

# Light Search and Rescue Operations



## CERT Basic Training Unit 5

# Search and Rescue

- Consists of three separate operations
  - Sizeup: Using 9-step, continual model
  - Search: Locating survivors and documenting
  - Rescue: Extricating survivors



# Deciding to Attempt Rescue

- Decision based on three factors
  - The risks involved for the rescuer
  - Greatest good for the greatest number
  - Resources and manpower available



# Goals of Search and Rescue

- Rescue greatest number in shortest amount of time
- Get walking wounded out first
- Rescue lightly trapped survivors next
- Keep the rescuer safe

# Effective Search and Rescue

- Depends on:
  - Effective sizeup
  - Rescuer safety
  - Survivor safety



# Unit Objectives

- Identify sizeup requirements
- Describe most common search techniques
- Use safe techniques for debris removal
- Use safe techniques for survivor extrication
- Describe ways to protect rescuers

# Unit Topics

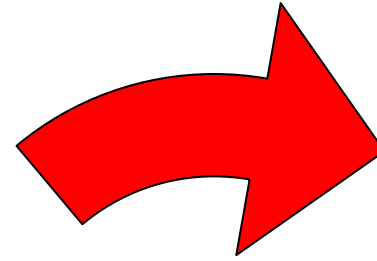
- Safety During Search and Rescue Operations
- Conducting Interior and Exterior Searches
- Conducting Rescue Operations



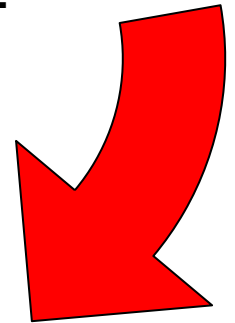
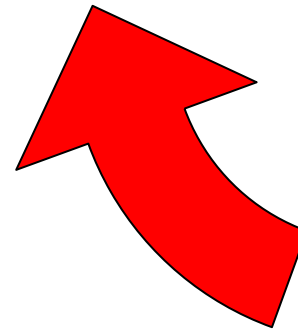
# CERT Sizeup



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



**REMEMBER:**  
**CERT SIZEUP IS A  
CONTINUAL  
PROCESS**



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## Gather Facts

- Time of event and day of the week
- Construction type/terrain
- Occupancy
- Weather
- Hazards



# Sizeup: Step 2

## Assess and Communicate Damage

The CERT mission changes if:

- Damage is light
- Damage is moderate
- Damage is heavy

# Light Damage

- Superficial
- Broken windows
- Superficial cracks or breaks in wall surface
- Minor damage to the interior contents
- Safe to enter and remain



# Moderate Damage

- Visible signs of damage
- Decorative work damaged or fallen
- Many visible cracks or breaks in wall
- Major damage to interior contents
- Building still on foundation
- Enter only to save lives



# Heavy Damage

- Partial or total collapse
- Tilting
- Obvious structural instability
- Building off foundation



**Do not enter a building with heavy damage under any circumstances**

# Sizeup: Step 3

## Consider Probabilities

- How stable is the situation?
- What else could go wrong?
- What does it mean for the search and rescue?

## Assess Your Situation

- Is the situation safe enough to continue?
- What risks will rescuers face?
- What resources are needed?
- What resources are available?

# Rescue Resources

- Personnel
  - Firefighters
  - Police
  - Nurse, M.D.
  - Contractor
- Tools
  - Crowbars
  - Auto jacks
  - Chainsaws
- Equipment





# Sizeup: Step 5

## Establish Priorities

- What should be done?
- In what order?
- How to rescue the greatest number in the shortest amount of time?



# Sizeup: Step 6

## Make Decisions

- Keep in mind:
  - Safety of CERT members
  - Life safety for survivors and others
  - Protection of the environment
  - Protection of property

# Sizeup: Step 7

## Develop Plan of Action

- Focus operation on established priorities and decisions
- Provide for documentation to give to responding agencies
- Provide for documentation to become part of CERT records

