

North Zone Training Manual

Search and Rescue

FIREGROUND SEARCH AND RESCUE

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Terminology

- Structural Search and Rescue – (Residential and Commercial)
A preplanned, systematic method of locating and removing victims from a structure fire environment.
- Primary Search
A rapid and aggressive search of all involved and exposed areas that can be safely entered. These operations are performed either before or during fire suppression operations.
- Secondary Search
A thorough search of the interior fire area conducted after the fire is under control and the hazards are somewhat abated. This search is usually performed by a different crew/company other than the primary search group. Once completed, search group(s) must confirm that a secondary search team has established an “all clear.”
- All Clear
A benchmark that identifies the completion of a primary or secondary search.
- Wall Person
The firefighter designated to lead the search team through the structure by following an interior wall. The wall person should always maintain visual or physical contact with the wall throughout the duration of the search.
- PPPN – Status situation upon entry into a hazard zone or status situation update from within the hazard zone. **Personnel / Air, Progress, Position and Needs (PPPN)**
- Rescuers
Members of the search team responsible for searching the center of a room when visibility is poor. The rescuer must maintain contact (physical or visual) with the wall person.
- Emergency Traffic
The term used to receive ultimate radio priority when an immediately perilous situation or eminent hazard exists for firefighters.

Introduction

Search and rescue is one of the hazardous duties that firefighters will perform. More fireground fatalities and injuries have occurred during search and rescue operations. Search and rescue is the primary responsibility of every firefighter and usually the first duty to be performed. Each firefighter must be able to conduct an effective search and, if victims are found, must be able to efficiently rescue them.

While firefighters may realize that search and rescue is the most important function of the fire service, they may not realize that these duties involve much more than the removal of trapped victims. Nearly every operation performed by firefighters can potentially relate to rescue operations, whether during initial fire attack, ventilation operations or initial search operations.

Since fireground search and rescue often involves different types of hazards and multiple operations, success in competent search operations need to have the following:

- Sufficient manpower / personnel / Rapid Intervention Crew (RIC)
- Proper equipment (*including: PPE, SCBA, PASS or IPASS – “integrated”*)
- Information about the situation
- A standard communications plan – Command, Tactical(s) and EMER channel
- A logical rescue plan coordinated with correct suppression operations
- Training, courage, discipline and determination to carry out the rescue plan

The most important issue that firefighters should consider when performing any search and rescue operation is personal safety. Know where you are in a building, work in teams, have radio communications and try to have at least two means of egress from a structure.

Background / Regulations

There are two types of fireground search and rescue. The first is RIC, used to locate and rescue firefighters in distress inside or outside a hazard zone. The second is the primary and secondary searches used to locate and remove trapped victims. Both of these activities require planning, training, and discipline, especially during the time of need. The operations should be prioritized in the following manner:

1. Locate and remove trapped occupants.
2. Ventilate where necessary.
3. Temporarily prevent extension of fire by using interior or exposure attack lines.

While NFPA 1670 does not contain requirements that pertain specifically to fireground search and rescue, many of these skills apply for other rescue disciplines which may be needed on the fireground. NFPA 1001, 1500 and 29 *CFR* 1910.134 specify that firefighters must conduct search and rescue in a structure fire that is beyond the incipient phase (requiring the use of full PPE, SCBA with an integrated PASS device). While maintaining firefighter safety, these regulations also require that a RIC be ready to enter the hazard zone to rescue firefighters in distress.

Firefighter Safety

Approximately 9% of firefighter deaths on the fireground result from primary searches. Investigations of these deaths have identified common reoccurring situations:

- 1) Firefighters becoming lost / disoriented / running low on air or totally out.
- 2) Falling objects including structural collapse and/or entanglement.
- 3) Fire conditions including fire cutting off egress and flashover.

Many of these deaths were preventable. Proper training and effective communication is the best defense against firefighter injury and death. Methods described in this document are designed to increase firefighter efficiency and safety while performing a primary search.

