

524 CMR: BOARD OF ELEVATOR REGULATIONS

524 CMR 35.00: SAFETY CODE FOR ELEVATORS AND ESCALATORS A17.1-2013 AND THE MASSACHUSETTS MODIFICATIONS OF THAT CODE

Massachusetts incorporates by reference ASME A17.1-2013/CSA B44-13: *Safety Code for Elevators and Escalators* with the following modifications for new and existing elevators regulated by 524 CMR and where permissible construction, installation, relocation, alteration, replacement, decommissioning or classification change is proposed.

CSA B44.1-14/ASME A17.5-2014: *Elevator and Escalator Electrical Equipment*, ASME A17.6-2010: *Standard for Elevator Suspension, Compensation, and Governor Systems*, and other Referenced Standards identified in ASME A17.1-2013/CSA B44-13: *Safety Code for Elevators and Escalators*, Section 9 are accepted to the degree that such are not in conflict with express requirements of 524 CMR or the specialized codes as set forth in M.G.L. c. 143, § 96.

524 CMR does not adopt ASME A17.2-2014: *Guide for Inspection of Elevators, Escalators, and Moving Walks*, ASME A17.3-2015: *Safety Code for Existing Elevators and Escalators*, ASME A17.4-2015: *Guide for Emergency Personnel* or ASME A17.7-2007/CSA B44.7-07: *Performance-based Safety Code for Elevators and Escalators*.

PART 1 GENERAL

SECTION 1.1 SCOPE

1.1.2 Equipment Not Covered by This Code

Add a new first paragraph that reads:

Although equipment identified in 1.1.2(a) through (u) is not covered by ASME A17.1-2013/CSA B44-13: *Safety Code for Elevators and Escalators*, 524 CMR addresses the following subject matters: 524 CMR 26.00: *Certain Elevator Equipment Used as Motor Vehicle Parking Devices*; 524 CMR 29.00: *Stage, Orchestra, and Organ Console Elevators*; 524 CMR 31.00: *Casket Lifts Installed in Licensed Funeral Homes, Memorial Chapels, or Preparation Rooms*; 524 CMR 32.00: *Vertical Reciprocating Conveyors*; 524 CMR 36.00: *Personnel Hoists and Employee Elevators on Construction and Demolition Sites*; 524 CMR 37.00: *Safety Requirements for Material Hoists*; and 524 CMR 38.00: *Safety Standards for Platform Lifts and Stairway Chairlifts*.

1.1.3 Application of Parts. Add additional sentence that reads:

Where parts of ASME A17.1-2013/CSA B44-13: *Safety Code for Elevators and Escalators*, other adopted national model codes or referenced standards conflict with specific requirements of 524 CMR, the provisions of 524 CMR shall prevail.

SECTION 1.3 DEFINITIONS

In addition to definitions contained in ASME A17.1-2013/CSA B44-13: *Safety Code for Elevators and Escalators*, Section 1.3 of the following defined terms are to be included. Where any definitional conflict exists, the following definitions shall prevail:

Accident. An incident occurring on or caused by an elevator which results in serious mechanical failure of the elevator, injury or both.

Apron. An enclosure of solid construction to enclose the space between the top of the hoistway enclosure and the underside of the platform when the platform extends above the top of the hoistway enclosure.

Authority Having Jurisdiction. The organization, office or individual responsible for enforcement of 524 CMR. Where compliance with 524 CMR has been mandated by legislation or regulation, the "authority having jurisdiction" is also the regulatory authority.

Board. The Board of Elevator Regulations.

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Chief. The Chief of the Division of Inspections, Elevator of the Office of Public Safety and Inspections.

Commissioner. The Commissioner of the Division of Professional Licensure.

Control Space. *See* control room.

NOTE: Control spaces shall satisfy the requirements for control rooms. The controller and motor controller shall be located in a control room.

Controlled Access Facility. Any facility where the use of facility and access thereto is restricted only to persons leasing or otherwise using space.

Division. The Division of Inspections, Elevator of the Office of Public Safety and Inspections.

Doubled-ended Platform. A lift that is capable of being loaded and unloaded from more than one side of the platform.

Electromechanical Interlock. A device that prevents the operation of the VRC unless all hoistway doors and car gates (when provided) are closed and locked when locking is possible when the lift is away from landing.

Elevator. The term elevator shall include escalators, moving stairways, moving walks, dumbwaiters and material lifts (with or without automatic transfer devices), wheelchair lifts, automatic people movers, vertical reciprocating conveyors, orchestra lifts, car lifts, limited use elevators or limited application elevators, freight elevators, including those subject to St. 1962, c. 288, and other associated devices within the elevator industry, except inclined stair lifts located and installed in residential homes.

Elevator Personnel. A Massachusetts-licensed elevator mechanic.

Final Limit Switch. An electromechanical switch, device or system actuated by position of the car causing the main drive power to be disconnected from the driving machine when the lift reaches floor level or if the lift travels beyond the terminal landings.

Inspector. An elevator inspector employed by the Office.

Minor Injury. Bodily harm which may or may not require first aid or significant treatment, but cannot be otherwise classified as a serious injury.

Moving Stairway. *See* escalator.

Office. The Office of Public Safety and Inspections.

Orchestra Elevator. A platform for raising and lowering musicians of an orchestra in a substantially vertical direction.

Organ Console Elevator. A platform for raising and lowering an organ console, including the organist, in a substantially vertical direction.

