
Continuing Education for the Fire Fighter



Scene Lighting, Rescue Tools, Vehicle Extrication, and Technical Rescue Module 3

Chapter 10



LEARNING OBJECTIVES

Explain the role a Firefighter II will play in technical rescue operations.

Explain the unique hazards associated with each type of technical rescue operation.

Describe the various types of technical rescue operations.



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TECHNICAL RESCUERS MUST MEET THE REQUIREMENTS OF NFPA® 1006.

Firefighter II
assists with:

Initial actions performed
at any rescue scene

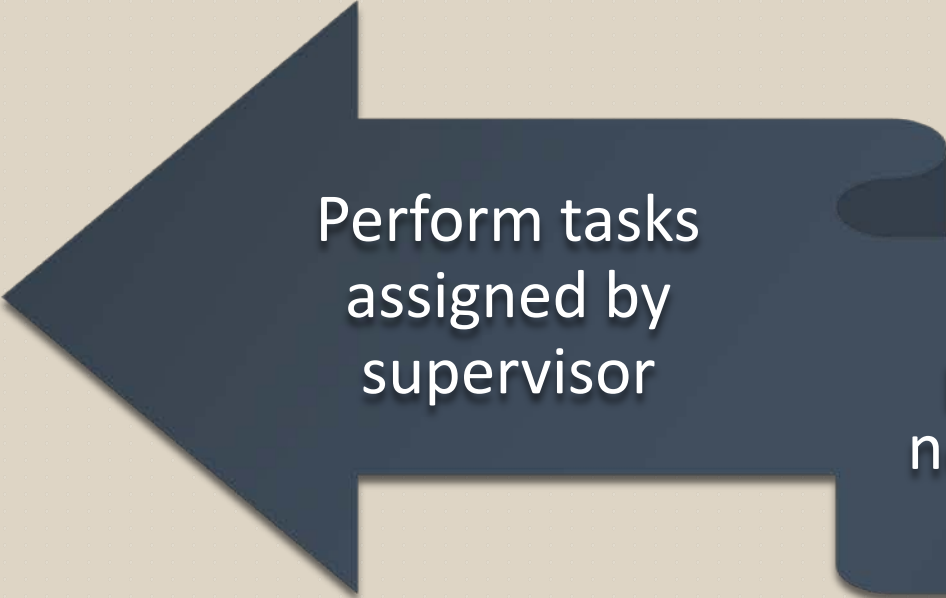
Tasks related to specific
incident types



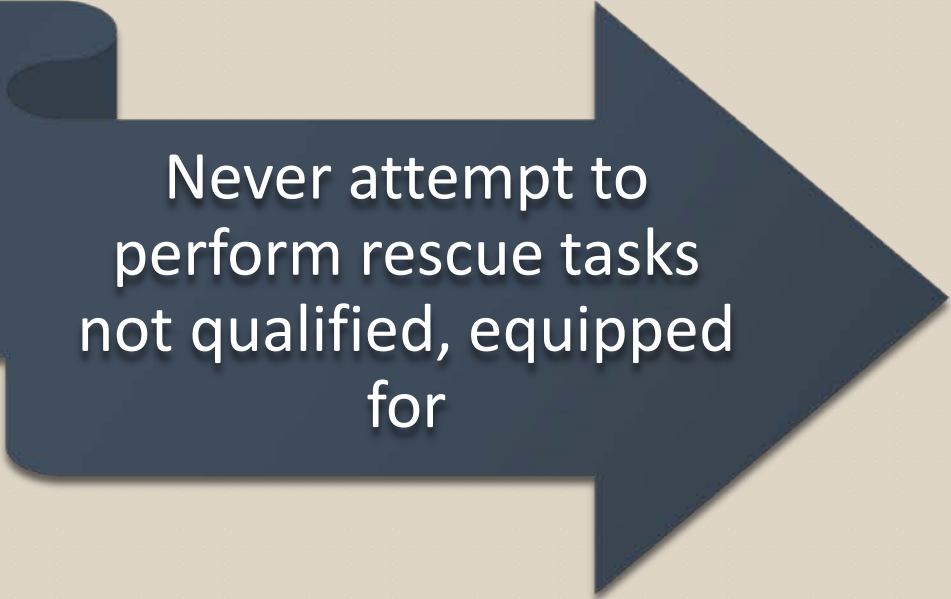
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INITIAL ACTIONS ARE PERFORMED BY FIRST RESPONDERS TO REACH THE SCENE.



Perform tasks
assigned by
supervisor



Never attempt to
perform rescue tasks
not qualified, equipped
for



PERFORMING SIZE-UP AT TECHNICAL A RESCUE SCENE IS AN ONGOING EVALUATION.

What has happened?

What is happening?

What is likely to happen?

What resources will be needed for resolution?



PERFORMING SIZE UP AT A TECHNICAL RESCUE SCENE IS AN ONGOING EVALUATION.



Begins during initial
dispatch

Continues
upon arrival



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AFTER ARRIVAL, COMMUNICATE SIZE-UP INFORMATION, THEN STABILIZE THE SITUATION.

Communicate

Describe condition and provide details




Stabilize

Keep situation from getting worse

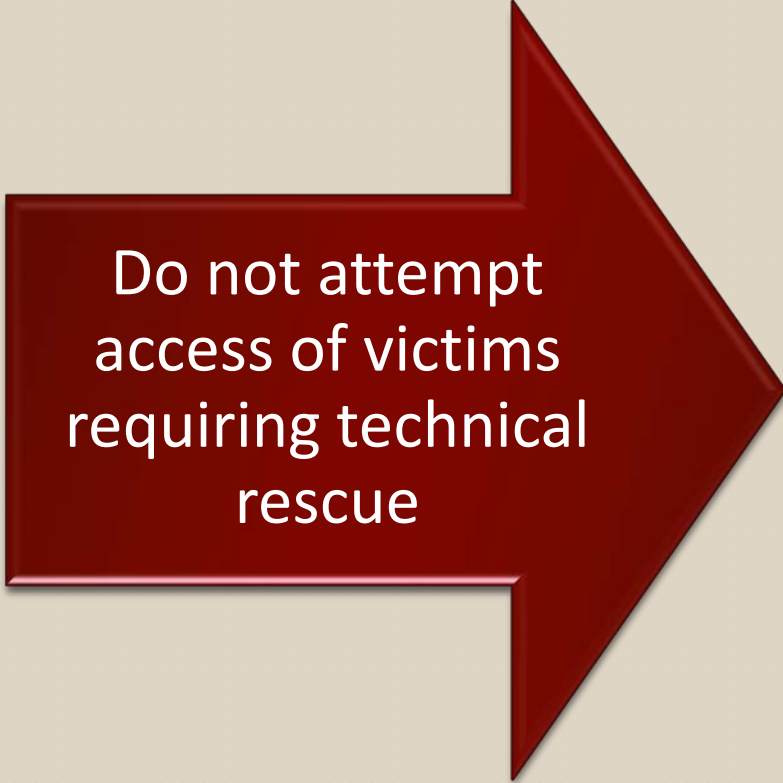


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STABILIZE THE VICTIM AFTER STABILIZING THE SCENE.



