



The Commonwealth of Massachusetts

Department of Public Safety

1010 Commonwealth Avenue, Boston 15

March 9, 1950

SECRETARY'S OFFICE  
RECEIVED

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To: Hon. Edward J. Cronin  
Secretary of the Commonwealth  
State House  
Boston, Massachusetts

Subject: Elevator and Escalator Regulations -  
ELV-2.

1. In accordance with the provisions of General Laws, Chapter 143, Section 69, as amended, I am forwarding to you Elevator and Escalator Regulations, known as "ELV-2".

2. These rules and regulations are applicable to all new installations, as defined in ELV-2.

JFS:MG  
Enc.

*John F. Stokes*  
John F. Stokes  
Commissioner

*ded, Sec no 12.)*  
*ded, Sec no 14.)* Amended -  
(Additional (Parts 8 and 9 added  
Sec No 4.)  
Amended - Part 10, added, Sec No. 5.)  
(Amended, Sec No. 6.)  
(Amended, Sec No. 8.)  
(Amended, Sec No. 11.)

The Commonwealth of Massachusetts

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**DEPARTMENT OF PUBLIC SAFETY**  
**BOARD OF ELEVATOR REGULATIONS**  
**ELEVATOR AND ESCALATOR**  
**REGULATIONS**



**ELV-2**

DEPARTMENT OF PUBLIC SAFETY  
BOARD OF ELEVATOR REGULATIONS

In accordance with the provisions of G. L., C. 143, S. 69, as amended, the Board of Elevator Regulations amends existing regulations so far as they pertain to the construction of elevators, dumbwaiters, and moving stairways (escalators) hereafter installed, re-located or materially changed, by substituting therefor the following new regulations applicable to all new installations for which application for approval of plans or a permit for construction is filed on or after the effective date of these regulations, provided, however, that Part 6 of these regulations, dealing with the operation of elevators and the licensing of operators therefor, shall also apply to existing installations.

A new installation is any installation for which application for approval of plans or a permit for construction is filed on or after the effective date of these regulations; any installation which is re-located; any installation which is materially changed.

The following shall be considered material changes:

- (a) If the speed of an existing elevator is increased.
- (b) If the capacity of an existing elevator is increased.
- (c) If the travel of an existing elevator is extended.
- (d) If the machine room of an existing elevator is re-located.
- (e) If the classification of an elevator is changed from freight to passenger.

NOTE: Any complete part of an existing installation which is replaced, such as machine, car, shaftway enclosure, gates, doors, door-locking devices, controllers, operating devices, load weighing devices, etc., shall be installed in accordance with the regulations for new installations; but such existing parts as remain in service need not be changed to conform with the regulations for new installations. Any change from DC (direct current) to AC (alternating current) or any change in voltage shall not be considered a material change, provided the speed or capacity of the installation is not increased.

## PART 1 — DEFINITIONS

In these regulations the following terms shall have the meanings respectively assigned to them. They are not intended, however, as a complete glossary of terms used in connection with elevator installations.

**Annunciator. Elevator Car:** An elevator car annunciator is an electrical device in the car, which indicates the landings at which hall buttons have been pressed.

**Buffer:** A buffer is a device to absorb the impact of the car or counterweight at the extreme limits of travel.

**Capacity:** The capacity of an elevator is the load which the elevator is designed and equipped to adequately handle as determined by these regulations or by the inspector having jurisdiction.

**Car, Elevator:** An elevator car is the load-carrying unit, including its platform, car frame, and enclosure.

**Car Door or Gate:** A car door or gate is the door or gate attached to the elevator car which closes the opening regularly used for entrance and exit.

**Car Door or Gate Electric Contact:** A car door or gate electric contact is a device which opens the operating circuit, or an auxiliary circuit, when the car door or gate is open beyond the closed position and thus prevents operation of the elevator car by the operating devices.

**Car Enclosure:** The car enclosure or cab of an elevator is the enclosure consisting of walls and the top or cover built upon the platform.

**Car Frame or Car Sling:** A car frame or car sling is the supporting frame to which the car platform upper and lower sets of guide shoes and the hoisting ropes are attached.

