








Question?

What is the safest way to remove a passenger from a stalled elevator?



SHARING INFORMATION

References

- A.S.M.E. A17.1 – Safety Code for Elevators & Escalators
- A.S.M.E. A17.4 – Emergency Evacuation of Passengers from Elevators
- N.E.I.E.P. – Training Modules
- F.D.N.Y. - Training Bulletin/Emergencies 1/Elevator Operations/March 15, 1997
- Thyssenkrupp.com/Classroom on Demand
- YouTube.com
- Otis.com
- Elevatorbob.com

A.S.M.E. – American Society of Mechanical Engineers
 N.E.I.E.P. – National Elevator Industry Educational Program
 F.D.N.Y. – Fire Department City of New York

Elevator Intro

- Most common form of transportation
 - Travel millions of miles
 - Reach great heights
 - Can be found anywhere
- Safest form of transportation
 - Occasionally present a problem
 - Needs immediate attention
 - Not always an emergency

**WAIT FOR ELEVATOR MECHANIC
IF POSSIBLE!**

Elevator Intro

The Word/Acronym according to the infamous Lt. Dave Russell (FDNY ret.) from the "Book of Russellisms"



"FIIP"
Fire
Illness/injury
Panic

Elevator Intro

What prohibits waiting for mechanic ?

- Emergency situation
(FIIP-Fire, Illness/Injury, Panic)
- Availability & response time of mechanic
- FD apparatus availability & call volume

Elevator Intro

If this is the case, rescuers must be familiar with elevator:

- Components & their operation

C.M.A.!

- The main focus for this lecture is to provide the necessary information needed to free a passenger from a stalled elevator safely.
- It is not intended to turn rescuers into elevator mechanics, but only to provide information on how to safely remove the passenger from their unfortunate situation.

Remember This!!!! (five most important points)

- Safety
- True emergency (Incident vs. Emergency)
- Kill the power! (Lock-out/Tag-out)
- Secure elevator mechanically
 - While operating in the shaft-way
 - When the car is overloaded
 - When any doubt exists
- Do not restore power! (Stalled elevator)

Elevators (101) & Safety

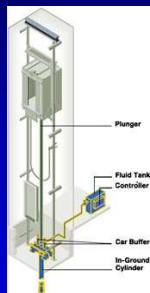
Two most common types of elevators



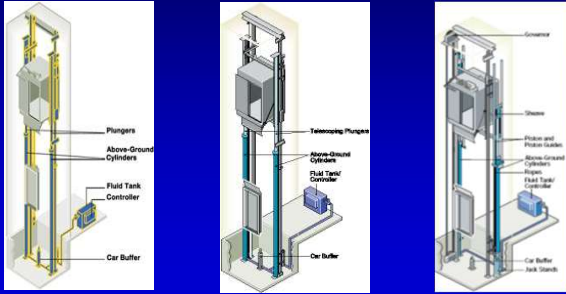
The Hydro (4-types)

Holed Hydro

- Jack & piston are installed below ground
- Found in low-rise buildings (up to 60 feet)
- Motor room is generally located at the lowest landing (adjacent to the shaft)
- Reach speeds between 100-150 fpm or 1-1.5 mph



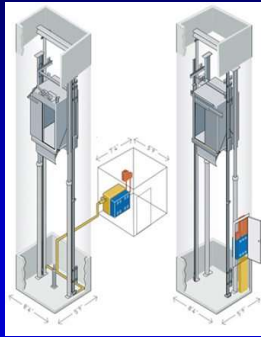
Hydro Variations



The Hydro

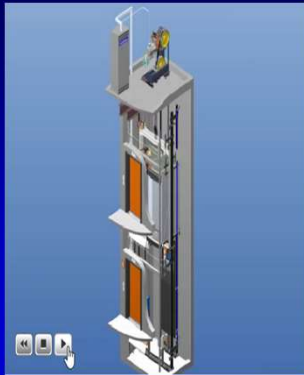
OTIS HydroFit (HMRL)

- Hole-less Hydro
- Found in low-rise buildings
- Motor room is located in the elevator shaft via access door
- Designed to save valuable floor space
- Reach speeds between 100-150 fpm or 1-1.5 mph



