

SUPERSEDED BY AS 1735.4-1986 Amendment 1 - December 1982.  
Under Revision see DR 84252

1735,  
Part 4

AS 1735, Part 4—1982  
UDC 621.876-83  
Std (66)

# Australian Standard 1735, Part 4—1982

---

## SAA LIFT CODE Part 4—POWER-OPERATED SERVICE LIFTS



**STANDARDS ASSOCIATION OF AUSTRALIA**  
*Incorporated by Royal Charter*



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

---

This standard, prepared by Committee ME/4, Lift Installations, was approved on behalf of the Council of the Standards Association of Australia on 29 January 1982, and was published on 17 May 1982.

---

To keep abreast of progress in industry, Australian standards are subject to continuous review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that standards users ensure that their standards are up-to-date. Full details of all SAA publications will be found in the Annual List of Australian Standards; these details are supplemented by listings in the SAA monthly journal 'The Australian Standard'. Information on the Annual List and 'The Australian Standard' may be obtained from any sales office of the Association, where details are also available of the current status of individual standards. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

---

*This standard was issued in draft form for comment as DR 78024.*

7 DEC 1982

AS 1735.4/Amdt 1/1982-12-06

**STANDARDS ASSOCIATION OF AUSTRALIA**

**Incorporated by Royal Charter**

---

**Amendment No 1**

**to**

**AS 1735, Part 4—1982**

**SAA LIFT CODE**

**PART 4—POWER-OPERATED SERVICE LIFTS**

---

**CORRECTIONS**

*SUMMARY:* This amendment applies to Table 95.1(A) and Clause 98.5(b).

Published on 6 December 1982.

---

AUSTRALIAN STANDARD

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

known as the  
SAA LIFT CODE

## Part 4 POWER-OPERATED SERVICE LIFTS

AS 1735, Part 4—1982

First published (included in AS CA3) .....	1970
Revised and issued as AS 1735, Part 4.....	1975
Second edition .....	1982

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA  
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 2500 2



20 MAY 1982

## PREFACE

This edition of this standard was prepared by the Association's Committee on Lift Installations after strong recommendations from regulatory authorities and the lift industry that the 1975 edition should be simplified. It supersedes the 1975 edition.

Service lifts are classified as follows:

- (a) Class 1, to cover service lifts which normally do not require safety gear.
- (b) Class 2, to cover the larger service lifts. These require safety gear.
- (c) Undercounter.

In the simplification of this standard—

- (i) the maximum rated speed has been limited to 1 m/s, it being considered that higher speeds may be dealt with as special cases;
- (ii) flying counterweights have been excluded; and
- (iii) inaccessible, electrohydraulic and rack types of service lifts have been excluded.

Screws are accepted as a suitable type of drive for power-operated service lifts, subject to compliance with Appendix A. The rulings on screw-type drives in the 1975 edition of this standard, which have been included in Appendix A, were considered to be inadequate in regard to safeguarding of the nut and protection of the screw against whip. Because of the time required to investigate these matters fully, it was not practicable to include other than the present provisions in Appendix A without unduly delaying publication of this edition.

The easing of the headroom requirements for Class 1 service lifts is based on the assumption that mechanics may stand on car roofs but not ride on them while the lift is in motion. In parallel with this, the headroom requirements for Class 2 service lifts have been increased (on the basis of AS 1735, Part 2) to allow for the assumption that the lifts being larger, mechanics might ride on them.

Other variations include a reduction of the minimum rated load from 68 kg to 50 kg, a reduction of the design density for rated load determination from 250 kg per cubic metre of car volume to 200 kg per cubic metre of car volume, a relaxation of the requirements for provision of car doors and a redefinition with regard to endless chain suspension drives where 'unidirectional' is now 'travel self-limiting' and 'bidirectional' is now 'travel not self-limiting'.

Two other significant requirements cover minimum chain pin diameters, where the pin is directly involved in car attachment, and the use of PVC conduit for service lift wiring.

