

# ASME A18.1-2008 Safety Standard for Platform Lifts & Stairway Chairlifts

## SECTION 10 ROUTINE, PERIODIC, AND ACCEPTANCE 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 Inspections and Tests.** Routine inspections and tests shall be made by an inspector employed by the authority having jurisdiction, by an inspector employed by an accredited insurance company, which is the primary insurer of the equipment to be inspected, or by a person authorized by the authority having jurisdiction.

### 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.

**10.1.2.2** The owner or his authorized agent shall have all of the tests required by para. 10.3 made by a person qualified to perform such service in the presence of an inspector employed by the authority having jurisdiction, except as specified in para. 10.1.2.3

**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 by an organization accredited by ASME in accordance with the requirements of ASME QEI-1.

**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.** When an installation is placed out of service (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.

## **10.2 Routine Inspections and Tests**

**10.2.1 Inspection and Test Periods.** The routine inspections and tests of sections 2, 3, and 4 lifts shall be made at intervals not longer than 6 months. Routine inspections and tests of sections 5, 6, and 7 lifts shall be made at intervals not longer than 1 year.

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

### **10.2.2.1 Inside Platform Inspections**

- (a) Stop switches
- (b) Operating control devices
- (c) Floor and landing sill
- (d) Lighting
- (e) Emergency signal
- (f) Door or gate
- (g) Enclosure
- (h) Floor
- (i) Signs and operating device symbols
- (j) Rated load, platform floor area, and data plate
- (k) Ride

### **10.2.2.2 Machine Inspections**

- (a) Enclosure of machine space
- (b) Guarding of exposed auxiliary equipment

- (c) Overhead beam and fastenings
- (d) Drive machine brake
- (e) Traction drive machines
- (f) Gears and bearings
- (g) Winding drum machine
- (h) Belt – or chain-drive machine
- (i) Traction sheaves
- (j) Secondary and deflector sheaves
- (k) Rope fastenings
- (l) Slack rope devices
- (m) Governor, overspeed switch, and seal
- (n) Platform safeties
- (o) Hydraulic power unit
- (p) Control valves
- (q) Hydraulic cylinders

#### **10.2.2.3 Inside Runway Inspections**

- (a) Platform, overhead, and deflector sheaves
- (b) Normal terminal stopping devices
- (c) Final terminal stopping devices
- (d) Broken rope, chain, or tape switch
- (e) Counterweight
- (f) Head room
- (g) Slack rope devices
- (h) Traveling sheave
- (i) Platform safeties and guiding members
- (j) Runway clearances
- (k) Pipes, wiring, and ducts
- (l) Runway clearances
- (m) Traveling cables and junction boxes
- (n) Door and gate equipment
- (o) Platform frame
- (p) Guide rails fastening and equipment
- (q) Governor rope
- (r) Governor releasing carrier
- (s) Wire rope fastening and hitch plate

(t) Suspension rope

(u) Compensations ropes and chains

#### **10.2.2.4 Outside Runway Inspections**

(a) Runway doors

(b) Runway door locking devices

(c) 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 One-Year Inspection and Test Requirements**

**10.3.1.1 Cylinders.** Cylinders that are exposed shall be visually inspected. 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 Safeties**

**10.3.1.2.1** All working parts of platform safeties shall be inspected 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, which 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.

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

**10.3.1.4 Slack-Rope Devices on Winding Drum Machines.** Slack-Rope devices on winding drum machines shall be operated manually and inspected to determine conformance with the applicable requirements.

**10.3.1.5 Normal and Final Terminal Stopping Devices.** Normal and final terminal stopping devices shall be inspected and tested to determine conformance with the applicable requirements.

**10.3.1.6 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.

**10.3.1.7 Slack-Rope Device on Roped-Hydraulic Machines.** Slack-rope device on 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.

### **10.3.2 Three-Year Inspection and Test Requirements**

**10.3.2.1 Unexposed Portions of Pistons.** Piston rods of roped water hydraulic lifts shall be exposed, thoroughly cleaned, and inspected 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.

### **10.3.3 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. 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.

**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 operation 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 Inspections and Tests**

*Inspection 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. 10.4.1.

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

**10.4.1 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. In making the test of platform safeties, the load shall be centered on each quarter of the platform floor symmetrically with respect to the center lines 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.

**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.

**10.4.2.1** 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 condition and that safety application is independent of the location of the break in the hoisting ropes.

**10.4.3 Type A Safeties Without Governors.** Type A safeties without governors, which 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.

**10.4.4.2** 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.

#### **10.4.5 Normal Terminal Stopping Devices**

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

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

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

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

**10.4.8 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.