
	STANDARD OPERATING GUIDELINE			
	OPERATIONS			
	ELEVATOR OPERATIONS			
	Effective: 01/May/99	Revised: 28/Dec/2020	S.O.G. #: E-330	

1.0 Objective

- 1.1 The purpose of this guideline is to:
 - 1.1.1 Establish operational procedures for the utilization of elevators during fire situations.
 - 1.1.2 Establish operational procedures to be used at Incidents and Emergencies in which people are trapped in stuck elevators.
 - 1.1.3 Familiarize personnel with elevator components and terminology that are essential in safe and effective operations.
- 1.2 Personnel are advised that the information presented here cannot be expected to cover all conditions that confront the Department at elevator operations.

2.0 Responsibility



- 2.1 It is the responsibility of all Department personnel to understand the procedures documented in this Standard Operating Guideline.

3.0 General Information

- 3.1 The function of the Fire Department during elevator rescue operations is limited to the safe removal of persons trapped in the elevator car or hoist way. Repairs to and reactivation of elevators are not carried out by members of this Department.
- 3.2 Contact shall be made with a responsible person from the building's management department for any information and assistance that would aid the operation. However, the first arriving units at the scene should begin operations at once without awaiting the arrival of management personnel.
- 3.3 Elevators are subject to failure due to mechanical, electrical, and human error.
- 3.4 During fire incidents, elevators should only be used when operating above the fifth floor.
- 3.5 Before using an elevator in a fire situation, the hoist way and additional hoist way(s) should be checked for smoke.
- 3.6 When using an elevator to report to a specific floor in a building for a smoke investigation, all personnel in the elevator should have their face pieces of the S.C.B.A. donned but not connected. Should the elevator doors open to smoke, attach the regulator to the face piece.
- 3.7 When using elevators to reach a confirmed fire incident above 5 floors, with an unknown floor involved, the elevator should be stopped at every floor, door opened, and a visual check for smoke conditions on the floor should be made from the elevator car. The reason for this is when a specific alarm detection device fails to give the exact floor or location of the activation, and people have called in a report of smoke, the smoke may have originated on a different floor than indicated by the alarm.
- 3.8 Elevators are to be taken to a level no closer than two floors below the reported fire floor.

4.0 Gaining Manual Control of Elevators

- 4.1 Find the elevator key box, open it, and remove two keys.
- 4.2 One key is inserted into the key switch in the lobby of the elevators.
- 4.3 With the key inserted into the key switch in the lobby, turn it to the "on" position.
 - 4.3.1 When the key is turned on it will bring all elevators in that group to the lobby immediately and hold them there with their doors open, ready for immediate use by the Fire Department.
 - 4.3.2 It may be advisable for the first arriving fire companies to leave a man in the lobby to assist other fire units in taking control of the elevators and to make certain that no one inadvertently switches the whole

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group of elevators back to automatic operation by turning the lobby control switch while the elevators are occupied by firefighters.

4.3.2.1 The person designated to control the elevators works as part of the Lobby Control Sector (S.O.G. O-321, Highrise Operations, Section 8.2.2).

- 4.4 Take another key and insert it into the proper slot in the car control panel.
- 4.5 Turn the key to the “on” position to use an individual car manually.
- 4.6 Push the button for the desired floor and the car will travel to that floor. The “Door Close” button may have to be pushed to close the door so the elevator will run.
- 4.7 Upon arriving at the desired floor and stopping, the door will remain closed.
- 4.8 In order to open the car doors, the “door open” button must be continually depressed until the door is completely open, then it will stay open until the close door button or a car button is pushed. Release of the button will cause the doors to close immediately if the door is not fully open.

5.0 Operations - Incidents

- 5.1 An incident is defined as a stuck elevator with trapped passengers not in immediate danger and there is no evidence of injury.
 - 5.1.1 Conditions must be constantly monitored as an incident may escalate into an emergency.
- 5.2 Stuck elevator cars are the most common type of elevator incidents. Problems arise from defective or non-functioning electrical or mechanical devices and equipment.
- 5.3 Electrical problems are the most frequent cause of an elevator malfunction.
 - 5.3.1 When an electrical problem occurs, the following can be expected:
 - 5.3.1.1 Elevator cars will be suspended on the hoist way cables or piston.
 - 5.3.1.2 Elevator brakes will be applied in the hold position (in cable elevators only).
- 5.4 When companies report to the scene of an elevator incident, they should bring the following equipment:
 - 5.4.1 Knox box keys to access the keys to the elevator key box.
 - 5.4.2 Halligan bar.
 - 5.4.3 Tool box.
- 5.5 When first arriving on the scene of an elevator incident perform a size-up. You can locate the car by:
 - 5.5.1 Checking the floor indicator on the lobby control panel.
 - 5.5.2 If available, use the intercom or telephone system of the stuck car. Passengers may be able to give their approximate location.
 - 5.5.3 Open the hoist way door at the first floor with the elevator key and look up the shaft.
- 5.6 Once the elevator car is located, communicate with the passengers by telephone, intercom, or by yelling.
 - 5.6.1 Note: If the emergency bell is ringing, instruct the passengers to deactivate the alarm and emergency stop button. A ringing bell can cause anxiety, confusion, and hamper communications.
- 5.7 Primary removal procedures are simple approaches performed without turning the elevator power off. There are three types of primary removal procedures. The procedures are:
 - 5.7.1 Check to see if the electrical contacts have been broken. These can be checked by:
 - 5.7.1.1 Have passengers deactivate the Emergency Stop button if they activated it. The remaining procedures will not work if the button remains activated.

