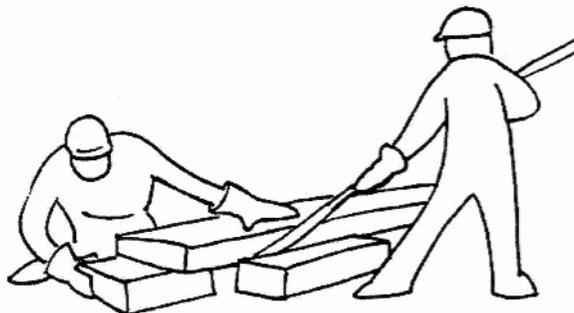


Cribbing Technique

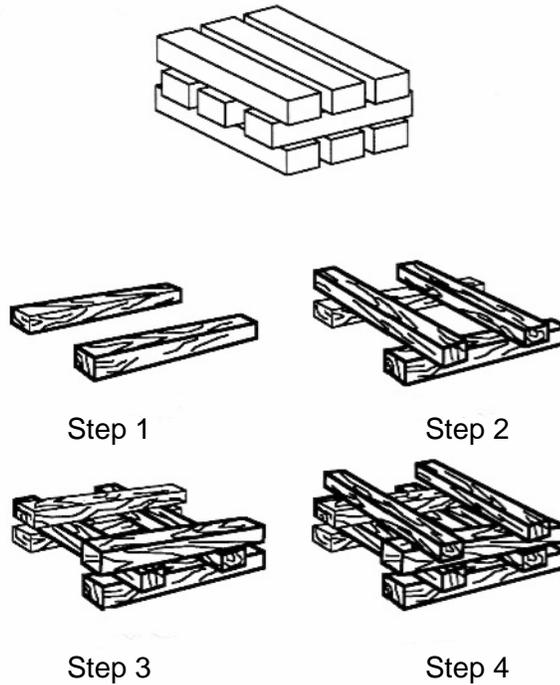
- Prepare to lift the object. Insert the wedge under the object, near the area that will be lifted. Drive the wedge under the object as far as possible.



- Place the fulcrum near the object to be lifted. Insert the lever in the space created along side the wedge and carefully apply downward force to the lever. As you apply force, your partner will push the wedge further under the object. Continue to pay careful attention to the way the object moves, and the impact this movement has on the trapped victim.
- Use the lever to lift the object a few inches at a time. With each lift, continue to slide the wedge into position. When the object has been lifted the full height of the wedge, slide one layer of cribbing material into the open space. Place two or three pieces of cribbing down to create a sturdy platform.