Safety Guidelines

Search and rescue personnel should use the following safety guidelines in any type of search operation within a building and/or hazard zone:

- Do not enter a building in which the fire has progressed to the point where viable victims are not likely to be found.
- Attempt entry only after ventilation is accomplished when **backdraft conditions exist**.
- Work within the incident action plan (IAP). Do **NOT** freelance.
- Maintain communication with IC / Operations, which has control over search/rescue teams. Be aware of additional search team locations and area of responsibility.
- Monitor fire conditions that might affect individual firefighters and search teams.
- Utilize accountability procedures and establish a Rapid Intervention Crew (RIC) to help firefighters or teams in distress.
- Work in teams of two or more and stay in physical, visual, or voice contact with each other.
- Search systematically to increase efficiency and to reduce the possibility of becoming disoriented.
- Stay below level of thermal layer and move cautiously while searching.
- Monitor the structure's integrity – Use thermal image camera (TIC) to assist in operations.
- Feel doors for excessive heat before opening them.
- Look for bars or other security measures that could impede escape or victim removal.
- Mark or identify any locked or unlocked interior doors into rooms and remember the direction of travel when entering the room. To exit the room and the building,



Safety Guidelines - *continued*

turn in the opposite direction. Any sign of forced entry will alert secondary search teams that primary search was completed.

- Maintain contact with anchor points (wall, search rope or fire hose), when visibility is obscured. Working together, search team members can extend their reach by using ropes, straps or tools.
- Keep a charged hoseline at hand whenever possible when working on the fire floor (or the floor immediately below or above the fire) as it may be used as a guide for egress as well as for fighting fire.
- Coordinate with ventilation teams before opening windows to relieve heat and smoke during search.
- Close the door, report on current and expected conditions, and adhere to the search group supervisor's orders if fire is encountered during a search.
- Advise operations, division or search group supervisor immediately of any rooms that could not be searched for whatever reason.
- Report promptly to the supervisor once the search is complete. In addition to giving an "All Clear," report the progress of the fire and the condition of the building.

Building Size-Up

Even though size-up is one of the responsibilities of the first arriving officer, all firefighters should mentally and visually assess the entire structure and its surroundings while responding or approaching the scene. Careful observation gives critical information about the structure. If a building pre-plan is not available, some things that may be observable from the approach of the exterior are:

- Previous knowledge (fire history or annual inspections) of the occupancy
- Age, size, and structural integrity of the building
- Construction type and possible contents – including any special hazards
- Size of the fire, its location and how long it has been burning
- Whether the building is likely to be occupied
- Entry, egress points and types of obstructions (metal doors, window bars...etc.)
- Amount of time and personnel it will take to search the structure

Initial exterior size-up assists in maintaining an orientation within the structure. Firefighters should identify all means of egress and escape routes (i.e., doors, windows, fire escapes), raise ladders and remove obstacles before entering the structure. Once inside, specific locations can sometimes be confirmed by a landmark outside.

Obtain as much information as possible from occupants. Information should include exact number and location of the individual(s), the age of the victim(s) and any information on the extent and/or location of the fire. Also obtain any special information (i.e. wheel chair dependency, hearing impaired, etc.) Relay all pertinent information gained.



Building Size-Up – *continued*

Conditions of the building and construction elements will differ depending on the intensity of the fire and whether or not the occupancy has a fire protection system. Heat and smoke conditions in structures with full sprinkler coverage can be vastly different than those without a system. Taking these differences into account during size-up and situation / condition reports once inside the building can alter the risk/benefit analysis regarding search and rescue. These differences can also affect the coordination between accountability, RIC, initial fire attack, and ventilation operations.

Accurately assessing conditions is critical to the success of the search operation. Maintain accountability procedures as per zone policy (**EOM 601.01**) at all times. Assure that the IC or Operations has been informed of your situation status (**PPPN's – Personnel/Air, Progress, Position and Needs**) prior to entering any structure. This will assist in the tracking of all on-scene personnel and those working within the hazard zone. It also provides a means to contact those in charge of a group or division if contact is lost with anyone who has entered the hazard zone.