Provide basic care
to accessible
victims



Do not attempt
access of victims
requiring technical
rescue



ESTABLISH SCENE SECURITY WITH A PERIMETER OR BARRIER AS REQUIRED BY THE INCIDENT COMMAND SYSTEM (ICS).



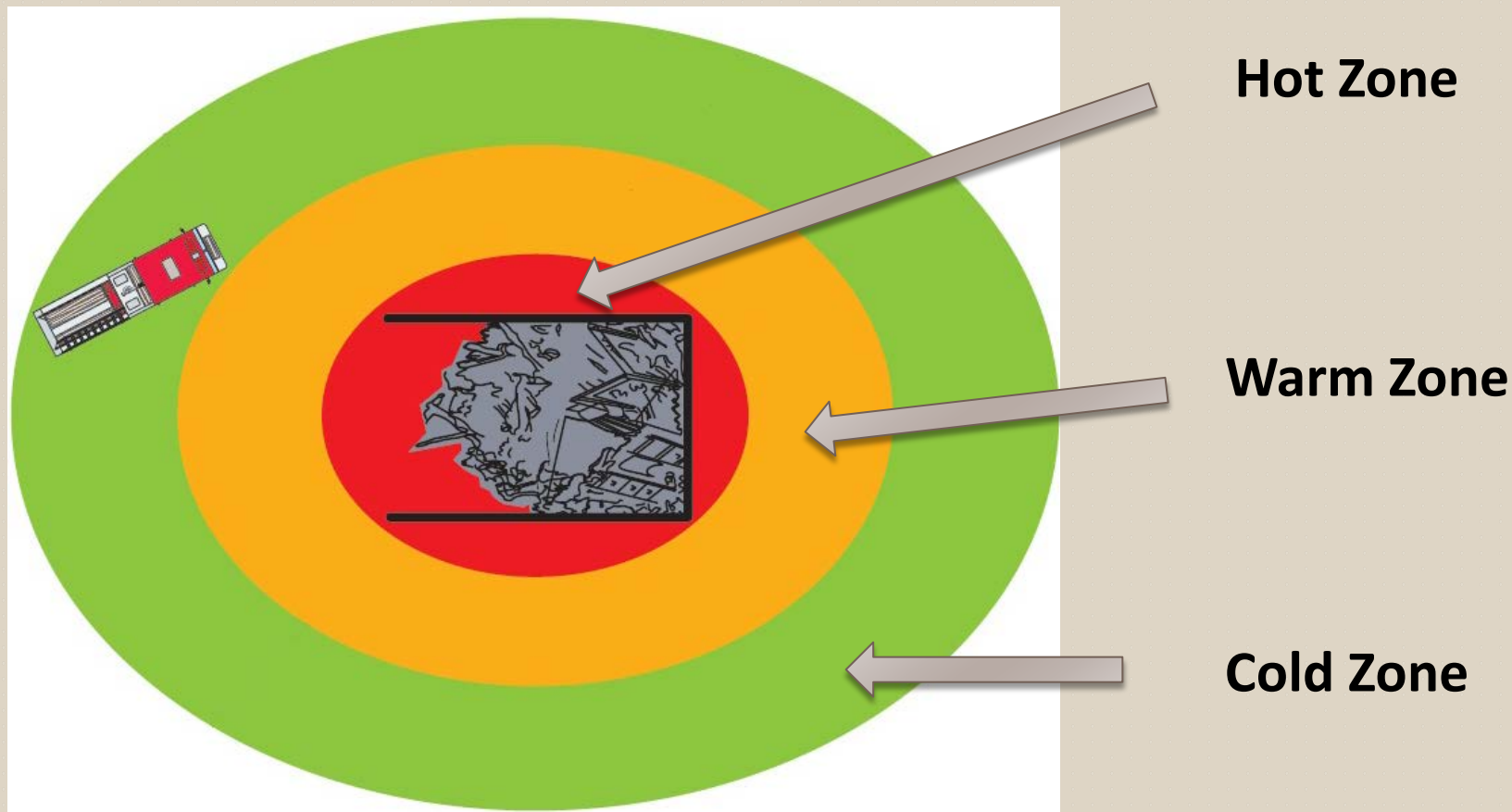
Courtesy of Shad Cooper/Wyoming State Fire Marshal's Office



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THE SCENE IS DIVIDED INTO THREE CONTROL ZONES EACH WITH DIFFERENT CHARACTERISTICS.

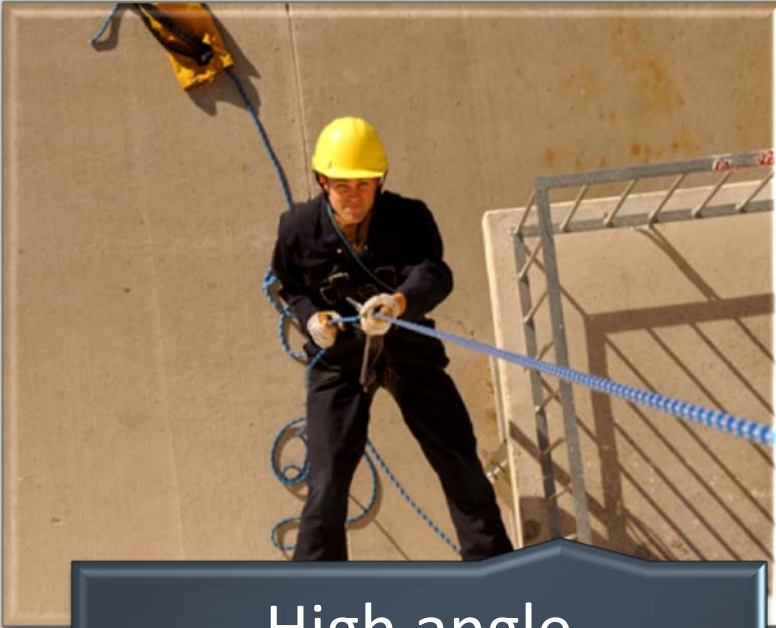


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FIREFIGHTER II PERSONNEL ASSIST TECHNICAL RESCUE TEAMS IN SPECIFIC TASKS.



ROPE RESCUE INVOLVES LIFE SAFETY ROPE AND OTHER TOOLS, AND IS DIVIDED INTO TWO CATEGORIES.



High angle
urban/structural



Wilderness/mountain



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STRUCTURAL COLLAPSE RESCUE CAN HAVE MANY CAUSES, BUT HAS THE SAME ON SCENE PRIORITIES.

