PERSONNEL HOISTS

Chapter Ind 44

Ind 44.001 Definition; personnel hoist. A temporary structure designed and installed primarily for the purpose of transporting personnel vertically during the period of building construction or construction projects.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.01 General requirements. (1) Personnel hoists shall be installed to conform with the requirements as outlined in this subsection:

(a) *Plans; new installations.* 1. Before starting the erection on any new installation of a personnel hoist 3 copies of 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.

(b) *Forms.* The forms referred to under Wis. Adm. Code section Ind 44.01 (1) (a) 1. are SB-22, application for construction and erection, may be obtained from the Industrial Commission, Hill Farms State Office Building, 4802 Sheboygan Avenue, Madison, Wisconsin 53702.

(c) *Submission of plans and application.* Every manufacturer who furnishes equipment as described in Wis. Adm. Code section Ind 44.01 (1) to be installed by the owner or an agent of the owner shall submit plans and application.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.02 Plan examination fee. A plan examination fee in the amount established by the Wis. Adm. Code section Ind 69.20 (2) shall be paid for each installation requiring approval.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.03 Application. Before starting the erection of a hoist moved to a new location, application in duplicate, properly filled out, shall be submitted to the industrial commission for approval, on blank forms furnished by the commission. (See Wis. Adm. Code section Ind 44.01 (1) (b)).

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.04 Tests and inspections. New Installations. (1) Every personnel hoist shall be tested and inspected in conformance with the code requirements before the installation is placed in service.

(a) The party erecting such an installation shall give notice to the industrial commission not less than 10 days prior to the time the installation is complete and ready for inspection.

(b) An owner or agent representing the personnel hoist shall be present during the final inspection of each installation.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.05 Inspections. Interval. Every personnel hoist shall be subjected to a regular inspection at least once within a period of 60 days.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.06 Inspection fee. A charge in accordance with the fee schedule by Wis. Adm. Code section Ind 69.25 (1) will be made by the industrial commission for each inspection of each personnel hoist.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.07 Inspection by cities. (1) In cities that provide certified inspectors, the industrial commission will accept inspection by such cities.

(a) Wis. Adm. Code section Ind 44.01 (1) (a) shall not apply to cities where permits are issued by the city in a manner approved by the industrial commission.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.08 Repair. Where the part or parts of equipment of a personnel hoist 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, March, 1965, No. 111, eff. 4–1–65.

Ind 44.09 Tower construction. (1) Overhead beams, floors and their supports shall be designed for not less than the sum of the following loads:

(a) The load resting on the beams and supports which shall include the complete weight of the machine, sheaves and governor and other equipment together with that portion supported thereon.

1. Where the car safety device operates on tension members suspended from the top of the tower, the tower construction and supports for the tension members shall withstand the application of the car safety device, when stopping the car with its rated capacity at governor tripping speed, within the deflection of ¼ inch.

2. The tension members shall withstand the forces of not less than twice the sum of the tension in all cables (wire ropes) passing over sheave supported by the beams with the rated capacity in the car.

(b) The tower shall be girthed "postwise" with channels or the equivalent to prevent the spreading of the car guide rails.

(c) Calculations shall be submitted covering the structural design for the height maximum of travel to be served.

(d) The tower and supporting footings shall be adequate to support the entire tower structure for the height of travel to be served and the loads imposed upon them.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.10 Hoistway enclosure. (1) The hoistway at the ground floor shall be enclosed to the height of not less than 7 feet. If of wood, the enclosure shall be solid. If of metal, the enclosure shall be the equivalent in strength, rigidity, and protection of wire screen of not less than No. 16 U. S. Standard gauge with mesh not greater than 1½ inch.

(a) Every hoistway entrance opening shall be equipped with a door or gate located not more than 8 inches from the edge of the car platform; and not less than 6 feet in height completely filling the width of the opening; and shall be of wood or metal to conform with Wis. Adm. Code section Ind 44.10 (1).

