

**LESSON TITLE**

Fire Ground Search and Rescue

**LEARNING OBJECTIVES**

To become familiar and understand Fire Ground Search and Rescue Operations, Safety Techniques, and Victim Removal.

**TIME FRAME**

5 Hours

**LEVEL OF INSTRUCTION**

Lecture and Application

**MATERIAL NEEDED**

- 1) Personal protective clothing
- 2) Self contained breathing apparatus
- 3) Area to conduct a small to medium search
- 4) Forcible entry tools
- 5) Thermal imaging camera
- 6) Hoseline
- 7) Rescue rope
- 8) Blanket or sheet
- 9) Backboard or stokes basket

**REFERENCES**

Fire Service Rescue, Sixth Edition, IFSTA, Chapter 5

Firehouse Magazine - Firehouse contributor Jim McCormack  
June 2004 Edition.

**COURSE GOALS**

To enhance the knowledge and understanding of fire ground search and rescue and safe application of proper fire rescue techniques.

## **PREPARATION**

### **Motivation:**

### **Objective:**

The student will demonstrate a basic understanding of Search and Rescue Operations; Safety techniques and victim removal through participation in class discussions and practical activities.

### **Overview:**

Fire ground search and rescue

- \* Introduction to Fire ground Search and Rescue
- \* Building Search
- \* Safety
- \* High-rise Search and Rescue
- \* Victim Removal
- \* Rescue from Upper Floors

**Introduction:** Fire department work originally organized to protect life and property from fire. Most departments to help people from a wide range of hazardous situations have expanded this mission. To be a successful rescue unit, one needs to have the following:

- \* Sufficient manpower
- \* Proper equipment
- \* Information about the situation
- \* A logical rescue plan, coordinated with the correct suppression tactics.
- \* Training, courage, and dedication

This lesson covers Fire ground Search and Rescue tactics in buildings as well Search and Rescue Safety. Also, the use of the P.A.S.S. devices.

## **Instructors Guide**

### **Notes**

#### **I. BUILDING SEARCH**

##### **A. Building Size-Up**

1. Size-up is initially the responsibility of the first arriving officer
2. Identify alternate escape routes
3. Obtain information about occupants of building
4. Always use personal accountability systems

##### **B. Conducting A Search**

1. Two objectives of Building Search
  - \* Finding Victims
  - \* Obtaining information about fire

## 2. Primary Search

- \* Rescuers should always use the buddy system
- \* Rescuers should always carry forcible entry tools
- \* Depending on conditions, walk or crawl
- \* Move systematically from room to room
- \* Rescuers should search all areas
- \* Rescue teams should always maintain radio contact

## 3. Vent, Enter, Search (V. E. S.)

- \* V. E. S. is used when normal means of egress is cutoff by fire
- \* If V. E. S. used, positive pressure ventilation (PPV) must be delayed until the fire is knocked down or all victims have been removed from the building.
- \* Firefighters performing VES must be aware of the possibility of initiating a back draft in the room  
When they break the glass, also they must be alert for the usual signs of back draft conditions

## 4. Secondary Search

- \* Speed is not as critical as in the Primary Search

## 5. Multistory Buildings

- \* Most critical areas are the fire floor, floor directly above the fire and the topmost floor
- \* During Primary Search, doors to room should be closed
- \* Should always deploy charged hose lines, as well as Lifelines

## C. Search Methods

1. Center hallway search
2. Searching small rooms, one should start at door
3. Rooms that have been searched, need to be marked:
  - \* Two-part marking system
  - \* Methods of marking includes: chalk, crayon, masking type, specially designed marking, and latch  
Straps over doorknobs

## II. SAFETY

### A. Safety during Building Searches

1. Safety must be primary concern
2. Must be aware of structural conditions
3. If searcher becomes disoriented, they should remain as calm as possible and seek exits
4. Use caution-opening doors

### B. Safety Guidelines

1. Fire progression considerations
2. Back draft conditions
3. No freelancing
4. Communicate with Command
5. Constantly monitor fire conditions

6. Have Rapid Intervention team ready
7. Accountability system
8. Secondary means of egress
9. SCBA and PASS devices
10. Teamwork
11. Systematic search
12. Stay low and move cautiously
13. Monitor structural integrity
14. Feel doors before opening
15. Mark entry doors
16. Maintain contact with wall
17. When possible have charged hose line
18. Coordinated with ventilation teams
19. Give report to Incident Commander when search is complete

**C. Personal Alert Safety System**

1. P.A.S.S. device can be of great assistance
2. Perform daily maintenance

### **III. HIGH RISE SEARCH AND RESCUE**

Any High-rise Incident requiring search and rescue above the department's aerial apparatus severely taxes the fireground effort. Due to the time and energy to get equipment and personnel to the needed floors.

