Proposed Revisions for ASME A18.1-20XX

Revision to A18.1-2017

Safety Standard for Platform Lifts and Stairway Chairlifts
Record 15-2744

Proposed Revision to A18.1, Section 2.1.2.7, 2.1.3.3, 2.1.4.4, 5.1.1.2, 5.1.1.8 Guarding:

2.1.2.7 A smooth vertical surface fascias of unperforated construction shall be securely fastened provided from the top terminal landing sill and any intermediate landing sill to not less than 25mm (1 in) below the level of the platform floor on the lower mechanical stop. Where a pit is provided and is less than 25mm (1 in.) in depth, the surface shall extend to the pit floor. Bottom terminal landing sill. Openings necessary for operation shall reject a ball 12 mm (0.5 in.) in diameter. A device to stop the platform if an object protrudes beyond the platform edge into the running clearance shall be provided if the fascia is perforated. The device used shall be effective for the full width of the platform opening and for the full travel of the platform.

They surface fascia shall be capable of withstanding a force of 330N (75lbf) on a 100 mm (4 in.) by 100 mm (4 in.) surface and have deflection less than 20 mm (.75 in.) in any location be equal to or stronger than 1.5 mm (0.0598 in.) sheet steel and guard the full width of the platform floor. The surfaces fascias shall not be permanently deformed when a force of 550 N (125 lbf) is applied on any 100 mm (4 in.) by 100 mm (4 in.) area.

Projections from the vertical surface shall not exceed 5 mm (0.20 in), and projections exceeding 2 mm (0.08 in) shall be beveled at an angle of 15° or less to the line of travel. The clearance between the platform edge and the landing sill or any vertical surface of the hoistway shall be not less than 10 mm (0.375 in.) nor more than 20 mm (0.75 in.).

2.1.3.3 A smooth vertical surface fascia shall be provided from the top terminal landing sill and any intermediate landing sill to not less than 25mm (1 in) below the level of the platform floor on the lower mechanical stop. Where a pit is provided and is less than 25mm (1 in.) in depth, the surface shall extend to the pit floor, bottom terminal landing sill. Openings necessary for operation shall reject a ball 12 mm (0.5 in.) in diameter. A device to stop the platform if an object protrudes beyond the platform edge into the running clearance shall be provided if the fascia is perforated. The device used shall be effective for the full width of the platform opening and for the full travel of the platform.

The fascia surface shall be equal to or stronger than 1.5 mm (0.0598 in.) sheet steel and guard the full width of the platform, capable of withstanding a force of 330N (75lbf) on a 100 mm (4 in.) by 100 mm (4 in.) surface and have deflection less than 20 mm (.75 in.) in any location. The surface shall not be permanently deformed when a force of 550 N (125 lbf) is applied on any 100 mm (4 in.) by 100 mm (4 in.) area. The fascia surface shall not be capable of withstanding a force of 330N (75lbf) on a 100 mm (4 in.) by 100 mm (4 in.) surface and have deflection less than 19 mm (.75 in.) in any location permanently deformed when a force of 550 N (125 lbf) is applied on any 100 mm (4 in.) by 100 mm (4 in.) area.

Projections from the vertical surface shall not exceed 5 mm (0.20 in), and projections exceeding 2 mm (0.08 in) shall be beveled at an angle of 15° or less to the line of travel. The clearance between the platform edge and the landing sill or any vertical surface of the hoistway shall be not less than 10 mm (0.375 in.) nor more than 20 mm (0.75 in.).
2.1.4.4 A smooth vertical surface fascia shall be provided from the top terminal landing sill and any intermediate landing sill to not less than 25mm (1 in) below the level of the platform floor on the lower mechanical stop. Where a pit is provided and is less than 25mm (1 in.) in depth, the surface shall extend to the pit floor, bottom terminal landing sill. Openings necessary for operation shall reject a ball 12 mm (0.5 in.) in diameter. The fascia shall guard the full width of the platform.

The fascia surface shall not be capable of withstanding a force of 330N (75lbf) on a 100 mm (4 in.) surface and have deflection less than 20 mm (.75 in.) in any location. The surface shall not be permanently deformed when a force of 550 N (125 lbf) is applied on any 100 mm (4 in.) by 100 mm (4 in.) area.

Projections from the vertical surface shall not exceed 5 mm (0.20 in), and projections exceeding 2 mm (0.08 in) shall be beveled at an angle of 15° or less to the line of travel. The clearance between the platform edge and the landing sill or any vertical surface fascia of the hoistway and platform edge shall be not less than 10 mm (0.375 in.) nor more than 20 mm (0.75 in.).

5.1.1.2 A smooth vertical surface fascia shall be provided from the top terminal landing sill and any intermediate landing sill to not less than 25mm (1 in) below the level of the platform floor on the lower mechanical stop. Where a pit is provided and is less than 25mm (1 in.) in depth, the surface shall extend to the pit floor, bottom terminal landing sill. Openings necessary for operation shall reject a ball 12 mm (0.5 in.) in diameter. A device to stop the platform if an object protrudes beyond the platform edge into the running clearance shall be provided if the fascia is perforated. The device used shall be effective for the full width of the platform opening and for the full travel of the platform. The fascia shall be equal to or stronger than 1.5 mm (0.0598 in.) sheet steel and guard the full width of the platform.

The fascia surface shall not be capable of withstanding a force of 330N (75lbf) on a 100 mm (4 in.) surface and have deflection less than 20 mm (.75 in.) in any location. The surface shall not be permanently deformed when a force of 550 N (125 lbf) is applied on any 100 mm (4 in.) by 100 mm (4 in.) area.

Projections from the vertical surface shall not exceed 5 mm (0.20 in), and projections exceeding 2 mm (0.08 in) shall be beveled at an angle of 15° or less to the line of travel. The clearance between the platform edge and the landing sill or any vertical surface fascia of the hoistway and platform edge shall be not less than 10 mm (0.375 in.) nor more than 20 mm (0.75 in.).

