

*DEPARTMENT OF FIRE SERVICES  
Massachusetts Firefighting Academy*

# **FIREFIGHTER SURVIVAL - Saving Ourselves**

January 2012



**Student Guide**

## ***SEGMENTS OF INSTRUCTION***

### **DAY 1**

- 0900 Welcome, orientation, lecture, accountability.....1 hrs30 min**  
**Frank Cheatham Video, Mayday Procedures**
- 1030 SCBA Lecture .....30 min**
- 1100 4 groups of approximately 6-8 persons..... 1 hr**  
**GROUP A – Entanglement**  
**GROUP B – Ladder Bail Out**  
**GROUP C – Draeger Maze**  
**GROUP D – Wall Breach/Low Profile**
- 1200 LUNCH**
- 1300 GROUP B – Entanglement.....1 hr**  
**GROUP C – Ladder Bail Out**  
**GROUP D – Draeger Maze**  
**GROUP A – Wall Breach/Low Profile**
- 1400 GROUP C – Entanglement.....1 hr**  
**GROUP D – Ladder Bail Out**  
**GROUP A – Draeger Maze**  
**GROUP B – Wall Breach/Low Profile**
- 1500 GROUP D – Entanglement .....1 hr**  
**GROUP A – Ladder Bail Out**  
**GROUP B – Draeger Maze**  
**GROUP C – Wall Breach/Low Profile**

## ***SEGMENTS OF INSTRUCTION***

### **DAY 2**

<b>0900</b>	<b>Quick review and briefing.....</b>	<b>45 min</b>
	<b>Review Mayday</b>	
	<b>TIC Power Point</b>	
<b>0945</b>	<b>Elevator Power Point.....</b>	<b>1 hr 45</b>
	<b>750 Adams</b>	
	<b>Hole thru floor Power Point</b>	
<b>1215</b>	<b>LUNCH.....</b>	<b>1 hr</b>
<b>1230</b>	<b>GROUP A - Long Lug Out .....</b>	<b>1 hr</b>
	<b>GROUP B - Rope Bailout</b>	
	<b>GROUP C Draeger II</b>	
<b>1315</b>	<b>GROUP A - Long Lug Out .....</b>	<b>1 hr</b>
	<b>GROUP B - Rope Bailout</b>	
	<b>GROUP C Draeger II</b>	
<b>1430</b>	<b>GROUP A - Long Lug Out .....</b>	<b>1 hr</b>
	<b>GROUP B - Rope Bailout</b>	
	<b>GROUP C - Draeger II</b>	
<b>1530</b>	<b>End - Review and wrap up.....</b>	<b>30 min</b>

## Safety Guidelines

The following is a list of safety guidelines that should be used by search and rescue personnel in any type of search operation within a building.


- 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 back draft conditions exist
- Use a thermal imaging camera whenever possible
- Work from a single operational plan. Crews should not be allowed to freelance
- Maintain contact with command, which has control over search/rescue teams
- Constantly monitor fire conditions that might affect search teams and individual firefighters
- Have a rapid intervention team constantly available to aid firefighters in need of assistance
- Use the established personnel accountability system without exception
- Be aware of the secondary means of egress established for personnel involved in the search
- Wear full personal protective equipment, including SCBA and PASS device
- Work in teams of two or more and stay in constant contact with each other. Rescuers are responsible for themselves and each other
- Search systematically to increase efficiency and to reduce the possibility of becoming disoriented
- Stay low and move cautiously while searching
- Stay alert – use all senses
- Constantly monitor the structure's integrity
- Feel doors for excessive heat before opening them
- Maintain contact with a wall when visibility is obscured. Working together, search team members can extend their reach by using ropes or straps
- Have a charged hose line at hand whenever possible when working on the fire floor (or the floor immediately below or above the fire) because it may be used as a guide for egress as well as for firefighting
- Coordinate with ventilation teams before opening windows
- Close the door, report the condition, if fire is encountered during a search
- Inform the group/sector supervisor immediately of any room(s) that could not be searched, for whatever reason

Report promptly to the Command once the search is complete. Besides giving an “all clear” search report, also report the progress of the fire and the condition of the building

# Day One

Slide 1

**Saving Ourselves and  
Firefighter Survival**



Mass. Fire Academy  
Rapid Intervention Training

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Slide 2

**Objective**

- To provide members of the Massachusetts Fire Service with the knowledge and skills needed for the safety and survival of themselves and their fellow firefighters.

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Slide 3

**LODD**

- 1972- Tewksbury, Fall River, Lawrence, Wakefield, Medford, Boston (9)
- 1973- Weymouth, Boston, Tewksbury
- 1974- Cambridge, Wakefield, Weymouth, Somerville (2)
- 1975- Lowell, Norwood, Boston, Lynn, Worcester, Brockton, Medford
- 1976- Boston, Weymouth

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Slide 4

LODD

- 1977- Fitchburg, Seekonk, Chelsea, Franklin, Newburyport, Boston
- 1978- Bourne, Newburyport, Boston
- 1979- Framingham, Plymouth, East Hampton, Revere
- 1980- Gill, Blackstone
- 1981- Oak Bluff, Lynn, Salem, Otis ANG, Boston (2)
- 1982- Ludlow, Duxbury, Provincetown, Holyoke, Salem, Gloucester, Lawrence

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Slide 5

LODD

- 1983- Southbridge, Boston, Braintree, Springfield, Newton, Beverly
- 1984- Dedham
- 1985- Brookline, Quincy, Boston, Belmont
- 1986- Lowell, Lynn, Revere, Boston (2)
- 1987- Fall River, Swansea
- 1988- W. Barnstable, Everett, Chelsea

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Slide 6

LODD

- 1989- Braintree, Freetown, Lawrence
- 1990- Templeton, Haverhill
- 1992- New Bedford
- 1993- Boston, Wareham, New Bedford, Webster
- 1994- Boston
- 1995- Stoughton
- 1996- Boston, Holyoke

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Slide 7

**LODD**

- 1999- Dunstable, Revere, Russell, Everett, Nantucket  
Boston (2), Worcester (6)
- 2000- Somerville
- 2001- Centerville
- 2002- Fall River, Brookline
- 2003- Cambridge, Lancaster, MA Wildfire Crew/Pittsfield

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Slide 8

**LODD**

2004- Brookline, W. Bridgewater

2007- Boston, Boston (2)

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Slide 9

**THE NATURE OF  
THE PROBLEM**

- Lost & Disoriented
- Freelancing
- Unfamiliar with SCBA
- Trapped or Pinned



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Slide 10

**THE NATURE OF THE PROBLEM (CONT.)**

- Failure to use PASS device
- Improper personal size-up
- Failure to follow procedures



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Slide 11

**LOST AND DISORIENTED**

- Operating ahead of the hoseline
- Operating above the fire floor alone
- Large open areas
- Rapidly changing conditions
- Complex structures and renovations



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Slide 12

**FREELANCING**

- Understand the ICS system in your department
- Use the personal accountability system
- Always maintain VOICE, VISUAL, TOUCH contact with your assigned crew
- Follow departmental procedures



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Slide 13

***Failure to follow departmental standard guidelines will impact fire ground operations.***

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Slide 14

**UNFAMILIAR WITH SCBA**

- Lack of everyday use and experience
- Improper donning ( straps, mask, etc. )
- Overextending usable air capacity
- Failure to anticipate
  - Facepiece failure
  - Hose damage
  - Regulator damage



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Slide 15

**TRAPPED OR PINNED**

- Localized Collapse
- Firefighter falling through holes, shafts, stairways
- Fire behind the attack or rescue crew
- Entanglement in false ceilings, wires, etc.

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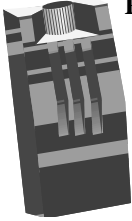
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Slide 16

**FAILURE TO UTILIZE  
PASS DEVICE**



- Failure to activate upon arrival
- Failure to initiate the alarm when in trouble
  - When do we change from a rescuer to a victim ourselves?
  - How long will it take to get help to us?
- Ignoring sounding PASS devices on the fireground?
- Failure to train in search w/PASS devices

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Slide 17

**IMPROPER PERSONAL  
SIZE-UP**

- Lack of personal experience
- Underestimating the speed of fire spread
- Overestimating our own capabilities
- Building construction and type
- Smoke and or heat conditions



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Slide 18

**Size-Up**

- **Buffalo 2009** ◀
  - Progress Reports Prior to MayDay

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Slide 19

**Be accountable:**

- For your actions
- For your crew
- For yourself

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Slide 20

**SCBA**

- Be familiar with your SCBA equipment
- Know emergency procedures
- Always check your SCBA before use
- Follow proper maintenance always
- Continue to train as much as possible
- Knowing your SCBA will save your life!

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Slide 21

**REPORTING AN URGENT  
AND OR MAYDAY**

- URGENT is for critical information where life is not in jeopardy. Example: Noticing a bulging wall.
- MAYDAY is for a time where life safety is in extreme danger. Example:  
A down firefighter in the building.