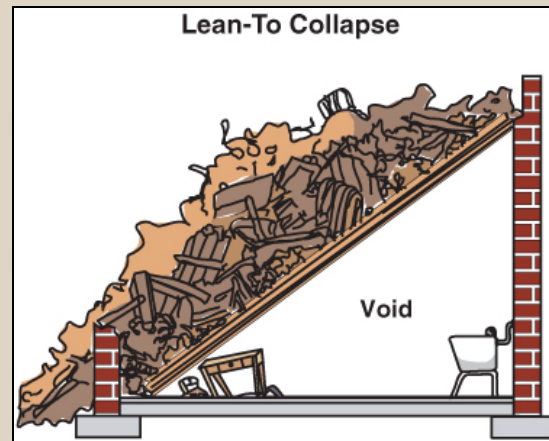
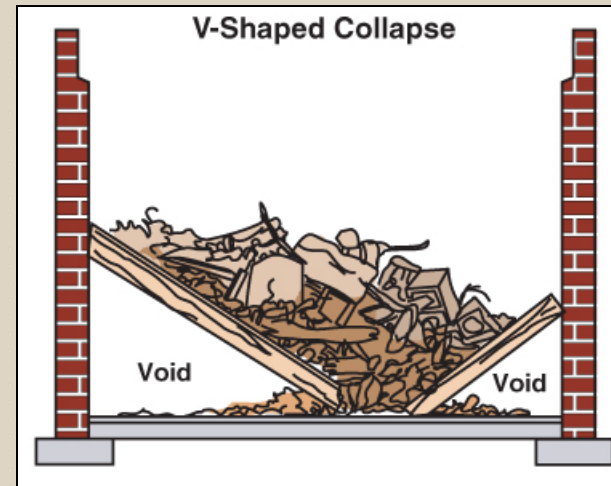
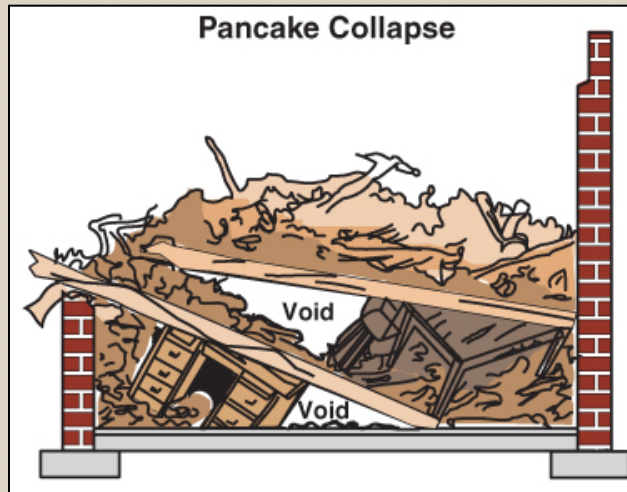
1. Help
untrapped
victims to safe
area

2. Extricate
victims lightly
trapped

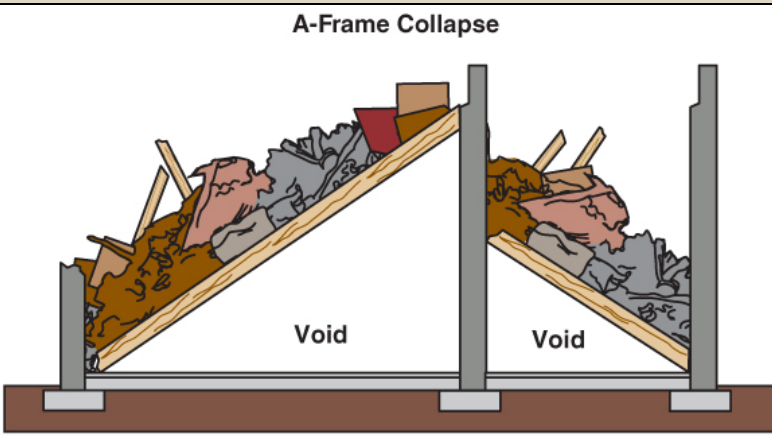
3. Attempt
rescue of victims
trapped deeply
in rubble



FIREFIGHTERS ASSIST STRUCTURAL COLLAPSE RESCUE BY RECOGNIZING PATTERNS.



FIREFIGHTERS ASSIST STRUCTURAL COLLAPSE RESCUE BY RECOGNIZING PATTERNS.



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STRUCTURAL COLLAPSE RESCUE OPERATIONS CAN PRODUCE MANY DIFFERENT HAZARDS.