Rationale: The location of the vertical fascia and the gap between it and the platform edge is not specified in 5.1.1.2 and if set back from the landing sill would create a pinching or shearing hazard. The language in 2.1.2.7 and 2.1.3.3 and 2.1.4.4 were brought into alignment with 5.1.1.2. Change of the term fascia to surface is to clarify language. Deflection and projection requirements were added for increased safety. Removal of perforated option eliminated the need for a device to stop the platform if an object protrudes beyond the platform edge into the running clearance.
Record 15-2747

Proposed Revision to A18.1, Manual Operation on all Equipment regardless of Standby Power:

2.10.10 Manual Emergency Operations. Means shall be provided to permit lift or authorized personnel to raise or lower the platform manually in the event of power failure, unless standby (emergency) power complying with Requirement 2.12 is provided. This means shall only be accessible to lift personnel, emergency personnel or authorized personnel. The means to raise or lower the platform shall be capable of moving the platform to a landing and of being accessed and operated without working directly above the platform.

2.10.10.1 The means to manually raise or lower the platform shall be capable of moving the platform to a landing and of being accessed and operated without working directly above the platform. The means shall be permitted to be:

- (a) an independent battery operated system to manually raise or lower the lift;
- (b) a manual pump, lowering valve, or cable release device where a hydraulic drive system is utilized; or
- (c) other suitable means

2.10.10.2 If an opening in the runway is required to access the means to manually raise or lower the platform it shall be:

- (a) located to permit the required access
- (b) a maximum width of 300mm (12”) and a maximum height of 300mm (12”). The opening size shall be permitted to be increased provided that any resultant opening into the runway shall reject a 300mm (12”) ball.
- (c) Provided with a door that shall be kept closed and locked. Keys to unlock the access door to the lift runway shall be available only to lift, authorized or emergency personnel.
- (d) It shall be attached so that it cannot fall when opened and shall not open into the runway.
- (e) It shall be monitored so that the lift cannot be put back into normal operation without being in its closed and locked position.

2.11 Emergency Signals...

2.12 Standby Emergency Power

Lifts shall be permitted to have standby emergency power to raise or lower the lift in the event of main power failure. Where the standby emergency power is required by the building code is to be used in lieu of manual operation complying with Requirement 2.10.10, it shall comply with 2.12.1 through 2.12.3.

3.10.10 Manual Emergency Operations. Means shall be provided to permit lift or authorized personnel from a position outside the platform to raise or lower the platform manually along the path of travel unless standby (emergency) power complying with para. 3.12 is provided. This means shall only be accessible to lift personnel, emergency personnel or authorized personnel. The means to raise or lower the platform shall be capable of moving the platform to a landing and of being accessed and operated without working directly above the platform.
3.10.10.1 The means to manually raise or lower the platform lift shall be capable of moving the platform to a landing, provide for controlled ascent or descent no faster than the rated speed and shall be permitted to override operating devices and control equipment. The means shall be permitted to be:

(a) an independent battery operated system to manually raise or lower the lift;
(b) a manual pump, lowering valve, or cable release device where a hydraulic drive system is utilized; or
(c) other suitable means

3.10.10.2 If an opening in the runway is required to access the means to manually raise or lower the platform it shall be:

(a) located to permit the required access
(b) a maximum width of 300mm (12”) and a maximum height of 300mm (12”). The opening size shall be permitted to be increased provided that any resultant opening into the runway shall reject a 300mm (12”) ball.
(c) Provided with a door that shall be kept closed and locked. Keys to unlock the access door to the lift runway shall be available only to lift, authorized or emergency personnel.
(d) It shall be attached so that it cannot fall when opened and shall not open into the runway
(e) It shall be monitored so that the lift cannot be put back into normal operation without being in its closed and locked position

3.11 Emergency Signal...

3.12 Standby Emergency Power

Lifts shall be permitted to have standby emergency power to raise or lower the lift in the event of main power failure. Where the standby emergency power is required by the building code in lieu of manual operation complying with Requirement 3.10.10, it shall comply with 3.12.1 through 3.12.3.

5.10.10 Manual Emergency Operations. Means shall be provided to permit lift or authorized personnel to raise or lower the platform manually in the event of power failure, unless standby (emergency) power is provided. This means shall only be accessible to lift personnel, emergency personnel or authorized personnel. The means to raise or lower the platform shall be capable of moving the platform to a landing and of being accessed and operated without working directly above the platform.

5.10.10.1 The means to manually raise or lower the lift shall provide for controlled ascent or descent no faster than the rated speed and shall be permitted to override operating devices and control equipment. The means shall be permitted to be:

(a) an independent battery operated system to manually raise or lower the lift;
(b) a manual pump, lowering valve, or cable release device where a hydraulic drive system is utilized; or
(c) other suitable means

5.10.10.2 If an opening in the runway is required to access the means to manually raise or lower the platform it shall be:

(a) located to permit the required access
(b) a maximum width of 300mm (12”) and a maximum height of 300mm (12”). The opening size shall be permitted to be increased provided that any resultant opening into the runway shall reject a 300mm (12”) ball.
(c) Provided with a door that shall be kept closed and locked. Keys to unlock the access door to the lift runway shall be available only to lift, authorized or emergency personnel.
(d) It shall be attached so that it cannot fall when opened and shall not open into the runway.
(e) It shall be monitored so that the lift cannot be put back into normal operation without being in its closed and locked position.

5.11 Code Data Plate...

5.12 Lifts shall be permitted to have standby emergency power to raise or lower the lift in the event of a main power failure.

6.10.10 **Manual Emergency Operations.** Means shall be provided to permit lift or authorized personnel from a position outside the platform to raise or lower the platform manually along the path of travel. This means shall only be accessible to lift personnel, emergency personnel or authorized personnel. The means to raise or lower the platform shall be capable of moving the platform to a landing and of being accessed and operated without working directly above the platform.

