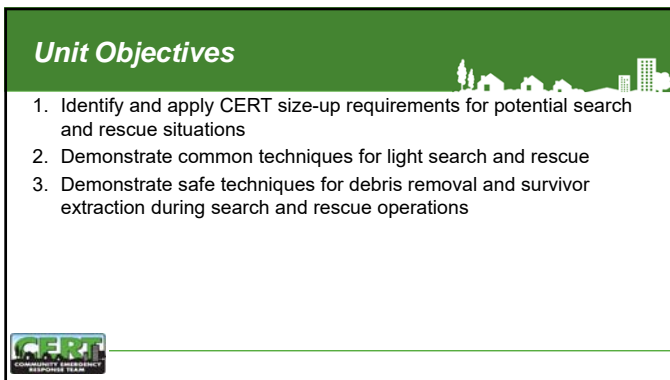
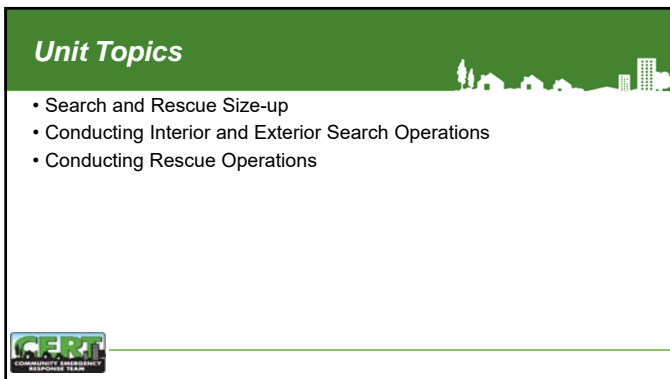




1





2



3

Search and Rescue



- Search and rescue consists of three separate operations
 - Size-up: Using 9-step, continual model
 - Search: Locating survivors and documenting
 - Rescue: Extricating survivors



4

Deciding to Attempt Rescue



- Rescue attempt decisions are based on three factors
 - Risks involved for the rescuer and survivor
 - Greatest good for the greatest number
 - Resources and manpower available



5

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 rescuers and survivors safe





6

Effective Search and Rescue

Depends on:

- Effective size-up
- Rescuer safety
- Survivor safety

7

CERT Size-up

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





8

Size-up Step 1

• **Gather Facts:**

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

9

Size-up Step 2

• **Assess and Communicate Damage**
 – The CERT mission changes if damage is light, moderate, or heavy


**LIGHT
DAMAGE**
YES

→

**MODERATE
DAMAGE**
Cautiously

→

**HEAVY
DAMAGE**
NO



10

Light Damage

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




11

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**





12

Heavy Damage

- Partial or total collapse
- Tilting
- Obvious structural instability
- Building off foundation
- Smoke, fire, gas leaks, or hazardous material
- Rising water




DO NOT enter a building with heavy damage under ANY CIRCUMSTANCES!



13

Size-up Step 3


- **Consider Probabilities:**
 - How stable is the situation?
 - What secondary factors should be considered?
 - What else could go wrong?
 - What does it mean for the search and rescue?



14

Size-up Step 4


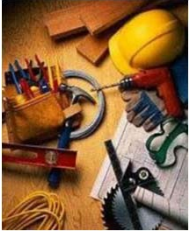
- **Assess Your Situation:**
 - Is the situation safe enough to continue?
 - What risks will rescuers face?
 - What resources are needed?
 - What resources are available?



15

Rescue Resources



- Personnel:
 - CERT Team
 - Bystanders you can use for first aid
- Tools:
 - Crowbars
- Equipment:
 - Cribbing equipment



16

Size-up Step 5


- **Establish Priorities:**
 - What should be done?
 - In what order?
 - How do you rescue the greatest number in the shortest amount of time?