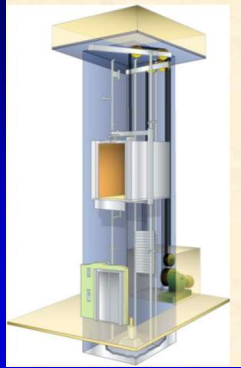
Traction Elevator

Overhead Installation
(most common)



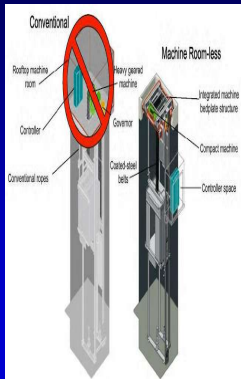
Traction Elevator

Basement Traction



Traction Elevator

Machine Room-less (MRL)



Machine Room-less Elevator (MRL)

Controller Room



Machine Room-less Elevator (MRL)

Controller Panel



Machine Room-less Elevator (MRL)

Controller rooms
Can be found
anywhere in the
building!

Get out and
pre-plan!

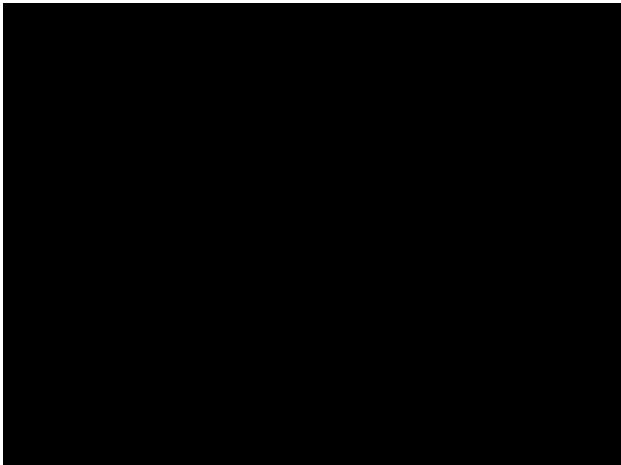
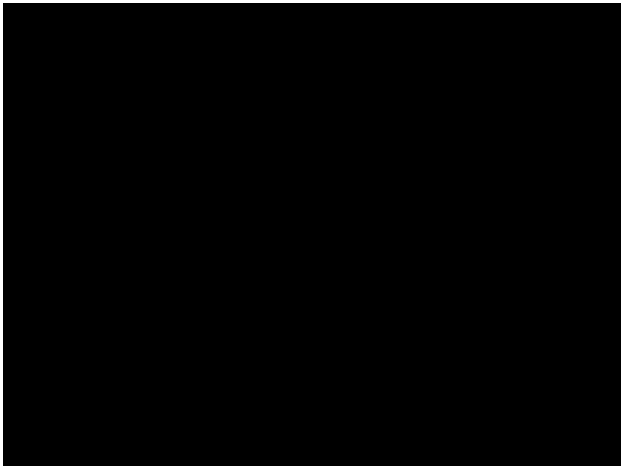
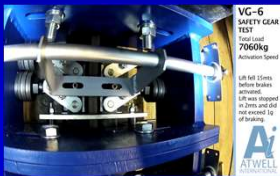
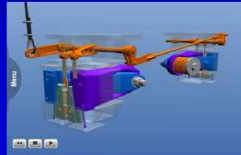
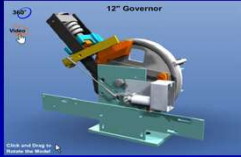


Elevator Safety Devices

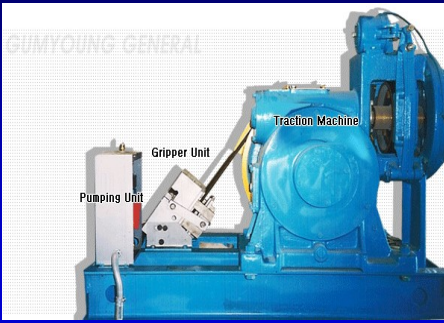
- Governor & Safety
- Rope Gripper
- Car Door Restrictors
- Gate Switches
- E-stop Switches
- Hoist-way Door Locks
- Hoist-way Door Self Closures
- Limit Switches

