
Continuing Education for the Fire Fighter



Structural Search, Victim Removal, and Firefighter Survival

Module 1

Chapter 9



LEARNING OBJECTIVES

Summarize the impact of building construction and floor plans on structural search techniques.

Summarize safety guidelines for structural search and rescue.

Explain size-up and situational awareness considerations during structural searches.

Differentiate between primary and secondary search techniques.

Recognize basic search methods.

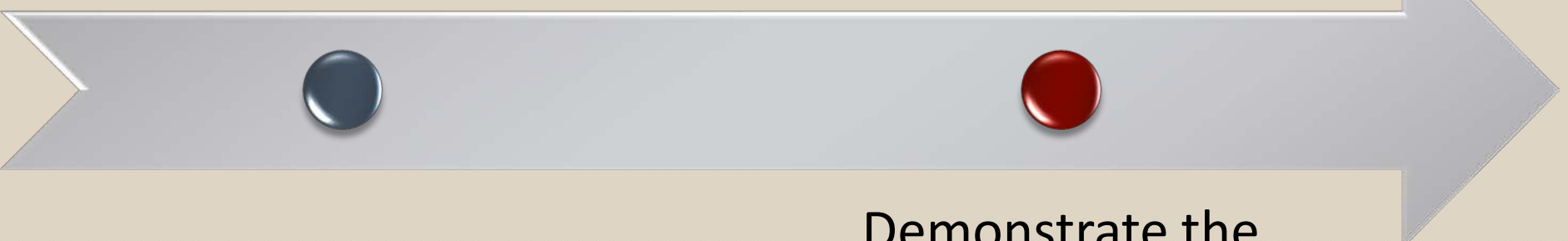


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LEARNING OBJECTIVES

Describe victim removal methods.



Demonstrate the procedure for conducting a primary search.



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LEARNING OBJECTIVES

Demonstrate
the
procedure for
conducting a
secondary
search.

Demonstrate
the webbing
drag.

Demonstrate
the seat
lift/carry —
Two-rescuer
method.

Demonstrate
the incline drag.

Demonstrate
the cradle-in-
arms
lift/carry —
One-rescuer
method.

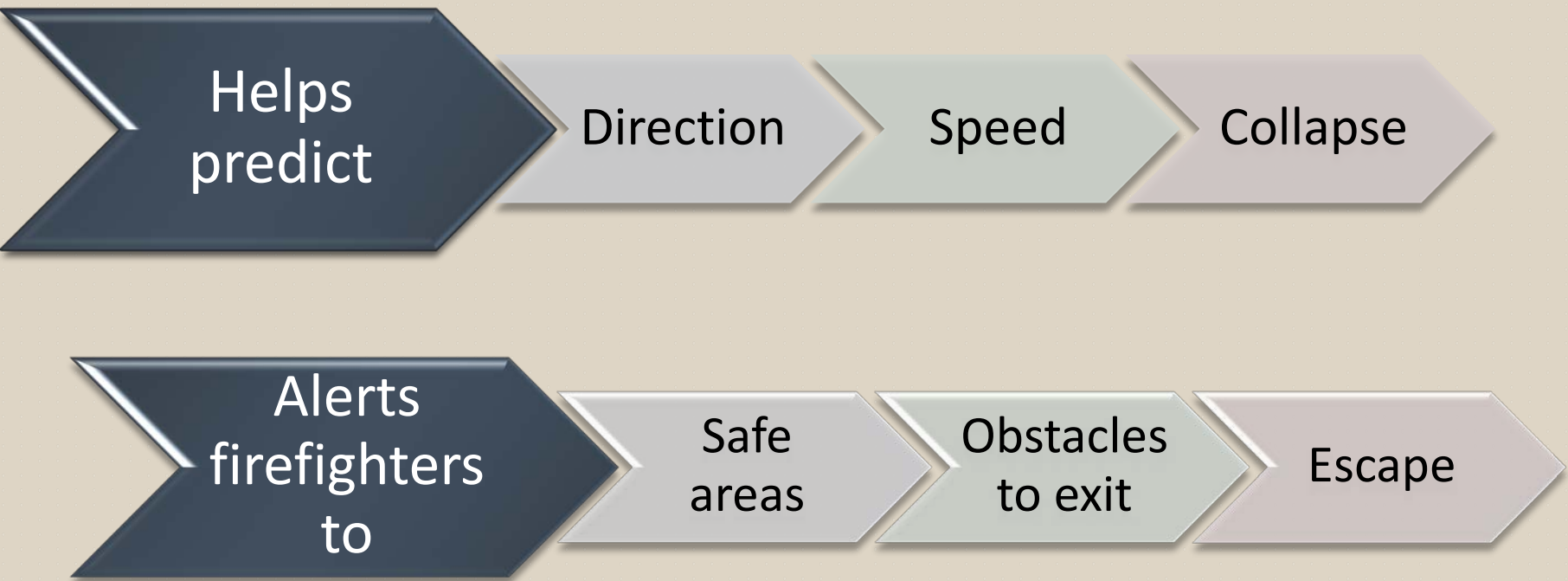
Demonstrate
the
extremities
lift/carry —
Two-rescuer
method.



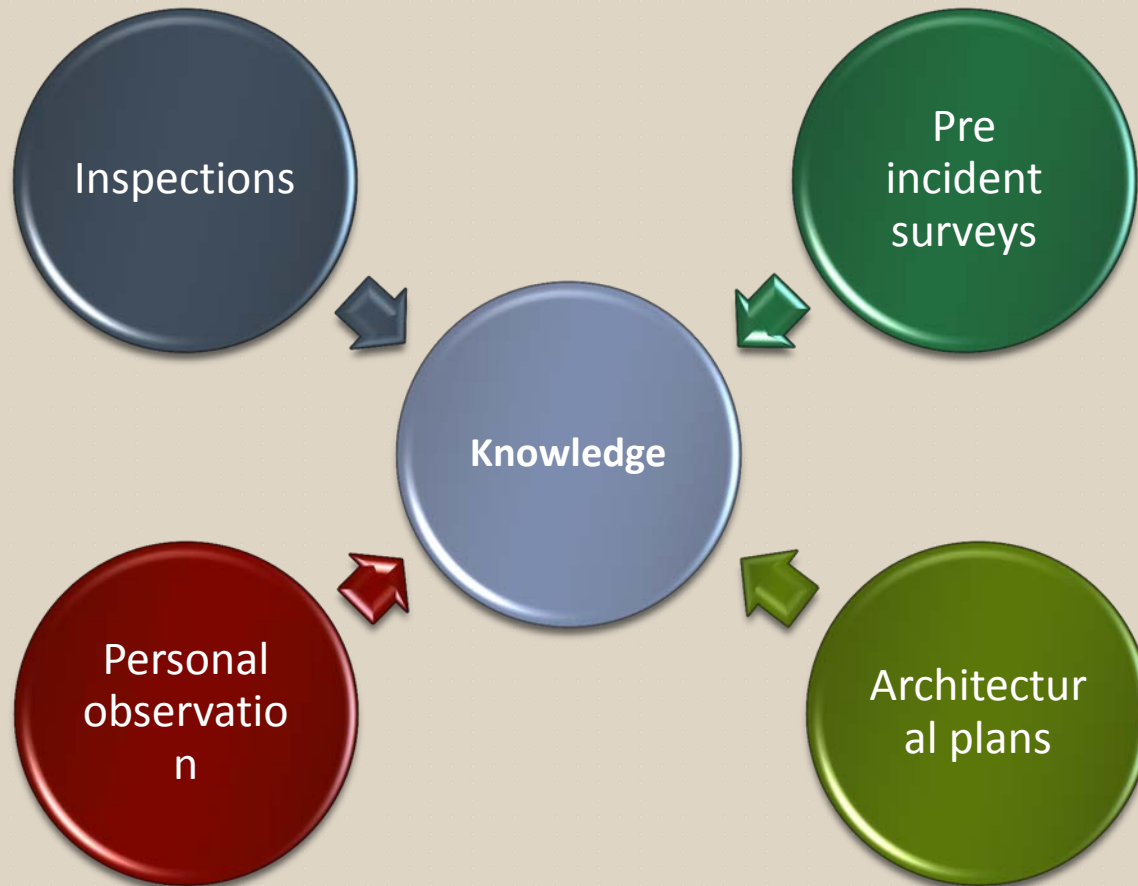
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FIREFIGHTERS MUST KNOW HOW BUILDING CONSTRUCTION AFFECTS FIRE DEVELOPMENT.