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Slide 22

**REPORTING A MAYDAY**

- Declare "Mayday, Mayday, Mayday"
- Give location - If unknown give the door you entered through
- Company your with and your name
- Problem - trapped, out of air, disoriented
- Attempt self rescue or get to a corner and get in protective position

• Buffalo 2009 Audio 

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Slide 23

**L.I.P.S. Acronym**

- L – Location
- I – Identification
- P – Problem
- S- Survival

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Slide 24

**ROPE AND LADDER  
BAILOUT**

**All other avenues of escape have been  
looked at and not feasible.**

**THIS IS A LAST DITCH  
EFFORT!!!**

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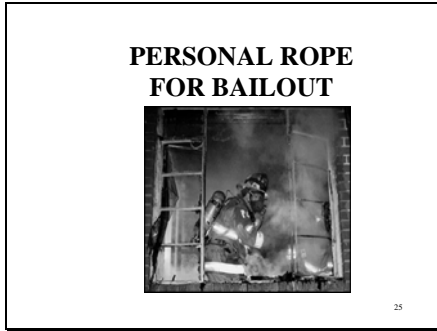
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Slide 25



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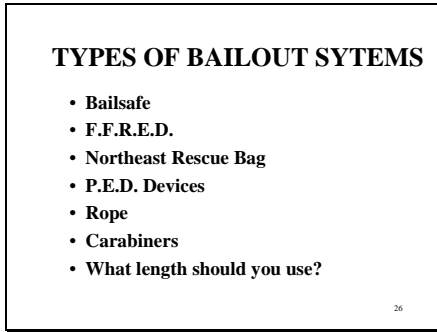
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Slide 26



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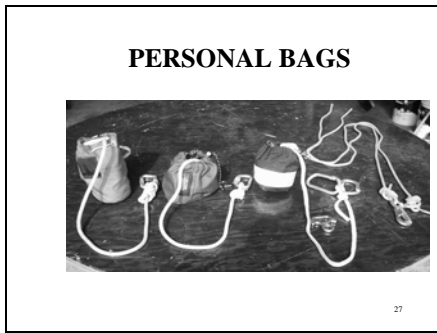
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Slide 27



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Slide 28

**PERSONAL ROPE FOR BAILOUT**

- ONE EXAMPLE:
- Attach the hasp around a substantial object and back onto itself.
- Take the rope to the window and bring the rope around your back.
- Hold both hands together at all times
- Straddle the windowsill and ease your self over the edge

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Slide 29

**PERSONAL ROPE FOR BAILOUT**



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Slide 30

**PERSONAL ROPE FOR BAILOUT CONT'D**

- Straddle the windowsill and ease your self over the edge
- Lower yourself down to ground, lower level of building, ladder, or place of refuge.

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Slide 31

**PERSONAL ROPE FOR BAILOUT** CONT'D



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Slide 32

**ANCHORS FOR BAILOUT**

- Toilets
- Soil pipes
- A door
- A door jamb
- Balcony railing
- Sprinkler or standpipe risers
- Stair railing

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Slide 33

**ANCHORS FOR BAILOUT** CONT'D

- Wall studs
- Roof trusses
- Radiators
- Or large furniture
- Discuss wedging a halligan on the corner of the window or into a wooden floor.
- Breaching a wall or cased opening

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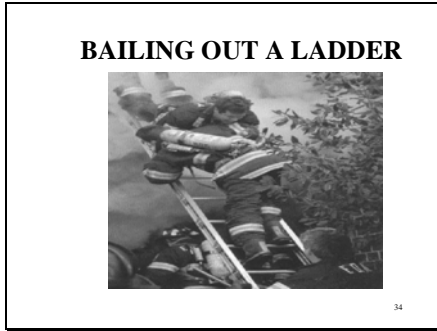
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Slide 34



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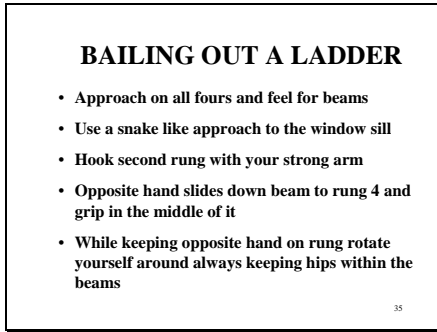
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Slide 35



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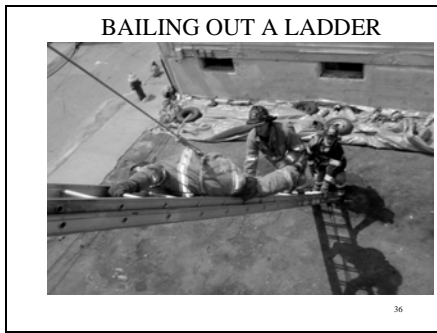
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Slide 36



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Slide 37

**THINGS TO CONSIDER**

- Average weight of a firefighter is 200lbs.
- 50lbs. of gear and SCBA on the average
- Water saturates the gear increasing the weight
- SCBA and gear increase profile of the firefighter

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Slide 38

**THINGS TO CONSIDER (CONT.)**

- Psychological aspects of the victim firefighter
- Psychological aspects of the RIT team
- Psychological aspects of the rest of the firefighters on the scene
- What will they be doing?

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Slide 39

**SUMMARY**

- Continuous training on the basics
- Follow departmental and standard procedures
- Maintain crew integrity at all times
- Maintain contact with a wall when possible
- Maintain contact with a hose line



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Slide 40

**SUMMARY** (CONT.)

- Use search rope for large areas
- Activate PASS alarms upon arrival
- Learn SCBA emergency procedures
- Listen for sounds of apparatus
- Listen for sounds of crews operation
- Male coupling to outside  
LONG LUG OUT

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Slide 41

*Remain calm, rely on  
your training,  
**DO NOT PANIC!***

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Slide 1

**Self-Contained Breathing Apparatus**



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Slide 2

**SCOTT 4.5**

- The Massachusetts Firefighting Academy uses the SCOTT 4.5.



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Slide 3

**The Basic Components of All SCBA's**

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Slide 4

**Four Basic SCBA Components**

- Air cylinder assembly
- Backpack & harness assembly
- Regulator assembly
- Facepiece assembly

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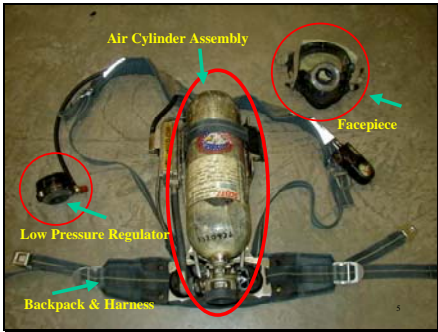
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Slide 5



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Slide 6

**The Components  
(Scott 4.5)**

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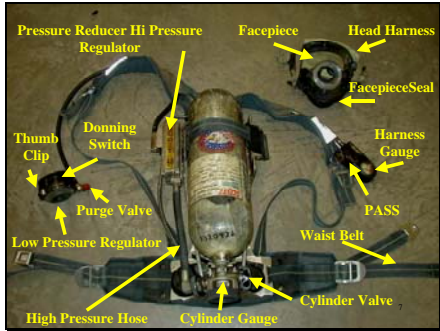
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Slide 7



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Slide 8

**Cylinder Sizes**

- 30 minutes
- 45 minutes
- 60 minutes



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Slide 9

**Cylinder Valve Assembly**



- Always fully open the cylinder valve



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Slide 10

**Cylinder Gauge**

- 4500 psi (Full)



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Slide 11

**Low Pressure Regulator**

- Reduces pressure from 100 psi to approximately 20 psi. This is to create a positive pressure environment within the face piece



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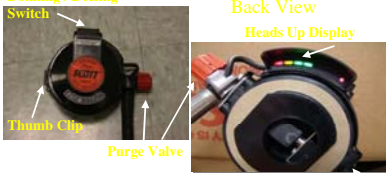
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Slide 12

**Low Pressure Regulator**



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Slide 13

Low Air Alarm-(Vibra-Alert)

- All SCBA's have an audible alarm that sounds when the cylinder pressure decreases to 25% of the cylinders maximum rated capacity.
- By placing your hand over the regulator you can verify it is your unit that is in alarm



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Slide 14

HUD – Indicators



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Slide 15

The Low Air Alarm

- When the low air alarm activates, the firefighter must immediately proceed to exit the building or structure to a safe refuge where doffing of the SCBA will be in a clear & clean atmosphere
- Do not ignore the alarm to keep working even in overhauling conditions.
- Be accountable when exiting the building

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Slide 16

The Low Air Alarm

- Do not be misguided by the Rule of Thumb that may have been taught that you have 5 minutes left when the low air alarm activates!
- THERE IS NO MEASURABLE AMOUNT OF TIME!

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Slide 17

The Line Gauge



- The line gauge on top of your right shoulder harness is the only true measurement of air supply

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Slide 18

The PASS Device

- The device is worn on the firefighters SCBA and is activated before entering a structure.
- If the firefighter should collapse or remain motionless for 20 seconds a pre-alarm will start to sound. This pre-alarm is a "ramp-up" audible warning. This intensity of the pitch of the alarm will rise
- At 30 seconds the device will go into full alarm and will emit a loud, pulsating shriek

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Slide 19

**The PASS Device**

- To prevent accidental activation on the fireground and prevent firefighters becoming accustomed to the alarm and ignoring it (Car alarm syndrome)
- Do not leave PASS devices on after the SCBA has been doffed.
- Firefighters should not ignore the PASS alarm even during exterior operations.

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Slide 20

**Manual Alarm & Reset Buttons  
(Control Console)**



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Slide 21

**Manual Alarm & Reset Buttons  
(Control Console)**

Non-Recessed ButtonsRecessed Buttons



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Slide 22

**Pre-Alarm**

- Remember the motion sensor is in the sensor module under the air cylinder valve and is not in the control console
- Actual movement of the system back frame or using the re-set button on the control console in Pre-Alarm
- *Shaking the Control Console will not reset the distress alarm*

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Slide 23

**Full-Alarm**

- The full alarm can only be silenced by pressing the reset (yellow) button two (2) consecutive times. This prevents accidental deactivation if the operator moves during self-rescue
- The PASS will remain activated with the green light flashing upon reset

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Slide 24

**Manual Alarm**

- If the operator is in a situation where immediate assistance is required, the PASS provides a manual (red) alarm button located on the front of the control console
- The manual alarm can be activated at any time by pressing the red button even if the system is not pressurized

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Slide 25



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Slide 26



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Slide 27



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Slide 28

**SCBA Summary**

- Be familiar with your SCBA equipment
- Know emergency procedures
- Always check your SCBA before use
- Follow proper maintenance always
- Continue to train as much as possible
- Knowing your SCBA will save your life!