Elevator Safety Devices

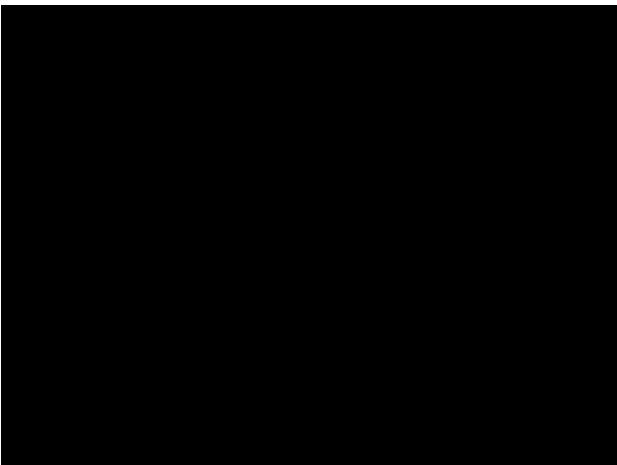
Governor & Safety



Rope Gripper





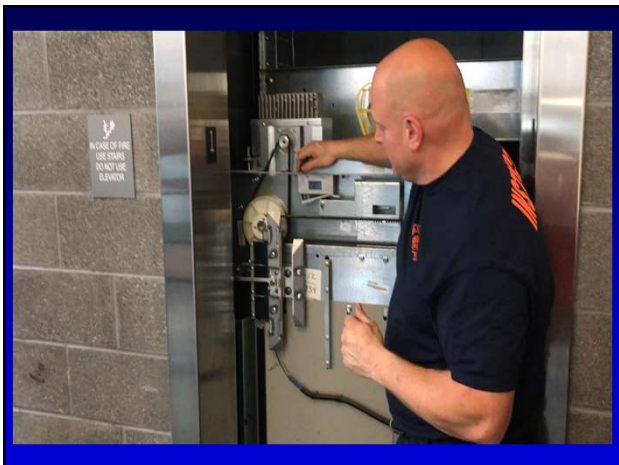


Elevator Safety Devices

Car Door Restrictor










Elevator Safety Devices
Gate Switch (Top Access Hatch)



A close-up photograph of a gate switch mechanism on a metal panel. The switch is a small, rectangular device with a handle, mounted on a metal surface. Wires are connected to the switch.

Elevator Safety Devices
Opening the Top Access Hatch



A photograph showing a person opening a top access hatch in an elevator shaft. The person is using a tool to lift the hatch cover. The hatch is located on the ceiling of the shaft. The person's hands are visible, and the hatch is being lifted.

Elevator Safety Devices

E-stop Switches



Elevator Safety Devices

Safety devices in the hoistway



FIGURE 20
Spirator Door Closer

Possible Equipment Needed



Initial Response Steps (Upon Arrival)

Obtain Knox Box keys if available. It's also a great place to stow the key for the lock left attached to the disconnect in the MR



Initial Response Steps (Upon Arrival)

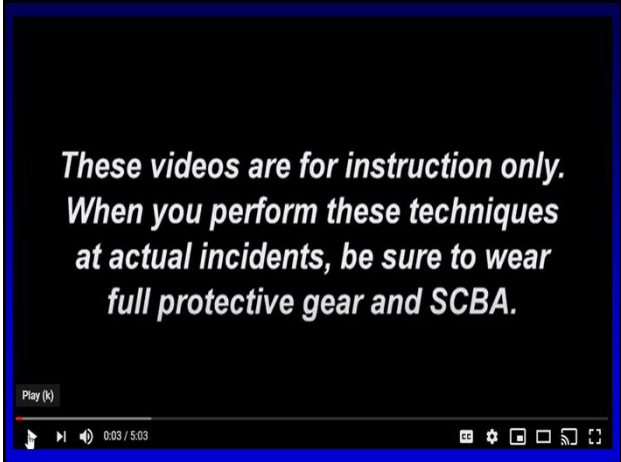
Verify which elevator is stalled. This can be a little challenging when multiple elevators are present