(b) Every hoistway landing entrance door or gate shall be equipped with a mechanical lock. The lock shall not be accessible from the landing side.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.11 Platforms and sill clearances. (1) Where a platform is provided between the tower and the building, the open or exposed sides shall be provided with a standard guard rail 42 inches in height with an intermediate guard and a toeboard not less than 4 inches in height at the edge of the platform.

(a) The clearance between the car sill and any landing sill shall be not less than ½ inch or more than 3 inches.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.12 Car construction. (1) Every personnel hoist shall have a car frame consisting of a crosshead, uprights (stiles), and a plank located approximately at the middle of the car platform.

(a) Car frames shall be guided on each guide rail by upper and lower guide shoes attached to the frame.

(b) The frame and its guiding members shall be designed to withstand the forces resulting under the loading conditions for which the hoist is designed.

(c) When cars are suspended by hoist cables attached to the car frame by means of cable shackles, the shackles shall be attached to the steel hitch plates or to structural steel shapes. Such plates or shapes shall be secured to the underside or to the webs of the car frame members with bolts or rivets so located that the tensions in the hoisting ropes will not develop direct tension on the bolts or rivets.

(d) Every hoist shall have a platform consisting of a solid floor attached to the platform frame supported by the car frame and extending over the entire area within the car enclosure. The plat-

form frame members and the floors shall be designed to withstand the forces developed under the loading conditions for which the elevator is designed and installed.

(e) Cast iron shall not be used for any part subject to tension, torsion, or bending.

(f) The car frame members shall be securely welded, bolted and/or riveted and braced.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.13 Car enclosure. (1) The car of every personnel hoist shall be permanently enclosed on all sides and top, except the sides used for entrance, and shall conform with the requirements outlined as follows:

(a) The car enclosure shall be of wood or metal. If of wood, it shall be solid. If of metal, it shall be of the equivalent and strength, rigidity and protection of wire screen of not less than No. 10 U. S. Standard gauge with mesh not greater than 1 inch measured along the wires from center to center at points where they cross and shall extend from the floor to the car top.

(b) The enclosure shall be securely fastened to the car platform and so supported that it cannot loosen or become displaced in ordinary service or on the application of the car safety device.

(c) An exit cover shall be provided in the top of the car and shall conform with the requirements as follows:

1. Shall be so located as to provide a clear passage unobstructed by fixed equipment.

2. The exit opening shall have an area of not less than 400 square inches.

3. The exit cover shall open upward and shall be hinged to the car top so that the cover can be opened from both inside and from on top of the car without the use of tools.

4. Tops of car enclosures shall be so designed and installed as to be capable of sustaining a load of 300 pounds on any square area 2 feet on a side.

(d) Each car entrance shall be equipped with a door or car gate which shall be equipped with an electric contact.

1. The car door or gate at the secondary car entrance shall in addition to an electric contact be equipped with a zoned mechanical lock. This lock shall be so designed to prevent the opening of the car gate after the car leaves the lower terminal landing.

2. Each car door or gate shall be not less than 6 feet in height, completely filling the width of the opening; and shall be of wood or metal to conform with Wis. Adm. Code section Ind 44.13 (1) (a).

(e) There shall be not more than 2 entrances to any car.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.14 Number and size of cables required. (1) Every traction-type personnel hoist shall have not less than 4 cables.

(2) Every winding drum-type personnel hoist shall have not less than 2 cables.

(a) The hoisting cables of every winding drum-type machine shall have at least 1½ turn on the drum when the car is at the lower terminal landing. The winding drum end of every hoisting cable shall be secured inside the drum.

(b) Only 1 layer of cable shall be permitted on the drum of a winding drum-type machine.

(c) Drums for winding drum-machines shall be grooved for hoisting cables.

(3) Hoist cables less than ½ inch in diameter shall not be used.

(4) Plow steel cables are prohibited.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.15 Factors of safety for cables. (1) The factor of safety based on static loads for cables shall be not less than 7.95 for speeds not greater than 100 feet per minute and 8.60 for car speed of 200 feet per minute.

(a) Unless the ultimate strength and material of the cables are known, the load shall be limited to the load allowed for iron cables of the same diameter.

(b) No cable shall be repaired or lengthened by splicing.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.16 Cable (wire rope) terminal fastenings. (1) The car and counterweight cable fastenings shall comply with one of the following methods:

(a) Shackle rods, or, approved clamps.

1. Where cable sockets and shackle rods are used not more than one cable shall be fastened in the same shackle.

2. Cable sockets and shackle rods shall be of forged steel and shall have a strength of at least equal to the manufacturer's strength of the cable.

3. The threaded length of each shackle rod shall be provided with lock nuts and cotter pinned.

(b) Where approved clamps are used they shall be provided with metal thimbles and shall conform with the following:

1. Clamps shall not be of the U-bolt type.

2. Both members of the clamps shall be provided with seats conforming to the lay of the cable.

3. Clamps shall be drop forgings.

4. The cables to be clamped shall be passed around metal thimbles having not less than the following dimensions and fastened by at least the number of clamps specified, with not less than the spacing indicated in this subsection.

Diameter Wire Rope Inch	Inside Width of Thimble Inches	Length of Thimble Inches	Minimum No. of Clamps	Minimum Spacing of Clamps Inches
½	1⅛	2¾	3	3
⅝	1¾	3¼	3	3¾
¾	2	3¾	4	4½

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.17 Renewing of cables. Cables are considered unsafe and shall be renewed when through broken wires, wear, rust, undue strain, or other deterioration, the strength has been decreased more than 25%. When for any reason it becomes necessary to renew one or more cables of a group supporting a common load, all cables in that group shall be renewed.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.18 Cable guards for sheaves and idlers. Every sheave or idler under which is led any hoisting or governor cable shall be provided with a guard that will keep the cables on the sheave or idler if the cables become slack.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.19 Hoist cable data. There shall be posted for permanent record in a conspicuous place on the car beam a metal sign bearing the following original data:

CABLE SPECIFICATIONS

Kind of cable _____
Number of cables _____
Diameter in inches _____
Rated ultimate strength _____
Date of installation _____

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.20 Capacity and data plates. (1) CAPACITY PLATE. A metal plate with stamped or raised letters not less than ½ inch in height, stating the capacity load of the hoist shall be located in a conspicuous place in the car.

(a) The plate shall indicate the number of persons, including the operator, allowed in the car.

Note: The stated number of persons allowed on the car is based on contract load divided by 150.

(2) DATA PLATE ON CROSSHEAD. (a) A metal plate or plates shall be placed upon the car crosshead of each installation bearing the information outlined as follows:

(b) The total weight of the complete car, including the safeties and all auxiliary equipment attached to the car.

(c) The capacity load and speed.

(d) Cable data as required in Wis. Adm. Code section Ind 44.19.

(e) Manufacturer's name, and date of installation.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.21 Structural connections and stresses allowed in design. (1) Connections between members of car frames and platforms shall be riveted, bolted or welded and shall conform with the requirements outlined in this subsection. (See Wis. Adm. Code section Ind 44.12.)

(a) Bolts where used through sloping flanges of structural members shall have bolt heads of the tipped-head type or shall be fitted with beveled washers.

(b) Nuts used on sloping flanges of structural members shall seat on beveled washers.

(c) The design stresses in the car-platform and the car-frame and platform members and their connections based on the static load imposed upon them shall not exceed the stresses permitted by the Wis. Adm. Code section Ind 53.24, (Building Code).

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.22 Guide rails. (1) Every hoist shall have T-section steel guide rails and shall be not less than 15 pounds for the car and not less than 8 pounds for the counterweight.

Exception: Guides other than T-sections or guides of sizes different from that outlined in Wis. Adm. Code section Ind 44.22 (1) may be used, providing that the tensile strength is not less than the requirement outlined in Wis. Adm. Code section Ind 44.22 (1) (a).

(Note: See Wis. Adm. Code section Ind 44.22 (1) (b).)

(a) Guide rails, brackets, clips, fish plates and their fastenings shall be made of open hearth steel or its equivalent having a tensile strength of not less than 55,000 pounds per square inch and having an elongation of not less than 22% in a length of 2 inches, and shall conform with the requirements outlined in this subsection.

1. The ends of the guide rails shall be accurately machined with tongue and matching groove or doweled.

2. The ends of each rail shall be joined together with fish plates and not less than 4 bolts which shall be not less than ½ inch for 8 pound guide rails and not less than ⅝ inch for 15 pound guide rails.

3. The width of the fish plate shall be not less than the width of the back of the rail and shall be not less than $\frac{9}{16}$ inch in thickness for 8 pound guide rails and not less than $\frac{11}{16}$ inch in thickness for 15 pound guide rails.

4. The top and bottom of each guide rail shall be so located in relation to the extreme position of the travel of the car and counterweight that the car and counterweight guiding members cannot travel beyond the ends of the guide rails.

5. The guide rails shall not be used to support the overhead machinery.

6. The guide rail bracket spacings for car and counterweight shall not exceed 14 feet and the total rail deflection shall not exceed ¼ inch.

7. Foundation plates or other structural shapes shall be mounted under and fastened to the bottom end of the car guide rails.

8. Guide rails shall be secured to the tower by clips or by bolts.

(b) Steel tubing used in lieu of T-section guide rails shall be equal in design and construction to conform with the following:

1. Shall be not less than 3 inches O.D. Seamless Tubing 100,000 psi Tensile; 90,000 psi Minimum Yield.

2. The car safety device shall be equipped with a supporting member to prevent the collapse of the tubing upon setting of the car safety device with contract load at governor tripping speed.

3. A form shall be submitted covering a certified test used in the tower construction.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.23 Minimum size of sheaves. The diameter of sheaves for traction machines shall be not less than 40 times the diameter of cable. (See Wis. Adm. Code section Ind 44.14.)

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.24 Machinery, general requirements. (1) The factor of safety to be used in the design of driving machines and in design of sheaves and drums used in hoisting shall be not less than the requirements as outlined in this subsection.

(a) Eight (8) for steel, bronze, or for other metals having an elongation of at least 14% in a length of 2 inches.

(b) Ten (10) for cast iron, or for other metals having an elongation of less than 14% in a length of 2 inches.

(c) Set screws or threaded portions of bolts or screws shall not be used to transmit torque.

(d) The fillet shall be provided at any point of change in the diameter of driving machine shafts and sheave shafts to prevent excessive stress concentrations in the shafts. Shafts which support sheaves, couplings and other members and which transmit torque shall be provided with tight-fitting keys.

(2) Gear housings for machines shall have openings so located as to permit proper inspection of gears and gear spider fastenings.

(3) The motor drive on traction machines shall be directly connected to the gearing provided and mounted on a continuous steel or cast iron bed plate.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.25 Prohibited installations. (1) Automatic operation.

(2) Cast iron worm gears shall not be used in any hoisting equipment.

(3) Emergency hoistway landing door or gate and/or car gate by-pass switches.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.26 Car safety devices. (1) Every personnel hoist shall be provided with an approved car safety device capable of stopping and sustaining the car with contract load in the down direction, and shall conform with the requirements outlined as follows:

(a) Every car safety device shall be attached to and located within or below the lower member of the care frame (safety plank).

1. *Exception.* Safety devices used on cars of the cantilever type; where the car speed does not exceed 100 feet per minute and the capacity does not exceed 2000 pounds.

2. The gripping surfaces of the car safety device shall not be used to guide the car. Safeties shall be applied mechanically and shall be designed so that on their application, the forces which provide the stopping action shall be compressive forces on each side of the guide rail section.

(b) Car safeties shall be identified as Class A instantaneous, Class B wedge clamp, gradual wedge clamp, and flexible guide clamp, Class C a combination instantaneous oil-buffer safety.

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

(2) Every type of car safety device and speed governor shall be subjected to a type 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 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.

(c) The total drop from the starting point to rest for type B safeties shall not exceed 10 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) Complete plans and specifications for every car safety device and speed governor to be tested shall be submitted to the industrial commission.

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

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

(4) A cutout switch shall be provided on every car safety device which shall remove the power from the driving machine-motor and brake with the initial movement of the safety device.

(5) Tests of the car safety device and speed governor combination shall be made before the personnel hoist is placed in regular service. Such tests shall be made with the cables attached and all electric apparatus operative, except the cutout switch as required in Wis. Adm. Code section Ind 44.26 (4).

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.27 Speed governors. (1) An approved speed governor shall be installed in connection with the required car safety device.

(2) Every speed governor shall be of the type equipped with the cable-grip jaws which will securely 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 operating the safety device. The governor shall be located where it cannot be struck by the car or counterweights in case of overtravel. There shall be sufficient space for full movement of the governor parts.

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

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

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

Type _____
Tripping speed _____
Cable construction and size _____
Cable material _____
Manufacturer _____

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

(7) Speed governors for car safeties shall be set to trip at an overspeed as follows:

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

(b) At not more than the tripping speed listed according to the speed specified as follows:

Rated Speed in Feet per Minute	Maximum Governor Tripping Speed in Feet per Minute
0–125	175
150	210
175	250
200	280

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.28 Car speed. The car speed shall not exceed 200 feet per minute.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.29 Brakes. (1) Every hoisting machine shall be equipped with an electrically released and spring applied brake so designed, installed, and maintained as to stop and hold the car with contract load when applied.

(a) No brake shall be arranged to be released until the power has been applied to the machine driving motor.

(b) No single ground short-circuit, motor field discharge or counter voltage shall prevent the action of a holding brake magnet or motor from allowing the brake to be set in the intended manner during the normal operation or during emergency stop.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.30 Control mechanism. (1) An externally operated circuit-breaker or disconnecting fused switch opening all lines shall be installed separately in the supply circuit. This circuit-breaker or switch shall be of the enclosed type, and shall be provided with proper over-current protection and shall not be made to close from any other part of the hoist structure. This switch shall be a H.P. rated motor circuit switch for motors up to and including 50 H.P.

(a) The circuit-breaker or disconnecting fused switch shall be mounted on the outside of the hoistway structure enclosure adjacent to the controller and protected from the weather.

(2) The car shall be provided with an emergency stop switch and located in or adjacent to the car operating panel. When opened this switch shall cause the electric power to be removed from the hoisting machine-motor and brake and shall conform with the following:

(a) Be of the manually opened and closed type.

(b) Have red operating handles or buttons.

(c) Be conspicuously and permanently marked "STOP".

(d) Be positively opened mechanically and the opening shall not be solely dependent on springs.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.31 Control and operating circuits. (1) The operation shall be by means of car switch or continuous pressure push button from the car only.

(a) *Exception.* Operation from the landings may be accepted if approved in writing by the industrial commission.

(2) The design and installation of the control and operating circuits shall conform with the requirements outlined in this subsection:

(a) If springs are used to actuate switches, contactors or relays to break the circuit to stop the hoist at terminal landings, they shall be of the compressive type.

(b) The completion or maintenance of an electric circuit shall not be used to interrupt the power to the driving machine, motor or brake at the terminal landings nor to stop the car when the emergency stop switch is opened or any other electrical devices operate.

(c) The failure of any single magnetically operated switch, contactor, or relay to release in the intended manner or the occurrence of a single accidental ground, shall not permit the car to start or run if the hoistway-door or gate contact lock is unlocked or if any hoistway-door or car-door or gate contact is in the open position.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.32 Electrical protection. (1) Every electrically driven personnel hoist shall be provided with a potential switch which will cause and maintain interruption of power to the main circuit during failure of supply voltage, and the operation of any emergency stopping switches.