Owner. The owner of an elevator or the owner's agent or designee.

Qualified Elevator Inspector (QEI). *See* inspector.

Serious Injury. A personal injury/illness that results in death, dismemberment, significant disfigurement, permanent loss of the use of a body organ, member, function, or system, a compound fracture, or other significant injury/illness.

Serious Mechanical Failure. Events in which the elevator experiences measurable damage, loss of function or both and where safety of the public or workers is potentially at risk.

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Stage Elevator. A platform consisting of a section of the stage arranged to be raised and lowered to or above and below the stage level in a vertical direction.

Travel Limit Switch. A device that mechanically limits the travel of the lift when the platform arrives or travels beyond the terminal landings. This device may be used in conjunction with a final limit device or system.

Vertical Reciprocating Conveyor (VRC). A power driven stationary conveyance permanently installed, and comprised of a car or platform that serves two or more floors or landings and travels in a vertical or inclined direction. It is an isolated self contained lift, and is not part of a mechanized conveyor system.

PART 2 ELECTRIC ELEVATORS

SECTION 2.1 CONSTRUCTION OF HOISTWAYS AND HOISTWAY ENCLOSURES

2.1.3 Floor Over Hoistway.

2.1.3.4 Area to Be Covered by Floor. Delete and replace with:

2.1.3.4 Area to Be Covered by Floor. Where a floor over a hoistway is required by 2.1.3.1, the floor shall extend over the entire area of the hoistway and cover the entire machine room.

2.1.5 Windows and Skylights. Delete and replace with:

2.1.5 Windows and Skylights. Windows in hoistway walls or elevator cars are prohibited. If the elevator hoistway is completely outside the general outline of the building, the rear wall of the car and the related hoistway wall can be of laminated safety glass with a maximum window frame depth of two inches. Curtain walls or window walls cannot enclose the hoistway. Windows and skylights and their frames and sashes in machine rooms shall conform to the requirements of 780 CMR: *State Board of Building Regulations and Standards* and 527 CMR: *Board of Fire Prevention Regulations*.

2.1.6 Projections, Recesses, and Setbacks in Hoistway Enclosures

2.1.6.2. Amend as follows:

2.1.6.2(a) Delete: "100 mm (4 in.)" and replace with: "50 mm (2 in.)".

2.1.6.2(c) Delete: "100 mm (4 in.)" and replace with: "50 mm (2 in.)".

SECTION 2.2 PITS

2.2.4 Pit Access

2.2.4.4 Delete and replace with:

2.2.4.4 Pits shall be accessible only to licensed elevator mechanics, authorized personnel accompanied by a licensed mechanic, and to other authorized personnel only after the equipment has been made safe by a licensed elevator mechanic. When access to the pit is *via* a pit door, signage reading "DANGER - ACCESS ONLY ALLOWED WHEN ACCOMPANIED BY A MASSACHUSETTS-LICENSED ELEVATOR MECHANIC" shall be placed on the public side of the locked pit door. The signage letter size shall be a minimum of $\frac{3}{4}$ inch high and shall be of a contrasting color with that of the background.

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SECTION 2.7 MACHINERY SPACES, MACHINE ROOMS, CONTROL SPACES, AND CONTROL ROOMS

2.7.3.4 Access Doors and Openings

2.7.3.4.1 Add a new (d):

(d) identified with a sign that reads "ELEVATOR MACHINE ROOM - NO STORAGE ALLOWED" and on separate lines: "DANGER - ACCESS ONLY ALLOWED WHEN ACCOMPANIED BY A MASSACHUSETTS-LICENSED ELEVATOR MECHANIC." The letter size shall be a minimum of $\frac{3}{4}$ inch high and shall be of a contrasting color with that of the background.

2.7.3.4.1 Add a new (e):

(e) Per M.G.L. c. 143, § 71B, only Massachusetts-licensed elevator personnel are allowed in machine rooms and control rooms. Where unauthorized personnel, for maintenance and other reasons, shall access such areas, they are statutorily required to be accompanied by Massachusetts-licensed elevator personnel.

2.7.3.4.4 Delete and replace with:

2.7.3.4.4 Access doors for control spaces outside the hoistway shall conform to width and height requirements of Section 2.7.3.4.2.

2.7.6 Location of Machinery Spaces, Machine Rooms, Control Spaces, Control Rooms, and Equipment

2.7.6.1 Location of Machine Rooms and Control Rooms. After the last sentence add:

A permanent sign shall be mounted on the head jamb of the main floor elevator entrance, which shall read "MRL CONTROL ROOM LOCATED ON [] FLOOR," with the applicable floor listed. The letter size shall be a minimum of $\frac{3}{4}$ inch high and shall be of a contrasting color with that of the background.

2.7.6.3.2 Delete and replace with:

2.7.6.3.2 The motor controller shall be located in a control room.

2.7.9 Lighting, Temperature, and Humidity in Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms

2.7.9.1 Lighting. In (b) delete the phrase "where practicable" as shown below:

(b) for machine rooms and control rooms, inside the room and on the lock-jamb side of the access door.

2.7.9.1 Lighting. Add new paragraph after (b):

Motion or heat detecting devices used to turn (on or off) the lights in the machine room, pit, car, or the car top are prohibited.

2.7.9.2 Temperature and Humidity. Replace the first sentence as follows but otherwise retain the paragraph:

Machinery spaces, machine rooms, control spaces, and control rooms shall be provided with natural or mechanical means to keep the ambient air temperature in the range of 50°F to 90°F and humidity in the range specified by the elevator equipment manufacturer to ensure safe and normal operation of the elevator.

