

CHAPTER 73  
CONVEYANCES INSTALLED PRIOR TO JANUARY 1, 1975

[Prior to 9/24/86, Labor, Bureau of [530]]

[Prior to 10/21/98, see 347—Ch 73]

**875—73.1(89A) Scope, definitions, and schedule.**

**73.1(1)** This chapter establishes minimum safety standards for all conveyances installed prior to January 1, 1975, except material lift elevators. Conveyances installed on or after January 1, 1975, shall conform with the requirements set forth in 875—Chapter 72. Material lift elevators installed prior to January 1, 1975, are not subject to regulation pursuant to Iowa Code section 89A.2.

**73.1(2)** The definitions contained in American National Standard Safety Code for Elevators, Dumbwaiters, Escalators, and Moving Walks, A17.1 (1971), shall be applicable as used in this chapter to the extent that they do not conflict with the definitions contained in Iowa Code chapter 89A or 875—Chapter 71.

**73.1(3)** Except as noted in this rule, the American Society of Mechanical Engineers Safety Code for Existing Elevators and Escalators, A17.3 (2011), is adopted by reference with an enforcement date of May 1, 2020.

*a.* If a code provision that is more restrictive than A17.3 (2011) applied to a conveyance when the conveyance was installed, the more restrictive provision shall remain in effect.

*b.* A17.3 (2011) Part X applies to elevators covered by rule 875—73.21(89A) without regard to the scope provisions set forth in A17.3 (2011) Part X.

*c.* Provisions of A17.3 (2011) that require installation of a new controller to implement Phase 1 and Phase 2 fire service or car top operation are not adopted by reference and shall not be enforced in Iowa.

*d.* A17.3 (2011), Rule 2.3.2, is intended to prevent the accumulation of sewer gas in an elevator pit and shall not be interpreted to require the addition of a drain pipe in an existing pit. An air gap in an existing drain pipe shall be considered adequate compliance.

*e.* The following shall substitute for the final sentence of A17.3 (2011) Rule 2.1.5(b): “Previously installed 60-inch chains are deemed to be in compliance.”

*f.* An elevator that was legally installed with guide rails made of materials other than steel shall not be required to replace the guide rails due to the adoption of A17.3 (2011).

**73.1(4)** The American Society of Mechanical Engineers Safety Code for Elevators and Escalators, A17.1-2013/CSA B44-13 (2013), Rule 2.14.7.1.4, is adopted by reference with an effective date of May 1, 2020.

**73.1(5)** Rules 875—73.2(89A) to 875—73.6(89A), 875—73.9(89A) to 875—73.17(89A), 875—73.19(89A), 875—73.22(89A), and 875—73.24(89A) and subrules 73.1(2), 73.7(1) to 73.7(9), 73.7(11), 73.18(1), and 73.18(3) to 73.18(7) shall be superseded by corresponding provisions of A17.3 (2011) on May 1, 2020.

[ARC 7840B, IAB 6/17/09, effective 7/22/09; ARC 1891C, IAB 3/4/15, effective 4/8/15]

**875—73.2(89A) Hoistways.**

**73.2(1)** Each passenger elevator hoistway landing shall be protected with a door or gate. The door or gate shall be of solid construction and shall guard the entire entrance.

**73.2(2)** All automatic passenger elevators with power doors shall have nonvision panels on hoistway doors.

**73.2(3)** Each hoistway landing in any elevator hoistway shall be continuously provided with a properly working door or gate.

**73.2(4)** Where freight elevator hoistway doors or gates are of open or lattice construction, they shall be at least 6 feet high and shall come within 2 inches of the floor when closed. Gates shall be constructed to reject a ball 2 inches in diameter. Doors and gates must be able to withstand 250 pounds of pressure applied in the center of the door or gate without breaking or being forced out of their guides.

**73.2(5)** Manually operated biparting entrances of elevators which can be operated from the landings shall be provided with pull straps on the inside and outside of the upper panel where the lower edge of the upper panel is more than 6 feet 6 inches above the landing when the panel is in the fully opened position.

**73.2(6)** All freight elevators having wooden hoistway gates in an area where power loading equipment, such as fork trucks, electric mules, etc. are used shall have an acceptable means to restrain the power equipment from running through such wooden gates.

**73.2(7)** Each hoistway door or gate shall be provided with interlocks designed to prevent the car from moving unless the doors or gates are closed. Where doors or gates do not lock when closed they shall lock when the elevator is not more than 12 inches away from the floor. Passenger elevator hoistway doors shall be closed and locked before the car leaves the floor.

**73.2(8)** All hoistway-door interlocks shall function as part of a hoistway-unit system.

**73.2(9)** Automatic fire doors shall not lock any landing opening in the hoistway enclosure from the hoistway side nor lock any exit leading from any hoistway landing to the outside of the building.

