

## CHAPTER 30

# ELEVATORS AND CONVEYING SYSTEMS

### SECTION BC 3001 GENERAL

**3001.1 Scope.** This chapter establishes the minimum safety requirements for and governs the design, construction, installation, alteration, maintenance, inspection, test and operation of elevators, dumbwaiters, escalators, moving walks, industrial lifts and loading ramps, mechanical parking equipment, console or stage lifts, power-operated scaffolds, amusement devices, and special hoisting and conveying equipment. This chapter and all the provisions of this code for new installations shall also apply to elevators in existing buildings moved to new hoistways. High-rise building elevators shall also conform to the provisions of Section 403 of this code.

**Exception:** Personnel and material hoists used for construction operations subject to the requirements of Chapter 33.

**3001.2 Referenced standards.** Except as otherwise provided for in this code, the design, construction, installation, alteration, repair and maintenance of elevators and other conveying systems and their components shall conform to ASME A17.1 as modified by Appendix K, ASME A17.2, ASME A18.1, ASME A17.5, ANSI A10.5, ASME QE1-1, ASME A90.1, ASME B20.1 as modified by Appendix K, ALI ALCTV, and for construction in areas of special flood hazard, Appendix G.

**3001.3 Accessibility.** Passenger elevators required to be accessible by Chapter 11 shall conform to ICC A117.1.

**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 Section 8.7 of ASME A17.1.

**3001.5 Piping or ductwork.** No piping or ductwork of any kind shall be permitted within hoistway or elevator enclosures except:

1. As required for the elevator installation; and
2. Low-voltage wiring less than 50 volts required for fire alarm systems required by this code.

**3001.6 Elevator mirrors.** A mirror shall be installed in each self-service passenger elevator in in multiple dwellings. Such mirror shall be affixed and maintained in a manner sufficient to enable persons entering such elevator to view the inside thereof prior to entry to determine whether any person is in the elevator.

**3001.7 Car switch operation.** Elevators with car switch operation (manual operation) shall be provided with a signal system

by means of which signals can be given from any landing whenever the elevator is desired at that landing.

**3001.8 Prohibited devices.** The following devices shall be prohibited:

**3001.8.1 Manlifts.** The installation of manlifts is prohibited.

**3001.8.2 Sidewalk elevators.** The installation of sidewalk elevators located outside the street line is prohibited.

**3001.9 Approved equipment.** Buffers, interlocks, elevator entrances, wedge shackles and elevator governors shall be approved by the commissioner.

**3001.10 Construction documents.** Applications for elevator, escalator, moving walkway and stairway, dumbwaiter, and similar equipment shall contain construction documents that include the following:

1. The location of all machinery, switchboards, junction boxes, and reaction points, with loads indicated;
2. The details of all hoistway conditions including bracket spacing;
3. The estimated maximum vertical forces on the guide rails on application of the safety device;
4. In the case of freight elevators for Class B or C loading, the horizontal forces on the guide-rail faces during loading and unloading; and the estimated maximum horizontal forces in a postwise direction on the guide-rail faces on application of the safety device;
5. The size and weight per foot of any rail reinforcements where provided;
6. Compliance with the accessibility features of this code;
7. The details of capability of the withstanding forces (impact) on door entrance assembly and retaining devices;
8. The withstanding hourly fire rating of the hoistway and the hoistway door assembly;
9. The impact loads imposed on machinery and sheave beams, supports and floors or foundations;
10. The impact load on buffer supports due to buffer engagement at the maximum permissible speed and load;
11. Where compensation tie down is applied, the load on the compensation tie down supports; and
12. The total static and dynamic loads from the governor, buffer and tension system.

## SECTION BC 3002 HOISTWAY ENCLOSURES

**3002.1 Hoistway enclosure protection.** Elevator, dumbwaiter and other hoistway enclosures shall have a fire-resistance rating not less than that specified in Chapter 6 and shall be constructed in accordance with Chapter 7.

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

**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. Elevators that service different risers shall be located in separate hoistways.

**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.** In buildings five stories in height or more, at least one elevator shall be provided for Fire Department emergency access to all floors. Emergency power shall be provided in accordance with Sections 2702 and 3003. Such elevator car shall be of such a size and arrangement to accommodate a 24-inch by 76-inch (610 mm by 1930 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 on both jambs of the hoistway entrances on each floor.