Other changes of an editorial nature have been made to bring the standard into line with current SAA editorial policy. This standard requires reference to the following standards:

AS 1204	Structural Steels—Ordinary Weldable Grades
AS 1215	V-belt Drives: Sections Y, Z, A, B, C and D
AS 1532	Short Pitch Transmission Precision Roller Chains and Chains Wheels
AS 1656	Steel Wire Ropes (Other Than for Mining Purposes)
AS 1657	SAA Code for Fixed Platforms, Walkways, Stairways and Ladders
AS 1720	SAA Timber Engineering Code
AS 1735	SAA Lift Code Part 1—General Requirements Part 2—Electric Lifts: Passenger and Goods Part 10—Tests Part 11—Fire-rated Landing Doors
AS 1979	Flexible Travelling Cables for Lifts
AS 2052	Metallic Conduits and Fittings
AS 2053	Non-metallic Conduits and Fittings
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
AS MB1	SAA Steel Wire Rope Manual
ISO 2020	Flexible Steel Wire Rope for Aircraft Controls—Technical Specification

© Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1982

Users of standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia.

## CONTENTS

	<i>Page</i>		<i>Page</i>
<b>SECTION 80. SCOPE, CLASSIFICATION AND TYPES</b>		88.2 Chains .....	14
80.1 Scope .....	6	88.3 Load Equalizing .....	14
80.2 Classification .....	6	88.4 Lengthening or Repairing of Ropes and Chains .....	14
80.3 Types .....	6		
<b>SECTION 81. SPEED, RATED LOAD AND DIMENSIONAL REQUIREMENTS</b>		<b>SECTION 89. LIFTWELLS</b>	
81.1 Class 1 Service Lifts .....	7	89.1 Enclosures .....	15
81.2 Class 2 Service Lifts .....	7	89.2 Pits.....	15
81.3 Undercounter Service Lifts .....	7	89.3 Access to Liftwells and Pits .....	15
		89.4 Guarding .....	15
<b>SECTION 82. SUPPORTS</b> .....	8	89.5 Lighting .....	15
<b>SECTION 83. MACHINE ROOMS AND MACHINERY SPACES</b>		<b>SECTION 90. LIFTWELL CLEARANCES AND FLUSHNESS</b>	
83.1 General .....	9	90.1 Clearances Between Cars, Counter- weights and Liftwell Enclosures .....	17,
83.2 Access .....	9	90.2 Clearances between Car Sill and Lift- well Surface .....	17
83.3 Equipment Accessibility .....	9	90.3 Clearances Between Car Sills and Landing Sills .....	17
83.4 External Maintenance Platform .....	9	90.4 Clearances Between Car Doors and Landing Doors .....	17
83.5 Ladders .....	9	90.5 Clearances at Landing Sills for Horizontally Sliding or Hinged Land- ing Doors .....	17
83.6 Headroom .....	9	90.6 Flushness of Liftwell Facing Car Entrances .....	17
83.7 Temperature .....	10	90.7 Projection Beyond Landing Sills .....	17
83.8 Lighting .....	10	90.8 Flushness of Liftwell Not Facing Car Entrances .....	17
<b>SECTION 84. OVERHEAD SHEAVE ROOMS AND PLATFORMS</b>		<b>SECTION 91. TOP AND BOTTOM CLEARANCES</b>	
84.1 General .....	11	91.1 Class 1 and Class 2 Service Lifts .....	18
84.2 Access and Headroom .....	11	91.2 Undercounter Service Lifts .....	18
84.3 Lighting .....	11		
<b>SECTION 85. MACHINES</b>		<b>SECTION 92. GUIDE RAILS</b>	
85.1 Rated Speed .....	11	92.1 Provision .....	20
85.2 Types .....	11	92.2 Material .....	20
85.3 Geared Drives.....	11	92.3 Overall Length .....	20
85.4 Belt Drives .....	11	92.4 Cross-section .....	20
85.5 Sheaves, Drums and Chain Wheels .....	11	92.5 Joints .....	20
85.6 Hand-winding .....	11	92.6 Spacing of Fixings .....	20
<b>SECTION 86. SHEAVES, DRUMS, CHAIN WHEELS AND PULLEYS</b>		92.7 Brackets and Building Supports .....	20
86.1 Mechanical Design .....	12	92.8 Gauge Tolerance .....	20
86.2 Multiplying Sheaves .....	12		
86.3 Guarding of Nip-points .....	12	<b>SECTION 93. GUIDE SHOES</b>	
<b>SECTION 87. SUSPENSION ROPES AND CHAINS</b>		93.1 Provision .....	21
87.1 Materials .....	13	93.2 Play Between Guides .....	21
87.2 Minimum Number .....	13	93.3 Engagement .....	21
87.3 Factors of Safety .....	13	93.4 Adjustment .....	21
87.4 Designation and Measurement of Rope Size .....	13	93.5 Roller Guide Shoes.....	21
87.5 Size of Rope .....	13		
87.6 Size of Chain .....	13	<b>SECTION 94. BUFFERS AND STOPS</b>	
87.7 Data Plates .....	13	94.1 Provision and Type....	22
87.8 Handling and Care .....	14	94.2 Location....	22
<b>SECTION 88. ROPE AND CHAIN ATTACHMENTS AND FITTINGS</b>		94.3 Solid Buffers .....	22
88.1 Ropes .....	14	94.4 Spring Buffers .....	22
		94.5 Overhead Stops .....	22

	<i>Page</i>		<i>Page</i>
<b>SECTION 95. SAFETY GEAR AND IMPACT-ABSORBING PIT GEAR</b>		100.6 Counterbalancing ....	29
95.1 Provision and Type ....	23	100.7 Door Counterweights ....	30
95.2 Occupiable Space Under Pit Floor ....	23	100.8 Locked Out of Service ....	30
95.3 General Requirements ....	23	100.9 Vision Panels ....	30
95.4 Limits of Use ....	23	<b>SECTION 101. POWER OPERATION OF CAR DOORS AND LANDING DOORS</b>	
95.5 Minimum Factors of Safety and Stresses of Safety Gear Parts ....	24	101.1 Types of Doors Permitted ....	31
95.6 Impact-absorbing Spring ....	24	101.2 Power Opening ....	31
95.7 Impact-absorbing Friction Stop ....	24	101.3 Power Closing ....	31
95.8 Location of Impact-absorbing Springs and Stops ....	24	101.4 Kinetic Energy and Force Limitations	31
<b>SECTION 96. SPEED GOVERNORS</b>		101.5 Protective Device ....	31
96.1 Location ....	25	101.6 Maximum Opening and Closing Speeds	31
96.2 Design ....	25	<b>SECTION 102. LOCKING OF LANDING DOORS</b>	
96.3 Governor Ropes ....	25	102.1 Provision ....	31
<b>SECTION 97. COUNTERWEIGHTS</b>		102.2 Vertically Bi-parting Doors ....	31
97.1 Application ....	25	102.3 Lock Accessibility ....	31
97.2 Construction ....	25	102.4 Maintenance and Emergency Door Unlocking Device ....	31
97.3 Factor of Safety ....	25	<b>SECTION 103. ELECTRICAL INSTALLATION—GENERAL</b>	
97.4 Guiding ....	25	103.1 Compliance ....	32
97.5 Guarding ....	25	103.2 Circuit-breaker or Switch ....	32
<b>SECTION 98. CAR CONSTRUCTION</b>		103.3 Rectifying Units ....	32
98.1 Suspension Attachments ....	26	103.4 Location of Controllers ....	32
98.2 Guide Shoes ....	26	103.5 Clearance Around Controllers ....	32
98.3 Frames and Platforms ....	26	103.6 Prevention of Contact with Live Parts	32
98.4 Platform Guards ....	26	103.7 Light Switches ....	32
98.5 Sills ....	27	<b>SECTION 104. WIRING</b>	
98.6 Walls ....	27	104.1 General ....	33
98.7 Roof ....	27	104.2 Liftwells ....	33
98.8 Lighting ....	28	104.3 Cars ....	33
<b>SECTION 99. CAR DOORS</b>		104.4 Travelling Cables ....	33
99.1 Class 2 Service Lifts ....	28	<b>SECTION 105. EARTHING</b>	
99.2 Class 1 and Undercounter Service Lifts	28	105.1 General ....	33
99.3 Maximum Number ....	28	105.2 Electrical Apparatus Installed on Lift Cars	33
99.4 Size ....	28	105.3 Bell and Indicator Transformers ....	33
99.5 Type ....	28	<b>SECTION 106. CONTROL EQUIPMENT</b>	
99.6 Material ....	28	106.1 General ....	34
99.7 Strength ....	28	106.2 Control and Operating Circuit Requirements ....	34
99.8 Door Guides Projecting Above Car Roof	28	106.3 Non-reversing Control ....	34
99.9 Clearance ....	28	106.4 Driving Machine Brakes ....	34
99.10 Vertically Operating Car Doors	28	106.5 Control Buttons ....	34
99.11 Suspension ....	28	106.6 Stop Switches ....	34
99.12 Counterweights ....	28	106.7 Indication of Car Position ....	34
99.13 Hand Grips ....	28	<b>SECTION 107. ELECTRICAL PROTECTIVE DEVICES</b>	
<b>SECTION 100. LANDING DOORS</b>		107.1 Landing Door Contacts ....	35
100.1 Provision ....	29	107.2 Door Lock Circuits ....	35
100.2 Material ....	29	107.3 Car Door Contacts ....	35
100.3 Construction ....	29	107.4 Liftwell Access Door Switch ....	35
100.4 Smoothness of Sliding Landing Door Surfaces	29		
100.5 Support and Guiding ....	29		