FIREFIGHTERS MUST KNOW LAYOUT OR FLOOR PLAN TO SEARCH STRUCTURE EFFECTIVELY.



FIREFIGHTERS SHOULD TAKE EVERY OPPORTUNITY TO OBSERVE BUILDING LAYOUT.



Residential dwellings



Other structures in response area



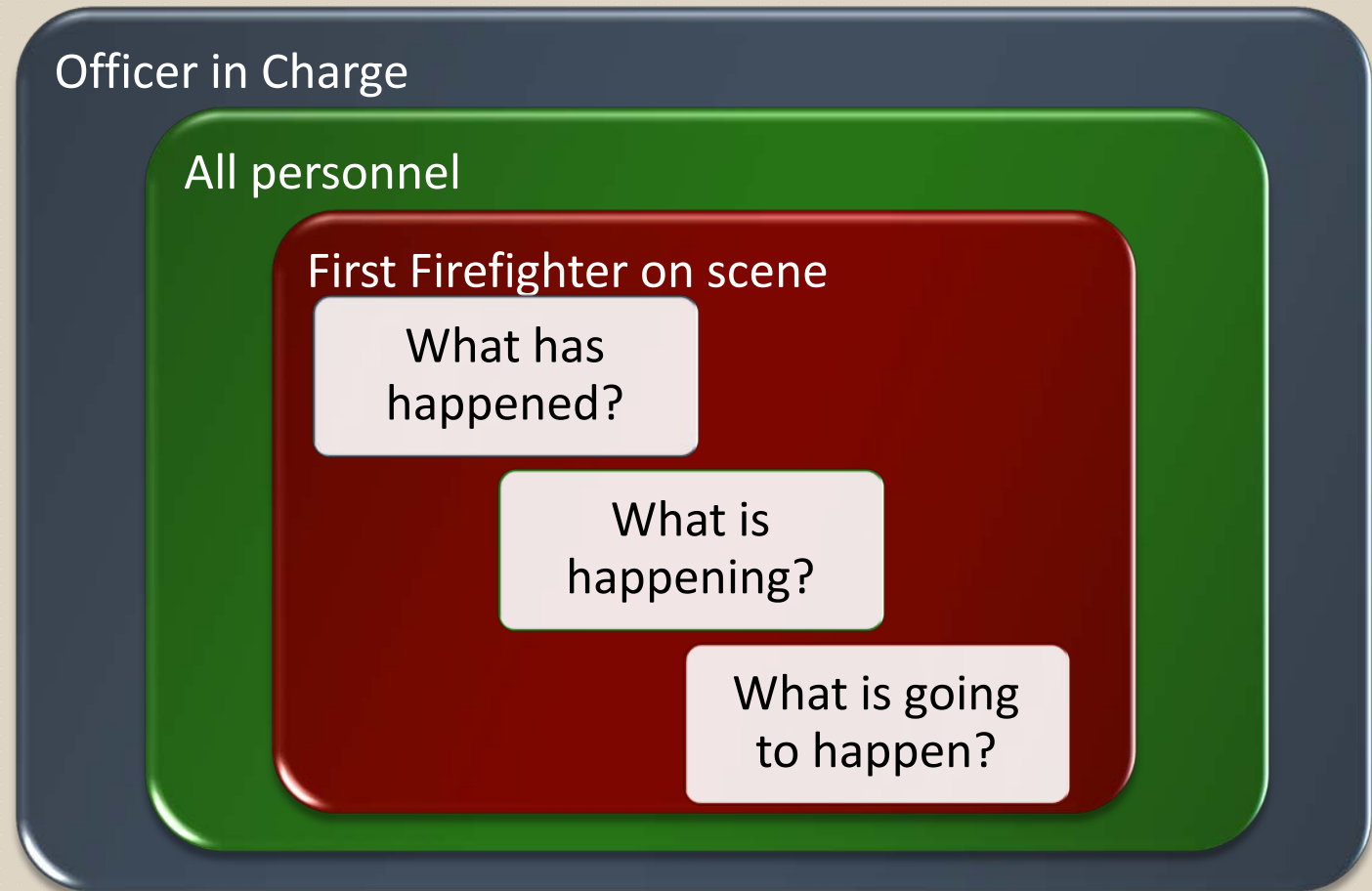
Zoning meetings, open houses, and building officials



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SIZE-UP IS A MATTER OF SAFETY FOR ALL PERSONNEL AT AN EMERGENCY INCIDENT.



USE SITUATIONAL AWARENESS AT ALL TIMES TO KEEP ALL FIREFIGHTERS SAFE.



Courtesy of Bob Esposito

Begins at arrival



Communication



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USE YOUR SENSES AFTER ENTERING A STRUCTURE TO INCREASE YOUR SITUATIONAL AWARENESS.

Listen to sounds that
indicate fire
becoming more
intense



Watch for color of
smoke



Feel wall, door with
back of hand



Sound floor before
advancing



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BE AWARE OF KEY INDICATORS OF STRUCTURAL INSTABILITY.

Listen for sounds of structural
movement

Look for sagging support elements,
obvious structural displacement



FOLLOW THESE GENERAL SAFETY GUIDELINES FOR STRUCTURAL SEARCH AND RESCUE.

Do not enter structures when survivors unlikely

Avoid extreme fire behavior

Do not freelance

Maintain contact with IC

Monitor radio traffic, fire conditions

Continuously monitor fire conditions

Accountability system

Be aware of entry/egress

Full PPE, SCBA, PASS

Work in teams, keep in contact



FOLLOW THESE GENERAL SAFETY GUIDELINES FOR STRUCTURAL SEARCH AND RESCUE.