**73.2(10)** Emergency keys for hoistway doors and service keys shall be kept readily accessible to authorized persons and elevator safety inspectors.

**73.2(11)** Access means shall be provided at one upper landing to permit access to the top of the car, and at the lowest landing if this landing is the normal point of access to the pit.

**73.2(12)** Each hoistway door or gate which is counterweighted shall have its weights enclosed in a box-type guide or run in metal guides. The bottom of the guides or boxes shall be so constructed as to retain the counterweight if the counterweight suspension means breaks.

**73.2(13)** Hoistways containing freight elevators shall be fully enclosed. Enclosures shall be unperforated to a height of 6 feet above each floor or landing and above the treads of adjacent stairways. Unperforated enclosures shall be so supported and braced as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally to any point. Open work enclosure may be used above the 6-foot level and shall reject a ball 2 inches in diameter.

**73.2(14)** Hoistways containing passenger elevators shall be fully enclosed and the enclosure shall be of solid construction to its full height.

**73.2(15)** All elevators that have automatic leveling, inching or teasing devices and that are configured with landing sills that project into the hoistway shall be equipped with a bevel on the underside of the landing sill or the underside of projections found on the bottom section of vertically opening biparting doors. Bevels shall be constructed of smooth concrete or not less than 16-gauge metal securely fastened to the hoistway entrance. Bevels shall extend the full depth of the leveling zone plus 3 inches.

**73.2(16)** Every hoistway window opening seven stories or less on an outside wall above a thoroughfare and every such window three stories or less above a roof of the building or of an adjacent building shall be guarded to prevent entrance by fire or emergency rescue persons. Each such window shall be marked "hoistway" in a readily visible manner.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

**875—73.3(89A) Car enclosure: Passenger.**

**73.3(1)** Each passenger car shall be fully enclosed except on the sides used for entrance and exit. The enclosure shall be of solid construction. Grillwork at the top of the sides shall not be more than 8 inches high. If the car is provided with a solid door and there is no grillwork in the enclosure, adequate means of ventilation shall be provided.

**73.3(2)** Each passenger car enclosure shall have a top constructed of solid material. The top shall be capable of sustaining a load of 300 pounds on any area of 2 feet on a side and 100 pounds applied at any point. Simultaneous application of these loads is not required.

**73.3(3)** Passenger car enclosure tops shall have an emergency exit with cover. Opening size shall be as set forth in ANSI A17.1, 1971, Rule 204.1E. Hydraulic elevators provided with a manual lowering valve are not required to provide an emergency exit.

**73.3(4)** Each passenger car shall have a door or gate at each entrance. Doors or gates shall be of the horizontally sliding type. Doors shall be of solid construction. Gates shall be of the collapsible type. Gates and doors shall conform to ANSI A17.1, 1971, Rule 204.4.

**73.3(5)** Each passenger car door or gate shall have an electric contact to prevent the car from running with doors or gates open. EXCEPTIONS:

- a. By a car-leveling or truck-zoning device.
- b. By a combination hoistway access switch and operating device.
- c. When a hoistway access switch is operated.

**73.3(6)** All automatic passenger elevators with power doors shall have reopening devices on the doors, designed to reopen doors in the event the doors should become obstructed.

**73.3(7)** Car door or gate closing force.

a. Where a car door or gate of an automatic or continuous-pressure operation passenger elevator is closed by power, or is of the automatically released self-closing type, and faces a manually operated or self-closing hoistway door, the closing of the car door or gate shall not be initiated unless the hoistway door is in the closed position. The closing mechanism shall be so designed that the force necessary to prevent closing of a horizontally sliding car door or gate from rest shall be not more than 30 pounds.

b. Paragraph 73.3(7) "a" does not apply when both of the following conditions are met:

- (1) A car door or gate is closed by power through continuous pressure of a door-closing switch or the car operating device, and
- (2) The release of the closing switch or operating device will cause the car door or gate to stop or to stop and reopen.

**73.3(8)** Each passenger car shall have lighting inside the enclosure of not less than 5 foot-candles. Bulbs and tubes shall be guarded to prevent breakage.

**73.3(9)** Each passenger elevator shall have a capacity plate prominently displayed in its enclosure. The capacity plate shall list its capacity in pounds.

**73.3(10)** All passenger elevator car floors shall be maintained so that persons are not exposed to the hazards of tripping or falling.

**73.3(11)** All automatic passenger elevators shall be provided with an alarm bell capable of being activated from inside the car and audible outside the hoistway. If the elevator is not equipped with a bell, a two-way conversation device to the elevator and a ready accessible point outside the hoistway may be acceptable.

**73.3(12)** All automatic passenger elevators shall have their door open zones adjusted so that the door shall not open unless the car has stopped within 6 inches of floor level.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

**875—73.4(89A) Car enclosure: Freight.**

**73.4(1)** Each freight elevator car shall have a solid enclosure at least 66 inches in height. The space between the solid section and the car top shall be enclosed with solid material, perforated material, or latticework. Where used, perforated material or latticework shall reject a ball 1½ inches in diameter. The portion of open-type enclosure which passes the counterweights shall be of solid construction the entire width of the counterweights plus 6 inches on either side. The enclosure top shall be provided with an emergency exit, except for hydraulic elevators with manual lowering valves.

**73.4(2)** Each freight car enclosure shall have doors or gates at each entrance and shall be not less than 6 feet high. Each door or gate shall be constructed in accordance with ANSI A17.1, 1971, Rule 204.4.

**73.4(3)** Each car door or gate on a freight elevator shall have electric contacts to prevent the car from running with doors or gates open. EXCEPTIONS:

- a. By a car-leveling or truck-zoning device.
- b. By a combination hoistway access switch and operating device.
- c. When a hoistway access switch is operated.

**73.4(4)** Each freight elevator car enclosure shall be provided with a top. The top may be of solid or open-work construction and shall be of metal. The openwork shall reject a ball 2 inches in diameter.

Car tops shall be constructed to sustain a load of 200 pounds applied at any point on the car top. The top shall not have hinged or folding panels other than the emergency exit cover.

**73.4(5)** Each freight car enclosure shall have lighting not less than 2½ foot-candles. Bulbs or tubes shall be guarded to prevent breakage.

**73.4(6)** Each freight car enclosure shall have capacity plate, loading class plates, and a “No Passenger” sign conspicuously posted. Letters shall be not less than ½-inch high.

**73.4(7)** Freight elevators shall not be loaded to exceed the rated load as stated on their capacity plates.

**73.4(8)** Each freight elevator car floor shall be maintained so that personnel will not readily slip or trip. The floor shall be maintained so that it will hold its rated load without breaking through at any place in the car.

**73.4(9)** Freight elevators shall not be permitted to carry passengers other than the operator and persons to load and unload material.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

#### **875—73.5(89A) Brakes.**

**73.5(1)** Each electric elevator shall be provided with an electric brake.

**73.5(2)** Each brake shall be of the friction type applied by a spring or springs or gravity and released electrically. The brake shall be capable of holding the car at rest with its rated load.

#### **875—73.6(89A) Machines.**

**73.6(1)** Friction gearing or clutch mechanisms shall not be used for connecting the drum or sheaves to the main driving mechanism.

**73.6(2)** Set screw fastenings shall not be used on power elevators in lieu of keys or pins on connections subject to torque or tension.

**73.6(3)** Portable power-chain or cable hoist machines shall not be used to raise or lower an elevator car.

**73.6(4)** No belt or chain driven power machine shall be used for any elevator unless the machine is provided with a broken belt or broken chain safety switch of the electrical nonautomatic reset type. EXCEPTION: Hydraulic machines.

#### **875—73.7(89A) Electrical protective devices.**

**73.7(1)** All electric elevators shall have a labeled emergency stop switch. The switch shall be located on or adjacent to the operating panel.

**73.7(2)** All electric elevators shall have upper and lower final limit switches. Open-type switches shall not be accepted. Drum-type machines shall have final limit switches mounted on the machine and hoistway final limit switches.

**73.7(3)** All operating devices of car switch operations shall automatically return to the stop position and latch there when released.

**73.7(4)** Tiller-rope operations shall not be used unless all direction switches on controllers are mechanically operated. Contacts on direction switches shall be broken when the rope is at the centered position.

**73.7(5)** Except for firefighter service switches, leveling switches, and truck zone switches, no elevator shall be provided with a switch or device which makes more than one door or gate switch inoperative at any one time.

**73.7(6)** No person at any time shall make any required safety device or electrical protective device inoperative, except where necessary during tests, inspections or maintenance. Such devices shall be restored to their normal operating conditions as soon as all tests, inspections and maintenance have been completed. The conveyance shall not be left unattended while any of these devices are inoperative. To ensure that no jumpers are left behind, a counting system shall be utilized.

**73.7(7)** Each winding drum machine shall be provided with an electrical switch which shall disconnect power to the hoisting motor and brake when ropes are slackened.

**73.7(8)** No person shall enter an elevator pit for any reason without disconnecting power to the equipment using the pit stop switch, lockout, tagout procedures, or other appropriate means of de-energization in accordance with 875—Chapters 2 to 26.

**73.7(9)** Elevators having a polyphase AC power supply shall be provided with means to prevent the starting of the elevator drive motor or door motor if a reversal of phase rotation, or phase failure of the incoming polyphase AC power, will cause the elevator car or elevator door(s) to operate in the wrong direction.

**73.7(10)** All electrical equipment pertaining to the elevator shall conform to ANSI C1-1975 (NFPA 70-1975).

**73.7(11)** All electrical wiring in the machine room and hoistway shall be enclosed in metal conduit, flexible conduit or metal raceways.

[ARC 7840B, IAB 6/17/09, effective 7/22/09; ARC 1971C, IAB 4/29/15, effective 6/3/15]

### **875—73.8(89A) Maintenance, repairs and alterations.**

**73.8(1) General.** Except as set forth in this rule, all maintenance, repairs and alterations shall comply with the edition of ASME A17.1 currently adopted for new conveyances at rule 875—72.1(89A) or ASME A17.7-2007/CSA B44-07, as applicable. Rule 875—71.10(89A) describes alterations which require that the entire conveyance be brought into compliance with the most current code.

**73.8(2) Exemption for button numbering.** All maintenance, repairs and alterations to devices covered by ANSI A117.1 shall comply with ANSI A117.1 (2003), except for Rule 407.4.6.2.2.

**73.8(3) Sump pump exemption.** The provisions of ASME A17.1 that require a pit sump or drain shall not apply to an elevator alteration when all of the following criteria are met:

- a. No other code or rule requires that the pit be excavated or lowered.
- b. The alteration plans do not include the excavation or lowering of the pit floor for any other reason.
- c. There is evidence that groundwater has not entered the pit previously.
- d. The location and geology of the building indicate a likelihood that groundwater would enter the pit if the foundation or pit floor were breached to install the pit sump or drain.
- e. A description of alternative means to maintain the pit in a dry condition is provided to the labor commissioner with the alteration permit application.
- f. The labor commissioner approves the alternative means to maintain the pit in a dry condition.
- g. The alternative means to maintain the pit in a dry condition are installed or implemented as described in the alteration permit application.

**73.8(4) Pit excavation exemption.** The full length of the platform guard set forth in ASME A17.1, Rule 2.15.9.2(a), shall not be required if all of the following criteria are met:

- a. No other code or rule requires that the pit be excavated or lowered.
- b. The alteration plans do not include the excavation or lowering of the pit floor for any other reason.
- c. A full-length platform guard would strike the pit floor when the elevator is on its fully compressed buffer.
- d. The clearance between the bottom of the platform guard and the pit floor is 2.5 centimeters (1 inch) when the elevator is on its fully compressed buffer.

**73.8(5) Sprinkler retrofits and shunt trip breakers.** When a sprinkler is added to a hoistway or machine room, the conveyance shall comply with the following:

- a. The installation shall comply with the applicable version of ASME A17.1, Rule 2.8.3.3.
- b. The elevator controls shall be arranged to comply with the phase I fire recall provisions of the applicable version of ASME A17.1, Rule 2.27.3.
- c. The applicable version of ASME A17.1 shall be determined by reference to rule 875—72.1(89A). For purposes of rule 875—73.8(89A), the relevant subrule of 875—72.1(89A) shall apply based on the date the sprinkler is installed instead of the date the conveyance was installed.

**73.8(6) Safety bulkheads.** Documentation from the manufacturer establishing that a safety bulkhead was installed shall establish compliance with ASME A17.1, Rule 8.6.5.8.

**73.8(7)** *Alterations of handicapped restricted use elevators.* A component of a handicapped restricted use elevator being altered shall comply with the portions of ASME A17.1, section 5.3, applicable to the component. The edition of ASME A17.1 adopted by reference in rule 875—72.1(89A) shall be applied.

[ARC 7840B, IAB 6/17/09, effective 7/22/09; ARC 1766C, IAB 12/10/14, effective 1/14/15; ARC 2396C, IAB 2/17/16, effective 3/23/16]

**875—73.9(89A) Machine rooms.**

**73.9(1)** All means of access to elevator machine rooms shall be of a permanent nature and shall be constructed and maintained in a clear and unobstructed manner.

**73.9(2)** The elevator machine and control equipment shall be located in a separate room or separated from other equipment by a substantial grill not less than 6 feet high. The grill shall be of a design that will reject a ball 2 inches in diameter. All rooms or enclosures shall have a self-closing and self-locking door.

**73.9(3)** All elevator machine rooms shall be provided with a floor. The floor shall cover the entire area of the machine room and hoistway.

**73.9(4)** Machine room floors shall be kept clean and free of grease and oil. Articles or materials not necessary for the maintenance or operation of the elevator shall not be stored therein. Storage of any equipment or materials in elevator machine rooms other than equipment directly related to elevator operation is prohibited.

**73.9(5)** Lighting in the machine room shall be not less than 10 foot-candles at floor level.

**73.9(6)** Where there is more than one machine in a room, each machine shall have a different number conspicuously marked on it. The controller, disconnecting means and relay panels for each machine shall be conspicuously numbered to correspond to the machine they control.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

**875—73.10(89A) Pits.**

**73.10(1)** All pits shall be kept clean and free of equipment or material not relating to the operation of the elevator. EXCEPTION: sump pumps.

**73.10(2)** Buffers under cars and counterweights shall be permanently fastened to the floor or their supporting beams.

**73.10(3)** All elevators shall have counterweight guards. Guards shall be of unperforated metal of at least the strength of or braced to the equivalent strength of number 14-gauge sheet steel. Guards shall extend from a point not more than 12 inches above the pit floor to a point not less than 7 feet above the pit floor. Where guards are not feasible, warning chains shall be installed on the bottom of the counterweights and shall extend no less than 5 feet below the counterweight. Chains shall be of a number 10 U.S. gauge wire or of equal size. EXCEPTION: When compensating chains or ropes are used, a counterweight guard is not required.

**73.10(4)** Buffers shall be installed where elevator pits are not provided with buffers and where the pit depth will permit. Buffers shall comply with ANSI A17.1, 1971, Section 201.

**73.10(5)** Where the depth of any pit is in excess of 4 feet it shall have a ladder permanently installed. The ladder shall extend not less than 30 inches above the sill of the access door, or hand grips shall be provided to the same height. Ladder shall be of noncombustible material.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

**875—73.11(89A) Counterweights.**

**73.11(1)** Broken or cracked sections of counterweights shall be replaced.

**73.11(2)** Counterweight hanger rods, tie rods or both shall firmly support and secure the counterweight sections in place.

**73.11(3)** Wire ropes extending through counterweights from one stack to another shall be guarded by metal sleeves attached to the wire ropes. Stacks shall not be spaced less than 8 inches apart.

**875—73.12(89A) Car platforms and car slings.**

**73.12(1)** All platforms shall be soundly constructed without cracks or breaks in stringers or frames. All floors shall be free of holes.

**73.12(2)** All car slings shall be soundly constructed and free of cracks or breaks.

**73.12(3)** Where cable sheaves are used on the crosshead, they shall be firmly attached and free of cracks or breaks.

**73.12(4)** All elevators shall have data plates attached to the crosshead.

**73.12(5)** All elevators with automatic leveling, inching or teasing devices shall have a platform guard or an apron. All other elevators shall have warning chains hung within 2 inches of the edge of the platform on the entrance sides. Chains shall be of number 10 U.S. gauge wire or of equal size. Chains shall extend not less than 5 feet below the platform and shall not be spaced more than 4 inches apart.

**73.12(6)** All car slings shall have guide shoes at the top and bottom of the sling. Shoes that are worn to a degree which affect the safe operation of the car shall be repaired or replaced.

**875—73.13(89A) Means of suspension.**

**73.13(1)** Suspension ropes on drum-type machines shall have not less than one turn of the rope on the drum when the car is resting on the fully compressed buffers.

**73.13(2)** Winding drum machines shall not be used unless they are provided with not less than two hoisting ropes. Each counterweight stack shall be provided with not less than two ropes.

**73.13(3)** Tiller cables on cable-operated elevators shall be kept free of breaks.

**73.13(4)** On tiller-cable operations, the cable shall pass through a guiding or stopping device mounted on the car. The cable shall be provided with adjustable stop balls and be provided with means to lock and hold the car at a floor. Stop balls at top and bottom shall be adjusted to automatically stop the car. The tiller cable shall be completely enclosed in the hoistway.

**73.13(5)** All hoisting or counterweight ropes located outside of the hoistway that are exposed shall be covered with a box-type guard. The guard shall be not less than 6 feet high from floor level.

**73.13(6)** Roller chains shall not be used as the suspension means for any conveyance except where specifically allowed by an applicable provision of ASME A17.1.

**73.13(7)** Hoisting ropes for power elevators shall not be less than 3/8 inch in diameter.

**73.13(8)** Hoisting rope fastening means shall be of the socket and babbiting type. Clamps shall not be used.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

**875—73.14(89A) Car safeties and speed governors.**

**73.14(1)** Each elevator suspended by ropes shall be provided with mechanically applied car safeties which shall be capable of stopping and sustaining its rated load.

**73.14(2)** Broken rope or slack rope safeties may be allowed if the car speed is not in excess of 50 FPM.

**73.14(3)** Elevators which are provided solely with broken rope or slack rope safeties shall not be used for passenger service. EXCEPTION: Handicapped restricted use elevators.

**73.14(4)** All safeties shall be adjusted so that clearances from the rail shall be in accordance with ANSI A17.1, 1971, Rule 1001.2.

**73.14(5)** All slack cable safeties shall be provided with an electrical switch which disconnects power to the elevator machine and brake when setting of the safeties occurs.

**73.14(6)** All safeties operated by a speed governor shall be provided with a speed switch operated by the governor when used with type B or C car safeties on elevators having a rated speed exceeding 150 FPM. A switch shall be provided on the speed governor when used with a counterweight safety for any car speed.

**73.14(7)** Speed governors shall have their means of speed adjustment sealed.

**73.14(8)** For hoistways not extending to the lowest floor and where space below the hoistway is used for a passageway or is occupied by persons, or if unoccupied but not secured against unauthorized access, the counterweights of the elevator shall be provided with safeties. Safeties shall be tripped by a

speed governor if the car speed is in excess of 150 FPM. Speed governors shall be set to trip above the car governor tripping speed but not more than 10 percent greater.

**73.14(9)** Access to a governor that is located inside a hoistway shall be provided in accordance with ASME A17.1-2007, Rule 2.7.6.3.4.

[ARC 7840B, IAB 6/17/09, effective 7/22/09; ARC 8760B, IAB 5/19/10, effective 6/23/10]

#### **875—73.15(89A) Guide rails.**

**73.15(1)** All guide rails and brackets whether of wood or steel shall be firmly and securely anchored or bolted in place. Where T rail is used, all fish-plate bolts shall be tight. This shall comply with ANSI A17.1, 1981, Section 200.

**73.15(2)** Where guide rails which are worn to such a point that proper clearance of safety jaws cannot be maintained, the worn sections shall be replaced to achieve clearances as specified in ANSI A17.1, 1971, Rule 1001.2.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

#### **875—73.16(89A) Existing hydraulic elevators.**

**73.16(1)** Cylinders of hydraulic-elevator machines shall be provided with a means for releasing air or other gas.

**73.16(2)** Each pump or group of pumps shall be equipped with a relief valve conforming to the following requirements:

*a. Type and location.* The relief valve shall be located between the pump and the check valve and shall be of such a type and so installed in the bypass connection that the valve cannot be shut off from the hydraulic system.

*b. Setting.* The relief valve shall be preset to open at a pressure not greater than that necessary to maintain 125 percent of working pressure.

*c. Size.* The size of the relief valve and bypass shall be sufficient to pass the maximum rated capacity of the pump without raising the pressure more than 20 percent above that at which the valve opens. Two or more relief valves may be used to obtain the required capacity.

*d. Sealing.* Relief valves having exposed pressure adjustments, if used, shall have their means of adjustment sealed after being set to the correct pressure.

EXCEPTION: No relief valve is required for centrifugal pumps driven by induction motors, provided the shut-off, or maximum pressure which the pump can develop, is not greater than 135 percent of the working pressure at the pump.

**73.16(3)** Storage and discharge tanks shall be covered and suitably vented to the atmosphere.

**73.16(4)** Hydraulic elevators shall be governed by the rules contained in Chapter 73 that apply to electric elevators except the following rules which are exempt: 73.5, 73.6(3), 73.7(2), 73.7(4), 73.7(7), 73.9(9), 73.10(3), 73.11, 73.13, and 73.14.

**73.16(5)** Rescinded IAB 3/7/01, effective 4/11/01.

#### **875—73.17(89A) Existing sidewalk elevators.**

**73.17(1)** Hoistways shall be permanently enclosed. The enclosures shall conform to ANSI A17.1, 1971, Rule 401.1.

**73.17(2)** All interior landings shall have a door or gate which shall be provided with an interlock.

**73.17(3)** Doors opening in sidewalks or other areas exterior to the building shall be of the hinged type. Doors or covers shall be designed to hold a static load of 300 pounds per square foot. Doors shall always be closed unless elevator is at the landing.

**73.17(4)** Stops shall be provided to prevent the cover in the opening of the sidewalk from opening more than 90 degrees from its closed position.

**73.17(5)** Covers in sidewalk shall be designed to close when the car descends from the top landing.

**73.17(6)** Recesses or guides which will securely hold the cover in place on the car stanchions shall be provided on the underside of the cover.

**73.17(7)** All electrical wiring shall be enclosed in metal conduit, flexible conduit or metal raceways. If hoistway opens in the sidewalk, the wiring shall be weatherproof.



**73.17(8)** Operating devices and control equipment shall comply with ANSI A17.1, 1971, Rule 402.4.

**73.17(9)** All electric sidewalk elevators shall have upper and lower final limit switches. Open-type switches shall not be allowed.

**73.17(10)** Cars shall have enclosures which shall be not less than 6 feet in height provided the stanchions and bow iron are of sufficient height. The enclosure shall be provided with electric contacts to prevent the car from running with doors or gates open.

**73.17(11)** Cars shall have safeties. Where the speed of the elevator does not exceed 50 FPM, car safeties which operate as a result of breaking or slackening of the hoisting ropes may be used. Such safeties may be of the inertia type or approved type without governors. Governors shall not be required when car speed does not exceed 50 FPM.

**73.17(12)** Car enclosures and car gates shall not be required for hand-powered sidewalk elevators.

**73.17(13)** Rescinded IAB 3/7/01, effective 4/11/01.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

#### **875—73.18(89A) Existing hand elevators.**

**73.18(1)** Hand-powered elevators shall have hoistway doors. Doors shall be of the self-closing and self-locking type.

**73.18(2)** A sign reading “Danger—Elevator Hoistway—Keep Closed” shall be mounted on each hoistway door. The letters on the signs shall be legible, shall be at least 2 inches high, and shall contrast with the background color.

**73.18(3)** All hand-powered elevators shall be provided with safeties or slack cable devices. Safeties do not have to be operated by a speed governor unless the speed is in excess of 50 FPM.

**73.18(4)** Hand-powered elevators shall have a car enclosure which shall be constructed of metal or sound seasoned wood. The enclosure shall cover all sides which are not used for entrance or exit. The enclosure shall be secured to the car platform or frame in such a manner that it cannot work loose or become displaced in ordinary service.

**73.18(5)** Each hand-powered elevator shall be provided with a brake which shall be capable of stopping and sustaining the car whether loaded or unloaded.

**73.18(6)** Hand-powered elevators shall not be converted or changed to electric powered unless the complete conveyance is brought into conformity with 875—Chapter 72.

**73.18(7)** Rescinded IAB 3/7/01, effective 4/11/01.

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

#### **875—73.19(89A) Power-operated special purpose elevators.**

**73.19(1)** Elevators complying with the following requirements may be installed in any structure where the elevator is not accessible to the general public, is used exclusively for designated operating and maintenance employees only, and where transportation of one or two persons is required to attend machinery or equipment frequently.

**73.19(2)** The inside platform area of the car shall not exceed 9 square feet. The rated speed shall not exceed 100 FPM. The rated load shall not exceed 650 pounds.

**73.19(3)** Hoistways shall be enclosed to their full width, to a height of not less than 7 feet with solid or perforated noncombustible material braced to deflect not more than 1 inch when subjected to a force of 100 pounds applied horizontally at any point. Open work enclosures shall be at least number 13 steel wire gauge or expanded metal at least number 13 U.S. gauge and shall reject a ball 2 inches in diameter. Where counterweights pass, landing and stairway side shall be of solid construction.

**73.19(4)** Wiring shall comply with the requirements of the National Electrical Code, ANSI C1-1975 (NFPA 70-1975).

**73.19(5)** Counterweights shall comply with rule 875—73.11(89A).

**73.19(6)** Hoistway doors shall comply with subrules 73.2(1), 73.2(7) and 73.2(11).

**73.19(7)** Cars shall be solidly constructed in accordance with subrules 73.12(1) and 73.12(2).

**73.19(8)** Car enclosure.

a. Except at the entrance, the car shall be enclosed on all sides and the top. The enclosure at the sides shall be solid or openwork. All openwork shall reject a ball 1 inch in diameter. The enclosure shall be constructed of sufficient strength that it will not deflect more than 1 inch at any one point.

b. There shall be an electric light to illuminate the car or hoistway with the switch placed on or near the operating panel.

c. There shall be no glass used in the elevator car except for the car light.

**73.19(9)** A car door shall be provided at each car entrance. Door or gate shall guard the complete entrance. The door or gate shall be at least 7 feet high, of metal construction with solid or open construction to reject a ball 1 inch in diameter. A contact switch shall be provided to prevent the operation of the elevator with doors or gates open. The door or gate shall be provided with interlocks.

**73.19(10)** Guide rails shall comply with rule 875—73.15(89A).

**73.19(11)** The means and methods of suspension shall comply with subrules 73.13(1), 73.13(5), 73.13(6), 73.13(7), and 73.13(8).

**73.19(12)** Electrical switches shall comply with subrules 73.7(2) and 73.7(9).

**73.19(13)** Brakes shall comply with rule 875—73.5(89A).

**73.19(14)** Emergency signal or communication shall comply with subrule 73.3(11).

[ARC 7840B, IAB 6/17/09, effective 7/22/09]

**875—73.20(89A) Inclined and vertical wheelchair lifts.** All vertical and inclined wheelchair lifts shall conform to ANSI A17.1 (1981), part XX, sections 2000 and 2001.

**875—73.21(89A) Handicapped restricted use elevators.** All handicapped restricted use elevators must meet ANSI A17.1 (1981), Part V. Additionally, the elevators shall comply with the following limitations:

1. The elevator shall be used only by a maximum of one disabled person and one attendant at a time. Where a disabled individual cannot operate the elevator in a manner which will ensure access to all operating controls and safety features, an attendant shall accompany the disabled individual.

2. The elevator shall be key-operated and shall not be capable of being called by buttons or switches but may be called by a key operator.

3. Keys to operate the elevator shall be in the control of the disabled person, the attendant or persons in positions of responsibility at the location.

4. A list shall be maintained at the location indicating the persons holding keys for the operation of the elevator.

5. Each landing and the elevator car shall be posted to indicate that the elevator is only for the use of disabled persons.

6. The travel distance of the elevator shall not exceed 50 feet.

[ARC 7840B, IAB 6/17/09, effective 7/22/09; ARC 1971C, IAB 4/29/15, effective 6/3/15]

**875—73.22(89A) Escalators.**

**73.22(1)** Each escalator shall be provided with an electrically released mechanically applied brake capable of stopping the up and down traveling escalator with any load up to and including the rated load. The brake shall be located either on the driving machine or on the main drive shaft.

**73.22(2)** Starting switches shall be of the key-operated type. Starting switches shall be located on or near the escalator.

**73.22(3)** Emergency stop buttons or other type manually operated switches having red buttons or handles shall be accessibly located at or near the bottom and top landings. The buttons or levers shall be protected to prevent accidental operation.

**73.22(4)** A broken step-chain device shall be provided on each escalator that will cause interruption of power to the driving machine if a step chain breaks or if excessive sag occurs in either step chain.

**73.22(5)** Each escalator shall have comb plates at top and bottom landings of the escalator. Comb-plate teeth shall be meshed with and set into slots in the tread surface of the steps so that the points of the teeth are always below the upper surface of the treads.

**73.22(6)** Each escalator balustrade or moulding on the balustrade shall have a smooth surface. Screwheads shall set flush with the surface or be of the oval head type without any burrs or rough places on their surface.

**73.22(7)** The clearance on either side of the steps between the step tread and the adjacent skirt panel shall be not more than 3/16 inch.

**73.22(8)** Step treads shall be illuminated throughout their run. The light intensity shall be not less than 2 foot-candles.

**73.22(9)** An enclosed fused disconnect switch or circuit breaker arranged to disconnect the power supply to the escalator shall be in each machine room or wherever the controller is located.

**73.22(10)** A stop switch shall be provided in each machinery space where means of access to the space is provided. The switch when opened shall cause electric power to be removed from the escalator driving-machine motor and brake. The switch shall be of the manually opened and closed type and shall be marked "STOP".

**73.22(11)** Hand or finger guards shall be provided at the point where the handrail enters the balustrade.

**73.22(12)** Where the clearance of the upper outside edge of the balustrade and a ceiling or scaffold is less than 12 inches or where the intersection of the outside balustrade and a ceiling or soffit is less than 24 inches from the centerline of the handrail, a solid guard shall be provided in the intersection of the angle of the outside balustrade and the ceiling or soffit. The vertical front edge of the guard shall project a minimum of 14 inches horizontally from the apex of the angle. The escalator side of the vertical face of the guard shall be flush with the face of the wellway. The exposed edge of the guard shall be rounded.

This rule is intended to implement Iowa Code chapter 89A.

**875—73.23(89A) Moving walks.** Rescinded IAB 6/17/09, effective 7/22/09.

**875—73.24(89A) Dumbwaiters.** All dumbwaiters whether electric or hand powered shall conform to ANSI A17.1, 1971, section 700. Exceptions: Required rules for hoistway construction as set forth in ANSI A17.1, 1971, shall not apply to existing installations.

**875—73.25(89A) Sprinkler retrofits and shunt trip breakers.** Rescinded IAB 6/17/09, effective 7/22/09.

**875—73.26(89A) Safety bulkheads.** Rescinded IAB 6/17/09, effective 7/22/09.

**875—73.27(89A) Child safety guards.** Unless the car door on a passenger elevator consists of a solid panel, the following criteria shall be met:

**73.27(1)** A multipoint light curtain shall be installed between the car door and the edge of the car platform.

**73.27(2)** A second multipoint light curtain shall be installed at the hoistway opening of each floor where a gap of more than 5 inches exists between the car light curtain and the hoistway door.

**73.27(3)** Each light curtain required by this rule must deactivate the elevator if the light curtain does not function or if the light curtain is obstructed by an object larger than a 4-inch ball.

[ARC 1972C, IAB 4/29/15, effective 6/3/15]

These rules are intended to implement Iowa Code chapter 89A.

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