



**CSA
Group**

B355-15

Lifts for persons with physical disabilities

Currently in preview, click buy full version

Legal Notice for Standards

Canadian Standards Association (operating as “CSA Group”) develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document’s fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party’s intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document’s compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group’s and/or others’ intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by treaty or by law, CSA Group reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF form.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way, or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



Standards Update Service

B355-15

March 2015

Title: *Lifts for persons with physical disabilities*

To register for e-mail notification about any updates to this publication

- go to shop.csa.ca
- click on **CSA Update Service**

The **List ID** that you will need to register for updates to this publication is **24235-5**

If you require assistance, please e-mail techsupport@csagroup.org or call 416-747-2233.

Visit CSA Group's policy on privacy at csagroup.org/legal to find out how we protect your personal information.

B355-15
Lifts for persons with physical disabilities



TMA trade-mark of the Canadian Standards Association, operating as "CSA Group"

*Published in March 2015 by CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3*

*To purchase standards and related publications, visit our Online Store at shop.csa.ca
or call toll-free 1-800-463-6727 or 416-747-4044.*

ISBN 978-1-77139-857-2

© 2015 CSA Group
All rights reserved. No part of this publication may be reproduced in any form whatsoever
without the prior permission of the publisher.

Contents

Technical Committee on Lifts for Persons with Physical Disabilities	5
Preface	8
1 Scope	9
2 Reference publications	10
3 Definitions	11
4 Design requirements and limitations	14
4.1 Design considerations	14
4.1.1 General	14
4.1.2 Protection against hazards	15
4.1.3 Protection against falling from the platform at landings	15
4.1.4 Obstructions and projections	15
4.1.5 Vertical clearance	15
4.2 Travel, limits of travel, landings, and inclination	16
4.2.1 Travel	16
4.2.2 Floor penetration	16
4.2.3 Limits of travel	16
4.2.4 Intermediate landings	16
4.2.5 Inclination	16
4.3 Rated speed	17
4.4 Types of carriages	17
4.5 Capacity, rated load, and size	17
4.6 Safety factors	18
4.7 Welding	18
4.8 Lighting	18
5 Runway	18
5.1 Runway enclosures	18
5.1.1 General requirements	18
5.1.2 Enclosed vertical platform lifts	19
5.1.3 Unenclosed vertical platform lifts	19
5.1.4 Enclosed stair platform lifts	19
5.1.5 Partial runway enclosures	19
5.2 Landing doors and gates	20
5.2.1 General	20
5.2.2 Height and width	20
5.2.3 Door or gate interlock	21
5.2.4 Requirements for interlocks, combination mechanical locks, and electrical contacts	21
5.2.5 Required tests and procedures	22
5.3 Mechanical limits	25
5.3.1 All lifts	25
5.3.2 Vertical platform lifts	25

5.4	Under-platform access	26
5.5	Horizontal clearances	26
5.5.1	Vertical platform lifts	26
5.5.2	Stair lifts	27
5.6	Guide rails	27
5.7	Stair lift guards at ceiling intersections	27
6	Drive unit	28
6.1	Requirements for all drive units	28
6.1.1	General	28
6.1.2	Power transmission	28
6.1.3	Drive machine brakes	28
6.1.4	Manual moving of the carriage in case of emergency	29
6.1.5	Alignment	29
6.1.6	Drive unit enclosure	30
6.2	Suspension wire rope, winding drum drives, and sheaves	30
6.2.1	Suspension wire rope	30
6.2.2	Winding drum	30
6.2.3	Sheaves	31
6.2.4	Protection and guarding	31
6.3	Rack and pinion drive	31
6.3.1	Pinion drive	31
6.3.2	Racks	32
6.3.3	Guarding	32
6.4	Chain and chain sprocket drive	32
6.4.1	Chains	32
6.4.2	Chain drive sprockets	32
6.4.3	Protection and guarding	32
6.5	Screw and nut drive	33
6.5.1	Screw	33
6.5.2	Nut	33
6.5.3	Screw and nut assembly	33
6.5.4	Guarding	33
6.6	Hydraulic drive	33
6.6.1	General requirements for components under fluid pressure	33
6.6.2	Valves	35
6.6.3	Piping requirements	35
6.6.4	Connections and fittings	36
6.6.5	Speed-limiting devices	36
6.6.6	Leveling device, anti-creep	36
6.6.7	Safety bulkhead	36
6.6.8	Pressure sensor	37
6.6.9	Telescopic plunger guides	37
6.6.10	Operation dependent on electric power supply	37
6.7	Rope chain and rope sprocket drives	37
6.7.1	Rope chain	37
6.7.2	Rope sprocket	37
6.8	Friction drive	38