Tools and Equipment

- **Full PPE**
- **Breathing Apparatus** - (SCBA)
P.A.L. / P.A.S.S. device should be attached or integrated and operational
- **Drop Bag / Search Rope / Light Rope** – Drop bags may already be attached to breathing apparatus. Minimum length of least 30'. Main line search ropes are utilized for RIC operations or searching the center of a room and large open areas. Minimum length should be 200'. New Lighted search rope will have its own power unit or will need supplemental power from a generator.
- **Flashlight** - (Box Light / Orange Lantern)
- **Radio** – Understanding of Communication Plan prior to operation.
- **Webbing** - Minimum of 20' in length. Utilized for searching the center of a room and victim removal.
- **Forcible Entry Tools** – Haligan and striking tool (flat headed axe)
- **Marking Tools** - Tape, chalk and/or construction crayon
- **Door Wedges** - Minimum of two (2) per firefighter
- **Light Sticks** – Utilized to locate a firefighter, mark where a search was left off, and identify an exit and/or entry point.
- **Thermal Imaging Camera (TIC)**

Building Search

Regardless of how small fire may look upon arrival, firefighters must always complete a thorough search of the structure. Even in relatively minor fires, there may be occupants

Building Search (*continued*)

in the building who are incapable of exiting on their own. Start the search as near as possible to the hottest and /or most dangerous part of the structure and then work outward.

Modes of Operation

Imminent / Immediate rescue: Victims in a life-threatening situation (Ex: see a victim at an open second story window with no means of internal escape).

Confirmed Rescue: On scene personnel receive information that a rescue is necessary, (occupants or firefighters trapped within the structure). The term “Direct Destination” may also apply.

Anticipated: Rescue is a possibility (indications that occupants could still be in the structure)

Delayed: Secondary search

Note: RIC does not need to be established to initiate a search while working in the imminent or confirmed rescue modes. However, one should be established as soon as reasonably possible.

The Search System

There are two main objectives of a conventional building search: finding victims and obtaining information about the extent of the fire (or hazard). In most structure fires, the search for life requires that two types of searches be done: a primary and a secondary search. A primary search is a rapid but thorough search that is performed either before or during fire suppression operations. A secondary search is conducted after the fire is under control and some hazards have been lessened. Conducting a primary search takes a coordinated team effort. All Firefighters assigned to the search team should follow the same set of predetermined rules. Adhering to a predetermined set of rules enhances the efficiency of the search and firefighter safety. The following is a list of predetermined rules that each firefighter should memorize:

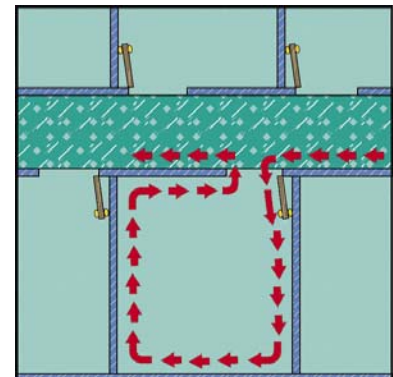
- **Buddy System**

A search team is composed of a minimum of two firefighters. One firefighter is designated as the “Search Leader”. The other members of the search team are designated as the “Rescuers”. Each member should have a designated task or assignment during the operation (i.e. wall person, anchor, sweeper, main search line...). All firefighters assigned to the search team should remain in contact (**visual or physical**) with each other for the duration of the search. Team members should have the ability to communicate with each other at all times. All members shall have a portable radio with a designated communications plan.

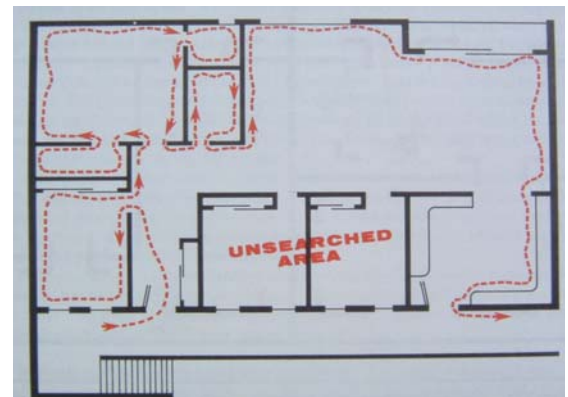
The Search System - *continued*

- **Initiate an Anchor Point**
Provide an opening large enough to accommodate both fire attack and RIC operations.
- **Establish Search Priorities**
The area most threatened must be searched first, and work back to the point of entry. This operation may be referred to as “**Direct Destination**”, in which a hose or rope line is used as an anchor point.

