Township Of Jackson, Fire District 3, Station 55

Standard Operating Guidelines

ELEVATOR INCIDENTS

Guideline # 310.12 Date: 7/07 R

PURPOSE

To provide operational procedures used at emergencies and incidents in which people are trapped in stuck elevators, to provide guidelines for the utilization of elevators by this department during a fire situation, and to provide a familiarization of members with elevator components and terminology which are vital in effective and safe operation.

The instructions and information presented here cannot be expected to cover all conditions that confront the department at elevator operations.

POLICY

A. The function of Jackson Fire District # 3 at elevator operations is limited to the safe removal of persons trapped in the elevator car or shaft way. Repairs to and reactivation of elevators are not to be carried out by members of the district.
B. Contact shall be made with responsible building management personnel for any information and assistance that will aid the operation. However the first units at the scene should start operations at once without awaiting arrival of the management personnel.
C. In the event that there is evidence of injuries to trapped persons, the officer in command shall request the response of medical assistance.
D. Fire Department elevator operations are divided into two categories, INCIDENTS AND EMERGENCIES:

INCIDENT:

A stuck elevator with trapped passengers not in immediate danger and no evidence of injury.

Note: Conditions must be constantly monitored; an INCIDENT may escalate to an EMERGENCY.

EMERGENCY:

A situation where one or more of the following exist:

A. Fire endangering passengers in a stuck elevator.
B. Passenger of stuck elevator injured.
C. Passenger of stuck elevator in panic.

PROCEDURE

A. Stuck Elevator Cars

Problems arise from defective or non-functioning electrical or mechanical devices and equipment.

Electrical problems are the most frequent cause of elevator malfunction.

1. Common causes of electrical problems:

a. Car or shaft way door contacts open.
b. Blown fuses.
c. Shorting of electrical cables.

2. When an electrical problem occurs the following can be expected:
   a. Elevator brake will be applied in the hold position.
3. Mechanical problems, though not as common, may also be encountered.

B. Size Up

Locate the car using the following:

1. Lobby control panel - check floor indicator.
2. If available use intercom or telephone system of the stuck car. Passengers may be able to give their approximate location.
3. Open the shaft way door at first floor with elevator key and look up shaft. Key devices are usually required at the lower levels and may or may not be present at all levels.
4. Use the floor selector in the machinery room, it indicates the exact location of the elevator car.

Methods of Communicating With Passengers:

1. Elevator car telephone.
2. Elevator car intercom
3. Call or yell up shaft way, or speak through car and shaft way doors.

Note: If emergency bell is ringing, instruct the car passengers to deactivate the alarm and emergency stop button. A ringing bell can cause anxiety, confusion, and hamper communications.

Methods of Passenger Removal:

1. Primary Removal Procedures:

Primary removal procedures are simple approaches performed without turning off the elevator power. There are two types of primary removal procedures. The order in which they are tried is not important. Try all if necessary.

a. Checking Electrical Contacts

The first type of primary removal procedures checks whether simple electrical contacts might have been broken. However if the passengers have activated the Emergency Stop Button, these methods will not work. The passengers must be instructed to deactivate the Emergency Stop Button.

i. Have a passenger press Door Open Button. If the car is level with the landing, this may open both the car and the shaft way door.
ii. Press lobby call button.
iii. Instruct passengers to insure the car door is fully closed. Have a person push the door towards the closed position.
iv. Have members physically close all shaft way doors on the shaft. Air

movement in shaft may have opened an interlock cutting power to the car. Check the shaft way doors in the vicinity of the stuck car first.

b. Firemen Service

The second type of primary removal procedure is activating Firemen Service if available. Firemen Service will over ride the Emergency Stop Button.

i. Activate Firemen Service – Phase 1. The stuck elevator may return to the main lobby or sky lobby and open its doors.

ii. Firemen Service should be deactivated when the car responds by returning to the lobby or if it's clear that the car isn't responding.

2. Summon an Elevator Mechanic if Primary Removal Procedures Fail

a. **Telephone number of the mechanic is required to be posted in the machinery room near the elevator power switch.**

b. Secondary Removal Procedures may be initiated prior to the arrival of the mechanic.