Use strap to control door

Close door to fire, report condition

Search systematically

Stay low, move cautiously

Monitor and communicate changes

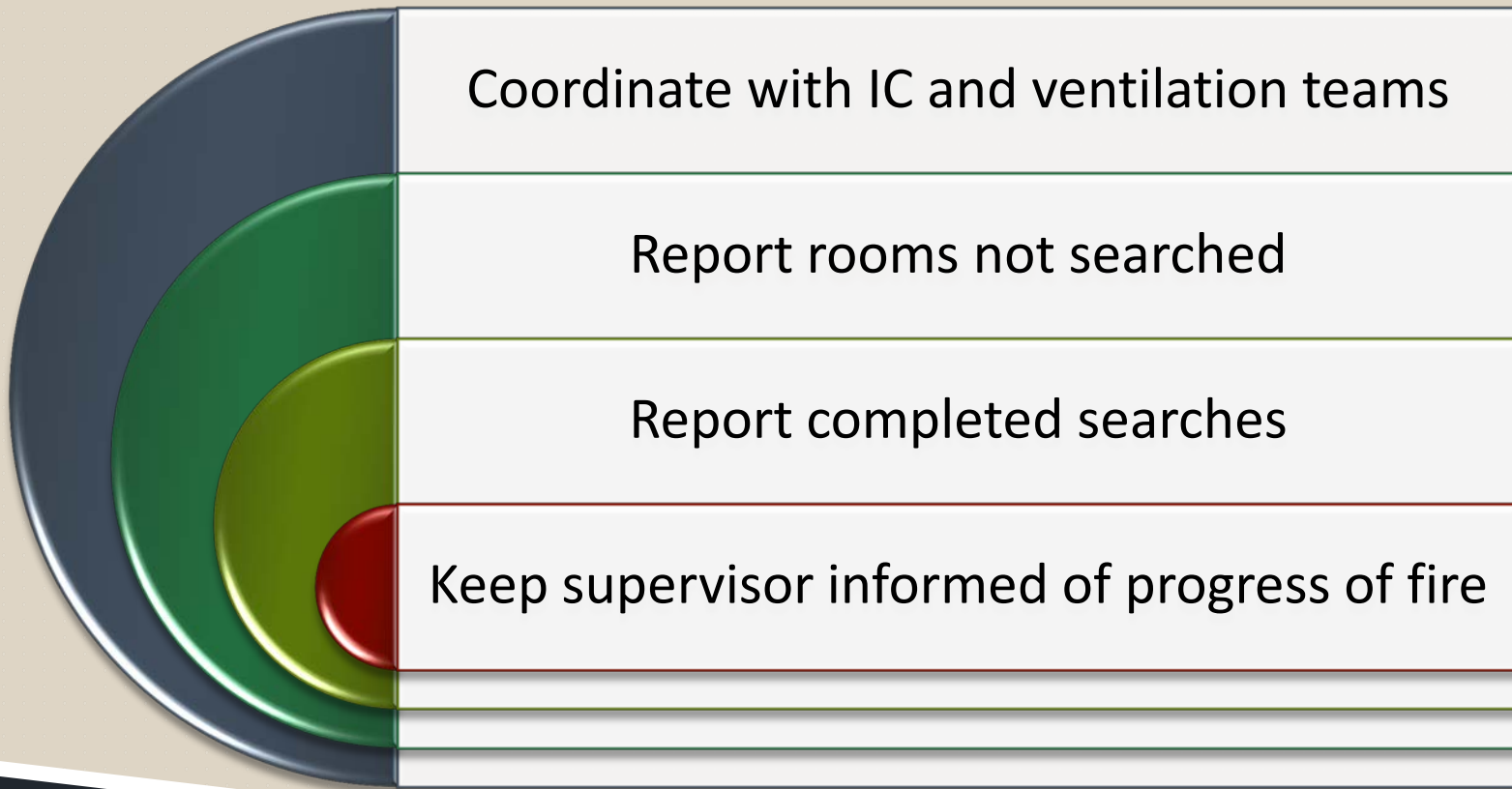
Mark entry, remember direction

Maintain contact with wall and lines in low visibility

Have staffed, charged hoselines whenever possible



FOLLOW THESE GENERAL SAFETY GUIDELINES FOR STRUCTURAL SEARCH AND RESCUE.

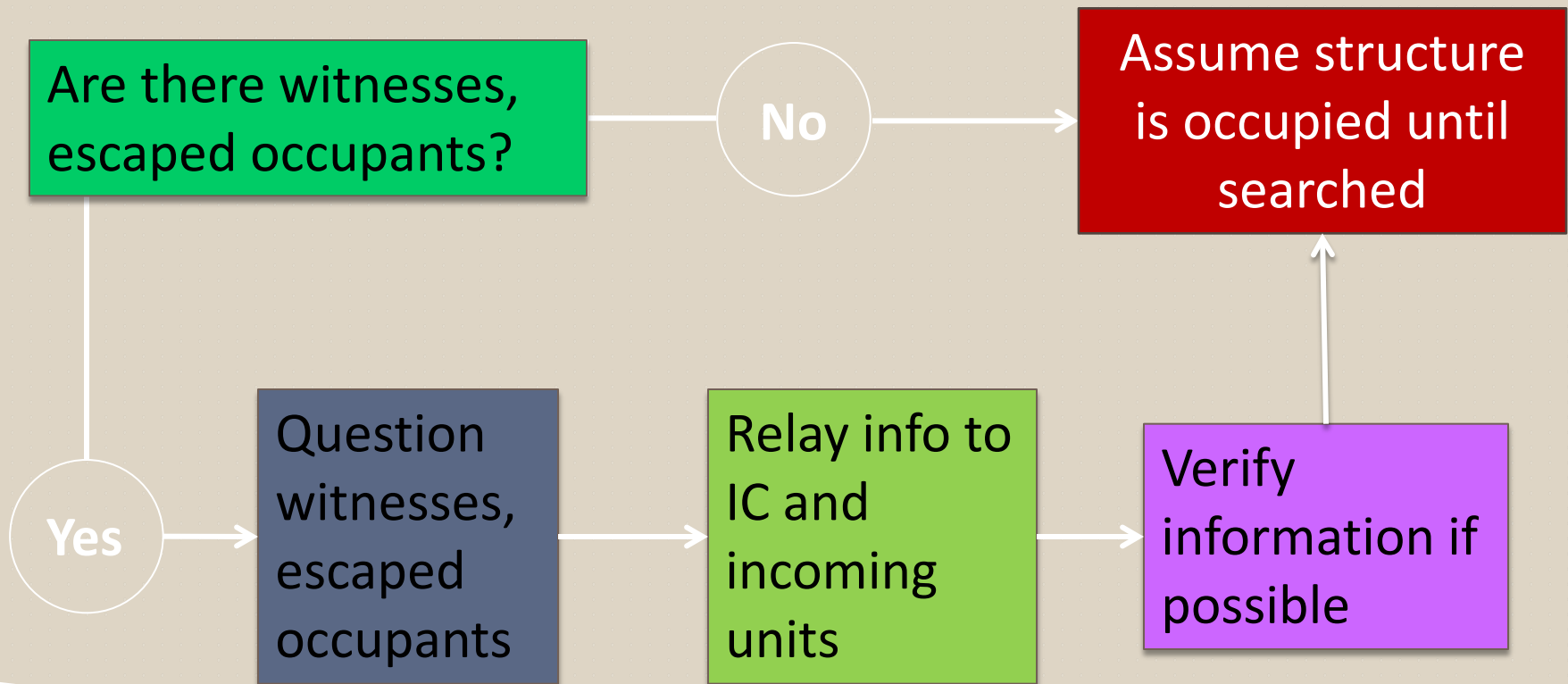


FIREFIGHTERS MUST BE PREPARED BEFORE ENTERING ANY AREA IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).

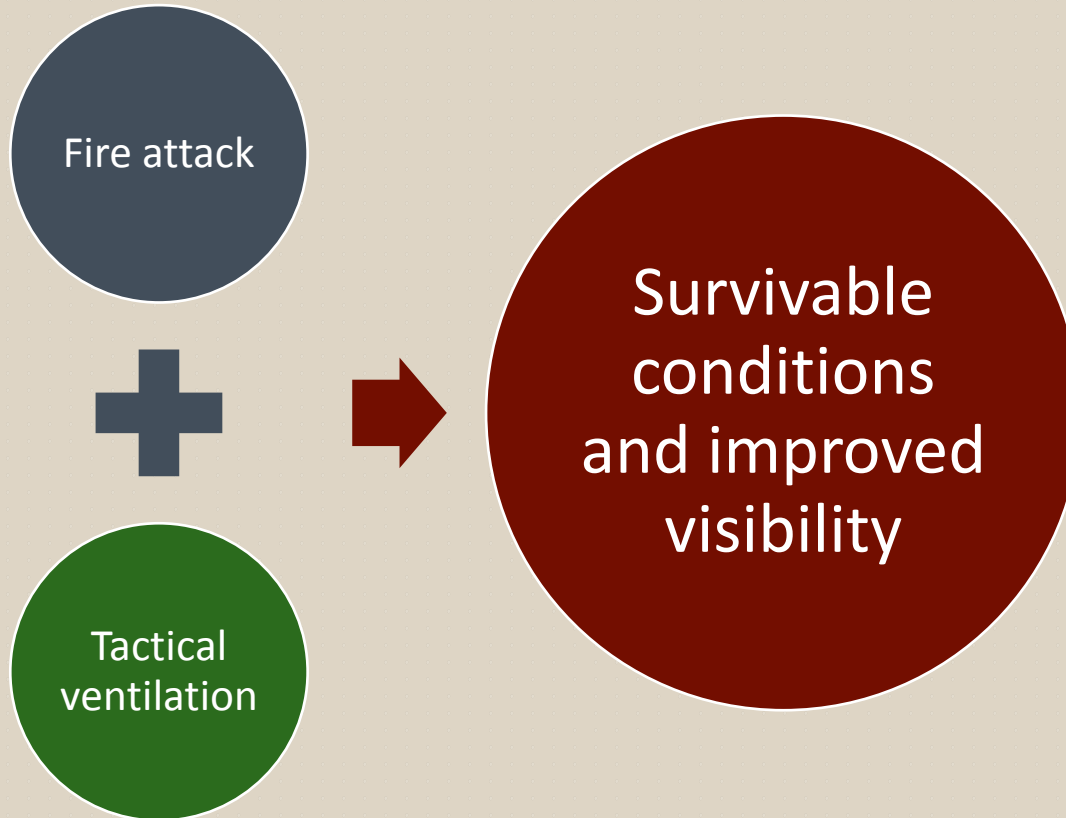


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WITNESSES CAN PROVIDE INFORMATION ABOUT OCCUPANTS STILL INSIDE STRUCTURE.



FIRE ATTACK AND VENTILATION IMPROVES CONDITIONS WHEN DONE SIMULTANEOUSLY WITH SEARCH.



THE DECISION OF WHEN TO BEGIN SEARCH PROCEDURES WILL DEPEND ON THE CIRCUMSTANCES.



