



Lifts, escalators and moving walks

Part 1: General requirements



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 - Australian Building Codes Board
 - Australian Chamber of Commerce and Industry
 - Australian Elevator Association
 - Australian Industry Group
 - Australian Institute of Building Surveyors
 - Communications Electrical Plumbing Union
 - Engineers Australia
 - Independent Chairperson
 - Lift Engineering Society of Australia
 - Property Council of Australia
 - Safe Work Australia
-

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Australian Standard[®]

Lifts, escalators and moving walks

Part 1: General requirements

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PREFACE

This Standard was prepared by the Standards Australia Committee ME-004, Lift Installations, to supersede AS 1735.1—2003.

The objective of this Standard is to provide general requirements, including definitions of terms, relevant to various Parts of the AS 1735 series.

The major change in this edition is the addition of the design process and ISO design Standards, which cover performance-based design.

This Standard forms part of the AS 1735 series of Standards. Other parts in this series are as follows:

AS

1735	Lifts, escalators and moving walks
1735.1	Part 1: General requirements (this Standard)
1735.4	Part 4: Service lifts—Power-operated
1735.5	Part 5: Escalators and moving walks
1735.7	Part 7: Stairway lifts
1735.8	Part 8: Inclined lifts
1735.9	Part 9: Special purpose industrial lifts
1735.11	Part 11: Fire-rated landing doors
1735.12	Part 12: Facilities for persons with disabilities
1735.14	Part 14: Low-rise platforms for passengers
1735.15	Part 15: Low-rise passenger lifts—Non-automatically controlled
1735.16	Part 16: Lifts for persons with limited mobility—Restricted use—Automatically controlled
1735.17	Part 17: Lifts for persons with limited mobility—Restricted use—Water-drive

AS/NZS

1735	Lifts, escalators and moving walks
1735.18	Part 18: Passenger lifts for private residence—Automatically controlled

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STANDARDS AUSTRALIA

Australian Standard

Lifts, escalators and moving walks

Part 1: General requirements

1 SCOPE

This Standard sets out uniform requirements for lifts, escalators and moving walks (as defined herein).

This Standard does not apply to the following:

- (a) Temporary lifts and hoists used solely for erecting, demolishing, altering, or repairing buildings or structures in which persons do not travel.
- (b) Temporary lifts used for carrying persons or persons and materials in building and construction work.
- (c) Orchestral and stage lifts.
- (d) Stacking machines, forklift trucks, and similar portable appliances.
- (e) Conveyors used for the handling of materials and good, such as tray elevators, bucket conveyors, and similar appliances.
- (f) Skip hoists.
- (g) Amusement devices.
- (h) Loading ramps and dock levellers.
- (i) Serial hoists.
- (j) Bridge lifting span lifts.
- (k) Railway car lifts.
- (l) Ropeways carrying passenger cabs or chairs.
- (m) Industrial platform hoists.
- (n) Hoists used in taxis and people-moving road vehicles.
- (o) Building maintenance lifts.
- (p) Elevating work platforms.
- (q) Guided hoists.
- (r) Manually powered lifts.

2 APPLICATION

The fundamental principles provided in this Standard are intended for application by competent and responsible persons and organizations. This Standard has no legal authority in its own right but may acquire legal standing in one more of the following:

- (a) Adoption by a statutory authority.
- (b) Reference for compliance with the Standard as a contractual requirement.
- (c) Claim by a manufacturer or manufacturer's agent of compliance with the Standard.

Requirements related to type tests of equipment, insofar as they are more demanding than the requirements of previous editions, do not apply to equipment previously acceptable to the statutory authority or other relevant authority having jurisdiction. Imperial dimensions accepted before metrication are deemed to be acceptable to the statutory authority or other relevant authority having jurisdiction. The term ‘new lift installations’ is not intended to refer to a requirement where a contract for supply and installation had been entered into prior to the date on which this edition of the Standard was published.

