

1 RCNY §3005-04

CHAPTER 3000

Elevators and Conveying Systems

Subchapter A

Amusement Devices

§3005-04 Design guidelines.

- (a) **General requirements.** All new and altered structures used in connection with amusement devices must be designed and constructed in accordance with ASTM F1159, F1193, F2374, F2375, and F2291 and relevant provisions of the Building Code to safely carry all loads to which such structures may normally be subjected.
- (1) **Stress analysis.** All amusement devices must be designed, constructed, and installed to withstand any normal stresses to which they may be subjected. Stress analysis must include the effect of forces generated by acceleration, deceleration, centrifugal action, or by kinetic or other forces that are constant, reversible, or eccentric. Materials and other data pertinent to the design, factors of safety, or performance characteristics must be in accordance with accepted engineering practices, standards and specifications acceptable to the Department.
- (2) **Stability.** Before being used by the public, amusement devices must be placed or secured with blocking, cribbing, outriggers, guys or other methods as required by the manual in order to be stable under all operating conditions.
- (3) **Foundations.** The manual containing the recommended foundations must be kept with all permanent and temporary amusement devices. If the manual does not contain the required foundations, then a plan and design of the footings prepared by a registered design professional must be prepared and kept with the amusement device. Such plan must indicate the size and pressure under the footings and allowable soil bearing capacity.
- (4) **Passenger restraining or containing devices.**
- (i) Passenger restraining or containing devices must be provided and used by passengers on any amusement device where centrifugal and other forces or mechanical malfunction could unseat or eject a passenger. Such passenger restraining or containing devices must be designed, constructed, installed, and maintained to safely support the passenger.
 - (ii) Amusement devices equipped with a safety bar, cage, or other mechanically operated restraining device must be equipped with a device designed so that the safety bar, cage, or other mechanically operated device cannot be released except at the point of loading or unloading by the device operator.
 - (iii) Anchorage for the required restraining devices must have a minimum strength equal to the strength of the restraining device.
 - (iv) Fastenings of the restraining or containing device must be of a type that cannot be unintentionally released by the passenger.
- (5) **Passenger loading and unloading.** Belts, bars, foot rests, and other equipment necessary for safe entrance and exit, and for support while the amusement device is in operation, must be provided and maintained in a safe condition. Such equipment and fastenings must be of sufficient strength to hold or support the passengers.

- (6) **Electrical work.** When setting up amusement devices, the electrical work must conform to the requirements of the New York City electrical code. All amusement devices powered by electricity must be provided with a main disconnect switch capable of being locked only in the “off” position.
 - (7) **New and modified amusement devices.** For any new permanent, temporary, or portable amusement devices, or whenever any additions or alterations are made to any amusement device that change its structure, mechanism, or capacity, a registered design professional must submit signed and sealed plans of the amusement device to the Department for approval. Such plans must contain design data, safety factors, materials utilized, stress analysis and any other relevant data.
 - (8) **Air compressors and equipment.** Air compressors, air compressor tanks, and related equipment must be designed, constructed, and maintained to ensure safe operation at all times. Air compressor tanks and other air receivers used in connection with air compressors must have the maximum and minimum allowable working pressures noticeably and clearly marked on the tanks and receivers.
 - (9) **Adequate clearance.** There must be sufficient clearance in the path of travel of an amusement device to ensure that a passenger in the riding position cannot be injured by contact with any structural component or other fixed object.
 - (10) **Handrails.** Handrails for new stairs, stairways, ramps, and walkways associated with the amusement device must be in accordance with Section 1009.11 of the Building Code. Handrails must be of sufficient attachment strength in accordance with Section 1607.7.1 of the Building Code. Handrails of existing structures must be in compliance with the codes in existence at the time the structure was originally constructed.
 - (11) **Stairways, landings and ramps.** Stairways, landings and ramps must be designed, constructed, and maintained to safely support a minimum live load of 100 pounds per square foot (488.2 kg/m²).
 - (12) **Surfaces.** Stairways, landings and ramps must have non-slip surfaces.
 - (13) **Flame resistant fabrics.** Fabrics constituting part of an amusement device must be flame resistant as defined in Section 802 of the New York City Fire Code.
- (b) **Safety devices.** The following safety devices, as listed below, must be incorporated into the design of the amusement device or ride:
- (1) **Emergency brakes.** If cars or other components of an amusement device are capable of colliding upon failure of normal controls, the device must be equipped with emergency brakes sufficient to prevent such collisions.
 - (2) **Anti-roll back devices.** Amusement devices that use inclined tracks must be equipped with automatic anti-roll back devices to prevent backward downward movement of the passenger-carrying units.
 - (3) **Speed limiting devices.** An amusement device capable of exceeding its maximum safe operating speed must be equipped with an electrical or mechanical maximum speed-limiting device.
 - (4) **Emergency stop switches.** The installation or modification of emergency stop (e-stop) switches must be in accordance with ASTM F2291, the manufacturer’s manual and/or bulletin, or as directed by the commissioner.