

# Light Search and Rescue Operations



## CERT Basic Training Unit 5

# CERT Training Curriculum:

- Disaster Preparedness
- Fire Safety
- Disaster Medical Operations
- **Light Search and Rescue**
- CERT Organization (ICS/NIMS)
- Disaster Psychology
- Terrorism and CERT
- Disaster Simulation Exercise

# 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

# 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

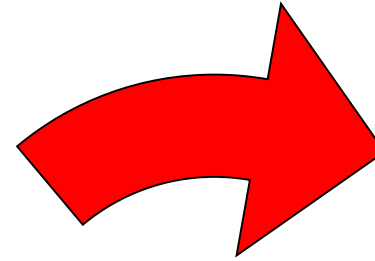


- Safety During Search and Rescue Operations
- Conducting Interior and Exterior Searches
- Conducting Rescue Operations
- Victim Extrication Practice
- Gear Demonstration

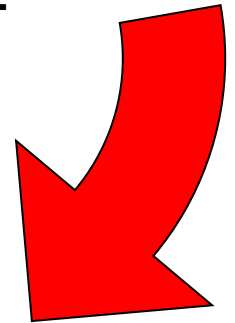
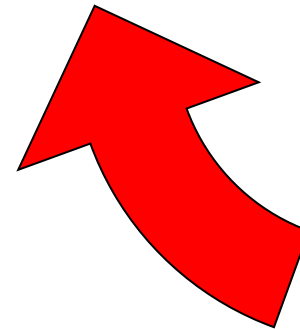
# CERT Sizeup



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**





## Gather Facts

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



# Scenario:



At 2:30 p.m. on Tuesday, August 9, a squall line passed through your town. Because of the difference in barometric pressure on either side of the front, the squall line was preceded by a “gust front” with straight-line winds of more than 70 miles per hour. The gust front was followed by continued strong winds and extremely heavy rain. Electricity was knocked out throughout the town.

On the way to the staging area at the local high school, you notice considerable damage, including felled trees and utility lines. Many streets are impassable, making you take a roundabout route to the high school. As you make your way to the staging area, you see that the roof has blown off of a large portion of a local strip shopping center and that the exterior wall on the west end of the structure has collapsed.

After reaching the staging area, you check in with the Logistics Team Leader, who assigns you to Search and Rescue Team 2. Although CERT members cannot venture into the section of the shopping center that has collapsed, Search and Rescue Team 2 will be searching near the collapsed area to see if there are survivors in that area.

# 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?

# Sizeup: Step 4

## 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 are on scene?
  - Firefighters
  - Police
  - Nurse, M.D.
  - Contractor
- What tools do you have?
  - Crowbars
  - Auto jacks
  - Chainsaws
- Other 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/Rescue Team 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

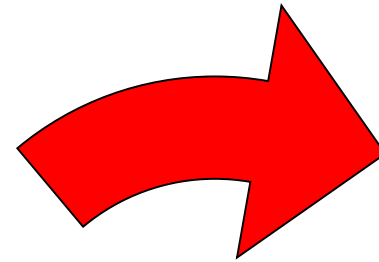
- Based on plan developed during Step 7



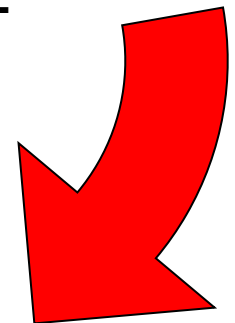
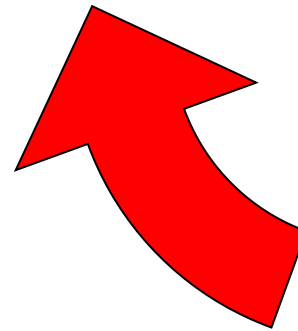
# Sizeup: Step 9

## Evaluate Progress

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



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CONTINUAL  
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# Specific Safety Considerations