- **Choose a Pattern (Right or Left)**
Upon entry, inform supervisor/IC of search direction (PPPN). A decision must be made to follow the interior wall to the right or to the left. A determining factor is the direction that leads to the people that are most threatened. Once the initial turn is made (right or left), the search team is committed to a right or left search pattern. All other future opportunities to turn shall be the same direction/pattern.



- **Maintain Visual or Physical Contact with Wall**
The wall person must utilize the walls to guide the search team methodically through the structure. The wall-person should never break contact with the wall. Wall contact can be physical or visual depending on the interior environment/visibility. The same door should be used to enter and exit a room in order to prevent missing rooms.



- **Stay Low and Utilize Equipment**

Depending on the conditions within the fire building, rescuers may be able to search while walking in an upright position, or they may have to crawl on their hands and knees. If there is only light smoke and little or no heat, walking is the most rapid means of searching a building (maintain visual contact with the wall or hose line at all times). Searching in a crawling position can increase visibility and protect rescuers from intense heat and reduce the chances of tripping or falling into stairways or holes in the floor. Never walk upright unless you can see the floor. All members must have equipment needed to accomplish task (PPE, TIC, forcible entry tools, rope system – if indicated).



Encountering Doors

When a closed door is encountered during a search firefighter should:

1. Assess the door to determine direction of swing and fire conditions on the other side of the door. Direction of swing can be accomplished by "reading" the hinges, jamb and hardware. Firefighters should also assess the door for possible fire conditions on the other side of the door. This is accomplished by touching the door with skin contact. Starting low and working upward assess for heat/thermal balance on the other side of the door prior to opening.
2. Body Position - Utilize door to protect firefighters on outward swinging doors. Utilize wall to protect firefighters on inward swinging doors.
3. Open / mark door. Force entry if necessary. However, if blocked, there is a possibility that a victim is on the other side of the door.
4. Wedge door in the Open Position
5. When leaving remove wedge, complete door marking. If marking is not made, door can be propped open to identify the room was searched.



Mark doors for the following reasons:

- RIC can quickly locate the Search Group
- If search is interrupted (enables returning group to identify last position searched)
- Simplifies egress by allowing crews to by-pass rooms already searched

There are three main advantages to marking doors. Marked doors allow a RIC team to quickly locate the search team. Marked doors identify where the search team ended if the team must exit, and firefighter egress is simplified. During egress, firefighters may bypass marked doors allowing for a quicker exit.

The main disadvantage of marking doors during a primary search is that it **slows down** the primary search team. This should be considered when deciding to mark doors.

Encountering stairs

Searching a multi-story building can be complicated and time consuming. The incident commander may assign a search team to each floor to expedite the completion.

In a small multi-story building or if visibility is good, one search team may be adequate. However, it is recommended that more than one search group be used for multi-story occupancies. Treat the stairs as a doorway and proceed up/down on a right or left-handed pattern. The stairs leading to an upper floor should be searched by the team searching that floor.

For firefighter safety, a second means of egress should always be provided to search teams above the ground



Encountering stairs - *continued*

floor. This is usually accomplished with the use of ladder placement.

Searching the Center of a Room / Large Area

The wall person's main responsibility is to lead the search team through the structure utilizing the walls. The rescuers responsibility is to search the inner part of the room.

Large Area Search Procedure

- **Initiate an Anchor Point**

An anchor point is a point of entry into the structure where the search can be initiated. At a commercial occupancy, try to utilize large door opening, (double door entries, and roll up doors) for larger means of easy ingress and egress. The anchor point location should be at a location closest to the hazard area within the hazard zone to accommodate a rapid search of the priority search area(s). If a search rope line is to be utilized, anchor the "lead" line at least 10' from the entry point and as high as possible on the fixed object. Large area search procedures can also be accomplished utilizing the initial or support attack hose lines.



- **Establish Search Priorities**

In situations where fire attack and search operations are simultaneous, the area most threatened must be searched first, and work back to the less threatened areas of the occupancy or the point of entry. This operation may be referred to as "**Direct Destination**", in which a hose or rope "lead" search line is used as an anchor point. It is recommended that a three or four person search team be utilized for large areas. Some departments have gone to a rope search system that utilizes knots and rings. This system is mostly used in RIC operations. However, this system can be adapted for fireground search operations. The search leader shall perform all size-up and recon detail prior to operation. All team members shall be informed of operation, any hazards and position assignments (if applicable).