# Sizeup: Step 8

## Take Action

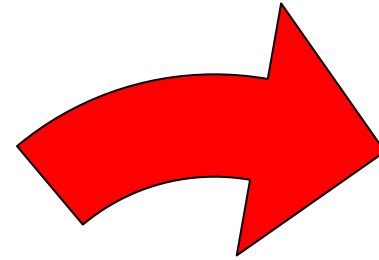
- Based on plan developed during Step 7



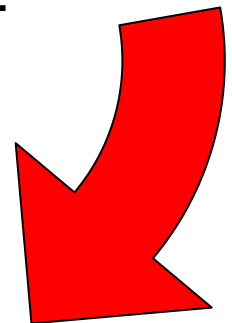
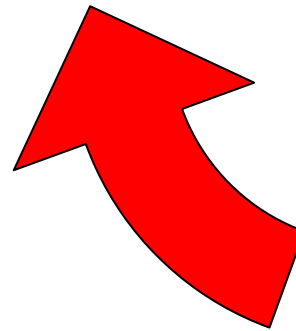
# Sizeup: Step 9

## Evaluate Progress

- Most critical step
- Monitor plan's effectiveness and safety



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CONTINUAL  
PROCESS



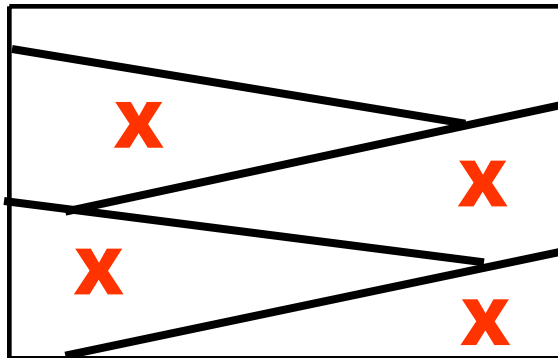
# Specific Safety Considerations



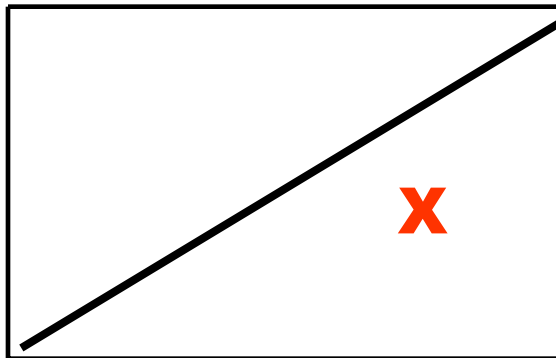
- Make rescuer safety primary concern
- Use a buddy system
- Be alert for hazards
- Use safety equipment
- Rotate teams



# Structural Voids

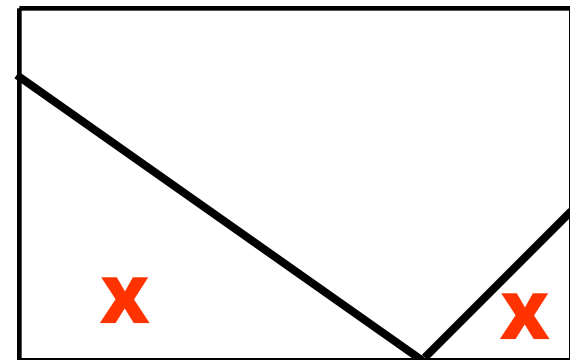


Pancake Void



Lean-to Void

If you see collapsed floors or walls, get out!