The diagram consists of two large, dark blue arrows pointing in opposite directions. The left arrow points towards the left and contains the text 'Fire control before search'. The right arrow points towards the right and contains the text 'Search while advancing hoseline'. The arrows are positioned horizontally and overlap slightly in the center.

Fire control
before search

Search while
advancing hoseline



STRUCTURAL SEARCH AND RESCUE HAS TWO MAIN OBJECTIVES.

Searching for life

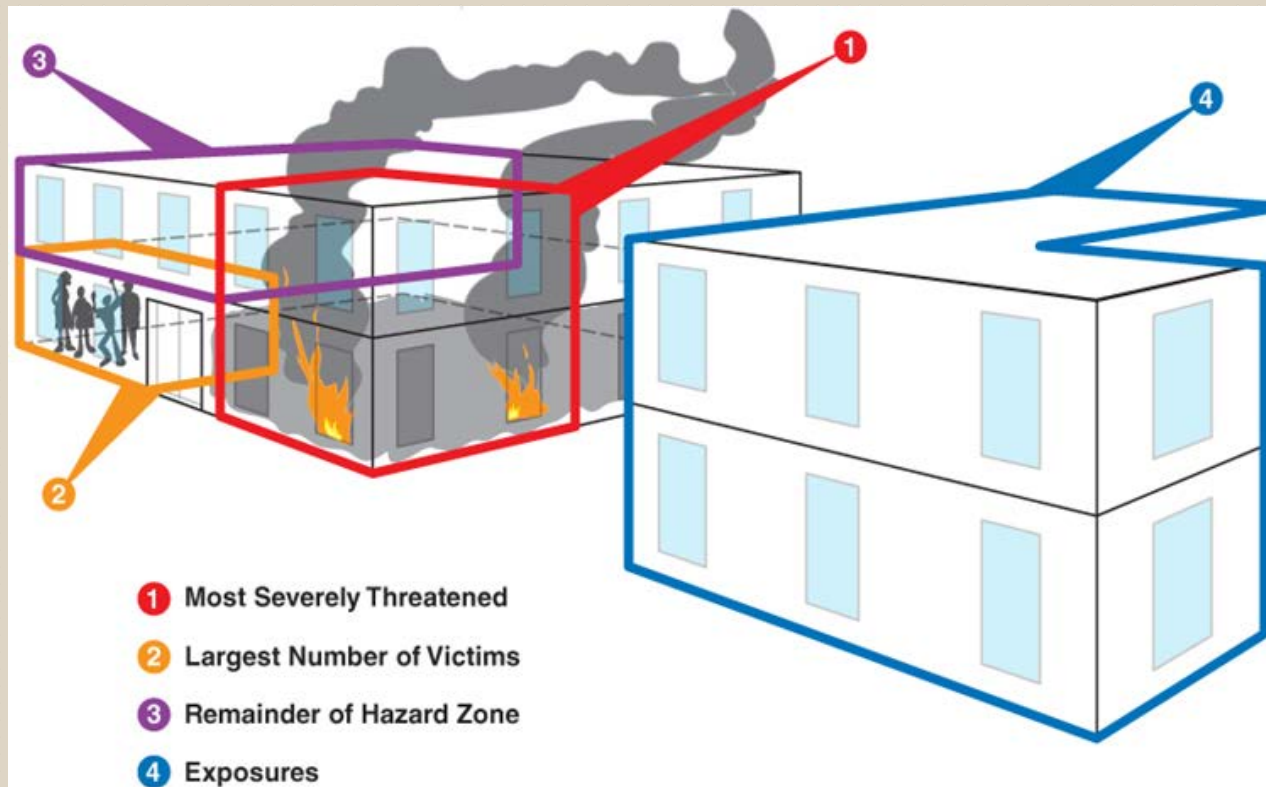
Assessing fire conditions



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PRIMARY SEARCHES ARE CONDUCTED IN THE MOST CRITICAL AREAS FIRST.



SECONDARY SEARCHES ARE CONDUCTED AFTER INITIAL SUPPRESSION AND VENTILATION.



Different personnel,
“fresh eyes”

Slower, thorough
systematic search

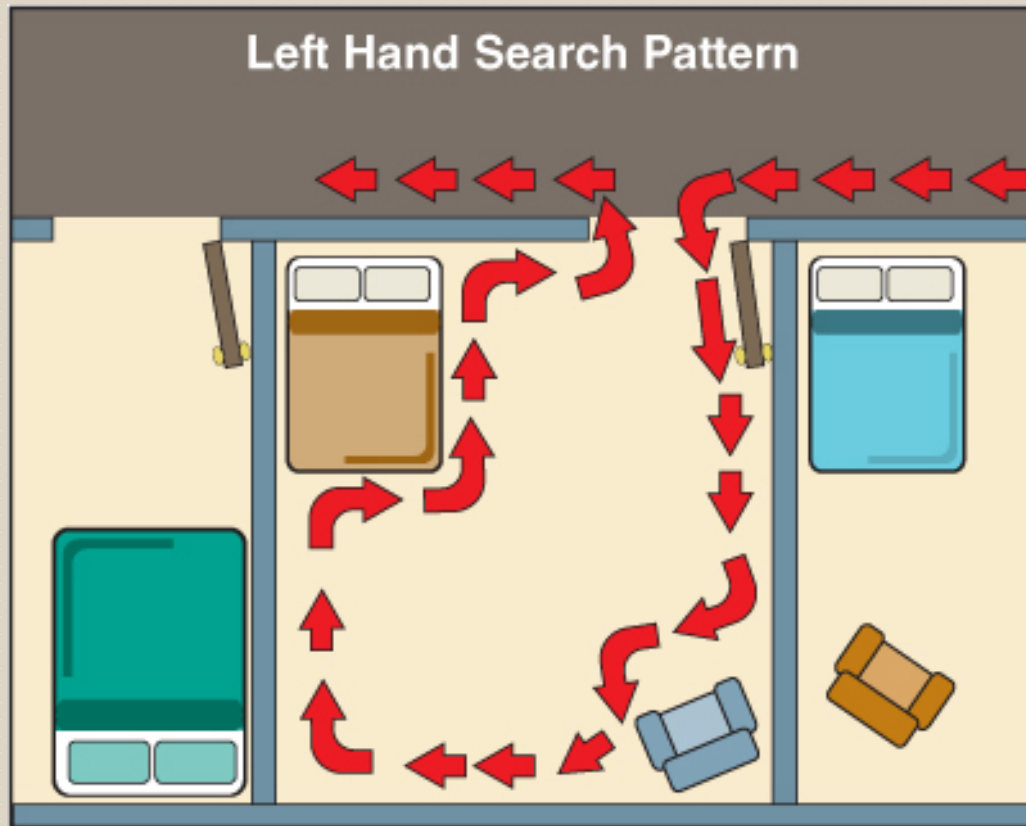
Report any changes

Do not remove SCBA

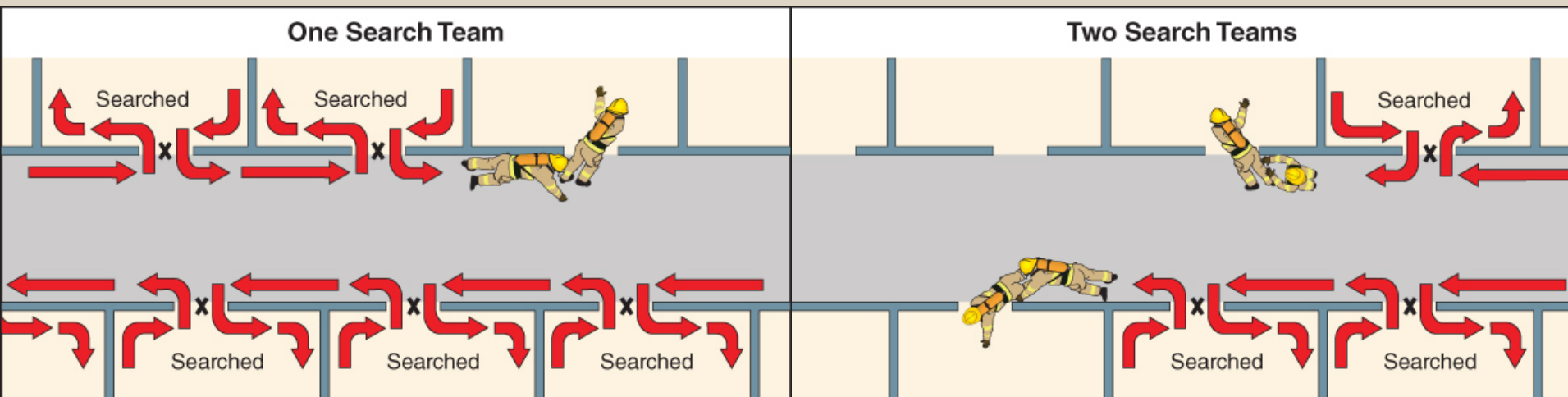


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GENERAL METHODS FOR PRIMARY AND SECONDARY SEARCHES FOLLOW A SYSTEMATIC PATTERN.