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## Mayday Procedure

When a firefighter encounters a problem such as, but not limited to, being lost, disoriented, low on air, entangled or a host of other problems that may endanger his survival he/she should initiate the “Mayday Procedure”. (The procedure should be part of the fire ground operations in the form of an SOP/SOG.)

Stress that the majority of firefighters get themselves into trouble waiting too long to call the “Mayday”. Therefore by the time that the RIT is activated and arrive at the location of the problem, conditions and the situation has worsened.

### 1) Announce over the radio “ **MAYDAY, MAYDAY, MAYDAY**”

Everyone on the fire ground should be trained to cease all radio communication so that Command can communicate with the firefighter in trouble.

### 2) Remember the acronym “**LIPS**”

**a) Location**, advise command of your location.

**b) Identification**, Give your Company and Name. (Capt Doe Engine 100)

**c) Problem**, low on air, lost, trapped, entangled.

**d) Survival**, start self rescue and survival skills. (Turn on PASS)

**If you think you may need a MAYDAY,  
You DO need the MAYDAY.  
DON'T DELAY**

## Harness Conversion

**Objective:** Convert a firefighter's SCBA to a harness to afford safe, strong and reliable grip points for rescuers to drag or hoist an injured firefighter.

**Teaching Point:** Depending on conditions, all firefighters that are involved in a Mayday should consider converting *their own* SCBA to a harness to aid the RIT should the need arise.

## Entanglement Prop

### Objective:

To place firefighters in a situation simulating a failed ceiling system with wires dropping to the floor. Firefighters should learn that they are in a Mayday situation along with some skills to begin untangling themselves from the wires.

**Equipment:** Entanglement prop, full PPE, and smoke trainer face shields. 1 ¾" hose, air chuck system, nozzles.

### Skill:

- Have the firefighter enter the prop staying to the right wall (hinges will be on the left), and once they have fully entered the prop the instructor will begin to slowly close the prop.
- If the firefighter does not call a Mayday prompt them to do so.
- The firefighter should then be instructed to lower themselves to their belly and turn slightly on to their right (do not allow them to roll their cylinder up against the side wall).
- Their left hand should be brought to their face piece and then slowly moved down their turnout coat, not allowing any wires under the gloved hand. It should be emphasized that it is best to go slow here, as it will be hard to feel the wires.
  - **Note:** some will try to remove their glove or say they would, but if it was hot enough to have the ceiling fail, this would not be feasible.
- Their hand should travel on top of the turnout until it comes to the SCBA's cylinder valve. At this time the firefighter should make sure that no wires have wrapped around the valve, and if there are clear them.
- After they have made sure that all the wires are clear from the valve the firefighter should continue to roll on to their right placing the cylinder in the corner of the wall and floor.
- The left hand should then continue to the wall and move up towards the helmet, again making sure that wires do not get in-between their glove and the wall.
- Once their hand is over the helmet it should paddle forward like a swimming breaststroke clearing wires. At this time the firefighter should use their legs to move them forward through the area they have just cleared.
- As the hand is paddled forward it should stop when it is level with the regulator, and it should bend bringing the hand back to the regulator, after they have moved forward.
- The firefighter should then again move the left hand down the turnout coat staying under all the wires. This time though the hand can move right to the wall and slide forward. Once the hand is over the helmet again paddle it forward, and push with your legs (It should be pointed out that if they feel a doorway in their travels that they should attempt to make entry as this may be a safe haven).
- Each time we have done this it has presented us with different results. Some firefighters pass right through, and some are tangled up further then when the prop first closed on them. It is the instructors that typically get these firefighters out by either slowing them down, sometimes calming them down,



or by giving them instruction as to how to get themselves out. The lessons here are many as it shows the firefighters:

- Within the prop and watching how difficult it is and how long it may take (many times consuming a full cylinder)
- It emphasizes the need to call a Mayday immediately
- It brings up conversation as to what we should be carrying in our pockets (wire cutters)
- It shows an example of what we may be up against during a RIT response
- It explains why the P in LIPS is important as it may require the response team bring in different tools

## Entanglement Prop Turtle Method

Setup: Use the entanglement prop with a length of 1 ¾" hose going thru the center. Explain to the student that they may be going down a corridor, following a line, and there is a sudden collapse of the suspended ceiling. We must stress that the best way out is the way they came in.

### Skill:

- Have the firefighter enter the prop in the center following the 1 ¾" line.
  - Slowly lower the wires on to the firefighter.
  - If the firefighter does not call a Mayday prompt them to do so.
  - The firefighter should then be instructed to lower themselves to their belly.
  - Their left hand should be brought to their face piece and then slowly moved down their turnout coat, not allowing any wires between them and the floor. It should be emphasized that it is best to go slow here, as it will be hard to feel the wires.
    - **Note:** some will try to remove their glove or say they would, but if it was hot enough to have the ceiling fail, this would not be feasible.
1. Loosen both the shoulder straps and waist strap.
  2. Firmly grab the left shoulder strap with **Left** hand with the low-pressure hose.
  3. Release waistband with **Right** hand.
  4. Slide right hand out of right shoulder strap.
  5. Replace left hand on left shoulder strap with right hand, making sure to grasp the low-pressure hose.
  6. Pulling with the right hand, shift the SCBA directly under the firefighter so that he/she is pivoting on the bottle.
  7. Have the member check the bottle for any wires and remove.
  8. Have the member turn 180 degrees on the bottle.
  9. Keeping bottle in line against the 1 ¾" line.
  10. The member may loop their arms thru the shoulder straps for better control of the harness.
  11. Using their arms they clear the wires and obstructions with their hands and push forward with their feet.
  12. After the obstruction is cleared, the SCBA is shifted back into the proper position and the straps are tightened and possibly re-donned.

## **FIREFIGHTER LADDER “BAILOUT”**

***WHEN ALL OTHER AVENUES OF ESCAPE HAVE BEEN ELIMINATED AND NOT FEASIBLE. THIS IS A LAST DITCH EFFORT***

**These training exercises are extremely dangerous and serious injury could result if safety precautions are not adhered to.**

**On all bailouts regardless of being ladder or rope, all of the following will be required.**

- 1) Three instructors will man the station. (1 must be rope qualified)**
- 2) On all evolutions there will be an instructor on a second ladder outside to assist and direct the student.**
- 3) All students will be on a double prussic belay.**
- 4) The belay instructor will assume no other duties during the evolutions other than the belay.**
- 5) Station lead instructor will supervise at the window.**

## EMERGENCY LADDER BAIL

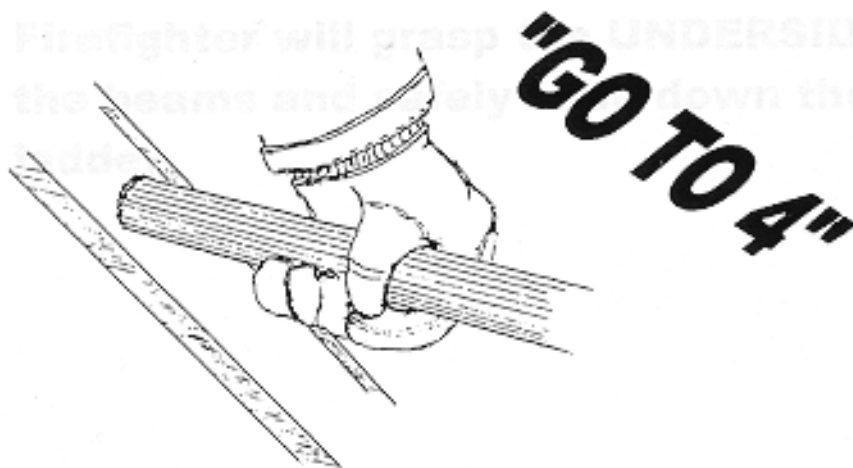
The Emergency Ladder Bail is designed for rapid ladder escape for one firefighter or a company in the event firefighters are forced out of an upper floor window due to a change in fire conditions and/or collapse.

**Warning: If the proper safety precautions are not taken this exercise could result in serious injury.**

Recommended procedures for performing the Emergency Ladder Bail:



1. Set ladder tip even or just below sill
2. Thoroughly clean out window of glass and framework (“make a window a doorway”)
3. Firefighter must lean out window and extend waist past the windowsill.
4. Firefighter must grasp both ladder beams for control and safety
5. Firefighter must (right arm) “hook” rung #2 with elbow
6. Firefighter will slide (left hand) down left beam and OVER GRIP the center of rung #4



7. As the firefighter EXITS the window:
  - a. Bend the knee's and tuck
  - b. Slide the RIGHT thigh along the beam as the firefighter rotates along the length of the beam to re-invert
  - c. RIGHT arm will be hooking RUNG #2 as the LEFT arm is grabbing RUNG #4 for control

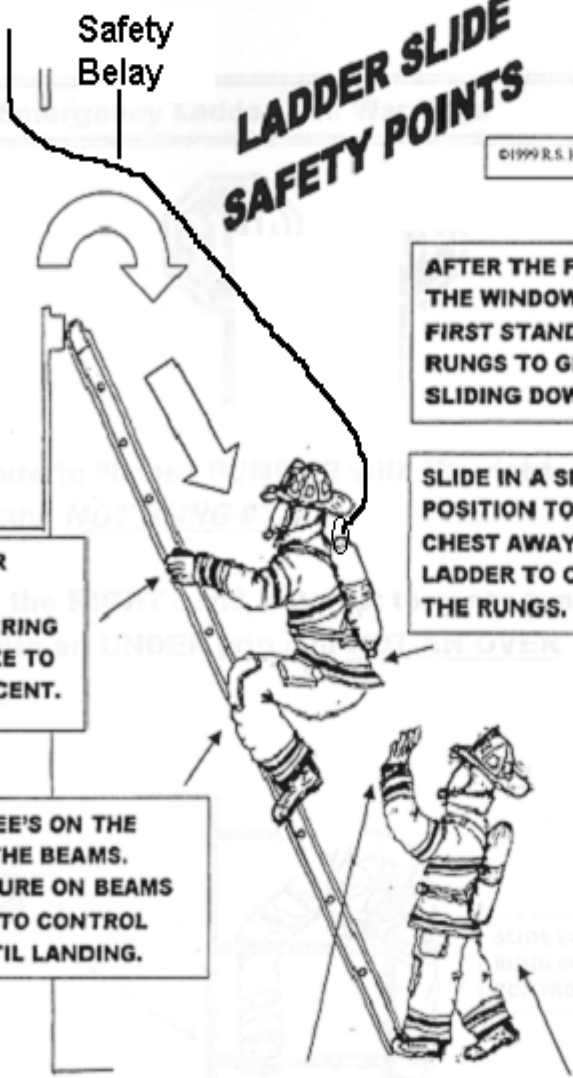
### **THE LADDER SLIDE**

1. Position knee's and boots on beams in a seated position (keeping the chest away from the ladder)
2. Firefighter will grasp the UNDERSIDE of the beams and safely slide down the ladder

# LADDER SLIDE SAFETY POINTS

©1999 R.S. HOFF & R.W. KOLOMAY

**WARNING:** If these safety precautions are not taken serious injury can result.



AFTER THE FIREFIGHTER EXITS THE WINDOW (BAIL), THE F.F. CAN FIRST STAND ON THE LADDER RUNGS TO GET SET BEFORE SLIDING DOWN THE LADDER.

SLIDE IN A SEATED POSITION TO KEEP CHEST AWAY FROM LADDER TO CLEAR THE RUNGS.

GRASP LADDER BEAMS NEVER RELEASING DURING SLIDE. SQUEEZE TO CONTROL DESCENT.

POSITION KNEE'S ON THE OUTSIDE OF THE BEAMS. PLACE PRESSURE ON BEAMS WITH KNEE'S TO CONTROL DESCENT UNTIL LANDING.

**NOTE:** DURING THE BAIL AND SLIDE, ALWAYS POSITION A SECOND A LADDER NEXT THE ESCAPE LADDER AND AN INSTRUCTOR TO "SAFETY".

POSITION TWO "SPOTTERS" TO HEEL THE LADDER AND ASSIST THE FIREFIGHTER SLIDE AND ASSURE A SAFE AND CONTROLLED LANDING.

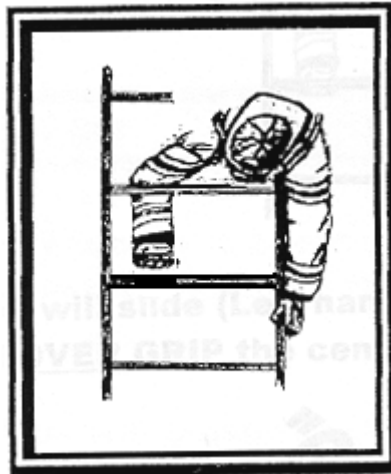
## EMERGENCY LADDER BAIL WARNINGS



1. Be sure to “hook” RUNG #2 with the right arm and NOT RUNG #3
2. With the RIGHT hand, do not grip rung 3

*HOOK 2*

*DO NOT  
GRASP 3*



*SLIDE HAND TO  
OVERHAND GRIP  
RUNG 4*

3. With the LEFT hand, slide the beam to RUNG #4 and NOT RUNG #3 OR #5. This mistake can result in a fall with injury
4. Make sure that the ladder is heeled by two firefighters before exiting the window
5. ALWAYS use a 2<sup>nd</sup> ladder with a spotter
6. **ONLY USE THE EMERGENCY LADDER BAIL FOR EMERGENCIES. NOT FOR ROUTINE EXITING DOWN A LADDER**

**WARNING:** If these safety precautions are not taken serious injury can result.

Safety  
Belay

# LADDER BAIL SAFETY INSTRUCTION METHODS

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LADDER  
TIP(S) SET  
EVEN  
WITH OR  
JUST  
BELOW  
WINDOW  
SILL.

INSTRUCTOR ON LADDER  
GRASPS HOLD OF F.F. AND  
GUIDES THE FIREFIGHTER  
DOWN THE LADDER

INSTRUCTOR VERBALLY  
INSTRUCTS AND PROVIDES  
SAFETY FOR DESCENDING  
FIREFIGHTER

STRAIGHT LADDER TO BE  
PLACED ON LEFT OF  
EXTENSION LADDER :

1. FOR F.F. HOOKING  
RIGHT ARM.
2. CONTROL BAIL SPEED.
3. VISUALLY INSURE  
PROPER ARM AND HAND  
PLACEMENT.
4. VERBALLY ASSIST AND  
INSTRUCT.

POSITION 3 FIREFIGHTERS  
TO HEEL LADDERS AND  
SAFETY THE LADDER SLIDE  
MANEUVER FOR A SLOW  
AND CONTROLLED DESCENT

## Reduced Profile & Wall Breach

### **Equipment:**

SCBA

Reduced width obstacle

Reduced height obstacle

Reduced visibility face piece

Forcible entry tool

Sheet rock

### **Setup:**

Set up a reduced width obstacle, generally studs placed 16" on center.

Set up a reduced height obstacle, generally no higher than 18" or 20".

### **Evolution:**

Have the members report to the starting area in full turnout gear and SCBA with reduced visibility face piece. Direct students, one at a time, towards the obstacle. Explain that they have come upon a wall and must get to the other side, the member should check in both directions for a door. Have the member probe through both sides of the wall before cleaning it out to make there are no obstructions so they're not wasting their time. Have the member break out a section of the wall between two studs (be sure they clear out both sides of the wall). The members should then check the other side for a floor with their tool. The firefighter must be made aware that they may be breaching a wall into kitchen or bathroom cabinets, behind a refrigerator or other furniture, or into an open foyer where they may fall.

Once it has been established that there is a floor on the other side the member performs the reduced profile maneuver. There are two techniques available for moving through a reduced width obstacle:

### **Reduced Profile:**

- 1) Loosen both the shoulder straps and waist strap followed by grabbing the left shoulder strap with left hand and left waistband with right hand. (For many it is not necessary to remove or disconnect straps).
- 2) Shift the SCBA as far to the left as possible placing the SCBA in line with the member's side profile. It may be necessary for larger firefighters to remove the right arm entirely to accomplish this maneuver.
- 3) Have the member move through their right side with their right arm extended forward. The left hand can tend to the cylinder.



- 4) After the obstruction is cleared, the SCBA is shifted back into the proper position and the straps are tightened and possibly re-donned.

### **Backward Swim:**

1. The member sits down with their back against the opening in the wall with the SCBA centered in the opening and the members legs are out in front of him.
2. The member then raises their left arm in a backward swim motion toward the center of the opening and reaches for the other side of the wall. The member should then push backward through the space while repeating the same motion with the right arm.
3. Demonstrate that the firefighter may need to get over the mopboard.
4. Once the neck of the SCBA cylinder is clear of the wall stud, the firefighter should rotate the body, dipping the right shoulder and employing a swim type maneuver to bring the rest of the body through the obstacle.

*Note:* During drill review all the equipment we carry, how it may get caught up, and how to solve the problem. Do not allow the first student to empty his/her pockets or remove equipment, such as flashlights, before the drill.

Firefighters might have to pass through a reduced height obstacle where the height of the SCBA hampers their egress. To overcome this problem the firefighter will perform the Low Profile Maneuver. The firefighter must perform this technique properly to successfully doff and don the SCBA. The height of the obstacle should be no higher than 18” or 24”. This height is selected due to the plumbing height of 18”-20” and the electrical height of 24”. Lower heights may be found in other unique or collapse situations and may be used as necessary.

### **Forward Dive:**

1. Center the body between the walls studs, the firefighter places both arms crossed at the elbows through the obstacle attempting to get the elbows and shoulders through the obstacle.
2. As the firefighter leans forward the arms are pulled in toward the center of the body allowing the firefighter to fall forward through the obstacle.
3. Once the SCBA is clear the firefighter can use the arms to pull the rest of the way through. A slight turn of the hips may be necessary to clear the member’s waist.

### **Low Profile Maneuver:**

1. Loosen both shoulder straps and the waist strap and disconnect the waist buckle.
2. Grasp the left strap with the left hand at the low-pressure air hose, and slide the right arm out of the right strap.
3. Swivel the SCBA out in front of the firefighter with the left hand remaining in place and the right hand grasping the right side of the SCBA back plate. The SCBA should rest on the cylinder with the valve facing away from you. This allows enough low-pressure air hose so that the face piece is not dislodged while going through the obstruction.  
*Emphasize do not move the left hand from the left shoulder strap as this keeps the firefighter oriented and does not allow them to lose control of the pack.*
4. The firefighter lies flat on the floor face down and slides through the obstruction using his feet to push along.
5. Once the firefighter is clear of the obstruction the SCBA is donned using the coat method. It is important that the member properly secure the waist buckle in the center so that it may be rapidly found if necessary.

# Day Two

Slide 1

**Saving Ourselves**  
THERMAL IMAGING

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Slide 2

**Saving Our Own!**

- The most important use of thermal imaging
- Speed in locating a down firefighter is imperative
- Efficient searching is a must
- Image interpretation is not the same as for a civilian victim
- Experienced TIC operators on RIT
- Know your equipment (*features, limitations etc.*)

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Slide 3

**Size-Up for Search**

- **Type of construction?** (*How much time do we have?*)
- **Type of occupancy?** (*Single family, multi family, business, etc.*)
- **Demographic of neighborhood?** (*urban, rural, etc.*)
- **Time of day?** (*delay in notification*)
- **Location of fire?** (*above or below grade*)
- **Location and number of firefighter's missing?**
- **Available firefighters for RIT.** (*How many?*)

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Slide 4

**Size-Up for Search**

- Consider using the TIC from the exterior before the search for:
- Determining construction features (*trusses, balloon const. Etc.*)
  - Location of fire
  - Fire extension
  - Find potential roof ventilation sites

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Slide 5

**Building Orientation**

- Identify your location in the structure based on contents (*furniture, beds, fixtures, etc.*)
- Location and direction fire travel
- Location of stairways
- Determine Ceiling Height
  - Look for operating sprinkler heads
  - Ceiling construction (*suspended ceiling etc.*)
- Windows = outside walls = escape routes!

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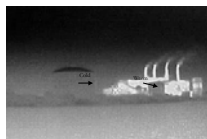
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Slide 6

**TIC Basics**

- Thermal imaging defined - "*Pictorial representation of temperature difference.*"
- DYNAMIC game of comparison, contrast and visual interpretation
- Hot objects usually appear light
- Cold objects usually appear dark



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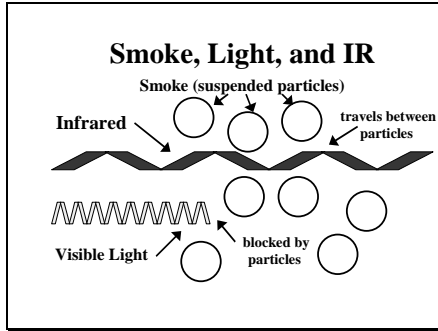
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Slide 7



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Slide 8

- Emitters**
- All objects are grouped into one of three categories based on their ability to produce, reflect or absorb heat
  - Passive
  - Active
  - Direct

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Slide 9

- Passive**
- Objects that can be heated and cooled
  - They will stand out in the camera and can be utilized to identify contents within the fire building
  - They can also be used to evaluate fire conditions
  - Passive emitters do not produce or continue to produce their own heat

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Slide 10

**Active**

- Generate their own heat energy, with little variation in the amount of change. The best example is something alive, human or animal.
- Active emitters can be “masked” by passive emitters

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Slide 11

**Direct**

- Direct emitters are the source of heat capable of heating passive and active emitters
- Examples are the fire we are called to put out
- The best example of a direct emitter is the sun

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Slide 12

**Image Interpretation**

- Follow the thermal column to fire (*thermal column will move away from the seat of the fire*)
- Use contents of structure to identify direction of fire and fire conditions
  - Objects will be white on the side facing the fire area
  - Dense objects low to the floor that appear white will indicate high heat or fire on the floor below
  - A low thermal layer can be an indicator of your proximity to the fire area and fire conditions

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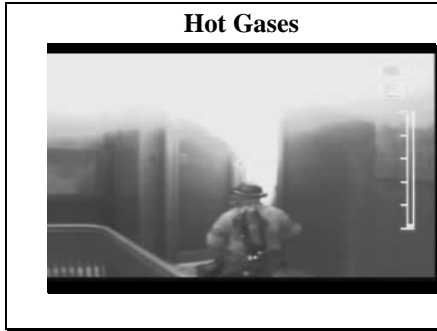
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Slide 13



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Slide 14

- Six - Sided View**
- **Up (*Ceiling*)**
    - Heat condition, structural conditions, fire conditions, thermal layer
  - **Down (*Floor*)**
    - Holes, debris, firefighters, hazards

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Slide 15

- Six - Sided View**
- **Right, Center, Left**
    - Hazards, structural conditions, fire conditions, doors, windows, means of egress, firefighters
  - **Back (*Exit*)**
    - Hazards, structural conditions, fire conditions, egress

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Slide 16

**Three Sweep Approach**

- **Top (Ceiling)**
  - Heat condition, thermal layer, structural components, fire location and travel
- **Middle**
  - Location of doors, windows, means of egress
  - Hazards (*hanging wires etc.*)
- **Bottom**
  - Downed firefighters, structural hazards

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Slide 17

**Image Interpretation**

- **Protective gear will mask the bodies active emitter**
  - FFs will not be hot in cold environment and cold in hot environment
  - FFs will not appear dark in hot environment or light in cold environment



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Slide 18

**Image Interpretation**

- SCBA bottles and fittings may appear dark
- Reflective trim on gear will contrast with fire resistive material
- Firefighters will not be located in the traditional locations that civilian victims are found
- Look for signs of firefighter presence (*marked thermal layers, hoselines, cold/wet spots, etc.*)

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Slide 19

**Image Interpretation**

- **Thermal Throttle**
  - use the thermal throttle to control the contrast
  - to close the throttle, turn it clockwise (toward the lens) to darken the picture
  - to open the throttle, turn it counter-clockwise (away from the lens) to lighten the picture



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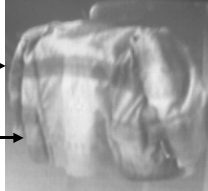
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Slide 20

**Image Interpretation**



"Reflective trim on gear will contrast with fire resistive material"

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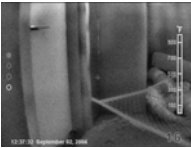

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Slide 21

**Looking for Shapes**



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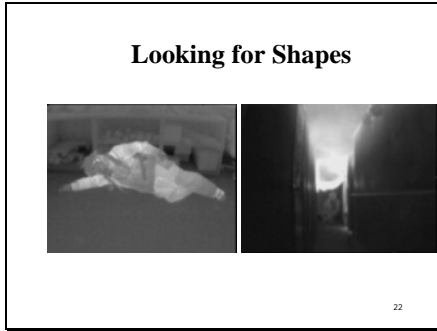
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Slide 22



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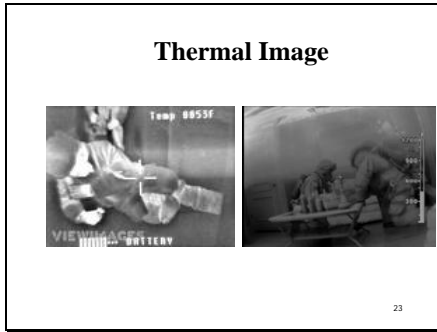
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Slide 23



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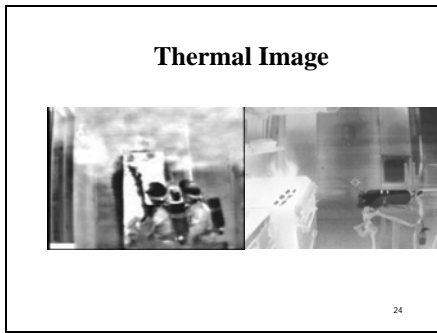
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Slide 24



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Slide 25



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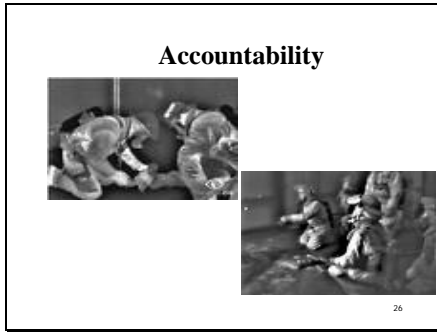
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Slide 26



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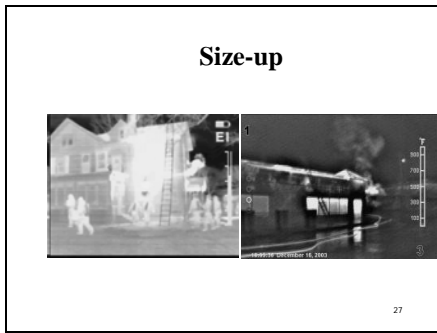
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Slide 27



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Slide 28



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Slide 29

**TIC Limitations**

- No National standards for TICs
  - Every manufacturer's TIC operate differently and have different features.*Know your camera !!*
- Heat saturation
- Fogging
- Battery life
  - Carry spare batteries
  - Rechargeable batteries lose life over time
- TICs can't see through steam



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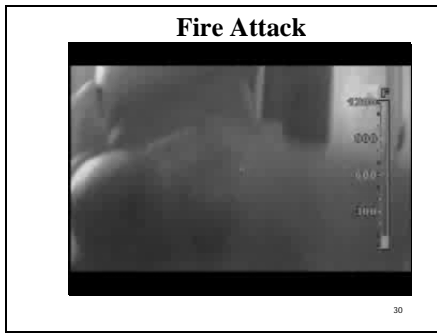
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Slide 30



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Slide 31



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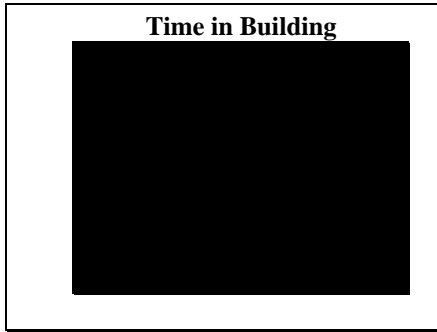
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Slide 32



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Slide 33

**Image Interpretation**

- **Shutter**
  - shutter is used to auto-calibrate or zero the unit
  - the "shutter" will "fire" or close at a varied rate, approx. every 60 seconds
  - when the shutter fires, the image on the display will freeze for 1-2 seconds.

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Slide 34

### Image Interpretation

- Temperature Gauge
  - Temperature is an object not the fire or gas

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Slide 35

### Shuttering



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Slide 36

### One Last Thought...

**Federal Report: Houston Fire Department Didn't Use Thermal Imager in Search for Fallen Firefighter in 2004 Blaze**



*The TIC can't help if you don't have it with you!!!*

Houston Chronicle via Facebook.com

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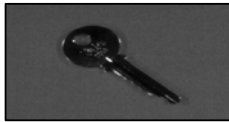
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Slide 1



**Firefighters'  
Emergency Operation**  
Saving Ourselves

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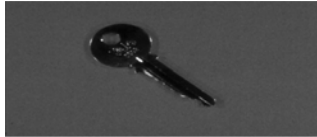
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Slide 2



Goal: To train firefighters of the dangers of elevators and some proper procedures

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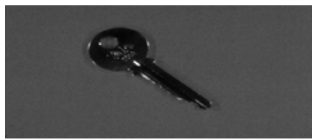
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Slide 3



This is designed as an overview and is not the full Elevator Course offered by The MFA

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Slide 4

**Everyone has a High Rise!**



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Slide 5

**Firefighters' Emergency Operation**

- All buildings over 70 feet have been
- All of the panels of these cars will have the same features or components
- It does not matter when they were built, as they had to complete the upgrade
- These cars will not include future changes

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Slide 6

**Definitions**

- DL-Designated Level
- AL-Alternate Level
- Phase I switch
- Phase I Operation
- Phase II Operation
- Discharge Floor (DF)
- Staging Floor
- Fire Floor

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Slide 7

### Lobby Command Post

- Incident Commander (IC)
- Taxi
- Discharge Floor (DF)
- Fire Floor (FF)
- Building Personnel

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Slide 8

### Upon Arrival



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Slide 9

### Find the Floor Plans



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Slide 10

**Floor Plan Points**

- Where is the fire location?
- Where is the closest stairwell?
- What is your plan?



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Slide 11

**Fire Command Room**

- Upon arrival, various building components for the Incident Commander to consider will be available in the FCR
- These may include HVAC, FAID, sprinkler and standpipe systems, elevator status board and emergency power selector
- In newer buildings, these rooms will contain more sophisticated features as the building height increases

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Slide 12

**Command**



Keep Command informed of your location

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Slide 13

**Phase I  
Emergency Recall Operation**

Automatic Recall  
Or  
Manual Recall ?

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Slide 14

**What Does Phase I Do?  
Can be Manual or Automatic**

- Returns all cars non-stop to DL
- Those cars will not open their doors until they reach DL
- Extinguishes all lobby call buttons
- Will leave Position Indicators at DL operable
- Sends car to AL if DL FAID has operated
- Renders all automatic car door reopening devices inoperative

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Slide 15

**Manual 3502 Recall**

Inserting and turning the 3502 key in the capture station activates recall



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Slide 16



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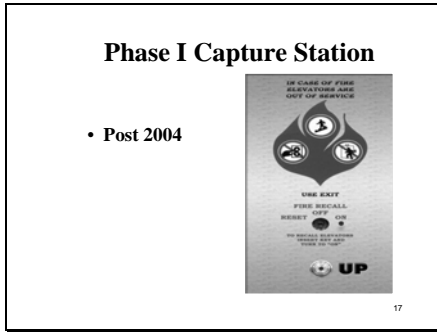
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Slide 17



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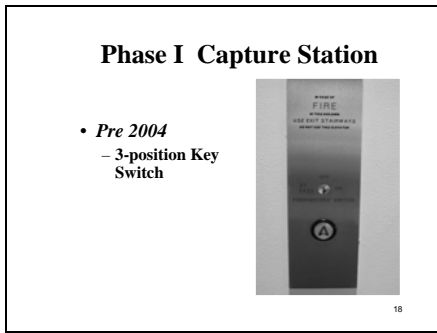
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Slide 18



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Slide 19

**Phase I Stations**

- It must be accessible at all times
- Cannot be locked behind door, etc.
- Must be located in plain view



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Slide 20

**Automatic Recall**

- Is initiated when incipient smoke condition activates dedicated FAIDs
- Sends all of the cars within that group/bank into Phase I Recall and returns them to the Designated Level (DL)
- Removes use of elevators in that bank from building occupants
- The elevators will be down at DL before the firefighters are on their apparatus

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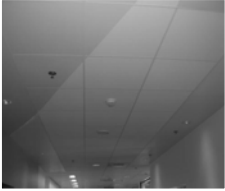
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Slide 21

**Fire Alarm Initiating Device (FAID)**

Only dedicated FAIDs will initiate Automatic Recall of the elevators



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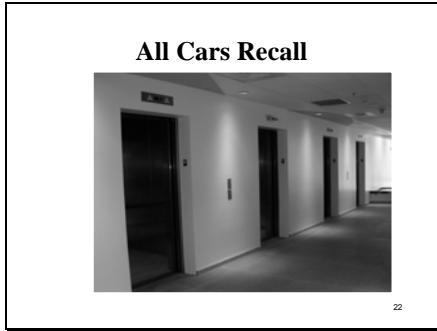
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Slide 22



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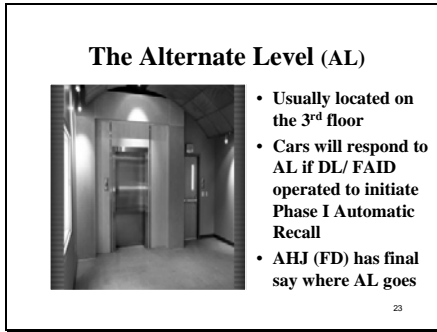
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Slide 23



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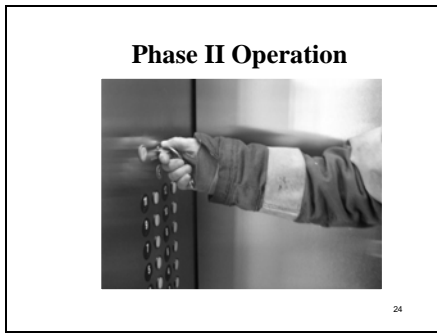
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Slide 24



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Slide 25

**Phase II**

- Is the operation of the elevator under the control of the firefighter (taxi)



25

The image shows a close-up of an elevator control panel. A firefighter in full gear is standing in front of the panel, which features several circular buttons and indicator lights. The scene is dimly lit, with a bright light source creating a lens flare effect across the top of the panel.

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Slide 26

**Phase II Operation (1991)**



26

The image is identical to the one in Slide 25, showing a firefighter at an elevator control panel with a lens flare effect.

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Slide 27

**Phase II**

All controls in the car are manual.

To use you must:

- 1) Select your discharge floor
- 2) Press Door Close

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Slide 28

**Phase II**

All controls in the car are manual.

When you arrive on the discharge floor:

- 1) Press door open until door open enough to view the floor. (Letting go will automatically cause the door to close)
- 2) If it is safe continue to hold the button until the door is fully opened. It will then stay in this position.

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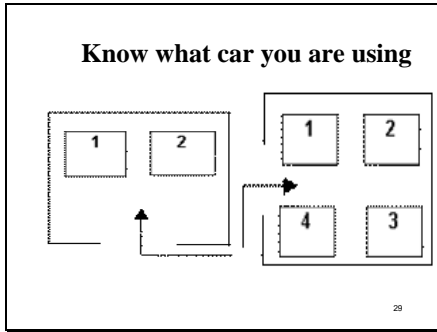
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Slide 29



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Slide 30

**Phase II**

- Car call cancel
- Fire hat
- 3-position key switch
- Located at same height on COP
- Automatic door hold

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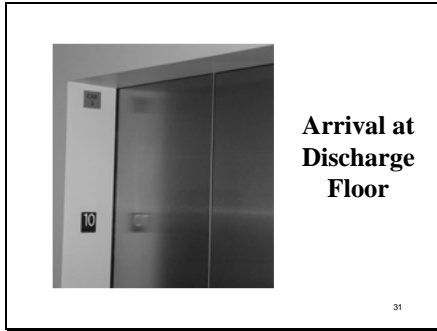
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Slide 31



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Slide 32



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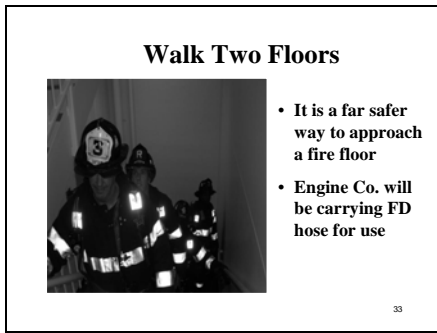
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Slide 33



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Slide 34

**Test Fire Floor Door**



- Test fire floor door with an ungloved hand
- Hand lines will be placed according to local SOG
- The “Irons” are available if necessary to force floor door

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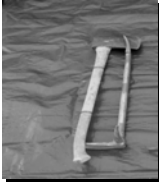
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Slide 35

**The Irons**



- The Irons, as they are called, consist of the following forcible entry tools:
  - The Flat Head Axe
  - The Halligan Bar
- They are the absolute minimum in forcible **EXIT** tools necessary for self-rescue

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Slide 36

**Emergency Power Generators**

**Required by 524 CMR in buildings 70 feet or higher built after December 31, 1981**

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Slide 37

### Emergency Generator Power

- Will take over after a 25 second drop in Primary power
- Will select cars following an automatic selection plan
- One car at a time will be brought to the DL or AL
- If selected car does not move after 25 seconds, it moves on to next car
- Full load (weight) capability
- May move at a reduced rate of speed

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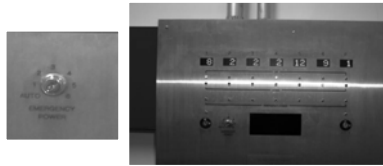
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Slide 38

### Emergency Power Elevator Selector



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Slide 39

### Emergency Power Selector (Older)

- Note activation jewel light
- Open with Halligan if necessary
- May need key to select car to receive power



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Slide 40

### Emergency Power Selector (Older)

- Note the toggles to allow selection of car to have power for Recall to DL



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Slide 41

### Firefighters' Emergency Operation

- Only licensed elevator mechanics, state elevator inspectors and firefighters are allowed to possess the key
- It is advised to equip all firefighters and fire apparatus with either an original key or a first generation copy that is properly stamped 3502-1 to indicate that it is a copy

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Slide 42

### Company Operations



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Slide 43



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Slide 44

**The Rule of Sixes!**

Do not use elevators if fire is on floor 6 or below

Count your elevators!