17

Size-up Step 6


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



18

Size-up Step 7



- **Develop Plan of Action:**
 - Focus operation on established priorities and decisions
 - Provide documentation to give to responding agencies
 - Provide documentation to become part of CERT records



19

Size-up Step 8



- **Take Action:**
 - Base action on plan developed during Step 7



20

Size-up Step 9

- **Evaluate Progress:**
 - Most critical step
 - Monitor plan's effectiveness and safety



21

Structural Voids


Pancake Void

V Void

Lean-to Void

X = Voids


If you see collapsed floors or walls, **GET OUT!**



22

Structural Voids


Pancake Void



23

Structural Voids



V Void



24

Structural Voids



Lean-To Void

25

Individual Voids

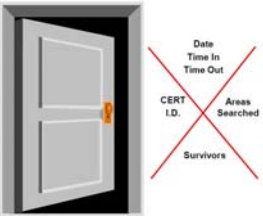

- Survivors may seek protection in various places
 - Inside bathtubs
 - Underneath desks
 - Inside cabinets
 - Under/next to beds
 - Inside closets

26

Search Markings

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


27

Search Markings

• What information do you mark?

The diagram shows a large 'X' formed by two diagonal lines. Text is placed around and within the 'X':

- Top: Date
- Below Date: Time In
- Below Time In: Time Out
- Left side: CERT I.D.
- Right side: Areas Searched
- Bottom: Survivors




28

Search Markings

Sample

The diagram shows a large 'X' with the following text:

- Top: 2/15/08
- Below Date: In: 1430
- Below In: Out: 1515
- Left side: CERT-23
- Right side: FL 1-2 searched
- Below right side: Stairs to FL-3 unsafe
- Bottom: 2L
- Below 2L: Moved to
- Below Moved to: CERT-23 med ops



29

Building Markings


Sample

The diagram shows a large 'X' with the following text:

- Top: TIME IN: 1430 hrs
- Below Time In: TIME OUT: 1520 hrs
- Left side: Gold Team
- Right side: GAS OFF
- Bottom: MISC

 A red box surrounds the 'X'. To the right of the box is a red text box containing:


Boxing the "X" in means don't re-enter.



30

Search Methodology

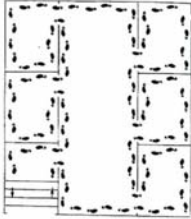

- Remain within arm's reach of one other CERT member
- Call out to survivors, "If anyone can hear my voice, come here"
- Ask any survivors who do respond for more information about the building or others who may be trapped
- Survivors might be in shock or confused



31

Search Methodology



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

32

Search Methodology


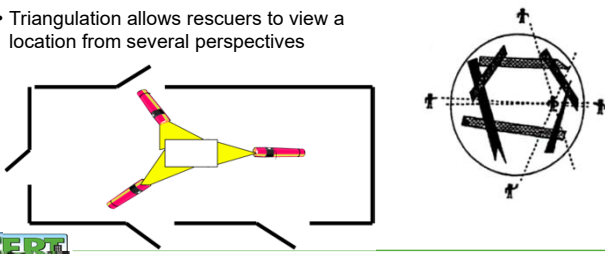
- Stop frequently to listen for:
 - Tapping
 - Movement
 - Voices

33

Search Methodology


- Triangulation allows rescuers to view a location from several perspectives



34

Search Methodology


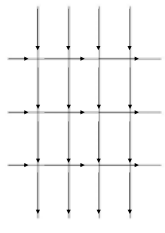
- Keep records of rescued survivors and of those who remain trapped or who are dead
- Report information to DPS



35

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



36

Rescue Operations


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



37

Creating a Safe Environment

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



38

Precautions to Minimize Risk



- Know your limitations
- Follow safety procedures
- Remove debris by leveraging and cribbing



39



Proper Lifting Procedures

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




40

Leveraging and Cribbing




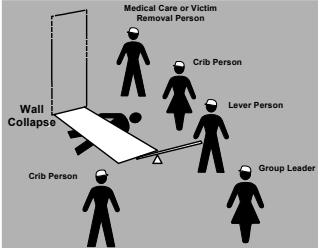
- For heavy lifting
- Performed in tandem
- Helps extricate survivors