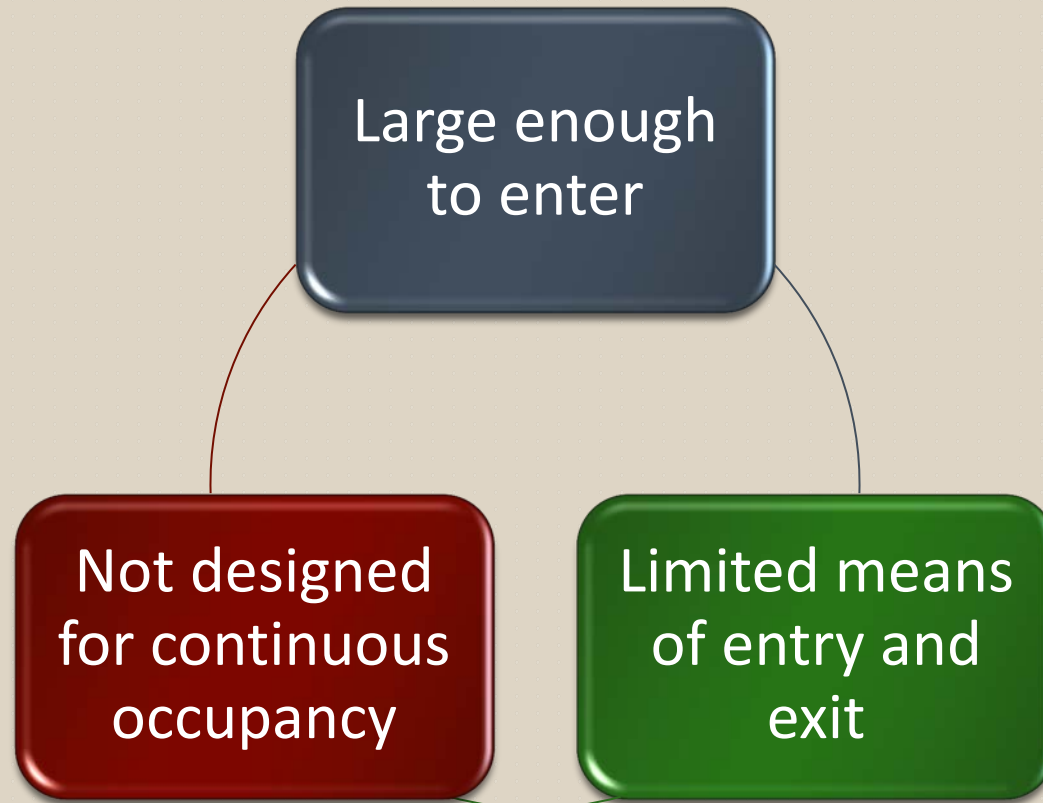
Physical

Environmental

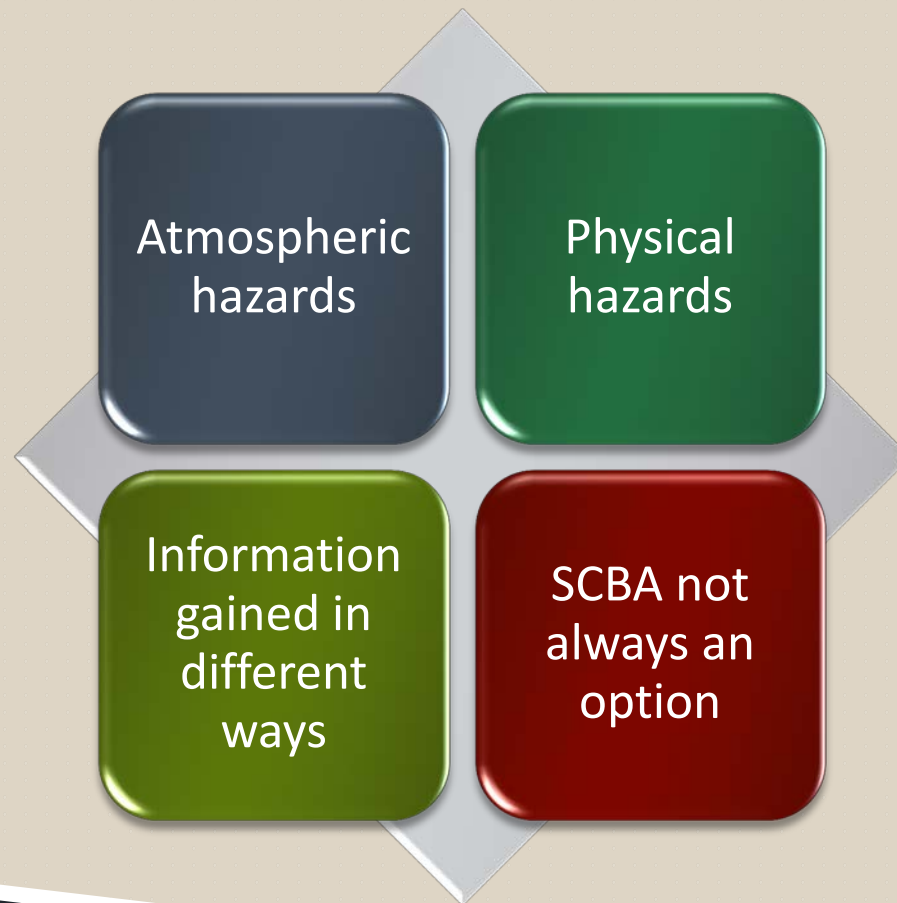


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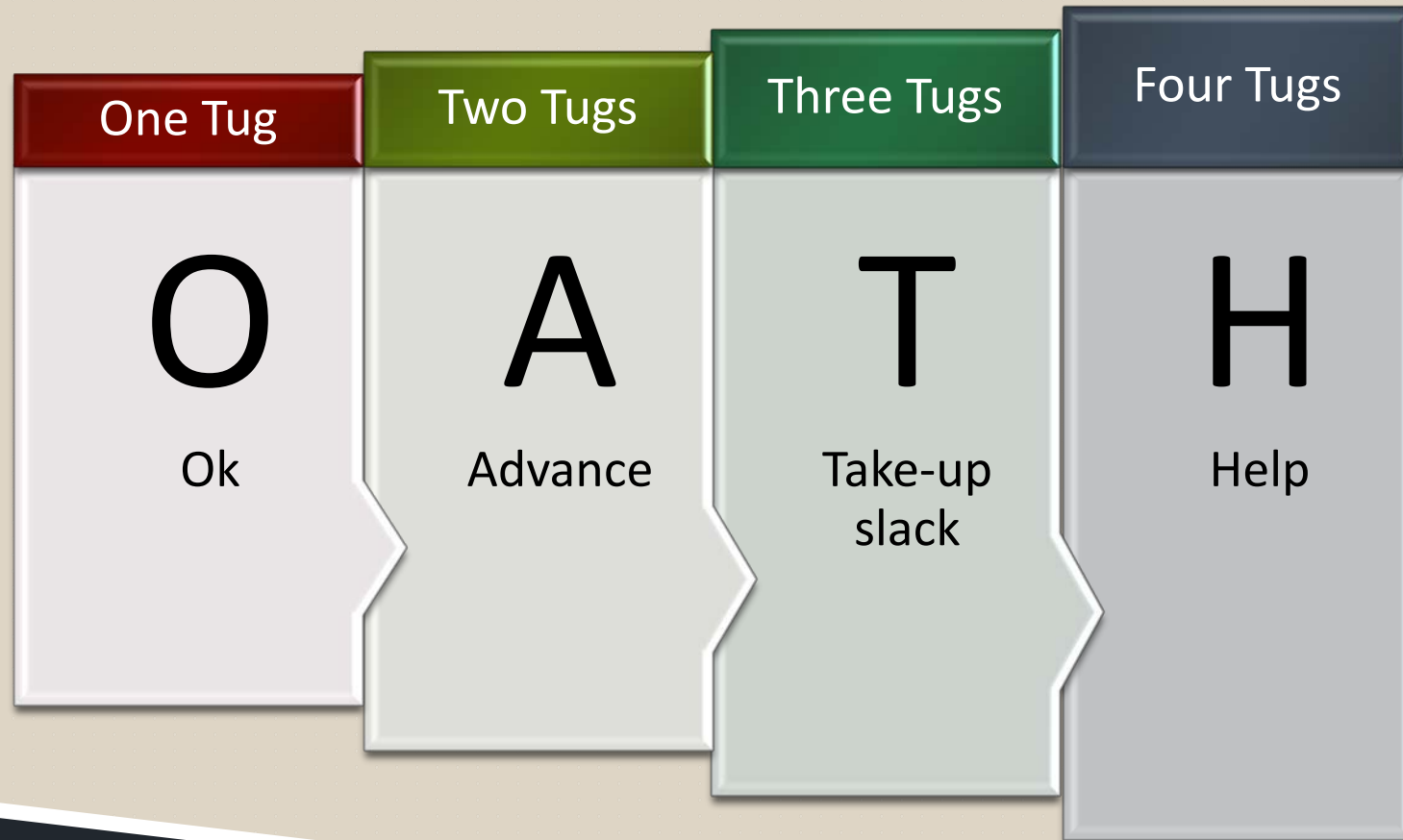
CONFINED-SPACE AREAS ARE DEFINED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).




LEVEL II FIREFIGHTERS PROVIDE NON-ENTRY SUPPORT FUNCTIONS AND MUST RECOGNIZE THE CHALLENGES OF CONFINED-SPACE RESCUE.