Advance up the stairwells after making sure elevators have been captured and are empty

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Slide 45

**The Rule of Sixes!**

- No more than 6 fully equipped firefighters
- Take car two (2) floors below reported fire floor
- Test car every 5 floors to make sure all components are working

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Slide 46

**Clearwater, Florida-2004**

- Three (3) fire companies took elevators direct to fire floor (5<sup>th</sup> floor)
- The “Rule of Sixes” was in their SOG, but was ignored
- They should have used the stairwells to advance onto the fire floor



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Slide 47

**Emergency Condition During Phase II**



- If the fire hat is flashing and an audible tone is heard the system is telling you the car may not get to your destination
- The FAID in the MR may have operated, or other disabling conditions may exist

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Slide 48

**Emergency Condition During Phase II**

- If this condition appears:
- Stop the elevator on the next safe floor and exit the elevator.

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Slide 49

**Discharge Floor**

- At least 2 floors below the reported fire floor
- Check Hoistway for smoke, fire or water before starting trip up
- Check every 5 floors
- Perform door test of floor before attempting to open
- Leave "taxi" in car with a portable radio, who should return to DL immediately

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Slide 50

Self Evacuation



A Hostile Environment!

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Slide 51

**Emergency Situations**

- Car runs erratically
- Car filling with smoke, fire, water, etc.
- Car stops between floors
- Unable to communicate your position
- Conditions mandate immediate evacuation of the elevator
- Transmit "MAYDAY"

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Slide 52

**SELF-EVACUATION FROM STALLED ELEVATORS**

In the unlikely event an elevator stalls while a team of firefighters is riding to or from an upper floor, firefighters should be prepared to undertake the following procedures:

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Slide 53

**Self -Evacuation**

- If conditions allow, *wait for assistance* from the RIT Company and/or elevator mechanics
- Before self-extrication is attempted, the Phase II key switch shall be placed in the "OFF" position and the key shall be removed from the tumbler.
- Remember, that you are usually safe, but just "locked in the box"

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Slide 54

**Self -Evacuation**

- Mainline power must be disconnected and **lock out / tag out** performed to ensure firefighter safety
- Fire companies must be assigned this task if fire conditions permit, before members exit that car into the elevator hoistway
- The decision whether to wait or self-evacuate must be re-evaluated by the OIC constantly

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Slide 55

**Self-Evacuation**

- Check to see if the “CALL CANCEL” button has been pressed accidentally
- Turn the Phase II key to the “OFF” position to attempt recapture of the car
- Notify the IC that the elevator car has stalled and provide the IC with:

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Slide 56

**Self-Evacuation**

- The number of members in the elevator
- The location of the elevator if known
- If smoke is entering the elevator
- If an emergency exists and self-evacuation will be attempted
- Notify the IC upon successful self-evacuation

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Slide 57

**Self-Evacuation Procedure**

- If available, turn the Emergency Stop switch to “OFF”
- If one is not available, have other firefighters open the Main Line Disconnect switch if possible



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Slide 58

**Self-Evacuation Procedure**

- This is not the way to perform a self-evacuation..
- Going out the normal doorway is the best way to exit, but not under these conditions due to open space under the elevator
- If one cannot wait, go out through the roof exit instead



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Slide 59

**Car Top Exit**

- Locked from the outside
- To prevent injuries and death
- Push aside with Halligan or plaster hook



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Slide 60

**Top Exit**

- Once false ceiling is aside, the outline of the top-of-car exit will be visible
- It may be locked by a simple sash lock or a 3502 tumbler



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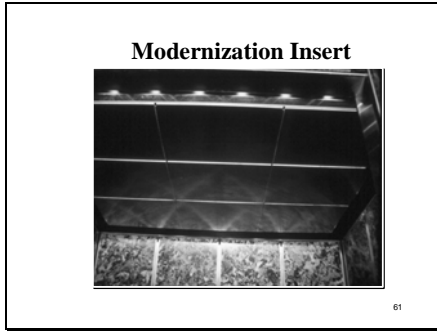
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Slide 61



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Slide 62



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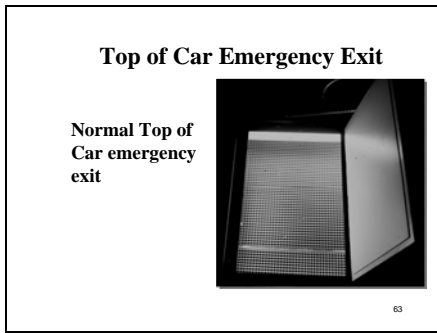
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Slide 63



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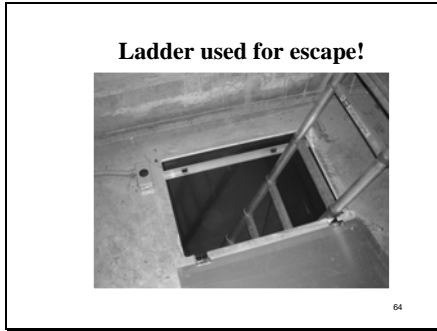
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Slide 64



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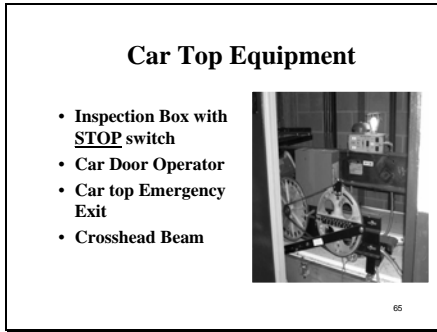
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Slide 65



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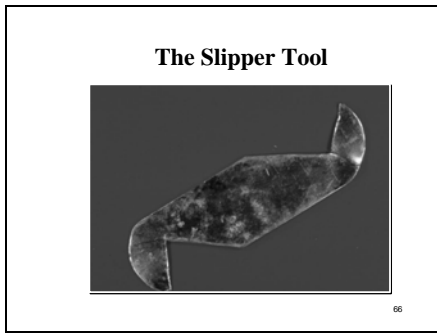
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Slide 66



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Slide 67

**Elevator Threat**

- **Of the more recent incidents resulting in firefighter injuries, most have been due to firefighters not following existing department SOG's**

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Slide 68

**Questions?**

Make-up and Return!

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Slide 69

For more information, contact:

The Department of Fire Services  
PO Box 1025  
State Road  
Stow, Massachusetts 01775  
Phone: 978-567-3200  
Fax: 978-567-3229  
Website: [mass.gov/dfs](http://mass.gov/dfs)

Revised 11/06 69

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Slide 1

**Rapid Intervention Skill  
Hole thru Floor Rescue**

- Massachusetts Firefighting Academy
- Firefighter Skills Training Group



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Slide 2

**Objective**

- ♦ **To provide members of the Massachusetts Fire Service with the knowledge and skills needed for the safety and survival of themselves and their fellow firefighters.**

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Slide 3

**Rapid Intervention  
Rescue Through Hole in Floor**



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Slide 4

**Cause and Prevention**

- Localized Collapse
- Catastrophic Failure
- Unstable Floors
- Improper Construction Practices
- Complacency

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Slide 5

**Cause and Prevention**

- Keep low
- Keep tool in front of you checking for holes in floor.
- Be aware of fire conditions below and above

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Slide 6

**Rescue Through Hole in Floor**

Conscious Firefighter

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Slide 7

All Downed Firefighters

- If there is an unexpected failure and you find yourself or someone you are with falling thru a floor remember:
- Call the "MAYDAY"
- "Mayday, Mayday, Mayday"
- Remember "LIPS"
- "Location, Identification, Problem, Survival"

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Slide 8

Rescue Through Hole in Floor

- If time and manpower allow, the most efficient way to remove a firefighter that has fallen thru a floor is to place a pencil ladder in the hole and have the firefighter climb out themselves.

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Slide 9

Rescue Through Hole in Floor



- By placing a pencil ladder down the hole the firefighter would be able to climb out

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Slide 10

Rescue Through Hole in Floor

- If obtaining a pencil ladder is not an option we suggest the following as second option

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Slide 11

Rescue Through Hole in Floor

- Ideally this rescue procedure will require 5 rescuers, 1 to command and 4 to haul the downed firefighter

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Slide 12

Rescue Through Hole in Floor

- Rescue begins with lowering a bight of charged hose line down to trapped Firefighter.
- Two Rescuers on each side of hole
- If floor is weak, use doors around hole.
- The firefighter stands in bight of hose.

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Slide 13

Rescue (cont.)

- On the command of “ready, ready, go”, hose line is hauled up.
- Fifth rescuer assists rescued FF up and out of the hole and onto floor.

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Slide 14

Conscious Firefighter

- Bight of hose is lowered through hole.
- Firefighter stands on bight.



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Slide 15

Conscious Firefighter

- The firefighter wraps his/her arms around the hose line (Bear Hug)



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Slide 16

Raising the Firefighter

- The rescuers above then position themselves as close to corner of the hole as possible. This will prevent the hose from pulling the firefighters arms apart and causing him/her to lose their grip.



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Slide 17

Conscious Firefighter

- The team leader will confirm that the firefighter is ready before issuing the command to commence the lifting



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Slide 18

Raising the Firefighter

- The rescuers will then position themselves on the hose line.
- Gripping the hose as close a possible to the hole.
- The team leader gives the command "Ready, Ready, Go"
- The team will then pull up on the hose line.