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SECTION 2.8 EQUIPMENT IN HOISTWAYS, MACHINERY SPACES, MACHINE ROOMS, CONTROL SPACES, AND CONTROL ROOMS

2.8.1 Equipment Allowed. Add after the first sentence:

Should any access to these areas be necessary for any reason, all personnel shall be accompanied by a Massachusetts-licensed elevator mechanic.

2.8.3 Pipes, Ducts, Tanks, and Sprinklers

2.8.3.3 Delete and replace with:

2.8.3.3 Sprinklers shall not be permitted in power passenger or freight elevator hoistways, pits, machine rooms or control spaces.

2.8.3.3.1 through 2.8.3.3.4 Delete.

SECTION 2.11 PROTECTION OF HOISTWAY OPENINGS

2.11.1.2 Emergency Doors in Blind Hoistways. Delete (h) and replace with:

(h) The locking system shall consist of the 3502 key and cylinder and fire service shall only be activated with the use of the 3502 key and cylinder. The possession of the Massachusetts firefighter key number 3502 shall be limited to fire department personnel, Massachusetts licensed elevator mechanics, and state elevator inspectors employed by the Office. This key shall not be a part of a building master key system.

2.11.1.4 Access Openings for Cleaning of Car and Hoistway Enclosures. Delete entire paragraph and replace with:

2.11.1.4 Access openings for cleaning of car and hoistway enclosures are prohibited.

2.11.2 Types of Entrances

2.11.2.1 Delete (d).

2.11.6 Opening of Hoistway Doors

2.11.6.2 Add new (e) and (f) that read:

(e) any exit leading from any elevator hoistway door to the outside of the building.

(f) Confined Space Egress. No elevator landing shall comprise of, or lead to, a confined locked space of over four inches without either:

1. the installation in the space of a means to recall the elevator; or
2. provision of a means to keep the elevator at the landing with the car and landing doors in the open position until egress from the confined locked space is achieved.

SECTION 2.12 HOISTWAY DOOR LOCKING DEVICES AND ELECTRIC CONTACTS, AND HOISTWAY ACCESS SWITCHES

2.12.6 Hoistway Door Unlocking Devices

2.12.6.1 General. Delete and replace with:

2.12.6.1 General. Hoistway door unlocking devices shall be provided for use by Massachusetts-licensed elevator mechanics and trained firefighters at every landing where there is a passenger entrance. The types of hoistway door unlocking devices are subject to prior approval of the Board. The use of unlocking device special tools by anyone other than Massachusetts-licensed elevator mechanics and trained firefighters is prohibited.

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2.12.6.2.3 through 2.12.6.2.5 Delete.

SECTION 2.14 CAR ENCLOSURES, CAR DOORS AND GATES, AND CAR ILLUMINATION

2.14.2.6 Access Panels. Delete.

2.14.3 Freight-Car Enclosure

2.14.3.1 Enclosure Material. Delete and replace with:

2.14.3.1 Enclosure Material. Cab enclosure walls and the car top shall be made of metal without perforations, except for car gate(s) and the area above them.

2.14.4 Passenger and Freight Car Doors and Gates, General Requirements

2.14.4.5.1 Delete (d).

2.14.4.7 Vertically Sliding Doors and Gates

2.14.4.7.2 Delete and replace with:

2.14.4.7.2 Gates shall be constructed of metal, and shall be of a design that will reject a ball 50 mm (2 in.) in diameter, except that if multisection vertical lift gates are used, the panel shall be designed to reject a ball 10 mm (0.375 in.) in diameter.

SECTION 2.16 CAPACITY AND LOADING

2.16.4 Carrying of Passengers on Freight Elevators

2.16.4.1 Delete and replace with:

2.16.4.1

(a) Freight elevators shall be used only by those persons required for handling freight.

(b) It shall be allowable at stated hours to carry employees, but not the general public, on a freight elevator, provided that the freight elevator conforms to the load carrying requirements for passenger elevators and a special permit is granted by the enforcing authority subject to the following:

1. Car switch operated elevators and continuous pressure operated elevators shall be in charge of a licensed operator when used to carry employees at stated hours.
2. Stated hours shall be determined by the enforcing authority.

2.16.5 Signs Required in Freight Elevator Cars

2.16.5.1.3 Delete.

SECTION 2.26 OPERATING DEVICES AND CONTROL EQUIPMENT

2.26.2 Electrical Protective Devices

2.26.2.21 In-Car Stop Switch. In the second sentence, change "Group 1 Security" to "Group 2 Security".

2.26.4 Electrical Equipment and Wiring

2.26.4.1 After the paragraph, add new (a) through (d) that read:

(a) The main line disconnect switch or circuit breaker shall be located inside the machine room door or control room door. The operating handle shall be positioned on the side of the disconnect closest to the lock jamb and not more than 450 mm (18 inches) horizontally from the lock jamb. The handle shall be at a height of not more than 1700 mm (66 inches) above the finished floor at its highest point. In the case of multi-car machine rooms, the switches shall be grouped together as close as possible to that location.

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(b) In the case of a machine room with double swing doors, the doors shall swing out and the switch(es) shall be on the wall adjacent to the hinge side of the active door panel.

(c) The switches shall be so designed that they may be locked out and tagged in the open position.

