ASME/ANSI A18.1 - 2003 SYNOPSIS

Introduction

- The ASME/ANSI A18.1 "Safety Standard for Platform Lifts and Stairway Chairlifts" provides minimum guidelines for the design, manufacture and installations of platform lifts and stairway chairlifts.
- ASME/ANSI A18.1 became effective December 31, 1999.
- The original version, A18.1 – 1999, did not include any technical revisions from the guidelines included in A17.1.
- This synopsis is intended to highlight key elements and holds no legal interpretive value.

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Section 1 - General

- The scope in A18.1 requires continuous pressure operation, allows penetration of one floor, and prohibits full passenger enclosures.
- This standard does not cover portable equipment

Section 2 – Vertical Lifts - Commercial

- This section covers vertical platform lifts in applications other than private residences. Lifts that penetrate a floor must comply with 2.1.1.
- Section 2.1.1 – Runway Enclosure Provided
    - Enclosure to extend a minimum of 42 inches above the landing.
    - Self closing, 42 inch tall upper gate within 3 inches of landing sill.
    - Self closing gates/doors at all other landings with 80 inches minimum headroom and located within 3/8 to ¾ inches of the platform.
    - All doors or gates must have combination mechanical locks with electric contacts.
    - Running clearance on enter/exit sides must be between 3/8 and ¾ inch.
    - Minimum 42 inch high, smooth barriers on sides that are not used for entry/exit.
    - Running clearance between the sides and the runway must be 2-3 inches.
    - A grab rail is required at 34 - 38 inches high.

- Units with a fully enclosed runway and transparent walls that are exposed to direct sunlight are required to have power ventilation with a battery backup.

- Section 2.1.2 – Partial Runway Enclosure
  - Requires a guard to extend a minimum of 3 inches above the lift height.
  - Clearance between the "guard" and the platform sides shall be 2-3 inches.
  - Self closing, 42 inch tall upper gate within 3 inches of landing sill.
  - Self closing, 42 inch tall platform gate.
  - All doors or gates must have combination mechanical locks with electric contacts.
  - A smooth solid fascia is required on the upper landing side.
  - Minimum 42 inch high, smooth barriers on sides that are not used for entry/exit.
  - A grab rail is required at 34 -38 inches high.
- Section 2.1.3 – Unenclosed Lifts
  - Self closing, 42 inch tall upper gate within 3 inches of landing sill.
  - Self closing, 42 inch tall platform gate.
  - Minimum 42 inch high, smooth barriers on sides that are not used for entry/exit.
  - A grab rail is required at 34 - 38 inches high.
  - A safety pan is required.
  - Running clearance on upper side must be between 3/8 and ¾ inch.
  - All doors or gates must have combination mechanical locks with electric contacts.
  - Optional configuration with a platform gate on rear at stages where railings are not required.
- Sections 2.1 to 2.5 - Additional Requirements
  - Lifts can be pitted or ramped. Pit depth cannot exceed 4 inches for unenclosed lifts.
  - Unenclosed units can have automatic ramps with a maximum slope of 1:4 for up to 2 inches high. Fixed ramps can have a maximum slope of 1:8 for up to 3 inches high.
  - Electrical equipment must comply with NEC and ASME A17.5.
  - A minimum of 80 inches of headroom is required throughout travel.
- Section 2.6 – Platform Requirements
  - Maximum size is 18 square feet.
  - No minimum is specified, but ADAAG and A117 require a minimum of 30 x 48 inches.
  - Minimum illumination is 5 foot candles with an emergency lighting requirement of 0.2 foot candles for 4 hours.
  - Fire resistive construction is required for lifts in fire rated runways. (Runway construction is determined by the building codes.)
  - Full passenger enclosures are prohibited.
- Section 2.7 – Capacity, Speed and Travel
  - Minimum capacity is 450 and maximum is 750 pounds.

- Maximum travel for unenclosed lifts is 5 feet and for other lifts is 12 feet.
- Maximum speed is 30 fpm.
- Capacity tags and data tags are required. A tag is also required to indicate "No Freight".