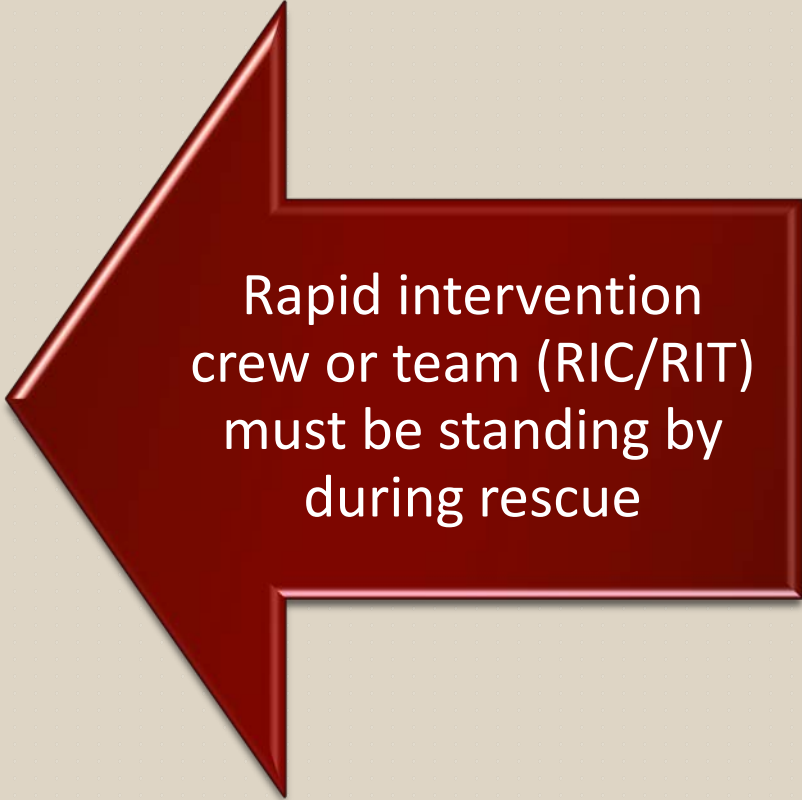
ALL RESCUERS SHOULD BE ATTACHED TO A SEARCH
LINE AND USE THE OATH METHOD WHEN
COMMUNICATING.



CONFINED-SPACE RESCUERS SHOULD ALSO ADHERE TO THE FOLLOWING CONDITIONS.



Electrical equipment must be intrinsically safe for flammable conditions



Rapid intervention crew or team (RIC/RIT) must be standing by during rescue



DEPENDENDING ON SOPS, VEHICLE RESCUE OPERATIONS
MAY BE ASSIGNED TO SPECIFICALLY TRAINED TEAMS.

If not trained,
provide
assistance

Wear correct
PPE near
damaged vehicle

Wear
retroreflective
vests



WATER RESCUE CAN OCCUR UNDER VARIOUS CONDITIONS AND LOCATIONS, BUT SIZE-UP IS ALWAYS THE FIRST TASK.



Rescue

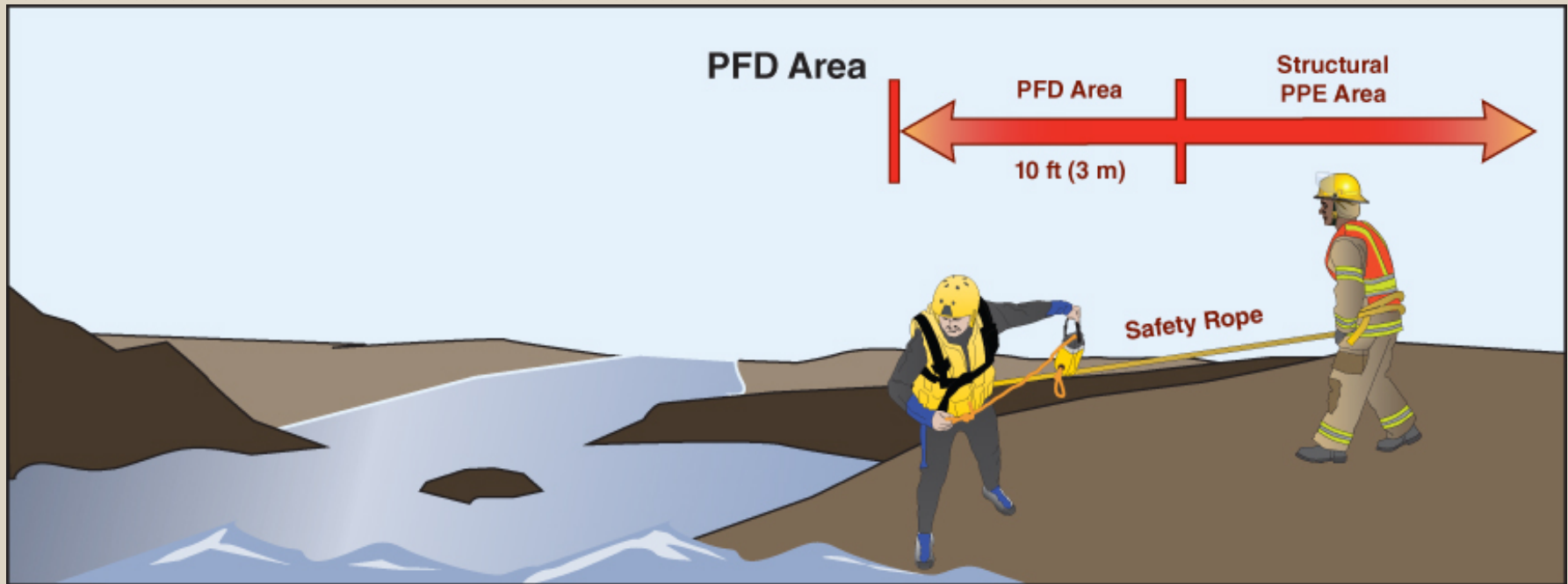
Recovery



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PERSONAL FLOTATION DEVICES (PFDS) ARE MANDATORY FOR ALL PERSONNEL NEAR OR ON THE WATER.



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WARNING

Only qualified
personnel
should
attempt a
water rescue.



REPORT ANY HAZARDS IN A WATER RESCUE SITUATION REPORT.

Environmental
conditions

Hazards in
water and on
land



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ICE RESCUE OPERATIONS HAVE SPECIFIC, ADDITIONAL HAZARDS TO BE AWARE OF.