- **Position Assignments**

Upon entry through the anchor / entry point, the search leader must "aim" for the center of the large **Position Assignments** (*continued*)

area. This person should operate the thermal camera (TIC and spare battery) to guide the search team and provide better



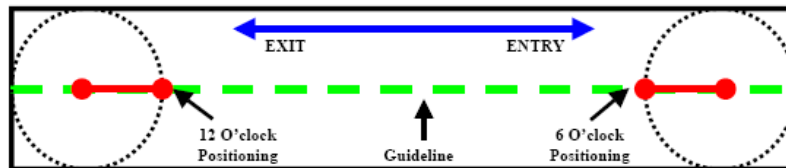
Large Area Search Procedure - *continued*

visibility. The two search members shall position themselves on the right and left of the lead search line. The search leader must keep tension on the rope at all times.



All members must maintain contact with the rope or hose line. Once a depth has been determined by leader (usually 50 to 100 feet) to begin the search pattern, the two other search personnel anchor themselves to the line (via ring, figure 8 w/ bite or hose) with their drop bags (carabineers), and are directed by the leader to begin a “fan” search pattern.

The search members begin the pattern by going past the leader 5 to 6 feet, towards the 12 O'clock position and “fan” back to the 6 O'clock position on both right and left sides of the lead line (rope or hose). Once at this position the drop bag is extended an additional 5 to 6 feet and the members repeats the fan or sweeping pattern back to the 12 O'clock position.



This procedure is continued until the 30 to 45 feet of drop bag rope is used. Once completed, search members (known as “hounds”) manage their drop bag ropes and return to the search leader. The line anchors (carabineers) are detached and the search team progresses into the occupancy with the assistance of the thermal camera (TIC). If air management dictates that members must exit, the lead search line is attached to a stationary object, (support beam, wall stud or secured anchor point). The back-up search team (or RIC) is then deployed to continue search operations. Back-up team enters the building on the **right side** (holding the rope or hose with the **right hand**) of the lead search line or hose, while the search team exits using the same method. As both teams meet, search leaders exchange information (conditions found, conditions anticipated, known hazards) and then continue with operations.



Search and Rescue Operational Guidelines

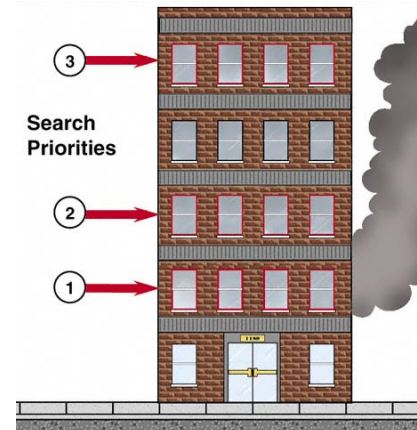
- Search and rescue should be performed according to an efficient, well planned procedure which includes the safety of search crew personnel (**Air Management**).

Search and Rescue Operational Guidelines - *continued*

- The objective of the search effort is to locate possible victims, not create additional victims by neglecting the safety of the search crew(s).
- Time is the critical factor in the primary search process. Successful primary search operations must be accomplished quickly and during initial fire stages. Rescuers should move systematically from room to room, searching each room completely. In addition, they should stop from time to time and listen for sounds from possible victims.
- Prior to entering the search area, all search team members should be familiar with a specific search plan including the overall objective, a designation of the search area, individual assignments, etc. This requires an operational briefing among crew members before entering the search area to develop and communicate the plan.
- This action plan must be communicated not only with assigned crew members but also with Command, RIC (Entry Point Accountability) and Safety (if possible). ALL members must have portable radios within IDLH zone.
- Search activities should be conducted by two or more members.
- Company officers must maintain an awareness of crew location, air management and function of all members within their crew during search operations. Request an immediate "back-up" search team for support.
- A review of pre-plans or similar occupancy layout may provide good reference for the search team. Always plan an escape route.
- Whenever a search is conducted that exposes search crews to fire conditions (particularly above the fire floor) the search team should be protected with a charged hoseline, in order to insure a safe escape route.
- If search personnel are operating without a hose line, life lines should be used when encountering conditions of severely limited visibility.
- Incident Command (IC) must structure initial operations around the completion of the primary search and provide back search team(s) for support.
- On the fire floor, rescuers should start the search as close to the fire as possible and then search back toward the point of entry. This allows members to reach those in the most danger first (those occupants who would be overtaken by fire extension). Those who are a greater distance from the fire are in less immediate danger and can "shelter in place" while the search team moves back toward safety.
- IC must "realistically" evaluate the manpower required to actually remove victims and then treat fire-affected victims.
- Secondary search means that companies thoroughly search the interior of the fire area after initial fire control **and ventilation** activities have been completed.
- It is the responsibility of IC to coordinate primary search assignments, secure completion reports from interior companies and to transmit the "ALL CLEAR" report to dispatch.