3 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS

- 1735 Lifts, escalators and moving walks
- 1735.11 Part 11: Fire-rated landing doors

AS/NZS

- 60079 Explosive atmospheres
- 60079.1 Part 1: Equipment protection by flameproof enclosures ‘d’
- 61241 Electrical apparatus for use in the presence of combustible dust
- 61241.11 Part 11: Protection by intrinsic safety ‘iD’

ISO

- 14798 Lifts (elevators), escalators and moving walks—Risk assessment and reduction methodology
- 22559 Safety requirements for lifts (elevators)
- 22559-1 Part 1: Global essential safety requirements (GESRs)
- ISO/TS
- 22559 Safety requirements for lifts (elevators)
- 22559-2 Part 2: Safety parameters meeting the global essential safety requirements (GESRs)
- 22559-3 Part 3: Global conformity assessment procedures (GCAP)—Prerequisites for certification of conformity of lift systems, lift components and lift functions
- 22559-4 Part 4: Global conformity assessment procedures (GCAP)—Certification and accreditation requirements

EN

- 81 Safety rules for the construction and installation of lifts
- 81-1 Part 1: Electric lifts
- 81-2 Part 2: Hydraulic lifts
- 81-20 Part 20: Passenger and goods passenger lifts
- 81-50 Part 50: Design rules, calculations, examinations and tests of lift components

ASME

- A17.1/CSA Elevator and Escalator Electrical Equipment
- B44.1
- A17.7/CSA Performance-Based Safety Code for Elevators and Escalators
- B44.7

GB

- 7588 Safety rules for the construction and installation of electric lifts

4 ALTERNATIVE DESIGN, MATERIALS AND METHODS

As technology is developing at a rate at which published Standards cannot keep pace, it is not the intention of this Standard to exclude the use of new technologies, methods or materials.

5 PROCESS TO ESTABLISH THAT A LIFT IS SAFE TO OPERATE

5.1 Lifts

Before any lift is placed into service, measures shall be taken to ensure that the lift is safe to operate. A competent person shall validate that the lift is installed in accordance with the designer/manufacture's instructions or recommendation. The validation shall include confirmation that the lift is performing as per design intent; and all safety critical functions are performing as per design specifications. To ensure safety, protective measures shall be implemented in the course of design, manufacture, installation, inspection and testing.

NOTES:

- 1 Refer to the applicable State or Territory health and safety legislation for the duties and responsibilities of designer, manufacturer, importer, etc.
- 2 Consideration of health and safety legislation and State based regulations regarding falls in the workplace need also be considered for car top work and pit ladder entry areas as part of the plant design review and installation of the plant.
- 3 Safety is achieved by meeting applicable requirements of published Technical Standards and codes.

5.2 New lifts in new construction

A new lift shall comply with one of the published Standards listed in Clause 5.4 or where new technologies are used in the design of the lift, the relevant subsystems or components shall comply with either one of the following criteria:

- (a) ISO 22559-1, ISO/TS 22559-2, ISO/TS 22559-3, ISO/TS 22559-4 and ISO 14798.
- (b) Certified design by a European notified body for compliance with the European Lift Directive.

NOTES:

- 1 See European Lift Directive 95/16/EC, 2014/33/EU.
- 2 Consideration of health and safety legislation and state based regulations regarding falls in the workplace need also be considered for car top work and pit ladder entry areas as part of the plant design review and installation of the plant.

5.3 Upgrading lifts in existing buildings

5.3.1 General

An upgrade to a lift shall consist of either one of the following:

- (a) Complete removal of the existing lift and replacement with all new equipment. The newly replaced lift shall comply with and be tested fully to meet the requirements of this Standard.
- (b) An alteration or a partial replacement of subsystems or components, whereby there is a mixture of old and new equipment. The new equipment that is installed shall be tested fully to comply with the requirements of this Standard.

NOTE: For existing equipment that has not been upgraded to be at least compliant to the Standard that the subsystems and components were first installed to, normal safety checks should be conducted to verify there is no incompatibility or malfunction in the older existing components and their interaction with upgraded components or subsystems.

5.3.2 *Safe to operate*

Before any existing lift is placed back into service after it has been upgraded, appropriate tests and corrective measures shall be taken to ensure that it is safe to operate.