Courtesy of Iowa Fire service Training Bureau

Thin, unpredictable ice

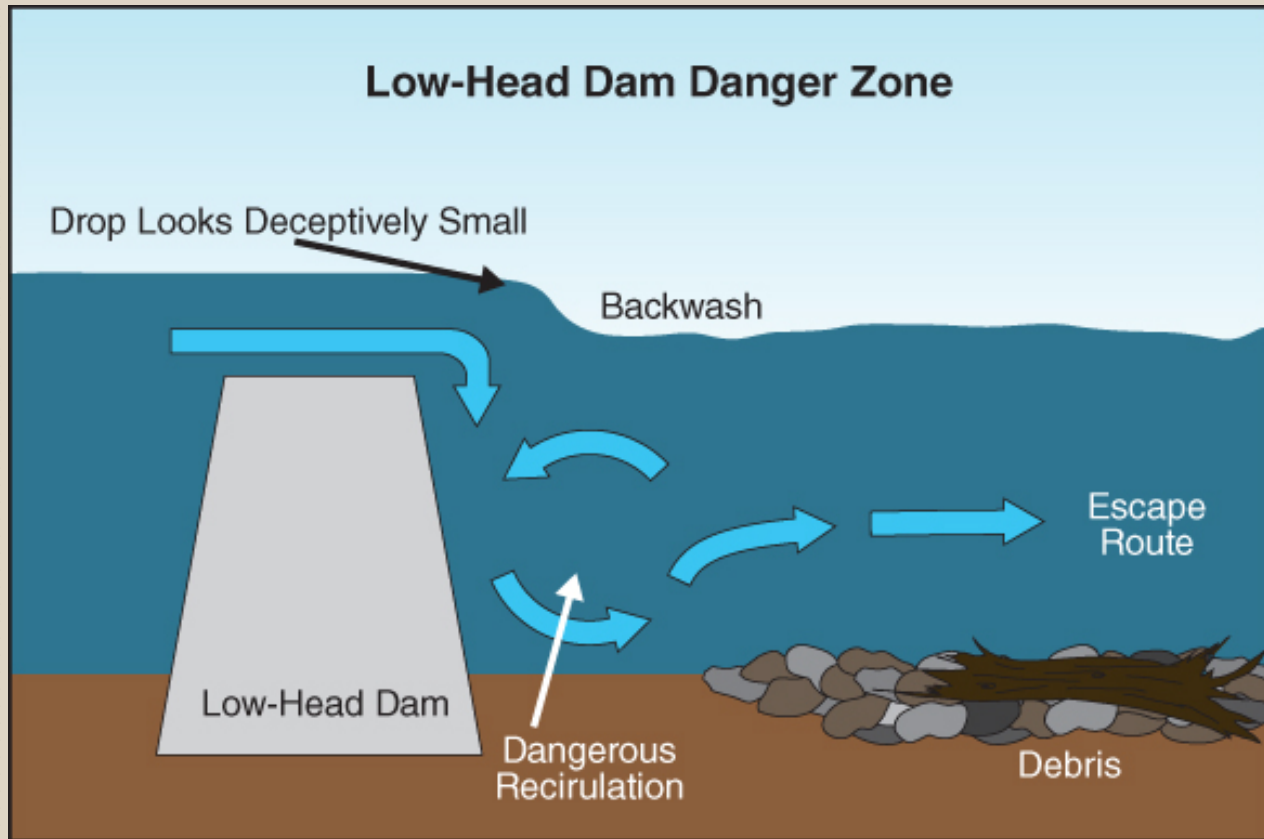
Victims unlikely to help in own rescue

Victims likely suffer from hypothermia



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WATER RESCUE AT LOW-HEAD OR LOW-WATER DAMS IS EXTREMELY DANGEROUS.



WILDERNESS RESCUERS RETRIEVE VICTIMS FROM RUGGED, INACCESSIBLE AND HAZARDOUS TERRAIN.



Level II firefighters can assist rescuers

Carry tools and equipment to point near victim

Provide water and rehab facilities



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FIREFIGHTERS MAY ALSO ASSIST DURING TRENCH RESCUE OPERATIONS.



Monitor for hazardous atmospheres

Create safe zone around trench

Vibrations can cause secondary cave-ins



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FOLLOW THESE SAFETY GUIDELINES WHEN ASSISTING IN TRENCH RESCUE.



Do not enter trench

Cordon off 100 ft (30 M) in each direction

Eliminate vibrations within 500 ft (150 m) of trench

Place exit ladders no more than 50 ft (15 m) apart

Place initial ladder near victim location



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FOLLOW THESE SAFETY GUIDELINES WHEN ASSISTING IN TRENCH RESCUE.



Secure exposed utilities

Be careful handling tools; can cause injury

Be aware of underground wiring, water lines, and dangerous gases

If contaminated or oxygen deficient, set up ventilation



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MACHINERY RESCUE OPERATIONS INVOLVE VICTIMS CAUGHT IN PARTS OF A MACHINE AND CAN BE EXTREMELY STRESSFUL.



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WARNING

If the victim is entangled in a machine that is still running, **DO NOT** turn it off until the mechanism has been stabilized. Turning off the machine may cause it to reverse itself or complete its cycle – either of which could harm the victim further. Contact the machinery owner, operator, or plant personnel for guidance in securing the mechanism.



FIREFIGHTERS MAY AID IN ELEVATOR AND ESCALATOR RESCUE, BUT HAZARDOUS OPERATIONS REQUIRE CERTIFIED RESCUERS.



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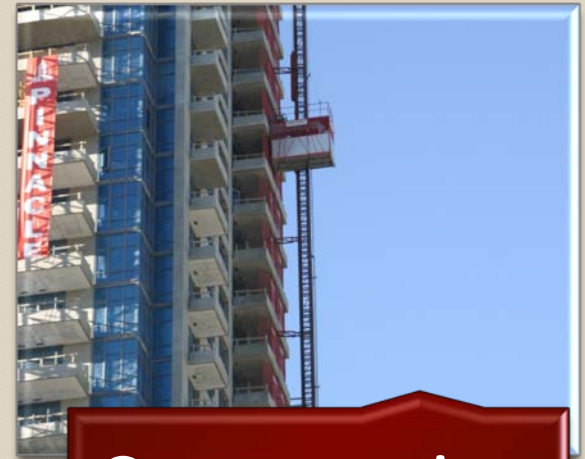
ELEVATOR RESCUE OPERATIONS ARE CLASSIFIED BY HOW THE ELEVATOR IS USED.