USE ORIENTED-SEARCH METHOD FOR ROOMS THAT EXTEND FROM HALLWAY.



PERFORM A QUICK SURVEY BY GETTING LOW TO THE GROUND.



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HOW FIREFIGHTERS MOVE DURING SEARCH DEPENDS ON CONDITIONS.



Walk if possible



Crawl in extreme
heat and smoke



Using stairs

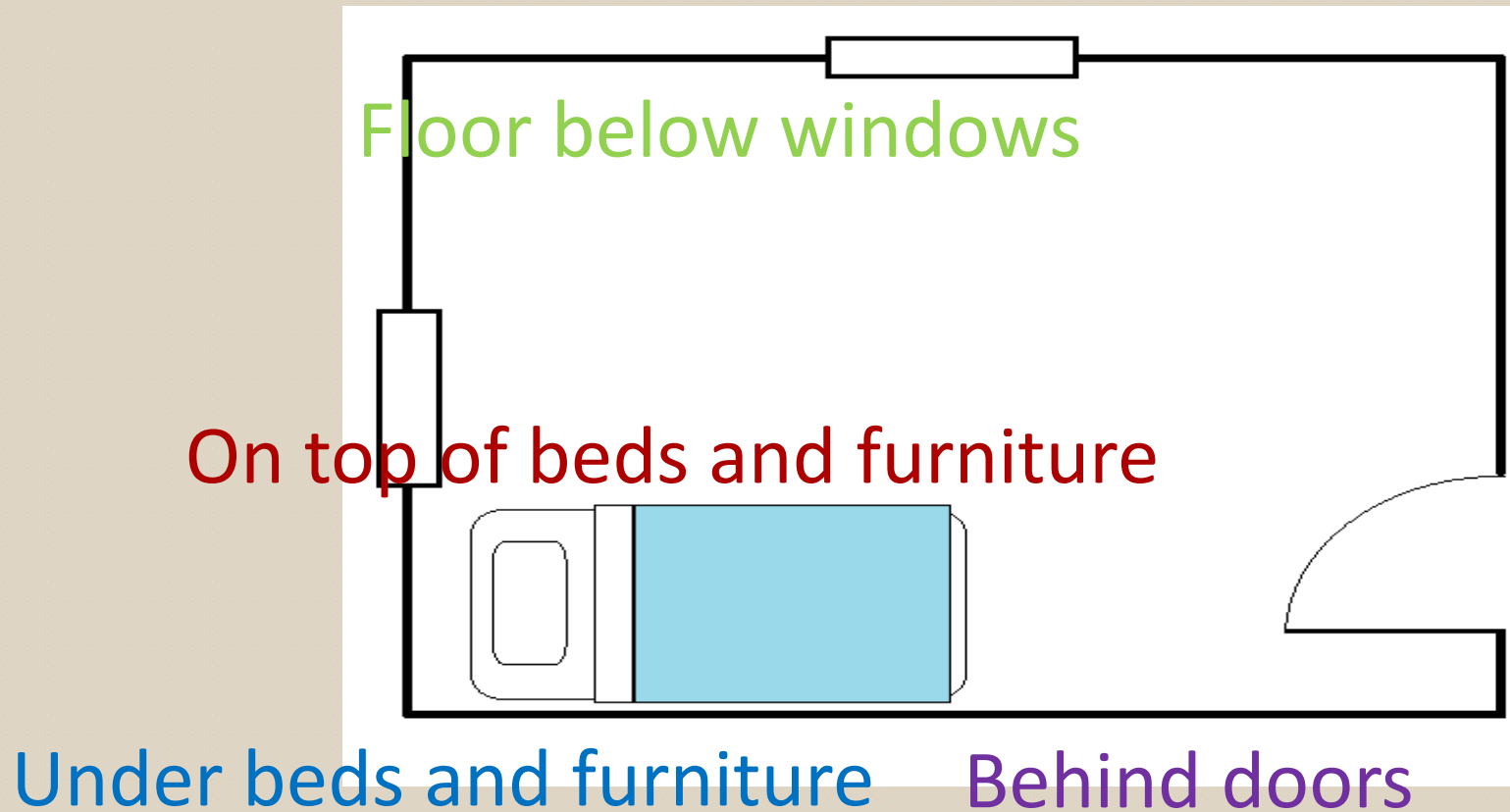


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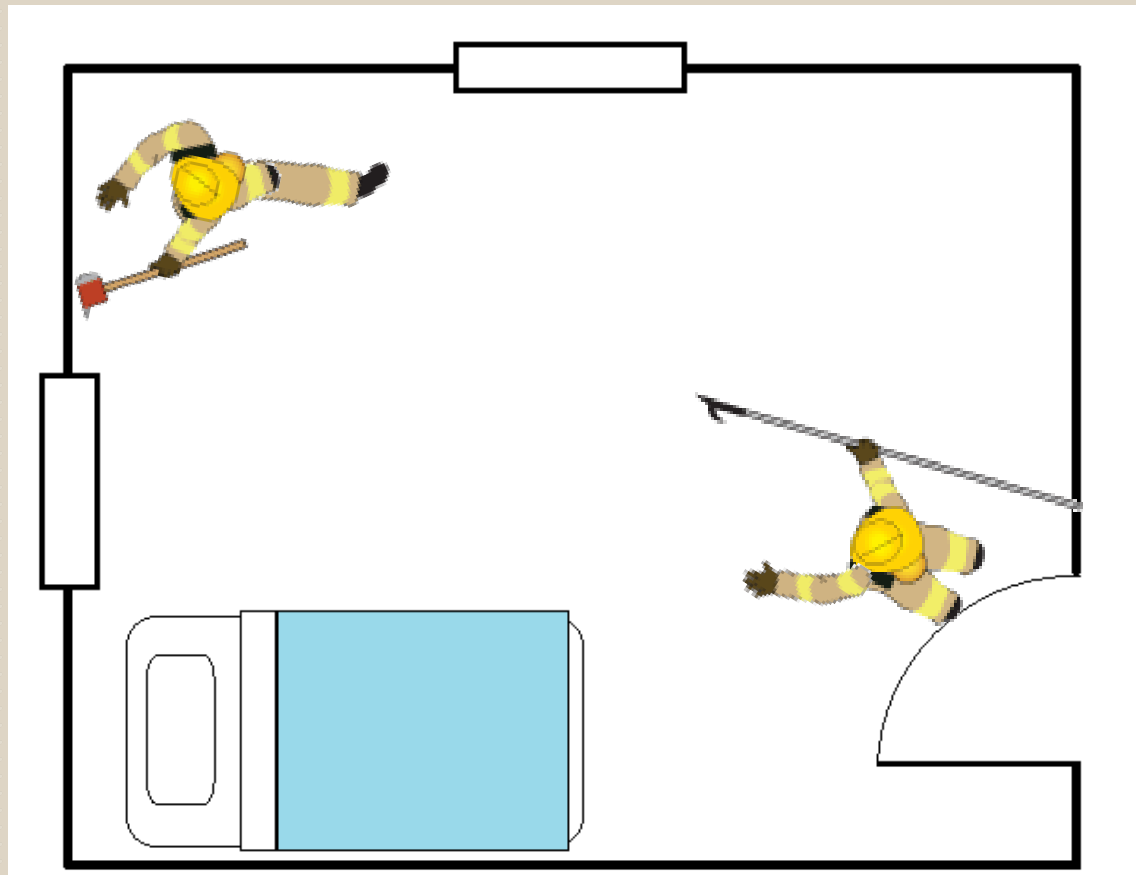
VICTIMS MAY SEEK SHELTER FROM FIRE OR BE FOUND IN PATHS OF EGRESS.



