

ELEVATOR CODE SUPPLEMENT

**Containing Amendments to the 1926 Revision
of the Elevator Code**

February, 1928

**Issued by
INDUSTRIAL COMMISSION OF WISCONSIN
Madison**

In the following pages are included amendments to orders, or portions of orders, of the Elevator Code for the state of Wisconsin. The amendments supplement, and are a part of, the Elevator Code which became effective August 12, 1926.

The following portions of orders which have been amended and are herein printed in full with the correct wording became effective August 24, 1927:

Orders 400, 404, 408, 411 (d), 415 (a) (b), 417 (a), 422 (b), 423 (a), 424 (a), 428 (a) (b), 433, 435 (a) (b) (c), 436 (a), 437, 438 (a) (b) (d), 439 (b) (d) (f) (g), 440, 441, (a), 446 (b), 456 (b), 459 (d), 463 (a) (b), 464 (i), 469 (a) (b), 470 (d) (g) (h), 471 Item 3, 473 (b) (e) (k), 474, 475 (a), 478 (a) (b), 479 (b), 480 (e) (g) (h), 486 (f), Caption of Section IV and Captions of Orders 437, 463, 474, 485, 486, 487, 488 and 489.

Orders, or portions of orders 415 (d), 416, 422 (c), 431 (c), 447 (a), 451 (b), 472 (a) and 481 (b) became effective February 6, 1928.

Order 435 (d) of the Elevator Code effective August 12, 1926, has been repealed.

INDUSTRIAL COMMISSION OF WISCONSIN

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Order 400.—Definitions.

23. A shaftway door or gate electric contact is an electrical device the purpose of which is to prevent the operation of the elevator machine in a direction to move the car away from the landing, by maintaining the interruption of the supply circuit, until the door or gate is closed.

24. A mechanical interlock for a shaftway landing door or gate is a device the purposes of which are:

(1) To prevent the normal operation of the elevator machine unless the shaftway landing door or gate opposite which the car is standing is latched within 4 inches of the fully closed position, and

(2) To prevent the opening of a shaftway landing door or gate from the landing side, except by special apparatus, unless the car is at the landing.

25. An electro-mechanical interlock for a shaftway landing door or gate is a combination of electrical and mechanical devices the purposes of which are: -

(1) To prevent the operation of the elevator machine in a direction to move the car away from the landing unless all shaftway landing doors or gates are latched within 4 inches of the fully closed position; and

(2) To prevent the opening of a shaftway landing door or gate from the landing side except by means of a key or other special apparatus.

26. A door lock or a gate lock is a device that will prevent the door or gate from being opened from the landing side unless the elevator car is at, or within 3 inches of, the landing, and which is so constructed and located that it

cannot be easily put out of order, or reached from the landing floor when the door or gate is closed.

27. A telescoping gate is one in which the several parts slip together without distortion.

28. A collapsing gate is one that is distorted in opening and closing.

29. New installations or elevators hereafter installed include:

(1) Every elevator for which the contract was not let before the effective date of this code;

(2) The shaftway enclosure, guides and machine of an elevator installed after the effective date of this code;

(3) The shaftway enclosure, guides and machine of an elevator which is hereafter moved to a new location or materially changed;

(4) Any complete part of an existing elevator which is materially altered or renewed after the effective date of this code;

(5) Every elevator which, after the effective date of this code, is changed from freight to passenger service, or vice versa.

Note: Ordinary repairs necessary to maintain elevators in safe condition are not considered material alterations.

30. Existing installations or elevators heretofore installed include all those elevators, or parts of elevators, which cannot be considered as elevators hereafter installed or new installations.

31. Approved means approved by the Industrial Commission.

Order 404.—Plans. New Installations.

Before starting work on any new installation of an elevator, power dumbwaiter or an escalator, plans shall be submitted to the Industrial Commission for approval, with an application, properly filled out, on a blank form furnished by the commission. Plans shall be in duplicate. This order shall not apply in cities where elevator permits are issued by the city in a manner approved by the Industrial Commission. Every elevator manufacturer who furnishes an elevator, power dumbwaiter or escalator to be installed by the owner, or an agent of the owner, shall submit plans and file an application in compliance with this order.

Order 408.—Tests. New Installations.

A full capacity test shall be made of every elevator and power dumbwaiter before being put into regular service.

For test of catching device see order 464.

For test of escalators see order 492.

Order 411.—Freight Elevator Shaftway Enclosures. New Installations.

(d) Doors shall be approved fire doors or shutters and shall be self-closing or equipped to close automatically in case of fire, or furnished with electric contacts or provided with shaftway landing door interlocks, either mechanical or electro-mechanical. All windows in inside enclosure walls shall be of approved fire resistive construction with wired glass. Where a hand cable is operated through the shaftway enclosure a slot not more than 5 inches wide by not more than 3 feet long with the bottom 30 inches from the floor, may be cut in the enclosure. This slot or opening shall be protected with an approved self-closing fire shutter, or an approved fire shutter which will close automatically in case of fire.

Exception: Doors in outside walls of elevator shaftways need not be fire-proof except in cases where fire doors are required by the State Building Code.

Order 415.—Guards for Projections in Shaftways.

1. Existing Installations.

(a) All projections and shearing edges in elevator shaftways, such as floors, beams, sills, pipes, bolts and other stationary parts within 4 inches of the edge of the car, unless guarded against by the permanent car enclosure, shall be provided with smooth bevelled guards fitted directly under such projections so as to push any projecting object back into the car. The bevelled surface of each guard shall make an angle of not less than 60 degrees with the horizontal.

Exception: This requirement need not apply to the tracks of two-speed doors.

2. New Installations.

(b) On elevators hereafter installed bevelled guards shall be made of smooth metal not less than 1-16 inch in thickness, properly braced.

Note following paragraph (d) :

Note: The requirements of this order do not apply to door closers, interlocks, or floor lock devices where the guarding of such devices would interfere with their proper operation, or to projections of not more than 1 inch from the face of a door.

Order 416.—Clearance on Car Fronts. New Installations.

The distance between the car sill and the landing threshold sill shall be not more than $1\frac{1}{2}$ inches nor less than $\frac{3}{4}$ inch on any elevator hereafter installed. All moving parts, including ropes, cables and sheaves, shall clear passing points at least $\frac{3}{4}$ inch. On every elevator hereafter installed a clearance of $\frac{3}{4}$ inch or more shall be maintained between any part of the door fronts or mechanism and the car sill, except on an elevator which is equipped with a car gate and provided with a device to prevent the operation of the car unless the car gate is closed.

Order 417.—Depth of Pits and Overhead Clearances. New Installations.

(a) The depth of the pit and the overhead clearance for any power elevator hereafter installed shall each be not less than the number of inches shown for a given speed and capacity in the following table; except that in no case shall the clearance between the bottom of the car platform and the bottom of the pit be less than 15 inches when the car is resting on the fully compressed buffers:

TABLE SHOWING REQUIRED MINIMUM DEPTH, IN INCHES, OF PITS AND OVERHEAD CLEARANCES

Elevator car speed in feet per min.	Capacity of Elevator in Pounds								
	0 to 2500	3000	4000	5000	6000	7000	8000	9000	10000 or more
0 to 50	30	31	34	36	38	41	43	46	48
100	34	35	37	40	42	45	47	49	52
200	41	43	45	47	50	52	54	57	59
300	49	50	53	55	57	60	62	64	67
400	57	58	60	63	65	67	70	72	75
500	64	65	67	70	73	75	77	80	82
600 or more ...	72	73	76	78	80	83	85	88	90

Order 422.—Construction of Penthouses.

(b) Properly weatherproofed openings shall be provided for the lighting and ventilation of penthouses.

(c) In every new installation access to the penthouse shall be made safe and easy from outside the shaftway by means of a stairway (with handrail) inclined not more than 45 de-

grees with the horizontal, except that where there is insufficient room, ladders inclined not less than 75 degrees with the horizontal may be used when approved in writing by the Industrial Commission. One such stairway or ladder may serve a group of adjoining penthouses on the same roof.

**Order 423.—Overhead Floors and Machinery Supports.
New and Existing Installations.**

(a) There shall be a floor not less than 2 inches thick immediately under the machinery and sheaves at the top of the shaftway of every elevator. If the elevator machine is placed at the top of the shaftway, the floor shall cover the entire shaftway, shall be of fireproof or mill construction (where required by the Building Code issued by the Industrial Commission), and shall be built and supported for a safe load of not less than 300 pounds at the center in addition to the machinery load.

Order 424.—Floors or Screens Under Sheaves. New and Existing Installations.

(a) If the overhead machinery consists only of sheaves and governor the floor below, if of wood, shall be solid and not less than 2 inches thick, or not less than $\frac{7}{8}$ inch thick if supported by joists spaced not more than 16 inches center to center. If such floor is a metal grating there shall be no opening greater than 1 inch in width. It shall be built and supported to carry a safe load of not less than 300 pounds at the center. The floor shall cover the shaftway if the area of the shaftway does not exceed 50 square feet and if the average head-room above such floor is not less than 5 feet; if the area is larger than 50 square feet or the head-room is less than 5 feet such floor need extend only two feet outside of all sheaves and machinery which must be reached for oiling and inspection. In such cases there shall be a toeboard not less than 6 inches in height at the edge of the floor, and where the space between the floor and the wall of the shaftway exceeds 12 inches, a handrail shall be provided 30 inches above the floor. This order shall also apply to the secondary sheaves of full wrap traction elevators, and to hand power elevators having no screens over the cars, ex-

cepting existing installations where there is not room for such floors.

Order 428.—Enclosures for Passenger Elevator Cars.

(a) Every existing passenger elevator car shall be enclosed on all sides, excepting the entrance opening. This enclosure shall be solid from floor to cover in front of the counterweight runway, and openings in other sections shall not be larger than $1\frac{3}{4}$ inches square; or if ~~larger~~ *longer* than $1\frac{3}{4}$ inches, not wider than 1 inch. If wire mesh is used, the wire shall be not less than No. 10 U. S. Standard Gauge, with mesh not greater than $1\frac{3}{4}$ inches, measured along the wire from center to center of wires at points where they cross.

(b) The car walls of every passenger elevator hereafter installed shall be constructed of solid panels to a height of not less than 5 feet, and the panel in front of the counterweight runway shall be solid to the cover. Wood veneer finish may be used inside of metal cars. The car enclosure shall be made of incombustible material. The floor covering may be made of wood.

Order 431.—Enclosures for Freight Elevator Cars.

(c) Where any entrance opening in an elevator shaftway is not equipped with an interlocked or contacted door filling the opening, or where the entrance side of the car is not equipped with an approved car gate, the cover of the car shall be equipped with a hinged section facing each entrance, unless such entrance occurs only at the lowest landing. This hinged section shall be at least 12 inches wide, shall extend the full width of the entrance to within 5 inches of the landing sill, and shall be constructed so it will rise easily if it meets an obstruction as the car descends. (See order 482 (a) for covers on hand power hospital elevators and hand power invalid lifts).

Note: On an existing elevator the wire screen enclosure may remain if the mesh is not greater than 1 inch, measured along the wire from center to center of wires at points where they cross, and is properly braced and fastened. The wire must be of sufficient size to give rigidity.

Order 433.—Car Gates for Freight Elevator Cars.

(b) In every installation of an elevator used for both freight and passenger service each entrance opening in the

car shall be protected by a gate or door completely filling the opening and each such car gate shall be equipped with electric contacts.

(c) Every car gate shall run in guides, shall extend to the floor and be at least 6 feet high, and in the case of a vertically sliding gate, shall contain no openings greater than 3 inches measured in a horizontal direction.

(d) Every car gate which weighs more than 35 pounds or which is more than 8 feet in width shall be counter-balanced with a secondary rope and weight.

(e) Every car gate hereafter installed shall be semi-automatic or be equipped with an approved device such that the elevator cannot be started unless the car gate is closed.

(f) Every freight elevator car operating in a shaftway outside a building and which is inclosed only at the ground landing, shall be protected on the landing side by a semi-automatic car gate, or by a gate with electric contacts and in either case complying in other respects with order 433."

Order 435.—Passenger Elevator Shaftway Landing Doors.

(a) In every passenger elevator hereafter installed the shaftway shall be equipped at each landing with a horizontally sliding door, or doors which shall entirely fill the opening to the shaftway. Every such door shall be an approved fire door and shall be solid to a height of not less than 12 inches above the floor level. Upper sections of such doors may be of wired glass, or of solid metal. Every landing door shall be of sufficient strength to resist a lateral pressure of 100 pounds applied at the center.

Exception: In cases where the doors in outside walls of elevator shaftway enclosures are not required by the Building Code to be fireproof the phrase in the preceding paragraph reading "every such door shall be an approved fire door" does not apply.

(b) Existing wooden doors will be accepted, but if such doors contain grill work or screen the openings shall not be larger than described in order 428—(a). Doors shall not swing on vertical axes except on automatic push button elevators, and except where restricted spaces will not permit the use of sliding doors.

(c) On an existing installation solid metal or metal screen on substantial door framing will be accepted. The

screen shall be the equivalent in strength, rigidity and protection of wire screen described in order 428—(a).

Exceptions:

- (1) On an existing door where the openings in the grill work are larger than specified in order 428—(a), a screen may be stretched across the inner face of the door.
- (2) On an existing installation where a regular operator is stationed on the car existing grill work will be accepted unless an especially hazardous condition exists.
- (3) Other than horizontally sliding doors may be used in an existing installation if the restricted space will not permit a horizontally sliding door.

Order 436.—Passenger Elevator Shaftway Landing Door Interlocks.

(a) Shaftway landing door interlocks, either mechanical or electro-mechanical, shall be provided on every passenger elevator installation. Such interlocks shall be provided on existing installations not later than June 1, 1928.

Order 437.—Push Button Elevators; Electric Contacts.

(a) Electric contacts shall be provided on the required car gate or gates of every automatic push button controlled elevator. Such electric contacts shall be provided on every such existing installation not later than June 1, 1928.

(b) Shaftway landing doors and gates on all push button freight elevators shall be equipped with electric contacts.

Order 438.—Freight Elevator Shaftway Landing Doors and Gates.

(a) All openings in the shaftway enclosure of every freight elevator shall be protected at landings in one of the following ways:

(1) Doors, as described in order 435 for passenger elevators. Such doors will be accepted only where an operator is stationed on the car, except on push button controlled elevators. In new installations such doors shall be equipped with shaftway door interlocks, either mechanical or electro-mechanical. Doors which are so equipped may swing on vertical axes.

(2) Vertically sliding gates. Where the car speed does not exceed 50 feet per minute the gates at the terminal landings shall be semi-automatic or full automatic or, instead, may be equipped with gate electric contacts and gate locks. At intermediate landings the

gates shall be either semi-automatic or equipped with gate electric contacts and gate locks. If approved in writing by the Industrial Commission full automatic gates may be installed at intermediate landings of elevators where the car speed does not exceed 50 feet per minute.

Where the car speed exceeds 50 feet per minute in new installations, vertically sliding gates, whether at terminal or intermediate landings, shall be either semi-automatic or equipped with electric contacts and gate locks.

(3) Balanced gates, or balanced doors. Such gates or doors will be permitted only when they are equipped with electrical contacts.

General Exceptions: In all existing installation where there is a vertically-rising hatch cover at the top floor if there is not less than three feet of headroom above the cover when the car is at such floor, and the cover is so located or guarded that it cannot be used as a passageway, then a landing gate is not required at such top floor landing.

(b) In new installations where fire doors are used as gates at freight elevator shaftway landings the doors shall be equipped with either mechanical or electro-mechanical interlocks.

(d) Except in the case of push button elevators, gates over 8 feet wide may be full automatic provided the car speed is not over 50 feet per minute and an operator is stationed on the car, or where there is provided means of stopping the elevator without reaching over, through, or under the gates.

Order 439.—Freight Elevator Shaftway Landing Gates; Construction.

(b) In new installations the main horizontal cross members of every landing gate, to which members the vertical slats or bars are fastened, shall extend into the guides or against uprights at the gate posts, so that pressure exerted on the gate from the landing side will not cause the gate to move into the shaftway in case the slat or bar fastenings become loose or disarranged.

(d) Every gate shall move in guides which shall be so constructed, in new installations, that the gate upright or shoe on the gate will have a lap of at least 1 inch on the guide strip or in the guide post furrow.

(f) Where a gate upright or shoe on the gate is continuous, the runway furrow in the guide post of any new installation shall be at least $\frac{1}{4}$ inch wider than the gate upright or shoe.

(g) Every gate in any new installation shall be properly balanced, adequately counterbalanced, and hung with substantial cord or flexible cable over pulleys not less than 3 inches in diameter.

Order 440.—Power Freight Elevator Shaftway Landing Doors and Gates; Locking Devices. New Installations.

In new installations of power freight elevators every landing door and gate, except full automatic doors and gates, shall be equipped with an approved door lock or gate lock.

Order 441.—Factors of Safety for Cables. New and Existing Installations.

(a) The factors of safety for hoisting and counter-weight cables, based on the cable manufacturer's schedule, shall not be less than is given in the following table:

FACTORS OF SAFETY FOR HOISTING CABLES			
Car speed in feet per min.	Factors of Safety		
	Passenger Elevators	Freight Elevators	Dumbwaiters
50 or less	7.0	6.7	5.2
100	7.8	7.0	5.7
200	8.5	7.6	6.3
300	9.1	8.2	6.9
400	9.7	8.7	7.5
500	10.2	9.1	8.0
600	10.6	9.5	
700	11.0	9.8	
800	11.25	10.0	
900	11.4	10.2	

Order 446.—Cable Fastenings at Terminals.

(b) Where an adjustable draw bar or equalizer is used in any new installation, the details of construction of such draw bar or equalizer for each condition of installation and type of apparatus shall be submitted to the Industrial Commission for approval and only approved construction shall be used.

Order 447.—Governor Cables.

(a) A wire governor cable shall be used on every new elevator installation where a governor is required, except

that in new installations where the governor cable is exposed to excessive moisture or other corrosive elements, hemp rope with wire center shall be used.

Exception: An approved fibre governor rope may be used on a freight elevator traveling not more than 50 feet with a car speed not to exceed 75 feet per minute and designed for a capacity of not more than 3500 pounds, provided that the rope is required to run over only two sheaves, namely, the governor sheave at the top of the shaftway and the tension weight sheave at the bottom of the shaftway, and provided further that the setting of the dogs of the car safety device does not depend upon the traction of the rope in the governor sheave and a consequent continuous pull on the rope.

Order 451.—Bolting of Counterweights.

(b) In every counterweight stack hereafter installed over 8 feet high there shall be a middle guide unless all weights are contained in a steel frame.

Order 456.—Sizes and Construction of Guide Rails. New Installations.

(b) The size of wood guide rails shall be not less than as follows:

Total Weight of Car and Load per Pair Maple Guide Rails		Dimensions of Each Guide Rail in Inches
Above Pounds	To and Including Pounds	
5,000	5,000	2 x 2½
	8,000	2½ x 3

Order 459.—Machinery—General Requirements.

(d) Elevator gear housings in new installations shall have a sufficient number, and correct size of openings so located as to permit proper inspection of the gears and gear spider fastenings.

Order 463.—Limit Stops.

(a) Every new elevator which is provided with an electric brake shall be equipped with limit switches that will automatically interrupt the power circuit and stop the car at each terminal landing. If the motor of such an elevator is operated by alternating current the limit switches shall be so connected as to automatically stop the elevator in case of phase reversal.

(b) Every new elevator controlled by a car switch, and every new freight elevator controlled by hold down push buttons, shall be equipped with two limit switches at each terminal of travel; one of these switches shall be a direction

cut-off or equivalent device, and the other a final cut-out switch.

Order 464.—Car Safety Devices and Speed Governors.

(i) Every type of car safety device shall be subjected to an actual drop test of a typical elevator installation made at the risk and expense of the elevator manufacturer and under the direction of the Industrial Commission; and complete plans and specifications of such device shall be submitted to the Commission for approval. The test load shall be equal to two-thirds of the capacity. The car safety device shall stop and hold the elevator car within a drop of 10 feet. No car safety device shall be used which has not been so tested and approved.

Order 469.—Brakes.

(a) Every direct connected electric elevator hereafter installed, except sidewalk elevators, shall be equipped with an electrically released brake so designed, installed and maintained that it will not be released until the power has been applied to the motor. Under normal operating conditions the action of the brake magnet shall not be retarded by any motor field discharge or counter voltage, nor by any single ground or short circuit.

(b) Every power elevator, except direct connected electric elevators, shall be equipped with a brake so designed, installed and maintained that it will be released whenever the control mechanism is shifted to the starting position, and so that the brake will be applied whenever the control device is moved to the stopping position.

Order 470.—Control Mechanism.

(d) In new installations of mechanically controlled elevators the operation of directional switches or operating valves shall, in no case, depend solely upon a belt or a chain.

(g) The car of every power freight elevator with hand-rope control shall be equipped with a cable lock so designed, installed and maintained that the handrope can be locked at any landing to prevent the operation of the car by persons on other floors.

Exception: The requirements contained in the preceding paragraph need not apply to sidewalk elevators, elevators equipped with safety switches and elevators equipped with interlocks or electric controls.

(h) The car of every electrically driven elevator equipped with an electric brake shall be provided with a switch (safety or so-called baby switch) to cut off the source of power.

Exception: This requirement need not apply to existing elevators controlled by hand cables.

Order 471.—Push Button Controlled Elevators. New and Existing Installations.

(3) In an automatic push button elevator the stop button on the car may be used as the safety switch if it is a button marked "STOP."

Order 472.—Electrical Protection.

(a) Every new elevator driven by a polyphase alternating current motor shall be protected against damage due to phase reversal by either:

(1) Limit switches as specified in order 463 arranged to cut all wires, or all except one, which shall be the ground conductor on grounded systems, and so connected that after the car overtravels, it cannot be moved until the phase reversal is corrected, or

(2) A reverse phase relay, or other protective device, which will prevent starting the motor if the phase rotation is in the wrong direction. ~~Such reverse phase relay, or other protective device, shall be provided for existing installations not later than June 1, 1928.~~

Note: While protection of existing elevators against phase failure is not required, this hazard should be recognized and removed so far as possible. Even though this requirement is not contained in the code, if there is an outstanding hazard, court ruling is that an owner is responsible for allowing an unsafe condition to exist, the same as though specific orders were in effect.

Order 473.—Switches and Wiring.

(b) The floor underneath every unit of unenclosed electrical apparatus shall be covered with a fire resistive and heat insulating material.

(e) The wires to the emergency release, if such a switch is installed, shall be run as a separate cable so grouped with relation to other wires or cables, if there are any, that

the fault in these wires or cables will not prevent the emergency release or stop button from opening the circuit.

(k) Wires between the main circuit resistances and the backs of control panels shall have individual flameproof outer coverings. Other wiring on the control panels may be of the rubber covered type, provided the wires are laid flat against the panels and held in such a manner as to be immovable and not exposed to mechanical damage, nor to a temperature exceeding 120 degrees Fahrenheit.

Order 474.—Grounding.

Exposed noncurrent carrying metal parts of electrically driven elevators operating at more than 100 volts to ground including frames, conduit, hand ropes, etc., shall be permanently and effectively grounded in accordance with Section 103 of the Wisconsin State Electrical Code.

Order 475.—Signal Systems. New and Existing Installations.

(a) Every elevator and every power dumbwaiter shall be equipped with a signal system or warning bell, so arranged that it can be safely and conveniently operated from any landing, except elevators and dumbwaiters automatically controlled by push buttons and hand power elevators traveling in no case more than 25 feet.

Order 478.—Maintenance. New and Existing Installations.

(a) Elevators, dumbwaiters and escalator equipment shall be kept in safe operating condition, properly lubricated and clean.

(b) Hatch covers of the vertically rising type used on elevators shall not be used for storage purposes, nor as passageways.

Order 479.—Dumbwaiters. New and Existing Installations.

(b) Every dumbwaiter shaftway opening at the floor level shall be protected by a door or gate in compliance with orders 438 and 439. Every other dumbwaiter shaftway

shall be enclosed on the loading side to a height of at least 30 inches above each floor.

Order 480.—Sidewalk Elevators.

(e) A power sidewalk elevator which travels only one story, or not more than 30 feet, is subject to the following orders only: 400, 401, 402, 404, 405, 406, 407, 408, 412—(a), 418—(a), 427—(a) and (g), 438 and 439, as applied to lower terminal freight elevator landings, 441—(a) and (b), 442, 443, 453, 466, 468, where the travel is more than 15 feet, 469—(b), 473—(c), (d), (g), (j) and (m), 474, 476—(b), 478—(a), and 480. Hydraulic sidewalk elevators shall also be subject to such paragraphs of orders 485, 486, 487 and 488 as may reasonably be applicable to sidewalk elevators.

(g) Every hand power chain hoist sidewalk elevator shall comply with orders 412, (a), 438 and 439 as applied to lower terminal freight elevator landings, order 478—(a) and with 480 (a) and (b).

(h) Every sidewalk elevator car or platform hereafter installed shall be enclosed to a height of not less than 1 foot on the sides not used for entrance.

Order 481.—Freight Elevators of the Sidewalk Type.

(b) Every elevator of the sidewalk type located within a building and traveling more than one story, or more than 30 feet, shall comply with all of the orders which apply to freight elevators.

Order 485.—Construction and General Requirements. New Installations.

Order 486.—Safety Equipment. New Installations.

(f) Every hydraulic elevator hereafter installed shall be provided with an independent automatic means for gradually stopping the car at the terminal landings.

Order 487.—Plunger Type Elevators. New Installations.

Order 488.—Maintenance. New and Existing Installations.

Order 489.—Recabbling Hydraulic Elevators. New and Existing Installations.