Passenger



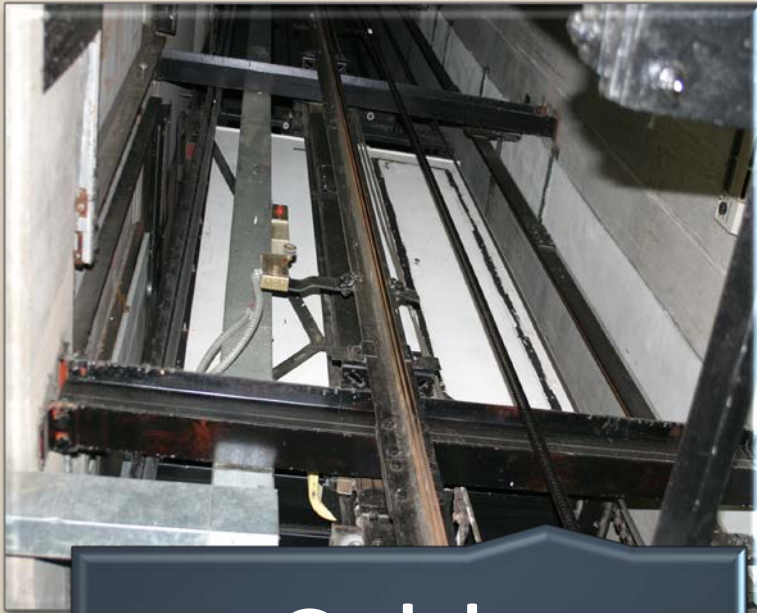
Freight



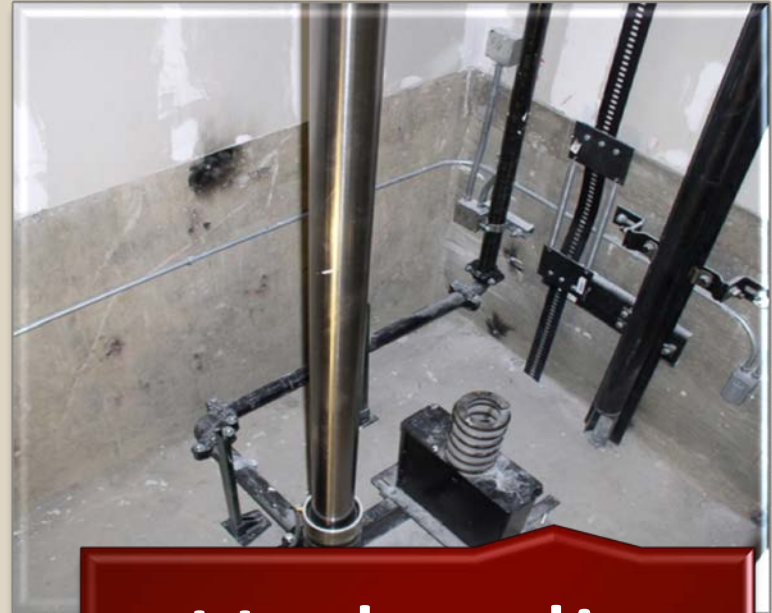
Construction



CABLE OPERATING SYSTEMS CAN BE FOUND IN ANY STRUCTURES, WHILE HYDRAULIC SYSTEMS ARE LESS THAN SIX STORIES.



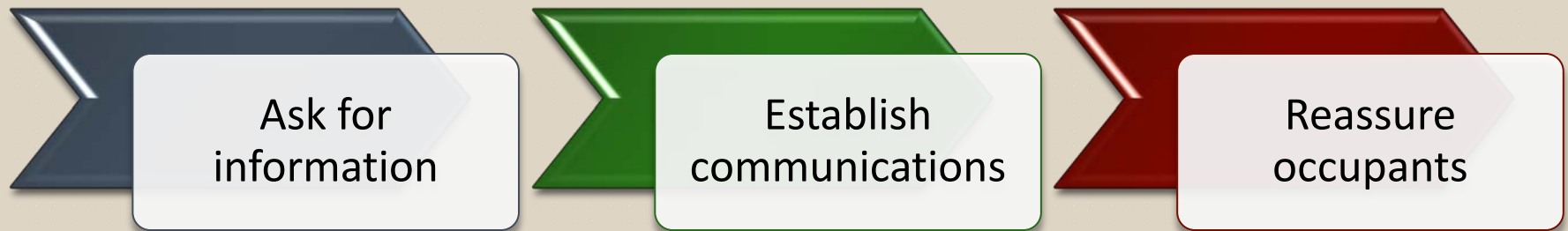
Cable



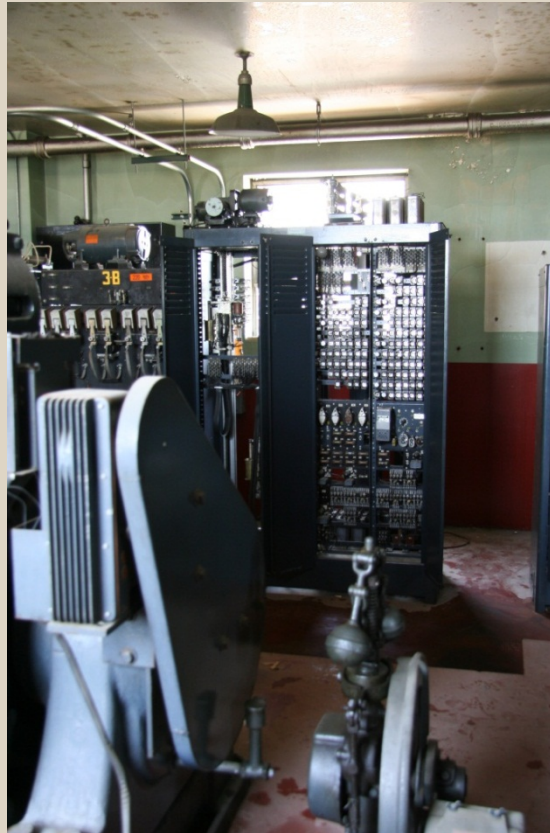
Hydraulic



TAKE THE FOLLOWING STEPS DURING SIZE-UP OF AN ELEVATOR RESCUE OPERATION.



AFTER SIZE-UP, LOCATE ASSISTANCE AND SEND A
FIREFIGHTER WITH RADIO TO THE ELEVATOR
EQUIPMENT ROOM.



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TAKE THE FOLLOWING ACTIONS DEPENDING ON THE MEDICAL CONDITION OF THE OCCUPANTS.

Need immediate medical attention:

Begin extrication

Avoid entry methods that damage elevator and endanger lives

Request technical rescue assistance if needed

Medical condition stable:

Ask occupants to check Emergency Stop Button

Tell occupants to press Door Open Button

Check electrical circuits to see if it has power

If it has power, turn off for 30 seconds then back on



INSERTING KEY INTO CONTROL PANEL WILL RETURN CAR
TO GROUND FLOOR IF THE ELEVATOR IS EQUIPPED WITH
A RECALL SYSTEM.



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ESCALATORS ARE MOVING, MECHANICAL STAIRWAYS THAT MAY HAVE A MANUAL STOP SWITCH IN ONE OF SEVERAL PLACES.



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THE MAJORITY OF ESCALATOR RESCUES RESULT FROM FINGERS, TOES, AND CLOTHING BECOMING CAUGHT IN THE TREADS.