- Section 2.8 and 2.9 – Safeties and Limits
  - Safeties are required on all units (except direct plunger hydraulic).
  - Safeties can be activated by speed governor or slackening of the suspension/support means.
  - Normal and final limits are required.
  - The lower final can be omitted if a manually reset slack rope switch is used, travel is restricted by the machine or if the unit is direct plunger or roped hydraulic.
- Section 2.10 – Controls
  - Up and down controls must be continuous pressure. (Note: The requirement for keys was eliminated in A18.1a.)
  - Attendant operation is allowed. (Note: ADAAG and ICC A117 do not allow it).
  - A positively opened emergency stop is required.
  - Manual operation is required from outside the platform.
- Section 2.11 and 2.12 – Signals and Data Plates
  - Emergency signals are required on any lift that is not visible to other personnel at all times.
  - Signal can be alarm capable of providing 80-90 db @ 10 feet or two way communication with emergency personnel.
  - Backup power is required to operate the alarm for a minimum of 1 hour and the communication for a minimum of 4 hours.
  - A code data plate is required to indicate the code to which the unit is installed and inspected.

Section 3 – Incline Lifts - Commercial

- This section covers incline platform lifts in applications other than private residences.
- Section 3.1 – Running Clearances
  - Means of egress must be maintained.
  - A minimum of ¾ inch running clearance is required.
  - The upper edge of the platform cannot be more than 24 inches vertically above the stairs or landing at any point in travel.
  - Minimum headroom for boarding is 80 inches.
  - Minimum headroom for travel is 60 inches. If travel headroom is less than 80 inches a folding seat is required.
- Sections 3.1 to 3.5- General Requirements
  - Lifts can be pitted or ramped. Pit depth cannot exceed 4 inches for unenclosed lifts.

- Retractable ramps must comply with 3.6.8.2. Automatic ramps can have a maximum slope of 1:4 for up to 2 inches high. Fixed ramps can have a maximum slope of 1:8 for up to 3 inches high.
- Electrical equipment must comply with NEC and ASME A17.5.
- A machine brake is required on all units, except direct plunger hydraulic and self locking drives.

- Section 3.6 - Platform Requirements
  - Maximum size is 12 square feet.
  - No minimum is specified, but ADAAG and A117 require a minimum of 30 x 48 inches.
  - Platform guarding must be provided per 3.6.8.1 or 3.6.8.2.
  - A safety pan is required.
- Section 3.6.8.1 – Passenger Enclosure
  - Self closing, 42 inch tall platform gate with combination mechanical lock with electric contact.
  - Minimum 42 inch high, smooth barriers on sides that are not used for entry/exit.
  - A grab rail mounted at 34 - 38 inches is required.
  - Running clearance between sides and adjacent surfaces must be 2 inches minimum.
- Section 3.6.8.2 – Passenger Restraining Arms
  - A hand grip is required at a height of 34 -38 inches.
  - A guard is required to prevent a seated passenger from contacting moving parts.
  - A minimum 6 inch high guard on sides not used for entry/exit.
  - A minimum of 6 inch high retractable ramps/guards are required on entry/exit sides.
  - Only the ramp serving a particular landing may operate at that landing.
  - The restraining arm at the non-boarding end of the platform must remain in the locked position when the ramp operates.
  - Passenger restraining arms are required around the perimeter of the platform at a height of 32 to 38 inches.
  - The gap between the arms cannot exceed 4 inches.
  - Arms must be sectioned to open independently and must be mechanically locked with electric contacts.
  - An emergency unlocking means is required.
  - Arms may be power operated but must be constant pressure.
- Section 3.7 - Capacity, Speed and Travel
  - Minimum capacity is 450 and maximum is 750 pounds.
  - Maximum slope is 45 degrees.
  - Maximum speed is 30 fpm.
  - Capacity tags and data tags are required. A tag is also required to indicate “No Freight”.
- Sections 3.8 and 3.9 - Safeties and Limits
  - Safeties are required on all units (except direct plunger hydraulic).

- Safeties can be activated by speed governor or slackening of the suspension/support means.
- Normal and final limits are required.
- The lower final can be omitted if a manually reset slack rope switch is used, travel is restricted by the machine or if the unit is direct plunger hydraulic.

- Section 3.10 - Controls
  - Up and down controls must be continuous pressure. (Note: The requirement for keys was eliminated in A18.1a.)
  - Attendant operation is allowed. (Note: ADAAG and ICC A117 do not allow it).
  - A positively opened emergency stop is required.
  - Manual operation is required from outside the platform.
- Sections 3.11 and 3.12 - Signals and Data Plates
  - Emergency signals are required on any lift that is not visible to other personnel at all times.
  - Signal can be alarm capable of providing 80-90 db @ 10 feet or two way communication with emergency personnel.
  - Backup power is not required.
  - A code data plate is required to indicate the code to which the unit is installed and inspected

Section 4 – Stairway Chairlifts - Commercial

- This section covers stairway chairlifts in applications other than private residences.