**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 Reserved.**

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

## SECTION BC 3003 ELEVATOR EMERGENCY OPERATIONS

**3003.1 Emergency power.** In buildings and structures where emergency power is required or furnished to operate an elevator, the operation shall be in accordance with Sections 3003.1.1 through 3003.1.4.

**3003.1.1 Manual transfer.** Emergency power shall be manually transferable to all elevators in each bank.

**3003.1.2 One elevator.** Where only one elevator is installed, the elevator shall automatically transfer to emergency power within 60 seconds after failure of normal power.

**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 emergency power within 60 seconds after failure of normal power where the emergency power source is of sufficient capacity to operate all elevators at the same time. Where the emergency power source is not of sufficient capacity to operate all elevators at the same time, all elevators shall transfer to emergency power in sequence, return to the designated landing and disconnect from the emergency power source. After all elevators have been returned to the designated level, at least three elevators shall remain operable from the emergency power source.

**3003.1.4 Venting.** Where emergency power is connected to elevators, the machine room ventilation or air conditioning shall be connected to the emergency power source.

**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 as modified by Appendix K.

**3003.3 Elevator in readiness.** Requirements for elevator in readiness shall be as defined in Sections 3003.3.1 through 3003.3.2.

**3003.3.1 High-rise buildings.** Except as provided in Section 3003.3.2, in high-rise buildings as defined in Section 403, all floors shall be served by at least one elevator that shall be kept available for immediate use by the Fire Department during all hours of the night and day, including holidays, Saturdays and Sundays. There shall be available at all times a person competent to operate the elevator. However, an attendant shall not be required for buildings with occupied floors of 150 feet (45 720 mm) or less above the lowest level of the Fire Department vehicle access that have elevators with automatic or continuous pressure operation with keyed switches meeting the requirements of ASME A17.1 as modified by Appendix K so as to permit sole use of the elevators by the Fire Department.

**3003.3.2 Number of elevators.** A number of elevators shall be kept available at every floor for the sole use of the Fire Department as required by Sections 3003.3.2.1 and 3003.3.2.2. This requirement shall apply to the following types of buildings:

1. High-rise buildings with occupancies classified in Groups A, B, E, I, F, H, M and S;
2. Buildings with Group B occupancies with a gross area of 200,000 square feet (18 581 m<sup>2</sup>);
3. Buildings with a main use or dominant occupancy in Group R-1 or R-2.

**3003.3.2.1 Three or fewer elevators.** Where a floor is serviced by three or fewer elevator cars, every car shall be kept available for sole use by the Fire Department.

**3003.3.2.2 More than three elevators.** Where a floor is serviced by more than three elevator cars, at least three elevator cars with a total rated load capacity of not less than 6,000 pounds (2722 kg) shall be kept available for the sole use of the Fire Department. Such cars shall include not more than two cars that service all floors and at least one other car in another bank servicing that floor. If the total load capacity of all cars servicing the floor is less than 6,000 pounds (2722 kg), all such cars shall be kept available for sole use of the Fire Department.

**3003.3.3 Operation and control.** Elevators that are kept for the sole use of the Fire Department and that have automatic or continuous pressure operation shall be controlled by keyed switches meeting the requirements of ASME 17.1.

**3003.3.4 Other elevator cars.** In high-rise buildings classified in Occupancy Groups A, B, E, F, H, I, M and S, in low-rise buildings classified in Occupancy Group B with a gross area of 200,000 square feet (18 581 m<sup>2</sup>) or more and in buildings classified in Occupancy Group R-1 or R-2, all other automatically operated cars shall have manual operation capability.

## SECTION BC 3004 HOISTWAY VENTING

3004.1 Reserved.

3004.2 Reserved.

3004.3 Reserved.

3004.4 Reserved.

**3004.5 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.

**3004.6 Control of smoke and hot gases.** Hoistways of elevators shall be provided with any one of the following means to prevent the accumulation of smoke and hot gases in case of fire in accordance with Sections 3004.6.1 through 3004.6.4.

**3004.6.1 Vents in the hoistway enclosures.** Hoistway enclosures may be vented in accordance with the following:

### 1. Location of vents.

1.1. The vents in the side of the hoistway enclosure below the elevator machine room floor or in the roof of the hoistway shall open either directly to the outer air or through noncombustible ducts to the outer air.

1.2. The vents in the wall or roof of an overhead elevator machine room through the smoke hole in the top of the elevator hoistway shall be vented to the outer air through noncombustible ducts.

2. **Area of vents.** The area of vents in the hoistway or the elevator machine room and the smoke hole shall be not less than 3½ percent of the area of the hoistway nor less than 3 square feet (0.28 m<sup>2</sup>) for each elevator

car, whichever is greater. Such vents shall comply with the following requirements:

2.1. **Open vents.** Of the total required vent area, not less than one-third shall be permanently open or equipped with an openable hinged damper. The smoke hole shall be permanently open.

2.2. **Closed vents.** The two-thirds closed portion of the required vent area either in the hoistway enclosure or in the elevator machine room may consist of windows or skylights glazed with annealed glass not more than 1/8-inch (3.2 mm) thick. A closed damper that opens upon the activation of a smoke detector placed at the top of the hoistway shall be considered closed.

**3004.6.2 Mechanical ventilation of the hoistway enclosure.** Hoistway enclosures may be mechanically vented. The system of mechanical ventilation shall be of sufficient capacity to exhaust at least 12 air changes per hour of the volume of such hoistways through a roof or an approved location on an exterior wall other than the lot line wall. Such system shall comply with the following requirements:

1. The smoke detector shall be placed at the top of the hoistway and shall activate the mechanical ventilation system.
2. Such mechanical ventilation system shall not pass through the overnight sleeping areas of a hotel, multiple dwelling, hospital or similar buildings.
3. Such mechanical ventilation system shall be equipped with a manual shut-off in or near the elevator control panel at the designated level.

**3004.6.3 Air pressurization of hoistway enclosure.** Hoistways may be air pressurized. Where such system is utilized, the air shall not cause erratic operation of the landing or car door equipment, traveling cables, selector tapes, governor ropes, compensating ropes, or any other components sensitive to excess movement or deflection.

**3004.6.4 Alternate means.** The commissioner may accept alternate means to prevent the accumulation of smoke and hot gases in the hoistways and machine rooms in case of fire.

## SECTION BC 3005 CONVEYING SYSTEMS

**3005.1 General.** Conveying systems 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 except where Exception 2 of Section 707.2 is satisfied.

**3005.2.2 Escalators.** Where provided in below-grade transportation stations, escalators shall have a clear width of 32 inches (813 mm) minimum.

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

■ **3005.3 Conveyors.** Conveyors and related equipment shall comply with ASME B20.1.

**3005.3.1 Enclosure.** Conveyors and related equipment connecting successive floors or levels shall be enclosed with fire barrier walls and approved opening protectives complying with the requirements of Section 3002 and Chapter 7.

**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 Reserved.**

➔ **3005.5 Amusement devices.** Amusement devices shall also comply with rules of the department.

■ **SECTION BC 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 construction 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-resistance rating not less than that required for the hoistway enclosure doors.

■ **3006.5 Sprinklers prohibited.** Sprinklers are not permitted in elevator machine rooms.

■ **3006.6 Plumbing systems.** Plumbing systems not related to elevator machinery shall not be located in elevator equipment rooms.

■ **3006.7 Elevator machinery noise control in multiple dwellings.** Gear-driven machinery, gearless machinery, and motor

generators located in an elevator machinery room or shaft on a roof, or on a floor other than a floor on grade, shall be supported on vibration isolator pads having a minimum thickness of 1/2 inch (12.7 mm).

**SECTION BC 3007  
SERVICE EQUIPMENT CERTIFICATES**

**3007.1 Required.** No service equipment shall be placed in operation until a service equipment certificate of compliance has been obtained in accordance with the provisions of this code.

**3007.2 Posting of inspection certificate.** At the time a service equipment Certificate of Compliance is issued, an inspection certificate issued by the commissioner shall be posted. No such inspection certificate shall be issued for elevators that are not subject to periodic inspections pursuant to this code. The inspection certificate shall be in such form as the commissioner shall determine by rule and shall be posted in a frame with a transparent cover in the car of every passenger and freight elevator and on or near every escalator and moving walk and power-operated scaffold.

**3007.2.1 Alternate posting locations.** In lieu of posting the inspection certificate in those locations specified in this section, the inspection certificate may be kept in the on-site building manager's office. In such case, the building manager's office must be open during normal business hours. In addition, notice must be posted in each location and kept in a frame with a transparent cover, or a plaque with an indelible inscription, stating that the inspection certificate is located in the building manager's office and identifying the location of such office.

**3007.3 Temporary use certificates.** The commissioner may issue temporary use certificates for any equipment or device regulated by this code, except power-operated scaffolds, provided that such partial use and operation may be made safely and without endangering public health, safety, and welfare and provided further that such temporary use certificate shall not be issued for a period of more than 30 calendar days, subject to renewal for additional 30-day periods at the discretion of the commissioner. Temporary use certificates for elevators shall also be conditioned upon compliance with the following:

1. The class of service to be permitted shall be designated on the temporary use certificate.
2. The hoistway shall be enclosed throughout in an enclosure complying with ASME 17.1 or with a temporary enclosure in accordance with the requirements for workers' elevators (temporary elevators) of the *Industrial Code of the State of New York*, No. 23.

**3007.3.1 Posting of temporary use certificate.** The temporary use certificate shall be posted in a conspicuous location on, or adjacent to, the device covered by the certificate and shall state that the device has not been finally approved by the commissioner.

### SECTION BC 3008 ELEVATOR, AMUSEMENT AND OTHER DEVICE OPERATORS

**3008.1 Elevator operators.** With the exception of automatic operation, continuous pressure elevators and sidewalk elevators, every passenger and freight elevator with a rise of more than one story shall be in the charge of a designated competent operator, who shall be at least 18 years old, free from serious physical or mental defects, and selected with consideration of his or her abilities to perform his or her duties in a careful and competent manner. Such designated competent operator shall be instructed in accordance with requirements of department rules.

**3008.2 Amusement device operators.** Operators of amusement devices shall meet the requirements of rules of the department.

**3008.3 Other device operators.** Other devices regulated by this code shall, when deemed necessary by the commissioner to protect public safety, be in the charge of a designated competent operator conforming to such qualifications as the commissioner may prescribe, except that operators for workers' hoists shall be assigned as required by the applicable provisions of ASME 10.4.

**3008.4 Sanction for unlawful operation.** If the commissioner finds that any person engaged in operating an elevator, amusement, or other device is not competent to operate the elevator, amusement or other device, the owner, agent or lessee of such elevator, amusement, or other device shall, upon notice from the commissioner, discontinue the operation of such device by such operator.

### SECTION BC 3009 ELEVATOR BEING SERVICED

**3009.1 Signage.** When an existing or new automatic passenger elevator in any building or structure is being serviced by an elevator maintenance company, elevator maintenance personnel, or other person and there are no maintenance personnel available to remain in the elevator car, "CAUTION" sign tapes shall be placed across the car door jamb. One strip of "CAUTION" sign tape shall be placed at a height of 18 inches (457 mm) above the car floor and another strip of "CAUTION" sign tape shall be placed at a height of 54 inches (1372 mm) above the car floor.

**3009.1.1 Sign tape.** The "CAUTION" sign tape shall be 3 inches (76 mm) in width with the words "CAUTION – DO NOT ENTER" repeated every 6 inches (152 mm). The lettering shall be black on yellow background. The letters shall be at least 2 inches (51 mm) high.

### SECTION BC 3010 ACCIDENTS

**3010.1 Accidents.** The owner of any device regulated by this chapter shall promptly notify the commissioner of every accident involving injury to any person requiring the services of a physician or damage to property or to apparatus exceeding \$1,000 on, about, or in connection with such equipment, before

commencing any repairs and shall afford the commissioner every facility for investigating such accident or damage. The commissioner shall make an investigation immediately thereafter, and shall prepare a full and complete report of such investigation. Such report shall give in detail all material facts and information available and the cause or causes as far as they can be determined. Such report shall be a public record. When an accident involves the failure or destruction of any part of the construction or operating mechanism of such equipment, no such equipment shall be used until it has been made safe, and reinspected by the commissioner. The commissioner may order the discontinuance of such equipment until a new service equipment certificate has been issued by him or her for its use. No part shall be removed from the premises of the damaged construction or operating mechanism until permission to do so has been granted by the commissioner.

### SECTION BC 3011 EXISTING INSTALLATIONS

**3011.1 General.** Existing installations shall be modified in accordance with department rules.

### SECTION BC 3012 INSPECTION AND TESTING

**3012.1 Elevators and conveying systems.** Inspection and testing of elevators and conveying systems shall be in accordance with Appendix K. Refer to Chapter 3 of Title 28 of the *Administrative Code* for additional requirements.

**3012.2 Amusement devices.** Inspection and testing of amusement devices shall comply with rules of the department. Refer to Chapter 3 of Title 28 of the *Administrative Code* for additional requirements.