Multistory Building Search and Rescue

When searching multistory building, whether two-story or high-rise, the most critical areas are the fire floor the floor directly above the fire and the very top floor. Pre-incident planning and development of a “systems approach” to truck functions can make high-rise fire and rescue incidents much easier to cope with.



- All doors and window should be closed as primary search groups perform operations. A “rapid descent team” should be used to gain access to, and open the penthouse door or ventilated stair shaft access. It is NOT recommended to open bulkhead or penthouse doors from the roof. All floors should be checked for fire conditions with stair shafts ventilated with PPV to facilitate egress of occupants and firefighters.
- Allow fire conditions to dictate the use of a protection hose line on fire floors.
- Search groups must be aware of heat transfer, and fire extension. Fire traveling above in the plenum or cocklofts will allow fire to get behind firefighters or cut off escape routes.
- With training, large area search techniques can be transitioned to center hall-way search procedures.
- Stairways are to be used as a priority. Under some fire conditions and if the integrity of the building is not compromised, it may be safer to “**shelter in place**” those victims not in immediate danger.
- Ground ladders that are used at windows shall be raised just below the window sill, with a wider angle away from the building, at the base (if possible).
- Conscious victims are lowered feet first, facing the ladder.
- An unconscious victim is placed on the ladder in the same position (or facing the rescuer) with the weight supported by the rescuers knee. The victim’s legs, feet and arms are placed outside of the beams to prevent entanglement.



Ventilation

Ventilation is an important fireground activity that supports the primary search. Proper ventilation will remove heat, smoke and gasses from the interior fire environment. The replacement of heat, smoke and gasses with cooler, fresh air simplifies and expedites the search process and creates a safer environment for firefighters and victims inside the structure. Search teams with increased visibility will be more efficient at completing the primary search. Types of ventilation include: vertical, positive pressure, hydraulic and horizontal.

Ventilation - *continued*

Training statistics have shown that search teams initially encountering poor visibility that provide their own horizontal ventilation improve firefighter safety, enhance the accuracy and speed of the search. Opening windows by a search team can improve the interior environment but should be a coordinated effort with the incidents ventilation plans. Too many openings can interfere with positive pressure ventilation plans.

In situations where the fire has cut off the normal means of entry into or egress from some part of the occupancy where victims are still trapped, a technique known as: Vent, Enter and Search (VES) can be used. However, extreme caution must be used since this method may increase the chances of flashover, smoke explosion or backdraft.

VES involves forcing entry (from doors, windows, walls) into those areas where victims are most likely to be found. To avoid drawing fire into the room due to an open window or wall, firefighters should locate and close any doors to prevent fire extension. As with all tactical operations, the IC should be notified whenever VES is initiated so that it can be coordinated with other fire ground operations. Any methods of mechanical ventilation must NOT be used, or delayed until the fire is controlled or all victims are removed during this operation.