**Car Platform:** The car platform is the structure which forms the floor of the car and which directly supports the load.

**Clearance, Bottom Car:** Bottom clearance of the ele-

vator car is the clear vertical distance between the underside of the car platform or between the underside of any equipment attached thereto, exclusive of the car frame channels, car safety blocks, guide shoes and any aprons or guards attached to the car sill, and the pit floor when the car rests on the fully compressed buffer.

**Clearance, Top Car:** Top clearance of the elevator car is the distance the car floor can travel above the level of the upper terminal landing without any part of the car or devices attached thereto coming in contact with the overhead structure.

**Clearance, Top Counterweight:** Top clearance of the elevator counterweight is the shortest vertical distance between any part of the counterweight structure and the nearest part of the overhead structure or any other obstruction when the car floor is level with the lower terminal landing.

**Clearance, Bottom Counterweight:** The bottom clearance of the counterweight is the vertical distance between the counterweight buffer and its striker plate when the car is level with the top terminal landing.

**Contract Load:** Contract load is the rated capacity in pounds specified in the contract for the purchase of the elevator and in the application for the permit.

**Contract Speed:** Contract speed is the speed in feet per minute, specified in the purchase contract or in the application for permit, to be attained by the elevator in the up direction with contract load in the car.

**Control:** The control of an elevator is a system of regulation by which the starting, stopping, direction of motion, acceleration, speed, and retardation of an elevator are governed.

**Control, Generator-Field:** Generator-field control is a system in which control is primarily accomplished by the use of an individual generator for each elevator, in which the voltage applied to the hoisting motor is adjusted by varying the strength and direction of the generator-field.

**Control, Multi-Voltage:** Multi-voltage control is a system in which control is accomplished primarily by impressing successively on the armature of the hoisting motor a number of substantially fixed voltages such as may be obtained from multi-commutator generators common to a group of elevators.

**Control, Rheostatic:** Rheostatic control is a system in which control is accomplished primarily by varying resistance or reactance in the armature or field circuit of the hoisting motor.

**Control, Two-Speed Alternating Current:** Two-speed, alternating current elevator control is a control for a two-speed induction elevator motor which is arranged to run at two different, practically constant speeds, by connecting the motor windings so as to obtain different numbers of poles.

**Control, Variable Voltage:** (Same as generator-field control).

**Controller, Electric Elevator:** An electric elevator controller is a device, or a group of devices, which serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected.

**Dispatching Device, Automatic:** An automatic dispatching device is a device whose principal function is to automatically operate a signal in the car to indicate when the car should leave the terminal.

**Door Closer:** A door closer is a device, operated by gravity or other means, which will automatically close a door when released by the operator or by suitable automatic means.

**Door or Gate Device, Power-Operated:** A power-operated door or gate device is a device or assemblage of devices, the purpose of which is to open or close the hoistway door or car door or gate by power other than by hand, gravity, springs, or the movement of the car.

**Door Operator, Elevator Electric:** An elevator electric door operator is an electric device for operating the hoistway or car doors, or both.

**Dumbwaiter:** A dumbwaiter is a hoisting and lowering mechanism equipped with a car which moves in guides in a substantially vertical direction the floor area of which does not exceed nine (9) square feet, whose total internal car height whether or not provided with fixed or removable shelves does not exceed four (4) feet; the capacity of which does not exceed 500 lbs. and which is used exclusively to transport material in a substantially vertical direction.

**Dumbwaiter, Electric:** An electric dumbwaiter is one in which the motion of the car is obtained through an electric motor directly applied to the dumbwaiter machinery.

**Elevator:** An elevator is a hoisting and lowering mechanism equipped with a car which moves in guides in a substantially vertical direction and which serves two or more floors of a building or structure, and shall include the enclosures, means and appurtenances required by these regulations. ENDLESS BELTS, CONVEYORS, CHAINS, BUCKETS, AND OTHER SIMILAR DEVICES USED FOR THE PURPOSE OF ELEVATING MATERIALS, AND ALSO TIERING, PILING OR FEEDING MACHINES GIVING SERVICE WITHIN ONE STORY, ARE NOT INCLUDED IN THE TERM "ELEVATOR".