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5.7.1.2 Have the passengers press the Door Open button.

5.7.1.3 Press the lobby call button.

5.7.2 Activate the Firemen Service if available. Firemen Service may return the stuck elevator to the lobby if the elevator is on automatic operation.

5.7.3 If the elevator is stuck squarely on one floor you may use an elevator key from the outside. Insert the key in the round hole on the outside of the elevator door and turn it to the right or left utilizing manual pressure to open the door.

5.8 Any method of gaining entry other than those listed above requires that the power be disconnected.

5.8.1 Disconnect the power to the elevator(s) in the machine or elevator room located in the basement, **at ground level** or the penthouse above the elevator.

5.8.2 The person disconnecting the power shall stand by at the disconnect switch until told otherwise by an Officer. This is to prevent the power from being inadvertently switched back on.

5.8.2.1 Lock out, Tag out procedures should be followed. (SOG O-312)

5.9 If primary removal procedures fail, contact the building owner and request an elevator mechanic.

6.0 Operations - Emergencies

6.1 If emergency operations are required at the scene, entry can be made from the outside by: (it should be noted that when emergency elevator operations are undertaken, an elevator mechanic must be notified)

6.1.1 Top hatch removal. When commencing a top hatch removal operation, the following guidelines should be used:

6.1.1.1 Open the hoist way door on the floor above the stuck car.

6.1.1.2 Provide adequate lighting.

6.1.1.3 Lower a portable ladder to the elevator roof. Use a straight ladder if possible. If an extension ladder is used, tie off the halyard around the rungs to prevent the lower section from dropping on the car.

6.1.1.4 Climb down on the roof. A maximum of two firefighters are permitted to be on the roof.

6.1.1.5 All members working in the shaft shall be secured with life saving ropes.

6.1.1.6 Open the top hatch. Forcible entry tools may be required.

6.1.1.7 A folding ladder is lowered into the car.

6.1.1.8 One firefighter enters the car and determines the order of exit for the passengers.

6.1.1.9 Secure each person with a life saving rope.



6.1.1.10 Firefighters are to remain in physical contact with trapped persons while they are being removed.

6.1.2 Side exit removal. This procedure will only be completed in the presence of a trained elevator mechanic if the car is equipped with side hatches.

6.1.3 Forcible entry. Forcible entry of the 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 doors and locks may add to the problem and delay the actual rescue.



6.1.3.1 Upon completion of forcible entry, have maintenance personnel secure the hoist way door to warn people of the danger.

6.1.3.2 Do not restore the power to the elevators.

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7.0 Elevator Terms and Definitions

- 7.1 Alarm Button - Button or switch in the elevator car which activates the alarm bell.
- 7.2 Car Door - Elevator car door.
- 7.3 Car Door Contact - An electrical device used to prevent the operation of the car unless the car door is in the closed position.
- 7.4 Car Safeties - Stop the car in the event of an emergency (on cable elevator only).
- 7.5 Counterweights - Used to counterbalance the weight of the elevator car.
- 7.6 Elevator Car Station - Panel inside car containing the Emergency Stop button, Alarm button, Floor Selection buttons, and Firemen Service key switch (if required).
- 7.7 Elevator Control Panel - A visual display unit located in the lobby which indicates the status and location of all elevator cars.
- 7.8 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.
- 7.9 Elevator Machinery Room - Area where the equipment that raises and lowers the elevator is located.
- 7.10 Elevator Motor - Turns the drive sheave drum raising and lowering the elevator.
- 7.11 Emergency Stop Button - Elevator car button which when activated cuts power to the car and sounds the alarm bell. Note: Do not rely on this button; the elevator power switch must be used to insure motor power is off.
- 7.12 Emergency Exit - Top of a car on all elevators. Some cable units have a side exit also.
- 7.13 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 the elevator car it cuts the power to the elevator motor.
- 7.14 Firemen Service - A feature required in many elevators which enables the Fire Department to gain control of the elevators.
- 7.15 Floor Call Button - Located at the elevator floor landing, used to call the car to a particular floor.
- 7.16 Floor Selector - Located in the machinery room and can be used to determine the exact location of the car.
- 7.17 Governor - Regulates the car speed. Also engages the car safeties and shuts down the electrical power in the event of a free fall or over speed (on cable elevator only).
- 7.18 Hoist Way - The shaft the elevator moves in.
- 7.19 Hoist Way Cable - Cable used to raise and lower the elevator car.
- 7.20 Hoist Way Door - Door leading from the landing to the elevator shaft.
- 7.21 Interlock - A switch on the hoist way door and some emergency exits that will prevent the elevator from moving when in the open position.
- 7.22 Limit Switch - A mechanical / electrical device which is located at the top or bottom of the elevator shaft. Its purpose is to prevent over extension of the elevator car in an upward or downward direction.
- 7.23 Main Electrical Power Switch - Located in the machinery room, each switch controls the power to one elevator.
- 7.24 Ventilation Opening - A “smoke hole” opening provided for the movement of air in the shaft caused by the movement of the elevator.

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8.0 Reference

8.1 Highland Park Fire Department

Approved:  Fire Chief