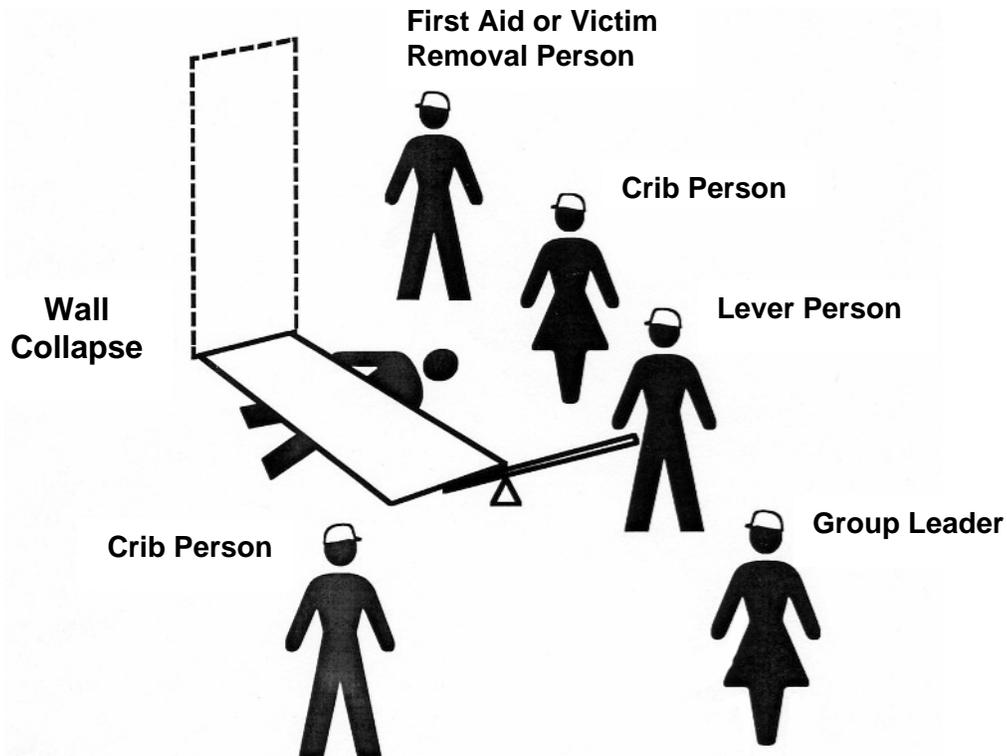


- Re-insert the wedge so that it is between the cribbing and the object. Use the lever and fulcrum to lift the object enough to allow your partner to push the wedge firmly into place. Continue to slide the wedge into position and follow the same procedure as in step #3. The next layer of cribbing that you add should be placed perpendicular to the first layer.



- Carefully repeat the lifting and cribbing, as needed, until the object is off of the victim and the victim can be safely removed.
- When the rescue is completed, disassemble the cribbing by reversing the process. Do not leave any heavy object suspended on cribbing. It could present a danger to people passing by.

Arrangement for Leveraging/Cribbing Operation



Team Organization for Leveraging/Cribbing Operation, showing the victim underneath a collapsed wall and the CORE members at the following locations:

- **Group Leader:** In front of collapse, positioned so that he or she can view the entire operation while remaining out of the rescuers' way.
- **Lever Person:** At the front edge of the collapsed wall and positioned so that he or she can position a fulcrum and lever under the wall.
- **Crib Persons:** On either side of the collapsed wall and positioned to enable the placement of cribbing as the wall is raised with the lever.
- **First Aid/Victim Removal Person:** Next to the Crib Person who is closest to the victim's head.

SUMMARY



The goal of **Search and Rescue** is to rescue the **greatest number of people in the shortest amount of time while maintaining rescuer safety.**

Always wear protective clothing; heavy work gloves, helmet, goggles, dust mask, sturdy shoes, long-sleeved shirt, and long pants.

Size-up is an ongoing process that involves evaluating the situation before taking action.

Always work with at least one partner during a search and rescue operation and maintain communication with your partner at all times.

Before entering a building, make a visible diagonal line (/) next to the door. When leaving, complete the X and place pertinent information in the quadrant.

- Top quadrant – time/date of search
- Right quadrant – hazards and actions taken
- Bottom quadrant – number of victims
- Left quadrant – initials of searchers

Conduct a systematic search. Know how you will exit before you enter. Stay low and watch for hazards. Stop-Tap-Listen.

Be aware of voids where victims may be trapped and report the location immediately to the Incident Commander. Lean-To Voids, V-Shaped Voids and Pancake Voids are considered heavy damage so **do not** attempt rescues. Report the location of these voids to the Incident Commander and/or professional emergency responders.

Know and practice safety guidelines for safe lifts, carries and drags to remove victims from unsafe environments.

Cribbing is a way to temporarily stabilize heavy objects as they are being lifted to facilitate a rescue. Necessary tools include materials that can be used as levers, fulcrum, blocks, and wedges.

Store cribbing materials in an easily accessible location and be prepared to improvise with suitable objects from around the neighborhood.

It is important to have a team for cribbing with assigned roles for each team member. Coordinate your effort and communicate as each action is taken.