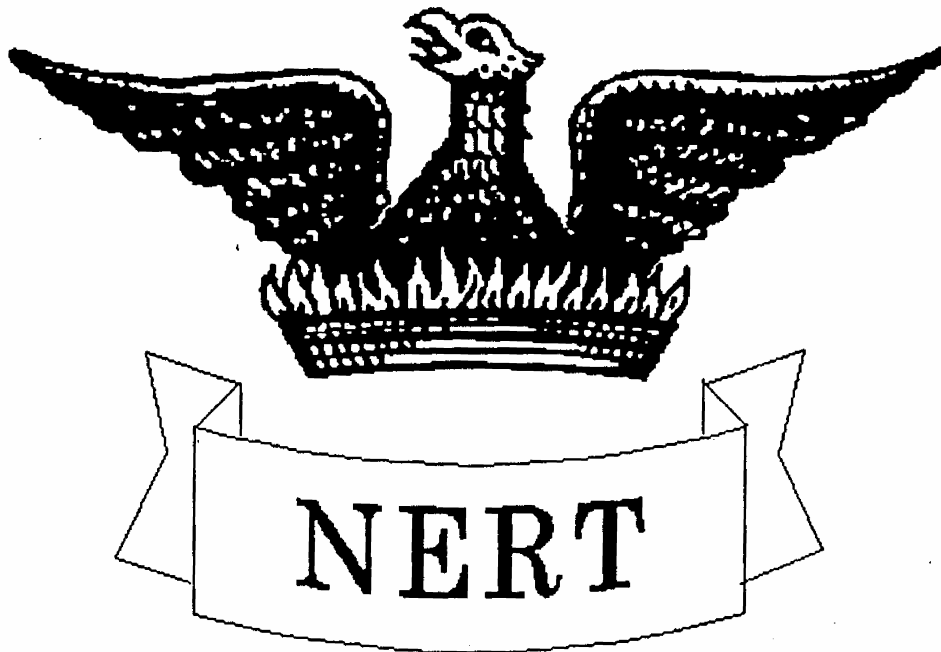


San Francisco



**Prepared and Presented By
THE SAN FRANCISCO FIRE DEPARTMENT
NEIGHBORHOOD EMERGENCY RESPONSE TEAM TRAINING**

**Location: SFFD Division of Training
2310 Folsom Street
San Francisco, CA 94110
(415) 970-2022**

Website: www.sfgov.org/sffdnert

e-mail: sffdnert@sfgov.org

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SAN FRANCISCO FIRE DEPARTMENT



NEIGHBORHOOD EMERGENCY RESPONSE TEAM

The Loma Prieta earthquake and aftermath of October 17, 1989 demonstrated the importance of civilian volunteers during a disaster. At the Marina fire, volunteers assisted the Department in those labor intensive operations such as leading hose lines by hand over great distances to supply water from the Bay to the fire site.

In a larger scale disaster, the use of volunteers may be even more widespread and more necessary. With this in mind, the San Francisco Fire Department has undertaken a program of civilian emergency response training. The intention of this training is to give volunteers a higher level of basic skills in fire fighting, search and rescue, disaster medicine, and basic disaster preparedness.

This training will be utilized in three specific ways. Neighborhood Emergency Response Team members will be:

1. Better prepared in self-sufficiency following a disaster.
2. Able to provide emergency assistance to their family and immediate neighbors.
3. Able to work as a team member in their neighborhood or as an adjunct to city services in the event of a major disaster.

It is the Department's goal to provide this training to the civilian population as identified and coordinated by neighborhood, work place, church, or other grouping.

This manual describes the course and includes reference material. It is the San Francisco Fire Department's reference for Neighborhood Emergency Response Team capabilities and their overall contribution to the disaster preparedness of our City.

TRAINING COURSE OUTLINE

Session #1 Earthquake Awareness, Preparedness, and Hazard Mitigation

- Earthquake type, magnitude, history and probability
- How to prepare before it happens
- What to do when the earth starts to shake

Session #2 Basic Disaster Skills

- Natural gas, water and electrical controls; why, when and how to shut them off
- Types of fire and using extinguishers to put it out
- Hazardous materials awareness in the home, on the road, and all around you

Session #3 Disaster Medicine

- Health considerations for the rescuer
- Opening airways
- Stopping bleeding and shock position
- S.T.A.R.T. triage
- Minor injuries and burns

Session #4 Light Search and Rescue

- Different types of construction and where to look for damage
- How to classify damaged buildings
- Building marking system
- Interior search patterns
- Lifting heavy objects and mechanical advantage
- Victim carries

Session #5 Team Organization and Management

- City Disaster Plan and where NERT fits
- NERT Neighborhood Team Structure
- NERT Incident Command System: managing the disaster
- Disaster psychology
- Terrorism and N.E.R.T.

Session #6 Skills Application and Development

- Review Final Exam
- Extinguishing fires
- Triage and treating moulaged victims
- Extricating a victim trapped by heavy timbers
- Interior search for reported missing persons
- Exterior building damage assessment
- Award of Achievement and course evaluation

WEEKLY HOMEWORK ASSIGNMENTS

Complete Before Class Session #2

- Read Chapter 1 for information covered in the first class
- Look around your home and work place with “*Earthquake Eyes*”
- Identify hazardous conditions and remedy them
- Read Chapters 2, 3, and 4 to prepare for the next class

Complete Before Class Session #3

- Locate all Gas, Water, and Electrical shut offs:
 - Inside your house
 - Outside in the street, to see if accessible
- Test your gas valve by turning 1/8 of a turn, and then back to its original position
- Read Chapter 5 to prepare for the next class

Complete Before Class Session #4

- Put together a first-aid kit for your family
- Read Chapter 6

Complete Before Class Session #5

- Read Chapters 7 through end of manual

Complete Before Class Session #6

- Do the take home final exam in manual
- Review all material in preparation for hands-on disaster exercise

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CHAPTER 1: DISASTER PREPAREDNESS

1. NEIGHBORHOOD EMERGENCY RESPONSE TEAM CONCEPT



TO DO THE MOST GOOD FOR THE MOST PEOPLE

GOALS

- To prepare your family and home to survive
- To protect yourself first so that you will be able to help others
- To assist family and neighbors during time of disaster
- To work as part of an emergency response team

According to a 1990 U.S. Geological Survey study, there is a 67% chance of a major earthquake occurring in the Bay Area within the next 30 years. There are also other possible disasters that could occur such as conflagrations, tsunamis, transportation accidents, civil disturbances, terrorist activity, or war.

2. PLANNING

The key to surviving any disaster situation is planning. Discuss these plans with household members. Teenagers and adult members of the household should share in the actual preparation decisions. Be sure to consider any special needs or disabilities of family members and unique hazards near your home. Make sure everyone in your household knows where the closest fire station, hospital, and police station are.

In case of fire, have escape routes planned for each part of your home or work place. It is important that every member of your household know the quickest and safest escape routes from each room, and all the possible hazards that could be in their path.

Have a flashlight and a pair of shoes under everyone's beds. A major quake will probably disrupt electrical service and if it happens at night you will need a flashlight to see. No one wants to cut their feet on broken glass or fallen objects walking to the closet to get a pair of shoes, so place them, with the flashlight, in a plastic bag. Then tie the bag to the leg of the bed. That way the bag will stay with the bed and glass will not fall into the shoes.

Know where the utility shutoffs are. Locate your gas, electrical, and water shutoff, and know how to operate them. It is recommended that the shutoffs be painted white or a light reflective color so they are highly visible in dark or smoky conditions. Have a wrench next to your gas shutoff.

After all the preparation is done, practice your plan to see if it actually works. Make it fun but try to make it real. Practice is especially meaningful if it is done at night, with all the electricity off.

3. REUNIFICATION PLANS

You should decide together where you will meet if a major quake hits when the family is separated. Have plans for each member of the family to reach the safe refuge area. Make sure you have adequate emergency supplies in the car as well as at the workplace.

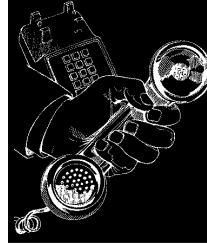
This reunification plan must consider many possibilities. Will family members at work go home or will you meet some other place? Who will pick up the children at school? What if a family member is out of the area when the quake hits? What if the home is structurally damaged and uninhabitable? Your plan should answer all your questions.

This reunification site is also where the family can gather if the earthquake has damaged your home. At this site the family can evaluate the situation, make plans for appropriate actions, and be safe from injury due to aftershocks. It should be near your home, in the open, and away from any hazards, especially overhead hazards that can fall and injure family members. A safe refuge could be your backyard or front yard, a nearby park, a parking lot, or even the sidewalk.

There may be no means of transportation except by foot if there is severe damage to the roadways. It may take days for some family members to reunite. It will be easier to deal with the stress of this separation if the household has considered the possibilities beforehand. Try to have every member of your family prepared to deal appropriately with any emergency, and then trust their good sense and knowledge to help them through.

4. TELEPHONE CONTACT

It is extremely important that you do not use your telephone indiscriminately after an earthquake. The telephone should only be used for emergency calls.



You should have a telephone contact who lives out of the area, preferably out of the state. Separated family members can use this contact to find out if everyone in the family is OK, to relay messages, and to set up an alternative meeting place. Family members not living in the area can call this contact to find out if everything is OK.

Remember, after an earthquake, check all your phones to be sure that they have not shaken off the hook and are tying up a line. Cell Phones may not be available

5. 72-HOUR SUPPLIES

Put together a basic kit for your home, for your car, and for work. The home kit should provide the basic equipment and provisions needed by the family for at least a 72-hour period after a quake. The car and work place kits should have enough supplies to last until you can get to the reunification site.

The container should be large enough to hold all the supplies but small enough to handle without difficulty. A day pack or small duffel bag works well for the car or work place, a plastic garbage can is suggested for the home. In Chapter 10, there is a suggested list of supplies for your home, car, and workplace.

6. PREPARING YOUR STRUCTURE

Single family wood frame buildings are the most earthquake resistant of any type of construction. The building moves with the quake. The key to riding out a quake is to make sure your home behaves as one continuous unit. The following measures should be taken to help protect your home.

1. Your home should be bolted to the foundation. The foundation's condition should be checked to see if it is still in good shape, especially in older homes. Houses built before 1940 were not required to have sill bolting, and some houses built since then do not

have them. Standard sill bolts, 5/8" by 8 1/2", should be installed every 4 feet if you do not have them now.

2. If your house has a crawl space between the ground and the first floor, check to see if you have "cripple" walls. Plywood shear paneling used to cover the entire wall area will stiffen these walls. In the Loma Prieta quake, several houses that were bolted to their foundations partially collapsed because they had no cripple wall shear support.
3. If your home was built before 1960, your chimney may not be properly reinforced and tied into the building. Damaged or falling chimneys were one of the biggest hazards in the Loma Prieta quake.

7. SAFETY SURVEY OF YOUR HOME

Look at each room in your home with "Earthquake Eyes". Take some time and sit in each room and think "If a major quake hit right now what would injure me". Then fix the hazard. To prevent injury and reduce damage, each room of your home should be carefully examined for potential hazards. The following are some suggestions to correct these hazards. Use them as a starting point in the examination of your home.

➤ **Fire Extinguisher and Smoke Detectors**

Where to place them, how many to have, check them annually or ?

➤ **Kitchen**

An unprepared kitchen is probably the most hazardous room in the house. Shattered glass, spilled chemicals, gas fed fires, and falling objects are all potential disasters in an unprepared kitchen.

Read the labels on all household chemicals. Segregate chemicals according to manufactures' suggestions. In the kitchen, all chemicals should be stored at floor level in a secure cabinet.

All gas appliances must be installed with a flexible gas line.

Install latches on all kitchen cabinet doors. "Child proof" latches are inexpensive and are not visible from the exterior. These latches will prevent breakables and heavy objects from falling out of the cabinets. Store the heaviest items on the lower shelves. If they happen to break through the latches, they will not injure anyone.

Put guard rails on open shelves so that items cannot slide off. To display fragile objects on open shelves, use industrial strength "velcro" tape or a silicon adhesive on the bottom. Attach hanging plants, clocks, paintings, and kitchen pots to a wall stud. Heavy appliances on wheels should be blocked with a door stop, or their wheels should be locked to prevent them from rolling.

➤ **Bedroom**

You probably spend more time in this room than in any other in the house. When examining the hazards in this room, pay careful attention to objects that could fall and injure you in bed or fall and block your escape routes.

Beds should not be placed under a window. Falling glass is one of the major causes of injury in an earthquake. Beds should be located by an interior wall away from windows or anything that could fall on them. Pictures, mirrors, or other heavy objects mounted on the wall above the bed should be removed. If beds with wheels are on bare floors, these wheels should be locked, or non-skid coasters should be placed under the wheels.

Attach tall furniture to wall studs to prevent it from falling over and blocking escape routes. Remove heavy objects from the upper shelves of bookcases, closets, or the tops of dressers. Place all heavy objects on the floor or low shelves.

Each bedroom of your house should have a flashlight and a pair of shoes in a plastic bag tied to the leg of the bed; the flashlight to see at night and the shoes to protect feet from broken glass.

➤ **Bathroom**

Broken glass is the greatest potential hazard in the bathroom. Mirrors, shower doors, and toiletries can all fall and break. This makes the bathroom, although probably the smallest, potentially the most dangerous room in the house.

Medicine cabinet doors should be equipped with a "child-proof" latch to prevent things from falling out. Glass containers should not be stored on open shelves. Read the labels on cleaning supplies, segregate them according to the manufacturers' directions, and store them at floor level in a secure cabinet.

➤ **Living Areas Of The Home**

All tall furniture in the living room, dining room, or den should be secured to the wall studs. TVs, computers, and stereos should be secured to shelving with industrial strength "velcro" to prevent falling. Paintings and mirrors should be attached using security hangers or anti-theft hangers. Velcro in the bottom corners also prevents them from moving during a quake.

➤ **Home Offices**

[Filing Cabinets, Work Lofts \(include in appendix bungee cords, strap downs, museum wax, \)](#)

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➤ **Garage, Basement, And Laundry Room**

The water heater should be securely double strapped to the studs in the wall behind it; one strap about 1/3 from the top and the second strap about 1/3 from the bottom. Plumbers tape and lag bolts should be used and are readily available at any hardware store. The water heater should also be attached to the gas supply by a flexible gas line with shutoff that will move in the event of a quake.

Disaster Preparedness

Remove all heavy objects from upper storage shelves especially around the car. All heavy objects should be at floor level.

Hazardous materials should be segregated and stored in well-marked, unbreakable containers. They should also be stored in a low cabinet with an earthquake-proof latch. Dispose of any hazardous materials that are no longer needed. The City of San Francisco has a free collection facility for such materials: Hazardous Materials Waste Collection Facility, 501 Tunnel Avenue, 468-2442.

8. PREPAREDNESS CHECK LISTS

➤ Personal Preparedness

- Make a disaster plan
- "Safety Survey" your home and work place
- Plan escape routes
- Choose reunification site
- Establish a telephone contact out of the area
- Store a 72-hour emergency supply kit
- Have Emergency Response Team supplies readily available
- Practice disaster plan

➤ Home And Office Preparedness

- Locate, mark, and test the operation of utility shutoffs
- Have a shutoff wrench next to the gas shutoff
- Flexible gas lines on all appliances
- Segregate all hazardous materials, and store in secure cabinet
- Remove heavy objects from upper shelves
- Secure all objects on walls
- Attach tall furniture and bookcases to wall studs
- Strong latches on kitchen cabinets
- Water heater strapped to wall studs
- Appliance and bed wheels blocked
- Office equipment and electronics secured with industrial strength velcro
- Have emergency supplies in car and at office

➤ Structure Preparedness

- Chimney well-supported
- Foundation bolted
- Cripple walls reinforced

9. WHAT TO DO WHEN THE EARTH STARTS SHAKING

REMAIN CALM!

There is no one safe place to be during an earthquake. The following are some recommended actions. The specific actions that you take should be adapted to your situation and location at the time of the quake.

IF YOU ARE INSIDE a building when an earthquake hits, stay there.

SEEK IMMEDIATE SHELTER...DUCK, COVER, AND HOLD. Try to get under something that will protect you from falling debris such as a table or a desk and hold on to it. Stay there until the shaking stops. Try to get at least 15 feet away from any windows so you are not cut by flying glass.

Never run outside during a quake. Most people are injured by falling debris. Running outside just increases your chances of being injured. If you are in a hallway or open area of a building, sit down against a wall and cover your head and neck with your hands. Remain there until the shaking stops. If you are in an elevator, go to the closest floor and get out. Sit down and cover your head and neck with your hands and remain there until the shaking stops. NEVER TAKE ELEVATORS AFTER AN EARTHQUAKE.

IF YOU ARE OUTSIDE when an earthquake hits, stay there.

Move away from buildings to an open area, if one is readily available. Watch out for downed power lines.

IF YOU ARE DRIVING when an earthquake hits, put on emergency flashers, slow to a stop.

Watch for traffic approaching from the rear while doing this. Turn the ignition off and set the parking break. Remain inside the car until the shaking stops. Do not stop on overpasses, underpasses, or bridges, and be aware of overhead hazards such as power lines or falling building debris.

IN THE DOWNTOWN area, it is safer to remain inside the buildings after an earthquake.

There are no open areas in downtown San Francisco far enough from glass or other falling debris to be considered safe refuge sites. When windows in a high-rise building break, the glass does not always fall straight down; it can catch a wind current and sail great distances. Unless the building has suffered structural damage or there is a fire, chemical spill, or a gas leak, remain inside. Aftershocks can cause additional damage, and more glass and debris can fall.

CHAPTER 2: UTILITY CONTROL

Prior knowledge of the location and the ability to operate utility shutoffs will greatly increase an individual's chances of survival, and reduce property damage in a disaster situation. Neighborhood Emergency Response Team members should become familiar with the gas, electrical, and water shutoffs for their building as well as the most likely area for these shutoffs in neighborhood buildings.

1. NATURAL GAS

Natural gas leaks can cause an explosive and flammable atmosphere inside a building. Fires that are fed by leaking gas should not be extinguished until the gas supply is shut off.

There are four different types of gas shutoffs:

- Appliance shutoff
- Individual unit shutoff
- Main shutoff
- PG&E shutoff

These shutoffs cut off the supply of gas to the particular area that they feed. The PG&E and Main shutoffs cut off the supply of gas to an entire building. Individual unit shutoffs are in multi-unit buildings and cut off the supply to a single unit in that building. Every gas appliance should be connected to the gas supply by a flexible gas line with its own shutoff.

➤ Location Of Gas Shutoffs

- Appliance shutoff
 - located on gas pipe connecting appliance to gas supply usually behind the appliance
- Individual unit shutoffs
 - usually located close to the main gas meter
 - next to each individual gas meter
- Main shutoff inside or outside
 - usually located in garage, basement, or alley
 - usually toward the front of the building
 - next to main gas meter
 - may be on the exterior of the building
- PG&E shutoff
 - usually in the sidewalk in front of the building under a concrete or steel plate
 - usually marked "PG&E GAS"

When we say "usually located" we mean just that. Gas shutoffs are sometimes located in the most unusual and inaccessible places. Find your shutoff now before you need to, mark it with high visibility paint, and keep a shutoff wrench close to it.

➤ **Operation Of Gas Shutoffs**

Most gas shutoffs work in a similar manner:

- turn the lever 1/4 turn
- when lever crosses the direction of the pipe (across the flow) the gas is off

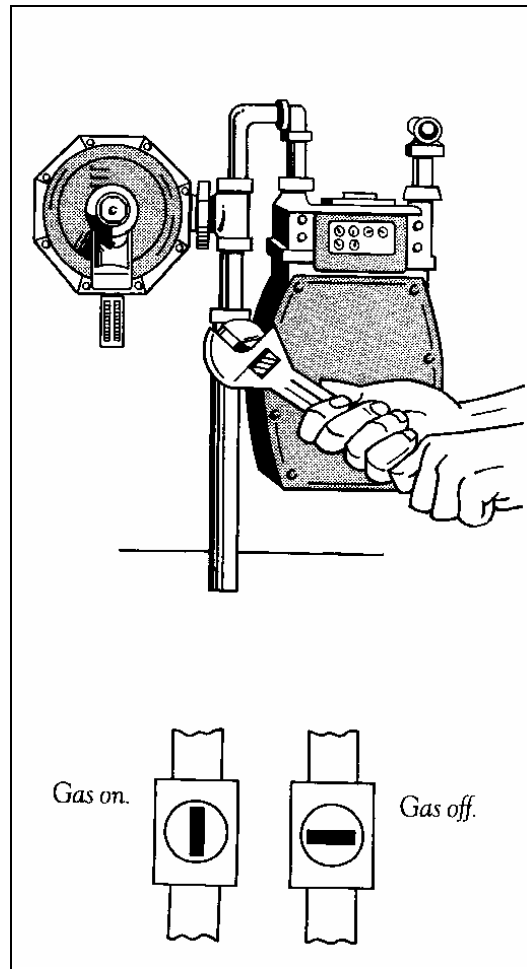
SHUTOFF MAY BE FROZEN OR DIFFICULT TO OPERATE.