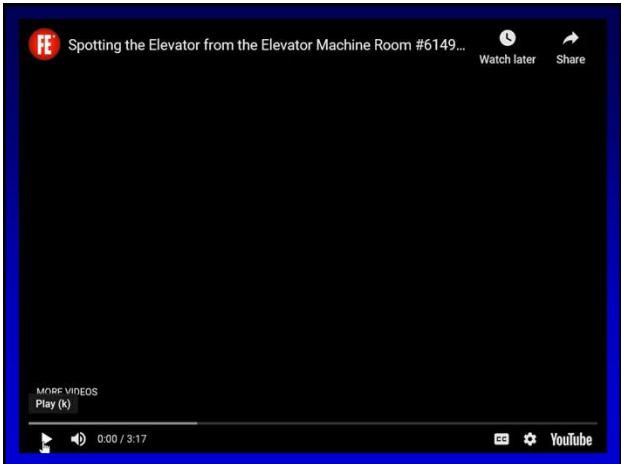


Initial Response Steps (Upon Arrival)

Locate the elevator's position in the hoist-way. There are multiple ways to accomplish this







Initial Response Steps (Upon Arrival)

Locating the elevator (recap)

- Position Indicator
- Open lobby door
 - See car
 - Counterweight position
- Adjacent Car
- Motor room
 - Look down shaft-way (traction car)
 - Controller (floor selector)
 - Hydro Oil (fluid level)
- Laser Tape

Initial Response Steps

Make verbal contact w/passengers once car is located.

Limit the amount of info you share with the passenger(s), but reassure them of their safety!



Initial Response Steps

Have the passenger ensure the manually operated Stop Switch is not in the stop position



Initial Response Steps

Have the passenger push the Door Open button and/or push another floor button



Initial Response Steps

Have the passenger push close the car door to ensure the Gate Switch is made



Initial Response Steps

Make sure all hoist-way doors are fully closed (front/rear/side)

Don't forget to check the floors above & below the stalled car!



Initial Response Steps

Activate phase 1 switch in the lobby

Caution
Passenger(s)
MUST
be notified before
activating
Fire Recall



Initial Response Steps

Final step in the process:
Cycle the main line



Lock/out - Tag/out (LOTO) Procedures

This procedure is designed during elevator rescue operations, to ensure that power has been removed and to prevent the unauthorized restoration of power...



Lock/out - Tag/out (LOTO) Procedures

Verifying that power has been removed tips:

Open Controller Cabinet. Look for lights and/or Floor Selector. Listen for fan if equipped



Lock/out - Tag/out (LOTO) Procedures

Verifying that power has been removed tips:

After initiating LOTO, the lighting circuit will still be energized



Lock/out - Tag/out (LOTO) Procedures

Verifying that power has been removed tips:

Using the Position Indicator (PI)



Lock/out - Tag/out (LOTO) Procedures

Verifying that power has been removed tips:

Push a hall button (single car only)



Lock/out - Tag/out (LOTO) Procedures

Verifying that power has been removed tips:

Wait until DC Motor Generator Set stops rotating



Lock/out - Tag/out (LOTO) Procedures



Hoist-way Door Manual Access Methods

Key Access



Poling

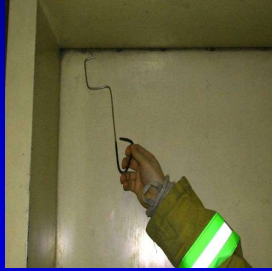


Hoist-way Door Manual Access Methods

Ward/Trombone Tool



OTT Picks



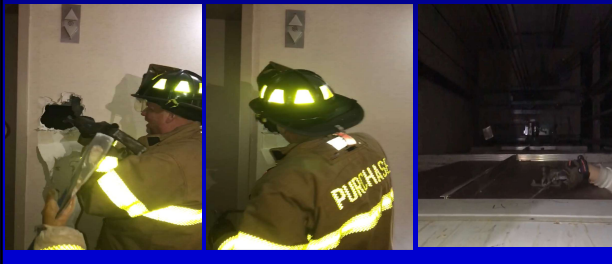
Hoist-way Door Manual Access Methods

Forcible Entry (Last resort)
Destructive method & hoist-way compromised



Hoist-way Door Manual Access Methods

Forcible Entry (Last resort)
Finesse method & able to secure hoist-way



Hoist-way Door Manual Access Methods

Warning!