(2) A reverse phase relay shall be provided which will prevent starting the motor if the phase rotation is in the wrong direction.

(a) *Exception.* Alternating-current motors used in motor generator sets.

(3) Directional and final limit switches shall be provided to stop the car at each terminal of travel.

(4) A slack cable switch shall be provided on the hoist cables of every drum-type driving machine which shall automatically shut off the power to the driving machine motor in the event the cables break or become slack. This switch shall not reset automatically when the slack in the cable is removed.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.33 Wiring and voltage limitations. (1) The nominal voltage used for operating control and signal circuits, operating equipment, driving-machine motors and brakes shall not exceed the requirements as outlined in this subsection.

(a) For operating control and signal circuits and related equipment—300 volts, except that higher potentials may be used for frequencies of 25 to 60 cycle alternating current.

(b) Driving-machine motors, machine brakes—600 volts.

(2) All live parts of electrical apparatus in the hoistway, at the landing, or in or on the cars shall be enclosed to protect against accidental contact.

(3) The insulation of conductors shall be installed to conform with the following:

(a) Cabled conductors for operating and control circuits, without metal encasement shall be of the weatherproof type and shall be securely fastened.

(b) Power feeders for the hoist shall be of the weatherproof type and securely fastened to the tower.

(c) Fittings, switches and all electrical equipment shall be of the weatherproof type.

(4) The thickness of insulation of all conductors shall be suitable for the voltage to which the conductors are subjected.

(5) The minimum size of conductors used, which form an integral part of control equipment, shall conform with the following:

(a) Traveling cables. For lighting: No. 14 wire.

(b) Operating, control and signal circuits: No. 18 wire and shall be properly fused.

(6) Conductors for operating, control, power, signal and lighting circuits of 600 volts or less may be run in the same traveling cable or raceway system provided that all conductors are insulated for the maximum voltage found in the cables or raceway system and all live parts of the equipment are insulated from ground for this maximum voltage.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.34 Lighting. (1) Cars shall be provided with illumination of an intensity of not less than 5 foot-candles at the edge of the car platform.

(a) A warning or signal light shall be provided on the top and bottom of every car.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65

Ind 44.35 Operation. (1) Hoist shall be operated by authorized personnel.

(2) Material shall not be carried on the car when transporting personnel.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

Ind 44.36 Maintenance. (1) Hoists shall be kept in safe operating condition.

(2) Material which is not a permanent part of the hoist shall not be permitted on top of the hoist cover.

(3) Machines located at the lower level shall be protected from falling objects; and shall be enclosed on all open sides to the height of not less than 42 inches.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.

TEMPORARY USE OF PERMANENT ELEVATORS IN BUILDINGS UNDER CONSTRUCTION

Ind 44.37 Temporary elevators. (1) Permanent elevators being installed in buildings under construction may be used prior to their completion for carrying workmen or material, providing they are specially approved. Approval shall be subject to the requirements outlined in this subsection:

(a) Material shall not be carried on the car when transporting personnel.

(b) The hoistway shall be solidly enclosed to a height of not less than 7 feet above each floor, the entire height of the car travel.

1. The hoistway in front of the counterweight runway shall be solidly enclosed.

(c) All hoistway openings shall be provided with doors equipped with mechanical locks. The lock shall not be accessible from the landing side.

(d) The car shall be solidly enclosed on all sides and top, except the sides used for entrance.

1. The car top shall be provided with a hinged section and arranged to open upward.

(e) Each car entrance shall be provided with a car door or gate and equipped with an electric contact.

(f) The elevator machine and equipment shall be protected from accidental contact.

(g) The car shall be controlled by means of car switch or continuous pressure push button operation from the car only.

(h) A charge in accordance with the fee schedule established by Wis. Adm. Code section Ind 69.25 (1) will be made by the industrial commission for each inspection.

(j) The elevator shall be operated by authorized personnel.

History: Cr. Register, March, 1965, No. 111, eff. 4–1–65.