To check if the shutoff is functional, turn 1/8 of a turn (this will not shut off the gas in the house), then turn it back to its original position. This should be done once a year

IF VALVE DOES NOT OPERATE CALL PG&E TO REPAIR IT.

➤ **When To Shut Off The Gas**

1. WHEN THERE IS A SMELL OF NATURAL GAS. Natural gas is odorless; PG&E adds an odor to the gas so people can smell it when there is a leak.
 - Check your meter immediately after a quake even if you don't smell gas, if the unmarked wheels are spinning you have a leak and should shut it off.
 - the two meter wheels that indicate a leak are the ones that are not marked by numbers.
 - they are either above or below the row of numbered wheels look at your gas meter when you are running a major gas appliance such as a clothes' dryer to see the wheel move.
2. When a building has collapsed or has sustained "HEAVY" structural damage:
 - shut off the gas only if it is safe to do so
 - shut it off in the street...the PG&E shutoff
 - if it's not safe to shut off, report it to the Fire Battalion Station



NEVER TURN THE GAS BACK ON LET PG&E DO IT.

2. ELECTRICITY

Electricity can be deadly. Electrocutation can result from direct contact with energized wires or anything energized by these wires. It can also be an ignition source for an explosion and/or fire, especially when gas is leaking.

There are two different types of electrical shutoffs:

- Main lever shutoff or breaker
- Individual unit shutoff or breaker

The Main lever or breaker shutoff cuts off the supply of electricity to the entire building. The Individual unit shutoff is found in multi-unit buildings and cuts off electricity to the separate units. The number of the unit or address is usually written on the meter.

➤ Location Of Electrical Shutoffs

- Main electrical shutoff
 - usually located in garage, basement, or alley
 - usually toward front of building
- Individual unit shutoffs
 - can be located next to main breaker, in individual units, or somewhere else within the building

➤ Operation Of Electrical Shutoffs

- Both main and individual unit shutoffs usually operate in a similar manner
 - Shut off by lowering the control lever on the side of the electrical box or by shutting off main breaker inside box
 - If possible, shut off individual breakers before the main to avoid possible spark if gas is leaking

➤ When To Shut Off Electricity

- WHEN THERE IS A BUILDING COLLAPSE
 - shutoff has to be easily accessible
 - only shut off electricity if it is safe to do so
- When arcing or burning occurs in electrical devices
- When smelling burning insulation (distinct odor)
- When the area around switches or plugs is blackened and/or hot to the touch
- When the complete loss of power is accompanied by the smell of burning material

3. WATER

The weight of water can affect the structural integrity of a damaged building if allowed to pool on floors and saturate furnishings. It can be a source of drowning if it drains to a below ground area, such as a basement or storage area. Water can also cause electrocution if it is energized by electrical wires.

There are two different types of water shutoffs:

- Inside water shutoff
- Water Department shutoff
 - wheel or lever operated

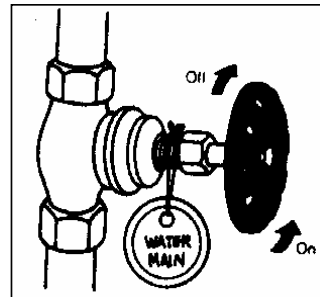
The Water Department shutoff cuts off the supply of water to the entire building. The inside water shutoff also cuts off supply to the building except for the supply of water for the fire sprinklers if the building is equipped with them.

➤ **Location Of Water Shutoffs**

- Inside water shutoff
 - usually located in basement, garage, or alley
 - usually toward front of building
 - usually in line with the plate of the outside shutoff
 - water shutoff is located on a riser pipe and is usually a red or yellow wheel
- Water Department shutoff
 - under sidewalk in front of the building
 - usually under a concrete or steel plate marked "SFWD" (San Francisco Water Department)

➤ **Operation Of Water Shutoff**

- Inside water shutoff
 - turn wheel clockwise until off
- Water Department shutoff...under plate is a lever or wheel
 - lever turned across the flow
 - lever shutoff usually difficult to operate without a water shutoff key
 - wheel shutoff is turned clockwise until off



➤ **When To Shut Off Water**

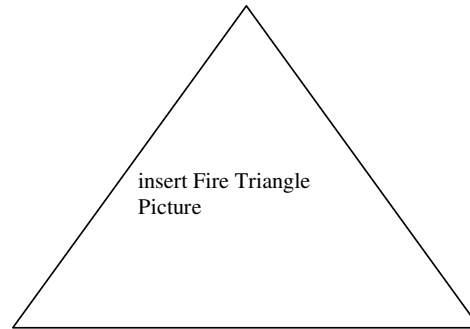
- There is a severe leak inside the building
- When a building has collapsed or sustained major structural damage
 - shut off water at the Water Department shutoff if safe to do so

CHAPTER 3: FIRE FIGHTING EQUIPMENT AND TECHNIQUES

Almost all fires start out small and could easily be extinguished if the proper type and amount of extinguishing agent is promptly applied. Portable fire extinguishers are designed for this purpose, but their successful use depends on several factors. The extinguisher must be readily accessible, in good working order, and the proper type of extinguisher for that particular fire. The fire must be discovered while it is still small enough for the extinguisher to be effective, and the extinguisher must be used by a person who is ready, willing, and able to use it.

1. PRINCIPLES OF FLAMMABILITY

- An oxidizing agent (air), a combustible material, and an ignition source are essential for combustion
- The combustible material must be heated to its ignition temperature before it will ignite or support fire
- Burning will continue until:
 - the combustible material is consumed
 - the oxidizing agent (air) concentration is lowered to below the concentration needed to support combustion
 - sufficient heat is removed to stop combustion
 - flames are chemically inhibited to prevent further combustion.



2. METHODS FOR EXTINGUISHING FIRES

- Lower concentration of air by:
 - smothering a small fire with a wet blanket
 - covering a fire with dirt
 - covering a fire with an extinguishing agent
- Remove heat by:
 - cooling with water
- Chemically inhibit fire by:
 - use of an extinguisher

3. RULES OF FIRE FIGHTING

Before you consider fighting a fire:

- Notify the fire department
- Make sure everyone has left the building or is leaving
- Never, never try it alone. Work in pairs with two extinguishers

Never attempt to fight a fire if:

- the fire is spreading beyond the immediate area where it started or is already a large fire
- the fire could block your escape route
- you are unsure of the proper operation of the extinguisher
- you are in doubt that the extinguisher is designed for the type of fire at hand or is large enough to extinguish the fire

If any of the preceding is true, leave immediately, close the door behind you, and wait for the fire department.

4. TYPES OF FIRE

➤ **Type A**

- Ordinary combustibles
 - paper, cloth, wood, rubber, and many plastics
 - extinguished by cooling

➤ **Type B**

- Flammable liquids
 - oils, gasoline, paints, cooking grease, and other liquids
 - extinguished by coating to exclude air

➤ **Type C**

- Energized electrical equipment
 - wiring, fuse boxes, any energized electrical equipment
 - if you shut down electricity, the fire becomes a Class A fire and can be extinguish by cooling

➤ **Type D**

- Combustible metals
 - magnesium, titanium, sodium, potassium, zinc, and powdered aluminum
 - combustible metals burn extremely hot and require a special extinguishing agent

5. TYPES OF EXTINGUISHER

➤ **ABC Extinguisher**

- Used on Type A, Type B, and Type C fires
 - Ordinary combustibles, flammable liquids, and electrical equipment
 - The most versatile of all the extinguisher
 - Multipurpose dry chemical type

➤ **Water Extinguisher**

- Used on Type A fires
 - Ordinary combustible solids

➤ **CO₂ Extinguisher**

- Used on energized electrical fires

➤ **Halon Extinguisher**

- Used in computer rooms and museums
 - Excludes air

➤ **Garden Hose**

- Used on Class A fires only, can be very effective

6. COMPONENTS OF FIRE EXTINGUISHER

Gaugetells if extinguisher is full or needs to be recharged

Nozzlemust be directed at base of fire

Pinmust be pulled for extinguisher to operate

Hosemust be flexible and in good condition

Label.....shows type and procedure for use

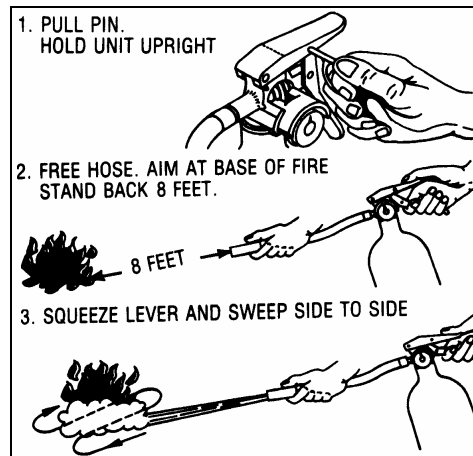
Tagdate of expiration; issued by State Fire Marshall

7. HOW TO USE FIRE EXTINGUISHER

P – A – S – S

(Pull, Aim, Squeeze, Sweep)

- **Pull** the pin
 - must be done to operate trigger handle
- **Aim** low
 - point nozzle at the base of the fire
 - stay low to avoid inhaling extinguishing agent and heated gasses
 - keep extinguisher upright
- **Squeeze** the handle
 - this releases extinguishing agent
 - start at a distance and move closer as the fire is extinguished
- **Sweep** from side to side
 - at base of the fire until it is out
 - do not exhaust extinguisher on initial attack
 - if fire breaks out again, repeat use of extinguisher



Multi-purpose dry chemicals are surface coating agents. Even though an extinguisher of this type may rapidly put out the flames in combustible materials, it is important that the deep-seated burning embers (especially in furniture cushions and bedding) be thoroughly wetted with water. Do this for any "TYPE A" fire.

It is also important that once the extinguisher is used, it be replaced or refilled. Even a short burst from the extinguisher will cause a complete loss of pressure in a very short time.

Multi-purpose extinguishers should be at least a size **3-A:40-B:C** or larger. The size of the extinguisher is listed somewhere on the label. It is imperative that everyone in the family know how to use one. This is important because the discharge time is only 8 to 15 seconds, and no time can be wasted determining the best way to use the extinguisher.

The San Francisco Fire Department recommends a 3-A:40-B:C extinguisher because it is light enough for anyone to use, but has a greater capacity than smaller rated extinguishers.

8. VENTILATION

The purpose of ventilation is to exhaust noxious or dangerous gas, smoke, or other toxic vapors from a confined space to the outside air so that search and rescue or fire fighting operations may continue. This is done only if safe to do so.

In a disaster situation, when Fire Department response might be delayed, ventilating a building can save lives and protect property.

ALWAYS VENTILATE IN TEAMS OF AT LEAST TWO

➤ **Gas Leaks**

- Notify the Fire Battalion Station
- Evacuate the building
- Shut off gas if safe to do so
- Open all doors and windows to let gas escape
- Don't re-enter the building unless it is safe to do so.

Do not turn on lights or any electrical appliances, including flashlights, if there is an odor of gas present. Turning on or off an electrical device may cause sparking which could result in an explosion.

➤ **Smoke**

- Notify the Fire Battalion Station
- If the smell of smoke is strong, evacuate the entire building and stay outside
- If smoke conditions are light, evacuate the building and try to locate source of the smoke
 - if the fire is of such magnitude to present immediate danger, close doors and windows if possible, and get out
 - if fire is of a minor nature, extinguish the fire with your partner and open all windows for ventilation

***Smoke will rise to the uppermost portion of a building.
This area is extremely dangerous in any fire.***

CHAPTER 4: HAZARDOUS MATERIALS

1. OVERVIEW

Hazardous materials can be silent killers. Almost every household and work place has varying amounts of chemicals that, if spilled or combined, will cause great harm and even death. It is important that NERT members have a basic knowledge of how to recognize these chemicals, where they may be found, and what to do or not do, about hazardous material spills.

Ways that hazardous materials can enter the body:

- Inhalation...through breathing, most rapid way
- Absorption...through skin or eyes
- Ingestion...by swallowing
- Injection...by penetrating skin or falling on something

The key to dealing with hazardous material spills is to remember **S – I – N**:
Safety, Isolation, Notification.

➤ Safety

- Always assume that spilled chemicals are extremely toxic
- Do not approach; stay at a safe distance
- Mixtures of chemicals can be very dangerous
 - bleach mixed with ammonia creates phosgene gas, which can be lethal.

➤ Isolation

- Close off room and/or building
- Mark outside of building

➤ Notification

- Notify incident commander

Hazardous Materials are an ever present danger:

- In the home or work place
- On roadways
- In industrial or commercial areas

2. IN THE HOME OR WORK PLACE

➤ Inventory

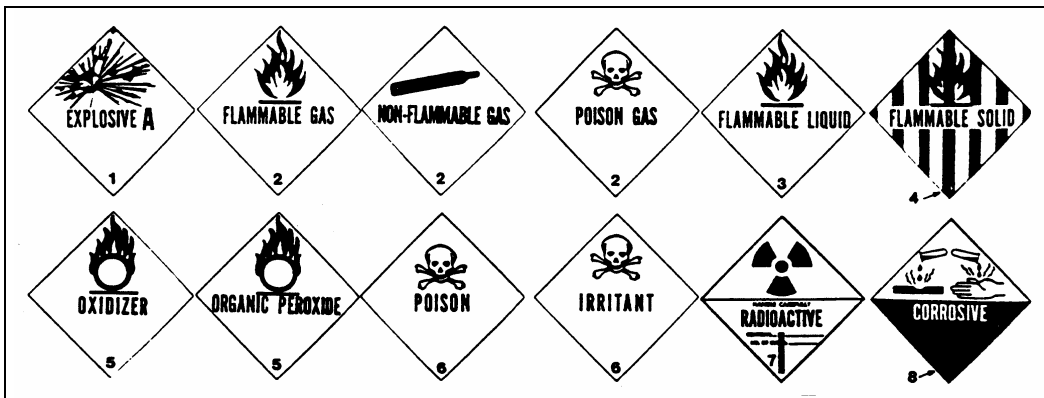
- Make a list of hazardous materials
- Read the labels on all products you purchase and follow the directions for storage
- Know what steps to take if chemicals are spilled
- Segregate, secure and store hazardous materials or dispose of properly

➤ Typical Places Hazardous Materials Are Found In The Home

- Kitchen - oven cleaners, drain cleaners, ammonia, bleach
- Laundry - bleach, spot removers, cleaners
- Garage - gasoline, solvents, pesticides, paints, paint removers, thinners

3. 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 to the DOT's "Emergency Response Guide Book" to determine the identity and the emergency handling for the chemical involved.



➤ DOT Hazardous Materials Warning Labels

Color Coding of Labels and Placards:

- Orange.....Explosive
- Red.....Flammable Gas and Liquid
- White.....Poison
- Black/WhiteCorrosive
- Yellow.....Oxidizer
- Green.....Nonflammable Gas
- Yellow/White.....Radioactive

Hazardous Materials by Class Numbers:

- Class 1.....Explosive
- Class 2.....Gasses (compressed, liquefied or dissolved under pressure)
- Class 3.....Flammable Liquids
- Class 4.....Flammable Solids or Substances
- Class 5.....Oxidizers

- Class 6.....Poisonous or Infectious Substances
- Class 7.....Radioactive Substances
- Class 8.....Corrosives
- Class 9.....Miscellaneous Dangerous Substances

Class number is the number located in the bottom corner of the label or placard.

4. INDUSTRIAL AND COMMERCIAL FIXED SITES

Most buildings that contain hazardous materials are identified by the National Fire Protection Association 704 Diamond system, which is usually located at the building entrance or in the storage area.

The 704 Diamond is divided into four quadrants. Each quadrant of the diamond has a special meaning and is color coded. The top quadrant is coded red for fire hazard, the right quadrant is coded yellow for reactivity, the left quadrant is coded blue for health hazards, and the bottom quadrant is white and contains information about special hazards of the particular chemical. Each colored quadrant is also numbered for the degree of hazard from zero to four, four being the greatest hazard.

RED...FIRE HAZARD

- 4. materials that burn readily
- 3. materials that can ignite at room temperature
- 2. materials that ignite if moderately heated
- 1. materials that ignite after considerable preheating
- 0. will not burn

YELLOW...REACTIVITY

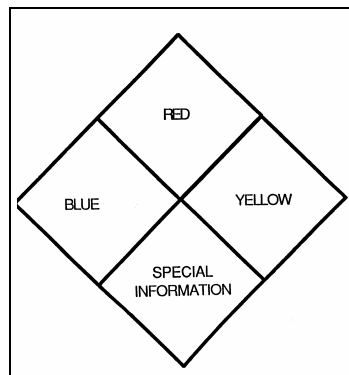
- 4. may detonate
- 3. shock and heat may detonate
- 2. violent chemical change
- 1. unstable if heated
- 0. stable

BLUE...HEALTH INFORMATION

- 4. deadly
- 3. extreme hazard
- 2. hazardous
- 1. slightly hazardous
- 0. normal material

SPECIAL INFORMATION

- W.....water may cause reaction
- CORcorrosive
- OXYoxidizer
- ACIDacid



➤ **Common Hazardous Material Locations**

- Industrial or manufacturing plants
- Shopping centers, supermarkets
- Dry cleaners
- Hardware stores
- Auto repair shops

➤ **Signs Of Hazardous Material Spills**

- Overturned containers with DOT label...especially on roadways
- Pungent or noxious odor...you should never intentionally get close enough to smell it
- Bubbling liquid
- Vapor...anything that is letting off a vapor is having a reaction and should be avoided

➤ **What to do**

If you see one or more of these signs of a hazardous materials spill on roadway or at a fixed facility, take the following actions:

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

"Hazardous Materials" is a very comprehensive subject. The important concept to understand is recognition. DOT placards are placed on vehicles, DOT labels are placed on packages, and the 704 Diamonds are placed on buildings or storage areas containing hazardous materials. Being able to recognize warning signs and being able to recognize that there is a hazardous condition present may save your life and the lives of others.

Remember, hazardous materials in the home and work place should be segregated and stored in well-marked, unbreakable containers. They should also be stored in a low cabinet with an earthquake-proof latch. Dispose of any hazardous materials that are no longer needed. The City of San Francisco has a free collection facility for such materials:

Hazardous Household Waste Collection Facility

501 Tunnel Avenue

San Francisco, CA 94134

554-4333

CHAPTER 5: DISASTER MEDICINE

1. OVERVIEW

Disaster Medicine is an austere form of first aid. It is strongly recommended that every NERT team member take a comprehensive first aid class along with a CPR class. These classes will not only help you in the time of a disaster, but they will also help you in your daily lives.

There are some basic assumptions in every disaster. First, the number of victims will exceed the amount of professional help available. Second, the survivors will want to help, but their knowledge is very limited. Third, they do not know life-saving first aid measures.

The American College of Surgeons describes death resulting from trauma as:

- Type 1. Death within minutes due to overwhelming and irreversible damage to vital organs.
- Type 2. Death within several hours due to excessive bleeding.
- Type 3. Death in several days or weeks due to infection or multiple system failure.

In a disaster situation there are some very basic thing that you can do to prevent death. It is estimated that over 40% of disaster victims in the second and third phases of death could be saved by following simple maneuvers. Recognition of life-threatening conditions and using simple techniques can save lives.

LIFE THREATENING CONDITIONS - "THE KILLERS":

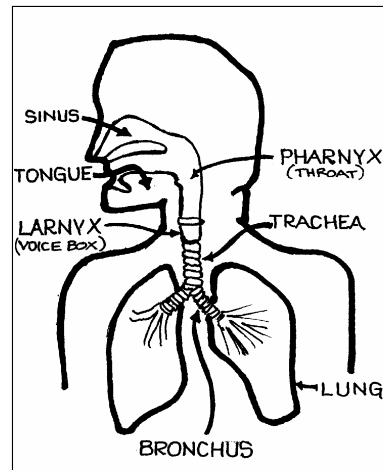
- A. Airway Obstruction and
- B. Breathing
- C. Circulation (Bleeding)
- D. Shock

2. AIRWAY OBSTRUCTION AND BREATHING

Airway obstruction is one of the leading causes of death in victims of head injuries.

Air enters through the nose and mouth, passes through the throat (pharynx), the trachea (windpipe), the bronchi, and enters the lungs with a normal breath.

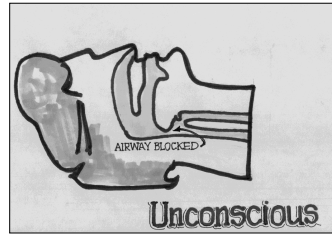
During swallowing, the epiglottis and the tongue cover the entrance to the trachea so that food enters the esophagus, not the airway.



In an unconscious victim, the tongue may fall back into the throat and cut off the supply of air. Blockage of the airway by the tongue is the most common airway obstruction in unconscious people.