6.10.10.1 The means to manually raise or lower the lift shall provide for controlled ascent or descent no faster than the rated speed and shall be permitted to override operating devices and control equipment. The means shall be permitted to be:
(a) an independent battery operated system to manually raise or lower the lift;
(b) a manual pump, lowering valve, or cable release device where a hydraulic drive system is utilized; or
(c) other suitable means

6.10.10.2 If an opening in the runway is required to access the means to manually raise or lower the platform it shall be:
(a) located to permit the required access
(b) a maximum width of 300mm (12”) and a maximum height of 300mm (12”). The opening size shall be permitted to be increased provided that any resultant opening into the runway shall reject a 300mm (12”) ball.
(c) Provided with a door that shall be kept closed and locked. Keys to unlock the access door to the lift runway shall be available only to lift, authorized or emergency personnel.
(d) It shall be attached so that it cannot fall when opened and shall not open into the runway.
(e) It shall be monitored so that the lift cannot be put back into normal operation without being in its closed and locked position.

6.11 Code Data Plate...

6.12 Lifts shall be permitted to have standby emergency power to raise or lower the lift in the event of a main power failure.
**Rationale**: A lack of mains power is not the only thing that will cause a lift to stop when traveling between landings requiring rescue assistance so the manual lowering and/or raising device should be provided whether or not you have standby (emergency) power. Added rules to address safety concerns if access doors are needed to install manual lowering device and to clarify that additional means such as battery emergency lowering is permitted and on hydraulic drives a manual valve release cable is permitted. Added that overriding operating devices and control equipment is allowed but of course if on safeties lift won’t lower. Changed in all sections to be consistent.
1.3 Definitions

**inspection and tests acceptance:** the initial inspection and tests of new or altered equipment to check for compliance with the applicable requirements.

**periodic:** routine inspections and tests plus additional detailed examination and operation of equipment at specified intervals witnessed by an inspector to check for compliance with the applicable requirements.

**routine:** the examination and operation of equipment at specified intervals by an inspector to check for compliance with the applicable requirements.

**Rationale:** These definitions are not necessary as the code is clear as to what periodic and acceptance inspections and tests are and we are removing “routine” from the standard.

10 ROUTINE, PERIODIC, AND ACCEPTANCE AND PERIODIC INSPECTIONS AND TESTS

Section 10 covers routine, periodic, and acceptance inspections and tests. The inspections and tests shall apply to the corresponding requirements of sections 2 through 7.

10.1 General Requirements

10.1.1 Routine Periodic Inspections and Tests. Routine Periodic inspections and tests shall be made or witnessed by an inspector employed by or authorized by the authority having jurisdiction, by an inspector employed by an accredited insurance company that is the primary insurer of the equipment to be inspected, or by a person authorized by the authority having jurisdiction.

10.1.1.1 The inspector shall submit a signed written report to the authority having jurisdiction containing the following information:

(a) date and time of inspection (s)
(b) Type of test (s) performed
(c) Detailed results of the test (s)
(d) Code deficiencies noted during the inspection and test (s), including references to the applicable code and rule numbers (s)
(e) Statement as to any corrective action taken

10.1.2 Periodic Inspections and Tests

10.1.2.1 Periodic inspections and tests shall be witnessed by an inspector employed by the authority having jurisdiction, except as specified in para. 10.1.2.3. or by an inspector authorized by the authority having jurisdiction.

10.1.2.2 The owner or his authorized agent shall have all of the tests required by para. 10.3 shall be made by a person qualified to perform such service in the presence of the inspector specified in 10.1.1, employed by the authority having jurisdiction, except as specified in para. 10.1.2.3. or by an inspector authorized by the authority having jurisdiction.
10.1.2.3 Where the authority having jurisdiction does not employ a qualified inspector, it shall authorize a qualified person to witness the inspection and tests on its behalf. Immediately after the inspection and tests, the inspector shall submit to the authority having jurisdiction a statement certifying that the inspection and tests have been performed and a report on the results thereof.

The authority having jurisdiction may authorize the person witnessing the tests to

(a) submit to the owner or his authorized agent a statement certifying that the tests have been performed and a report on the results thereof
(b) attach a metal tag to the tested devices as required

10.1.3 Acceptance Inspections and Tests

10.1.3.1 The acceptance inspection shall be made by an inspector employed by the authority having jurisdiction, except as specified in para. 10.1.3.3.

10.1.3.2 The person installing or altering the equipment shall perform all of the tests required by para. 10.4 or 10.5 in the presence of an inspector employed by the authority having jurisdiction, except as specified in para. 10.1.3.3.

10.1.3.3 The authority having jurisdiction may authorize a qualified person to make the inspection and witness the tests on its behalf. Immediately after the inspection and tests, the inspector shall submit to the authority having jurisdiction a statement certifying that the inspection and tests have been performed and a report on the results thereof.

10.1.4 Qualification of Inspectors. All inspectors shall meet the qualification requirements of ASME QEI-1. Inspectors and inspection supervisors shall be certified in accordance with the requirements of ASME QEI-1 by an accredited, independent organization concerned with personnel certification.

10.1.5 Applicability of Inspection and Test Requirements. Inspections and tests required by section 10 are to determine that the equipment conforms with the following applicable standard requirements:

(a) the standard requirements at the time of installation
(b) the standard requirements at the time of any alteration

10.1.6 Installation Placed Out of Service or Altered. When an installation is placed out of service or an alteration is being made to the lift (see para. 1.3, Definitions), inspections and tests may be discontinued. Before the installation is put back in service, it shall be subject to all of the required routine and periodic tests and inspections, including the 1-year, 3-year, and 5-year tests to an acceptance inspection and test (s).