(d) If the fused disconnect switch or circuit breaker is not visible from the elevator machine to which it is connected, a second disconnect switch shall be installed that is visible from the machine.

SECTION 2.27 EMERGENCY OPERATION AND SIGNALING DEVICES

2.27.2 Emergency or Standby Power System

2.27.2.4.5 Add a final paragraph that reads:

Where an emergency or standby system is required by 780 CMR: *State Board of Building Regulations and Standards*, said system shall operate the elevator or elevators in the event of normal power failure, and the requirements of 2.27.2.1 through 2.27.2.5 shall be met. If an emergency or standby system is not required by 780 CMR but exists and operates the elevator or elevators, the requirements of 2.27.2.1 through 2.27.2.5 shall be met. If fewer than all cars can be run at the same time, all cars shall be sequenced one or more at a time to the fire recall floor automatically, after which the selector switch located at that floor can designate a preferred car.

2.27.3 Firefighter's Emergency Operation: Automatic Elevators

2.27.3.1 Phase 1 Emergency Recall Operation

2.27.3.1.1 Add a new (d) that reads:

(d) The phase 1 hall key switch shall be marked with the off position vertical and in the center. The key shall be inserted with the cut side facing up.

2.27.3.1.6 Delete (j) and replace with:

(j) When an elevator(s) has gone to the alternate level due to the activation of a fire alarm initiating device at the designated level, the manual activation of the fire-recall switch at the designated level shall cause the car to recall to that level.

2.27.3.3 Phase II Emergency In-Car Operation. Delete first sentence of the second paragraph and replace with:

The key shall be removable in each position. The hold position in the center shall be vertical. The key shall be inserted with the cut side facing up.

2.27.3.3.7 Delete the first sentence of the second paragraph and replace with:

For all installations performed under ASME A17.1-2013/CSA B44-13: *Safety Code for Elevators and Escalators*, the firefighters' operation panel cover shall be openable with the use of a 3502 key. The key switch grooves shall be constructed and installed with the cut side facing up.

2.27.7 Firefighter's Emergency Operation: Operating Procedures

2.27.7.4 Delete.

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2.27.8 Switch Keys. Delete and replace with:

2.27.8 Switch Keys. Firefighter's Emergency Operation shall only be activated with the use of the 3502 key and cylinder. The possession of the Massachusetts firefighter key number 3502 shall be limited to fire department personnel, licensed elevator mechanics, and elevator inspectors, and it shall be used only in the performance of their official duties. This key shall not operate any other switch unless specifically described in 524 CMR and shall not be a part of a building master key system.

2.27.9 Elevator Corridor Call Station Pictograph. Delete and replace with:

2.27.9 Fire Emergency Hall Buttons Signs. There shall be a sign securely fastened to the wall over every hall button station. The minimum size shall be 3¼" x 2¼". The lettering shall be impressed or engraved on a contrasting background, and shall read and be sized as follows:

SIGNAGE	LETTERING SIZE	LETTERING COLOR
In Case of	⅛ inch equals 14-point lettering	Color: Black
Fire	⅜ inch equals 30-point lettering	Color: Red
In This Building	⅛ inch equals 14-point lettering	Color: Black
Use Exit Stairways	⅜ ₁₆ inch equals 16-point lettering	Color: Red
Do Not Use This Elevator	⅛ inch equals 14-point lettering	Color: Black

Add a section:

2.27.12 Medical Emergency Elevators.

(1) Medical Emergency Elevators.

- (a) All new buildings or complete new additions to existing buildings in which an elevator is being installed shall be provided with at least one passenger elevator designed to accommodate the loading and transportation of an ambulance gurney or stretcher (24" wide by 84" long with 5" radius corners) in its horizontal position. Complete new additions to existing buildings shall mean a hoistway constructed outside the confines or footprint of the existing building.
- (b) The hoistway and car shall be provided with power operated passenger type horizontally sliding doors, minimum size to be 42" wide by 78" high. When center opening doors are used they shall be located on the narrow end of the car or car size and/or the door size will be altered to comply with 2.27.12(1)(c).
- (c) Elevator capacity, platform size, and entrance configuration of medical emergency elevators shall be capable of accommodating the designated gurney or stretcher with equivalent ease.

(2) Medical Emergency Key Switches and Markings.

- (a) This elevator shall be controlled by a two position key switch at the main floor of a building and by a similar key switch in the car operating panel. The lock and key shall be that manufactured by Medeco Security Locks, Inc. and the key number shall be 65W 2650 T101 26 R7. The lock shall be arranged so that the switch shall be off when the key is in a vertical position and it shall be on when the key cut is facing approximately 90 to the right of the vertical. The key shall only be removable in the off position.
- (b) Only elevator companies or manufacturers authorized by the Division may order this lock.
- (c) Only personnel authorized by the Division may purchase this key.
- (d) Both locks shall be identified with the words "MEDICAL EMERGENCY" engraved adjacent to the lock. The lettering shall be a minimum of 14 points with lettering or background color blue.

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(3) Medical Emergency Operation.

