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Australian Standard 1735, Part 5—1982

SAA LIFT CODE
Part 5—ESCALATORS

STANDARDS ASSOCIATION OF AUSTRALIA
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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Association of Consulting Engineers Australia

Association of Independent Lift Companies

Australian Chamber of Commerce

Board of Fire Commissioners of New South Wales

Building Owners and Managers Association of Australia Limited

Confederation of Australian Industry

Department of the Capital Territory

Department of Housing and Construction

Department of Industrial Affairs and Employment, S.A.

Department of Industrial Relations, N.S.W.

Department of Labour and Industry, Tas

Department of Labour and Industry, Vic.

Department of Labour and Industry, W.A.

Department of Employment and Labour Relations, Qld

Department of Mines and Energy, N.T.

Department of Public Works, N.S.W.

Institution of Engineers, Australia

Insurance Council of Australia

Lift Manufacturers Association of Australia

Royal Australian Institute of Architects

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AUSTRALIAN STANDARD

THE DESIGN, INSTALLATION, TESTING AND OPERATION OF LIFTS, ESCALATORS AND MOVING WALKS

known as the SAA LIFT CODE

Part 5 ESCALATORS

AS 1735, Part 5—1982

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PREFACE

This edition of this standard was prepared by the Association's Committee on Lift Installations to supersede AS 1735, Part 5—1975.

This standard deals with electric escalators designed for carrying passengers.

Requirements have been laid down for the limits of width, speed and angle of inclination and a formula is included for calculating the rated load. Other details specified include supports, trusses, balustrades, handrails, steps and combplates together with requirements covering machine rooms, driving machines, operating and safety devices and electrical installations.

A number of requirements have been introduced which are not all found in overseas standards, such as a formula for calculating the maximum permissible area of glass panels in balustrades, automatic starting and speed change of escalators, interlocking of exit doors, length of landing and width of exit or access passageways, and illumination of balustrades.

Diagrams illustrate the method of measuring balustrade dimensions, the provision and size of ceiling guards, the relation between rated speed and minimum horizontal step movement, and combplate clearances between teeth and step tread grooves.

This edition includes the following technical changes from the 1975 edition:

(a) New Clause 120.13.6 has been included to require slotting of step risers.

(b) New Clause 120.13.10 has been included to require yellow lines on the steps.

(c) Sections 121, 122, 123 and 125 have been amended to permit the use of step-band drive arrangements.

(d) Clause 121.8 has been amended to align with AS 2118.

(e) New Clause 121.11 has been included to require guards around access hatches.

(f) New Clause 123.12 has been included to require a reversal stop device.

(g) New Clause 123.13 has been included to reduce the possibility of objects being caught where the handrail enters the opening in the balustrade.

(h) Clause 125.1 has been amended to permit the use of PVC conduit.

Other changes of an editorial nature have been made to bring the standard into line with current SAA policy.

This standard requires reference to the following standards:

AS 1215	V-belt Drives: Sections Y, Z, A, B, C and D
AS 1403	Design of Steel Shafts for Transmission of Power
AS 1532	Short Pitch Transmission Precision Roller Chains and Chain Wheels
AS 1680	Code of Practice for Interior Lighting and the Visual Environment
AS 1735	SAA Lift Code Part 1—General Requirements Part 2—Electric Lifts:Passenger and Goods
AS 1979	Flexible Travelling Cables for Lifts
AS 2052	Metallic Conduits and Fittings
AS 2053	Non-metallic Conduits and Fittings
AS 2118	SAA Code for Automatic Fire Sprinkler Systems
AS 2208	Safety Glazing Materials for Use in Buildings (Human Impact Considerations)
AS 3000	SAA Wiring Rules
AS 3116	Approval and Test Specification for Elastomer Insulated Electric Cables and Flexible Cables for Working Voltages of 0.6/1 kV
AS 3147	Approval and Test Specification for PVC Insulated Electric Cables and Flexible Cables for Working Voltages of 0.6/1 kV
AS 3187	Approval and Test Specification for Mineral-insulated Metal-sheathed Cables
AS 3191	Approval and Test Specification for Electric Flexible Cords

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Australian Standard
for
THE DESIGN, INSTALLATION, TESTING AND OPERATION OF LIFTS, ESCALATORS AND MOVING WALKS

PART 5—ESCALATORS

SECTION 120. SCOPE AND GENERAL

120.1 SCOPE. This standard sets out requirements for electric escalators for carrying passengers. It includes requirements for design, manufacture, installation and operation.

This standard is complementary to AS 1735, Part 1, but the requirements of this standard take precedence over corresponding requirements of that standard.

120.2 SUPPORTS. Supports for escalators shall be of steel or reinforced concrete or other approved non-combustible materials and shall be designed for not less than the sum of the following static loads:

(a) The mass of the complete escalator, including cladding.

(b) The rated load calculated in accordance with Clause 120.7.

NOTE: 35 percent of the sum of (a) and (b) above should be considered as the rolling load in making allowances for vibration where necessitated by the form of the supporting structure.

120.3 TRUSSES.

120.3.1 Construction. The trusses shall be of steel or other approved metals and shall be designed to safely sustain the steps and running gear in operation. In the event of failure of the track system, it shall retain the running gear in its guides.

Where tightening devices are operated by means of tension fittings, provision shall be made to retain these fittings in the trusses if they should be released.

A truss shall not support load from any portion of the building or adjacent equipment not being part of the escalator.

120.3.2 Protection of Trusses. Where the truss is not positioned in a fire-resistant tunnel or duct accessible only to authorized persons, it shall be totally clad with and fixed to a suitable non-shattering, non-combustible material to resist the spread of fire from within the truss.

For the purposes of this requirement, the lower pit section shall be regarded as part of the truss.

120.3.3 Lighting of Trusses and Pits. Where exterior access is provided to trusses and pits, suitable electric lighting controlled by a switch adjacent to the entrance shall be provided.

120.3.4 Lighting at Inspection Panels. Where an inspection panel is provided for machinery spaces which contain unguarded moving parts, suitable electric lighting controlled by a switch adjacent to the opening shall be provided.

120.4 STEP WHEEL TRACKS. Step wheel tracks shall be designed so as to prevent displacement of the steps and running gear if a step chain breaks.

120.5 ANGLE OF INCLINATION. The angle of inclination shall not exceed 30 degress from the horizontal.

120.6 WIDTH. The width of an escalator shall be taken as the width between the balustrades, measured at a point 685 mm vertically above the nose-line of the steps, and shall be not less than the width of the step. It shall not exceed the width of the step by more than 330 mm, with a maximum of 165 mm on either side of the escalator. However, the width between balustrades shall be not less than 600 mm nor more than 1370 mm (see Clause 120.13.3).

120.7 RATED LOAD. The rated load shall be calculated from the following formula:

$$\text{Rated load (kilograms)} = 0.27WA$$

where

W = the width between the balustrades (see Clause 120.6), in millimetres

A = the horizontal distance between the upper and lower combplate teeth, in metres.

120.8 MEASURED SPEED. The speed actually measured on the inclined section of the unloaded escalator shall not exceed the rated speed by more than 5 percent.

120.9 RATED SPEED. The rated speed of an escalator shall not exceed 0.75 m/s.

120.10 FACTOR OF SAFETY. The factor of safety based on the static loads for trusses and structural members, including tracks, shall be not less than 2.5, based on yield strength.

120.11 BALUSTRADES.

120.11.1 Construction.

120.11.1.1 *General.* Solid panel balustrading shall be provided on each side of the steps of an escalator. On the passenger side, the balustrading shall be smooth and substantially flush. No mouldings or other projections shall be raised or depressed more than 6 mm from the panel surface. Any projecting mouldings or fillets shall be bevelled.

120.11.1.2 *Width and angle of transition piece.* The horizontal width of any transition piece between the balustrade adjacent to the steps and the upper part