➤ **Opening The Airway**

With an unconscious person:

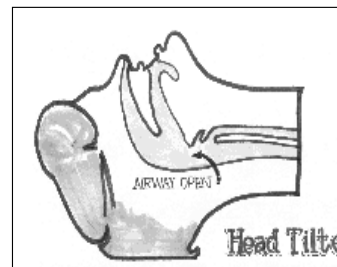


LOOK, LISTEN, and FEEL

- **LOOK** for the chest rise with each breath
- **LISTEN** for the air exchange
- **FEEL** for abdominal movement

If these signs are not present and the person is not breathing, attempts should be made to open the airway. Use the head-tilt/chin lift method to open an airway, as shown in the diagram.

- Place one hand on the victim's forehead and tilt the head back.
- At the same time, place your other hand under the victim's jawbone and lift to bring the chin up and open the airway.
- Now check to see if the victim has started breathing.
- If victim is still not breathing, try a second time to reposition the airway.



➤ **Other Breathing Problems**

Adequate Breathing

- Normal respiration is between 12 and 20 times a minute
- Breathing is easy and occurs without pain or effort
- Chest should expand at least 1 inch with each breath

Signs And Symptoms Of Breathing Problems

- Very fast or very slow breathing
- Noisy and/or labored breathing
- Change in skin color
- Deformity or pain when feeling the chest and the abdomen

Treatment

- If conscious, place in a position of comfort; victim needs immediate care
- If unconscious, put in a shock position and open the airway
- Transport the victim to an "Advanced Life Support" facility as soon as possible

3. CIRCULATION (BLEEDING)

The blood carries oxygen and nutrients to the cells of the body and transports carbon dioxide and waste product away. The average adult has about six liters of blood. The loss of just one liter can be life threatening.

Blood flows from the heart through the arteries to the capillaries and then to the cells. It returns to the heart through a separate system, from the capillaries to the veins and back to the heart. Capillaries are closest to the skin and bleed very slowly. Veins bleed more rapidly than capillaries when cut, but the blood oozes out. When arteries, which are deep in the body, are cut, they spurt a bright red blood. Arterial bleeding is the most life-threatening type of bleeding.

Severity Of Bleeding

- Type of vessel and how fast the blood is flowing
 - artery, vein, or capillary
- How much blood is lost
 - patient factors...age, size, general condition
 - children have much less blood, a little bleeding can be deadly

Effects Of Bleeding

- Lack of oxygen
 - decreased blood pressure
 - heart rate increases
- Shock
- Death

Treatment

- Direct pressure on the wound and bandaging
- Elevation
 - raise the injured part above the level of the heart
- Pressure points

Internal Bleeding

- Signs of internal bleeding
 - fractured bones, abdominal bruising and/or pain, rigidity, spasm, or distention
 - blood in urine
 - altered level of consciousness

Treatment Of Internal Bleeding

- Check for fractures; splint if appropriate
- Secure and maintain open airway
- Keep patient quiet and treat for shock
- Transport to an "Advanced Life Support" facility as soon as possible

4. SHOCK

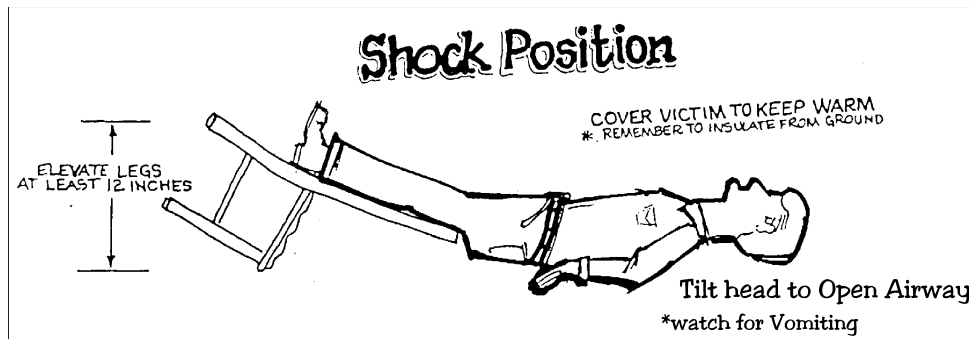
Shock is the inadequate perfusion of the body's cells with oxygenated blood. It can be caused by excessive fluid loss from bleeding, dehydration, or burns. It can also be caused by poor heart function due to a heart attack or a chest injury from a dilation of blood vessels due to an allergic reaction, severe infection, or spinal injury.

Signs And Symptoms

- Breathing is rapid, shallow, and labored
- Skin is pale, cool, and clammy
- Heart beats faster, but pulse is weak
- Level of consciousness decreases
 - unable to follow simple commands
- Person may feel very thirsty or nauseous

Treatment

- Control bleeding
- Make sure airway is open
- Position patient
 - lie the patient on their back with leg elevated twelve inches above head
- Keep patient warm by maintaining body temperature
- Reassure and calm patient
- Splint and immobilize fractures
- Loosen restrictive clothing
- Transport to an "Advanced Life Support" facility as soon as possible



IF SHOCK IS SUSPECTED, GIVE NOTHING BY MOUTH.

5. TRIAGE

Triage is a French word that means "to sort". The goal of triage is to do the most good for the most numbers. This is accomplished by having a system to **quickly** assess each patient and to categorize and prioritize each according to his/her needs. Be sure to evaluate the hazards before entering an area to do triage.

➤ Triage Categories

"**I**" - **IMMEDIATE**, rapid treatment is imperative because of life-threatening injuries

"**D**" - **DELAYED**, injuries are not life threatening

"**DEAD**" - nothing can be done for this person

➤ S.T.A.R.T. - SIMPLE TRIAGE AND RAPID TREATMENT

1. Sort out the group

- Anyone that can get up and move should go to one side of the room
 - these people probably do not need immediate treatment
 - start next with people who have not moved

2. Assess airway and breathing

- LOOK, LISTEN, and FEEL. If not breathing, position airway
 - check for breathing, if still not breathing reposition airway a second time
 - do respirations fall within normal limits? Less than 30 per minute
 - if respirations greater than 30 per minute, tag as "I"...immediate
 - if not breathing tag "DEAD"

3. Assess bleeding and circulation

- Any signs of external bleeding?
- Pinch nail beds or lower lip to check for circulation
 - they should refill with blood within 2 seconds
 - if not, tag as "I"-immediate

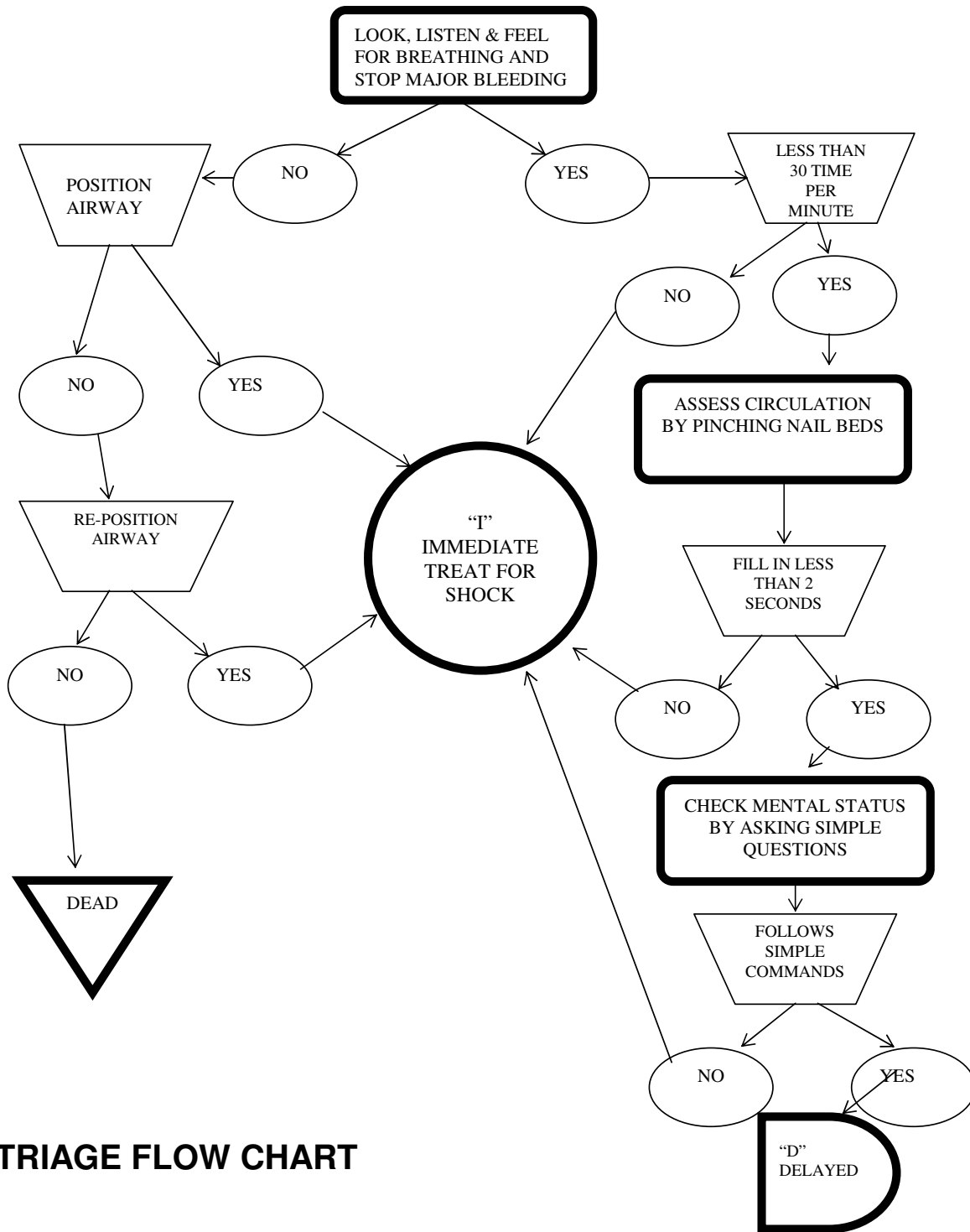
4. Assess Mental status

- Can they follow simple command like "squeeze my hands"
 - if not, tag as "I"-immediate

➤ Treatment For "I" Category Victims

- Airway management
- Shock position
- Transportation to an "Advanced Life Support" facility as soon as possible

It is important to document all triage activities on the NERT Status Sheets so that the team leader can effectively deploy resources and a quick record of the number and severity of injuries is readily available.



TRIAGE FLOW CHART

6. DISASTER MEDICAL OPERATIONS

➤ Projected Casualties

Northern San Andreas magnitude 8.3

Event Time	Dead	Hospitalized
2:30 a.m.	3,000	12,000
2:00 p.m.	10,000	37,000
4:30 p.m.	11,000	44,000

Hayward magnitude 7.4

Event Time	Dead	Hospitalized
2:30 a.m.	3,000	13,000
2:00 p.m.	8,000	30,000
4:30 p.m.	7,000	27,000

Source: Federal Emergency Management Agency

With 12,000 to 44,000 people injured and needing hospitalization in the Bay Area after a major disaster, it is critical that there be a method to sort these victims according to the severity of their injuries. Triage and triage areas allow us to identify the victims with the most life-threatening injuries and transport them first. This concept will potentially save many lives.

➤ Triage Areas

Triage Area is where victims are brought for further assessment and treatment. It can also be thought of as an "injury collection point": an area where people who have been hurt are gathered together. At this area, the injured are sorted into three categories (Immediate, Delayed, and DEAD) depending on the severity of their injuries. The most seriously injured must be then taken to an advanced life support facility.

The medical plan in San Francisco was developed to make maximum use of medical personnel. The injured must be brought to the medics at the advanced life support facility, whether that be a hospital or some other designated site. It may be up to you to transport the victim to the nearest open facility.

The function of NERT triage is to sort out the injuries first so that the medical personnel are not overwhelmed at their station and only have to deal with the most serious, life-threatening injuries.

➤ Location Of Triage Area

The location of your triage area will differ substantially with the scope of the incident, amount of localized damage, and the number of victims. The first question to ask yourself is "If I attempt to help the injured victims, is there potential for my team to get injured?" If there is, you want to move very cautiously and as quickly as possible to get the injured away from the hazards. Remember you are the rescuers. You don't want you and your team to become victims.

➤ **No Potential Danger to Rescuer**

If you have injured victims in an area where there is no danger to rescuers, the injured may be triaged in that area. They can be sorted according to the severity of their injuries and placed in either the immediate or delayed section that the team has established. Once this sorting is complete, the Immediate are removed first to the nearest hospital while the Delayed stay behind and are treated. The injured classified as Delayed from all the different incidents in your area should be brought to one central location. This will make it easier to monitor them and also save your scarcest resource, trained people, for other tasks.

➤ **Potential Danger to Rescuer**

If the building or area where the victims are found presents a hazard to the rescuers, a different procedure must be used. The only thing you do for the victims is to open their airway if they are not breathing, and/or put direct pressure on any major bleeding, then get them out of the area as quickly and safely as possible. You don't want to become a victim too.

Set up the triage area somewhere out of danger, away from the hazards. This could mean outside of a building, down the street, or several blocks away. Remember carrying people over long distances quickly uses up human resources so set up your triage area as close as possible to the site of the injured but out of danger.

Once you have them in a safe area, follow the same procedure mentioned above. Sort them, remove the Immediate, treat the Delayed, and remove them to a central location.

➤ **Physical Layout Of A Triage Area**

The triage area should consist of two separate components: a delayed area and an immediate area. These areas should be identified by some sort of sign or marking and be geographically separated by enough space so that people will be able to identify each area quickly and easily. It should be large enough to expand if more injured victims are found and should have sufficient working space so the two areas do not physically overlap.

➤ **Mechanics Of A Triage Area**

The number of people needed for a triage area depends on the number of people injured. As a rule of thumb, there should be one rescuer for every five to eight victims in both the immediate and delayed areas. Remember, you can use untrained volunteers and those with minor injuries to help in the immediate and delayed areas. With a little direction and guidance, they can be very effective in keeping track of victims' mental status and treating minor injuries.

Untrained volunteers can also be used to transport the Immediate to the advanced life support facility. Whenever you can, supplement your ranks with volunteers; they can be a great resource.

Once victims are found, triage begins. Whether this is done inside an undamaged building or after the injured are moved to a safe area, the procedure is the same. START triage is performed on all injured people. Airway is checked, breathing rate is checked, tissue perfusion is checked, and mental status is checked. If the injured person fails to pass any of these tests, they are tagged

Immediate and taken to the immediate section of the triage area, and put in a shock position to await transportation. All other people are tagged Delayed and taken to the corresponding area.

After all the injured are sorted, the Immediates should be transported and the Delayeds should be treated and rechecked about every 10 to 15 minutes for airway, breathing rate, bleeding and tissue perfusion, and mental status.

It is important that you keep the command center at the staging area informed of the number of victims, the needs of the team, and the actions you are taking. This can be done with a Ham radio or by runners.

The NERT triage area is an integral part of the City's disaster response. There is less of a chance of the medical facilities being overwhelmed if the injured are sorted out in the neighborhood and only the most serious injuries transported there.

7. PATIENT ASSESSMENT

Once the victims are brought to the triage area, they must be checked again using a primary and secondary survey.

➤ **Primary Survey**

- Airway/Breathing
 - is airway open?...LOOK, LISTEN, FEEL
 - is breathing adequate?...normal per minute is 12-20
- Circulation
 - pulse present?...normal per minute is 60-80
 - check for bleeding
- Mental Status
 - do they respond to voice, touch, pain, or is there no response?

➤ **Secondary Survey**

The secondary survey is a systematic method to check a victim for injuries that are not immediately apparent. Once you start the secondary survey, complete it, don't stop to treat wounds until you are finished. This way you will get a complete picture of the victim's injuries before any treatment starts. The most visible injuries are not always the most life threatening. Start with the head and work your way down to the feet.

Head To Toe Secondary Survey

- Head and scalp
 - check for lumps, bumps, bleeding, and depressions
 - possible concussion
- Ears and nose
 - check for blood or fluid (indicating skull fracture) and deformity
- Mouth
 - check for injuries, jaw movement, and obstructions

- possible airway obstruction
- Face
 - check for lacerations, fractures, and condition of skin
 - possible fracture
- Neck
 - check that trachea is midline, check for medi-alert tags, and check for neck vein distention
 - airway problems
- Clavicles and arms
 - feel for deformity or pain
 - check for pulse
 - have patient squeeze your fingers
 - check nail bed for capillary refill
 - possible broken bones
- Chest
 - compress ribs gently, check for pain
 - listen to patient's breathing
 - does chest rise equally
 - possible broken ribs
- Abdomen
 - check for signs of swelling
 - gently feel for pain, tenderness, or rigidity
 - possible internal bleeding
- Pelvic region
 - press hips together gently to check for pain or abnormal movement
 - possible broken hips
- Back
 - without moving patient, slip hand under back and feel for possible fractures or bleeding
 - possible broken bones or bleeding
- Legs
 - feel legs, knees, ankles, and feet....check for wounds, abnormal alignment, dislocation, discoloration, and swelling
 - possible broken bones
- Feet
 - check for skin temperature
 - grasp patient's toes and have them pull then push against your hands
 - possible circulation problems or nerve damage

***PATIENTS MUST BE REASSESSED REGULARLY
FOR CHANGES IN CONDITION***

8. MOST COMMON TYPES OF INJURIES

The most common types of injuries are fractures, sprains and strains. Because of the force necessary to break a bone, a person with a fracture should be carefully examined for other injuries. The following is a description of the signs and symptoms of fractures and the treatment of them. Although not usually a life-threatening injury, the bleeding that often accompanies fractures can be life threatening.

Signs And Symptoms

- Pain, tenderness, and swelling
- Discoloration and/or deformity
- Loss of movement
- Exposed bone ends

Complications Resulting From Fractures

- Brain injury if skull is fractured
- Neck fractures may cause death
- Rib fractures may impair breathing
- Femur and pelvic fractures may cause serious bleeding and shock

Treatment

- Expose the fracture by cutting away clothing
- Cover all wounds with sterile bandaging, if possible
- Splint fracture site using padded splints if possible
 - first, immobilize the bone ends and the joints above and below the fracture
 - then, splint the patient before moving if possible
- DO NOT REPLACE PROTRUDING BONES
- Sprains and strains can be extremely painful and debilitating but are not life threatening.

9. SOFT TISSUE INJURIES

Types Of Injuries

- Abrasions, lacerations, avulsions, punctures, amputations

Treatment

- Control bleeding
- Cleanse when possible
- Use sterile or clean dressing when possible
- Do not remove impaled object
 - stabilize object with bulky dressing
- Replace avulsed skin over wound and bandage
- Save amputated parts, wrap in dressing and place on ice

10. BURNS

Burns may be divided into different categories according to the depth of the burn and the body surface area involved.

➤ First Degree Burns

This type of burn involves the outermost layer of skin. It is often quite painful. The skin is reddened but there is no blistering. First degree burns are usually not considered serious.

➤ Second Degree Burns

Second degree burns involve the outermost layer of skin and portions of the next deeper layer of skin, the dermis. It is usually more painful than a first degree burn, and blistering occurs. Large areas of second degree burns can impair the body's ability to control temperature and retain moisture. A severely burned victim can lose large amounts of fluid and can quickly go into shock.

➤ Third Degree Burns

This type of burn has penetrated the entire thickness of skin and may involve muscle and bone. It is typically painless because of nerve destruction and it is dry, hard, and charred. Because the third degree burn is usually surrounded by an area of second degree injuries, the edges of the wound may be very painful. Third degree burns are life-threatening burns.

Treatment

- Remove the victim from the source of burning
- Cover the burn with a sterile dressing, and cool with water
- Keep the victim covered to avoid hypothermia
- Transport severely burned victims to an "Advanced Life Support" facility as quickly as possible

CHAPTER 6: LIGHT SEARCH AND RESCUE

The purpose of the Neighborhood Emergency Response Team search is to free Fire Department teams from having to search structurally sound buildings. This will allow them to concentrate on collapsed buildings, fire, and more hazardous tasks. A search must be well planned and systematic. The people doing the search must be organized and properly equipped with safety equipment and tools

When doing search and rescue, you are the most important person at that scene. If something happens to you, the operation stops. Not only is one person injured and out of commission, but the whole team will be needed to get you to safety. So remember to take all possible precautions to protect your safety.

1. BASIC SEARCH AND RESCUE TOOLS AND EQUIPMENT

➤ Safety Equipment

Gloves...cut hands are not very effective tools
Helmet...protect your brain so you can use it
Vest...used for identification
Goggles...shatter resistant
Boots...to protect your feet from broken glass and debris
Heavy clothing...for warmth and protection
Flash light...have extra batteries and bulbs
Personal First Aid kit...used if searchers get injured
Water and food...you can't work long without it
Whistle...to signal
Marker pens...to mark buildings

➤ Basic Rescue Tools

Fire extinguishers... at least two 3-A:40-B:C extinguishers
Pry bars...36 and 66 inches long
Axes
Sledge hammers...5 lb. and 8 lb.
Ladders
Pocket knife
Duct tape
Utility shutoff tools
Carpentry tools
Note pad and pens in plastic bag
NERT Forms

2. SIZE-UP

The size-up is something that is done for each and every incident that you may encounter. It is a decision making process that is designed to keep you safe and a continuous fact gathering process that will dictate the actions you will take.

Step 1. Gather facts

Potential hazards, time of day, occupancy type, weather, building construction, and all other facts you need to know.

Step 2. Assess the type and amount of damage

Is this a gas leak, a fire, a hazardous material spill, a rescue situation, a medical problem, or some other type of situation?

Step 3. Consider the possibilities

Can we handle the situation or will it take the expertise and equipment of professionals?

Step 4. Establish priorities based on the first three steps

Where can we do the “most good for the most people?”

Step 5. Make decisions about what you are going to do based on these priorities

These decisions should focus on helping other people and saving lives.

Step 6. Take action that you can safely accomplish

Only do things you are capable of doing, and doing safely.

Step 7. Evaluate your progress

DON'T BECOME A VICTIM.

3. POTENTIAL HAZARDS TO EMERGENCY RESPONSE TEAMS

Begin by asking, what is the magnitude of the problem? Is this one isolated incident, is it a local incident, or is it area wide? You will need to answer these questions before you begin any operations. The answers will give you an idea of the scope of the problem and what your needs will be.

➤ **OVERHEAD HAZARDS**

- Leaning buildings, walls, and utility poles could fall
- Overhanging pieces of a building may be loosened by quake and fall, such as signs, cornices, decorative work, chimneys
- Utility wires could cause electrocution

ASSUME ALL WIRES ARE ELECTRICALLY CHARGED

➤ **GROUND LEVEL HAZARDS**

- Sharp objects
 - glass, nails, broken concrete, re-bar
- Slippery uneven surfaces caused by ground movement and water leaks
- Accumulation of surface water due to water leaks
 - electrocution if contacting energized wires
 - drowning
 - obscures view of walking surface
- People, inquisitive people can be a hazard too

➤ **BELOW GRADE HAZARDS**

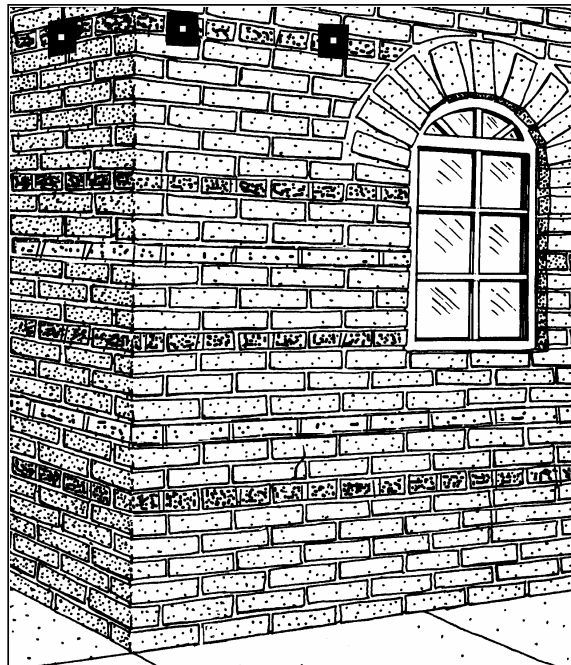
- Contaminated atmosphere in confined spaces such as basements due to gas leaks or smoke
 - flammable, toxic, or oxygen deficient air
- Flooding due to water leaks
 - drowning
 - electrocution
- Debris

ALWAYS BE AWARE OF POTENTIAL HAZARDS AROUND YOU!

4. SPECIAL HAZARDS - UNREINFORCED MASONRY BUILDINGS

The unreinforced masonry building or "UMB" is considered to be one of the most hazardous types of buildings in an earthquake. In 1933, when an earthquake struck Long Beach, several of these buildings were destroyed or severely damaged. Recognizing the hazard these buildings presented in the state, the California Legislature passed the Field Act which changed the way these buildings were constructed.

In the City of San Francisco, there are over 2,000 UMBs. This presents a special hazard since the unreinforced walls tend to collapse in an earthquake. While most of these buildings are situated in the South of Market, Tenderloin, and Chinatown areas of the City, almost every part of the City has UMBs. There are unique characteristics of these buildings, visible from the exterior, that sometimes makes them easily recognizable.



Many of the UMBs used very weak lime mortar to bond the bricks. This poor mortar can be scratched away with a penknife or spoon.

UMBs usually have a supportive row of bricks, that are turned sideways. This is called the "header row", it is usually every fifth or seventh row.

Metal plates attached at the level of the floors and roof are another sign. These plates prevent the floors from collapsing.

Archways around the windows and doors and deep set windows are also an indication. Windows are usually set in about ten inches. This is the key to identifying these types of buildings. All the other signs can be covered up, with plaster or a false front, but the windows will still be deep set.

5. SIGNS OF POSSIBLE STRUCTURAL DAMAGE

Most buildings that have suffered structural damage will show very distinctive outward signs. Before entering any building, thoroughly check for signs of possible structural damage.

Buildings are built with straight horizontal and vertical lines. When they have suffered structural damage these straight lines can become distorted. This is a strong indication that the building's structural stability has been compromised. The following is a list of some of the tell-tail signs of structural damage.

➤ **HORIZONTAL LINES**

- Look for uneven window lines
 - Draw an imaginary line across the tops of the windows and see if the line is level
- Foundation not level
- Ground around foundation is fractured and uneven

➤ **VERTICAL LINES**

- Any leaning
- Look at all sides of the building
- Compare to the building next door
- Garage doors and entry ways
 - Are these doors out of plumb

➤ **LARGE CRACKS IN THE EXTERIOR OF THE BUILDING**

- Especially around garage doors and entry way
- Foundation cracks

➤ **SEPARATION BETWEEN THE BUILDINGS**

- Is it even
- Was it there before
- Are other buildings on the block similar

➤ **LIQUEFACTION**

- Around the foundation area
- Coming out of openings on ground floor

Wood frame buildings, such as homes and apartment buildings, perform very well during an earthquake. They are built to withstand the lateral force of the quake if properly prepared with foundation bolts and cripple walls. Garage doors of these buildings are large openings and can be a weak point in a quake since there is no lateral support. The area around the garage door and foundation should be examined carefully in your structural damage assessment.

6. EMERGENCY RESPONSE TEAM STRATEGIES AND TACTICS

➤ **Damage Assessment**

As mentioned before, the primary concern in any search operation is the safety of the searchers. If a searcher is injured, the entire operation stops until that person is brought to a safe location. At no point should the personal safety of the searcher be put in jeopardy.

Once the outward signs of structural damage are examined, buildings should be classified according to the amount of damage sustained. There are three classifications of structural damage:

- Light Damage
- Moderate Damage
- Heavy Damage.

Only buildings that are classified as "Light or Moderate Damage" should be entered.

DO NOT ENTER BUILDINGS THAT ARE HEAVILY DAMAGED.

Light Damage

The damage to the structure of the building is superficial, such as broken windows and fallen or cracked plaster. The major damage in these types of buildings is to the interior contents.

The PRIMARY MISSION of the Neighborhood Emergency Response Team is to search for, locate, triage, and prioritize the removal of victims to a designated triage area established by the medical group. Utilities should be shut off if necessary. All actions should be recorded.

Moderate Damage

The damage to the structure of the building is more extensive. Decorative work on the exterior of the building is either damaged or has fallen off; there is a large amount of visible cracking in the plaster but the building is not leaning. It is still attached to its foundation, and there are no other outward signs of structural damage. There may be major damage to the interior contents.

Get as much information as possible on the location of potential victims from the people in the street before entering. The PRIMARY MISSION is to try to locate, stabilize, and immediately evacuate the victims to a safe area outside the building. Do not treat the injured inside, except to

open an airway and stop major bleeding. An aftershock may make this type of building structurally unsound, so spend as little time in them as possible. Document the location of heavily trapped victims and communicate the information to professional rescue teams. Shut off the utilities as needed. Record all actions taken.

Heavy Damage

A partial or total collapse. Buildings that are tilting, buildings that are off their foundations, or buildings that are obviously structurally unstable are all considered "Heavy Damage". These buildings should **not** be entered.

The PRIMARY MISSION in heavily damaged buildings is to secure the building perimeter and control access into the building by untrained but well-intentioned volunteers. If it is safe to do so, shut off the gas at the PG&E shutoff in the street to reduce the possibility of fire. Communicate the location and the extent of damage to the Fire Battalion Station. Gather all available information from witnesses for professional rescue teams.

A Light or Moderately Damaged building can be searched. If there is an after shock while the search is in process get out of the building. When back outside, check the structural integrity of the building, and classify it again. If the classification has not changed to "Heavy", the search may continue. **Heavily damaged buildings should not be entered.** The NERT team's responsibility in these situations is to secure the perimeter and to gather as much information as possible for professional rescue teams.

➤ **FORCIBLE ENTRY**

Forcible entry is the technique used to get into a building when normal means of entry are either locked or blocked. It should be accomplished quickly and with a minimal amount of damage. The method used will depend on the construction, operational design, and the locking mechanism of the door or window being forced. Always try to gain entry the easiest way possible!

Doors and windows are the obvious places to use forcible entry to gain access. But if you are trapped in a room, you can breach a sheet rock or plaster wall between the wall studs and create a hole to climb through.

Forcible Entry Tools

- Prying and spreading tools
 - axe, crowbar, pry bar, wrecking bar, car jack
- Cutting and boring tools
 - axe, hand saw, power saws, bolt cutters
- Striking and battering tools
 - axe, battering ram, hammer, sledge hammer

Points Of Entry

- Front door
 - is it open
 - does someone in front have the KEYS

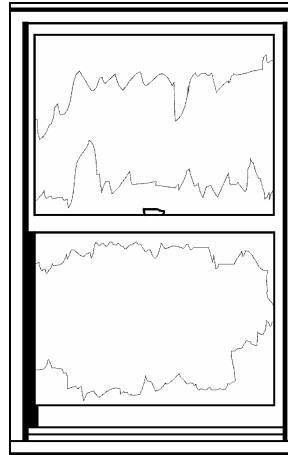
- Any window or glass door
- Tradesmen entrance
- Garage door
- Back yard access
- Roof door via a fire escape or back stairs

Forcing Doors

- Swinging doors
 - feel the door for heat before attempting to force any door, then try the knob
 - break a glass panel in the door or next to it, then reach in and unlock the door
 - if there is no glass around the door, force it with a sledge hammer by pounding directly on the lock
- Sliding glass doors
 - pry door at the lock
 - lift door to disengage lock
 - stand to one side and break the glass from the top downwards
- Overhead doors....garage doors
 - break a glass panel out, reach in and unlock the door
 - if there is no glass, knock the wooden panel out and climb through and open the door
 - cut a hole in the door for entry if it's a solid core door

Forcing Windows

- Sliding, swinging, and pivoting windows
 - always try to open the window first
 - open lock with a thin tool or knife
 - break glass as a last resort
- Security windows (windows with bars)
 - only try to gain access this way if absolutely necessary, it's a very time consuming process
 - use a jack to spread the bars apart
 - strike points where bars are attached together with a heavy sledge hammer until welds break
 - attach tow chain to a car and pull the bars off the wall



Breaking Glass

- Use a long handled tool, such as an axe
- Stand to one side of the window
- Tilt tool so your hands are above the part of tool that is used to break the glass
 - this is so glass does not slide down tool handle and cut the rescuer
- Strike the glass sharply with the flat part of the axe or other tool
- Strike the glass as high as possible
- Start at the top and clean out all the remaining glass from the frame
- Unlock the window or door and open it before entering

The same breaking procedure is used on fixed windows, on glass panels in an entry area, and on garage doors.

GET INTO THE BUILDING THE EASIEST WAY POSSIBLE

7. SEARCH PROCEDURES

Two teams, of at least two people each, are needed to search a building. One team stays on the outside of the building. From this vantage point, they can see if the search party on the inside is in any danger from exterior sources, such as fire. They control the scene outside the building making sure that well-meaning, untrained volunteers do not disrupt the search. They can also send a runner to the Fire Battalion Station, if the situation requires. The other team searches the interior of the building. **Always stay together when searching the building.** If there are many buildings to search, the teams should switch duties with each building to prevent fatigue.

Every search must be planned before entering the building. The first step is to organize your team. All team members should be fully equipped but not overburdened. They should wear heavy clothing, boots, gloves, helmet, vest, goggles and carry a flashlight. In addition, the interior search team should carry marking pens and each member should carry a different forcible entry tool if possible. The exterior team should have utility shutoff tool and a note pad and pens to document all actions taken.

Decide on signals to warn the search team of danger and to leave the building, like five repeated blasts on a horn or a whistle. Also have a signal to let the outside team know that a searcher has been trapped or is in trouble. One long repeating blast could be used for this. Whatever signals you decide on, make sure that everyone knows what the signals are, and if the signal is heard, everyone repeats it until the searchers are out of the building.

The next step is to examine the exterior of the building, to see if it has been structurally damaged, and to classify the building as "Light, Moderate, or Heavy Damage".

If the building is classified as heavy damage, do not enter. If the building appears sound, answer the following questions before entering.

- Has anyone from the building been reported missing in the building?
- Where are the potential hazards?
- Are there any unique characteristics of this building?
- What will be the point of entry?
- Where are the fire escapes if any? Back stairs?
- How tall is the building? How deep?
- How many units are in the building? (check the mail boxes)

Answering these questions will give you an idea of the hazards that you will face, the amount of time the search will take and most importantly, alternative exits from the building.

➤ **THE SEARCH**

Once it has been decided that it is safe to enter the building and the search team is fully equipped, mark the outside of the building before entering with half of an "X" or "/". Feel the upper part of the door with the back of your hand for heat before you attempt to carefully open the door. Once

inside, stop for a moment and smell for natural gas. If you detect an odor of gas, shut it off if safe to do so and leave the building. Complete the marking, and go on to the next building. If you smell smoke, try to locate and extinguish the fire if possible. If not, leave the building and report the situation to the Fire Battalion Station.

If you do not smell anything call out "Is anyone in here?" and listen for an answer. If no answer, start your search. Place one hand on the nearest wall, this will dictate your search pattern. All turns will either be right hand or left hand turns depending on which hand is on the wall. This will allow your search to be thorough and systematic. If you have to get out of the building, just reverse direction, place your other hand on the wall and make all the opposite turns until you are on the outside. Periodically, while searching, call out and listen for a response.

Shuffle your feet along the floor while moving slowly. Make sure there is solid flooring under your lead foot before you put your weight on it. Always be aware of the closest ways out of the building.

Search the building from the top floor down. If you look at the floor plan while going up to the top floor, you will be more familiar with the building layout when you actually start the search. Each room or apartment that is entered should be marked with the "X". If conditions permit, search under beds, in closets, bath rooms, under furniture and any place that someone might go seeking safety. Do not use elevators, but they must be searched for people trapped in them.

Complete the "X" immediately after leaving the building and fill in all the needed information.

When searching a building, it is important to keep several things in mind. First, be alert for aftershocks, fire, gas leaks, or other possible hazards. **ALWAYS STAY ALERT.** If unable to enter a door, knock, shout, identify yourself as an emergency response search party, and listen for an answer. Listen for tapping on structural members, pipes or other metal in the building, as this sound carries much further than the human voice in enclosed spaces. One other thing that must be considered is the limitations of the searchers. Searching dark, unfamiliar buildings can be both mentally and physically fatiguing. Each person must know his/her own limitations and not push past them. This is when accidents and injuries happen.

IF EVER IN DOUBT ABOUT PERSONAL SAFETY - GET OUT!

Building Marking

The "X" is put next to or above the main entrance as well as near each room or apartment you search. Fill in all the following information in the appropriate quadrant as soon as you exit the building.

Top Quadrant (When)

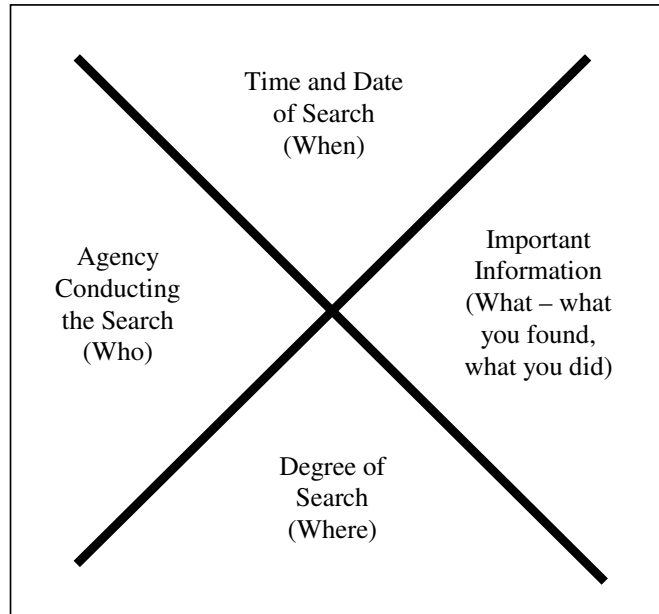
- Date and time of the search
 - Important if there are any aftershocks

Left Quadrant (Who)

- Agency doing the search
 - Fire Department
 - NERT
 - add the team district, i.e. Marina NERT

Bottom Quadrant (Where)

- Degree of search, list what was completed
 - SEARCHED...building fully searched
 - PARTIAL SEARCH...could not search some areas



Right Quadrant (What)

- Important Information
- Any information you feel the Fire Department will need
 - person trapped second floor, back apt.
 - structural damage, top floor not searched
 - Haz Mat spill 3rd floor
 - utilities to building shut off

8. RESCUE

Once a victim has been located, the operation enters the rescue phase. The rescue can be as simple as lifting a bookcase off an uninjured victim and helping them out of the building. It could also be a very complicated operation that could include using ladders to get into the building, assessing the medical condition of the victim, using levers and cribbing to remove heavy objects that have trapped the victim, and using rescue carries to transport the victim to safety. Move slowly in all operations, and take the time to assess the hazards around you before you start and continue to check throughout the operation.

Here are some basic rescue considerations that should be kept in mind at all times:

- Know your physical and mental limitations and don't push past them.
- ***Don't become a victim.***
- Handle the hazards first. If possible, eliminate the things that will injure the rescuers before attempts are made to get the victim out.
- Always do things the easiest way possible. Don't make an easy job into a complicated one
- In a hostile environment, remove the victim as quickly and safely as possible. The injuries to the victim may not be as serious as the situation they are in. If a person is in immediate danger from fire, falling objects, building collapse or other serious hazards, there is no time to thoroughly assess the medical condition. Open the airway, put direct pressure on major bleeding and get them away from the danger.
- If you find someone who is trapped or pinned by falling debris, you must first evaluate the hazards around you. Then assess the victims medical condition. If injured, decide whether it is safe to treat them there or they need to be taken to a triage area.

If the victim is trapped, decide if you can quickly complete the rescue with minimal risk. If you can't complete the rescue, don't start, send a runner for additional help. If you can complete the rescue, do it systematically. Remove debris slowly, protect the victim from debris, and do not injure the victim further by your rescue method.

LIFTING HEAVY OBJECTS

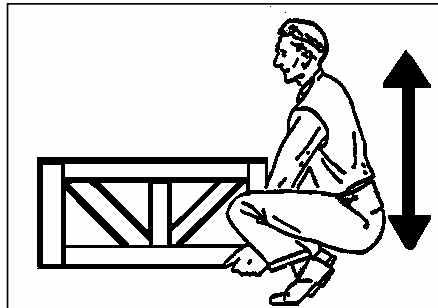
Victims are sometimes trapped by fallen debris, that has to be moved to free them, before they can be moved to safety. It is important that you, the rescuer, use proper lifting techniques so that neither you nor the trapped person is injured.

➤ LIFTING BY HAND

- Have secure footing and balance
- Keep back straight and lift with legs
- Look up while lifting
- More people makes lifting easier
 - one person must be in charge of lifting operations
- Use cribbing to support object being lifted

➤ LIFTING WITH TOOLS

- Levers...pry bar, wrecking bar, pipe, or piece of wood
- Jacks...car tire jack, lifting jack

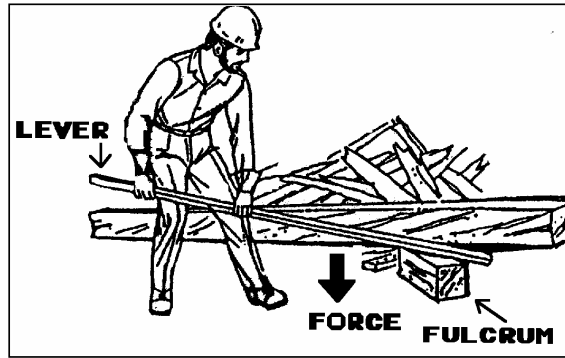


A lever is a rigid piece of material, straight or bent, that is free to move about a fixed point called a fulcrum. A lever uses mechanical advantage to transfer a force from one place to another, while changing the direction of the force. Levers are extremely important in rescue operations to remove debris that has trapped victims, in buildings and on the street. A lever transfers a downward pushing force into an upward lifting force.