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Slide 19

Raising the Firefighter

- When the rescuers have completed their pull they will stop and await the next set of commands



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Slide 20

Raising the Firefighter

- The team leader then gives the command "rescuer one reset"
- The rescuer closest to the hole then bends over and gets a new firm grip on the hose line
- *Rescuer two must not let go.*



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Slide 21

Raising the Firefighter

- The team leader then gives the command "rescuer two reset"
- The rescuer furthest from the hole bends over and gets a new firm grip on the hose line.
- *Rescuer one must not let go.*



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Slide 22

Raising the Firefighter

- When the team is ready the rescuers repeat the lifting procedure



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Slide 23

Raising the Firefighter

- These steps are repeated carefully until the firefighter is removed

*The Team Leader must carefully guide the firefighter out of the hole*



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Slide 24

Raising the Firefighter

- The Team Leader assists by grabbing the firefighter the best way possible and assist him/her to the deck either on their stomach or in a seated position



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Slide 25

**Be Careful!!!!!!**

- **Warning:**
- **Pulling too fast could cause injury to the firefighter by him/her striking their head on the edge of the hole.**



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Slide 26

**Rescue Through Hole in Floor**

**Unconscious Firefighter**

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Slide 27

**Rescue Through Hole in Floor**

- Rescue begins by lowering a bight of charged hose line down through hole.
- Rescuer (s) slides down hose line similar to sliding firehouse pole.
- Unconscious FF's condition is assessed.
- Handcuff knot is tied in bight of rope.
- Rope with knot is lowered into hole.

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Slide 28

Sliding Down Hose

- The rescuer will wrap his ankles around the hose



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Slide 29

Sliding Down Hose

- The rescuer will grip the hose with his hands and slowly slide down the hose as if it were a firehouse pole



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Slide 30

Assessing the Firefighter

- The rescuer (s) will assess the firefighter



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Slide 31

**Hand-cuff Knots are Lowered to Rescuer**

- It is recommended that 2 personal ropes be used to limit the stress on the arms and/or wrists of the firefighter.
- A longer rescue rope may be used and divided into quarters to accomplish the same result.
- The first knot will be attached just above the elbows and the second be attached just above the wrists.

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Slide 32

**Hand-cuff Knots are Lowered to Rescuer**

- It is easier and more efficient to have the rescuer above the hole tie the knots and lower them into the hole



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Slide 33

**Handcuff Knots are Lowered to Rescuer**

- Lower the knot(s) to the rescuer in the hole



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Slide 34

### Handcuff Knot

The diagram illustrates the steps to tie a handcuff knot. Step 1 shows two rope ends being held together. Step 2 shows the ropes being crossed. Step 3 shows the ropes being pulled through to form a knot. The final image shows the completed knot.

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Slide 35

### Rescue through Hole

- Handcuff knots are attached to unconscious firefighter

The first photograph shows a firefighter being pulled through a hole in a wall. The second photograph shows a firefighter's hands being secured with a knot.

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Slide 36

### Rescue Through Hole

- Ideally this Rescue operation requires 5 to 9 rescuers.
- Two on each end of each rope. And one Team leader to give commands.

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Slide 37

Unconscious Firefighter

- At least 2 rescuers on each rope.
- Both sides lift together using "ready, ready, go" commands.



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Slide 38

Unconscious Firefighter

- The team leader will make sure that all rescuers are ready before issuing the command to commence the lifting



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Slide 39

Raising the Firefighter

- The rescuers then position themselves on the rope.
- The team leader gives the command "Ready Ready, Go".
- The team make one pull and STOPS.

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Slide 40

Raising the Firefighter

- The team leader then gives the command "rescuer one reset".
- The rescuer closest to the hole bends over and gets a new grip on the rope.
- *The furthest rescuer must not let go.*



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Slide 41

Raising the Firefighter

- The team leader then gives the command "rescuer two reset".
- The rescuer furthest from the hole bends over and gets a new grip on the rope.
- *The rescuer closest to hole must not let go.*



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Slide 42

Raising the Firefighter

- When the team is ready we repeat the command "Ready Ready, Go" and continue until the firefighter is safely removed

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Slide 43

Raising the Firefighter

- Remember the SCBA can catch on the rim of the hole.
- *Slowly and methodically*



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Slide 44

Raising the Firefighter

- Team Leader assists by grabbing the firefighter by any means possible and pulls the firefighter backwards or forward so the firefighter can be placed on their stomach or in a seated position on the floor at the edge of the hole



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Slide 45

Remember

- You must control your anxiety, this must be done as controlled as possible to prevent injury or further injury to the trapped firefighter

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Slide 46

Remember

- If you are training in these skills and there is a chance of a firefighter being injured from a fall, a belay device ***must*** be deployed for safety

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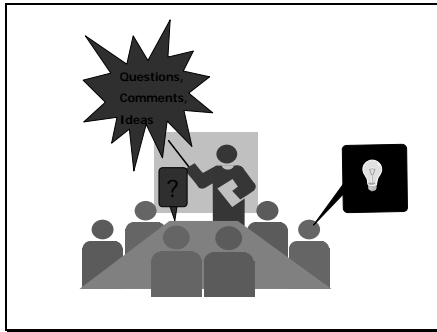
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Slide 47



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Slide 48

Assistance

- Massachusetts Firefighting Academy
- Rapid Intervention Office
- 978-567-3206
- Firefighter Skills Training Group
- 978-567-3216



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# Long Lug Out

## **Equipment:**

200' of 1 ¾"  
1 Nozzle  
Black out masks

**Objective:** To train a firefighter to use his basic knowledge of hose lines as tool to egress a building.

**Teaching Points:** A nozzle is on the male end of a hose and the female is connected to the pump (or standpipe.) One of the main teaching points is that once you start in one direction you continue until you find a coupling. Then when it is determined by the long lug which direction will lead you to safety continue in that direction. Make clear that you will always remain in contact with the line and your hand should use the “bump and go” principle. It should be noted to all participants on rare occasions a double male and/or double female could be in use on the fire ground, therefore sending a firefighter in the wrong direction.

## **Setup:**

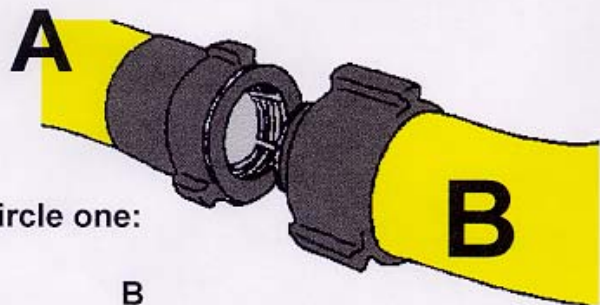
Lay the 200' out as conditions warrant. Cross the hose several times and end up with the nozzle and the last female coupling in different areas. If a staircase is available then laying the hose line up and down the stairs may make for a more challenging scenario. Place the female coupling up one level and see if the students use their training to get out. Under this scenario it can be explained that the line came in over a ladder and was advanced downward.

## **Evolution:**

Have the students report to the starting area. Bring the students in one at a time, on air, as site allows. Have them kneel down. Explain to them they were searching, conditions suddenly worsen and they must get out. Visibility has gone to zero and as they crawl they will find a hose. They must find their way out using the hose and couplings.

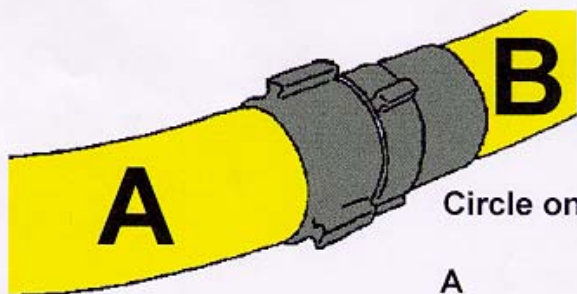
During the critique explain that the hose they “found” may have come in the building over a ladder. Unknown to them the first line might have found the stairwell impassable and the chief had the attack line go over a ladder. Certainly, if you had brought the line in the first floor door, had advanced it to the fire floor, and then had to get out, you would know that upon hitting the stairs all you would have to do is head down. In this evolution you did not know where that line came from therefore follow the hose out, not the stairwell.

## Which Way Out ?



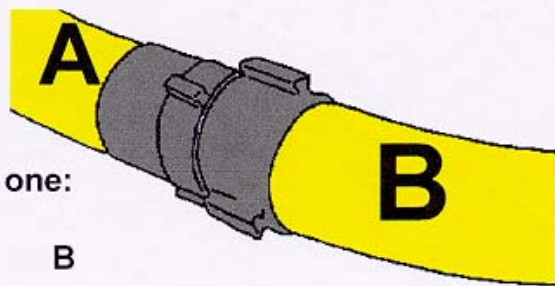
Circle one:

A      B



Circle one:

A      B



Circle one:

A      B

### PERSONAL ROPE FOR BAILOUT

- Convert SCBA to harness or don a class III Harness
- Secure belay to top of SCBA around both shoulder straps ( or harness)



- Attach the hasp around a substantial object and back onto itself.
- Take the larger carabineer off and bring rope around your back.
- Hold both hands together at all times  
Keep both pieces of rope in your hands
- Straddle the windowsill and extend arms out the window, beyond face of building
- Straddle the windowsill and ease your self over the edge
- Holding both pieces of rope in your hands will control your decent
- The tighter you squeeze the slower you descend
- The looser you squeeze the faster you descend
- Lower yourself down to ground gently releasing pressure on the ropes
- This will allow you to descend to the ground, lower level of building, ladder, or place of refuge.

Remember...

***ALL OTHER AVENUES OF ESCAPE HAVE BEEN LOOKED AT AND NOT  
FEASIBLE. THIS IS A LAST DITCH EFFORT.***

**These training exercises are extremely dangerous and serious injury could result if safety precautions are not adhered to.**

**On all bailouts regardless being ladder or rope all of the following  
Will be required.**

- 1) Three instructors will man the station. ( 1 must be rope qualified)**
- 2) On all evolutions there will be an instructor on a ladder outside to assist and direct the student.**
- 3) All students will be on a double prussic belay**
- 4) The belay instructor will assume no other duties during the evolutions other than the belay.**
- 5) The station lead instructors will supervise at the window.**