'V' Void

**X** = Voids

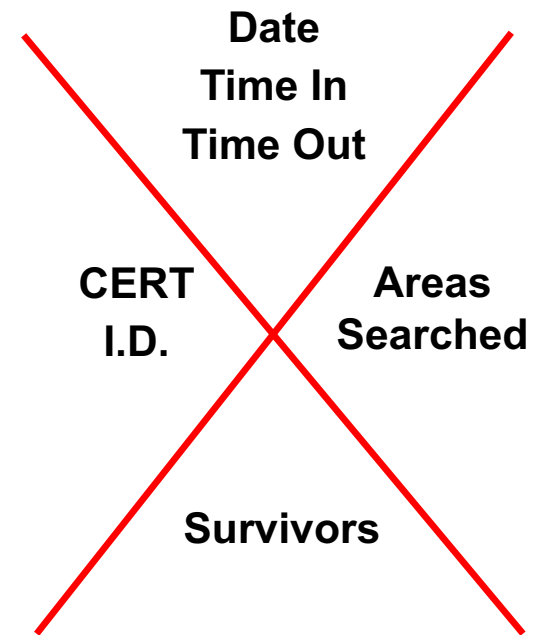
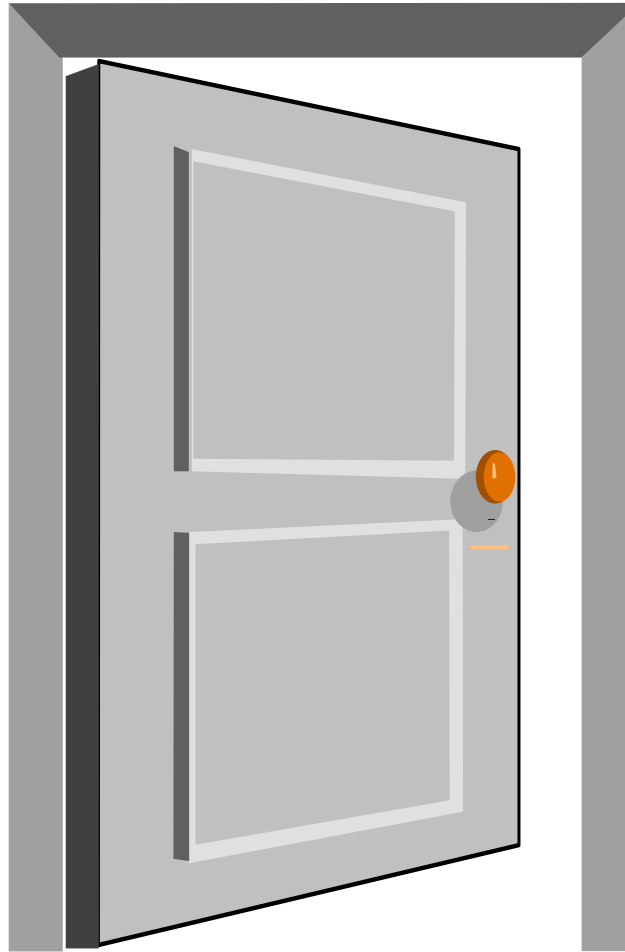
# Individual Voids

- Spaces where survivors may seek protection
  - Bathtubs
  - Underneath desks
  - Inside cabinets
  - Under/next to beds
  - Inside closets