7	Carriage	38
7.1	Types of carriages	38
7.2	Requirements for all carriages	38
7.2.1	Construction	38
7.2.2	Attachment of suspension means	38
7.2.3	Protection on carriages	38
7.2.4	Sensitive edges or sensitive surfaces	39
7.2.5	Safeties and overspeed governors	39
7.2.6	Foldable components	41
7.3	General requirements for all platform carriages	41
7.3.1	Platform construction	41
7.3.2	Platform ceilings	41
7.4	Chair carriage	41
7.4.1	Two chairs	41
7.4.2	Construction of chair	41
7.4.3	Rotation of chair	42
7.4.4	Footrest location	42
7.4.5	Safety belt	42
7.4.6	Directional control device	42
7.5	Standing platform	42
7.5.1	Specifications	42
7.5.2	Handgrips	42
7.5.3	Guard (enclosure)	42
7.5.4	Barrier arm	43
7.5.5	Clearances at landings	43
7.6	Wheelchair platform	43
7.6.1	Specifications	43
7.6.2	Guard (enclosure)	43
7.6.3	Rollaway protection	44
7.6.4	Clearances at landings	44
7.6.5	Ramps, flaps, and hinged-edge surfaces	44
7.6.6	Foldable seat	45
7.7	Wheelchair-and-attendant platform	45
7.7.1	Specifications	45
7.7.2	Guard (enclosure)	45
7.7.3	Platform gate	45
7.7.4	Clearances at landings	45
7.7.5	Handrails	45
7.7.6	Foldable seat	46
7.7.7	Platform gate combination mechanical locks and electrical contacts	46
7.8	Special adaptation platforms	47
8	Electrical equipment	47
8.1	General	47
8.2	Operation and operating devices	47
8.2.1	Type of operation	47
8.2.2	Types of operating devices	47
8.2.3	Location of operating and signal devices	47
8.2.4	Automatic levelling	48

8.3	Alarm and warning signal	48
8.3.1	General	48
8.3.2	Actuation	49
8.3.3	Emergency operation	49
8.3.4	Audiovisual warning signal	49
8.3.5	Emergency communication device	49
8.4	Control and control equipment	49
8.4.1	Control circuits	49
8.4.2	Protection in the case of failure	50
8.4.3	Controller	50
8.4.4	Normal terminal-landing stopping devices	50
8.4.5	Phase reversal	50
8.5	Electrical protective devices	50
8.5.1	General	50
8.5.2	Emergency stop device	51
8.5.3	Final terminal-stopping devices	51
8.5.4	Sensitive edge and sensitive surface switches	51
8.5.5	Slack belt or chain drive, drum, sheave, and safeties switches	52
8.5.6	Foldable, rotatable, or hinged component contacts	52
8.5.7	Gate and barrier arm contacts	52
8.5.8	Door or gate interlock contacts	52
8.5.9	Runway stop device	52
8.5.10	Top of platform enclosure stop devices	52
8.5.11	Manual moving device switch	52
9	Data plate and signs	52
9.1	Data plate	52
9.2	Under-platform sign	53
9.3	Markings of data plate and sign	53
9.4	Markings of landing zone for an enclosed vertical platform lift	53
10	Alterations	53
10.1	Documentation	53
10.2	Compliance	53
11	Maintenance	53

Annex A (informative) — Inspection and testing 56

Annex B (informative) — Maintenance of lifts for persons with physical disabilities 58

Annex C (informative) — Technical differences between the current (2015) edition of this Standard and the fifth (2009) edition of this Standard and second (2000) edition of B613 66

Technical Committee on Lifts for Persons with Physical Disabilities

R. Murphy	Garaventa (Canada) Ltd., Surrey, British Columbia <i>Category: Producer Interest</i>	<i>Chair</i>
S. Mercier	Régie du bâtiment du Québec, Montréal, Québec <i>Category: Regulatory Authority</i>	<i>Vice-Chair</i>
A. Bertrand	Savaria Concord Lifts Inc, Brampton, Ontario	<i>Associate</i>
M. Brose	Transportation Action Now, Toronto, Ontario <i>Category: User Interest</i>	
D. Bruce	Alberta Municipal Affairs, Edmonton, Alberta <i>Category: Regulatory Authority</i>	
D. Davies	Canwest Elevator & Lifts, Calgary, Alberta <i>Category: User Interest</i>	
S. Doyle	IAC & Associates, Inc, Windsor, Ontario <i>Category: Producer Interest</i>	
J. Gow	Garaventa (Canada) Limited, Hamilton, Ontario	<i>Associate</i>
R. Hadaller	Toronto, Ontario	<i>Associate</i>
R. Helps	New Dundee, Ontario <i>Category: General Interest</i>	
T. Irmscher	British Columbia Safety Authority (BCSA), Victoria, British Columbia <i>Category: Regulatory Authority</i>	