➤ **CRIBBING**

Whenever a load is lifted, whether by hand or with levers, a method for temporary support is needed to insure the safety of the rescuers and the trapped victim. Cribbing is used for this purpose. It is a stabilization tool used to make an object resistant to a sudden change of position or shift in weight. Cribbing will prevent the load from falling.

Cribbing is a stable platform that is able to support the weight that is being lifted. Cribbing can be made from many materials, wood blocks, furniture, books, concrete blocks, and even tire rims.

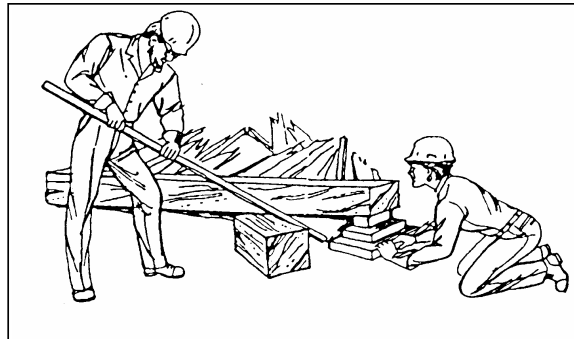


REQUIREMENTS FOR CRIBBING MATERIALS

- It must be stable
- It must be able to support weight that is lifted

CRIBBING PROCEDURES

- Have all lifting and cribbing materials ready at the site
- Make sure all helpers are aware of lifting plan as well as the victim
- Support the object with cribbing before the lifting starts so it will not fall and further injure the victim or rescuers
- Lift object and place cribbing under it
 - only lift high enough to place one layer of cribbing under it
- Lower object on to cribbing
- Repeat procedure until victim can be removed
- Move slowly and safely

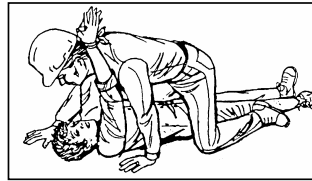


➤ **RESCUE CARRIES**

The purpose of emergency search and rescue is to locate people who cannot, for whatever reason, exit a building on their own, and to remove them from potential danger. If the person is not hurt this is a simple task, but if the victim has sustained injuries, their medical condition should be assessed before any rescue attempt is made. The victim will also need some type of assistance to get out of the building.

Firefighters' Crawl

- Loosely tie the persons hands together so you have something to push against
- This carry should only be used to move a person a short distance
- It can be a very useful carry if you are alone and have to move someone away from hazardous surroundings



Human Crutch

- Only use this carry with people who can help themselves
- To be used with victims with minor injuries
- Victims can be transported longer distances without fatiguing the rescuer



Two-Person Carry

- It is usually easier to use some kind of support when carrying a victim rather than lifting the unsupported person
- It is difficult to carry a victim very far with this carry
- But when no support is available this can be an effective carry

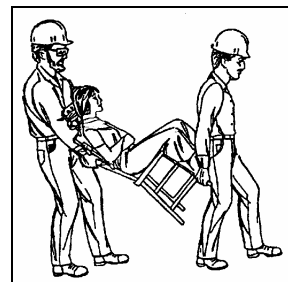


Improvise

- A stretcher is a great way to support and transport a victim
- If no stretcher is available use a blanket, door, table top, chair, ironing board, or anything that will support the weight of the victim

Chair Lift

- The chair has to be strong enough to bear the weight of the victim
- Choose a metal chair over a wooden chair for strength
- Immobilize limbs
- This carry is much easier on the rescuers, and the victim can be carried much greater distances than if the victim were unsupported

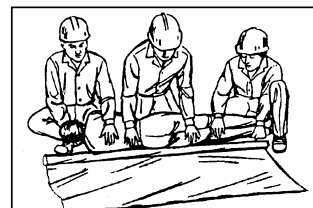


Three-Person Carry

- If you have three rescuers you can use this method
- Any time you move a victim by hand it is more difficult and requires more effort than if some means of support is used.

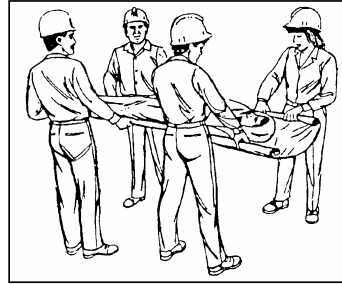
Moving A Victim...Log Roll

- To get the victim onto blanket or stretcher, roll them as one unit



Stretcher Carry

- The more rescuers you have, the easier it is to carry a victim and the less energy the rescuers will expend
- Three or four people is OK but six is preferred



9. LADDERS

Ladders are valuable rescue tools, they assist search teams in entering and exiting a building through windows and roof access. Certain safety precautions should always be followed when using ladders.

➤ ELECTRICAL WIRES

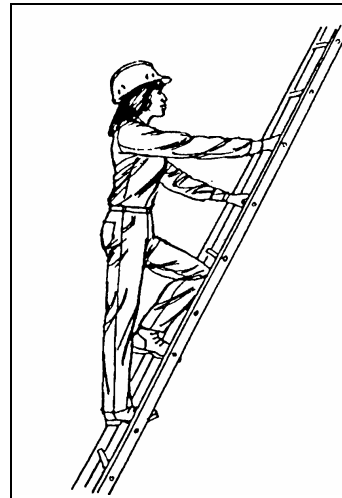
- Be aware of overhead wires
 - metal ladders in contact with energized wires will cause electrocution
 - have at least a 10-foot clearance between wires and wood or metal ladders so that there is no possibility of contact when climbing

➤ SECURE LADDER

- Secure the base of the ladder to prevent slipping
 - one person should always stabilize the ladder at the base
- Secure the ladder at the top if possible
 - tie it to the fire escape or any suitable contact point

➤ LADDER SAFETY

- Place the ladder at a safe climbing angle
 - place your feet at the base of the ladder and extend arms until palms touch the ladder, as shown in the picture
 - this places the ladder at approximately a 70 degree angle to the building, the recommended climbing angle
 - place the ladder 1 rung above window sill, and 3 rungs over roof top if possible, this makes it easier to get on and off the ladder
- Climb the ladder safely
 - hold on to the rungs not the beam
 - stand on the center of the rungs
 - look up, not down
 - walk vertically up the ladder



10. EMERGENCY RESPONSE TEAM SEARCH CHECK LIST

➤ Size Up

- Step 1. Gather facts
- Step 2. Assess the type and amount of damage
- Step 3. Consider the possibilities
- Step 4. Establish priorities based on the first three steps
- Step 5. Make decisions about what you are going to do based on these priorities
- Step 6. Take action that you can safely accomplish
- Step 7. Evaluate your progress

➤ Plan Search

- 1. Organize team
 - 2 teams of at least 2 people per team
 - have proper safety equipment
 - decide on duties and tools
 - decide on signals
- 2. Examine the exterior of the building
 - has anyone been reported missing?
 - signs of structural damage?
 - potential hazards?
 - point of entry?
 - points of exit?
 - occupancy load?
 - are the utility shutoffs apparent?
 - unique building characteristics?
- 3. Classify the building
 - Light Damage
 - Moderate Damage
 - Heavy Damage

➤ Search

- 1. Enter building
 - shutoff utilities if needed
 - mark half of "X" near entry..."/"
 - use forcible entry if necessary
 - smell of natural gas...get out and shut it off
 - shout, "Is anyone in here?" and listen
- 2. Start search pattern
 - stay together and along walls
 - search from top down
 - right hand or left hand search pattern
 - continually call out and listen
 - move slowly and test each step
 - mark each individual unit
 - complete "X" when leaving the building and fill in the information
- 3. Things to be consider while searching:
 - be alert for aftershocks, fire, or other hazards
 - always know the closest way out
 - if unable to enter any door, knock, shout, identify yourself, and listen se
 - search under beds, in closets, bath rooms, under furniture and any place that someone might seek safety
 - check elevators

CHAPTER 7: INCIDENT COMMAND SYSTEM

1. HISTORY

The Incident Command System or "ICS" was developed as part of the State Emergency Management System (SEMS) as a consequence of the wildland fires in Southern California during the 1970s. During these fires, various organizational problems became obvious because of mutual aid and multi-agency response. This system eliminated the difficulty of coordinating multi-agency resources, and communications between different organizations

2. BASIC COMPONENTS

1. Unified command structure
 - all involved agencies contribute to the command process
 - it is multi-jurisdictional and multi-agency
2. Common terminology
 - the terminology used to describe the various components and functions are the same for all agencies
3. Modular organization
 - The particular incident is under the control of an incident commander and the command structure expands in a modular fashion as needs dictates
4. Integrated communications
 - there is a centralized communication plan
5. Consolidated action plan
 - strategic goals, tactical objectives, and support activities are accomplished through teamwork and team reliance
6. Comprehensive resource management
 - allows for maximum use of resources
 - allows for the application of the right resource to the right incident in a timely manner
 - manageable span of control
 - limits the number of workers that a supervisor can manage effectively
 - creates a system to delegate responsibility

3. INCIDENT COMMAND ORGANIZATIONAL STRUCTURE

➤ **Incident Commander**

Responsible for all incident or event activity

➤ **Operations Section**

The Operations Section manages and coordinates tactical response of all field operations consistent with training. Assist in development of the operations portion of the Incident Action Plan and request additional resources to support tactical operations.

➤ **Planning Section**

The Planning Section collects, evaluates, processes, and disseminates information for use at the incident. It activates the resources unit, situation unit, documentation unit, and demobilization units as necessary. It seeks or recruits technical specialists for the incident.

➤ **Logistics Section**

The Logistics Section manages all incident support needs for the incident personnel and is responsible for the following units: supply, facilities, ground support, communications, medical, and food.

➤ **Finance/Administration Section**

Manage all financial aspects of an incident

The Incident Command System is in effect in San Francisco Fire Department for all activity. In the event of a disaster, the Mayor is the Commander in Chief and in charge of all City

Departments. The Fire Department's responsibility is emergency response to medical and safety incidents. Each separate incident under the jurisdiction of the Fire Department will have one Incident Commander. NERTs will act as an adjunct to the Fire Department and work within the San Francisco Fire Department's chain of command through the Incident Commander or their liaison. NERT will have an incident command structure operating parallel to the SFFD.

The ICS organization develops around five major functions that are required on any incident or event, whether large or small. In some applications of ICS only a few of the organization's functional elements may be required. However, if there is a need to expand the organization, additional positions exist within the ICS framework to meet virtually any need. ICS establishes lines of supervisory authority and formal reporting relationships. There is complete unity of command as each position and person within the system has a designated supervisor. Direction and supervision follows established organizational lines at all times.

4. EMERGENCY RESPONSE TEAM OPERATIONS

➤ FIRST ACTIONS TO TAKE

After an earthquake, the first thing to do is to make sure that you are not injured. If you are all right, check out the other members of your household for injuries. If there are any injuries, treat them first. Next, assess the damage to your building. Shut off the utilities if needed. If there is structural damage, make sure your family is safe and secure, mark the outside of the building with the "X" and fill in all the information.

Next, check on your immediate neighbors. Help them if they need assistance, and if they don't, mark their building with the "X", fill in all information and respond to your NERT staging area. Bring all your tools and equipment and write down, on the Damage Assessment Form, any emergency situation that you might see along the way. Report all emergencies once you get to the staging area. If you can, make copies (use carbons) of the Damage Assessment Forms and send them by runner to the nearest ERD Battalion Station.

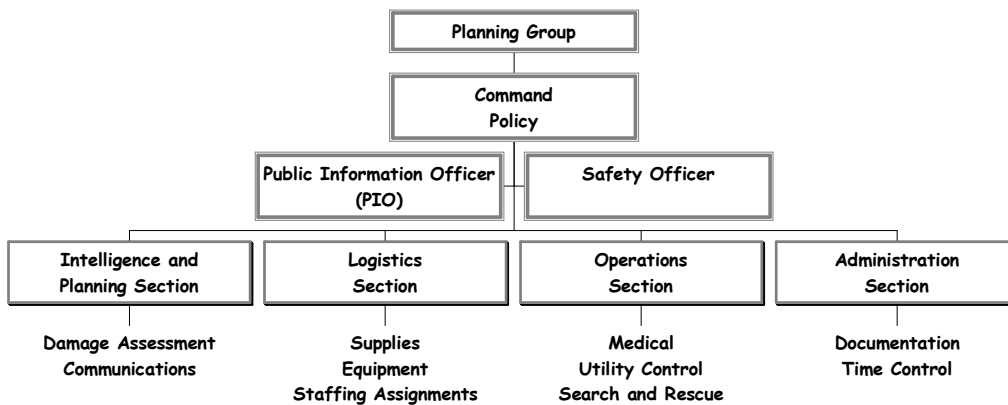
When enough people have arrived at the staging area to make up a full team, decide who will be the leader. Once the team leader has been selected, decide what actions need to be taken. Record all the actions that you take on the Status Sheet and the Incident Status Record.

➤ CHECK LIST OF ACTIONS

- Take care of yourself and your family
- Assess damage to your building
- Assist your immediate neighbors
- Assemble at NERT staging area
- Report emergencies
- Decide on actions to take
- Record all activities

The above chart represents the Neighborhood Emergency Response Teams communication network during an incident. Each ERD or Battalion District may have more than one team. All teams communicate their action through their appropriate ERD to the ECC. Teams communicate through HAM radios, runners, or couriers of mobile means.

NEIGHBORHOOD EMERGENCY RESPONSE TEAM FUNCTIONAL AREAS OF ACTIONS



The training for Neighborhood Emergency Response Teams is a multi-disciplinary training. In a disaster environment, situations and events change rapidly. This demands a great amount of creativity, adaptability and flexibility from each member of the team.

5. EMERGENCY RESPONSE TEAM ORGANIZATIONAL STRUCTURE

The Incident Command System is taught to neighborhood teams as a separate class. The ICS class explores the functions of the different sections and the process for setting up a command structure in a disaster. A table top exercise is used to practice decision making and to work on information flow. Interested teams should contact the NERT office to schedule a class.

CHAPTER 8: DISASTER PSYCHOLOGY

Disaster trauma can alter normal behavior. A person can become dull and indecisive or hyperactive. It is important for NERT members to be prepared for the trauma they may face and to be calm, positive, decisive, systematic, and even-paced in their actions during an emergency. It is also important to be aware of what is happening to you during an emergency and to talk about it after you have completed a rescue.

Psychologists encourage open, honest emotions and expression, as a self-protection mechanism. "Emotional overload" can be avoided by allowing both the victim and rescuer freedom of emotional expression, so long as it does not interfere with the rescue.

➤ Victim

- Victim's feelings
 - disorientation, physical and emotional numbing
 - loss of control, extreme fright, and helplessness
 - loss of trust, abandonment
 - anger resulting from all of the above
- Emotional first aid for victim
 - establish a rapport
 - listen and be empathetic
 - respect confidentiality and privacy

➤ Rescuer

- Rescuers
 - want to help
 - know your physical and mental limits, and don't push past those limits
 - don't become a victim
- Operational behavior
 - stay calm and be positive
 - be a leader, demonstrate by example
 - pace yourself, don't overextend
 - be systematic
- Rescuer considerations
 - brief team prior to rescue operation
 - emphasize teamwork
 - rotate personnel
 - take breaks (away from the incident)
 - proper nutrition (water and food needs will be greater)
 - debriefing...talk about what happened after the rescue

CHAPTER 9: SPECIAL CONSIDERATIONS

1. CHILDREN

When an earthquake strikes, if you are in another part of the house, resist the urge to run to your child. Your child will need you after the quake, and if you are seriously injured running to them, you will be little help. The most important thing is to protect yourself so that you can help others.

If you have a baby, it is advisable to store at least three days' supply of everything that you will need. Formula, bottles, food and juices, diapers, baby wipes, diaper rash ointment, medications, teething rings, pacifiers, changes of clothing, blankets, and anything else you will need should go into a bag in your 72-hour supply kit. Have at least one day of baby supplies in the car.

An older child's bedroom should be prepared the same as an adults. The bed should be away from the window and any heavy objects that might fall on it. A flashlight, shoes, and glasses should be kept by the bed.

If your child is in school or preschool, talk to the teacher about earthquake plans. Find out what the school procedures are. Make sure you have a "Permission to Treat" form on file at the school.

What you tell your children will depend on their age and maturity level. Discuss with your children what to do if you are not there when the quake strikes. Most schools keep the children there until the parents come to pick them up, but this is something to discuss with the teacher. Have a current emergency card at the school. If you have arranged for someone to pick up your children, discuss this plan with your children. Let them know that it may take you, or the person you designate to pick them up, a long time to get there.

If your children are old enough to be left alone, even if it is only for a short period of time, be sure you tell them what to do in the event of an emergency, and who in the neighborhood would be most likely to help. Children should know what gas smells like and be instructed to get help if they smell it.

Develop a message system and a place where you periodically leave notes to each other. In the event of an earthquake, they should leave a note if they leave the house telling where they went and why.

Talk about earthquakes with your children. Discuss your emergency plans and have the whole family participate in earthquake drills.

2. DISABLED AND ELDERLY PERSONS

If you cannot take cover, you must be sure that nothing will fall on you. This is particularly important if you spend a great deal of time in one place such as a bed, desk, work station, or wheelchair. Besides the possibility of injury, fallen debris could make it impossible for you to walk or move a wheelchair. This would make evacuation impossible.

Special equipment such as telephones and life support systems should be fastened down with velcro or by some other secure means. If it would be difficult or impossible for you to shut off your gas, have assigned neighbors who will do it.

It is suggested that the following supplies be kept next to your bed and with you at all times:

- Flashlight and whistle
- "GO" kit
 - extra medication, supplies, and equipment
 - pencils and paper
 - a list of medications and dosages
 - written description of current medical condition
 - relative's name, address, and phone number
 - doctor's name, address, and phone number

If you rely on elevators to get to your work place, emergency evacuation can be a real challenge. You should have two accessible emergency exits, and a realistic evacuation plan. There should be at least two "buddies" assigned to you at work, and you should find two or three more at home. These "buddies" should check on you after any emergency or disaster, and assist you if necessary.

We advise people to take cover because the greatest danger is from falling objects. But it is important that, after you take cover, to be able to move to a safer location if necessary. If it would be impossible or even difficult for you to get out from under a desk or table, don't get under it.

If you are in a wheelchair, stay in it. Turn away from windows or glass. Move the chair either into a doorway with your back toward the hinge or into the open space away from hazards such as falling objects. Set the brake on the chair and, if possible, lean over and hold a pillow, book, or even a wastebasket over your head and neck for protection.

If you have difficulty moving but are not in a wheelchair, assess the situation. Sometimes the safest thing to do is stay where you are. If you are in bed or sitting down, stay there until the shaking stops. If you are standing, sit down in a chair or on the floor.

CHAPTER 10: EMERGENCY SUPPLIES

1. 72-HOUR EMERGENCY SUPPLY LIST

In the event of a disaster, normal supplies that you use daily may be unavailable or inaccessible. It is suggested that a 72-hour emergency supply kits be prepared and stored in the most probable locations that you and your family may be when the earthquake occurs. You should have an emergency supply kit in your home, work place, and vehicle. The composition of the survival kits will vary in size and contents depending on your individual needs and preferences. But to be considered complete, these kits should contain food and water, clothing and supplies, and medical and hygiene items to fit your individual needs.

2. HOME SUPPLY KITS

➤ Water

A supply of one gallon per person per day for 3 days should be included in your kit (a 7-day supply is even better). A person can last 30 days without food but less than a week without water. Store water in a sealed plastic container, mark the current date on the bottles, and replace after one year.

If your water supply is shut off and your stored emergency supplies have been exhausted, there are several alternative emergency sources. Shut off the incoming valve on your water heater and you can drain the water out for drinking. Melted ice cubes in your refrigerator and the water from unsalted canned vegetables is another good source.

If you have questions about the quality of the water, purify it before drinking. You can heat water until it boils or use commercial purification tablets to purify water. You can also use household liquid chlorine bleach if it is pure, **unscented** hypochlorite. To purify water use the following table as a guide:

IF WATER IS:	WATER QUANTITY	BLEACH ADDED
CLEAR	1 Quart	2 Drops
	1 Gallon	8 Drops
CLOUDY	1 Quart	4 Drops
	1 Gallon	16 Drops

After adding bleach, shake or stir water container and let stand thirty minutes before drinking.

➤ Food

When selecting food supplies consider the ease of preparation, ease of storage, shelf-life and personal preferences. The foods that you select should not require a large amount of water to cook. They should also be easily stored in your kit and last at least one year before they have to be replaced. Do not purchase salty foods, they will only increase your desire for water. Select

foods that your family enjoys. Along with food, you will need an alternative way to prepare it. A camp stove with extra fuel, cans of sterno, or a barbecue all will work, but don't forget the matches. You will also need various utensils, pots and pans, paper plates, paper or plastic cups, can opener, and eating and serving utensils. Aluminum foil, plastic wrap, and garbage bags will also be useful.