SEARCH THE PERIMETER AND CHECK WHERE
OCCUPANTS MAY BE OVERCOME WITH SMOKE WHILE
ATTEMPTING ESCAPE.



PLACE A TOOL AGAINST THE WALL AND EXTEND WITH ARM OR LEG TO SEARCH THE MIDDLE OF THE ROOM.



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TAKE THE FOLLOWING ACTIONS IF VISIBILITY IS LIMITED DURING A PRIMARY SEARCH.

Identify
objects by
touch

Do not move
objects, can be
disorienting

Search all sides
of any object

Report to IC if
smoke
obscures vision



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REMEMBER THE FOLLOWING ACTIONS WHILE CONDUCTING STRUCTURAL SEARCHES.

Maintain radio contact with supervisor, IC

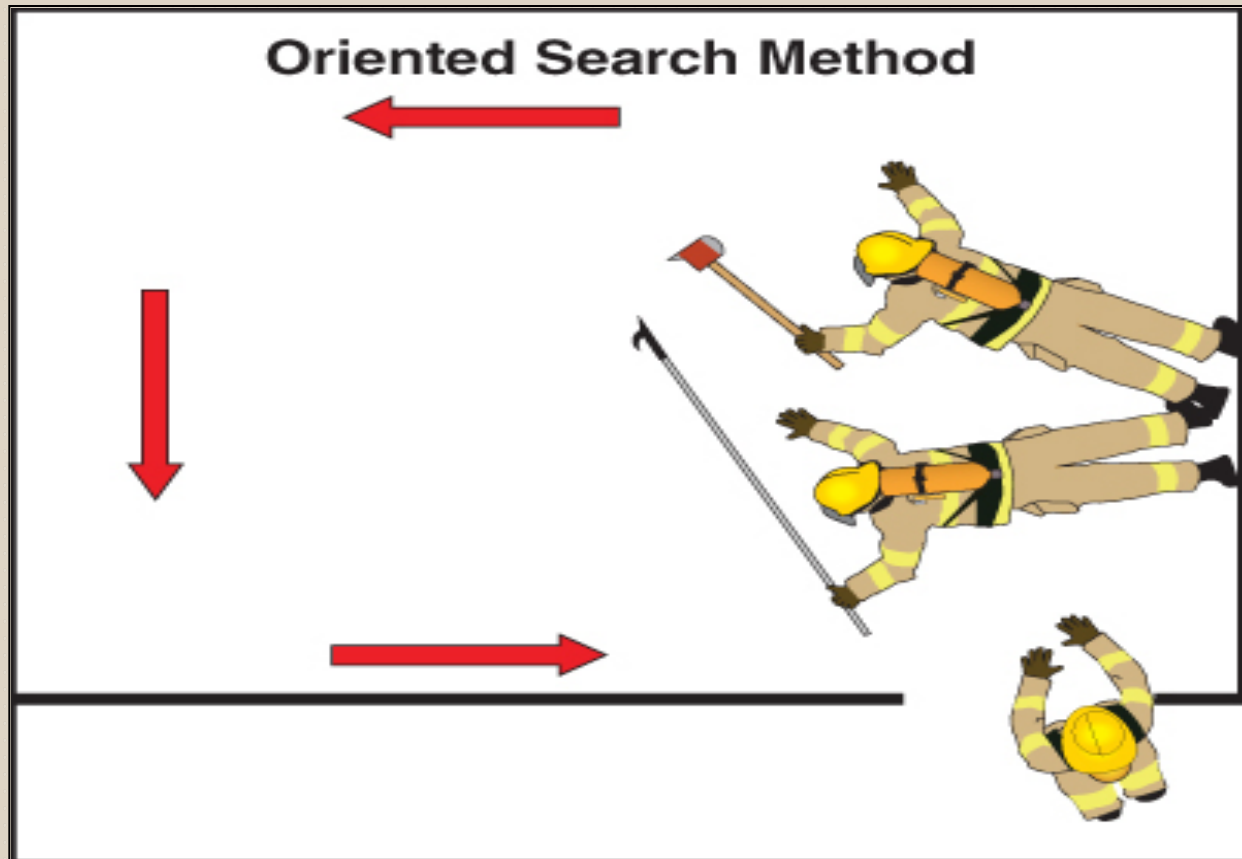
Report progress and new information

Close doors unless ventilating

Clear unused equipment from exit paths



USE THE ORIENTED-SEARCH METHOD WHEN WORKING IN TEAMS.



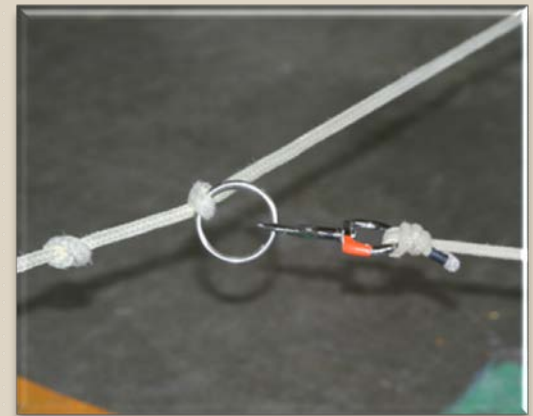
USE THE WIDE-AREA-SEARCH METHOD FOR LARGE OR COMPLEX AREAS FILLED WITH SMOKE.