**A. Incident Command/Management**

1. First need is a Command Post
2. Lobby control
3. Rescue teams must be briefed
4. Freelancing is not an alternative

**B. Search Procedures**

1. Two teams should be assigned to perform primary search on each floor
2. Teams at top floor should work down and teams on lower floors should work up, until they meet at some point above the fire floor
3. Transmit results of search
4. Fire floor teams must remain alert of fire traveling overhead
5. Use lifelines connected in the stairwell when possible
6. Check restrooms
7. First arriving teams should be assigned to fire floor. The next arriving team should be assigned to floor above the fire. The third arriving team should be assigned to the top floor

## **IV. VICTIM REMOVAL**

**(Note:** The procedures described in this section include the steps for various carries for short-distance transfers. The specific steps involved in taking spine injury precautions and other preparation for transfer precautions are not covered. See an EMS first responder manual for these steps.)

### **A. Emergencies Moves of Victims**

1. Victims should not be moved unless there is an immediate danger to the victim or rescuers
2. The following conditions warrants moving victims
  - \* There is fire or danger of fire
  - \* Explosive or hazardous materials are involved
  - \* Impossible to protect the accident scene
  - \* Impossible to gain access to other victims
  - \* CPR needed and firm surface is needed
3. The chief danger in moving a victim quickly is aggravation of a spinal injury. However, this becomes secondary to the goal of preserving life.
4. Always pull the victim in direction of the long axis of the body. Not sideways
5. A blanket or sheet, (when available) will assist in these moves

### **B. Lifts and Carries**

1. Cradle in Arms Lift/Carry  
For conscious children and small adults
2. Seat lift/Carry  
For conscious or unconscious victims (2 rescuers)
3. Two or three persons Lift/carry (2 or 3 rescuers)  
For moving someone in the supine position
4. Extremities Lift/Carry (2 rescuers)  
For conscious or unconscious victims
5. Chair Lift/Carry  
For conscious or unconscious victims
6. Incline Drag (1 or 2 rescuers)  
Useful for unconscious victims
7. Blanket Litter  
To secure a victim for a short distance. Transfer in a basket litter. 2 blankets and 50ft. of rope are needed.

**(NOTE:** These lifts will be practiced and discussed in detail in the practical section.)

## **V. RESCUE FROM THE UPPER FLOORS**

### **A. Stairways**

### **B. Fire escapes stairs**

### **C. Ladders**

1. Safety lines
2. Aerial Devices

**3. Ground Ladders**

- \* Conscious victims lowered feet first
- \* Unconscious victims lowered in the same manner except the victim body rests on the rescuers supporting knee.
- \* Other lowering techniques discussed in the practical section

**4. Litters**

**5. Bridging Gaps**

**6. Jumping Situations**

- \* Suicide attempts
- \* Air Safety collision

## **Practical Application**

**REFERENCE AND PHOTO'S: FIRE SERVICE RESCUE, SIXTH EDITION, IFSTA, CHAPTER 5, PAGES 149-156.**

### **CRADLE IN THE ARMS LIFT/CARRY**

Step 1: Place one arm under the victim's arms and cross the back, and place the other arm under the victim's knee

Step 2: Keeping the back straight, lift the victim to about waist height and carry the victim to safety.

### **SEAT LIFT/CARRY**

This lift/carry can be used with a conscious or an unconscious victim and is performed by two rescuers.

Step 1: Both rescuers raise the victim to a sitting position and link arms across the victim's back

Step 2: Both rescuers then reach under the victim's knees to form a seat.

Step 3: Both rescuers then stand, lift the victim (using their legs), and move the victim to safety.

### **TWO-OR-THREE PERSON LIFT/CARRY**

Many victims are more comfortable when left in a supine position, and lift/carry is an effective way to lift a victim who is lying down. The two-or-three person lift/carry is often used for moving a victim from a bed to a gurney, especially when the victim is in cramped quarters. If the victim is small, two rescuers may be sufficient for the carry; if large, three rescuers may be needed.

Step 1: Position the gurney so that the victim can be carried to it and placed on it with the least amount of movement. This may require leaving the gurney in the fully up position.

Step 2: Rescuers position themselves on the side of the victim that is easiest to reach and/or that will facilitate placing the victim on the gurney. One rescuer takes a position at the head and upper torso of the victim, one at the waist and legs, and if necessary, one at the lower legs.

Step 3: Keeping their backs straight, rescuers crouch or kneel as close to the victim as possible. The rescuer at the head places one hand under the victim's head and the other hand and arm under the victim's upper back. At their respective positions, the other rescuers place their arms under the victim.

Step 4: On the signal from the rescuer at the head, all rescuers carefully roll the victim toward their chest.

Step 5: Again, on the signal from the rescuer at the head, all rescuers stand while holding the victim against their chests and carry the victim to the desired location.

Step 6: Reverse the above procedures, again on the signal of the rescuer at the victim's head, to place the victim on the gurney.

With a smaller victim, two rescuers can perform this lift. One rescuer supports the victim's head and upper back, and the other rescuer supports the victim's torso and legs.

### **EXTREMITIES LIFT/CARRY**

The extremities lift/carry is used on either a conscious or an unconscious victim. This technique requires two rescuers and should be performed as follows:

Step 1: Turn the victim (if necessary) so that he or she is supine.