I you decide to destroy the door, the liability is on the IC. This is an unacceptable barricade!



Removing Passengers from Stalled Elevators

Five most important points (review)

- Safety
- True emergency (Incident vs. Emergency)
- Kill the power! (Lock-out/Tag-out)
- Secure elevator mechanically
 - While operating in the shaft-way
 - When the car is overloaded
 - When any doubt exists
- Do not restore power! (Stalled elevator)

Removing Passengers from Stalled Elevators

Secure elevator mechanically (operational level skill)

- While operating in the shaft-way
- When the car is overloaded
- When any doubt exists



Removing Passengers from Stalled Elevators

Safe Order of Removal:

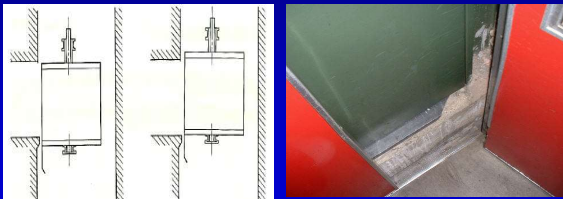
1. Floor level/normal entranceway (safest)
 - Use initial response steps
2. Floor above/normal entranceway
 - Minimizes falling hazard
3. Floor below/normal entranceway
 - Must barricade opening to shaft-way
4. Top escape hatch
 - Fall arrest system required

Removing Passengers from Stalled Elevators

- 4 elevator rescue conditions
 - Car at or near the landing (within 18 in.)
 - Car within 3ft. of the landing (above or below)
 - Car more than 3ft. from the landing (above or below)
 - Car more than 3ft. of the landing (Top escape hatch removal)

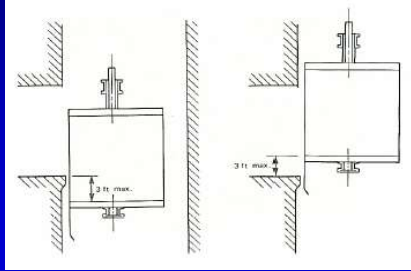
Removing Passengers from Stalled Elevators

Car at or near the landing



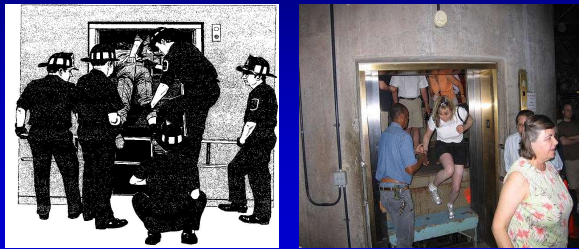
Removing Passengers from Stalled Elevators

Car within 3ft. of the landing (above or below)



Removing Passengers from Stalled Elevators

Car more than 3ft. of the landing (above)



Removing Passengers from Stalled Elevators

Car more than 3ft. of the landing (below)

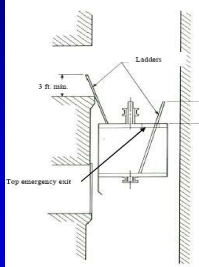
Use a ladder!



Removing Passengers from Stalled Elevators

Car stalled more than 3 feet of the landing
(Top escape hatch removal)

Fall arrest system is Required!



Removing Passengers from Stalled Elevators

Warning

Check the elevator car top for slack, broken, frayed or missing cables before stepping onto the Cable Traction elevator

Good Cables



Bad Cables



Removing Passengers from Stalled Elevators

Safety Concerns:

- When ever possible remove trapped occupant from the floor above (minimizes falling hazard)
- If the opening through the normal entranceway has less than 3 feet of clearance, remove occupant via an escape hatch

Removing Passengers from Stalled Elevators



Fireman's Service



FE Elevators and Non-Fire-Related Emergencies #61334812... Watch later Share

*These videos are for instruction only.
When you perform these techniques
at actual incidents, be sure to wear
full protective gear and SCBA.*

MORE VIDEOS
Play (k)

0:03 / 4:37 YouTube



THE END

- If you have any questions or encounter an oddball elevator or escalator incident, please contact us ASAP. It would be our pleasure to assist you and can use the info in future presentations.

STAY SAFE!!



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