	<i>Page</i>		<i>Page</i>
107.5	Pit Stop Switch	....	35
107.6	Car Top Stop Switch	....	35
107.7	Sheave Room or Platform Stop Switch	....	35
107.8	Liftwell Flap Switch	....	35
107.9	Slack Rope Switch	....	35
107.10	Broken Rope Switch	....	35
107.11	Broken Tape Switch	....	35
107.12	Safety Gear Switch	....	35
107.13	Governor Switch	....	35
107.14	Over-time Switch	....	36
107.15	Impact-absorbing Friction-stop Switch	....	36
107.16	Compensating Sheave Switch	....	36
<b>SECTION 108. TERMINAL STOPPING DEVICES</b>			
108.1	Normal Limit Switches	....	37
108.2	Overtravel Limit Switches	....	37
<b>SECTION 109. TELEPHONES, NOTICES AND NUMBERING OF LIFTS</b>			
109.1	Communication with Machine Room		38
109.2	Load Notices	....	38
109.3	Numbering	....	38
<b>SECTION 110. PROHIBITED EQUIPMENT</b>			
<b>SECTION 111. MAINTENANCE</b>			
<b>APPENDIX A. SCREW DRIVING MACHINES</b>			

## STANDARDS ASSOCIATION OF AUSTRALIA

## Australian Standard

for

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

## PART 4—POWER-OPERATED SERVICE LIFTS

SECTION 80. SCOPE, CLASSIFICATION AND  
TYPES

**80.1 SCOPE.** This standard sets out requirements for power-operated service lifts of the types listed in Clause 80.3 and intended for operation under any of the following conditions:

- (a) Rated car speed of 1 m/s or less.
- (b) Rated load exceeding 12 kg.

NOTE: Lifts required to carry a load in the range of 12 kg to 50 kg are designed for and rated at 50 kg, because of the possibility of a person standing on the roof.

- (c) Internal car volume exceeding 0.06 m<sup>3</sup>.

The standard includes requirements for design, manufacture, installation and operation.

This standard is complementary to AS 1735, Part 1 and the relevant requirements of AS 1735, Part 2, but the requirements of this standard take precedence over corresponding requirements in those standards.

NOTE: It is not intended that this standard should prohibit service lifts outside its scope. For the requirements for service lifts outside the scope of this standard, reference should be made to the Statutory Authority.

**80.2 CLASSIFICATION.** Service lifts within the scope of this standard shall be classified as follows:

- (a) *Class 1 service lift*—a service lift of which the rated load, floor area, car depth and internal car height do not exceed the values specified in Clause 81.1.
- (b) *Class 2 service lift*—a service lift of which the rated load, or floor area, or car depth, or internal car height exceeds the relevant value specified in Clause 81.1 but does not exceed the values specified in Clause 81.2.
- (c) *Undercounter service lift*—a service lift, for which the top landing entrance and all the liftwell equipment are installed beneath a counter, bench or similar item of furniture (see Clause 81.3).

**80.3 TYPES.**

**80.3.1 Class 1 and Class 2 Service Lifts.** Recognized types of Class 1 and Class 2 service lifts are as follows:

- (a) Traction drive.
- (b) Drum drive.
- (c) Endless chain suspension (travel self-limiting).
- (d) Endless chain suspension (travel not self-limiting).

**80.3.2 Undercounter Service Lifts.** Undercounter service lifts shall be of the following types:

- (a) Traction drive.
- (b) Endless chain suspension (travel self-limiting).