**Elevator, Automatic Push Button Electric:** An electric automatic push button elevator is one that is started in response to the momentary actuation of operating devices at the landing, and/or of operating devices in the car identified with the landings, and/or in response to an automatic starting mechanism and wherein the car is stopped automatically at the landing.

**Elevator, Auxiliary Power:** An auxiliary power elevator is one having a source of mechanical power in common with other machinery.

**Elevator, Builder's Hoist:** A builder's hoist elevator is an elevator erected for temporary use, built in or adjoining a building under construction or alteration.

**Elevator, Continuous Pressure:** A continuous-pressure electric elevator is one operated by means of push buttons or switches at the landings with or without push buttons in the car which requires a button or switch to be held manually in contact to keep the car in motion.

**Elevator, Double-Belted:** A double-belted elevator is an auxiliary power elevator in which the direction of motion is changed without reversal of the prime mover.

**Elevator, Electric:** An electric elevator is one in which the motion of the car is obtained through an electric motor directly applied to the elevator machinery.

**Elevator, Alternating Current:** An alternating current elevator is an electric elevator equipped with an alternating current motor directly applied to the elevator machinery.

**Elevator, Electro-Hydraulic:** An electro-hydraulic elevator is one in which the lifting of the car is obtained by means of an electric motor driving a pump which pumps liquid directly into the cylinder.

**Elevator, Freight:** A freight elevator is an elevator used primarily for carrying freight.

**Elevator, Gravity:** A gravity elevator is an elevator in which gravity is the source of power.

**Elevator, Hand:** A hand elevator is an elevator driven by manual power.

**Elevator, Hydraulic:** A hydraulic elevator is an elevator in which the motion of the car is obtained from liquid under pressure.

**Elevator, Passenger:** A passenger elevator is an elevator that is used to carry persons other than the operator and persons necessary for loading and unloading.

**Elevator, Platform:** A platform elevator is an elevator the platform of which is directly supported at three or more points by suspension members which are relied upon to maintain the platform substantially level.

**Elevator, Plunger:** A plunger elevator is a hydraulic elevator having a ram or plunger directly attached to the under side of the car platform.



**Elevator, Power:** A power elevator is an elevator in which the motion of the car is obtained through the application of energy other than by hand or gravity.

**Elevator, Private Residence:** A private residence elevator is a power passenger elevator installed in a private residence, serving only a single family, and which has a rated load not in excess of seven hundred (700) pounds, the contract speed not in excess of fifty (50) feet per minute, a net inside platform area not in excess of twelve (12) square feet, and a rise not in excess of fifty (50) feet.

**Elevator, Rope Geared Hydraulic:** A rope geared hydraulic elevator is one in which the motion of the car is obtained by multiplying the travel of a piston or ram by a system of sheaves over which the hoisting ropes operate.

**Elevator, Self-Service:** A self-service elevator is one that is started by means of momentary pressure of push buttons at the landings, with or without push buttons in the car, and whose landing stops are automatic. An elevator shall not be deemed to be self-service if an operator has been permanently or regularly assigned to its operation.

**Elevator, Sidewalk:** A sidewalk elevator is an elevator the upper hatch opening of which is located either partially or wholly outside the building and which has no opening into the building at its upper terminal landing. (See Part 5).

**Elevator, Signal Operation:** See "SIGNAL OPERATION".

**Elevator, Steam:** A steam elevator is an elevator in which the motion of the car is obtained from a steam engine directly applied to the elevator machinery.

**Emergency Release:** An emergency release is a device the purpose of which is to make inoperative door or gate electric contacts or door interlocks in case of emergency.

**Emergency Stop Switch:** An emergency stop switch is a device in the car used to cut off the power from the elevator machine and brake independently of the position of the operating devices.

**Escalator:** A moving stairway.

**Escalator, Electric:** An electric escalator is one in which the motion is obtained through an electric motor directly applied to the escalator machinery.