3. Precautions During Secondary and Emergency Removal Procedures

Whenever Secondary or Emergency Removal Procedures are used, power removal is essential. Dispatch two members to the elevator machinery room to shut off the power to the stalled car. The machinery room is usually located adjacent to the shaft, at the lowest level of the shaft.

a. Members should be equipped with a portable radio and forcible entry tools. Communication between members in machinery room and on landing is necessary.

b. Building maintenance personnel may be able to provide members with keys to the elevator machinery room.

c. Members assigned to the elevator machinery room will:

i. Members assigned to the elevator machinery room will:

1. Shut off power to the stalled car when directed. Each elevator is controlled by its own power switch. Elevator power switch boxes and motors are required to be labeled.

a. Allow passengers to exit a serviceable car before removing power.

3. Remain at the power switch throughout the operation to insure the power is not restored

4. Upon completion of the operation DO NOT restore power to the stalled car.

Once you move beyond the Primary Removal procedures there are several precautions you should be aware of.

a. Members are not to enter the shaft or remove passengers from the car until assured power has been removed.

b. When passengers are removed from a car between floors they should be taken up and out of the car if practical. This eliminates the possibility of a passenger falling down the shaft after exiting the elevator. If they are removed to the lower landing, the shaft opening must be protected.

c. Members operating in the shaft are to be secured by a life saving rope.

d. Members shall not normally be permitted to enter the shaft below the elevator car. During a rescue, necessitating members entering the shaft below the car, the power switch must be turned off.

e. The elevator shall never be jacked up or moved in an upward direction. This action may free the car safeties causing the car to move either upward or downward depending on the live load in the car.

f. No adjustment to or prying of the elevator machinery brake shall be attempted. The brake will be in a safe position and should not be tampered with.

g. If conditions indicate that the elevator is unstable, additional precautions must be taken to prevent the movement of the car in wither direction. Consider securing the car to structural members of the building using utility ropes, chains, or shoring.

2. Secondary Removal Procedures

1. All efforts must be made to remove passengers via elevator car and hoist way door using an elevator tool or the procedures following sections.

Passengers of the stuck car can assist in their removal. Direct the passenger of the car to attempt to open the car door by physically exerting pressure toward the open position. If they succeed in opening the car door instruct them to lift the locking arm on sliding hoist way type doors, or to depress or lift the roller on hinge type hoist way doors.

3. Emergency Removal Procedures

This section outlines procedures, which may only be used during an EMERGENCY as defined previously, or when directly advised by an elevator mechanic. Primary and secondary procedures are usually quicker and more efficient than the methods outlined in this section. The decision of what method to use will be based on the size-up of the officer in command.

1. Power to the stuck elevator must be off when you use Emergency Removal Procedures. This should have been done before trying Secondary Removal Procedures.
2. An elevator car will have a top hatch or a side exit - sometimes both. One of these may provide a route by which you can remove trapped passengers.

A. Top Hatch Removal.

Although the law prohibits welding, bolting top hatched shut on elevators, it does happen and it can make this procedure very time consuming.

i. Open a hoist way door or access panel (required in a single car blind hoist ways) on floor above stuck car.

ii. Provide adequate lighting.

iii. Lower a portable ladder to the elevator roof. Use straight ladder if possible. If an extension ladder is used, tie the halyard around the rungs of both sections of the ladder. This will prevent the lower section from dropping on to the car roof.

iv. Climb down to the car roof. Maximum of two firefighters are to be permitted on the roof of the car at one time.

v. All members working in the shaft are to be secured with a life saving rope.

vi. Open the top hatch.

1. This may require the use of a wrench or screwdriver.
2. Forcible entry tools may be required.

vii. A small portable ladder is lowered into the elevator.

viii. One member equipped with a portable radio enters the car. Member in the car must determine the order of removal. Secure each person with a life saving rope.

i. Members are to remain in physical contact with the trapped persons while they are being removed

3. Forcible Entry

Forcible entry of hoist way and elevator car doors should only be attempted under the direct advisement of an elevator mechanic or as a last resort during EMERGENCY REMOVAL PROCEDURES. The deformation of the doors and locks may add to the problem and delay the rescue. Upon completion of forcible entry operations have maintenance personnel secure the hoist way door or have police or security warn people of the danger.
Use one of the procedures shown below.