Section 5 – Vertical Lifts - Residential

- This section covers vertical platform lifts in applications in or at a private residences.
- Lifts are required to comply with Section 5.1.1, 2.1.1, 2.1.2, or 2.1.3.
- Lifts that penetrate a floor must comply with 2.1.1.
- Section 5.1.1 – Guarding of Lifts
  - Self closing, 36 inch tall upper gate within 3 inches of landing sill.
  - Smooth solid fascia on upper landing side.
  - Retractable guard/ramp at least 6 inches high on lower landing side. It must be positively activated or electrically monitored.
  - All doors or gates must have combination mechanical locks with electric contacts.
  - Minimum 36 inch high, smooth barriers on sides that are not used for entry/exit.
  - A safety pan is required.
  - Running clearance on upper side must be between 3/8 and ¾ inch.
- Sections 5.1 to 5.5 - Additional Requirements
  - Retractable ramps can have a maximum slope of 1:4 for up to 2 inches.
  - Electrical equipment must comply with NEC and ASME A17.5.

- A minimum of 80 inches of headroom is required throughout travel.
- A machine brake is required on all units, except direct plunger hydraulic and self locking drives.

- Section 5.6 - Platform Requirements
  - Maximum size is 18 square feet.
  - No minimum is specified.
  - Minimum illumination is 5 foot candles at the platform threshold.
- Section 5.7 - Capacity, Speed and Travel
  - Minimum capacity is 450 and maximum is 750 pounds.
  - Maximum travel is 12 feet.
  - Maximum speed is 30 fpm.
  - Capacity tags and data tags are required.
- Section 5.8 and 5.9 - Safeties and Limits
  - The requirements are the same as commercial lifts (See Sections 2.8 and 2.9)
- Section 5.10 - Controls
  - The requirements are the same as commercial lifts (See Section 2.10)
- Section 5.11 - Data Plates
  - A code data plate is required to indicate the code to which the unit is installed and inspected.
  - (Note: Emergency signals are not required, but are recommended by NWOV)

Section 6 – Incline Lifts - Residential

- This section covers incline platform lifts in applications in or at private residences.
- Section 6.1 – Running Clearances
  - Clear passage of 20 inches is required.
  - A minimum of ¾ inch running clearance is required.
  - The upper edge of the platform cannot be more than 24 inches vertically above the stairs or landing at any point in travel.
- Sections 6.1 to 6.5- General Requirements
  - Lifts can be pitted or ramped. Retractable ramps must comply with 6.6.6.2.
  - Electrical equipment must comply with NEC and ASME A17.5.
  - A machine brake is required on all units, except direct plunger hydraulic and self locking drives.
- Section 6.6 - Platform Requirements
  - Maximum size is 12 square feet.
  - No minimum is specified.
  - Platform guarding must be provided per 6.6.6.
  - A seat is allowed.
  - A safety pan is required.
- Section 6.6.6 – Platform Guarding
  - A minimum 6 inch high guard on sides not used for entry/exit.

- A minimum 6 inch high retractable ramps/guards are required on the entry/exit sides
- The ramps must automatically move to the elevated position and include an electric contact.
- Units can have automatic ramps with a maximum slope of 1:4 for up to 2 inches high.

- Section 6.7 - Capacity, Speed and Travel
  - Minimum capacity is 450 and maximum is 750 pounds.
  - Maximum speed is 30 fpm.
  - Capacity tags and data tags are required.
  - (Note: No angle limit is specified.)
- Sections 6.8 and 6.9 - Safeties and Limits
  - The requirements are the same as commercial lifts (See Sections 3.8 and 3.9).
- Section 6.10 - Controls
  - The requirements are the same as commercial lifts (See Section 3.10).
- Section 6.11 – Data Plates
  - A code data plate is required to indicate the code to which the unit is installed and inspected.
  - (Note: Emergency signals are not required, but are recommended by NWOV.)

Section 7 – Stairway Chairlifts – Private Residence

- This section covers stairway chairlifts in applications in or at a private residences.

Section 8 – Driving Means Requirements

- Minimum of 2 ropes on all roped hydraulic systems.
- Slack rope switches should be manually reset.
- A stop ring is required on all hydraulic cylinders.
- Provides requirements for flexible hose and fittings.
- Provides provisions for manual operation

Section 9 – Engineering Tests and Design

- Provides requirements for testing of safety nuts and speed governors.

Section 10 – Inspections and Tests.

- Installations in applications other than private residences should be inspected at least every 6 months.
- Installations in or at a private residence should be inspected at least every 12 months.