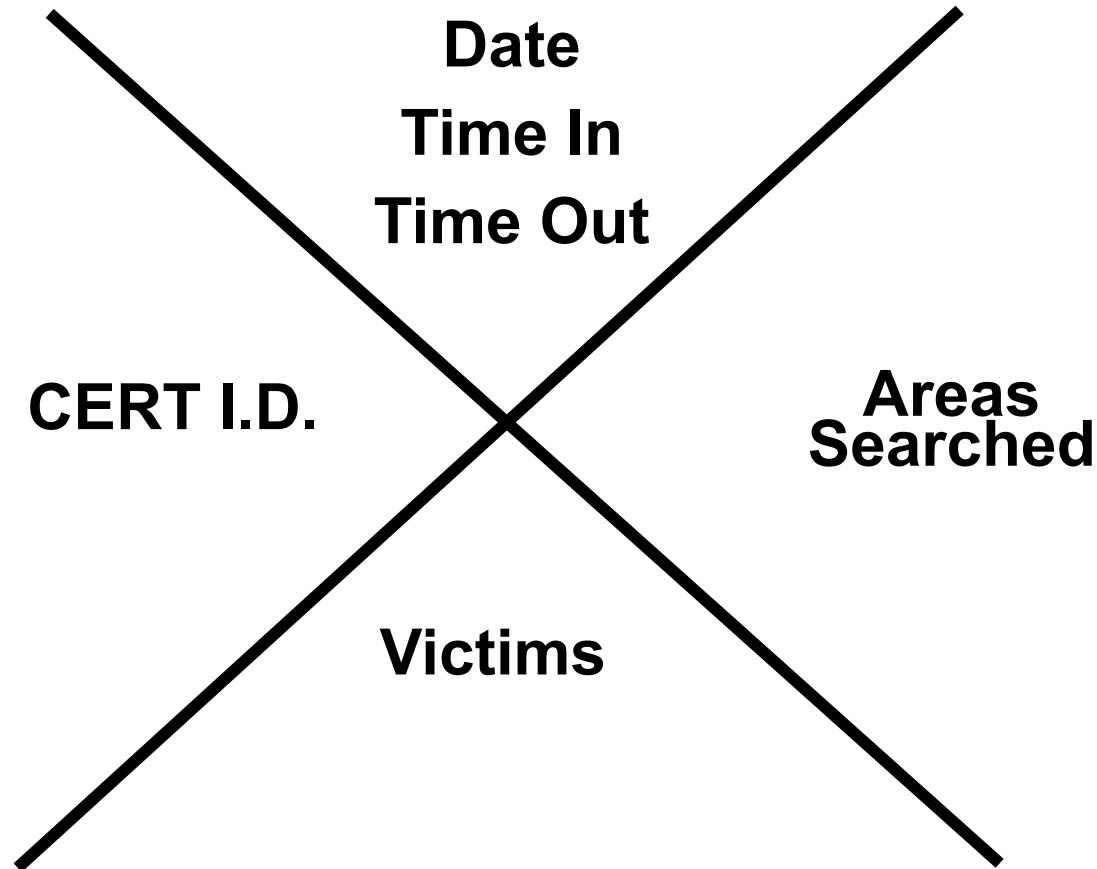
# Search Markings

- Upon entering search area:
  - Make a slash
  - Enter info
- Upon leaving search area:
  - Complete 'X'
  - Enter info



# Search Markings

What information do you mark?



# Search Markings

Example:

**2/15/08**  
**In: 1430**  
**Out: 1515**

**CERT-23**

**FL 1-2 searched**  
**Stairs to FL-3 unsafe**

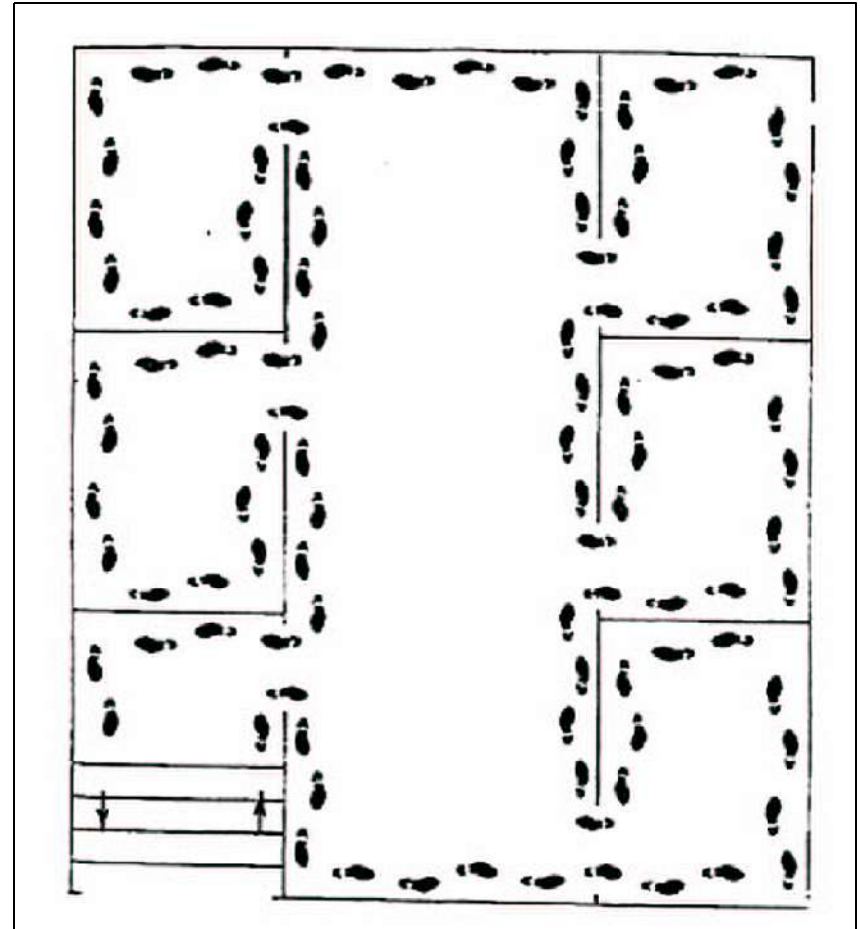
**2L**  
**Moved to**  
**CERT-23 med**  
**ops**

# Search Methodology

- Call out to survivors, “If anyone can hear my voice, come here”
- Ask any survivors who do respond for more information about the building or others who may be trapped
- Survivors might be in shock or confused

# Search Methodology

- Bottom-up/top-down for a multi-story building
- Right wall/left wall for a single floor
- Stop frequently to listen

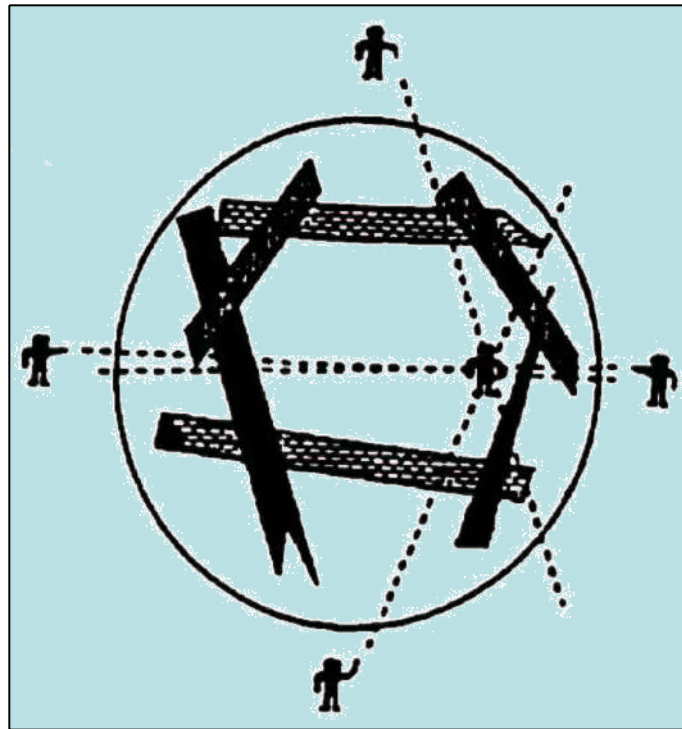


# Search Methodology

- Stop frequently to listen for:
  - Tapping
  - Movement
  - Voices

# Search Methodology

- Triangulation allows rescuers to view a location from several perspectives



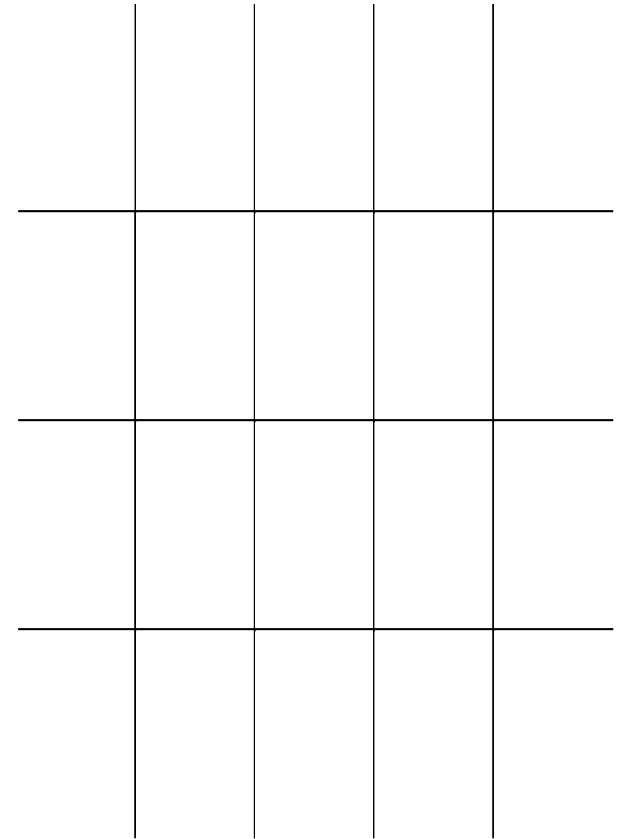
# Search Methodology

- Keep records of rescued survivors and of those who remain trapped or are dead
- Report information to emergency services personnel



# Exterior Search

- Set up a grid search
  - Set distance between searchers according to visibility and debris
  - Overlap patterns for full coverage
  - Search in as straight a line as possible
  - Mark areas that have been searched