Step 2: One rescuer kneels at the head of the victim, and the second rescuer stands between the victim's knees.

Step 3: The rescuer at the head supports the victim's head and neck with one hand and places the other hand under the victim's shoulder's, while the second rescuer grasps the victim's wrists.

Step 4: The rescuer holding the victim's wrists pull the victim to a sitting position; the other rescuer assists by gently pushing on the victim's back

Step 5: The rescuer at the victim's head reaches under the victim's arms and grasps the victim's wrist as the other rescuer releases them. The rescuer grasps the victim's left wrist with the right hand and right wrist with the left hand.

Step 6: The rescuer between the victim's knees turns around, kneels down, and slips his or her hand under the victim's knees.

Step 7: On a command by the rescuer at the victim's head, both rescuers stand and move the victim.

### **CHAIR LIFT/CARRY**

The chair lift/carry is used for either a conscious or an unconscious person. Be sure that the chair used is sturdy: do not attempt this carry using a folding chair. The two methods for executing the chair carry are as follows:

#### **METHOD 1**

Step 1: Turn the victim (if necessary) so that he or she is supine.

Step 2: One rescuer lifts the victim's knees until the knees, buttocks, and lower back are high enough, and the second rescuer slips a chair under the victim.

Step 3: Both rescuers raise the victim and chair to a 45-degree angle.

Step 4: Lifting the seated victim, one rescuer carries the legs of the chair, and the other carries the back of the chair.

#### **METHOD 2**

Step 1: Place the victim in a sitting position.

Step 2: One rescuer reaches under the victim's arms and grasps the victim's wrists. The other rescuer straddles the victim's lower legs and grasps the victim's legs under the knees

Step 3: Both rescuers gently lift and place the victim onto the chair.

Step 4: Both rescuers raise the victim and chair to 45-degree angle

Step 5: Lifting the seated victim, one rescuer carries the legs of the chair, and the other carries the back of the chair.

### **INCLINE DRAG**

This drag is used to move a victim down a stairway or incline and is very useful for moving an unconscious victim.

Step 1: Turn the victim (if necessary) so that he or she is supine.

Step 2: Kneel at victim's head.

Step 3: Supporting the victim's head and neck, lift the victim's upper body into a sitting position.

Step 4: Reach under the victim's arm and grasp the victim's wrist.

Step 5: Stand up. The victim can now be eased down a stairway or ramp to safety.

### **BLANKET DRAG**

This drag is implemented by one rescuer using a blanket, rug, or sheet. The steps are as follows:

Step 1: Spread a blanket next to the victim, making sure that it extends above the victim's head.

Step 2: Kneel on both knees at the victim's side opposite the blanket, and extend victim's arm above his or her head.

Step 3: Roll victim up against your knees.

Step 4: Pull the blanket against the victim, gathering it slightly against the victim's back.

Step 5: Gently allows victim to roll onto the blanket, and straighten the blanket out on both sides. Wrap the blanket around the victim and tuck the lower ends around the victim's feet.

Step 6: Pulling the end of the blanket at the victim's head, drag the victim to safety.

### **BASKET LITTER**

The procedures described in this section apply to both metal and plastic or fiberglass basket litters. The procedures described here are sufficient for short-distance transfers but not for full-scale rescue operations. These procedures that follow do not include the emergency medical steps necessary to prepare a victim for transfer. For pre-transfer emergency medical procedures, see an EMS first responder manual.

To secure a victim for short-distance transfer in a basket litter, Two blankets and 50 feet of rope are needed. The procedure is as follows:

Step 1: Prepare the litter for the victim.

Step 2: Place the victim in the litter.

Step 3: Fold the lengthwise blanket around the victim's feet and legs.

Step 4: Fold the other blanket around the victim's upper body, folding the top corners in and wrapping the ends across the chest. If the litter has straps, fasten them at this point.

Step 5: Run the lashing rope through the openings at the foot of the litter, and adjust the rope until an equal amount is on each side of the litter.

**Step 6:** Secure the victim's feet. Put a Half Hitch over of the victim's feet at the instep. Tighten the Half Hitch until it is snug.

**NOTE:** A Clove Hitch can be used in place of the Half Hitch.

**Step 7:** Pass the right-hand part of the rope over and around the right rail, across the litter, and through the closest opening on the left side. Repeat this procedure on the other side of the litter with the left-hand part of the rope. (**NOTE:** If a wire basket litter is used, the rope should be threaded through the "D" openings.)

Continue lacing back and forth across the litter up to the victim's shoulders. With two rescuers, it is easier to lace if each rescuer passes the rope through the opening, gathers the excess rope, and hands the rope to the other rescuer to lace on the opposite side.

**Step 8:** At the victim's shoulders, secure the rope on each side with a Clove Hitch and a safety. Protect the victim's face when handling ropes at that end of the basket.

**Step 9:** Starting at the victim's feet, tighten the lashing by pulling up on the ropes where they cross, working up from the feet to the head. Adjust all knots until they are snug.

**Step 10:** Secure the excess rope by tucking it under the lashing.