10.2 Routine Inspections and Tests

10.2.1 Inspection and Test Periods. The routine inspections and tests of sections 2 through 4 lifts shall be made at intervals not longer than 6 months. Routine inspections and tests of sections 5 through 7 lifts shall be made at intervals not longer than 1 year.

10.2.2 Inspection and Test Requirements. Routine Periodic inspections and tests shall include, where applicable, the following:

(a) inside platform inspections

(1) stop switches
(2) operating control devices
(3) floor and landing sill
(4) lighting
(5) emergency signal
(6) door or gate
(7) enclosure
(8) floor
(9) signs and operating device symbols
(10) rated load, platform floor area, and data plate
(11) ride

(b) machine inspections
(1) enclosure of machine space
(2) guarding of exposed auxiliary equipment
(3) overhead beam and fastenings
(4) drive-machine brake
(5) traction drive machines
(6) gears and bearings
(7) winding drum machine
(8) belt- or chain-drive machine
(9) traction sheaves
(10) secondary and deflector sheaves
(11) rope fastenings
(12) slack-rope devices
(13) governor, overspeed switch, and seal
(14) platform safeties
(15) hydraulic power unit
(16) control valves
(17) hydraulic cylinders

(c) inside runway inspections
(1) platform, overhead, and deflector sheaves
(2) normal terminal stopping devices
(3) final terminal stopping devices
(4) broken rope, chain, or tape switch
(5) counterweight
(6) head room
(7) slack-rope devices
(8) traveling sheave
(9) platform safeties and guiding members
(10) runway construction
(11) pipes, wiring, and ducts
(12) runway clearances
(13) traveling cables and junction boxes
(14) door and gate equipment
(15) platform frame
(16) guide rails fastening and equipment
(17) governor rope
(18) governor releasing carrier
(19) wire rope fastening and hitch plate
(20) suspension rope
(21) compensation ropes and chains

d) outside runway inspections
   (1) runway doors
   (2) runway door locking devices
   (3) runway enclosure

### 10.3 Periodic Inspections and Tests

*Inspection and Test Periods.* In addition to the routine inspections and tests (para. 10.2), the applicable inspections and tests specified in para. 10.3.1 shall be performed in intervals not longer than 1 year, the applicable inspections and tests specified in para. 10.3.2 shall be made at intervals not longer than 3 years, and the applicable inspections and tests specified in para. 10.3.3 shall be made at intervals not longer than 5 years.

#### 10.3.1 2 One-Year Inspection and Test Requirements
10.3.1 Cylinders. Cylinders that are exposed shall be visually inspect examined. Cylinders that are not exposed shall be tested. After a minimum of 15 min, a change in platform position that cannot be accounted for by visible oil leakage, valve leakage, or temperature change indicates a leak in the unexposed portion of the cylinder or the piping.

10.3.1.2 Platform Safeties

10.3.1.2.1 All working parts of platform safeties shall be inspect examined to determine that they are in satisfactory operating condition.

10.3.1.2.2 Safeties shall be subjected to the following tests with no load in the platform:

(a) Type A, B, or C governor-operated safeties shall be operated by tripping the governor by hand with the platform operating at the slowest operating speed in the down direction. In this test, the safety shall bring the platform to rest promptly. In the case of Type A, B, or C safeties employing rollers or dogs for application of the safety, the rollers or dogs are not required to operate their full travel.

(b) Governor-operated wood guide-rail safeties shall be tested by tripping the governor by hand with the platform at rest and moving the platform in the down direction until it is brought to rest by the safety, and the hoisting ropes slip on the traction machines or become slack on winding drum machines.

(c) Type A and wood guide-rail safeties without governors that are operated as a result of the breaking or slackening of the hoisting ropes, shall be tested by obtaining the necessary slack rope to cause it to function.

10.3.3 Governors. Governors shall be inspect examined and operated manually to determine that all parts, including those that impart the governor pull-through tension to the governor rope, operate freely.

10.3.4 Slack-Rope Devices on Winding Drum Machines. Slack-rope devices on winding drum machines shall be operated manually and inspect examined to determine conformance with the applicable requirements.

10.3.5 Normal and Final Terminal Stopping Devices. Normal and final terminal stopping devices shall be inspect examined and tested to determine conformance with the applicable requirements.

10.3.6 Broken Rope, Tape, or Chain Switch. Where a rope, tape, or chain is used to connect the motion of the platform to the machine room normal limit, the switch that senses failure of this connection shall be tested.

10.3.7 Slack-Rope Device on Roped-Hydraulic Machines. Slack-rope devices for roped-hydraulic lifts will be tested for conformance by lowering the platform or blocking and creating slack rope causing the device to operate. The slack rope can also be obtained by operation of the safety during the annual safety test.

10.3.8 Three-Year Inspection and Test Requirements

10.3.8.1 Unexposed Portions of Pistons. Piston rods of roped water hydraulic lifts shall be exposed, thoroughly cleaned, and inspect examined for wear or corrosion. The piston rods shall be replaced if, at any place, the diameter is less than the root diameter of the threads.

10.3.9 Five-Year Inspection and Test Requirements
10.3.3.1 Platform Safeties. Types A, B, and C safeties, except those operating on wood-guide rails and their governors, shall be tested with rated load in the platform. Inclined platform lifts and inclined stairway chairlifts with Type A nonadjustable safeties complying with para. 9.9.3 shall be permitted to be tested with no load in the platform. A test shall be made by tripping the governor by hand at the rated speed. The following operational conditions shall be checked:

(a) Type B safeties shall stop the platform with the rated load within the required range of stopping devices for which the governor is tripped.

(b) For Type A safeties and Type A safety parts of Type C safeties, there shall be sufficient travel of the safety rollers or dogs remaining after the test to bring the platform and its rated load to rest on safety application at governor tripping speed. A metal tag shall be attached to the safety-releasing carrier in a permanent manner, giving the date of the safety test together with the name of the person or firm who performed the test.