# Rescue Operations

- Remove objects and debris to free survivors and create safe rescue environment
- Triage survivors
- Remove survivors
- Remove debris



# Creating a Safe Environment

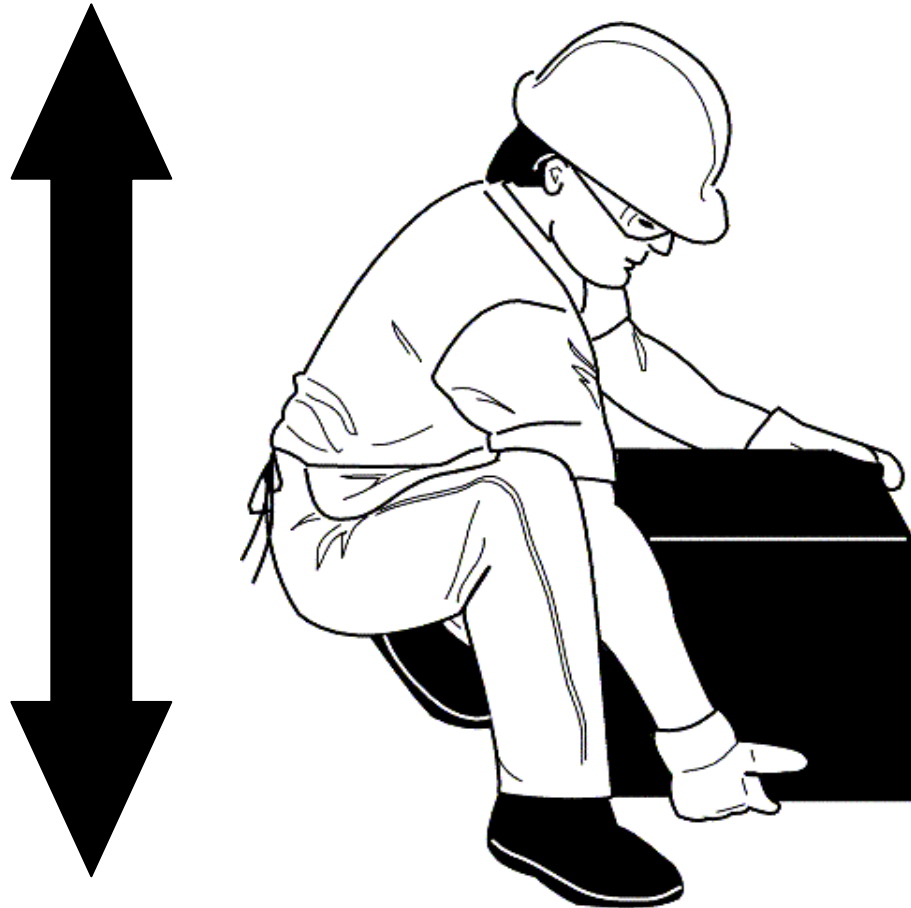
- Maintain rescuer safety
- Triage in lightly and moderately damaged buildings
- Evacuate survivors as quickly as possible



# Precautions to Minimize Risk

- Know your limitations
- Follow safety procedures
- Remove debris by:
  - Leveraging
  - Cribbing

# Proper Lifting Procedures



- Back straight
- Bend knees
- Keep load close to body
- Push up with legs

# Leveraging and Cribbing



- For heavy lifting
- Performed in tandem
- Helps extricate survivors
- Various materials and objects may be used



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# Two Types of Removal

- Self removal or assist
- Lifts and drags



# Which Extrication Method?

- General stability of the immediate environment
- Number of rescuers available
- Strength and ability of the rescuers
- Condition of survivor





# One-Person Arm Carry

- Lift around survivor's back and under knees
- Lift survivor by keeping your own back straight and lifting with legs



# Pack-Strap Carry



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# Two-Person Carry



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# Chair Carry



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# Blanket Carry



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# Log Rolling



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# Blanket Drag



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# Unit Summary

- You should know:
  - How to decide whether to attempt rescue
  - The objectives of interior and exterior search and rescue
  - How to perform search and rescue sizeup
  - Building markings
  - Rescue functions
  - How to remove debris
  - How to extricate survivors



# Homework Assignment

1. Read unit to be covered in next session
2. Bring necessary supplies to next session
3. Wear appropriate clothes to next session