Identifying tag



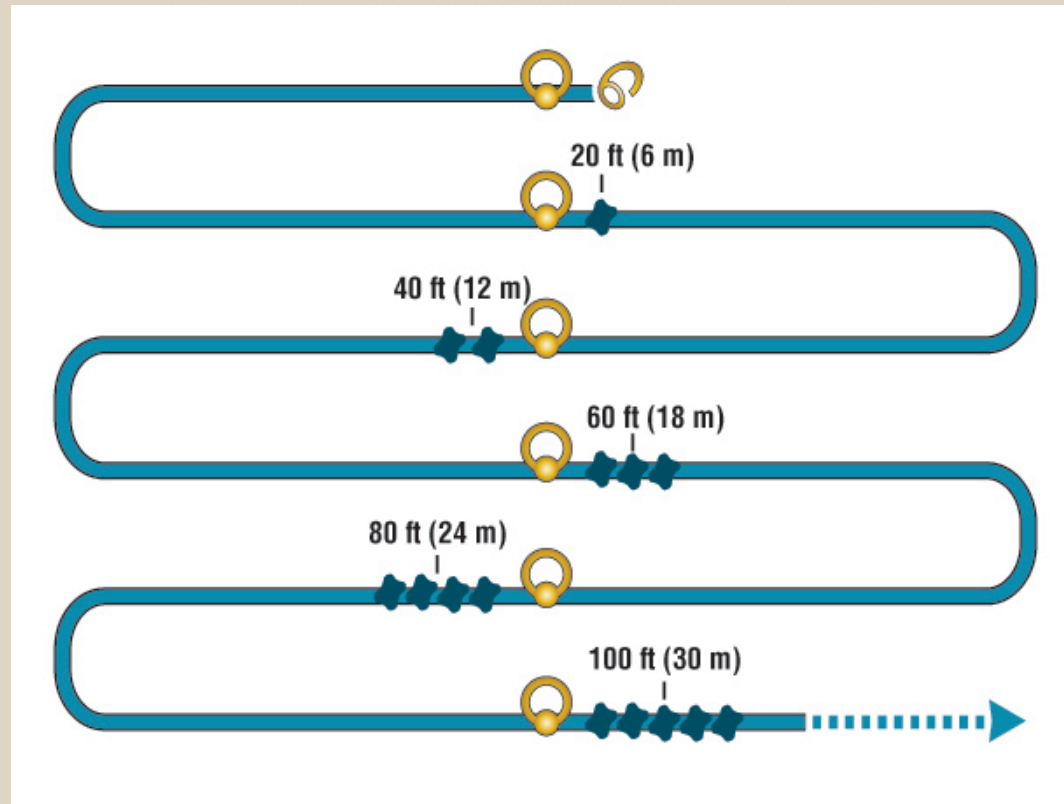
Lead and navigator



Steel ring tied to
search line

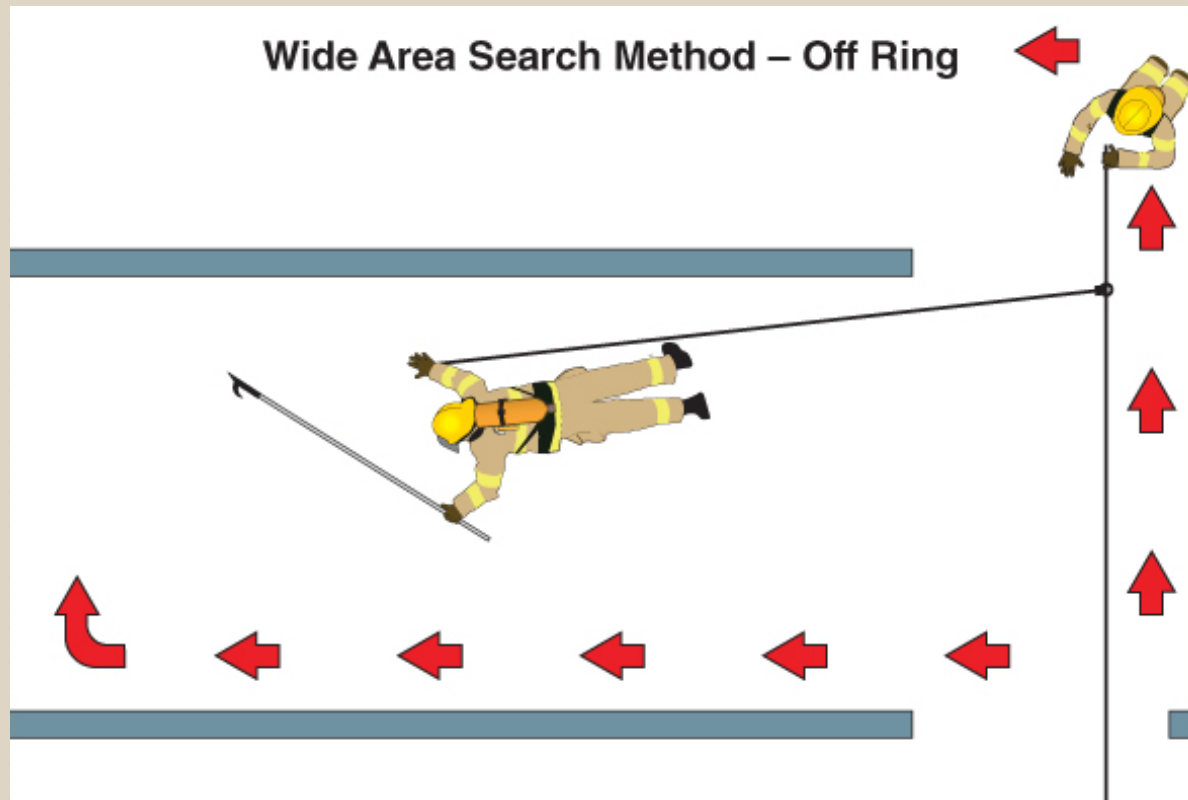


KNOTS TIED AFTER EACH RING INDICATE DISTANCE AND DIRECTION.

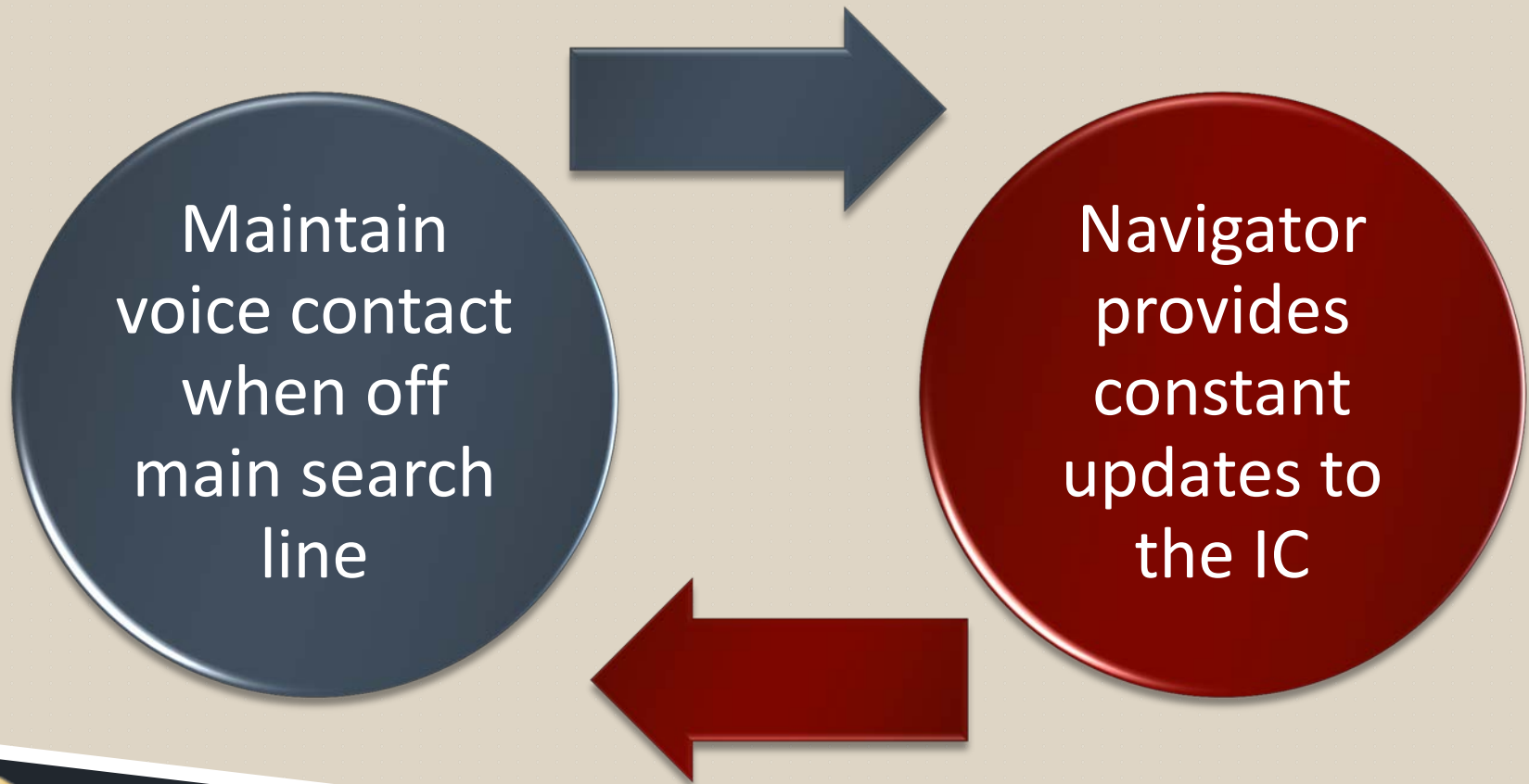


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RINGS PROVIDE ANCHOR POINTS FOR LATERAL TETHERS USED FOR SEARCHING AREAS PERPENDICULAR TO SEARCH LINE.



COMMUNICATION IS ESSENTIAL WHEN USING SEARCH LINES AND TETHERS.



THERMAL IMAGERS HELP FIREFIGHTERS SEE THROUGH DARKNESS AND THICK SMOKE, BUT ALSO HAVE DISADVANTAGES.



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CONSISTENT MARKING SYSTEMS HELP FIREFIGHTERS CONDUCT EFFECTIVE SEARCHES.



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SOME DEPARTMENTS USE FEDERAL EMERGENCY MANAGEMENT AGENCY'S URBAN SEARCH AND RESCUE SYSTEM.