➤ **Clothing**

A complete change of clothing for each member of your family should be wrapped to remain dry and clean and put into your emergency supply kit. These should be heavy clothes that will protect you from injury and include boots or heavy shoes to protect your feet.

➤ **Supplies**

A flashlight with an extra bulb, a portable radio, and extra batteries should go in every emergency supply kit. A space blanket is a useful and inexpensive item that is excellent at retaining body heat. Sleeping bags and a tent can also be included. Small hand tools and a utility shutoff wrench are a necessity. Duct tape and zip-lock bags will be useful in many situations. Also include paper, pencils, and money in your kit. If electricity is disrupted after a quake, the ATM machines will not operate. Don't forget to include a 3-A:40-B:C fire extinguisher.

Hygiene Supplies

Include in your kit a bar of soap, liquid detergent, shampoo, toothpaste, toothbrushes, tissues, toilet paper, and sanitary napkins (which can also be used for pressure dressings to stop bleeding), so pack more than you normally would need.

Medical Supplies

There is a complete first aid kit listed in Chapter 10. Remember to include any prescription medications that your family takes, along with a written list of prescriptions, allergies, and doctors. The most important item that you can include in your medical kit is a good first aid manual.

➤ **Improvise**

It is impossible to store all the items that you will need in the event of a devastating earthquake, but with a little bit of imagination and some useful items, you can create things that will fit your needs.

Plastic garbage bags are one of these items. They can be used as a tent, as a rain coat by cutting holes for your head and arms in it, or as a window cover to keep the elements out of broken windows. You can also line your toilet with a bag. This enables your family to use the facility with privacy and without risk of contaminating other locations. It can be used several time before the bag has to be replaced. The bag should then be sealed and stored for later disposal or buried. If the bag is buried the spot should be marked so it can be retrieved later and disposed of properly.

A good pair of first aid scissors is another useful item. They can be used to cut away clothing to expose wounds, to cut bandages out of the clothing of the victim, or to cut triangular bandages

from sheets. They can also be used to cut carpet to be used as blankets or as a tent when stretched over two pieces of furniture.

Duct tape can be used to secure cracked windows to keep the elements out and also to keep the broken glass from falling and injuring someone. It can be used as first aid tape to secure bandages. It can also be used to temporarily support or tie together blankets or carpet in making an improvised tent or to tape plastic bags to windows to keep the elements out.

These are just some examples. The key is to be creative in all situations, and use what is available to you.

3. WORK PLACE AND VEHICLE KITS

In the work place you should have a simple kit that will allow you to get to your reunification site. It should include a comfortable pair of walking shoes, because this may be the only way you can get there. A flashlight, a portable radio, a small amount of food and water, and a basic first aid kit should be included.

In your vehicle you should keep the same type of kit that you have at your work place, but add a change of clothes and some money to it.

72-HOUR SUPPLY KIT

Personal Supplies

Water - 1 gallon per person per day for at least 3 days, this is the minimum supply to store
Food - enough to last family at least 1 week
Bleach - 1 gallon to purify domestic water supply
First aid kit
Heavy clothes, boots or shoes
Flashlights, portable radio and extra batteries
Hygiene supplies
Money
Sanitation supplies
Aluminum foil, plastic wrap, zip-lock bags
Plastic garbage bags...heavy duty
Fire extinguisher
Prescription medicines, eye glasses
Camp stove and extra fuel
Camp supplies...tent, sleeping bag, lantern
Cooking and eating utensils, can opener
Paper plates and cups
Waterproof matches
Pet provisions
Rope
Shovel
Small hand tools and shutoff wrench
Perishable supplies should be replaced at least once a year

Emergency Response Team Supplies

Helmet, gloves, eye protection, dust mask, knee pads
Heavy clothes and boots/shoes
Water and food
First aid kit
Flashlight, extra batteries and bulbs
Fire extinguisher
Portable radio and extra batteries
Latex gloves, duct tape, masking tape
Utility shut off tools
Prying tools, cutting tools, striking and battering tools, ladder
Carpentry tools, shovel, rope
Marker pens in various colors, whistle
Note pad and pens/pencils in zip-lock bag
NERT forms

FIRST AID KIT

The following is a suggested list of first aid supplies to be kept in a 72-hour home kit. Included in this kit should be any personal medications taken on a regular basis, a list of these prescriptions, a list of doctors, and an extra pair of glasses. These kits are for your personal use and in no way should be considered a medical cache for NERT operations.

- 4 rolls of Kerlex, Kling, or any other brand of roller bandage.
 - used to wrap over dressings and to secure splints
- 10 to 20 4-x4-inch gauze pads
 - used to cover lacerations and abrasions
- 2 to 4 sanitary napkins
 - used to control excessive bleeding
- 1 roll of each of 1-and 2-inch adhesive tape
 - used to secure dressings and bandages
 - changed every 6 months
- 1 box Band-Aids of various types, sizes
- 2 chemical ice packs
 - used to reduce swelling of strains and sprains
- 1 quart sterile water
 - used to flush wounds and cool burns
- 1 bottle antiseptic solution
 - used to cleanse wounds
- 2 triangular bandage
 - used to secure broken arms, shoulder dislocations, or as a wrap for splints
 - can be purchased or made from old sheets
- Scissors, tweezers, and sterile needles for splinters
 - 1 each
- Ace bandage
 - used for wrapping sprains
- Pain relief tablets
 - used as a pain reliever, swelling
- Aluminum space blanket
 - used to protect against cold exposure
- Pocket mask used for CPR
- Pen light or mini flashlight
- Latex gloves

N.E.R.T. DISASTER MEDICAL SUPPLY KIT

The following items should be part of your safety equipment. This kit should be with you at all times when involved in any emergency response operations. These are **your own personal supplies** to be used if you get injured. They should be in no way considered a cache of supplies for team or victim medical needs. For those operations, you will have to improvise and use whatever items are on hand or that you can create from something else.

- Scissors
 - a good pair of medical scissors
- 4- X 4-inch gauze pads
 - 5 or 6 to be used as bandages for large cuts
- Adhesive tape
 - one roll of 1 inch tape
- Sanitary napkins
 - used to control excessive bleeding
 - 2 to 4 pads
- Band-Aids
 - 4 or 5 strips for small cuts
- Antiseptic solution
 - used to cleanse wounds
 - 1 bottle
- Latex gloves

CHAPTER 11: DISASTER FORMS

The scarcest resource in any disaster is *INFORMATION*. Normal lines of communication break down. The only way to gather information is through word of mouth or writing. The information gathered is much more accurate if it is written. Realizing this fact we have included four forms in this manual. The use of these forms will give concise and accurate information about the scope of the incident, be useful as a communication tool, and be a method of tracking teams doing different operations.

1. DAMAGE ASSESSMENT FORM

Before any actions can be taken after a disaster the amount of damage and the number of people needing help should be known. If everyone who responds to the staging area fills out a Damage Assessment form on the way, the group leader will have a good idea of the scope of the disaster. As you are responding to the staging area write down what you see on the form. Fill in the address of any incident that you see and check the appropriate boxes. The most important column is "PEOPLE". All the other columns (fire, hazards, damage, road access) are different dangers that will effect the safety of team operations. These boxes only need to be checked. Once all the Damage Assessment forms arrive at the staging area, the group leader will be able to prioritize the incidents by deciding where teams can do the most good for the most people.

2. INCIDENT STATUS RECORD

Once decisions are made, teams can be put to work according to the prioritized list of incidents. The Incident Status Record form is used to keep track of the jobs that are being done and the teams that are doing them. The incident status number can be any consecutive numbers and is used in cross referencing other forms. The start and finish times are very important. If teams do not return within a reasonable amount of time they may be injured and need assistance. It is crucial that the time category be monitored. The Fire, Search and Rescue, Medical, and Utility Control boxes are just check boxes describing the type of job the team has to do. The team/unit assigned is the name you assign the team. It can be a number or a person's name or anything that will allow you to keep track of the team. The comment area of the form is used for a brief synopsis of what actions were taken.

3. TEAM STATUS SHEET

The Team Status Sheet is used to keep track of the various team members and what they are doing. The group leader is the leader, the assistant is the person filling out the form. The incident number is taken from the Incident Status Record form. It is important to fill in all team members' names in case someone gets lost or fails to return to the staging area after the job is completed. The assignment is what job the team is given and the comment section is filled out after the team returns. This section should be a brief record of what actions were taken.

4. MESSAGE FORM

The message form is used any time teams have to communicate over any distance. If any type of messenger is used to relay communications, use the message form. Be as complete as possible in your communications. Don't assume that the other person knows what you are thinking or what you need - write it down. If the message form is used there is much less chance for communication error.

The Damage Assessment form is used by all Emergence Response Team members and is filled out on the way to the staging area. The Incident Status Record and the Team Status Sheet are forms that are filled out in the staging area and are used by the group leader to keep track of the teams. The message forms are to be carried by the teams and be used any time they need to communicate with the group leader.

NERT BUILDING DAMAGE ASSESSMENT

Page #:	Person Reporting:	Date:
Time:	Person Receiving:	Group:



ADDRESS	FIRE		HAZARD				DAMAGE				PEOPLE			STREETS	
	BURNING	FIRE OUT	GAS LEAK	WATER LEAK	ELECTRICAL	HAZ MAT	LIGHT	MODERATE	HEAVY	COLLAPSED	# INJURED	# TRAPPED	# DEAD	ROAD ACCESS	NO ACCESS



NERT INCIDENT STATUS RECORD

Page #: _____

Date: _____

INCIDENT #	START TIME	FINISH TIME	ADDRESS / LOCATION	FIRE	SEARCH RESCUE	MEDICAL	UTILITY CONTROL	TEAM/UNIT ASSIGNED
COMMENT:								
COMMENT:								
COMMENT:								
COMMENT:								
COMMENT:								
COMMENT:								
COMMENT:								

Person Filling Out Form: _____



NERT STATUS SHEET

Group Leader:	Group Assignment:
Assistant:	

TEAM #: _____

Date: ____/____/____	Start Time:	Incident #
MEMBERS NAMES	ASSIGNMENT	COMMENTS


Time Complete: _____

Team # _____

Date: ____/____/____	Start Time:	Incident #
MEMBERS NAMES	ASSIGNMENT	COMMENTS

Time Complete: _____

NERT MESSAGE FORM

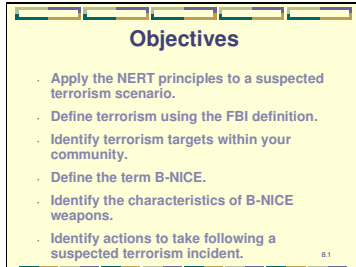
	TO: _____
	FROM: _____
	DATE: _____ TIME: _____
MESSAGE TEXT:	<i>Remember to answer: Who-What-Where-When</i>

Chapter 12 : TERRORISM AND NERT

OBJECTIVES

- Apply the Neighborhood Emergency Response Team (NERT) principles to a suspected terrorism scenario.
- Define terrorism using the Federal Bureau of Investigation (FBI) definition.
- Identify possible terrorism targets within your community.
- Define the terms Biological, Nuclear, Incendiary, Chemical, and Explosive (B-NICE).
- Identify the characteristics of B-NICE weapons.
- Identify actions to take following a suspected terrorism event.

Visual 8.1



SCOPE

This module uses lecture to review the B-NICE agents. It covers indicators regarding their use. Participants are given actions that they can take if they are at or near an incident involving these agents including procedures for decontamination and sheltering in place. Participants apply the knowledge learned in this module by describing actions that they would take in a scenario presented to them at the beginning of the module and again at the end.

RESOURCES

- Centers for Disease Control Website at <http://www.bt.cdc.gov/>
- Chemical Stockpile Emergency Preparedness Program Website at <http://cseppweb-emc.ornl.gov>
- *Terrorism Planning Course*, E-408, Emergency Management Institute, March 2002.
- *Emergency Response to Terrorism, Self-Study*, FEMA/USFA/NFA-ERT: SS. June 1999.

INTRODUCTION

In his January 29, 2002, State of the Union address, the President asked that Americans volunteer their services to improve and safeguard our country. The three areas of emphasis for these volunteer efforts are crime, natural disasters, and terrorism. The Citizen Corps Program was created to help Americans meet this call to service. One of the volunteer opportunities offered to the American public under the Citizen Corps umbrella is the NERT program.

Visual 8.2

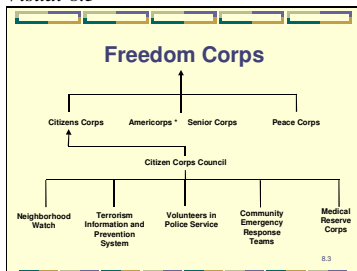
Introduction

- The President asked that Americans volunteer their services to improve and safeguard our country.
- The three areas of emphasis for these volunteer efforts are:
 - Crime
 - Natural Disasters
 - Terrorism

8.2

Now, with the possibility of an intentional event caused by terrorism, NERT members must be educated about potential terrorist weapons and actions to take following a possible terrorism event.

Visual 8.3



Visual 8.4

Volunteer Opportunity

One of the volunteer opportunities offered to the American public under the Citizen Corps umbrella is the Neighborhood Emergency Response Team (NERT) program.

8.4

Visual 8.5

NERT Objectives

- Prepare for natural disasters.
- Form and exercise neighborhood and workplace teams.
- Respond to immediate need in your area following a major disaster when professional responders are delayed.

“What about a possible terrorism incident?
What do you need to know?”

8.5

The basic objectives for NERT training:

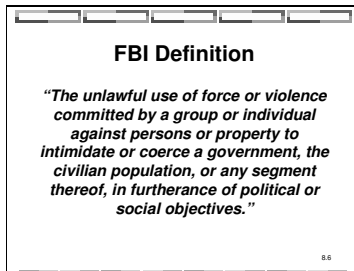
- Prepare for a natural disaster.
- Form and exercise neighborhood and workplace teams.
- Respond to immediate needs in your area following a major disaster when professional responders are delayed.

OVERVIEW OF TERRORISM

DEFINE TERRORISM USING THE FBI DEFINITION

The FBI defines terrorism as

Visual 8.6



“The unlawful use of force or violence committed by a group or individual against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.”

The Oklahoma City bombing, the 1993 bombing, the September 11 destruction of the World Trade Center, the sending of anthrax in the U.S. mail, the bombing at the Olympics, and abortion clinics demonstrate that we live with the possibility of terrorism.

Visual 8.7



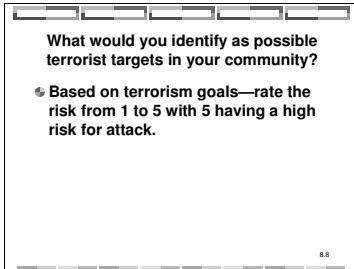
Terrorism attacks can occur with or without warning. An attack can result in mass casualties and fatalities, curtailment of critical resources, disruption of transportation systems, disruption of work, economic impact, and increased emotional stress.

IDENTIFY TERRORISM TARGETS WITHIN YOUR COMMUNITY

Target Selection

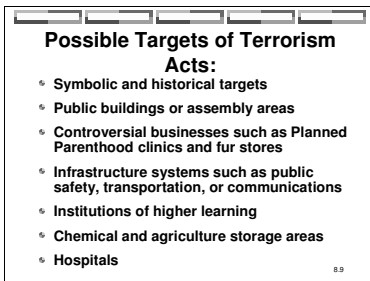
Terrorists usually choose targets that permit easy access and allow them to avoid detection. The attack can result in the loss of many lives and the destruction of property. Beyond this, there is the desire to create fear and disrupt lives to achieve political and social objectives.

Visual 8.8



What would you identify as possible terrorist targets in your community? Based on terrorism goals—rate the risk from 1 to 5 with 5 having a high risk for attack.

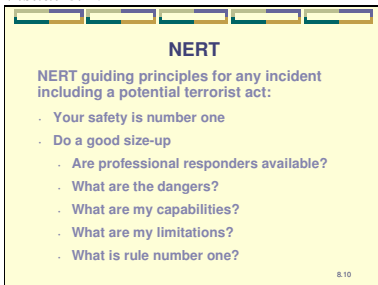
Visual 8.9



Some terrorism acts target specific, highly recognizable, open and vulnerable structures such as:

- Symbolic and historical targets
- Public buildings or assembly areas
- Controversial businesses such as Planned Parenthood clinics and fur stores
- Infrastructure systems such as public safety, transportation, or communications
- Institutions of higher learning

Visual 8.10



Basic NERT training emphasizes several primary guiding principles that apply to any incident including terrorism:

- Your safety is number one—A NERT member owes it to him or herself and their loved ones not to become victims while trying to help others.
- Do a good size-up—Stop, look, and think before acting.
 - Are professional responders available?
 - What are the dangers?
 - What are my capabilities?
 - What are my limitations?
 - What is rule number one?

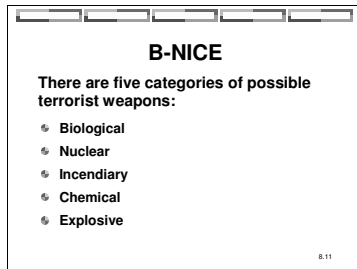
ACTIVITY 1.1

Apply the NERT Principles to a Suspected Terrorist Incident

- Scenario 1:** It is a bright sunny spring day. It is the kind of day that makes you glad to be alive. You are stopping at the Post Office on the way home. As you enter the parking lot, you are shaken by a loud explosion and see glass from the Post Office windows fly through the air over the parking lot. It takes you a few seconds to comprehend that there has been some kind of explosion inside the building. You see four people exiting the building who are obviously hurt.
- Scenario 2:** It is a bright sunny spring day. It is the kind of day that makes you glad to be alive. You are stopping at the Post Office on the way home. As you enter the parking lot, you see several people exiting the building and falling to the ground. They are clutching their chests and rubbing their faces. They seem to be disoriented.

TERRORISM WEAPONS

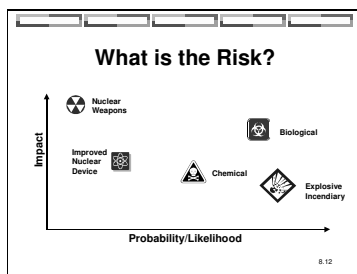
Visual 8.11



Experts generally agree that there are five categories of possible terrorist weapons:

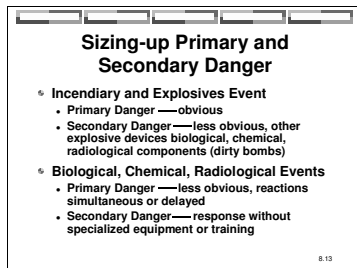
1. **B**iological
2. **N**uclear
3. **I**ncendiary
4. **C**hemical
5. **E**xplosive

Visual 8.12



What is the risk? Shows the impact and probability relationship.

Visual 8.13



There are obvious signs of danger with incendiary and explosive events. Biological, nuclear, and chemical agents are less obvious when part of these events or separate events.

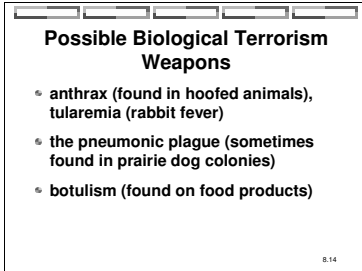
When sizing up primary and secondary dangers, point out that incendiary and explosive incidents are obvious. Biological, chemical, and radiological incidents may be less obvious immediately. All suspected terrorist incidents require responders with specialized training and equipment.

IDENTIFY THE CHARACTERISTICS OF B-NICE

1. Biological Incidents

We are exposed to biological agents daily. Most do not harm us because of natural resistance, inoculations, or good hygiene and nutrition. However, these are biological agents found in nature that are easily accessible and have the potential for rapid spread (i.e., contagious).

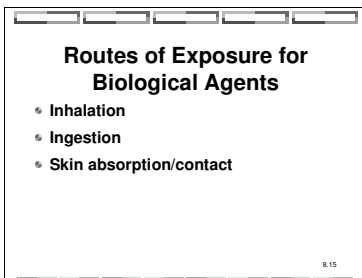
Visual 8.14



Several biological agents can be adapted and used as terrorist weapons. These include anthrax (found in hoofed animals), tularemia (or rabbit fever), the pneumonic plague (sometimes found in prairie dog colonies), and botulism (found on food products).

Routes of Exposure

Visual 8.15



The routes of exposure for biological agents are inhalation, ingestion, and skin absorption/contact. In the case of a biological incident, the onset of some symptoms may take days to weeks. Typically there will be no characteristic signatures, because biological agents are usually odorless and colorless. Because of the delayed onset of symptoms, the number of victims and the areas affected may be greater due to the migration of infected individuals. On the other hand, some effects may be very rapid (as short as 4 to 6 hours).