10.3.3.2 Governors

10.3.3.2.1 The tripping speed of the governor and the speed at which the governor overspeed switch, where provided, operates shall be tested to determine conformance with the applicable requirements and the adjustable means shall be sealed. This test is not required for inclined platform lifts and inclined stairway chairlifts with Type A nonadjustable safeties complying with para. 9.9.3.

10.3.3.2.2 The governor rope pull-through force shall be tested to determine conformance with the applicable requirements, and the adjustment means shall be sealed.

10.3.3.2.3 After these tests, a metal tag indicating the date of the governor tests together with the name of the person or firm that performed the tests shall be attached to the governor in a permanent manner.

10.3.3.3 Brake. The brake shall be tested by placing 125% of rated load in the platform and running it to the lowest landing by normal operating means. The driving machine shall safely lower, stop, and hold the platform with this overload.

10.3.3.4 Ropes. Ropes used on roped-hydraulic lifts shall be inspected. Coated rope shall be required to have a magnetic flux test capable of detecting broken wires in addition to a visual test.

10.3.3.5 Fastenings. Wire rope fastenings on roped-hydraulic lifts utilizing hydraulic jacks equipped with pistons that are hidden by cylinder head seals shall also be inspected even if it is temporarily necessary to support the platform by other means and disassemble the cylinder head.

10.4 Acceptance and 5-year Periodic Inspections and Tests

Inspections and Tests Required. All new installations shall be inspected and tested to determine their safety and compliance with the applicable requirements of this Standard before being placed in service. The inspections and tests shall include routine (para. 10.2) periodic (para. 10.3) and those specified in para. 10.4.3.

Installations on which alterations have been performed shall be inspected and tested as required by para. 10.5 before being placed back in service.

10.4.3 General Requirements for Types A, B, and C Safeties. The following requirements apply to the acceptance tests of Types A, B, and C safeties.
10. 4.3.1.1 Platform safeties shall be tested with rated load in the platform. Inclined platform lifts and inclined stairway chairlifts with Type A nonadjustable safeties complying with para. 9.9.3 shall be permitted to be tested with no load in the platform. In making the test of platform safeties, the load shall be centered on each quarter of the platform floor symmetrically with respect to the centerlines of the platform floor. Counterweight safeties, where provided, shall be tested with no load in the platform.

10. 4.3.1.2 The tripping speed of the governor shall be measured by means of a tachometer, except for inclined platform lifts and inclined stairway chairlifts with Type A nonadjustable safeties complying with para. 9.9.3.

10. 4.3.1.3 If adjustments to the governor tripping speed are made, the governor shall be sealed immediately following the test.

10. 4.3.1.4 The operation of the governor overspeed and the platform safety-mechanism switch shall be tested to determine conformance.

10. 4.3.1.5 After the safety has stopped the platform, the level of the platform floor shall be checked to determine conformance.

10. 4.3.2 Type A Governor-Operated Safeties. Type A governor-operated safeties shall be tested by operating the platform at its normal speed in the down direction and tripping the governor jaws by hand. A test shall also be made of the inertia application of the safety to determine conformance by attaching the proper weight to the return run of the governor rope. The manufacturer shall inform the person making the test, of the weight necessary to be added to the governor rope when making the inertia application test. This weight shall be the weight necessary to reproduce inertia operation of the safety, at not more than 9/10 gravity. The inertia application test shall be made with the platform stationary, and the weight when released shall move the safety parts into contact with the rails. Inertia application of the safety on Type A auxiliary safety plank of Type C safeties is not required.

10. 4.3.2.1 If means other than inertia application of the safety is provided, such means shall be tested in an appropriate manner to ensure that the safety will apply without appreciable delay under free-fall conditions and that safety application is independent of the location of the break in the hoisting ropes.

10. 4.3.3 Type A Safeties Without Governors. Type A safeties without governors that are operated only as a result of the breaking or slackening of the suspension ropes, shall be tested by obtaining the necessary slack rope to cause it to function.

10. 4.3.4 Types B and C Safeties

10. 4.3.4.1 Types B and C safeties shall be subjected to an overspeed test, with the suspension ropes attached, by gradually increasing the speed of the platform until the governor causes application of the safety. Safeties of lifts equipped with alternating-current driving machine motors, where the platform with its rated load does not cause sufficient overspeed when the machine brake is released to trip the governor jaws, shall be tested by operating the platform at its normal speed in the down direction and tripping governor jaws by hand.

10. 4.3.4.2 The overspeed switch on the governor shall be inoperative during the overspeed test. In order to assume that the safety will retard the platform with minimum assistance from the driving machine and minimize the development of slack rope and fallback of the counterweight, the switch on the platform operated by the platform safety mechanism shall, for the duration of the test, be
temporarily adjusted to open as close as possible to the position at which the platform safety mechanism is in the fully applied position.

10.4.3.5 Normal Terminal Stopping Devices

10.4.3.5.1 The bottom normal terminal stopping device shall be tested with 125% of rated load on the platform for conformance.

10.4.3.5.2 The top normal terminal stopping device shall be tested with no load on the platform for conformance.

10.4.3.6 Stop Ring. The plunger shall be inspected by inching the platform up to verify that a stop ring has been provided.

10.4.3.7 Bottom Cylinder Clearance. The bottom cylinder clearance shall be checked to determine conformance.

10.4.3.8 Speed. The rated speed in the up direction and the operating speed in the down direction shall be verified.

10.5 Inspection and Test Requirements for Altered Installations

Where any alteration is made, the entire installation shall comply with the applicable sections 2 through 7 including para. 10.4, Acceptance Inspections and Tests.

Rationale: Removed the use of routine inspections and tests as the rules do not include testing requirements but only visual inspection. Periodic testing more frequently than annually would be up to the AHJ. Clarified Periodic inspection and tests, and Acceptance inspection and tests. The 3 year test was eliminated because there are no products in the field or being manufactured today with water hydraulics. The 5 year test where required by AHJs is identified as the same as an acceptance test. Clarified that altered lifts and lifts that have been placed out of service are subject to Acceptance inspection and test requirements before being place back in service.
New definition to be added to 1.3 Definitions:

**Type A safeties**: safeties that develop a rapidly increasing pressure on the guide rails during the stopping interval, the stopping distance being very short due to the inherent design of the safety. The operating force is derived entirely from the mass and the motion of the car or the counterweight being stopped. These safeties apply pressure on the guide rails through eccentrics, rollers, or similar devices, without any flexible medium purposely introduced to limit the retarding force and increase the stopping distance.

2.8.6 Level of Platform Floor on Safety Application.
The application of a Type A or Type B safety to stop the platform, with its rated load centered on each quarter of the floor symmetrically with relation to the centerline of the floor, shall not cause the floor to be out of level more than 30 mm/m (0.375 in./ft) in any direction.

3.8.3.1 Level of Platform Floor on Safety Application.
The application of a Type A or Type B safety to stop the platform with its rated load centered on each quarter of the platform floor symmetrically with relation to the centerline of the platform floor, shall not cause the platform floor to be out of level more than 30 mm/m (0.375 in./ft) in any direction.

4.8.3.1 Level of Chair on Safety Application.
The application of a Type A or Type B safety to stop the chair, with its rated load shall not cause the chair to be out of level more than 30 mm/m (0.375 in./ft) in any direction.

5.8.6 Level of Platform on Safety Application.
The application of a Type A or Type B safety to stop the platform, with its rated load centered on each quarter of the platform floor symmetrically with relation to the centerline of the platform floor, shall not cause the platform to be out of level more than 30 mm/m (0.375 in./ft) in any direction.

6.8.4 Level of Platform on Safety Application.
The application of a Type A or Type B safety to stop the platform with its rated load centered on each quarter of the platform floor symmetrically with relation to the centerline of the platform floor shall not cause the platform floor to be out of level more than 30 mm/m (0.375 in./ft) in any direction.

7.8.4 Level of Chair on Safety Application.
The application of a Type A or Type B safety to stop the chair, with its rated load, shall not cause the chair to be out of level more than 30 mm/m (0.375 in./ft) in any direction.

9.9 Engineering Tests

9.9.1 General Requirements. The following tests shall be conducted by a nationally recognized testing laboratory.
9.9.1 9.9.2 Test of Combination Mechanical Locks and Electric Contacts

Tests of combination mechanical locks and electric contacts shall be conducted by a nationally recognized testing laboratory.

9.9.1.1 9.9.2.1 General. This section specifies the type of testing for locking devices for doors or gates.

9.9.1.2 9.9.2.2 Connections for and Test of Electrical Parts. During the tests specified by paras. 9.9.1.3, 9.9.2.3, and 9.9.1.3.4, 9.9.2.3.4, the devices shall have their electrical parts connected in a noninductive electrical circuit having a constant resistance and in which the rated current at rated voltage is flowing. The electric circuit shall be closed, but shall not be broken at the contact within the device on each cycle of operation during the tests.

9.9.1.3 9.9.2.3 Tests of Combination Mechanical Locks and Electric Contact. The testing equipment shall actuate the locking members of combination mechanical locks and electric contacts to unlock at each cycle of operation during the tests specified by paras. 9.9.1.3.1, 9.9.1.3.3, 9.9.2.3.1, 9.9.2.3.3, and 9.9.1.3.4, 9.9.2.3.4.

9.9.1.3.1 9.9.2.3.1 Endurance Test. The device, lubricated in accordance with the manufacturer’s instruction, shall complete 25 000 cycles of operation without failure of any kind, without excessive wearing or loosening of parts, and without undue burning or pitting of the contacts.

9.9.1.3.2 9.9.2.3.2 Current Interruption Test. After completion of the test specified by para. 9.9.1.3.1, 9.9.2.3.1, the device therein shall satisfactorily complete the following additional tests, to check that the ability to break a live circuit is adequate. The test shall be carried out with the locking device located in accordance with the manufacturer’s drawings.

   (a) Alternating-current-rated (AC) locking devices shall have their electrical parts connected to an inductive circuit with a power factor of 0.7 ± 0.05 in which a current of 11 times the rated current, at 110% of rated voltage, is flowing. The AC locking devices shall open and close 50 times, at normal speed, and at intervals of 5 s to 10 s, with the contact remaining closed for at least 0.5 s.

   (b) Direct-current-rated (DC) locking devices shall have their electrical parts connected to an inductive circuit in which the current reaches 95% of the steady state value of 110% of the rated current in 0.3 s max, at 100% of rated voltage. The DC locking devices shall open and close 20 times, at normal speed, and at intervals of 5 s to 10 s, with the contact remaining closed for at least 0.5 s.

   (c) The tests results are considered satisfactory if no evidence of insulation breakdown due to arcing or tracking occurs and if no deterioration occurs that could adversely affect safety.

9.9.1.3.3 9.9.2.3.3 Test Without Lubricant. After completion of the test specified by para. 9.9.1.3.2, 9.9.2.3.2, the device used therein shall be used for this test. The device, except self-lubricating bearings and bearings of a type not requiring frequent replenishment of lubricant, shall then be taken apart and freed of lubricant by washing in nonflammable liquids having cleansing characteristics. After reassembling, the device shall, without other than the usual initial adjustment (i.e., without adjustment especially made to meet the conditions of the particular test) and without further attention, complete 20 000 cycles of operation without failure of any kind, without excessive wearing or loosening of parts, and without undue burning or pitting of contacts.
9.9.1.3.4 Test in Moist Atmosphere. After completion of the test specified in para. 9.9.1.3.3, the device used therein shall be used for this test. The devices shall be subjected continuously, in an unventilated enclosure, to an atmosphere saturated with a range of 3.5% to 5% solution of sodium chloride for 72 consecutive hours. During this period, it shall be operated for only 10 consecutive cycles at the end of each of the first two 24-h periods and shall be allowed to stand exposed to the air for 24 h, and shall not fail in a manner that creates an unsafe condition. The device shall again be lubricated and shall, without adjustment and without further attention, complete 10 000 cycles of operation without failure of any kind.

9.9.1.3.5 Misalignment Test

(a) All Types of Doors. The device shall operate effectively when the car cam or other equivalent operating device used in making the test has been displaced horizontally from its normal position (the position in which it was when the device was installed) successively as follows:

1. in a direction perpendicular to the plane of the door opening
   - (a) backward 6 mm (0.25 in.)
   - (b) forward 6 mm (0.25 in.)

2. in a direction parallel to the plane of the door opening
   - (a) to the right 6 mm (0.25 in.)
   - (b) to the left 6 mm (0.25 in.)

(b) Horizontally Sliding Doors. The device shall operate effectively

1. when the bottom of the door has been displaced horizontally from its normal positioning in a direction perpendicular to the plane of the door opening
   - (a) backward 6 mm (0.25 in.)
   - (b) forward 6 mm (0.25 in.)

2. when the top of the door has been displaced horizontally from its normal position in a direction perpendicular to the plane of the door opening
   - (a) backward 3 mm (0.125 in.)
   - (b) forward 3 mm (0.125 in.)

(c) Swinging Doors. The device shall operate effectively when the strike edge of the door has been displaced

1. perpendicular to the plane of the door opening
   - (a) forward 3 mm (0.125 in.)
   - (b) backward 3 mm (0.125 in.)

2. parallel to the plane of the door opening
   - (a) 3 mm (0.125 in.) to the right
   - (b) 3 mm (0.125 in.) to the left
   - (c) 3 mm (0.125 in.) up
   - (d) 3 mm (0.125 in.) down

9.9.1.3.6 Insulation Test. The insulation of the electrical parts shall withstand a test with a root mean square (effective) voltage of twice the rated voltage plus 1 000 V, 60 Hz, applied for 1 min. The voltage shall be applied between all ungrounded live parts and grounded metal parts, including the intended mounting surface.
**9.9.1.3.7 Static Test.** After completion of the endurance test in para. 9.9.1.3.1, a static force shall be applied to the device. The force shall be applied in the opening direction of the element and at a location as near to the locking element as possible, but not to exceed 300 mm (12 in.). In the case of a locking device intended for use with sliding doors, the force shall be 1 000 N (225 lbf). In the case of a locking device intended for use with swinging doors, the force shall be 670 N (150 lbf), applied at right angles to the panel, evenly distributed over a round or square area 5 cm² (0.78 in.²). In each case, the force shall be increased gradually until the required force is applied to the device. After reaching the required force, the force shall be maintained for a period of 300 s.

**9.9.2 9.9.3 Engineering Tests — Type Testing of Safeties on Inclined Platform Lifts and Inclined Stairway Chairlifts**

Suspend the platform or carriage with the specified load at a height that is more than 15.24 cm (6 in.) from the lower limit of the normal travel. Allow it to drop (freefall) until the platform or carriage and load is stopped by the overspeed Type A, B, or C safety device. The test shall be witnessed by, and the test results certified by, a nationally recognized testing laboratory (NRTL) or registered professional engineer. A minimum of 12 tests shall be conducted equally divided between the following four test types listed below:

(a) test type 1: test using rated load with the lift operating at an angle of 45 deg from the horizontal.
(b) test type 2: test using rated load with the lift operating at an angle of 20 deg or the minimum operating angle as specified by the manufacturer, whichever is greater.
(c) test type 3: test using no load with the lift operating at an angle of 45 deg from the horizontal.
(d) test type 4: test using no load with the lift operating at an angle of 20 deg or the minimum operating angle as specified by the manufacturer, whichever is greater.

At the conclusion of the test series, the braking distance for any test shall not exceed 15.24 cm (6 in.) measured along the incline and all support or safety components of the overspeed safety device, rail, and truck shall have performed without structural failure. A test on a given capacity lift shall be acceptable for all similarly designed lifts by the manufacturer for the same or lesser capacity (rated loads).

*Rationale 9.9.2: Add registered professional engineer to be consistent with clauses 9.6.1 & 9.6.2 and clarify the plane to measure the 6” stopping distance.*

**10.3.1.2.2 Safeties shall be subjected to the following tests with no load in the platform:**

(a) Type A, B, or C governor-operated safeties shall be operated by tripping the governor by hand with the platform operating at the slowest operating speed in the down direction. In this test, the safety shall bring the platform to rest promptly. In the case of Type A, B, or C safeties employing rollers or dogs for application of the safety, the rollers or dogs are not required to operate their full travel.

**10.3.3.1 Platform Safeties.**

**10.3.3.1.1 Safeties shall comply with 10.3.3.1.2 when tested as follows:**

Types A, B, and C safeties, except those operating on wood guide rails and their governors, shall be tested with rated load in the platform.

(a) Inclined platform lifts and inclined stairway chairlifts with Type A nonadjustable safeties shall complying with para. 9.9.2 9.9.3 shall be permitted to be tested with no load in the platform.
(b) All other safeties, except those operating on wood guide rails and their governors, shall be tested with rated load in the platform.

(c) The test shall be made by tripping the governor by hand at the rated speed. The following operational conditions shall be checked:

(a) Type B safeties shall stop the platform with the rated load within the required range of stopping devices for which the governor is tripped.

(b) For Type A safeties and Type A safety parts of Type C safeties,

10.3.3.1.2 There shall be sufficient travel of the safety rollers or dogs remaining after the test to bring the platform and its rated load to rest on safety application at governor tripping speed.

10.3.3.1.3 A metal tag shall be attached to the safety-releasing carrier in a permanent manner, giving the date of the safety test together with the name of the person or firm who performed the test.

10.4.1 General Requirements for Types A, B, and C Safeties.
The following requirements apply to the acceptance tests of Types A, B, and C safeties.

10.4.1.1 Platform safeties shall be tested with rated load in the platform. Inclined platform lifts and inclined stairway chairlifts with Type A nonadjustable safeties complying with para. 9.9.2 9.9.3 shall be permitted to be tested with no load in the platform. In making the test of platform safeties, the load shall be centered on each quarter of the platform floor symmetrically with respect to the centerlines of the platform floor. Counterweight safeties, where provided, shall be tested with no load in the platform.

10.4.1.2 The tripping speed of the governor shall be measured by means of a tachometer, except for inclined platform lifts and inclined stairway chairlifts with Type A nonadjustable safeties complying with para. 9.9.2 9.9.3.

10.4.1.3 If adjustments to the governor tripping speed are made, the governor shall be sealed immediately following the test.

10.4.1.4 The operation of the governor overspeed and the platform safety-mechanism switch shall be tested to determine conformance.

10.4.1.5 After the safety has stopped the platform, the level of the platform floor shall be checked to determine conformance.

10.4.2 Type A Governor-Operated Safeties.
Type A governor-operated safeties shall be tested by operating the platform at its normal speed in the down direction and tripping the governor jaws by hand. A test shall also be made of the inertia application of the safety to determine conformance by attaching the proper weight to the return run of the governor rope. The manufacturer shall inform the person making the test of the weight necessary to be added to the governor rope when making the inertia application test. This weight shall be the weight necessary to reproduce inertia operation of the safety, at not more than 9/10 gravity. The inertia application test shall be made with the platform stationary, and the weight when released shall move the safety parts into contact with the rails. Inertia application of the safety on Type A auxiliary safety plank of Type C safeties is not required.
10.4.3 Type A Safeties Without Governors.
Type A safeties without governors that are operated only as a result of the breaking or slackening of the suspension ropes, shall be tested by obtaining the necessary slack rope to cause it to function.

10.4.4 Types B and C Safeties
10.4.4.1 Types B and C safeties shall be subjected to an overspeed test, with the suspension ropes attached, by gradually increasing the speed of the platform until the governor causes application of the safety. Safeties of lifts equipped with alternating current driving machine motors, where the platform with its rated load does not cause sufficient overspeed when the machine brake is released to trip the governor jaws, shall be tested by operating the platform at its normal speed in the down direction and tripping governor jaws by hand.

Overall Rationale: to clarify the A18.1 standard by removing references to Type B and Type C safeties; Type B safeties and Type C safeties are not appropriate for devices operating at the speeds covered by this standard.
Record 18-1865

2.10.1 Operation. Operation of the lift from the landings and from the platform shall be controlled by control switches at all stations, and shall be by means of the continuous-pressure type. Controls shall be readily permanently accessible 1200 1220 mm (48 in.) maximum and 380 mm (15 in.) minimum above the platform floor or facility floor or ground level. Operating devices shall be designed so that both the “UP” and “DOWN” circuits cannot be operated at the same time.

3.10.1 Operation. Operation of the lift from the landings and from the platform shall be controlled by control switches at all stations, and shall be by means of the continuous-pressure type. Controls shall be readily permanently accessible 1200 1220 mm (48 in.) maximum and 380 mm (15 in.) minimum above the platform floor or facility floor or ground level. Controls shall be located within forward or side reach of the passenger as defined in ICC/ANSI A117.1. Operating devices shall be designed so that both the “UP” and “DOWN” circuits cannot be operated at the same time.

4.10.1 Operation. Operation of the chairlift from the upper or lower landings and from the chair shall be controlled by control switches at all stations, and shall be by means of the continuous-pressure type. Controls shall be readily permanently accessible 1200 1220 mm (48 in.) maximum and 380 mm (15 in.) minimum above the platform floor or facility floor or ground level. Operating devices shall be designed so that both the “UP” and “DOWN” circuits cannot be operated at the same time.

5.10.1 Operation. Operation of the lift from the landings and from the platform shall be controlled by control switches at all stations, and shall be by means of the continuous-pressure type. Controls shall be 1200 1220 mm (48 in.) maximum and 380 mm (15 in.) minimum above the platform floor or facility floor or ground level or made accessible to the user. Operating devices shall be designed so that both the “UP” and “DOWN” circuits cannot be operated at the same time.

6.10.1 Operation. Operation of the chairlift from the landings and from the platform shall be controlled by control switches at all stations, and shall be by means of the continuous-pressure type. Controls shall be 1200 1220 mm (48 in.) maximum and 380 mm (15 in.) minimum above the platform floor or facility floor or ground level or made accessible to the user. Operating devices shall be designed so that both the “UP” and “DOWN” circuits cannot be operated at the same time.

7.10.1 Operation. Operation of the lift from the landings and from the chair shall be controlled by control switches at all stations, and shall be by means of the continuous-pressure type. Controls shall be 1220 mm (48 in.) maximum and 380 mm (15 in.) minimum above the platform floor or facility floor or ground level or made accessible to the user. Operating devices shall be designed such that both the “UP” and “DOWN” circuits cannot be operated at the same time.

Rationale: clarification of location for landing controls resulting from new technology (example: wireless controls) and user requirement differences between commercial and residential applications. Standardize language between sections. Editorial corrections to metric values in code.
Record 20-465

Editorially approved revision to A18.1-2017:

Table 1.5-1 Reference Documents

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Rationale: This proposal updates the title of the referenced standard for accuracy and to provide updated referenced requirements in the latest edition.