**Existing Installation:** An existing installation is an elevator or moving stairway, for which a permit was issued for its erection, to increase its speed, to increase its capacity, to extend its travel, or to relocate its machine room, before the effective date of these regulations.

**Hoistway:** A hoistway is any opening or series of vertical openings in one or more floors of a building through which one elevator or dumbwaiter operates.

**Hoistway Door or Gate:** A hoistway door or gate is the hinged or sliding portion of the hoistway enclosure which closes the opening giving access to the elevator or dumbwaiter car at any landing.

**Hoistway Door or Gate, Bi-Parting:** A bi-parting door or gate is a vertical slide, horizontal slide, or swing door or gate consisting of two or more sections so arranged that the sections, or pairs of sections, open away from each other, and so interconnected that both sections operate simultaneously.

**Hoistway Door or Gate, Full Automatic:** A full automatic door or gate is a vertically-moving door or gate which is opened directly by the motion of the elevator car approaching any landing and closed by gravity as the car leaves any landing.

**Hoistway Door or Gate, Manually Operated:** A manually operated door or gate is a door or gate which is opened and closed by hand.

**Hoistway Door or Gate Power-Operated:** A power-operated door or gate is a door or gate which is opened or closed by power other than by hand, gravity, springs, or the movement of the car, and are further defined as follows:

**Power-Closed Door or Gate:** A power-closed door or gate is a door or gate which is manually opened and is closed by power other than by hand, gravity, springs, or the movement of the car.

**Power-Opened, Self-Closing Door or Gate:** A power-opened, self-closing door or gate is a door or gate which is opened by power other than by hand, gravity, springs, or the movement of the car, and is closed by energy stored during the opening operation.

**Power-Operated Door or Gate, Automatically Opened:** A power-operated door or gate, automatically opened, is a door or gate which is opened by power other than by hand, gravity, springs, or the movement of the car, the opening of the door being initiated by the arrival of the car at or near the landing. The closing of such door or gate may be under the control of the elevator operator or may be automatic.

**Power-Operated Door or Gate, Manually Controlled:** A power-operated door or gate, manually controlled, is a door or gate which is opened and closed by power other than by hand, gravity, springs, or the movement of the car, the door movement in each direction being controlled by the elevator operator.

**Self-Closing Door or Gate:** A self-closing door or gate is a door or gate which is opened manually and closes when released.

**Semi-Automatic Door or Gate:** A semi-automatic door or gate is a door or gate which is opened manually and which closes automatically as the car leaves the landing.

**Hoistway Door or Gate Electric Contact:** A hoistway door or gate electric contact is a device the purpose of which is to open the operating circuit, or an auxiliary circuit, unless the hoistway door or gate at which the car is standing is in the closed position, and thus prevent operation of the elevator by the operating devices in a direction to move the car away from the landing.

**Door Unit System** is a contact system which meets the requirements of the contact definition above, but does not require all the hoistway doors to be closed. **Hoistway Unit System** is a contact system which meets the requirements of the contact definition above, and also requires that all hoistway doors are closed.

**Hoistway or Shaftway Enclosure:** A hoistway or shaftway enclosure is any structure which separates the hoistway or shaftway, either wholly or in part, from the floors or landings through which the hoistway or shaftway extends.

**Hoistway Door Interlock:** A hoistway door interlock is a device, the purpose of which is:

**First:** To prevent the operation of the elevator machine by the operating devices in a direction to move the car away from a landing unless the hoistway door at that landing at which the car is stopping or is at rest is locked in the closed position.

**Second:** To prevent the opening of the hoistway door from the landing side; unless the car is at rest within the landing zone, or is coasting through the landing zone with its operating device in the stop position.

**Door Unit System** is an interlocking system which meets the requirements of the interlock definition above, but does not require all the hoistway doors to be locked in the closed position.

**Hoistway Unit System** is an interlock system which, in addition to fulfilling the requirements given under the definition of interlock, will also prevent the operation of the car by the operating devices unless all hoistway doors are locked in the closed position.

**Inching Device:** An inching device is a set of "up" and "down" continuous-pressure buttons located on the car arranged to permit the manual operation of the car when within the inching zone toward the landing level where the landing doors, or gates, or the car doors or gates, are not in the locked or closed position.

**Inching Zone:** A car is considered within the meaning of these regulations as being within the inching zone when the car is eight inches (8") below any landing, or eight inches (8") above any landing.

**Landing, Elevator:** An elevator landing is that portion of a floor, balcony, or platform used to receive and discharge passengers or freight.

**Landing Zone:** A car is considered, within the meaning of these regulations, as being within the landing zone when the car floor is not more than eighteen inches (18") above or below the landing.

**Leveling Device:** A car-leveling device is any mechanism or control which will automatically move the car within a limited zone toward, and stop the car at the landing.

**Machine, Elevator:** An elevator machine is the machinery and its equipment used in raising and lowering the elevator car or platform, and are further defined as follows:

**Machine, Chain Driven:** A chain driven elevator machine is an elevator machine connected to a reversible motor, engine, or turbine by a chain.

**Machine, Direct-Drive:** A direct-drive machine is one in which the driving motor is connected directly to the driving sheave or drum with or without intermediate mechanism or gears.

**Machine, Single-Belted:** A single-belted elevator machine is an elevator machine connected to a reversible motor, engine, or turbine by a belt.

**Machine, Double-Belted:** A double-belted elevator machine is an elevator machine connected to a non-reversible prime mover by two belts through which the direction of motion is changed.

**Machine, Spur-Geared:** A spur-geared machine is one in which power is transmitted to the driving sheaves or drum through spur gearing.

**Machine Traction:** A traction machine is an elevator machine in which the motion of the car is obtained through friction between the hoisting ropes and the traction sheave.

**Geared-Traction:** A geared-traction machine is a traction machine which employs gearing between the electric motor and the traction sheave.

**Gearless-Traction:** A gearless-traction machine is a traction machine which has the traction sheave and the brake drum mounted directly on the electric motor shaft.

**Machine, Winding Drum:** A winding-drum machine

is an elevator machine in which the ropes are fastened to and wind on a drum.

**Machine, Worm-Geared:** A worm-geared machine is one in which the power is transmitted to the driving sheaves or drum through worm gearing.

**Material Change:** The following shall be considered material changes: (a), if the speed of an existing elevator is increased; (b), if the capacity of an existing elevator is increased; (c), if the travel of an existing elevator is extended; (d), if the machine room of an existing elevator is re-located; and (e), if the classification of an elevator is changed from freight to passenger.

**Moving Stairway:** A moving stairway is a moving inclined continuous stairway or runway used for raising or lowering persons.

**New Installation:** A new installation is any installation for which application for approval of plans or a permit for construction is filed on or after the effective date of these regulations; any installation which is re-located; any installation which is materially changed.

**Non-Stop Switch, Elevator:** A non-stop switch is a switch which when thrown will prevent the elevator from making hall stops and will automatically transfer these hall stop signals to the next car following, or, where no other car is provided, hold the floor stop calls registered until the elevator answers them.

**Oil Buffer Stroke:** The stroke of an oil buffer is the oil displacing movement of the buffer plunger or piston and does not include the travel of the buffer plunger accelerating device.

**Operating Devices:** The operating device is the car switch push button, or other device employed to enable the operator to actuate the controller.

**Operation:** Operation is the method of actuating the controller by the operating devices.

**Operation, Automatic:** Operation wherein the starting of the elevator is effected in response to the momentary actuation of the operating devices at the landing, and/or of operating devices in the car identified with the landings, and/or in response to an automatic starting mechanism, and wherein the car is stopped automatically at the landings.

**Non-Selective Collective Automatic Operation:** Non-selective collective automatic operation is automatic operation by means of one button in the car for each landing level served and one button at each landing, wherein all stops registered by the momentary pressure of landing or car buttons are made irrespective of the number of buttons pressed or of the sequence in which the buttons are pressed. With this type of operation, the car stops at all landings for which buttons have been pressed, making the stops in the order in which the landings are reached after the buttons have been pressed but irrespective of its direction of travel.