R.M. Kennedy	Department of Labour & Advanced Education, Halifax, Nova Scotia <i>Category: Regulatory Authority</i>	
J.P. Lee	British Columbia Safety Authority (BCSA), New Westminster, British Columbia	<i>Associate</i>
P. McDermott	Technical Standards & Safety Authority, Toronto, Ontario	<i>Associate</i>
R. Meunier	RAM Manufacturing Ltd., Edmonton, Alberta <i>Category: Producer Interest</i>	
A. Nowakowski	Elevating Technologies Inc. (ETI), Toronto, Ontario	<i>Associate</i>
M. Peros	Ashford Engineering Limited, Toronto, Ontario <i>Category: General Interest</i>	
R. Piatti	Federal Elevator Holdings Limited, Mississauga, Ontario <i>Category: Producer Interest</i>	
S. Plante	CEE Elevator Service Ltd., Ajax, Ontario <i>Category: Producer Interest</i>	
C. Rastin	Savaria S.S., Brampton, Ontario <i>Category: General Interest</i>	
W. Richardson	Savaria Concord Lifts Inc, Brampton, Ontario	<i>Associate</i>
S. Salib	Technical Standards & Safety Authority, Toronto, Ontario <i>Category: Regulatory Authority</i>	
R. Schane	Public Works & Government Services Canada, Ottawa, Ontario <i>Category: User Interest</i>	
G. Taylor	Handicare Inc, Toronto, Ontario	<i>Associate</i>

M. Townsend	Garaventa Canada Ltd, Surrey, British Columbia	<i>Associate</i>
D.S. Warne	Alberta Elevating Devices & Amusement Rides Safety Association, Calgary, Alberta	<i>Associate</i>
A. Zemanek	CSA Group, Toronto, Ontario	<i>Associate</i>
M. Zingarelli	MAD-Elevator Fixtures Inc., Etobicoke, Ontario	<i>Associate</i>
J. Ziobroski	Intertek, Mississauga, Ontario	<i>Associate</i>
A. Holbeche	CSA Group, Toronto, Ontario	<i>Project Manager</i>

Preface

This is the sixth edition of CSA B355, *Lifts for persons with physical disabilities*. It supersedes the previous editions published in 2009, 2000, 1994, 1986, and 1981. This edition incorporates the requirements previously contained in B613, *Private residences lifts for persons with physical disabilities*.

This edition also includes the following changes:

- a) addition of requirements for emergency communications;
- b) a revised definition of “travel”;
- c) clarification of requirements for manual moving;
- d) revised requirements for tripping speed; and
- e) addition of requirements for operation dependent on electric power supply.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the Technical Committee on Lifts for Persons with Physical Disabilities under the jurisdiction of the Strategic Steering Committee on Mechanical Industrial Equipment Safety.

Notes:

- 1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- 2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
- 3) *This Standard was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
- 4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include “Request for interpretation” in the subject line:*
 - a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
 - b) *provide an explanation of circumstances surrounding the actual field condition; and*
 - c) *where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.*

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at standardsactivities.csa.ca.
- 5) *This Standard is subject to review five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include “Proposal for change” in the subject line:*
 - a) *Standard designation (number);*
 - b) *relevant clause, table, and/or figure number;*
 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

B355-15

Lifts for persons with physical disabilities

1 Scope

1.1

This Standard specifies minimum requirements for the design, construction, installation, and operation of lifts that are to be specifically used by persons with physical disabilities travelling between fixed points of a building or structure, including a private residence, with a view to safeguarding against risk of accidents associated with the operation of such equipment.

1.2

This Standard addresses requirements for

- a) enclosed vertical platform lifts;
- b) unenclosed vertical platform lifts;
- c) stair chair lifts;
- d) enclosed stair platform lifts; and
- e) unenclosed stair platform lifts.

1.3

This Standard provides recommendations for the inspection, testing, and maintenance of lifts for persons with physical disabilities (see Clause 11 and Annexes A and B).

1.4

This Standard does not apply to elevating devices addressed by ASME A17.1/CSA B44.

1.5

This Standard does not address location of, access to, and usage of the lifts specified herein.

Note: *These factors might be regulated by the enforcing authority.*

1.6

The provisions of this Standard are not intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety to those prescribed by this Standard, provided that there is technical documentation to demonstrate the equivalency of the system, method, or device.

Note: *Authorities having jurisdiction may permit modifications to this Standard provided that technical documentation or physical performance verification can assure the safety equivalence of such modifications to the corresponding requirements of this Standard.*

1.7

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (nonmandatory) to define their application.

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below, including all amendments published thereto.

CSA Group

ASME A17.1-2013/CSA B44-13
Safety Code for Elevators and Escalators

CSA B44.1-14/ASME A17.5-2014
Elevator and Escalator Electrical Equipment

C22.1-12
Canadian Electrical Code, Part I

W59-13
Welded steel construction (Metal arc welding)

W59.2-M1991 (R2013)
Welded aluminum construction

ASME (The American Society of Mechanical Engineers)

A17.6-2010
Standard for Elevator Suspension, Compensation, and Governor Systems

B1.20.1-2013
Pipe Threads, General Purpose, Inch

B1.20.3-1976 (R2013)
Dryseal Pipe Threads, Inch

ANSI/ASME B29.100-2011
Double-Pitch Roller Chains, Attachments, and Sprockets

B31.1-2012
Power Piping

ASTM International (American Society for Testing and Materials)

A53/A53M-12
Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless