

CHAPTER 30

ELEVATORS AND CONVEYING SYSTEMS

SECTION 3001 GENERAL

3001.1 Scope. This chapter governs the design, construction, installation, alteration and repair of elevators and conveying systems and their components.

Note: Other administrative and programmatic provisions may apply. See the Department of Business and Professional Regulation [DBPR] Chapter 399, *Florida Statutes*, and 61C-5, *Florida Administrative Code*. The regulation and enforcement of the following sections of the adopted codes, and their addenda, are preempted to the Bureau of Elevator Safety of the Department of Business and Professional Regulation: ASME A 17.1, Part 8, ASME A17.3, Sections 1.2, 1.5, ASME A 18.1, Part 10.

3001.2 Referenced standards. Except as otherwise provided for in this code, the design, construction, installation, alteration, repair and maintenance of elevators and conveying systems and their components shall conform to ASME A17.1, ASME A17.1S, ASME A90.1, ASME B20.1, ALI ALCTV, ASME A17.3 and ASME A18.1.

The Division of Hotels and Restaurants may grant exceptions, variances and waivers to the *Elevator Safety Code* as authorized by the *Elevator Safety Code*. (ASME A 17.1, Section 1.2) and Florida Statutes (Chapter 120.)

3001.3 Accessibility. Passenger elevators required to be accessible by Chapter 11.

3001.4 Change in use. A change in use of an elevator from freight to passenger, passenger to freight, or from one freight class to another freight class shall comply with Part XII of ASME A17.1.

3001.5 Design, installation and alteration of elevators.

1. Each elevator shall comply with the *Elevator Safety Code* that was in effect at the time of receipt of application for the construction permit for the elevator.
2. Each alteration to, or relocation of, an elevator shall comply with the *Elevator Safety Code* that was in effect at the time of receipt of the application for the construction permit for the alteration or relocation.

3001.6 As used in this chapter, the term:

ALTERATION. Any change or addition to the vertical conveyance other than maintenance, repair or replacement.

CERTIFICATE OF OPERATION means a document issued by the department which indicates that the conveyance has had the required safety inspection and tests and that fees have been paid as provided in Chapter 399, FS.

CONVEYANCE. An elevator, dumbwaiter, escalator, moving sidewalk, platform lift and stairway chairlift.

DEPARTMENT. For the purpose of this section, means the Department of Business and Professional Regulation.

DIVISION. For the purpose of this section, means the Division of Hotels and Restaurants of the Department of Business and Professional Regulation.

ELEVATOR. One of the following mechanical devices:

- (a) A hoisting and lowering mechanism, equipped with a car and platform that moves in guide rails and serves two or more landings to transport material or passengers or both.
- (b) An escalator, which is a power-driven, inclined continuous stairway used for raising or lowering passengers.
- (c) A dumbwaiter, which is a hoisting and lowering mechanism equipped with a car of limited size which moves in guide rails and serves two or more landings.
- (d) A moving walk, which is a type of passenger-carrying device on which passengers stand or walk and in which the passenger-carrying surface remains parallel to its direction of motion and is uninterrupted.
- (e) An inclined stairway chairlift, which is a device used to transport physically handicapped persons over architectural barriers.
- (f) An inclined or vertical wheelchair lift, which is a device used to transport wheelchair handicapped persons over architectural barriers.

Exceptions:

Personnel hoists and material hoists within the scope of ASME A10.

Man lifts within the scope of ASME A90.1.

Mobile scaffolds, towers and platforms within the scope of ANSI A92.

Powered platforms and equipment for exterior and interior maintenance within the scope of ASME A120.1.

Conveyors and related equipment within the scope of ASME B20.1.

Cranes, derricks, hoists, hooks, jacks and slings within the scope of ASME B30.

Industrial trucks within the scope of ASME B56.

Portable equipment, except for portable escalators that are covered by this code.

Tiered or piling machines used to move materials to and from storage located and operating entirely within one story.

Equipment for feeding or positioning materials at machine tools and printing presses.

Skip or furnace hoists.

Wharf ramps.

Railroad car lifts or dumpers.

Line jacks, false cars, shafters, moving platforms and similar equipment used for installing an elevator by a contractor licensed in this state.

Automated people movers at airports.

Elevators in television and radio towers.

Hand-operated dumbwaiters.

Sewage pump station lifts.

Automobile parking lifts.

Equipment covered in Section 1.1.2 of the *Elevator Safety Code*.

Elevators, inclined stairway chairlifts and inclined or vertical wheelchair lifts located in private residences.

ESCALATOR. An installation defined as an escalator in the *Florida Building Code*.

EXISTING INSTALLATION. An installation defined as an “installation, existing” in the *Florida Building Code*.

PRIVATE RESIDENCE. A separate dwelling or a separate apartment in a multiple dwelling which is occupied by members of a single family.

SECTION 3002 HOISTWAY ENCLOSURES

3002.1 Hoistway enclosure protection. Elevator, dumbwaiter and other hoistway enclosures shall be shaft enclosures complying with Section 707.

3002.1.1 Opening protectives. Openings in hoistway enclosures shall be protected as required in Chapter 7.

Exception: The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I Emergency Recall Operation.

3002.1.2 Hardware. Hardware on opening protectives shall be of an approved type installed as tested, except that approved interlocks, mechanical locks and electric contacts, door and gate electric contacts and door-operating mechanisms shall be exempt from the fire test requirements.

3002.2 Number of elevator cars in a hoistway. Where four or more elevator cars serve all or the same portion of a building, the elevators shall be located in at least two separate hoistways. Not more than four elevator cars shall be located in any single hoistway enclosure.

3002.3 Emergency signs. An approved pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the exit stairways and not to use the elevators in case of fire. The sign shall read: IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS. The emergency sign shall not be required for elevators that are part of an accessible means of egress complying with Section 1007.4.

3002.4 Elevator car to accommodate ambulance stretcher.

Where elevators are provided in buildings four or more stories above grade plane or four or more stories below grade plane, at least one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate a 24-inch by 84-inch (610 mm by 2250 mm) ambulance stretcher in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than 3 inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame.

3002.5 Emergency doors. Where an elevator is installed in a single blind hoistway or on the outside of a building, there shall be installed in the blind portion of the hoistway or blank face of the building, an emergency door in accordance with ASME A17.1.

3002.6 Prohibited doors. Doors, other than hoistway doors and the elevator car door, shall be prohibited at the point of access to an elevator car unless such doors are readily openable from the car side without a key, tool, special knowledge or effort.

3002.7 Common enclosure with stairway. Elevators shall not be in a common shaft enclosure with a stairway.

3002.8 Glass in elevator enclosures. Glass in elevator enclosures shall comply with Section 2409.1.

3002.9 Automatic fire alarm initiating devices shall be located and installed in accordance with ASME A 17.1 and NFPA 72.

[F] SECTION 3003 EMERGENCY OPERATIONS

[F] 3003.1 Standby power. In buildings and structures where standby power is required or furnished to operate an elevator, the operation shall be in accordance with Sections 3003.1.1 through 3003.1.4.

[F] 3003.1.1 Manual transfer. Standby power shall be manually transferable to all elevators in each bank.

[F] 3003.1.2 One elevator. Where only one elevator is installed, the elevator shall automatically transfer to standby power within 60 seconds after failure of normal power.

[F] 3003.1.3 Two or more elevators. Where two or more elevators are controlled by a common operating system, all elevators shall automatically transfer to standby power within 60 seconds after failure of normal power where the standby power source is of sufficient capacity to operate all elevators at the same time. Where the standby power source is not of sufficient capacity to operate all elevators at the same time, all elevators shall transfer to standby power in sequence, return to the designated landing and disconnect from the standby power source. After all elevators have been returned to the designated level, at least one elevator shall remain operable from the standby power source.

[F] 3003.1.4 Venting. Where standby power is connected to elevators, the machine room ventilation or air conditioning shall be connected to the standby power source.

[F] 3003.2 Fire-fighters' emergency operation. Elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1.

SECTION 3004 HOISTWAY VENTING

3004.1 Vents required. Hoistways of elevators and dumbwaiters penetrating more than three stories shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.

Exceptions:

1. In occupancies of other than Groups R-1, R-2, I-1, I-2 and similar occupancies with overnight sleeping quarters, venting of hoistways is not required where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Sidewalk elevator hoistways are not required to be vented.

3004.2 Location of vents. Vents shall be located at the top of the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air. Noncombustible ducts shall be permitted to pass through the elevator machine room, provided that portions of the ducts located outside the hoistway or machine room are enclosed by construction having not less than the fire protection rating required for the hoistway. Holes in the machine room floors for the passage of ropes, cables or other moving elevator equipment shall be limited so as not to provide greater than 2 inches (51 mm) of clearance on all sides.

3004.3 Area of vents. Except as provided for in Section 3004.3.1, the area of the vents shall not be less than 3¹/₂ percent of the area of the hoistway nor less than 3 square feet (0.28 m²) for each elevator car, and not less than 3¹/₂ percent nor less than 0.5 square feet (0.047 m²) for each dumbwaiter car in the hoistway, whichever is greater. Of the total required vent area, not less than one-third shall be permanently open. Closed portions of the required vent area shall consist of openings glazed with annealed glass not greater than 0.125 inch (3.2 mm) in thickness.

Exception: The total required vent area shall not be required to be permanently open where all the vent openings automatically open upon detection of smoke in the elevator lobbies or hoistway, upon power failure and upon activation of a manual override control.

3004.3.1 Reduced vent area. Where mechanical ventilation conforming to the *Florida Building Code, Mechanical* is provided, a reduction in the required vent area is allowed provided that all of the following conditions are met:

1. The occupancy is not in Group R-1, R-2, I-1 or I-2 or of a similar occupancy with overnight sleeping quarters.

2. The vents required by Section 3004.2 do not have outside exposure.
3. The hoistway does not extend to the top of the building.
4. The hoistway and machine room exhaust fan is automatically reactivated by thermostatic means.
5. Equivalent venting of the hoistway is accomplished.

3004.4 Plumbing and mechanical systems. Plumbing and mechanical systems shall not be located in an elevator shaft.

Exception: Floor drains, sumps and sump pumps shall be permitted at the base of the shaft provided they are indirectly connected to the plumbing system.

SECTION 3005 CONVEYING SYSTEMS

3005.1 General. Escalators, moving walks, conveyors, personnel hoists and material hoists shall comply with the provisions of this section.

3005.2 Escalators and moving walks. Escalators and moving walks shall be constructed of approved noncombustible and fire-retardant materials. This requirement shall not apply to electrical equipment, wiring, wheels, handrails and the use of 1/28-inch (0.9 mm) wood veneers on balustrades backed up with noncombustible materials.

3005.2.1 Enclosure. Escalator floor openings shall be enclosed with shaft enclosures complying with Section 707.

3005.2.2 Escalators. Where provided in below-grade transportation stations, escalators shall have a clear width of 32 inches (815 mm) minimum.

Exception: The clear width is not required in existing facilities undergoing alterations.

3005.3 Conveyors. Conveyors and conveying systems shall comply with ASME B20.1.

3005.3.1 Enclosure. Conveyors and related equipment connecting successive floors or levels shall be enclosed with shaft enclosures complying with Section 707.

3005.3.2 Conveyor safeties. Power-operated conveyors, belts and other material-moving devices shall be equipped with automatic limit switches which will shut off the power in an emergency and automatically stop all operation of the device.