2. Nuclear Incidents

We all are exposed to low levels of radiological substances in our daily life—sun, soil, X-rays. It is exposure to an uncontrolled and massive dose of radioactive material that threatens life and well-being. Everyone has seen and understands the impact of a nuclear detonation. Nuclear material could also be used with explosives, the so-called dirty bomb.

Visual 8.16

Possible Nuclear Weapon

- Nuclear bomb
- Dirty bomb
- Radioactive Material Release

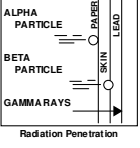
8.16

Possible sources of radiation are nuclear bomb, dirty bomb, or material release.

Visual 8.17

Three Types of Radiation Emitted from Nuclear Material

- Alpha
- Beta
- Gamma



Radiation Penetration

8.17

There are three types of radiation emitted from nuclear material: alpha, beta, and gamma.

Visual 8.18

Alpha Particles

- The heaviest and most highly charged of the nuclear particles.
- They cannot travel more than a few inches in air and can be completely stopped by an ordinary sheet of paper or the outermost layer of dead skin that covers the body.
- If ingested through eating, drinking, or breathing, they become internal hazards.

8.18

- **Alpha** particles are the heaviest and most highly charged of the nuclear particles. However, they cannot travel more than a few inches in air and are completely stopped by an ordinary sheet of paper or the outermost layer of dead skin that covers the body. However, if ingested through eating, drinking, or breathing, they become internal hazards and cause massive internal damage.

Visual 8.19

Beta Particles

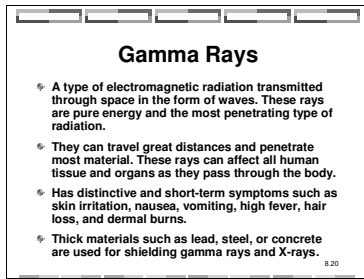
- Smaller and travel much faster than alpha particles.
- Can travel several millimeters through tissue, but they generally do not penetrate far enough to reach vital organs.
- Exposure to beta particles outside the body is normally thought of as a slight danger.
- If ingested through eating, drinking, or breathing, they become internal hazards.

8.19

- **Beta** particles are smaller and travel much faster than alpha particles. Typical beta particles can travel several millimeters through tissue. Generally, they do not penetrate far enough to reach vital organs. Exposure to beta particles outside the body is normally thought of as a slight danger.

However, if the skin is exposed to large amounts of beta radiation for long periods of time, skin burns may result. Beta-emitting contamination enters the body from eating, drinking, breathing, and unprotected open wounds. They are primarily internal hazards like alpha particles.

Visual 8.20

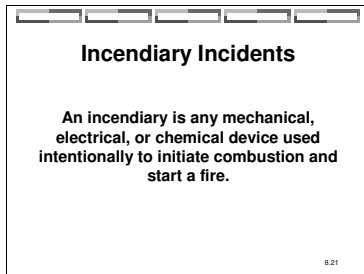


- **Gamma rays** are a type of electromagnetic radiation transmitted through space in the form of waves. These rays are pure energy and the most penetrating type of radiation. They can travel great distances and penetrate most material. These rays can affect all human tissue and organs as they pass through the body. Gamma radiation has distinctive and short-term symptoms such as skin irritation, nausea, vomiting, high fever, hair loss, and dermal burns. Acute radiation sickness occurs when an individual is exposed to a large amount of radiation within a short period of time. Thick materials such as lead, steel, or concrete are used for shielding gamma rays and X-rays.

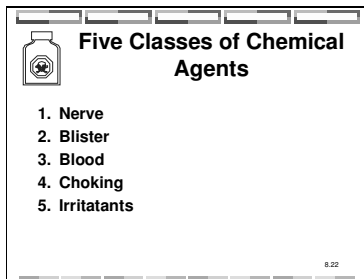
3. Incendiary Incidents

An incendiary device is any mechanical, electrical, or chemical device used intentionally to initiate combustion and start a fire. Each device consists of three basic components: an igniter or fuse; a container or body; and an incendiary material or filler. The container can be glass, metal, plastic, or paper, depending on its desired use. A device containing chemical materials usually will be in a metal or other nonbreakable container. An incendiary device that uses a liquid accelerator usually will be in a breakable container, e.g., glass.

Visual 8.21



Visual 8.22



4. Chemical Incidents

Chemical agents fall into five classes:

- a. Nerve agents disrupt nerve impulse transmissions. The victims will experience uncontrolled salivation, lacrimation (tears), muscle twitching and contraction without much control. Nerve agents resemble a heavy, oily substance. The most efficient distribution is as an aerosol. Small explosions and equipment to generate mists (spray devices) may be used. Nerve agents kill insect life, birds, and other animals as well as humans. Many dead animals at the scene of an incident may be another outward warning sign or detection clue.
- b. Blister agents, also called vesicants, cause redness that is possibly followed by blisters. They are similar in nature to other corrosive materials that first responders encounter. They readily penetrate layers of clothing and are quickly absorbed into the skin. Blister agents are heavy, oily liquids dispersed by aerosol or vaporization, so small explosions or spray equipment may be used. In a pure state they are nearly colorless and odorless, but slight impurities give them a dark color and an odor suggesting mustard, garlic, or onions. Outward signs of blister agents include complaints of eye and respiratory irritation along with reports of a garlic-like odor..

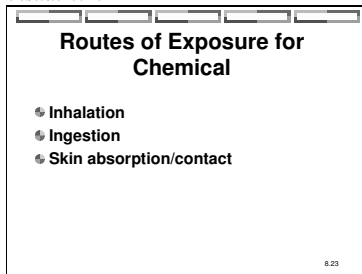
TERRORISM AND NERT

- c. Blood agents interfere with the ability of blood to transport oxygen; this ultimately results in asphyxiation. Common blood agents include hydrogen cyanide (AC) and cyanogen chloride (CK). Cyanide and cyanide compounds are common industrial chemicals with which emergency responders sometimes deal. CK can cause tearing of the eyes and irritate the lungs. All blood agents are toxic at high concentrations and lead to rapid death. Affected persons require removal to fresh air and respiratory therapy.

Under pressure, blood agents are liquids. In pure form, they are gases. All have the aroma of burnt almond or peach kernel. They are common industrial chemicals and are readily available.

- d. Choking agents stress respiratory system tissues. Severe distress causes edema (fluid in the lungs), which can result in asphyxiation resembling drowning. Chlorine (CL) and phosgene (CG), common industrial chemicals, are choking agents. Clinical symptoms include severe eye irritation and respiratory distress (coughing and choking). Most people recognize the odor of chlorine. Phosgene has the odor of newly cut hay. As both are gases, they must be stored and transported in bottles or cylinders.
- e. Irritants cause respiratory distress and tearing and are designed to incapacitate. They can cause intense pain to the skin, especially in moist areas of the body. They also are called Riot Control Agents or tear gas. Generally, they are nonlethal; however, they can result in asphyxiation under certain circumstances. Common irritants are Mace® (CN), tear gas (CS), and capicum/pepper spray.

Visual 8.23



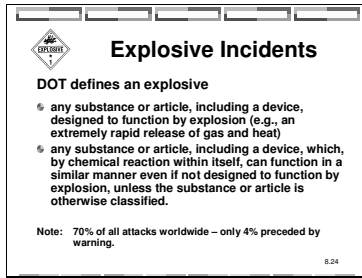
Routes of exposure are inhalation, ingestion, and skin absorption/contact.

5. Explosive Incidents

The DOT defines an explosive as a substance fitting into one of these two categories:

1. any substance or article, including a device, designed to function by explosion (e.g., an extremely rapid release of gas and heat).
2. any substance or article, including a device, which, by chemical reaction within itself, can function in a similar manner even if not designed to function by explosion.

Visual 8.24

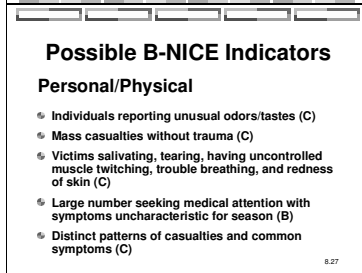
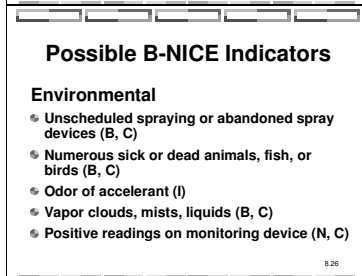
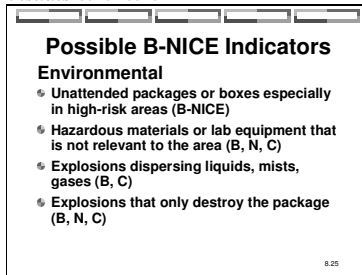


Possible B-NICE Indicators

Environmental surroundings

- Unattended packages or boxes especially in high-risk areas (B-NICE)
- Hazardous materials or lab equipment that is not relevant to the area (B, N, C)
- Explosions dispersing liquids, mists, or gases (B, C)
- Explosions seeming only to destroy the package (B, N, C)
- Unscheduled spraying or abandoned spray devices (B, C)
- Numerous sick or dead animals, fish, or birds (B, C)
- Odor of accelerant (I)
- Vapor clouds, mists, liquids (B, C)
- Positive readings on monitoring device (N, C)

Visuals 8.25-8.27



Personal/Physical

- Individuals reporting unusual odors/tastes (C)
- Mass casualties without obvious trauma (C)
- Victims salivating, tearing, having uncontrolled muscle twitching, trouble breathing, and redness of skin (C)
- Large number seeking medical attention with symptoms uncharacteristic for season. (B)
- Distinct patterns of casualties and common symptoms (C)

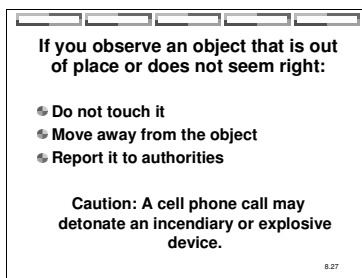
NERT MEMBERS AND A TERRORIST INCIDENT

NERT MEMBER SAFETY

The five types of incidents previously discussed may have similarities, in some respects, to routine emergencies. Probably there will be people who need help. If there is an incident at a pre-identified terrorist target, then a hazardous substance or condition should be suspected. Only qualified personnel should secure the scene. Responders to potential terrorist incidents need specialized training and equipment.

If you observe an object that is out of place or does not seem right:

Visual 8.28



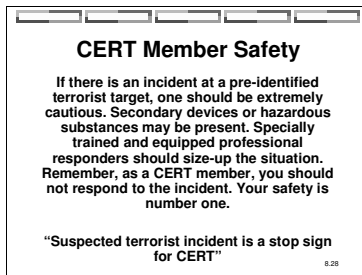
- Do not touch it.
- Move away from the object.
- Report it to authorities.

Caution: A cell phone call may detonate an incendiary or explosive device.

Safety, the Most Important Issue

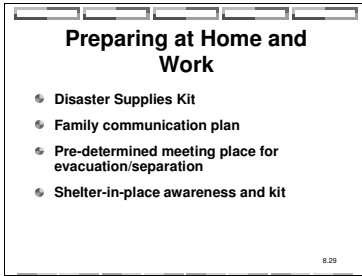
As a civilian near a suspected terrorist event, your safety is the number one priority. As with any hazardous material, direct response to a terrorist event is a stop sign for you. During your size-up, you should stop, look, think, and report. Even professional, well-trained first responders need to take the time to evaluate the scene before taking action. If terrorism is suspected, they will be limited in what they can immediately do and will need specialized equipment and personnel to handle the scene.

Visual 8.29



PREPARING AT HOME AND WORK

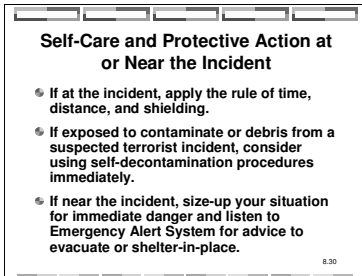
Visual 8.30



As with natural hazards, you can plan and prepare for an event.

- Have a Disaster Supplies Kit prepared.
- Have a family communication plan—local and out-of-State contacts.
- Have a pre-determined meeting place if you have to evacuate your area or become separated.
- Maintain material to shelter-in-place.

Visual 8.31



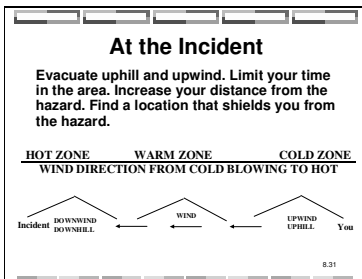
Self-care and protective action at or near the incident:

If there is an incident that may involve a B-NICE agent, you should know what actions to take:

- If you are at the incident.
- If you think that you were exposed to a chemical or biological agent.
- If you are in the area of an incident.

If you are at the incident, there are three factors that you can apply for your safety: Time, Distance, and Shielding.

Visual 8.32



Time: You should take actions to limit the amount of time that you are in the area of the event. There could be secondary devices or hazardous materials at the scene. Leave the area. If you have liquid or aerosol agent on you or your clothes, begin basic decontamination procedures on yourself immediately. When responders arrive, follow their decontamination instructions carefully.

Distance: Evacuate from the area. A rule for first responders is to be a distance of 1,000 to 1,500 feet away while sizing up the event. Responders will establish a hot, warm, and cold zone for response. We recommend that you move away from the incident and follow the directions of responders.

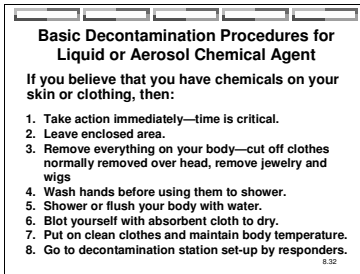
- As you leave the area, remember to go uphill and upwind. When responders arrive and set up the response, proceed to the medical treatment area for evaluation.

Shielding:

- When you evacuate the scene and go a safe distance, try to shield yourself from any subsequent explosions or further contamination.
- If inside a building near the incident that is in no direct danger of collapse, you should listen for instructions over the Emergency Alert System (EAS) about evacuating or sheltering-in-place. Remember that you should have a battery-operated radio in your disaster supplies kit that you can use in emergencies when there is no power.

Basic Decontamination Procedures for Liquid or Aerosol Chemical Agents

Visual 8.33



The following procedures apply if you have liquid or aerosol chemical agent on your skin or clothes. When in doubt, decontaminate.

If you believe you have been exposed to an agent, you need to take steps to decontaminate yourself immediately. Do it fast within the first few minutes of exposure.

1. Take action immediately, minutes count. Limit the amount of time the agent is in contact with skin.
2. Leave the immediate area, especially an enclosed area. Put distance between you and the agent. However, after going a safe distance, wait for a professional responder who will help you with decontamination.
3. Remove all your clothing, jewelry, glasses, wigs, etc.
 - Clothing normally removed over the head should be cut off.
 - If you initially balk at removing your clothes, remember that clothing allows the contaminants to stay in contact with you and increases your risk. Most of the agent will probably be on your clothes.
4. Wash hands. Make sure hands are clean before using them to shower.
5. Water alone is a universal way to decontaminate yourself. Make sure your hands are washed before you touch other parts of your body. Thoroughly flush your body from the head down including your eyes, underarms, and groin area.

If soap (liquid or powder) is immediately available to use, mix with water to decontaminate yourself. Avoid scrubbing with soap (especially hard soap) which can reduce the layer of protective skin over an area. Do not delay decontamination to get soap.

- If you have a buddy, work together to decontaminate each other. If you are hosing someone else off, avoid physical contact with the person and the runoff throughout this procedure.

TERRORISM AND NERT

6. Blot clean and dry with an absorbent cloth. You want to absorb the water without scrubbing which can remove the protective layer of skin and spread agent.
7. Go to professional responders when they arrive for further decontamination.

In summary, the primary goal of decontamination is to remove contaminants as quickly as possible. The most effective methods to do this are: 1) remove clothing and 2) use large quantities of water.

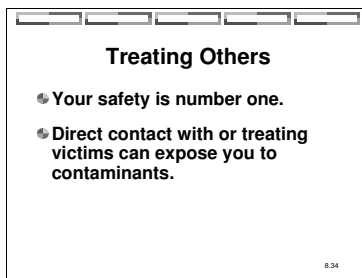
Basic Decontamination Procedures for Biological Agents

The incubation period for biological agents makes it unlikely that victims of a biological weapons attack will present for medical care until days after an attack. At this point, the need for decontamination is minimal or non-existent.

However, if you believe that you have been exposed to a biological agent like anthrax at an incident, you should follow the decontamination procedure for chemical agents. However, speed is not as critical and you can find a place where you have privacy to disrobe and shower. Place your clothing and personal items in a plastic bag. Take a long soap-and-water shower.

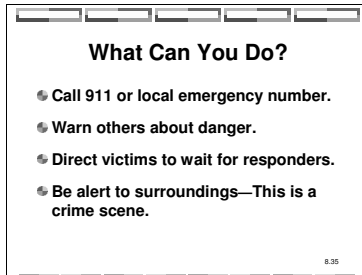
For a suspected terrorist incident, the NERT member, for his or her own safety, is asked to take protective actions and not treat the victim. If chemical, biological, or radioactive materials are present, you will be contaminated with the substance. Address the psychological effects of applying time, distance, and shielding and not helping victims. Rule #1 is your safety.

Visual 8.34



WHAT CAN YOU DO?

Visual 8.35



Immediately take steps to protect yourself and others.

When you are a safe distance, you can call 911 and report what is happening.

You can try to let unsuspecting people know that something is not right and that they should wait for specially trained and equipped first responders to evaluate the scene.

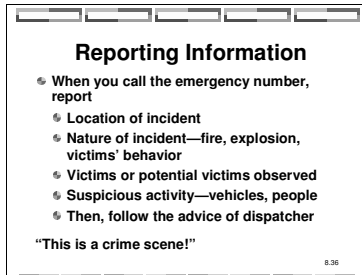
You can direct people leaving the incident to gather at one place to be evaluated by responders. However, you should not directly touch or treat these people because of possible contamination.

The situation is a crime scene; you should observe and remember information that may be useful to those investigating the incident.

INCIDENT AS A CRIME SCENE

As you have seen after the Oklahoma City bombing and the attacks on the World Trade Center, local, State, and Federal responders take great care in the handling of materials. The only exception is when they are trying to save lives. Information and material may help with the response and investigation.

Visual 8.36



If you are near an incident, you can help responders and police by observing conditions around you and noting them so that you can report them to authorities. After you are safely out of harm's way through shielding or distance, call and report:

- Location of incident.
- Nature of event—fire, explosion, victims' behavior.
- Number of victims or potential victims observed.
- Where you will meet responders.
- People and vehicles leaving the area. Jot down license plate numbers and descriptions of the people.

EVACUATION OR SHELTER-IN-PLACE

This is not an easy question to answer. If you are near the incident, you must size-up the situation and determine your course of action. If time and location allows, you should listen to the EAS for recommendations from emergency management professionals who are evaluating the incident.

Sheltering-in-place

- Airborne hazardous material may be in the area when you go outside.
- Evacuation is not always the best way to stay safe. Potential exposure to hazardous material may be higher when on foot or in a car than when sheltered in a room.
- Staying inside your home, workplace, or other building can be a viable option.
- If not in immediate danger, listen to the Emergency Alert System for directions.

Visual 8.37

Evacuation or Shelter-in-Place

- Airborne hazardous materials spread quickly.
- Evacuation is not always the best way to stay safe.
- Staying inside your home, workplace, or other building can be a viable alternative.
- If not in immediate danger, listen to the Emergency Alert System for directions.

8.37

Planning and preparing to shelter-in-place

- Pick an interior room with no windows or as few as possible.
- If feasible, pick a room with a toilet, water, and phone (wireless and cell phone would work).
- Large enough for family or co-workers.
- Have a shelter-in-place kit that has pre-cut and labeled plastic sheeting for windows, doors, and vents. Cut plastic for each item to be sealed. Be sure to cut plastic large enough to completely cover the area with some excess for duct-taping the plastic to the wall or frame.
- Have multiple rolls of duct tape in kit so that more than one person can work on sealing the room.
- Have disaster supplies kit ready—especially water, battery-powered radio, extra batteries, flashlight.
- Have snacks and books to make the situation more comfortable.

Visual 8.38 and 8.39

Prepare to Shelter-in-Place

- Choose an interior room with no windows, or as few as possible
- Pick a room with a toilet, water, and phone (wireless and cell phone would work)
- Large enough for family or co-workers
- Have a Shelter-in-place kit that has pre-cut and labeled plastic sheeting for windows, doors, and vents. Cut plastic for each item to be sealed. Be sure to cut plastic large enough to completely cover the area with some excess for duct-taping the plastic to the wall or frame.