- Various materials and objects may be used

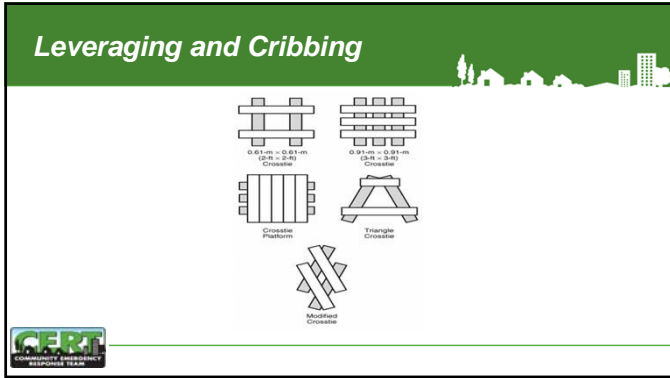


41

Leveraging and Cribbing



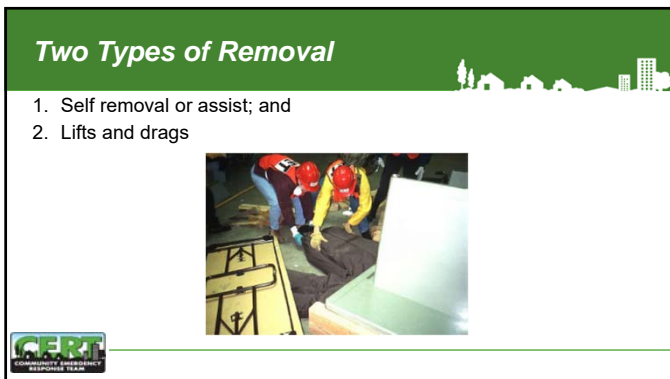
42



43





44



45

Which Extrication Method?



- Extraction method depends on a number of criteria
 - General stability of the immediate environment
 - Number of rescuers available
 - Strength and ability of the rescuers
 - Condition of survivor



46

Stair Chair



- Survivor sits in the chair strapped in
- CERT members carefully glide survivor down the stairs



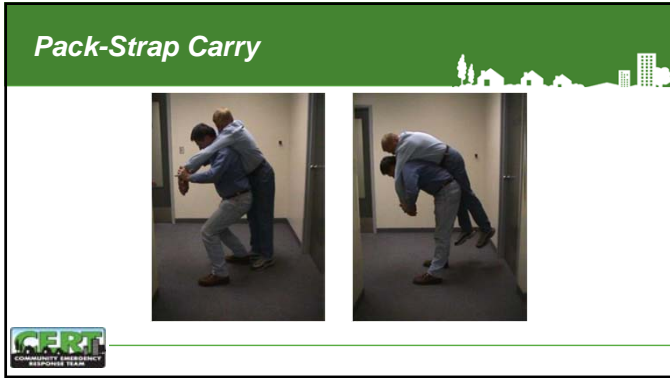
47

One-Person Arm Carry

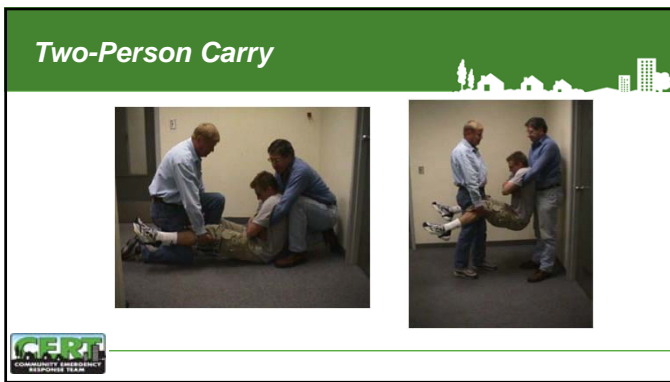
- Lift around survivor's back and under his or her knees
- Lift survivor by keeping your own back straight and lifting with your legs



48



49



50





51

Flexible Stretcher Carry



52

Blanket Drag




53

Hands On....

- Search & Rescue Training
- Cribbing Training
- Stair Chair Training

**Remember:
Safety First!!!**



54