Communications, Progress/Accountability Reporting

Historically, communication issues have played a major part in many deaths and injuries to firefighters while conducting fireground operations. The following guidelines have been developed to enhance our awareness of competent communication efforts and also address firefighter accountability:

Communication Guidelines

- All firefighters must have a complete understanding of all communication devices, operation and function (mobile and portable radios).
- While dispatched and enroute, all firefighters must adhere to the assigned communication plan (command, tactical and emergency "RIC" tactical channels).
- Upon arrival, company officers shall confirm that all members are on correct tactical channel prior to deployment.
- All arriving units shall follow the pre-established accountability procedures prior to performing any duties.
Once assigned the search and rescue group supervisor is responsible for identifying the number of personnel, equipment needed for their rescue, and report their needs to the IC and the RIC Group Supervisor.
- As personnel arrive, a "back-up" search team should be placed in staging at the entry point and briefed by the IC, RIC or Safety.
- Prior to entry, it is mandatory that RIC operations be in place at the point of entry.
- If in place, the search group supervisor advises the entry point (2nd Level Accountability) of the assignment, anticipated location of operation, submits

Communications, Progress/Accountability Reporting - *continued*

accountability tags of all personnel assigned, amount of air in SCBA and time of entry is noted on the entry point status board.

- In addition, the search group supervisor must also give a situation report prior to entering the hot zone. This report will advise all division/group supervisors and command positions of the operation, personnel, location, conditions, air supply and needs.

Situation Report

Part of fireground communication involves giving a situation report prior to entry into a hazard zone, beginning of operation or a change in location or environment. This report must be concise, descriptive and standard with all other fireground communications. In addition to Position, Progress and Needs, Personnel and Air Management (PPPN) has been added to better define the principles of an air management system. The initial situation report has been given, this will allow the IC, RIC, 2nd Level Accountability and Safety to establish a time element to all division and group assignments. It is recommended that ten minute “call outs” be made if a situation report is not given from those operations working within the hazard zones, (hazard zone consist of interior, roof and immediate exposure divisions).

- P** – Personnel/Air – Describe total number of personnel, and the lowest amount of air.
- P** – Position/Conditions – Describe exact location (designate building or hazard zone side) and the present and/or anticipated hazard condition.
- P** – Progress/Actions – Describe initial actions and/or progress (if any). This information will assist the IC in determining if the current incident action plan needs to be altered (Offensive vs. Defensive).
- N** – Needs – Describe those additional resources or tactical assignments needed or anticipated to assist in the assigned objective.

Example #1:

“IC from Primary Search Group Division 1, With Three / Air is Full”

“Primary Search Group is entering main door on side “A” - We’ve got heavy pressurized smoke, minimal fire conditions; Initiating a left handed search pattern and advancing towards side “B”; Requesting vertical ventilation, additional manpower as a back-up, and an additional search group to the second floor.”

Example #2:

“IC from Primary Search Group Division 1, With Three / Air is three quarters”

“Primary Search Group is on side “C”. Visibility in smoke is improving, no fire. Continuing left hand search.

Victim Removal

Locating a victim is half the battle. Once a fire victim is located, the task of removing that victim begins. They must be moved to either the exterior of the building or sheltered in place. With ambulatory victims, walking is the least laborious of the many ways to remove victims. The condition and size of the victim will determine the number of personnel needed. If the atmosphere within the occupancy decreases, rescue personnel may consider victim removal through walls or windows. All victims should be assessed prior to removal from the hazard area(s). It is advised to treat victims prior to removal unless there is an immediate threat to the lives of the victims or rescuers. If an emergency situation occurs, quick removal shall take place under the following conditions: (*caution shall be in place for possible spinal injuries*)

- There is an imminent threat of fire extension to the immediate area,
- Flammable or explosive materials are involved,
- It is impossible to protect the scene or a defensible space/area,
- The victim is in cardiac arrest and must be moved to an appropriate area.

Accomplishing this task involves physical conditioning and proper victim removal techniques. The following is a list of lifts, drags, and carries to assist in moving the victim from the fire environment.

Incline Drag

This drag is used to move an unconscious victim down a stairway or up an incline. This drag is to be performed by one rescuer.

- Place the victim in the supine position.
- Kneel at the victim's head.
- Supporting the victims head and neck, lift the victim's upper body into a sitting position.
- Reach under the victim's arms and grasp their wrists. The rescuer grasps the victim's left wrist with his right hand and right wrist with his left hand.
- Stand up, and the victim can now be dragged.



Blanket Drag

This drag is done by one rescuer using a blanket, rug or sheet.