3005.4 Personnel and material hoists. Personnel and material hoists shall be designed utilizing an approved method that accounts for the conditions imposed during the intended operation of the hoist device. The design shall include, but is not limited to, anticipated loads, structural stability, impact, vibration, stresses and seismic restraint. The design shall account for the construction, installation, operation and inspection of the hoist tower, car, machinery and control equipment, guide members and hoisting mechanism. Additionally, the design of personnel hoists shall include provisions for field testing and maintenance which will demonstrate that the hoist device functions in accordance with the design. Field tests shall be conducted upon

the completion of an installation or following a major alteration of a personnel hoist.

SECTION 3006 MACHINE ROOMS

3006.1 Access. An approved means of access shall be provided to elevator machine rooms and overhead machinery spaces.

3006.2 Venting. Elevator machine rooms that contain solid-state equipment for elevator operation shall be provided with an independent ventilation or air-conditioning system to protect against the overheating of the electrical equipment. The system shall be capable of maintaining temperatures within the range established for the elevator equipment.

3006.3 Pressurization. The elevator machine room serving a pressurized elevator hoistway shall be pressurized upon activation of a heat or smoke detector located in the elevator machine room.

3006.4 Machine rooms and machinery spaces. Elevator machine rooms and machinery spaces shall be enclosed with fire barriers complying with Section 706 or horizontal assemblies complying with Section 711 having a fire-resistance rating not less than the required rating of the hoistway enclosure served by the machinery. Openings shall be protected with assemblies having a fire-protection rating not less than that required for the hoistway enclosure doors.

3006.5 Shunt trip. Where elevator hoistways or elevator machine rooms containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 3-9.4, Elevator Shutdown, shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of sprinklers outside the hoistway or machine room shall not disconnect the main line power supply.

3006.6 Plumbing systems. Plumbing systems shall not be located in elevator equipment rooms.

SECTION 3007 ELEVATOR ACCESSIBILITY REQUIREMENTS FOR THE PHYSICALLY HANDICAPPED

3007.1 Each elevator must be made accessible to physically handicapped persons with the following requirements:

1. In a building having any elevators that do not provide access to every floor level, elevator hallway call buttons on all main levels of ingress and on any floor that is commonly served by more than one group of elevators must be marked with Arabic numerals and braille symbols that indicate floor levels to which access is provided. The symbols must be placed directly above each call button.
2. Each elevator car interior must have a support rail on at least one wall. All support rails must be smooth and have no sharp edges and must not be more than 1½ inches (38 mm) thick or 2½ inches (63 mm) in diameter. Support rails must be continuous and a minimum length of 42 inches (1067 mm) overall.

The inside surface of support rails must be 1½ inches (38 mm) clear of the car wall. The distance from the top of the support rail to the finished car floor must be at least 31 inches (787 mm) and not more than 33 inches (838 mm). Padded or tufted material or decorative materials such as wallpaper, vinyl, cloth or the like may be not be used on support rails.

3. A bench or seat may be installed on the rear wall of the elevator car enclosure, if the bench or seat does not protrude beyond the vertical plane of the elevator car enclosure wall when folded into a recess provided for the bench or seat and, when not in use, the bench or seat automatically folds into the recess. The bench or seat must be capable of supporting a live load of at least 250 pounds (113.4 kg) on any 12-inch by 12-inch (305 mm by 305 mm) area. A padded, tufted or other decorative material may not be used to cover the bench or seat; nor may the bench or seat encroach on the minimum clear inside-car dimensions specified in this section.

This section applies only to elevators available for the transportation of the public. This section does not apply to elevators restricted by key or similar device to a limited number of persons in a building that has an elevator that otherwise meets the requirements of this section or to elevators used only for the transportation of freight. However, elevators that are used as freight and passenger elevators for the public and employees must comply with this section. This section does not apply to dumbwaiters or escalators.

This section supersedes all other state regulations and local ordinances and rules affecting the accessibility of passenger elevators to the physically handicapped, and the standards established by this section may not be modified by municipal or county ordinance.

SECTION 3008 SERIAL NUMBERS

3008.1 Serial numbers. Each elevator shall have a serial number assigned by the division painted on or attached to the elevator car in plain view and also to the driving mechanism. This serial number shall be shown on all required certificates and permits.

1. Certificates of operation must be posted in a conspicuous location in the elevator and shall contain the text of Section 823.12, *Florida Statutes* relating to the prohibition against smoking in elevators. The certificate must be framed with a transparent cover.
2. In addition to Item 3, the designation “NO SMOKING” along with the international symbol for no smoking shall be conspicuously displayed within the interior of the elevator in the plain view of the public.
3. The following rules of ASME A17.1, are hereby amended to read as follows:
 - a. Rule 2.29.1 is to have the following sentence added at the end of this rule: Each car in a multi-car group shall be sequentially identified from left to right, as viewed from the elevator lobby.

- b. Rule 2.7.3.1 of ASME A17.1, which is amended to read as follows: “Rule 2.7.3.1 General Requirements. A permanent, safe and convenient means of access to elevator machine rooms and overhead machinery spaces shall be provided for authorized persons. The key to the machine rooms and overhead machinery spaces shall be kept on the premises at all times and readily available for use by State of Florida certified Elevator Inspectors.”
- c. Rule 2.27.8, Switch Keys, of ASME A17.1, is amended to read as follows: “The switches required by Rule 211.2 through 211.5, for all elevators in a building, must be operable by the same keys. This key must not be part of a building master key system. There must be a key for the designated level switch and for each elevator in the group. These keys must be kept on the premises at all times in a location readily accessible to authorized personnel, and state elevator inspectors, but not where the key is available to the general public. NOTE: (RULE 2.27.8): Local authorities may specify a uniform keyed lock box to contain the necessary keys.”
- d. Rule 6.1.6.1, Starting Switch, of ASME A17.1, is amended to read as follows: “Starting switches must be of the key-operated type and must be located so that the escalator steps are within sight. Automatic starting by any means is prohibited. The key for the starting switches must be kept on the premises at all times in a location readily available to authorized personnel and state elevator inspectors, but not where the key is available to the general public.”
- e. Rule 2.2.2.4 Drains connected directly to sewers shall not be installed in elevator pits. Where drains are not provided to prevent the accumulation of water, a sump of adequate size and depth to accommodate a pump shall be provided, with or without a pump.

**SECTION 3009
ELECTROLYSIS PROTECTION FOR
UNDERGROUND HYDRAULIC ELEVATOR
CYLINDERS**

3009.1 Electrolysis protection for underground hydraulic elevator cylinders. All newly installed underground hydraulic pressure cylinders shall be encased in outer plastic containment to minimize electrolytic corrosion between the metal cylinder and ground cathode.

- 1. The plastic casing shall be capped at the bottom, and all joints must be solvent or heat welded to ensure water tightness.
- 2. The plastic casing shall be constructed of polyethylene or polyvinyl chloride (PVC). The plastic pipe wall thickness must not be less than 0.125 inch (3.175 mm).
- 3. The neck of the plastic casing shall have a means of inspection provided to monitor the annulus between the pressurized hydraulic cylinder and the protective plastic casing.

- 4. Replacements of existing hydraulic cylinders shall be protected by the aforementioned method where existing physical dimensions permit.

**SECTION 3010
BULLETIN BOARDS**

3010.1 Bulletin boards.

- 1. Bulletin boards and frames used in elevator cars shall not create any conditions which will be unsafe for users of the elevator car. Users shall include:
 - A. Disabled persons;
 - B. Persons confined to wheelchairs; and
 - C. All other persons who may operate the elevator car in its normal course of use.
- 2. Bulletin boards shall not protrude more than 1 inch (25.4 mm) beyond the vertical line of the car wall. They shall not encroach on any clearances required to be maintained in the elevator by Chapter 399, Florida Statutes, and ASME A17.1.
- 3. Bulletin boards shall be framed and all edges must be smooth and rounded. No sharp edges of any kind shall protrude.
- 4. A glass or plastic cover shall be provided. Glass, if used, must meet the following requirements:
 - A. Be laminated;
 - B. Meet the requirement for laminated glass as set forth in ANSI Z97.1;
 - C. The cover shall be securely held in place by the frame.
- 5. The frame and bulletin board shall be permanently fastened to the car wall in such a manner that all parts including the cover in place will withstand any and all tests required of the elevator.
- 6. All materials used shall be fire resistive equal to the requirements of the cab enclosure.
- 7. The bottom of the bulletin boards shall not be less than 5 feet (1524 mm) above the cab floor, and the total area shall not exceed 4 square feet (0.37 m²).

**SECTION 3011
ALTERATIONS TO ELECTRIC AND HYDRAULIC
ELEVATORS AND ESCALATORS**

3011.1 Alterations to electric and hydraulic elevators and escalators.

- 1. In addition to the alterations set forth in Rule 8.10.3.3.2 and Rule 8.10.2.3.2 ASME A17.1, the following alterations require, in addition to a construction permit, that inspections and tests be performed to determine conformance with ASME A17.1, rules cited below:

ALTERATIONS	Electric Elevators	Hydraulic Elevators
(a) Addition of elevator to existing hoistway (new installation)	8.7.2.1.2	8.7.2.1.2

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(b) Brake (replacements of existing drive, machine brake by a new brake)	2.24	—
(c) Buffer (addition of oil buffer)	9.7.2.23	8.7.2.27
(d) Driving machine (replacement of)	8.7.2.25.1	8.7.3.23
(e) Freight elevator converted to passenger service	8.7.2.16.1	8.7.3.27
(f) Rope, replacement in size or number of ropes	8.6.2.5	8.6.2.5
(g) Sheave, driving machine (replacement in size)	8.7.2.25.1	8.7.2.25.1

2. The following alterations require, in addition to a construction permit, that inspections be performed to determine conformance with ASME A17.1, rule cited below:

ALTERATIONS	Electric Elevators	Hydraulic Elevators
(a) Access Switch (addition of)	8.7.2.11.4, 8.7.7.2	8.7.3.11, 8.7.7.2
(b) Automatic transfer device (addition of)		8.7.3.13

(c) Car, door or gate (addition of car door or gate electric contacts)	8.7.2.14	
(d) Car enclosure	8.7.2.14	8.7.3.13
(e) Car leveling device (addition of) and (trucking device)	8.7.2.27.2	8.7.3.31.2
(f) Control	8.7.2.27.5	8.7.3.31.6
(g) Control equipment	8.7.2.27	8.7.3.31
(h) Controller (existing controller w/new) (excluding dispatching device)	8.7.2.27.4	8.7.3.31.5
(i) Counterweight (change of)	8.7.3.23	8.7.3.26
(j) Increase in travel (or decrease)	8.7.2.17.1	8.7.3.22.1
(k) Door, hoistway (replacement of all hoistway doors)	8.7.2.10	8.7.3.10
(l) Escalator, relocation of	8.7.6.1	—
(m) Escalator, skirt (switches addition of safety device)	6.1.6	—
(n) Freight elevator permitted to carry passengers	8.7.2.16.3	8.7.3.19
(o) Guide rails (change in type or size)	8.7.2.24	8.7.3.28
(p) Hoistway door, power operation of (addition of)	8.7.2.12	8.7.3.12
(q) Hoistway door locking device (addition of)	8.7.2.11	8.7.3.11
(r) Operation, change in type of	8.7.2.27.6	8.7.3.31.7
(s) Platform, car (complete replacement of)	8.7.2.15.1	8.7.3.14
(t) Roller guide shoe, counter-weight and car (addition of)	8.7.2.22	8.7.2.22
(u) Rope equalizer (addition of)	8.7.2.21.2	8.7.3.25.2
(v) Rope fastening device, auxiliary (addition of)	8.7.2.21.3	8.7.2.21.3
(w) Tank (replacement of) (with different capacity)	—	8.7.3.29
(x) Top of car operating device (addition of)	8.7.2.27.1	8.7.3.31.1

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