

Ind 4.03 Exemptions. This code does not apply to belt, bucket, scoop, roller, or similar inclined or vertical freight conveyors, portable tiering or piling machines when not passing through a floor unless serving more than the floor on which the portable tiering or piling machine is located, skip hoists, man hoists, mine hoists, lumber lifts, wharf ramps or apparatus in kindred classes, amusement devices, stage curtain hoists or lift bridges, nor to elevators used only for handling building material during the period of building construction and elevators with a travel less than 56 inches.

(1) 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 section Ind 35.28 to 35.31 inclusive of the general orders on Safety in Construction issued by the industrial commission.

(2) For man lift requirements, see general orders on Safety.

History: Cr. Register, April, 1957, No. 16, eff. 5-1-57.

Plans

Ind 4.04 Plans; new installations. (1) Before starting work on any new installation of an elevator, power dumbwaiter or escalator, 3 copies of the plans shall be submitted to the industrial commission for approval, with 2 copies of application for each unit, properly filled out, on blank forms furnished by the commission.

(2) A plan examination fee in the amount established under section 101.10 (13) (g), Wis. Stats., shall be paid for each installation requiring approval.

(3) Section Ind 4.04 (1) 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.

(4) Plans shall include: (a) Sectional plan of car and hoistway; (b) Sectional elevation of hoistway, machine room (showing machinery) and pit; (c) Plan of machine and supports showing details of materials, size of beams. If the hoistway has more than one entrance on any floor, all entrances shall be clearly shown.

(5) The elevator manufacturer and the architect shall cooperate in preparing plans to avoid discrepancy in design.

History: Cr. Register, April, 1957, No. 16, eff. 5-1-57.

Ind 4.05 Inspections. (1) **INTERVAL.** All elevators, power dumbwaiters, or escalators operated in the state of Wisconsin shall be subjected to a regular inspection at least once every 12 months.

(2) **INSPECTION BY INSURANCE COMPANIES.** The industrial commission may accept inspections of elevators, power dumbwaiters, and escalators reported by certified inspectors, subject to the following conditions:

(a) Each installation shall be inspected once every 12 months.

(b) A detailed report of each unit inspected shall be filed with the commission within 14 days after inspection on a printed form approved by the commission. Such report shall show all respects in which the installation fails to comply with the code requirements. If

there are any special conditions which, in the inspector's opinion, would require modification of any general order, the facts shall be fully stated in the report, with the inspector's recommendation.

1. Where an insurance company inspects an elevator, power dumbwaiter or escalator within the city limits of Milwaukee, a detailed report of each unit inspected shall be filed with the Inspector of Buildings, City Hall, Milwaukee, within 14 days after inspection on a printed form approved by the commission. Such report shall show all respects in which the installation fails to comply with the code requirements. If there are any special conditions which, in the inspector's opinion, would require modification of any general order, the facts shall be fully stated in the report with the inspector's recommendation.

Note: Reports required to be submitted to the Inspector of Buildings, Milwaukee, need not be filed with the commission.

(c) A certificate of inspection on a form approved by the commission shall be posted by the insurance company in a conspicuous place in the elevator car, dumbwaiter cage, or escalator, as the case may be, and shall show the date of inspection, name of insurance company, name of inspector, safe carrying capacity. (See section Ind 4.52)

(d) The insurance company shall use all reasonable diligence to secure compliance with the commission's orders. If unsuccessful, it shall so report to the commission. If it then becomes necessary for the commission to make an inspection, the statutory fee for each unit inspected will be charged. (See section Ind 4.07)

(e) The competency of each elevator inspector shall be certified by each insurance company to the commission in writing prior to making inspections. Insurance company inspectors will be approved by the commission only after the receipt of acceptable evidence of competency and a satisfactory examination has been passed consisting of written, oral, and performance tests.

(f) Insurance companies that cover elevators, escalators, or power dumbwaiters which come within the scope of liabilities of workmen's compensation, public liability, or comprehensive coverage in any manner or degree shall report to the industrial commission on January 1 each year the identity, location, and ownership of each such risk.

1. Insurance companies employing inspectors holding valid certificates of competency, inspect all risks annually, and regularly file proper inspection reports shall not be required to file a list of such risks on January 1 of each year.

2. Insurance companies insuring risks in cities of the first class shall not be required to make the above report provided the risks are located within the corporate limits of such cities and provided that such cities have equivalent reporting requirements.

3. Elevators, escalators, or power dumbwaiters covered by insurance companies as in section Ind 4.05 (f) not employing inspectors holding valid certificates of competency shall be subject to inspection by the industrial commission. Fees for performing such inspection services shall be paid in accordance with the provisions of the applicable fee schedule.

History: Cr. Register, April, 1957, No. 16, eff. 5-1-57.

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Table 12

Contract Speed—Feet per Minute	Total Weight of Counterweight Pounds
250	2000
200	3000
160	4000
125	5000

device, and shall be located where it cannot be struck by the car or counterweight in case of overtravel and where there is sufficient space for full movement of governor parts.

(11) Every type of car safety device hereafter installed not heretofore approved and having a rated capacity less than 20,000 pounds shall be subjected to a type drop test. Such tests shall be made at the risk and expense of the elevator manufacturer under the direction of the industrial commission. Complete plans and specifications for every car safety device and speed governor to be tested shall be submitted to the commission for approval, or the manufacturer may make such tests and submit to the industrial commission with complete plans and specifications, certified copies of the tests made on forms satisfactory to the commission, duly witnessed and sworn to by a person or persons satisfactory to the commission for which approval is desired.

(a) The test load shall equal the maximum load, including the weight of the safety, for which approval is requested. The free fall shall be such that the safety under test shall have attained the maximum governor tripping speed for which approval is requested, assuming 100% efficiency, before the safety actuating device starts to function, but in no case shall the required fall be greater than that needed to attain 300 feet per minute. The drop test may be made with the governor with which the safety will be used. If so tested, the governor shall actuate the safety. The governor shall be set for the maximum tripping speed for which approval is requested except that a tripping speed of more than 300 feet per minute shall not be required. The distance from the starting point to the final point of rest under the above test conditions shall not be more than 12 feet. The application of the car safety device shall not cause the car platform to become out of line in excess of $\frac{1}{2}$ inch per foot measured in any direction. No car safety device, or combination of car safety device and speed governor, shall be used which has not been so tested and approved.

(12) Every type of car safety device, and every combination of car safety device and speed governor, shall be maintained in proper working condition and shall be subjected to running tests at intervals as outlined as follows:

(a) Every power elevator with a car safety device and speed governor combination shall by not later than January 1, 1949, be subjected to an actual running test with the load indicated by the capacity plate on the car and, by tripping the governor by hand at contract speed, stop and hold the car with the contract load. This test shall be made with all electric apparatus operative except for the cutout switch required by section Ind 4.64 (7). On such tests

car safeties of the sliding type shall stop the car within the limits specified in section Ind 4.64 (15) Table 13 except that the stopping distance shall be based on the car speed at which the governor is tripped. In the event the safety device and governor combination fails to function as required, the owner or agent shall renew or replace any part or parts of equipment and make a test or tests necessary to insure satisfactory operation of the safety device and governor.

(b) When a test is made and the safety device and governor combination prove satisfactory on either new or existing installations, a similar test shall be made at every three year period thereafter. Reports of tests of section Ind 4.64 (a) and (b) shall be submitted to the industrial commission on forms furnished by the commission.

(12) If the approved rated capacity of safeties hereafter installed is less than the weight of the car, the contract load and the cables suspended from the car, a new drop test shall be made and complete plans and specifications shall be submitted to the industrial commission for approval.

(13) 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 satisfactory. The governor in connection with the above safety device as a combination shall be tested separately by means of a weight test, and also to determine tripping speed.

Note: Test of car safety devices and other safety appliances by the United States Bureau of Standards will be recognized by the industrial commission.

(14) Tests of the 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 section Ind 4.64 (7) and shall comply with the following:

(a) Where elevators having *type A safeties* are equipped with alternating current driven machine motors, a test of the safeties shall be made with the contract load in the car and shall be tested at contract speed in the down direction and by tripping the governor by hand.

(b) Where elevators having *type B and C safeties* are equipped with "generator field control", an overspeed test of the safeties shall be made with the contract load in the car, by gradually increasing the speed of the car until the governor causes application of the safety. The stopping distance for *type B safeties* and the governor tripping speed shall conform with requirements of section Ind 4.64 (15) Table 13.

(c) 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 section Ind 4.19.

(d) For elevators, where the contract load is unable to bring about overspeed and for elevators without sufficient travel to permit overspeed, the governor shall be tripped by hand at maximum obtainable speed.

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(e) No test of the safeties with safe-lifting load in the car shall be made.

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

(g) The governor tripping speed shall be checked for compliance with section Ind 4.64 (15) Table 13.

(h) 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.

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

(15) Car safety devices (safeties) are identified and classified on the basis of performance characteristics after the safety begins to apply pressure on the guide rails. On this basis, there are 3 types of safeties:

(a) *Type A safeties.* Safeties which develop a rapidly increasing pressure on the guide rails during the stopping interval, the stopping distance being very short due 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 eccentrics, rollers or similar devices, without any flexible medium purposely introduced to limit the retarding force and increase the stopping distance.

(b) *Type B safeties.* Safeties which apply limited pressure on the guide rails during the stopping interval, and which provide stopping distances that are related to the mass being stopped and the speed at which application of the safety is initiated. Retarding forces are reasonably uniform after the safety is fully applied. Continuous tension in the governor rope may or may not be required to operate the safety during the entire stopping interval. Minimum and maximum distances are specified on the basis of governor tripping speed.

Table 13. Maximum and Minimum Stopping Distances Type B Car Safeties with Rated Load, and of Type B Counterweight Safeties

Rated Speed in Ft. per Minute	Maximum Governor Trip Speed in Ft. per Minute	Stopping Distances in Feet-Inches "	
		Minimum	Maximum
0-125	175	0- 6	1- 3
150	210	0- 6	1- 4
175	250	0- 8	1- 7
200	280	0- 9	1-10
225	308	0-10	2- 0
250	337	0-11	2- 3
300	395	1- 1	2- 9
350	462	1- 3	3- 4
400	510	1- 6	4- 0
450	568	1- 9	4-10
500	625	2- 1	5- 8
600	740	2- 9	7- 7
700	855	3- 7	9-10
800	970	4- 6	12- 6
900	1085	5- 5	15- 3
1000	1200	6- 8	18- 6
1100	1320	7-11	22- 4
1200	1440	9- 4	26- 4
1300	1560	10-11	30-11
1400	1680	12- 7	35- 7
1500	1800	14- 5	40-10

(c) *Type C safeties (Type A with oil buffers)*. Safeties which 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.

(16) Each safety shall be marked for identification by the manufacturer by a plate that may be placed in a conspicuous location on the plank. This plate shall show the range of weight and speed for which the safety is approved; said weight to include the complete car structure, the safety, the contract load in the car, and all moving equipment, the weight of which is borne by the safety and the name of the manufacturer.

Type -----
 Load Range -----
 Speed -----
 Manufacturer -----

(17) The governor shall be marked for identification by a plate, which marking shall give the type, tripping speed, size and material of cable and the name of the manufacturer.

Type -----
 Tripping Speed -----
 Cable Size -----
 Cable Material -----
 Manufacturer -----

History: Cr. Register, April, 1957, No. 16, eff. 5-1-57.

Ind 4.65 Brakes. (1) Every direct connected electric elevator hereafter installed shall be equipped with an electrically released spring applied 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 in allowing the brake to set shall not be retarded by any motor field discharge or counter voltage, nor by any single ground or short circuit.

Note: See section Ind 4.63 (6) for traction elevators with mechanical brake.

(2) Every power elevator 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.

(3) Every hand elevator shall be equipped with a brake that will operate effectively in either direction of motion of the elevator. Whenever such a brake has been applied it shall remain locked in position until released.

(4) The brake on every hand elevator hereafter installed shall be so arranged that it will operate automatically at the top landing.

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Ind 4.69 Warning chains; new and existing installations. Warning chains shall be hung from the car platform within 2 inches of the edge of the entrance side or sides of every power freight elevator, except where hoistway landing doors with electric contacts or inter-