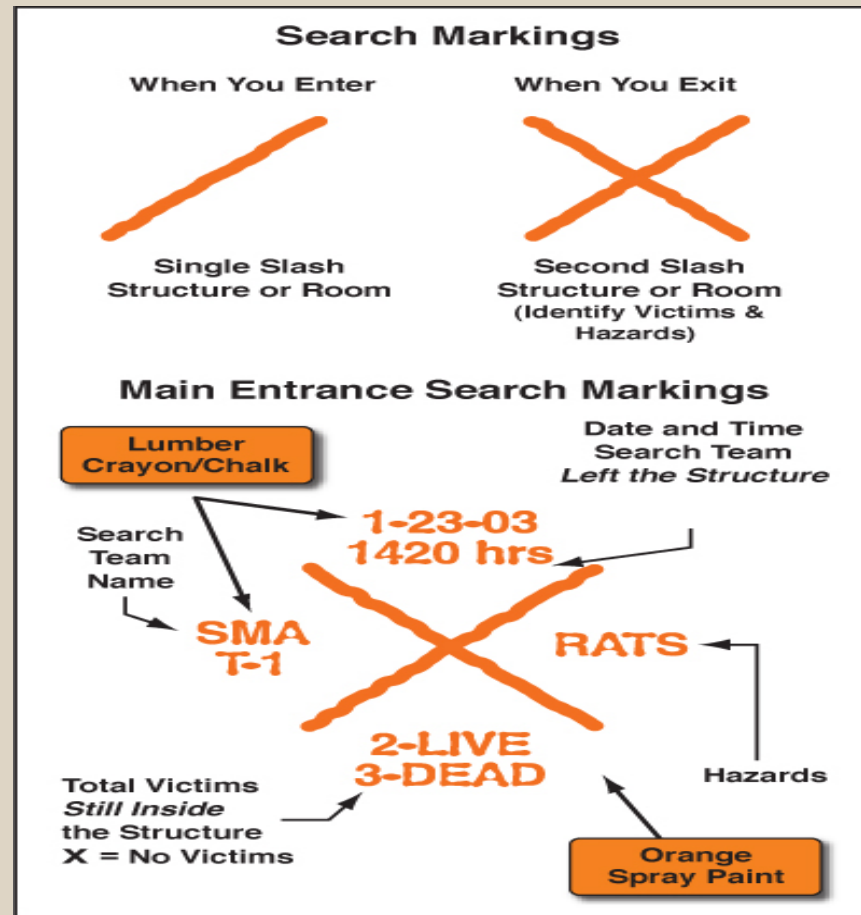
When you enter



When you exit



ADDITIONAL MARKS CAN BE MADE TO ADD IMPORTANT INFORMATION.

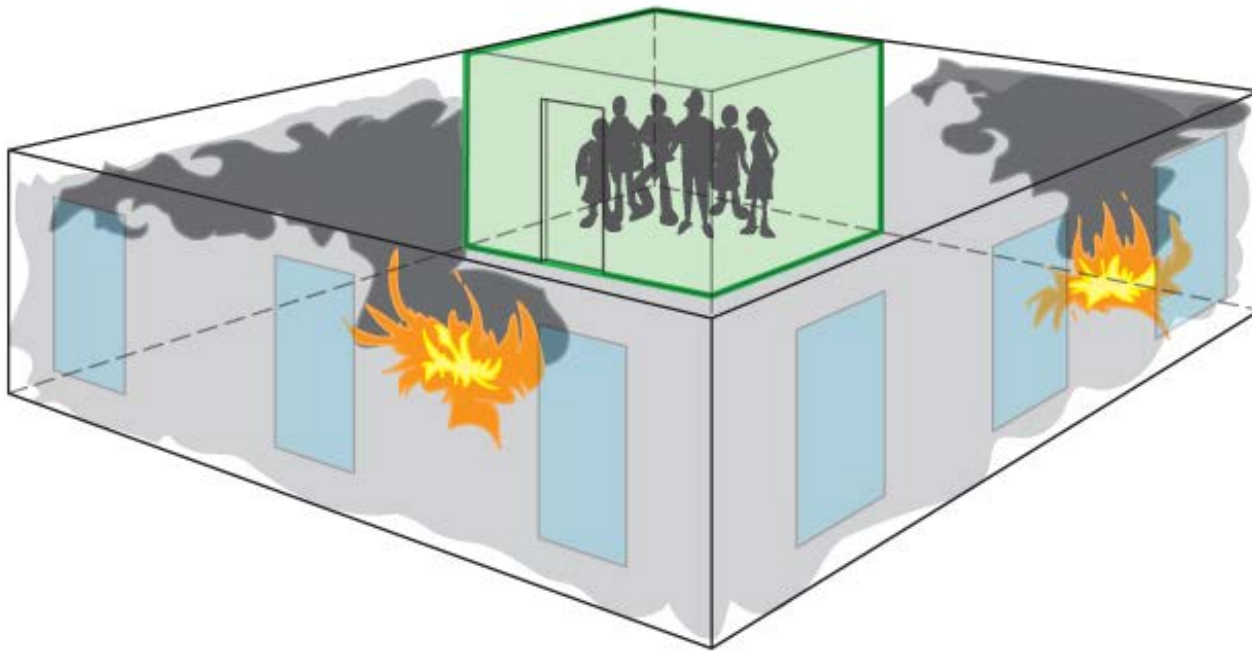


MANY OCCUPANTS CAN EVACUATE WITH LITTLE OR NO ASSISTANCE FROM FIREFIGHTERS.



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USE SHELTER-IN-PLACE METHOD ONLY IN CERTAIN CIRCUMSTANCES.

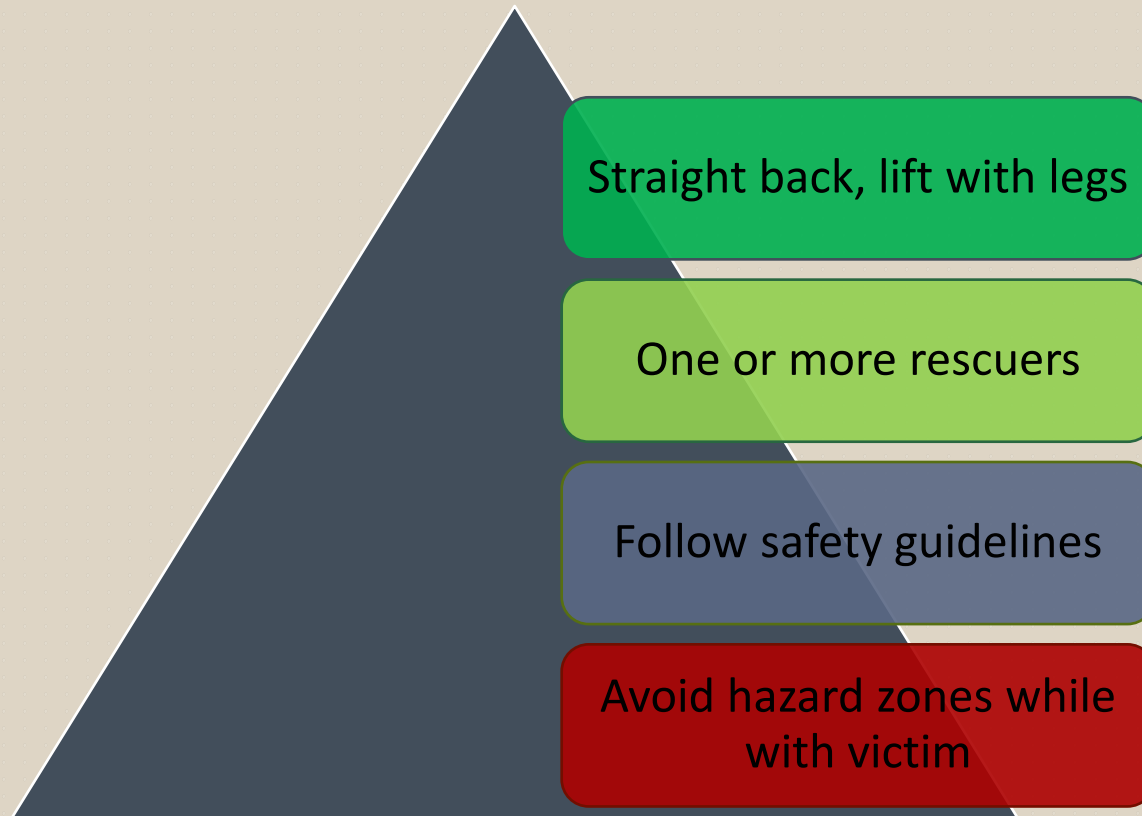


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WHEN RESCUE EFFORTS ARE REQUIRED, FIREFIGHTERS MAY HAVE TO TAKE SPECIFIC ACTIONS.



IMPROPER LIFTING TECHNIQUES CAN RESULT IN BOTH VICTIM AND FIREFIGHTER INJURY.



USE THE DRAG OR LIFT/CARRY TECHNIQUE APPROPRIATE TO THE SITUATION.

Incline drag

Webbing drag

Cradle-in-arms
lift/carry

Seat lift/carry

Moving
victims onto a
litter

Extremities
lift/carry



SUMMARY

The first priority at any structural fire is that of survival, both for the individual and of fellow firefighters.

In order to meet this goal firefighters must learn to size up a situation, practice situational awareness, manage air supply, and remove victims to safety.