NOTE: This may include functional safety testing of the subsystem(s) and/or entire lift system to ensure integrity and compatibility of upgraded components, dependent on what upgrades have occurred.

5.3.3 *Upgrade to published Technical Standard*

The subsystems or components being upgraded shall comply with the published Standards specified in Clause 5.4, as applicable, while the remaining subsystems and components shall be assessed in accordance with the Standard to which the lift was originally installed. To ensure that the upgraded lift is safe to operate in accordance with this Standard, the interface between the existing and upgraded subsystems and components shall be assessed in accordance with appropriate global essential safety requirements (GESRs) of ISO 22559-1, using the risk assessment process specified in ISO 14798. The risk assessment shall also ensure that no new risks have been introduced.

5.3.4 *Upgrade using new technology*

To achieve safety when using new technologies, the subsystems and components and the interface between the upgraded components and the existing lift shall be reviewed for compliance with applicable State or Territory health and safety legislative requirements and requirements for safety, using the risk assessment process specified in ISO 14798 and the appropriate GESRs specified in ISO 22559-1. The risk assessment shall also ensure that no new risks have been introduced and severity of known risks are not increased. The remainder of the lift shall be assessed in accordance with the Standard to which it was originally installed.

NOTE: The process for determining the appropriate GESR is as described in the Standard.

5.4 Compliance Standards

Lifts, escalators and moving walks shall comply with AS 1735 series or one of the following published Technical Standards:

- (a) ASME A17.1/CSA B44.01.
- (b) ASME A17.7/CSA B44.7-07.
- (c) EN 81-1.
- (d) EN 81-2.
- (e) EN 81-20.
- (f) EN 81-50.
- (g) GB 7588.

There shall be no mixing of the requirements of the above Standards, except as specified in Clause 5.2 or 5.3.1(b).

NOTES:

- 1 This list is not exhaustive and there might be other published Standards that are acceptable, but the other published Standards should at least be shown to be equivalent to the requirements of the published Standards listed above.
- 2 Refer to NCC for functional and access requirements for lifts.

6 DEFINITIONS

For the purpose of this Standard and all other parts of AS 1735 series, the definitions below apply.

NOTE: A number of terms that do not appear in any of the Parts of AS 1735 series have been included for the convenience of architects, engineers and manufacturers as a means of promoting standardization of nomenclature in the lift industry.

6.1 Alteration

Any change in the design that uses new technology or replacement components and where the risk assessment indicates a new risk or an increase in risk.

NOTE: Typical examples may include the following:

- (a) Any increase or decrease of—
 - (i) the rated speed;
 - (ii) the rated load;
 - (iii) the mass of the car $\pm 5\%$; and
 - (iv) the travel.
- (b) The change of machine, brake or the traction sheave to one of a different type size or rating.

6.2 Annunciator car

An electrical device in the car, which indicates visually the landings at which a lift landing signal-registering device has been actuated.

6.3 Attendant

A person who is duly authorized by the person in charge of a building to be in charge of a lift.

6.4 Authorized person

A person authorized or selected by the owner or person in charge of a building to carry out duties.

6.5 Balustrading

The enclosure at either side of the moving steps of an escalator or moving treadway of a moving walk, and the decking or deckboard adjacent to the moving handrails.

6.6 Bed passenger lift

A passenger lift designed to carry beds and stretcher trolleys.

NOTE: Bed passenger lifts are normally located in hospitals, nursing homes, or other buildings where bed patients are accommodated.

6.7 Broken drive-chain device

A device to stop the machine of an escalator or moving walk, and to apply the brake in the event of a broken drive chain.

6.8 Broken input drive-chain or V-belt device

A device to stop the machine of an escalator or moving walk, and to apply the brake in the event of a broken drive-chain or broken V-belt between the motor and the driving machine.

6.9 Broken step chain device

A device to stop the machine of an escalator, in the event of a broken step chain.

6.10 Broken treadway device

A device to stop the machine of a moving walk, in the event of a break in the treadway belt or a belt rope treadway, or a break in the connection means between pallets on a pallet type treadway.