- (a) When the main floor key is turned to the on position, it shall activate a continuous audible signal in the car which can be the same signal used for fire service. It shall also activate a visual signal in the car and at the main floor key call station that reads "Medical Emergency." All car calls shall be canceled and be unable to be re registered. The car shall not accept any hall calls after this service is activated.
- (b) When the car is in motion, the in-car stop switch shall be de activated.
- (c) When the car is moving toward the main floor it shall return non stop and open its doors on arrival. It shall not comply with 2.27.12(3)(b) until the car begins to move.
- (d) When the car is moving away from the main floor it shall reverse direction at the next available floor without opening its doors and return non stop to the main floor.
- (e) When the car is at a floor, other than the main floor with its doors open, they shall close without delay, and the car return to the main floor.
- (f) The car shall return to the main floor after being called by the EMS main floor switch and open its doors even if the main floor EMS key switch has been returned to the off position during travel. On arrival at the main floor the audible signal in the car shall cease.
- (g) Upon arrival at the main floor the doors shall open and if the main floor EMS key switch is "on" they shall remain open until that switch is turned "off." If the main floor EMS key switch is "off" the visual signals shall remain illuminated for a minimum of 60 seconds. During this delay the EMT shall insert his key into the car control panel and turn it to the "on" position to retain control of the car. Upon expiration of the delay, without the key in the car being turned on the car shall return to normal service.
- (h) If the elevator is an automatic car with attendant or independent service operation it shall activate its audible and visible signal and if on attendant service shall return to automatic operation after a minimum of 15 seconds and a maximum delay of 60 seconds and then proceed to the main floor.

(4) Car Operation.

- (a) Upon entering the car it shall not accept a car call until the in car EMS key switch is turned to the on position. After turning that key on and registering a call, the car shall automatically close its doors and proceed to the call. All door zone detection devices shall be operative. If more than one call is registered, it shall stop at the first call and cancel all others at which time a second choice can be made.
- (b) Upon arriving at the desired floor, the doors shall open automatically and the EMT shall remove his key when the switch is in the off position, the car shall then remain at that floor and will not accept a call or move away from that floor until the key is again turned on.
- (c) The car shall be returned to the main floor on EMS service and the key removed in its off position before returning the car to normal operation.
- (d) If the car is on any form of special service such as inspection, firefighters, or similar, when EMS service is initiated the audible and visible signals in the car shall be activated but the car shall not respond to the main floor EMS call.
- (e) If the car has responded to a medical emergency call prior to a call for fireman's service, the EMT call for service shall not be overridden by firefighters service call until it returns to the main floor but the fire service audible and visible signals shall be activated.

(5) Designation. Medical emergency service shall be identified as follows:

- (a) At the main floor this elevator shall be identified by the national medical symbol (star of life), shown below.
- (b) These symbols (two) shall be permanently attached to the hoistway door frame on each side of that frame at right angles to the sill at a height not less than 66" and not more than 78" above the floor level at the sill.
- (c) The symbol shall be blue in color with contrasting background, the staff and serpent shall be white.
- (d) The symbol itself shall be two to three inches in height.

EXCEPTIONS: The following elevator installations need not comply with 2.27.12:

- (a) Elevators in structures such as rock quarries, steel towers, dams, storage bins, smoke stacks, tanks (and other special industrial installations) where the elevators are used only by maintenance and operating personnel, or in hospitals where the normal services of an EMT are available.

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(b) Elevators in buildings or structures where each landing is at ground level or is accessible to ground by a ramp.

(c) Elevators in buildings or structures equipped with stairs that extend no more than one floor above or below the building entrance grade and with a configuration that shall accommodate the carrying of a gurney or stretcher on said stair and when said stair conforms to 780 CMR: *State Board of Building Regulations and Standards* and is permitted by the authority having jurisdiction.

SECTION 2.28 LAYOUT DRAWINGS

2.28.1 Information Required on Layout Drawings. Add a new first sentence that reads:

For work requiring an elevator permit, permit applications, and elevator layouts shall be filed and approved by the inspector before any work can begin. All of the following requirements shall be satisfied in permit applications.

2.28.1 Information Required on Layout Drawings. Add (k) through (x) that read:

(k) all plans for elevator installations shall be signed by a registered professional engineer or a registered architect and shall bear his or her registering stamp certifying that he has examined the plans and finds that the building will structurally support the elevator contract load plus its tare as they are shown on the elevator drawing. The architect or engineer shall not be responsible for any material on the elevator drawing. The complete installation shall comply with 524 CMR at the time of filing;

(l) type of hoistway material to be used;

(m) height of hoistway in regard to roof of building;

(n) registered design professional's stamped, written statement that ventilation complies with 524 CMR;

(p) type of hoistway doors, fire rating of doors shall be shown on the layout, filling around hoistway door frames and headers for proper fire rating, grouting of landing sills;

(q) type of approved interlock;

(r) buffers, type and rating;

(s) governor, type and name plate data depicting tripping speed of the governor and that of the overspeed switch, construction of material of governor rope and size;

(t) hoist rope, including size, number of, and breaking strength;

(u) type of safeties and location;

(v) type of drive machine, including speed and capacity;

(w) type of control, including voltage and current;

(x) base flood identification when applicable.

PART 3 HYDRAULIC ELEVATORS

SECTION 3.7 MACHINERY SPACES, MACHINE ROOMS, CONTROL SPACES, AND CONTROL ROOMS

Delete Section 3.7 "preamble" and replace with:

Hydraulic machines, motor controllers and/or motion controllers are not allowed in a hoistway or pit and shall be located in a machine room.

Add a section:

3.7.1.11 Location of Machine Rooms. When it is not possible to locate the machine room adjacent to the hoistway, in addition to all normal requirements, the following provisions shall apply:

(a) The oil pipeline, from where it leaves the machine room to where it enters the hoistway, shall have a minimum of schedule 80.

(b) The pipe shall have no fittings, bends or welding in it from the hoistway to the machine room.

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- (c) The distance from the hoistway to the machine room shall not exceed three meters (ten ft.).
- (d) The oil line pipe shall always be visible for inspection.
- (e) Two-way voice communication shall be installed between the car and the machine room.

SECTION 3.19 VALVES, PRESSURE PIPING, AND FITTINGS

3.19.3.3.1 Delete (a) and replace with:

- (a) not be installed between the jack and power unit, nor project into or through any wall. Installation shall be accomplished without introducing any twist in the hose, and shall conform with the minimum bending radius of SAE 100, R2 type, high pressure, steel wire reinforced, rubber-covered hydraulic hose specified in SAE J517.

3.19.3.3.1 Retain remaining requirements (b) through (f).

3.19.4.7 Overspeed Valves. Delete and replace with:

3.19.4.7 Overspeed Valves. Unless the hydraulic elevator is installed with a governor-operated safety, an overspeed (rupture) valve shall be provided and connections and attachments shall conform to 3.19.4.7.1 through 3.19.4.7.6.

3.19.4.7.3 Installation of Overspeed Valves. Add a new first sentence:

3.19.4.7.3 Installation of Overspeed Valves. On all hydraulic elevators the piping between the overspeed valve and the hydraulic jack shall be welded or threaded.

3.19.4.7.3 Installation of Overspeed Valves. Retain the remaining language and numbering scheme.

SECTION 3.26 OPERATING DEVICES AND CONTROL EQUIPMENT

3.26.4 Electrical Protective Devices. Delete the first paragraph of 3.26.4 and replace with:

3.26.4 Electrical Protective Devices. Electrical protective devices shall be provided in conformance with 2.26.2, and the following requirements, except the words "driving-machine motor and brake" in 2.26.2 shall be replaced with "hydraulic machine," and shall conform to 2.26.4 and 3.26.4.1 and 3.26.4.2.

3.26.10 Auxiliary Power Lowering Operation

3.26.10.3 Add a final sentence that reads:

The door open button shall remain operative.

SECTION 3.28 LAYOUT DATA

3.28.1 Information Required on Layout Drawing. Add a new first sentence that reads:

For any application for an elevator permit, elevator layouts shall be filed and approved before any work can begin.

3.28.1 Information Required on Layout Drawing. After 3.28.1(o), add (p) through (cc) that read:

- (p) all plans for elevator installations shall be signed by a registered professional engineer or a registered architect and shall bear his registering stamp certifying that he has examined the plans and finds that the building will structurally support the elevator contract load plus its tare as they are shown on the elevator drawing. The architect or engineer shall not be responsible for any material on the elevator drawing. The complete installation shall comply with 524 CMR in effect at the time of filing;

35.00: continued

- (q) type of hoistway material to be used;
- (r) height of hoistway in regard to roof of building;
- (s) registered design professional's stamped, written statement that ventilation complies with 524 CMR;
- (t) location of machine room relative to the hoistway;
- (u) type of hoistway doors, fire rating of doors shall be shown on the layout, filling around hoistway door frames and headers for proper fire rating, grouting of landing sills;
- (v) type of approved interlock;
- (w) buffers, type and rating;
- (x) governor, type if any and nameplate data depicting tripping speed of the governor and that of the over-speed switch, construction of material of governor rope and size;
- (y) hoist rope, including size, number of, and breaking strength;
- (z) type of safeties, overspeed valve(s) and location;
- (aa) type of valve unit, pressure relief setting, piston size and travel;
- (bb) capacity and speed, voltage and current;
- (cc) base flood identification when applicable.

**PART 5
SPECIAL APPLICATION ELEVATORS**

SECTION 5.2 LIMITED-USE/LIMITED-APPLICATION ELEVATORS

Section 5.2.1 Electric Limited-use/Limited-application Elevators

Add a prefatory section:

5.2.1 Electric Limited-use/Limited-application Elevators. All limited-use/limited-application elevators shall comply with the provisions of 521 CMR as applicable.

5.2.1.1.2 Delete (a) and renumber (b) and (c) as (a) and (b).

5.2.1.4.1 Bottom Car Clearance. Delete and replace with:

5.2.1.4.1 Bottom Car Clearance. Elevators shall conform to 2.4.1.

5.2.1.4.2 through 5.2.1.4.2.2 Delete.

5.2.1.11 Protection of Hoistway Landing Openings. Add a new (f), (g), and (h) that read:

- (f) Landing door panels shall be a minimum of 915 mm (36 in.) wide, although a tolerance of 16 mm ($\frac{5}{8}$ in.) between doors is permitted.
- (g) Landing doors shall be set no more than the following dimensions from the hoistway edge of the landing sill, and shall be rated in conformance with 780 CMR: *State Board of Building Regulations and Standards*.
 1. For swing doors: 19 mm ($\frac{3}{4}$ in.).
 2. For horizontal sliding doors: 57 mm ($2\frac{1}{4}$ in.), and they shall have sight guards.
- (h) Vision panels shall be installed in all swing doors per 2.11.7.1, except 2.11.7.1.6. The inside face of the glass shall be substantially flush with the inside face of the door. If laminated safety glass is used, the Z97.1 marking on each piece of glass shall be visible after installation. Note that conformance to M.G.L. c. 143, §§ 3T, 3U, and 3V, as applicable, is also required.