B. Slide type door.

i. Air bag system

This is the preferred forcible entry method. It is less likely than the others to push the door off its hangers or out of its track.

a. Take a small purchase with a forcible entry tool.

b. Place bag between the leading edge of the door and jamb as high as possible to apply a more direct force on the linkage and the locking mechanism.

c. Position the bag to permit the center of the air bag to be as close as possible to the door edge; this increases the spreading capability of the air bag. It may be necessary to have a passenger in the car

push open the car door to permit the air bag to obtain a good purchase.
d. Inflate the air bag until the hoist way door opens.
e. If necessary, push open the elevator car door.

ii. Rabbit Tool
a. Use forcible entry tool to gain a purchase for the jaws of the rabbit tool.
b. Insert the jaws of the Rabbit Tool between the jamb and the leading edge of the hoist way door, as high as possible.
c. Ensure that the tool is flush with the hoist way door.
d. Operate the tool to open the door taking care not to cause the door to come off its track.
f. If necessary, push open the elevator car door.

iii. Forcible entry tools
a. Go to landing directly above door to be opened.
b. Use a forcible entry tool to lift hoist way door out of its guide.
c. Tilt bottom of the hoist way door slightly into the shaft, just enough to allow the passing of a hook into the shaft.
Note: Care must be taken not to tilt the door too much. It may dislodge from hanger and drop into the shaft.
d. Use a hook to reach down to the lock arm mechanism and pull it up.
e. If necessary, push open the elevator car door.

PROCEDURE - Elevator Operations During Fire Operations General

Procedures:1. It is the policy of Jackson Fire District #3 to avoid using elevators during fire conditions as the tallest building is three stories. It is safer to utilize the stairway to reach the fire floor.

ELEVATOR TERMS AND DEFINITIONS

Alarm button (switch) – button (switch) in elevator car with activates the alarm bell.

Car Door – Elevator car door.

Car Door Contact – an electrical device used to prevent the operation of the car unless the car door is in the closed position.
Car Safeties – stop car in the event of an emergency. Controlled by car governor.

Elevator Car Selector – panel inside the car containing emergency stop button, alarm button, door open button, floor selection buttons and Firemen Service key switch if required.

Elevator Door Vane – the connection between the elevator car doors and the hoist way doors. It allows the elevator car door to drive the hoist way door.

Elevator Machinery Room – area where the equipment that raises and lowers the elevator is located.

Emergency Stop Button – elevator car button which when activated cuts power to car and sounds alarm bell.
Note: Do not rely on this button; elevator power switch must be used to insure motor power is off.

Final Lower Limit Switch – a switch located in the elevator pit, which prevents the elevator from descending too low in the shaft. When tripped by elevator it cuts the power to the elevator motor. Acts as a backup to lower limit switch.

Firemen Service – a feature required in many elevators, which enables the department to gain control of the elevators.

Floor Call Button – located at elevator floor landing, used to call car to the floor when service is desired.

Floor Selector – located in the machinery, it can be used to determine the exact location of the elevator.

Hoist way – the shaft the elevator moves in. The only type in use in Jackson Fire District #3 is the Single car (local service).

Hoist Way Door – door leading from landing to elevator shaft.

Interlock – a switch ob hoist way door, and some emergency exits that will prevent the elevator from moving when in open position.

Limit Switch – a mechanical electrical device, which is located at the bottom of the shaft. Its purpose is to prevent over extension of elevator car in an upward or downward direction.

Lower Limit Switch – a switch, which stops the car in pit area below lowest landing.

Main Electrical Power Switch – located in machinery room, each switch controls the operation of one elevator.

Terminal Landing – lowest landing for discharge of passengers.

Approved:
District Chief
Date:

Company Chief
Date: