(h) *Sidewalk elevators.* A freight elevator, the hoistway being located partially outside the building and having no opening into the building at the upper terminal landing.

(j) *Hydraulic elevator.* A power elevator where the energy is applied, by means of a liquid under pressure, in a cylinder equipped with a plunger or piston.

(k) *Direct-plunger elevator.* A hydraulic elevator having a plunger or piston directly attached to the car frame or platform.

(m) *Grade level elevators.* A freight elevator, the hoistway being located partially outside the building located in an area not used by people or vehicles as a place of travel and having no opening into the building at the upper terminal landing.

(n) *Material-handling elevators.* A type of elevator used exclusively for handling materials as part of a material distribution system and utilizing automatic or semiautomatic means for loading or unloading.

(p) *Machine room.* The machine room is that room or enclosed portion of an area of a building intended and used for the elevator and/or dumbwaiter equipment only.

(26) EXISTING INSTALLATIONS. Every installation installed before November 1, 1964.

(27) NEW INSTALLATIONS. Every installation for which the contract was let after November 1, 1964.

(a) Every elevator or power dumbwaiter, escalator which, after November 1, 1964, is moved to a new location.

(b) Any part of an existing installation that is replaced shall comply with the applicable provision of this code.

(c) Every elevator that is changed from freight to passenger service, or from passenger to freight service, or from hand to power and every hand dumbwaiter changed to power, after November 1, 1964.

(d) Every elevator or power dumbwaiter which is enlarged or the travel extended.

(28) ESCALATOR. A power-driven, inclined, continuous arrangement of steps used for raising and lowering passengers.

(29) MOVING WALKS AND MOVING RAMPS.

(a) *Landing.* The stationary area at the entrance or exit from a moving walk or moving ramp.

(b) *Moving walk or moving ramp.* A type of passenger-carrying treadway on which passengers stand or walk and in which the passenger-carrying surface remains parallel to its direction of travel and its movement is uninterrupted.

(c) *Moving walk or moving ramp, belt type.* A power-driven continuous belt treadway.

(d) *Moving walk or moving ramp, belt pallet type.* A series of connected and power-driven pallets to which a continuous treadway is fastened.

(e) *Moving walk or moving ramp, pallet type.* A series of connected and power-driven pallets which together constitute the treadway.

(f) *Moving walk or moving ramp, roller type.* A belt supported by a succession of rollers with their axes at right angles to the direction of the treadway motion.

(g) *Moving walk or moving ramp, slider-bed type.* A treadway sliding upon the supporting surface.

(h) *Moving walk, system.* A series of moving walks on an end to end or side by side relationship.

(j) *Pallet.* One of a series of rigid platforms which together form an articulated treadway or the support for a continuous treadway.

(k) *Treadway.* The exposed passenger-carrying member of a moving walk or moving ramp.

(m) *Moving walk.* A moving walk having a slope or angle not exceeding 3 degrees with the horizontal.

(n) *Moving ramp.* A moving ramp having a slope or angle exceeding 3 degrees with the horizontal.

(o) *Threshold comb.* The toothed portion of a threshold plate designed to mesh with a grooved treadway surface.

(p) *Threshold plate.* That portion at the entrance or exit to the treadway consisting of one or more stationary or slightly movable plates.

(30) EMERGENCY STOP SWITCH. An emergency stop switch (safety switch) is a device in the car used manually to cut off the power from the elevator machine independently of the operating devices.

(31) FACIA PLATE. A metal plate not less than $\frac{1}{16}$ inch in thickness, securely fastened, and extending flush from the top of the hoistway landing door frame to the landing sill above and run the full width of the door opening.

(32) FIRE-RESISTIVE CONSTRUCTION.

Note: Refer to Building Code, Wis. Adm. Code, section Ind 51.05.

(33) FULL-AUTOMATIC DOOR OR GATE. A vertically moving door or gate which is opened directly by the motion of the elevator car approaching the terminal landings and closed by gravity as the car leaves the landing.

(34) HOISTWAY, ELEVATOR OR POWER DUMBWAITER. A shaftway for the travel of one or more elevators or power dumbwaiters. It includes the pit and terminates at the underside of the overhead machinery space floor or grating, or at the underside of the roof where the hoistway does not penetrate the roof.

(35) HOISTWAY ENCLOSURE. The fixed structure, consisting of vertical walls or partitions, which isolates the hoistway from all other parts of the building or from an adjacent hoistway and in which the hoistway doors and door assemblies are installed.

(36) HOISTWAY ACCESS SWITCH. Switches located at the lower and upper terminal landings to permit access to the pit and top of the car. The car travel limited to a zone sufficient for the full door opening.

(37) HOISTWAY DOOR OR GATE. (a) *Door.* A hoistway landing door is one which completely fills the door opening giving access to the elevator or dumbwaiter car at any landing and is of solid construction, with or without vision panels, regardless of design or method of operation.

(b) *Gate.* A hoistway landing gate is one which gives access to the elevator car at any landing and consists of slats, bars, spindles, wire screen or expanded metal regardless of the method of operation.

tion 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.

(47) SINGLE AUTOMATIC OPERATION. An operation by means of one button in the car for each landing level served and one button at 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.

(48) CAR-SWITCH OPERATION. An operation wherein the movement of the car is directly and solely under the control of the operator by means of a switch in the car.

(49) CAR-SWITCH AUTOMATIC FLOOR-STOP OPERATION. An 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.

(50) CONTINUOUS-PRESSURE OPERATION. An operation by means of push buttons or switches in the car and at landings, any one of which may be used to control the movement of the car so long as the button or switch is manually held in the operating position.

(51) DUAL OPERATION. A system of operation whereby the elevator controller is arranged for either automatic operation by means of landing and car buttons or switches, or for manual operation by an operator in the car, who may either use a car switch or the buttons provided in the car. When operated by an operator, upon the throwing of a suitable switch or switches, the car can no longer be started by the landing buttons, buttons may, however, be used to signal the operator that the car is desired at certain landings.

(52) PRE-REGISTER OPERATION. An 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.

(53) SIGNAL OPERATION. An 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 predetermined landing stops may be set up or registered for an elevator or for a group of elevators. The stops set up by the momentary pressure 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.

(54) POTENTIAL SWITCH, ELEVATOR. An elevator potential switch is a 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. These switches are of the magnetic type.

(55) RACEWAYS. Any channel for holding wires, or cables, which is designed expressly for, and used solely for, this purpose. Raceways shall be of metal and this term includes rigid metal conduit, flexible metal conduit or electrical metallic tubing.

(56) SAFETY, CAR OR COUNTERWEIGHT. A mechanical device attached to the car or frame to stop and hold the car or counterweight in case of predetermined overspeed, free fall, or slackening of the cables.

(57) SLACK-CABLE SWITCH, ELEVATOR. A slack-cable switch is a device for automatically cutting off the power in case the hoisting cables become slack.

(58) TERMINAL LANDING. The highest and lowest landing served by the elevator.

History: Cr. Register, October, 1964, No. 106, eff. 11–1–64; r. and recr. (25) intro. par., and (25) (n); cr. (25) (p); r. and recr. (27) (b), Register, September, 1967, No. 141, eff. 10–1–67.

SCOPE

Ind 4.01 General scope. The requirements of this code shall apply to every elevator, power dumbwaiter, material handling elevator, moving walk or moving ramp, or escalator installed in public buildings and places of employment as defined by Wisconsin statutes. This requirement applies to both existing installations and those hereafter installed unless otherwise specified.

History: Cr. Register, October, 1964, No. 106, eff. 11–1–64.

Ind 4.02 Renewing of elevator, dumbwaiter, escalator, etc. Where part or parts of equipment of an elevator, power dumbwaiter, material handling elevator, moving walk or ramp or escalator are impaired through ordinary wear, damage or deterioration by fire or other causes, to 50% of the original condition, the equipment shall be repaired or rebuilt in conformance with the requirements for new installations.

History: Cr. Register, October, 1964, No. 106, eff. 11–1–64.

Ind 4.03 Exemptions. (1) This code does not apply to the following:

(a) Belt, bucket, scoop, roller or similar inclined or vertical freight conveyors, portable tiering or piling machines when not serving more than the floor on which the tiering or piling machine is located.

(b) Skip hoists, belt manlifts, mine hoists, wharf ramps or apparatus in kindred classes, amusement devices, stage curtain hoists or lift bridges, nor to elevators with a travel less than 56 inches.

(c) Mechanical lifts inclined not greater than 62½ degrees with the horizontal and serving not more than one story and a maximum vertical rise of 14 feet.

(d) For regulations relative to the use of elevators, hoists, derricks and similar equipment during the period of construction of a building or any other structure, see sections Wis. Adm. Code Ind 35.28 to 35.31 inclusive of the general orders on Safety in Construction and Wis. Adm. Code sections Ind 44.01 to 44.37 inclusive, Personnel Hoists, issued by the industrial commission.

the fully loaded car striking the buffer at governor tripping speed. The floor shall be approximately level.

(2) Where water cannot be kept out of a pit with ordinary construction, proper drains or sumps, with or without pumps, shall be provided with cover, or a pit tank shall be constructed of not less than ¼ inch steel plate.

(3) Where existing foundation footings are encountered in a new or altered installation and it is impractical to disturb the footings, the maximum permissible encroachment shall be not more than 15% of the cubic content of the pit.

(4) Where there is a difference in level of floors of adjacent pits greater than 8 inches, a solid guard of incombustible material shall be provided to separate such pits. Guards shall extend not less than 6 feet above the level of the higher pit floor.

(5) Access shall be provided to all pits to conform with Wis. Adm. Code sections Ind 4.31 (5) (a) and (6) (a) and Ind 4.38 (1) (a) 7. and Ind 4.38 (2) (b) 7. and 8., or by means of a separate pit entrance access door.

(a) Where separate access pit doors are provided the doors shall be at least 2 feet by 6 feet in size and equipped with self-acting locks, arranged to permit the doors to be opened from inside the pit without a key.

(6) A fixed ladder shall be provided in the pit of every elevator hereafter installed. This ladder shall be of incombustible material, located within reach of the access door and shall extend not less than 30 inches above the sill of the access door, or hand grips shall be provided to the same height.

(a) *Exception.* Where separate pit entrance access doors are provided.

(7) There shall be installed in the pit of every power elevator hereafter installed an enclosed stop switch of the approved type and shall be in addition to the directional and final limit switches. This switch shall be accessible from the pit access door adjacent to the ladder when ladders are used and approximately in line with the pit access door sill. Where access to the pits of elevators in a multiple hoistway is by means of a single access door, the stop switch for each elevator shall be located adjacent to the nearest point of access to its pit from the access door.

(8) No elevator machine or other machinery shall be located in the elevator pit except equipment used in connection with oil hydraulic or existing sidewalk elevators.

History: Cr. Register, October, 1964, No. 106, eff. 11–1–64.

Ind 4.18 Minimum pit depth and overhead clearance. (1) The pit depth for every power elevator hereafter installed shall be not less than the number of inches specified in the requirements outlined in Tables 2 and 3 of this section. The depth of trenches, depressions or foundation encroachments as of Wis. Adm. Code section Ind 4.17 (3) shall not be considered in determining the pit depth.

(a) For cable and hydraulic elevators the bottom runby for the car and counterweight shall be not less than shown in Table 1.

TABLE 1

Cable Elevators				Hydraulic Elevators		
Speed F.P.M.	Control	Buffers	Runby	Speed F.P.M.	Buffers	Runby
25 to 50	Rheostatic	Spring	6 inches	100 or less	Spring	3 inches
Between 51 and 100	Rheostatic	Spring	9 inches	100 to 300	Spring	6 inches
Over 100	Rheostatic	Spring	12 inches			
Up to 200	Generator Field Control	Spring	6 inches			
Over 200	Generator Field Control	Oil	6 inches			

1. Maximum bottom runby for car shall not exceed 12 inches.

2. The maximum bottom runby for counterweight shall not exceed 24 inches.

(b) The minimum pit depth for elevators hereafter installed requiring spring buffers shall be not less than shown in Table 2.

TABLE 2

MINIMUM PIT DEPTH—ELEVATORS HAVING SPRING BUFFERS

Contract Speed F.P.M.	Capacity 0 to 3000	Capacity 3001 to 6000	Capacity 6001 to 10,000	Capacity 10,001 to 16,000	Capacity 16,000 and over
25 to 50	42 inches	48 inches	54 inches	60 inches	66 inches
51 to 100	48 inches	54 inches	60 inches	66 inches	72 inches
101 to 200	54 inches	60 inches	66 inches	72 inches	76 inches

(c) The minimum pit depth for elevators requiring oil buffers shall be not less than shown in Table 3.

TABLE 3

MINIMUM PIT DEPTH—ELEVATORS HAVING OIL BUFFERS

Contract Speed F.P.M.	Capacities up to 10,000 pounds	Capacities 10,001 pounds and over
201 to 300	76 inches	82 inches
301 to 400	88 inches	94 inches
401 to 500	104 inches	110 inches
501 to 600	120 inches	126 inches
601 to 700	138 inches	144 inches
701 to 800	150 inches	156 inches

Note: Interpolation may be used for intermediate speeds.

sufficient length to maintain the switches in the open position to the extreme car travel.

(2) Every power elevator hereafter installed shall be equipped with directional limit switches at each terminal of travel. These switches shall function independently of the operation of the floor selector stopping devices; and operated by the movement of the car and shall stop the car approximately level at each terminal landing.

(a) Where final limit switches are not required, directional limit switches shall be mounted to the guide rails and directly operated by a cam attached to the car.

(3) Limit switches, directional and/or final shall be located at the "Bottom" approximately in line with the lower terminal landing sill and at the "Top" approximately in line with the car top or cover when the car is at the upper terminal landing.

(3) ~~(4)~~ Every drum type elevator machine shall be equipped with an approved machine automatic terminal stopping device which will automatcially stop the machine in the event the car over-travels either of the terminal landings.

(4) ~~(5)~~ (a) For alternating current drum type elevator machines hereafter installed, the terminal stopping device as outlined in Wis. Adm. Code section (4) shall also open the electric circuit to the motor and brake. This device shall be in addition to the final limit switches required in Wis. Adm. Code section Ind 4.63 (1).

History: Cr. Register, October, 1964, No. 106, eff. 11–1–64.

Ind 4.64 Car safety devices. (1) An approved car safety device capable of stopping and sustaining the car with contract load in the down direction shall be attached to every elevator except:

(a) Freight elevators which travel not more than 10 feet.

(b) Direct lift plunger elevators.

(c) Existing carriage type elevators which travel not more than 18 feet.

(2) For speeds greater than 125 feet per minute Type B (sliding type) or Type C (combination instantaneous and oil-buffer) car safety device shall be required.

(3) Every car safety device shall be attached to and located within or below the lower members of the car frame (safety plank). The gripping surfaces of a car or counterweight safety device shall not be used to guide the car or counterweight. Safeties shall be applied mechanically and shall be so designed that on their application the forces which provide the stopping action shall be compressive forces on each side of the guide rail section.

(4) Multiple car safeties may be used subject to the approval of the industrial commission providing the lower safety shall be capable of developing not less than ½ of the force required to stop the entire car with rated load and the duplex safeties shall function simultaneously; these safeties shall be of the "B" type.

(5) Counterweight safeties, where required, shall meet the requirements of car safeties. (See Wis. Adm. Code section Ind 4.20 (3).)

(6) Every drum or idler sheave which is underneath the car and is used to actuate the car safety device shall be so guarded to prevent

the cable leaving the drum or sheave and shall be securely fastened directly to the car frame or by means of metal brackets.

(7) A cutout switch shall be provided on the car safety device of every elevator hereafter installed, which shall remove the power from the driving-machine-motor and brake; at the initial movement of the safety device before or at the time of application of the governor.

(8) Car safety devices shall be identified and classified on the basis of performance characteristics after the safety begins to apply pressure on the guide rails as outlined in this subsection.

(a) *Type A Safeties.* Instantaneous type safeties shall be limited to elevators where the contract speed does not exceed 125 feet per minute.

Note: Type A safeties develop a rapidly increasing pressure on the guide rails during the stopping interval, the stopping distance being instantaneous to the inherent design of the safety. The operating force is derived entirely from the mass and the motion of the car or the counterweight being stopped. These safeties apply pressure on the guide rails through eccentric dogs or rollers without any flexible medium purposely introduced to limit the retarding force and increase the stopping distance.

(b) *Type B Safeties.* Shall be provided where the contract speed exceeds 125 feet per minute. The safeties shall when operated, stop the fully loaded car within the maximum stopping distances as specified in Table 17 of this section on the basis of the governor tripping speed.

TABLE 17

MAXIMUM STOPPING DISTANCES—TYPE B CAR SAFETIES WITH RATED LOAD

Rated Speed in Ft. Per Minute	Maximum Governor Tripping Speed in Ft. Per Min.	Stopping Distance in Feet—Inches	
		Wedge-Clamp Safety* / Gradual-Wedge-Clamp Safety**	Flexible Guide-Clamp Safety***
0 to 125	175	6– 0	1– 3
150	210	6– 1	1– 4
175	250	6– 2	1– 7
200	280	6– 3	1–10
225	308	6– 5	2– 0
250	337	6– 8	2– 3
300	395	6–11	2– 9
350	452	7– 3	3– 4
400	510	7–10	4– 0
450	568	8– 3	4–10
500	625	8–10	5– 8
600	740	9–11	7– 7
700	855	11– 1	9–10
800	970	12– 4	12– 6

Note: B safeties of the sliding type are divided into 3 classes outlined as follows:

* Wedge-clamp is one where the wedges are applied against the rails through the unwinding of a cable-operated drum, and threaded screws, and the connections between the safety drum and the safety wedges are rigid and no elastic member is provided in the jaw assembly. Travel of the wedges increases the pressure on the jaws.

** Gradual-wedge-clamp is similar in design and construction as the wedge-clamp safety except that an elastic member such as spring or springs are provided on the safety device to obtain a predetermined constant retarding force.

*** Flexible-guide-clamp. Safeties of this type have vertical sliding wedge-type jaws, in which the retarding force is derived from the proportional to the pressure exerted by the compression of spring or springs, directly applying the jaws to the rails. The retarding forces are reasonably uniform after the safety is fully applied.

(c) *Type C Safeties.* (Combination instantaneous and oil-buffer safety) shall, when provided and where the contract speed exceeds 125 feet per minute, be subject to the requirements as outlined in this subsection.

1. The rated car speed shall not exceed 500 feet per minute.

2. The oil buffers shall conform to all requirements specified in section Ind 4.19 for oil buffers, except that the stroke shall be based on governor tripping speed and on an average retardation not exceeding 32.2 feet per second per second.

3. After the buffer has been compressed, as applied in subsection (8) (c) 2. there shall be at least 10% of the buffer stroke remaining to prevent excessive impact on the buffer parts and the auxiliary safety.

4. Where the distance between guide rails exceeds 8 feet, the safety shall be provided with two oil buffers of substantially identical calibration, and the buffers shall be so located as to develop minimum stresses in the auxiliary safety plank during safety operation.

5. Buffers shall be located in line with and symmetrically between the guide rails.

6. The auxiliary safety plank shall be so supported and guided below the car frame that the proper clearances for the safety parts shall be maintained during normal operation.

7. The auxiliary safety plank shall be so designed that the maximum stresses in the plank shall not exceed those specified for similar car frame members.

8. An electric switch shall be provided and so arranged and connected that the elevator cannot be operated by means of the normal operating device if any buffer is compressed more than 10% of its stroke.

9. Means shall be provided to prevent operation of the elevator by means of the normal operating device if the oil level in any buffer is below the minimum allowable level.

Note: Type C safeties develop retarding forces during the compression stroke of one or more oil buffers interposed between the lower members of the car frame and a governor-operated Type A auxiliary safety plank applied on the guide rails. The stopping distance is equal to the effective stroke of the buffers.

(9) Safeties shall be so arranged that they can be released inside the car, or on top of the car, or by operating the machine in the "up" direction.

(10) Each safety shall be marked for identification by the manufacturer by a plate that shall be placed in a conspicuous location on the safety plank. This plate shall show the type and the manufacturer, the maximum weight and the maximum governor tripping speed for which the safety is approved.

(11) Every type of car safety device and speed governor hereafter installed shall be subjected to a drop test as outlined in this subsection.

(a) The test shall be made with the total load on the car safety device. The total load shall include the weight of the car structure, the safety device, the live load, and all appurtenances and devices attached to the car.

(b) The free fall shall be such that the safety under test shall have attained the maximum governor tripping speed before the safety actuating device starts to function, except that where approval is desired for speeds greater than 280 feet per minute the governor tripping speed need not exceed 280 feet per minute.

(c) The total drop from the starting point to rest for type B safeties shall not exceed 15 feet.

(d) The application of the car safety device shall not cause the car platform to become out of level in excess of ½ inch per foot.

(e) A drop test made on a car safety device that is designed and constructed to trip by inertia, when set within the drop test requirements, shall be considered as satisfactory. The governor in connection with the above car safety device shall be tested separately to determine the tripping speed as required in subsection (8) (b), Table 17.

(f) Complete plans and specifications for every car safety device and speed governor to be tested shall be submitted to the commission.

(g) Such tests shall be made at the risk and expense of the elevator manufacturer and witnessed by the industrial commission.

(12) Tests of car safety device and speed governor combination shall be made before the elevator is placed in regular service. Such tests shall be made with cables attached and all electric apparatus operative, except for the cutout switch required by subsection (7) and shall comply with the following:

(a) Elevators provided with *type A safeties* shall be tested with the contract load in the car and from contract speed shall stop and hold the car by tripping the governor by hand.

(b) An overspeed test shall be made on elevators provided *with type B and C safeties* equipped with "generator field control". The test shall be made with the contract load in the car, by increasing the speed of the car until the governor causes application of the safety.

1. The stopping distance for *type B safeties* and the governor tripping speed shall conform with requirements of subsection (8) (b), Table 17.

2. The stopping distance for *type C safeties* shall be equal to the stroke of the buffer located between the lower member of the car frame and auxiliary safety plank, and shall conform to the requirements of subsection (8) (c) 2.

(c) No person shall be permitted to ride on the elevator car during an overspeed test or drop test.

(d) For type B safeties the pull-out of the governor cable from its normal running position until the safety jaws begin to apply pressure to the guide rails shall not exceed 30 inches.

(e) Stopping distance is the actual slide as indicated by the marks on the rails.

(f) All winding drum-operated safeties, requiring continual unwinding of the safety drum cable (rope) to fully apply the safety shall be so designed that not less than 3 turns of the cable will remain on the safety drum after the overspeed test of the safety has been made with the rated load in the car.

(g) Tests of counterweight safeties shall be made with no load in the car.

(13) Every car safety device and speed governor shall be maintained in proper working condition and shall be subjected to a running test at intervals as outlined in this subsection.

(a) Safety tests for *type A, B and C safeties* shall be made with the contract load in the car, and at contract speed in the "down" direction, shall, by tripping the governor by hand stop and hold the car.

1. The governor tripping speed shall conform with requirements as specified in subsection (8) (b), Table 17.

(b) The test shall be made with all electric apparatus operative, except for the cutout switch as specified in subsection (7).

(c) Type B safeties shall stop the car with the contract load within the maximum stopping distances as specified in subsection (8) (b), Table 17.

(d) Tests as outlined in subsection (13) shall be made at every 5 year period thereafter.

(e) In the event the safety device or the governor fails to function as required, the owner or agent shall renew or replace any part or parts of the equipment and make a test or tests necessary to insure satisfactory operation of the safety device and governor.

(f) A tag shall be fastened to the governor releasing carrier, upon completion of a satisfactory test of the car safety device and speed governor. Reports of tests as specified in subsection (13) shall be submitted to the industrial commission with complete information on Form SB–2E "Test Report of Safety Devices" and "Tags" furnished by the Industrial Commission, Hill Farms State Office Building, 4802 Sheboygan Avenue, Madison, Wisconsin 53702.

History: Cr. Register, October, 1964, No. 106, eff. 11–1–64.

Ind 4.65 Speed governors. (1) An approved speed governor shall be installed in connection with the required car safety for every power elevator as outlined in Wis. Adm. Code section Ind 4.64 (8) (a), (b), and (c).

(2) Every speed governor hereafter installed shall be of a type equipped with cable-grip jaws which will grip the governor cable. Governor jaws shall be of such shape and minimum length to prevent serious cutting, damage or deformation of the cable from the stopping action of the jaws in operating the safety device. The governor shall be located where it cannot be struck by the car or counterweight in case of overtravel. There shall be sufficient space for full movement of the governor parts.

(a) Governors for elevators with a contract speed in excess of 200 feet per minute and with type B safeties shall be equipped with spring loaded cable grip jaws. The maximum tension in the governor cable shall not exceed ⅛th of the rated ultimate strength of the cable.

Note: For counterweight safeties see Wis. Adm. Code section Ind 4.20 (3).

(3) Speed governors for car safeties shall be set to trip at overspeeds as follows:

(a) At not less than 115% of the contract speed.

(b) At not more than the tripping speed listed opposite the applicable speed specified in Table 18, this subsection.

TABLE 18

MAXIMUM SPEEDS AT WHICH SPEED GOVERNOR TRIPS AND GOVERNOR OVERSPEED SWITCH OPERATES

Rated Speed in Ft. per Minute	Maximum Governor Trip Speed in Ft. per Minute	Maximum Speed at Which Governor Overspeed Switch Operates Down Ft. per Minute
0–125	175	175
150	210	190
175	250	225
200	280	252
225	308	277
250	337	303
300	395	355
350	452	407
400	510	459
450	568	512
500	625	563
600	740	703
700	855	812
800	970	921

(4) Governors for elevators having a contract speed greater than 200 feet per minute shall be equipped with an overspeed switch. This switch shall be set to open in the "down" direction at a speed not greater than specified in Table 18, this subsection. This switch shall also be set to open in the "up" direction at not more than 100% of the speed at which the governor is set to trip in the "down" direction and shall, when operated in either direction, remove the power from the driving machine motor and brake and shall remain in the open position until manually reset.

(5) Speed governors, when provided for counterweight safeties shall be set to trip at an overspeed greater than, but not more than 10% above that at which the car speed governor is set to trip.

(6) Governor ropes (cable) shall be of iron, steel, monel metal, phosphor bronze, or stainless steel, of regular-lay construction and shall be not less than ⅜ inch in diameter. Tiller rope construction shall not be used. The factor of safety of governor cable shall be not less than 5.

(a) Governor sheaves shall be not less than 12 inches in diameter.

(b) The governor shall be marked for identification by a plate, which shall give the information outlined as follows:

1. Type _____
2. Tripping Speed _____
3. Cable Construction and Size _____
4. Cable Material _____
5. Manufacturer _____

(7) In replacing existing governor cable or rope they shall be of the same size, material and construction as the cable or rope originally furnished by the manufacturer.