**Selective Collective Automatic Operation:** Selective collective automatic operation is automatic operation by means of one button in the car for each landing level served and by "up" and "down" buttons at the landings, wherein all stops registered by the momentary pressure of the car buttons are made as defined under non-selective collective automatic operation, but wherein the stops registered by the momentary pressure of the landing buttons are made in the order in which the landings are reached in each direction of travel after the buttons have been pressed. With this type of operation, all "up" landing calls are answered when the car is traveling in the "up" direction and all "down" landing calls are answered when the car is traveling in the "down" direction, except in the case of the uppermost or lowermost calls, which are answered as soon as they are reached, irrespective of the direction of travel of the car.

**Single Automatic Operation:** Single automatic operation is automatic operation by means of one button in the car for each landing level served and one button on each landing, so arranged that if any car or landing button has been pressed the pressure of any other car or landing operating button will have no effect

on the operation of the car until the response to the first button has been completed.

**Car-Switch Operation:** Car-switch operation is operation wherein the starting, direction of motion, and the stopping of the car are directly and solely under the control of the operator by means of a self-centering switch or by constant pressure buttons in the car.

**Car-Switch Automatic Floor-Stop Operation:** Car-switch automatic floor-stop operation is operation in which the stop is initiated by the operator from within the car with a definite reference to the landing at which it is desired to stop, after which the slowing down and stopping of the elevator is automatically effected.

**Continuous Pressure Operation:** Continuous pressure operation is operation by means of push buttons or switches at the landings with or without buttons in the car; any one of which may be used to control a movement of the car so long as the button or switch is manually held in the operating position.

**Dual Operation:** Dual operation is a system of operation whereby the controller of an automatic operation elevator is arranged so that, on the throwing of a transfer switch the starting of the car is solely under the control of an operator in the car. Landing stops may be either automatic or under the control of the operator.

**Pre-Register Operation:** Pre-register operation is operation in which signals to stop are registered in advance by buttons in the car and at the landings. At the proper point in the car travel the operator in the car is notified by a signal, visual, audible, or otherwise, to initiate the stop, after which the landing stop is automatic.

**Signal Operation:** Signal operation is operation by means of single buttons or switches, or both, in the car, and up or down direction buttons, or both, at the landings, by which pre-determined landing stops may be set up or registered for an elevator or for a group of elevators. The stops set up by the momentary pres-



sure of the car buttons are made automatically in succession as the car reaches those landings, irrespective of its direction of travel or the sequence in which the buttons are pressed. The stops set up by the momentary pressure of the up and down buttons at the landing are made automatically by the first available car in the group approaching the landing in the corresponding direction, irrespective of the sequence in which the buttons are pressed. With this type of operation, the car can be started only by means of a starting switch or button in the car.

**Overhead Structure:** The overhead structure is all the structure and platforms which support the elevator equipment at the top of the hoistway.

**Overtravel, Bottom:** Bottom overtravel of the elevator car is the distance the car floor can travel below the level of the lower terminal landing until the weight of the fully loaded car rests on the buffers, and includes the resulting buffer compression. Bottom overtravel of the counterweight is the distance the counterweight can travel below its position when the car platform is level with the upper terminal landing until the full weight of the counterweight rests on the buffers, and includes the resulting buffer compression.

**Overtravel, Top:** Top overtravel of the elevator car is the distance the car floor can travel above the level of the upper terminal landing until the counterweight buffer is fully compressed.

**Panelboard:** A single panel or a group of panel units designed for assembly in the form of a single panel; including buses, and with or without switches and/or automatic overcurrent protective devices for the control of light, heat or power circuits of small individual as well as aggregate capacity; designed to be placed in a cabinet or cutout box placed in or against a wall or partition and accessible only from the front. (See "Switchboard").

**Position Indicator:** A position indicator is a device which indicates the position of the elevator car in the hoistway. It is called a hall position indicator when placed in the hall or a car position indicator when placed in the car.

**Potential Switch, Elevator:** An elevator potential switch is a magnetic-type switch which disconnects the power from the elevator apparatus when the supply voltage fails or decreases below a definite value and which is usually opened by various electrical safety devices.

**Runby, Top:** The top runby of the elevator car is the distance the car floor can travel above the level of the