8.38

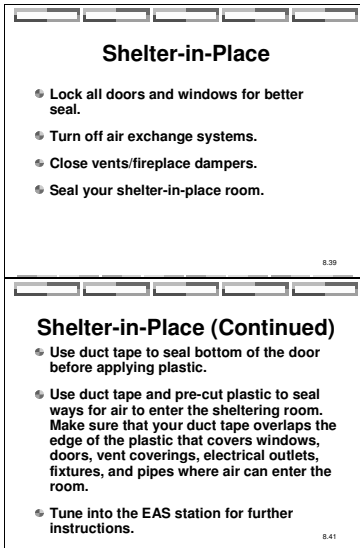
Prepare to Shelter-in-Place (Continued)

- Have multiple rolls of duct tape in kit so that more than one person can work on sealing the room.
- Have disaster supplies kit ready—water, battery-powered radio, extra batteries, flashlight.
- Have snacks and books to make the situation more comfortable.

8.39

For sheltering-in-place

Visual 8.40 and 8.41

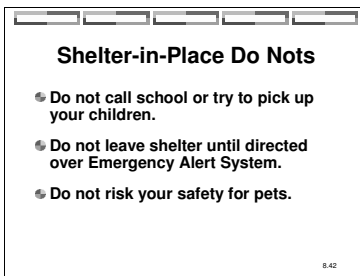


- Lock all doors and windows, for better seal
- Turn off heating/air conditioning systems.
- Close all vents and fireplace dampers.
- Seal your shelter-in-place room.
- Use duct tape to seal bottom of the door before applying plastic.
- Use duct tape and pre-cut plastic to seal ways for air to enter the sheltering room. Make sure that your duct tape overlaps the edge of the plastic that covers windows, doors, vent coverings, electrical outlets, fixtures, and pipes where air can enter the room.
- Tune in to the EAS station for further instructions.

Stay in your shelter-in-place room until you receive direction from local officials over EAS. If you are told to ventilate your house, open all doors and windows and turn on all ventilation systems and fans to circulate air.

Sheltering-in-Place DO NOTs

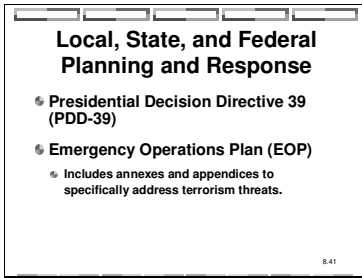
Visual 8.42



- Do not call the school or try to pick up your children. Your school should have emergency procedures in place.
- Do not leave your shelter until directed by the EAS.
- Do not risk your safety to save pets.

Local, State, and Federal Planning and Response for Terrorism

Visual 8.43

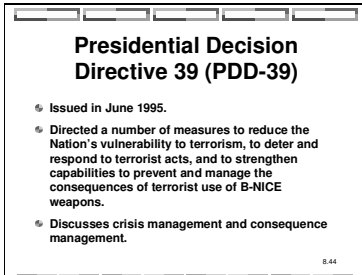


Because of the unknowns of a terrorist incident and because it is a crime scene, response requires specialized equipment and training.

Local, State, and Federal agencies develop Emergency Operations Plans (EOP) to address the response to emergencies. Starting with Decision Directive 39, *U.S. Policy on Counterterrorism*, agencies have developed plans and conducted training and exercises for terrorist attacks.

PRESIDENTIAL DECISION DIRECTIVE 39 (PDD-39)

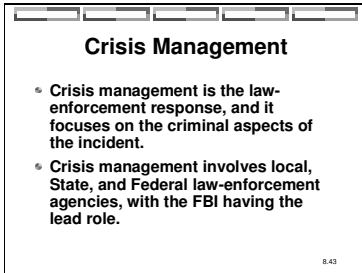
Visual 8.44



In June 1995, the White House issued Presidential Decision Directive 39 (PDD-39), *United States Policy on Counterterrorism*. PDD-39 directed a number of measures to reduce the Nation's vulnerability to terrorism, to deter and respond to terrorist acts, and to strengthen capabilities to prevent and manage the consequences of terrorist use of B-NICE weapons. PDD-39 discusses crisis management and consequence management.

- Crisis management is the law-enforcement response, and it focuses on the criminal aspects of the incident. Specific components of crisis management include activities to anticipate, prevent, and/or resolve a threat or incident; identify, locate, and apprehend the perpetrators; and investigate and gather evidence to support prosecution. Crisis management involves local, State, and Federal law enforcement agencies, with the FBI having the lead role.

Visual 8.45



Visual 8.46

Consequence Management

- Consequence management is the response to the disaster, and it focuses on alleviating damage, loss, hardship, or suffering.
- Includes Federal, State, and local volunteer and private agencies.
- FEMA has the lead role in consequence management.
- The laws of the United States assign primary authority to the States to respond to the consequences of terrorism; the Federal government provides assistance as required.

8.44

- Consequence management is the response to the disaster, and it focuses on alleviating damage, loss, hardship, or suffering. Specific components of consequence management include activities to protect public health and safety; restore essential government services; and provide emergency assistance to affected governments, businesses, and individuals. Consequence management includes Federal, State, and local volunteer and private agencies. The Federal Emergency Management Agency (FEMA) has the lead role in consequence management. The laws of the United States assign primary authority to the States to respond to the consequences of terrorism; the Federal government provides assistance as required.

EMERGENCY OPERATIONS PLAN (EOP)

Visual 8.47

Emergency Operations Plan

An EOP is a document that:

- Assigns responsibility to organizations and individuals for carrying out specific actions at projected times and places in an emergency that exceeds the capability or routine responsibility of any one agency, e.g., the fire department.
- Sets forth lines of authority and organizational relationships, and shows how all actions will be coordinated.
- Describes how people and property will be protected in emergencies and disasters.
- Identifies personnel, equipment, facilities, supplies, and other resources available.

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- describes how people and property will be protected in emergencies and disasters.
- identifies personnel, equipment, facilities, supplies, and other resources available—within the jurisdiction or by agreement with other jurisdictions—for use during response and recovery operations.

SUMMARY

Visual 8.48

Summary

In the unlikely event that you are at an incident of unknown origin that may involve B-NICE agents:

- Your safety is number one.
- Apply principles of time, distance, and shielding.
- Listen to the Emergency Alert System.

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In the unlikely event that you are at an incident of unknown origin that may involve agents from the B-NICE categories, your safety is number one. You should use the principles of time, distance, and shielding to limit your exposure to further danger. If you think that you have been contaminated by the incident, you should act immediately to decontaminate yourself. If you are not in immediate danger, evacuation may not be necessary or advisable. Listen to the EAS for the action that you should take.

GLOSSARY

absorption	The process of an agent being taken in by a surface (clothing, fabrics, wood, etc.) much like a sponge and water.
aerosol	A liquid or solid composed of finely divided particles suspended in a gaseous medium. Examples of common aerosols are mist, fog, and smoke.
alpha radiation (α)	The least penetrating type of nuclear radiation; not considered dangerous unless alpha contaminated or source emitter particles enter the body.
antidote	A substance which neutralizes toxic agents or their effects.
anthrax	A disease caused by the spore-forming bacteria, <i>Bacillus anthracis</i> most commonly occurring in hoofed animals that can be transmitted to humans. Anthrax can be contracted in cutaneous, respiratory (“wool sorters disease”), or intestinal forms. Anthrax is not contagious.
asphyxiants	Substances that interfere with oxygen flow during normal breathing. There are two types of asphyxiants: simple and systemic.
B-NICE	Pertaining to biological, nuclear, incendiary, chemical, or explosive weapons or materials.
bacteria	Can be grown in a laboratory—bacteria easily. Only some bacteria cause disease. Treated with antibiotics
beta radiation (β)	A type of nuclear radiation that is more penetrating than alpha radiation, and can damage skin tissue and harm internal organs.
biological agent	A microorganism that causes disease in people, plants, or animals or causes the deterioration of materiel.
blister agents	Blister agents (also called vesicants) are substances that cause reddening and blistering of the skin. Exposure is through liquid or vapor contact with any exposed tissue (eyes, skin, lungs). They include several families of chemicals: mustards (e.g., sulfur mustards, nitrogen mustards), organoarsenic compounds (e.g., Lewisite), and halogenated oximes (e.g., phosgene oxime (CX)).
blood agents	Blood agents produce effects by interfering with the exchange of

oxygen and carbon dioxide between blood and tissues. They cause loss of consciousness and convulsions and interfere with breathing. The most prominent blood agents are cyanide agents, including hydrogen cyanide (AC) and cyanogen chloride (CK).

botulinum toxins	Toxins produced by the microorganism, <i>Clostridium botulinum</i> . There are at least seven different substances, most being proteins. They have neuro-, entero-, and haemotoxic properties, are immunogenic, and include the most potent poisons known. The most commonly used apparently blocks release of acetylcholine at cholinergic synapses.
botulism	Poisoning by toxin derived from the microorganism <i>Clostridium botulinum</i> .
chemical agents	A chemical substance that is intended for use in military operations to kill, seriously injure, or incapacitate people through its physiological effects. Excluded from consideration are riot control agents, and smoke and flame materials. The agent may appear as a vapor, aerosol, or liquid; it can either be a casualty/toxic agent or an incapacitating agent.
choking agents	Choking agents (also called lung-damaging agents or pulmonary agents) primarily attack the lungs. Exposure is through inhalation. In extreme cases, pulmonary edema (filling of the lung sacs with body fluids) occurs, which prevents oxygen from being absorbed by, and carbon dioxide from being removed from, the blood. Death results from lack of oxygen (the victim is “choked”). Common choking agents include chlorine and phosgene.
cholera	An acute, diarrheal illness caused by infection of the intestine with the bacterium <i>Vibrio cholerae</i> . The infection is often mild or without symptoms, but it can be severe. A person may get cholera by drinking water or eating food contaminated with the cholera bacterium.
Cold Zone	Area where the command post and support functions that are necessary to control the incident are located. This is also referred to as the Clean Zone.
consequence management	Measures to protect public health and safety, restore essential government services, and produce emergency relief to governments, business, and individuals affected by the consequences of terrorism. This role is assigned to the Federal Emergency Management Agency in the Federal Response Plan.

crisis management	Measures to resolve the hostile situation, investigate, and prepare a criminal case for prosecution under Federal law. This role is assigned to the FBI in the Federal Response Plan.
decon	(Military slang). To decontaminate; decontamination
decontamination	Often shortened to decon. The process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents, or by removing radioactive material clinging to or around it.
domestic terrorism	The unlawful use, or threatened use, of force or violence by a group or individual based and operating entirely within the United States or Puerto Rico without foreign direction and whose acts are directed at elements of the U.S. Government or its population, in furtherance of political or social goals.
Ebola	A <i>filovirus</i> that causes hemorrhagic fevers. Ebola hemorrhagic fever (Ebola HF) is a severe, often-fatal disease in humans and nonhuman primates (monkeys and chimpanzees). Three of the four species of Ebola virus identified so far have caused disease in humans: Ebola-Zaire, Ebola-Sudan, and Ebola-Ivory Coast. The fourth, Ebola-Reston, has caused disease in nonhuman primates, but not in humans.
Emergency Operations Plan	An Emergency Operations Plan (EOP) is a document that (1) assigns responsibility to organizations and individuals for carrying out specific actions at projected times and places in an emergency that exceeds the capability or routine responsibility of any one agency; (2) sets forth lines of authority and organizational relationships, and shows how all actions will be coordinated; (3) describes how people and property will be protected in emergencies and disasters; (4) identifies personnel, equipment, facilities, supplies, and other resources available for use during response and recovery operations; and (5) identifies steps to address mitigation concerns during response and recovery activities.
Explosive	As defined by the U.S. Department of Transportation, an explosive is “A substance fitting into one of these two categories: (1) any substance or article, including a device, designed to function by explosion; or (2) any substance or article, including a device, which, by chemical reaction within itself, can function in a similar manner even if not designed to function by explosion.”

FBI	Federal Bureau of Investigation
Federal Response Plan (FRP)	Developed to help expedite Federal support to disasters. Generally, the FRP is activated when the State's resources are not sufficient to cope with a disaster, and the governor has requested Federal assistance.
First Responder	Personnel, such as firefighters, police officers, and EMS teams who have responsibility to initially respond to emergencies. They will be the first on the scene of an incident and will be responsible for the sizeup and determining if additional resources are needed.
gamma radiation (γ)	A high energy, ionizing radiation that travels at the speed of light and has great penetrating power. Gamma rays can cause skin burns, severely injure internal organs, and have long-term, physiological effects.
Hot Zone	Area immediately surrounding a dangerous goods incident which extends far enough to prevent adverse effects from released dangerous goods to personnel outside the zone.
incendiary	Primarily an antimateriel compound that generates sufficient heat to cause destructive thermal degradation or destructive combustion of materiel.
incendiary device	Any mechanical, electrical, or chemical device used intentionally to initiate combustion and start a fire.
Incident Command System (ICS)	The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.
ingestion	The act of taking food, medicines, and other substances into the body, by mouth.
inhalation	The drawing of air or other substances into the lungs.
international terrorism	The unlawful use of force or violence committed by a group or individual, who has some connection to a foreign power or whose activities transcend national boundaries, against persons or property to intimidate or coerce a government, the civilian population or any segment thereof, in furtherance of political or social objectives.
irritants	Incapacitants are agents that temporarily incapacitate the victim but

ordinarily do not cause serious harm. Irritants irritate the eyes and breathing passages and induce copious production of tears along with runny nose and coughing. These agents are usually not gases. They are usually solids or liquids close to their freezing points, dispersed as aerosols. Common tearing agents include tear gas (CS and CR), Mace[®] (CN), and capsicum (pepper spray) (OC).

Local Emergency Operations Plan (EOP)

The local Emergency Operations Plan focuses on essential measures for protecting the public, to include warning, emergency public information, evacuation, and shelter. Local EOPs should include a mechanism for emergency responders and managers to notify and activate State resources.

Mustard agent

This group of agents includes the sulfur mustards (H and HD) which are chlorinated thioethers, and the nitrogen mustards (HN-1, HN-2, and HN-3) which are considered derivatives of ammonia. The nitrogen mustards have nitrogen as the central atom with the hydrogen atoms replaced by various organic groups. Derivatives of the nitrogen mustards have been used in the treatment of certain types of cancer. HD and HN-3 are the principal military representatives of sulfur and nitrogen mustards. The mustards can penetrate skin and a great number of materials. These materials include wood, leather, rubber, and paints. Because of their physical properties, mustards are very persistent under cold and temperate conditions. It is possible to increase their persistency even more by dissolving them in thickeners. Mustards are less persistent in hot climates but can reach relatively high concentrations in air because of greater evaporation rate.

Mycotoxin

A toxin produced by certain types of molds. These toxins can be commonly found in grain that has been invaded by mold. The toxins can affect the nervous system, liver, kidney, and immune system.

Nerve agents

Nerve agents interfere with the normal functioning of the central nervous system. The ultimate result of exposure can be convulsions, paralysis of the muscles used to breathe, and death. Although often referred to as “nerve gases,” these agents are actually liquids at normal temperatures and pressures. Exposure is primarily through contact with the liquid (via skin and eyes) and secondary through inhalation of the vapor. The most common nerve agents are tabun (GA), sarin (GB), soman (GD), and VX.

Persistent agent

An agent that, upon release, retains its casualty producing effects for an extended period of time, usually anywhere from 30 minutes to several weeks. A persistent agent usually has a low evaporation rate

and its vapor is heavier than air. Therefore, its vapor cloud tends to hug the ground. It is considered to be a long-term hazard. Although inhalation hazards are still a concern, extreme caution should be taken to avoid skin contact as well.

Plague	Plague is an infectious disease that affects animals and humans. It is caused by the bacterium <i>Yersinia pestis</i> . This bacterium is found in rodents and their fleas and occurs in many areas of the world, including the United States. Plague can be contracted in pneumonic, bubonic, and septicemic forms.
Presidential Decision Directive 39	Issued in June 1995, PDD-39, <i>United States Policy on Counterterrorism</i> , directed a number of measures to reduce the Nation's vulnerability to terrorism, to deter and respond to terrorist acts, and to strengthen capabilities to prevent and manage the consequences of terrorist use of nuclear, biological, and chemical weapons.
Protective clothing	Includes both respiratory and physical protection. One cannot assign a level of protection to clothing or respiratory devices separately.
1. Level A	SCBA plus totally encapsulating chemical-resistant clothing (permeation resistant).
Level B	SCBA plus hooded chemical-resistant clothing (splash suit).
Level C	Full or half-face respirator plus hooded chemical-resistant clothing (splash suit).
Level D	Coverall with no respiratory protection.
Q-fever	Pneumonia-like disease caused by <i>Coxiella burnetii</i> , a rickettsia that survives long periods outside cells and can be transmitted aurally as well as by ticks.
radiation	There are three types of nuclear radiation: (1) alpha, (2) beta, and (3) gamma.
Radiological Dispersal Devices (RDD)	A conventional explosive device incorporating radioactive material(s); sometimes referred to as a "dirty" bomb.
Ricin	Ricin is a potent toxin that is widely available, easily produced, and derived from the beans of the castor plant (<i>Ricinus communis</i>).
rickettsiae	Behave similar to bacteria but cannot grow independently (they must

grow inside other cells). Can be treated with antibiotics

SCBA

Self-Contained Breathing Apparatus

SCO

State Coordinating Officer

secondary device

A device placed by perpetrators at the scene of an incident. The device is specifically designed to harm responders.

shielding

One of the three components of TDS; it refers to maintaining significant physical barriers between the responders and the hazard. Examples include vehicles, buildings, walls, and Personal Protective Equipment.

size-up

The rapid evaluation of the factors that influence an incident. Size-up is the first step in determining a course of action.

smallpox

A DNA virus, a member of the *genus orthopoxvirus*. Smallpox is a viral disease unique to humans. To sustain itself, the virus must pass from person to person in a continuing chain of infection and is spread by inhalation of air droplets or aerosols.

State EOP

The State EOP is the framework within which local EOPs are created and through which the Federal government becomes involved. The States play three roles: (1) they assist local jurisdictions whose capabilities are overwhelmed by an emergency, (2) they themselves respond first to certain emergencies, and (3) they work with the Federal government when Federal assistance is necessary.

tear gas

This irritant produces irritating or disabling effects such as a large flow of tears and intense eye pain and irritation of the skin that rapidly disappear within minutes after exposure.

Terrorism

A violent act or an act dangerous to human life, in violation of the criminal laws of the United States or any segment, to intimidate or coerce a government, the civilian population or any segment thereof, in furtherance of political or social objectives.

Terrorism Incident Annex

An annex to the Federal Response Plan (FRP) that describes the Federal concept of operations to implement PDD-39 when necessary to respond to terrorist incidents within the United States.

terrorist incident

A violent act, or an act dangerous to human life, in violation of the criminal laws of the United States or of any State, to intimidate or

coerce a government, the civilian population, or any segment thereof in furtherance of political or social objectives.

time	One of the three components of TDS; it refers to the amount of time a responder should be exposed to an incident. It is recommended that one should spend the shortest amount of time possible in the hazard area.
Time, Distance, and Shielding (TDS)	Three types of protective measures commonly associated with hazardous materials training.
toxic	Poisonous; effects ranging from harmful to lethal depending on the dose and resistance of the individual.
toxins	Toxins are poisons derived from plants, animals, or microorganisms (e.g., plants, shellfish, sponges, corals). They do not grow, reproduce, or die after they have been dispersed, and relatively few are suitable for use as weapons. Toxins are difficult, in most cases, to synthesize in the laboratory, so they continue to be obtained from the organisms that create them—usually in very small quantities. (An exception is ricin, which comes from the castor bean and is easy to prepare in large quantities.)
tularemia	A disease caused by the bacteria <i>Francisella tularensis</i> , most often associated with animals, especially cottontail rabbits. Tularemia is not known to spread from person to person.
vector	A carrier, especially the animal or intermediate host that carries a pathogen from one host to another, as the malaria-carrying mosquito.
venom	Poisonous mixture of toxins and other natural chemicals produced by animals, including snakes, spiders, and scorpions.
Vesicant	An agent that acts on the eyes, lungs, mucous membranes, and the intestinal tract, as well as blisters the skin.
vesicle	A blister on the skin.
virulence	Capacity of a microorganism to produce disease.
viruses	Depend totally on a host. They grow by infecting cells, usually killing them in the process. There are only a few antiviral drugs that are effective against specific viruses.

volatility

With chemical agents, it refers to their ability to change from a liquid state into a gaseous state (the ability of a material to evaporate or give off fumes). Volatility is directly related to vapor pressure.

Warm Zone

Area between Hot and Cold Zones where personnel and equipment decontamination and Hot Zone support take place. It includes control points for the access corridor and thus assists in reducing the spread of contamination.

Weapon of Mass Destruction (WMD)

Any explosive, incendiary, poison gas, bomb, grenade, or rocket having a propellant charge of more than 4 ounces, missile having an explosive or incendiary charge of more than ¼ ounce, or mine or device similar to the above. Poison gas. Any weapon involving a disease organism. Any weapon that is designed to release radiation at a level dangerous to human life.

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