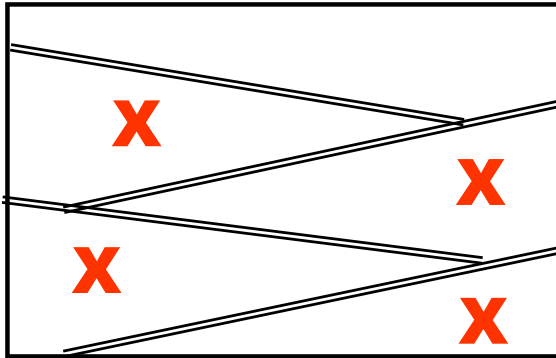


- Make rescuer safety primary concern
- Use a buddy system
- Be alert for hazards
- Use safety equipment
- Rotate teams
- **Security Team**

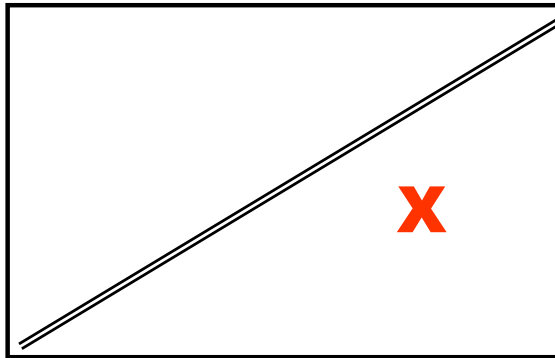




# Structural Voids

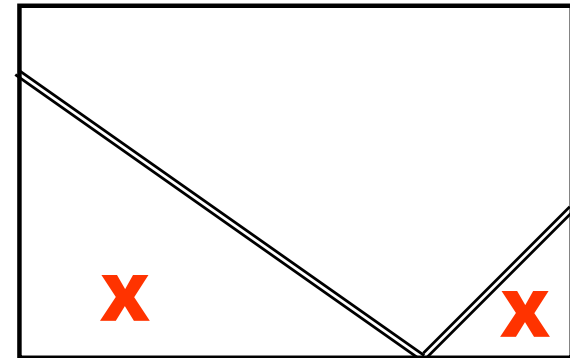


Pancake Void



Lean-to Void

If you see collapsed floors or walls, get out!



'V' Void

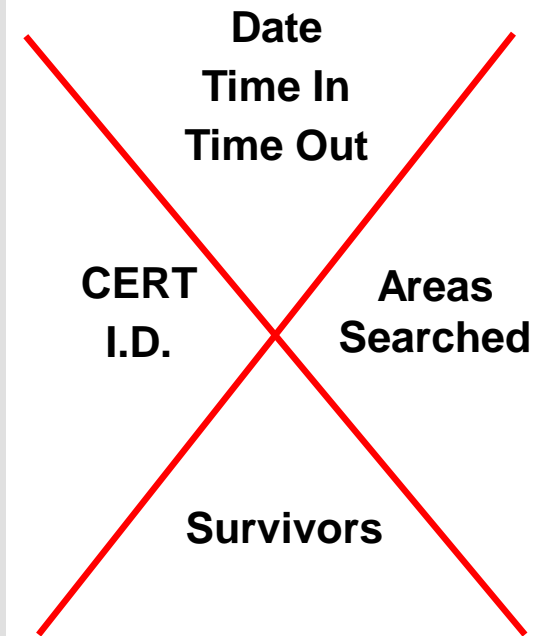
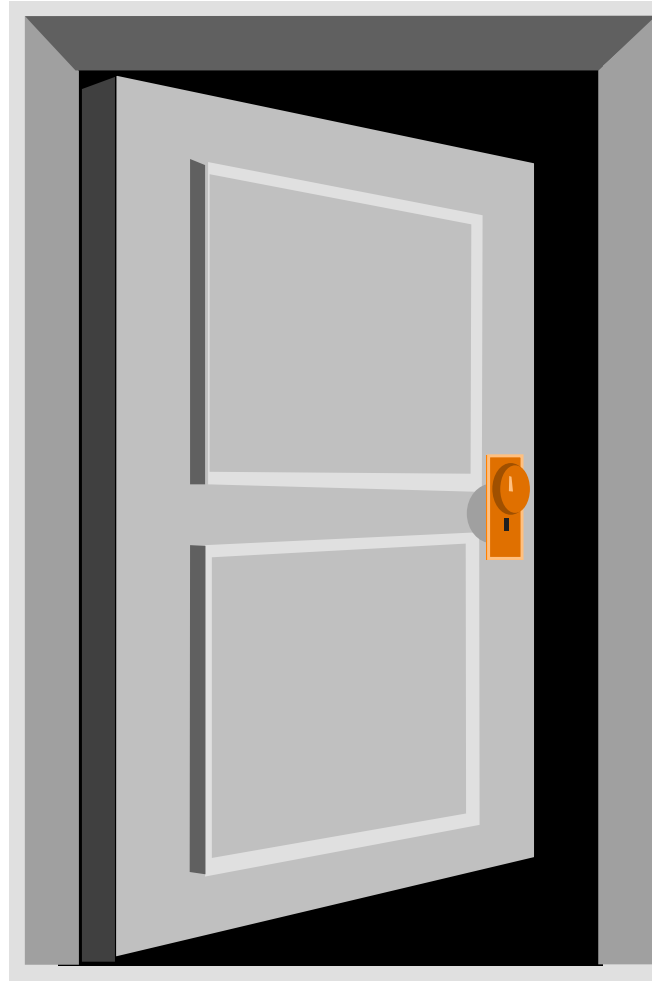
**X** = Voids

# Individual Voids

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

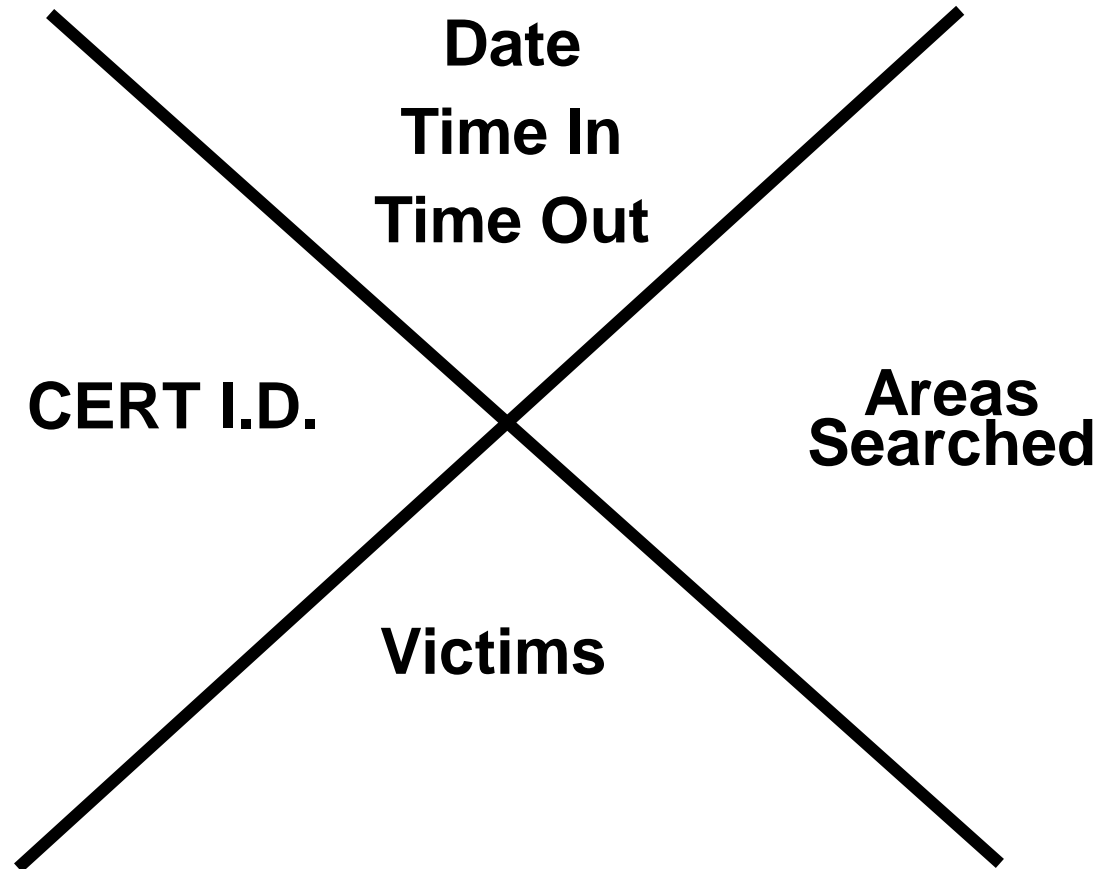
# Search Markings

- 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**

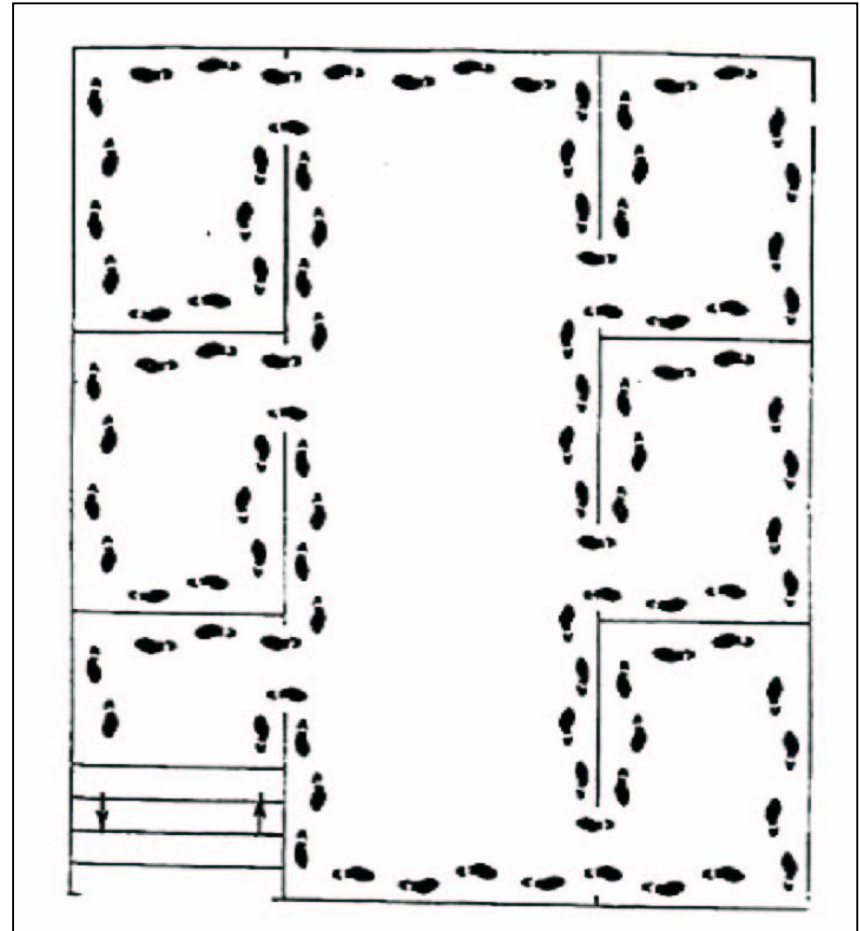


# Search Methodology

- 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



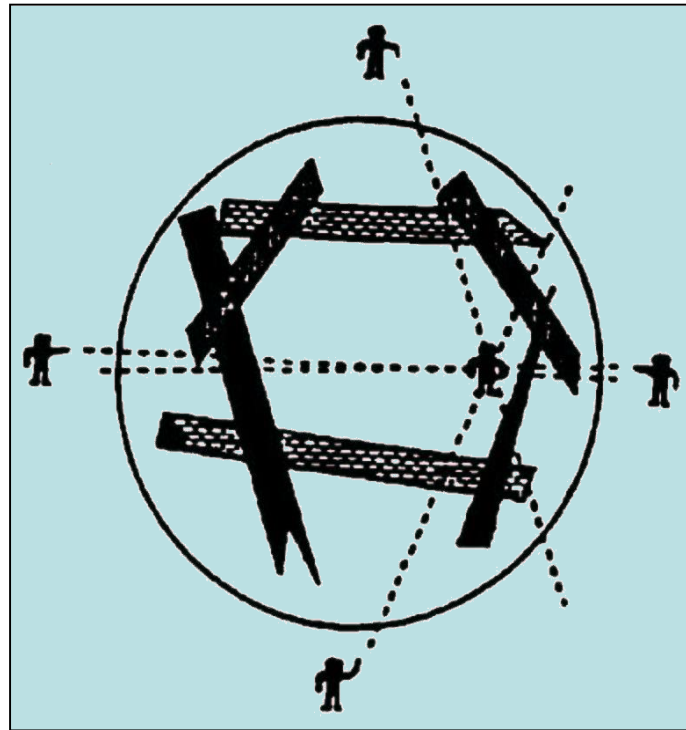
# Search Methodology

- 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

# Rescue Operations

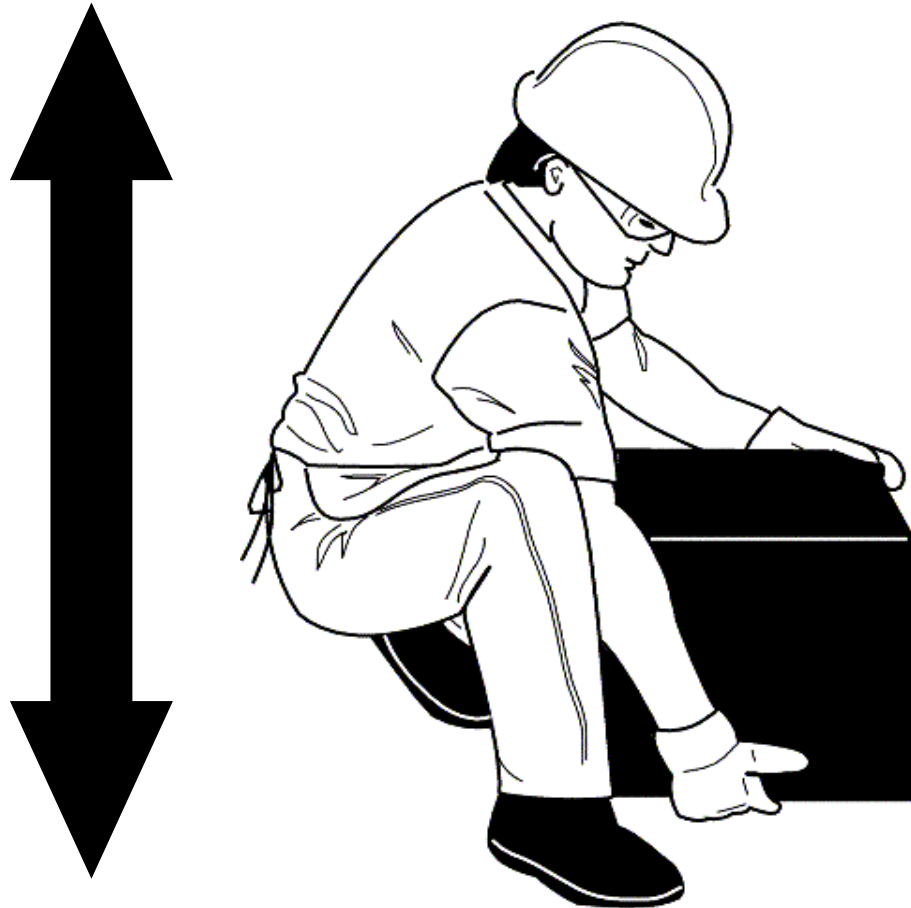
- Remove objects and debris to free survivors and create safe rescue environment
- Triage survivors
- Remove survivors
- Remove debris



# 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



# 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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5-39





# Two-Person Carry



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5-40



# Chair Carry



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# Blanket Carry



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# Log Rolling



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# Blanket Drag



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5-44



# CERT Extrication Practice

1. Chair Carry
2. Blanket Carry
3. QuickLitter Carry

# CERT Gear Demo:

- Helmet options
- CERT Backpack
- First Aid Kits

# Rescue Equipment Resources:

- 2aProud:  
<http://2aproud.com/>
- Survival Supply:  
<http://www.survival-supply.com/>
- Rescue Essentials:  
<https://www.rescue-essentials.com/>
- North American Rescue:  
<https://www.narescue.com/>



# 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