- Spread a blanket next to the victim, making sure it extends above their head.
- Kneel at the victim's side opposite the blanket and extend the victim's arm above their head.
- Roll the victim up against your knees.
-



Victim Removal - *continued*

- Pull the blanket against the victim, gathering it slightly against their back.
- Allow the 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 their feet.
- Grasp the end of the blanket extending above the head and drag the victim.

Strap Drag

In cases where blankets or litters are not available, firefighters can use a utility strap or webbing (15 to 20 ft - 1 inch) sewn or tied into a loop to create a better anchor point than the victim's shirt or jacket collar. This method may also be used for firefighter rescue during RIC operations.

- Place the victim in a supine position,
- Slip the strap under the victim's torso to a level just below the arm pits, (or through the SCBA harness straps for firefighters)
- Slip one or both of the victim's arms through the loop,
- Pull the bight in the loop above the victim's head,
- Reach through the bight in the loop and grasp the middle of the strap for a larks foot.
- Double up on the larks foot and snug the webbing to secure the knot and remove the victim by dragging out of the hazard area.



Cradle-in-Arms Lift / Carry

This is effective for small children or very small adults if they are conscious. It is usually not practical for carrying unconscious adults because of the weight and relaxed condition of the body. This lift/carry is to be performed by one rescuer.

- Place one arm under the victim's arms and across the back, and place the other arm under their knees.
- Lift the victim to about waist height and carry.



Seat Lift / Carry

This lift/carry can be used for carrying an unconscious or conscious victim and is to be performed by two rescuers.

- Both rescuers raise the victim from a supine position to a sitting position and link arms across the victim's back.
- Both rescuers then use their other hand to reach under the victim's knees



Victim Removal - *continued*

- Both rescuers stand lifting the victim, who takes the shape of a seat, and carry.

Extremities Lift / Carry

This lift/carry can be used for carrying an unconscious or conscious victim and is to be performed by two rescuers.

- Place the victim in the supine position
- Rescuer kneels at the head of the victim, other rescuer stands between the victim's knees facing the victim.
- The rescuer at the head supports the victim's head and neck with one hand and places the other hand under their shoulders, while the second rescuer grasps the victim's wrists.
- The rescuer holding the victim's wrists pulls them to a sitting position; the other rescuer assists by gently pushing on the victim's back
- The rescuer holding the head reaches under the victim's arms and grasps their wrists as the other rescuer releases them. This rescuer grasps the victim's left wrist with his right hand and the right wrist with his left hand.
- The rescuer located at the victim's knees turns around, kneels down, and places their hands under the victim's knees.
- On a command by the rescuer at the victim's head, both rescuers stand and carry the victim.



Chair Lift / Carry

This lift/carry can be used for carrying an unconscious or conscious victim and is to be performed by two rescuers. The rescuers should attempt to use a sturdy chair and avoid using a folding type chair.

- Place the victim in the supine position
- One rescuer lifts the victim's knees until the knees, buttocks, and lower back are high enough for the second rescuer to slip the chair under the victim.
- Both rescuers, facing the direction of travel, raise the chair to a 45-degree angle.
- Lifting the seated victim, one rescuer carries the legs of the chair and the other carries the back of the chair.



Firefighters Lift / Carry

Mostly used during RIC operations, but can be used to remove civilians who are unconscious. However, as mentioned, care should be given if there is any possibility that there may be a spinal injury.



Victim Removal - *continued*

- One rescuer stands or kneels over the victim (locking the victim's knees) and pulls then to a standing position.
- A second rescuer (if available), assists the first rescuer in hoisting the victim onto the rescuers shoulder.
- Secure the victim by arm wrapping one or both legs.
- Carry the victim from the hazard area.



References

IFSTA – Fire Protection Publications (2005). *Fire Ground Search and Rescue*. (7th ed.)
Fire Service Search and Rescue (pp. 379-409). Oklahoma State University

IFSTA – Fire Protection Publications (1999). *Rescue and Extrication*. (4th ed.)
Essentials of Fire Fighting (pp. 175 – 188). Oklahoma State University

Jakubowski, G. & Morton, M. (2003). *Rapid Intervention Teams* (1st ed.) Fire Publications – Oklahoma State University

Richman, H. (1986). *Truck Company Fireground Operations* (2nd ed.) National Fire Protection Association