5.2.1.13 Power Operation of Hoistway Doors and Car Doors and Gates. Delete and replace with:

5.2.1.13 Power Operation of Hoistway Doors and Car Doors and Gates. Power operation shall be as described in the applicable provisions of 521 CMR: *Architectural Access Board*.

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35.00: continued

5.2.1.14 Car Enclosures, Car Doors, and Car Illumination. Delete (f) and replace with:

(f) Doors shall be of the horizontally sliding type and so arranged to reduce the possibility of pinching.

5.2.1.14 Car Enclosures, Car Doors, and Car Illumination. Add a new (n) that reads:

(n) Emergency battery operated lighting shall be provided in all limited-use/limited-application elevators.

EXCEPTION: If an emergency generator provides emergency car lighting within ten seconds after power failure, a battery operated lighting unit is not required.

5.2.2.7 Valves, Pressure piping and Fittings. Delete and replace with:

5.2.2.7 Valves, Pressure piping and Fittings. Valves, pressure piping, and fittings shall conform to 3.19 except 3.19.3.3. A flexible hose is prohibited between the power unit and the jack.

SECTION 5.3 PRIVATE RESIDENCE ELEVATORS

5.3.1.1 Construction of Hoistway and Hoistway Enclosure. Delete and replace with:

5.3.1.1 Construction of Hoistway and Hoistway Enclosure. Hoistways and machine rooms shall conform to 2.1.1.1 and 2.7.1.1.

5.3.1.1.1 Delete and replace with:

5.3.1.1.1 Each residential elevator shall have its own machine room, control space, or control room. Such machine room, control space or control room shall meet the following requirements:

- (1) it shall be enclosed with materials of the same fire rating as that required for the hoistway in the building in which they are installed;
- (2) it shall be kept locked at all times when not being accessed by licensed or authorized personnel;
- (3) it shall not be located within, or at the top of, the hoistway;
- (4) it shall be provided with self closing, self-locking doors not less than 30 inches wide by six feet six inches high equipped with spring locks that can be opened by hand from the inside of the machine room, control space or control room;
- (5) elevator controller and main line voltage disconnect equipment located within the control space shall conform to the version of NFPA 70 in effect at time of installation;
- (6) it shall be located at a maximum distance of ten feet from the hoistway;
- (7) minimum equipment clearances within 524 CMR and the National Electric Code may be calculated and obtained with the machine room, control space, or control room doors in the fully open position with flexible cords that adhere to NEC 400.4 to all external connections so equipment may be repositioned to meet the clear working space requirements of NEC 110.26(A);
- (8) all doors shall be identified with a sign that reads "ELEVATOR CONTROL SPACE"; and,
- (9) it shall have a light fixture(s) containing a minimum luminance of 19 foot candles measured at floor level.

5.3.1.7 Protection of Hoistway Openings

5.3.1.7.2 Clearance Between Hoistway Doors or Gates and Landing Sills and Car Doors or Gates. Delete: "75 mm (three in.)" and replace with: "19 mm (¾ in.)"

Delete: "125 mm (five in.)" and replace with: "75 mm (three in.)"

5.3.1.7.4 Locking Devices for Hoistway Doors and Gates. Delete and replace with:

5.3.1.7.4 Locking Devices for Hoistway Doors and Gates. Landing doors shall be provided with UL listed hoistway door interlocks.

35.00: continued

5.3.1.8.3 Light in Car. Add a new final sentence that reads:

Emergency battery operated car lighting shall be provided in all private residence elevators.

5.3.2 Private Residence Hydraulic Elevators

Add a section:

5.3.2.2.3: Flexible hose shall not be installed between the power unit (pump) and the jack. *See* 3.19.3.3.

SECTION 5.10 ELEVATORS USED FOR CONSTRUCTION

To the end of the preamble add additional paragraphs that read:

Devices included under the requirements of Section 5.10:

- (1) Elevators used for construction and other workman's hoists, except as regulated by 524 CMR 36.00: *Personnel Hoists and Employee Elevators on Construction and Demolition Sites*, shall be considered temporary workman's elevators and shall be installed by a person holding a Massachusetts license for the construction, maintenance and repair of elevators. Either a Massachusetts-licensed elevator mechanic or a Massachusetts-licensed hoisting engineer only shall operate them.
- (2) Overhead Protection. There shall be installed on all elevators used for construction and workman's hoists and similar devices, including open platforms, a roof to protect the workers from falling objects when a hoistway is open, or has an opening, due to construction activity. The roof shall be constructed of solid material. Debris netting or similar overhead protection may be used up to three floors or 30 feet, whichever is greater.
- (3) Elevators used for construction and workman's hoists and other similar devices shall be equipped with one the following safety devices:
 - (a) a safety device, which acts on a wire rope, which is supported independently from the rigging used to support and hoist the working platform;
 - (b) a safety device, which grabs the wire rope, used to support and hoist the working platform;
 - (c) instantaneous safeties.
- (4) Elevators used for construction, workman's hoists and other similar devices shall be provided with a 42" guard rail completely around the platform area and a 12" kick-plate completely around the platform area.
- (5) Inspection and Load Tests. Once a piece of equipment has been approved and released by a private elevator contractor, it shall be re-classified and designated as a temporary workman's elevator and shall be inspected by a state elevator inspector. The state inspection shall consist of a load and safety test. No non-elevator construction personnel shall be transported on such equipment until the releasing elevator contractor has faxed an intended designation change to the Office. (Exception: non elevator trade persons may be conveyed to perform work in or around the elevator hoistway.) Once the designation change is date stamped submitted to the Office, the equipment may be operated prior to the state inspection to convey construction personnel for a period not to exceed 30 days, if operated by a duly licensed elevator mechanic. Once the designated equipment passes inspection, the state elevator inspector shall issue a temporary use certificate which shall be valid for 90 days.
- (6) Inspection and load test is not required on open platforms used for the installation of elevators under construction or undergoing work pursuant to 524 CMR 10.00: *Requirements for Permits and Inspections of Existing Elevators Undergoing Alterations and Replacements*.

PART 6 ESCALATORS AND MOVING WALKS

SECTION 6.1 ESCALATORS

Add a section:

6.1.2.2 Escalator rooms shall be ventilated but venting need not be directly to the outside of the building.

35.00: continued

6.1.7 Lighting, Access, and Electrical Work

6.1.7.3.2 Add after the first sentence:

All access doors and side access panels shall be electrically contacted and render the escalator inoperative when open.

6.1.7.3.3 Delete the final sentence and replace with:

The key shall be of Group 1 Security (*see* 8.1). The key to side access panels shall be restricted to licensed elevator mechanics only.

6.1.7.4 Electrical Equipment and Wiring

6.1.7.4.1 Add a final sentence:

A fused disconnect switch or circuit breaker shall be installed and connected into the power supply line of each escalator. Disconnect switches or circuit breakers shall be of the manually closed multi-pole type and be located with the upper machinery space of the escalator. Where circuit breakers are used as a disconnecting means, they shall not be of the instantaneous type and shall not be opened automatically by a fire alarm system.

SECTION 6.2 MOVING WALKS

6.2.1 Protection of Floor Openings

6.2.2.1 Protection Required. Add a final paragraph that reads:

Moving walk rooms shall be ventilated but venting need not be directly to the outside of the building.

6.2.7 Lighting, Access, and Electrical Work

6.2.7.3.3 Delete the final sentence and replace with:

The key shall be of Group 1 Security (*see* 8.1).

6.2.7.3.3 Add a final paragraph that reads:

All access doors shall be electrically contacted and render the moving walk inoperative when open.

**PART 8
GENERAL REQUIREMENTS**

SECTION 8.1 SECURITY

8.1.2 Group 1: Restricted. Add new (x) through (dd) that read:

- (x) Requirement 2.7.3.4.2, machine room and control room access doors.
- (y) Requirements 2.7.3.4.3 and 2.7.3.4.4, machinery spaces and control spaces as specified.
- (z) Requirement 2.11.1.4, access openings for cleaning of car and hoistway enclosures.
- (aa) Requirement 2.14.2.6(b), access openings for cleaning of car and hoistway enclosure.
- (bb) Requirement 3.19.4.1, access to manually operated shutoff valve.
- (cc) Requirement 6.1.7.3.3, escalator side access door to interior.
- (dd) Requirement 6.2.7.3.3, moving walk side access door to interior.

8.1.3 Group 2: Authorized personnel. Delete (a) through (d), (f), (i), and (k) and renumber remaining in list as (a) through (d).

35.00: continued

8.1.4 Group 3: Emergency Operation. Add new (e) that reads:

(e) Requirement 2.27.12(2), medical emergency key switches and markings.

SECTION 8.4 ELEVATOR SEISMIC REQUIREMENTS

8.4.4 Car Enclosures, Car Doors and Gates, and Car Illumination

8.4.4.1 Top Emergency Exits

8.4.4.1.1 Delete and replace with:

8.4.4.1.1 The requirements specified in 2.14.1.5 shall apply except that the top emergency exit shall be so arranged that it can be opened from within the car by means of firefighter key number 3502 with a keyed spring-return cylinder-type lock and the top emergency exit shall be opened from the top of the car without the use of a key. The possession of the firefighter key number 3502 shall be limited to trained fire department personnel and Massachusetts-licensed elevator mechanics. This key shall not be a part of a building master key system.

SECTION 8.6 MAINTENANCE, REPAIR, REPLACEMENT, AND TESTING

8.6.11.4 Cleaning of a Car and Hoistway Transparent Enclosure. Delete each instance of "authorized personnel" and replace with "licensed elevator personnel."

SECTION 8.10 ACCEPTANCE INSPECTIONS AND TESTS

8.10.1.1 Persons Authorized to Make Acceptance Inspections and Tests

8.10.1.1.1 Delete and replace with:

8.10.1.1.1 The acceptance inspection shall be conducted by Massachusetts-licensed elevator mechanics witnessed by an elevator inspector employed by the Office.

8.10.1.1.3 Delete.

8.10.1.2 Accreditation of Certifying Organizations. Delete.

SECTION 8.11 PERIODIC INSPECTIONS AND WITNESSING OF TESTS

8.11.1 General Requirements for Periodic Inspections and Witnessing of Tests

8.11.1.1 Persons Authorized to Make Periodic Inspections and Tests. Delete and replace with:

8.11.1.1 Persons Authorized to Make Periodic Inspections and Tests. Periodic inspections shall be made by Massachusetts-licensed elevator mechanics witnessed by an inspector employed by the Office.

REGULATORY AUTHORITY

524 CMR 35.00: M.G.L. c. 143, §§ 62 through 71G.