Remove all
other
passengers

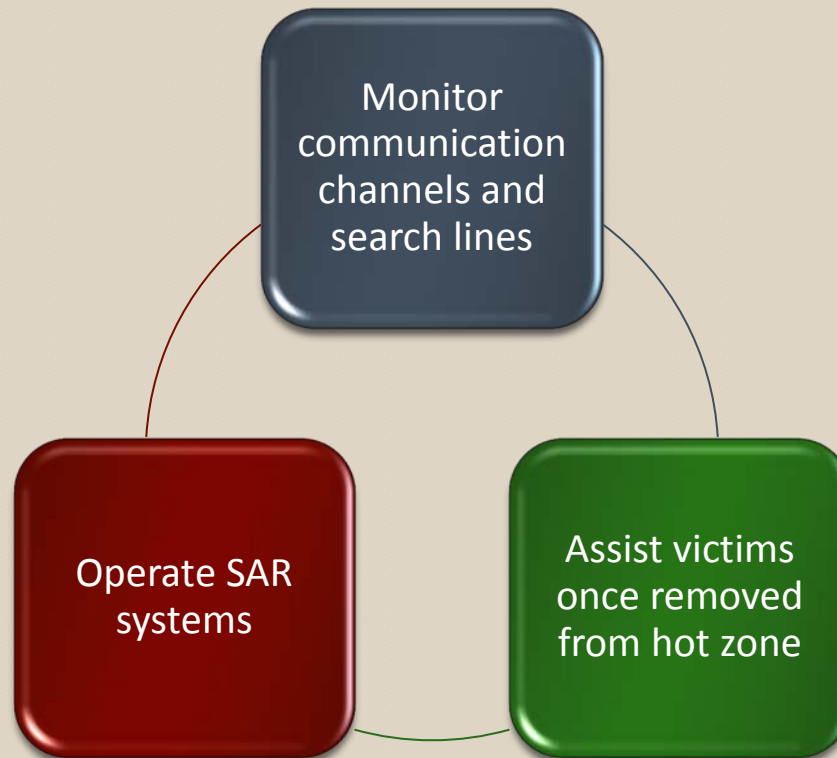
Use hand
pressure to
move treads
backward

May have to
hand crank
treads

Should be
placed out of
service until
tech can work
on it



FIREFIGHTERS SHOULD BE PREPARED TO ASSIST TECHNICAL RESCUERS DURING CAVE, MINE, AND TUNNEL RESCUE OPERATIONS.



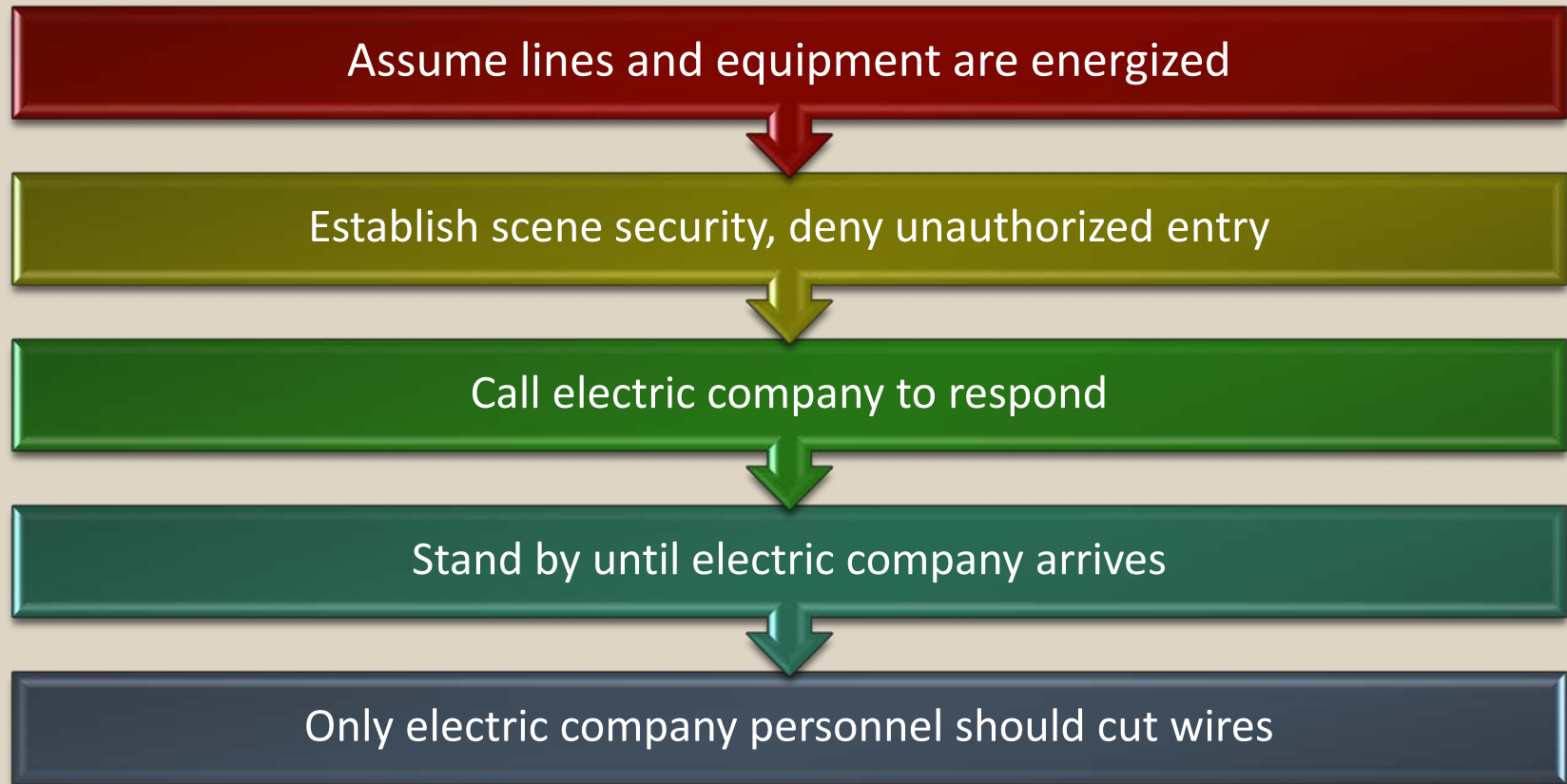
EACH TYPE OF RESCUE OPERATION CAN INVOLVE SEVERAL TYPES OF HAZARDS.



ELECTRICAL RESCUE OPERATIONS INVOLVE ENERGIZED POWER LINES OR EQUIPMENT.



ALWAYS KEEP THE FOLLOWING CONSIDERATIONS IN MIND WHEN RESPONDING TO ELECTRICAL RESCUE OPERATIONS.



WIRES ON THE GROUND CAN BE DANGEROUS WITHOUT BEING TOUCHED.



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OTHER EMERGENCY INCIDENTS MAY REQUIRE
ELECTRICAL RESCUE OPERATIONS AS WELL.

Vehicle strikes
power pole

Electrified
subway or
train tracks



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WARNING

When you approach a downed power line, a tingling in your feet indicates that the ground beneath you is electrified. If you feel this, keep your feet together and hop away from the line.



SUMMARY

You must also know how to work as part of a team while performing vehicle extrication and assisting technical rescuers.



You must practice the basic duties explained in the chapter until you can accomplish these tasks quickly and effectively.

