ASME A17.7-2025/CSA B44.7:25

Performance-based safety code for elevators and escalators



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ASME A17 Elevator and Escalator Standards Committee

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D. L. Barker	California Division of Occupational Safety and Health Monrovia, California, USA	
R. E. Baxter	Baxter Residential Elevators LLC Allen, Texas, USA	
J. W. Blain	Edgett Williams Consulting Group Mill Valley, California, USA	
S. Bornstein	KONE Canada Inc. Mississauga, Ontario, Canada	
P. R. Bothwell	Drake EHC Oshawa, Ontario, Canada	
K. L. Brinkman	National Elevator Industry Inc. Eureka, Illinois, USA	
J. W. Coaker	Coaker & Co. PC Fairfax Station, Virginia, USA	
J. Day	NAESA International Mankato, Minnesota, USA	

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J. Filippone	Consultant East New Brunswick, New Jersey, USA
R. A. Gregory	Vertex Corp. Chicago, Illinois, USA
P. Hampton	TK Elevator Atlanta, Georgia, USA
J. D. Henderson	TK Elevator Atlanta, Georgia, USA
J. T. Herrity	Department of the Navy, Naval Facilities Command (NAVFAC) Washington, DC, USA
B. Horne	Otis Elevator Farmington, Connecticut, USA
D. A. Kalgren	KONE Inc. Allen, Texas, USA
J. W. Koshak	Elevator Safety Solutions LLC Germantown, Tennessee, USA
N. Martin	Schindler Elevator Independence, Ohio , USA
D. McColl	Otis Canada Inc. Mississauga, Ontario, Canada
D. McLellan	Technical Standards and Safety Authority (TSSA) Toronto, Ontario, Canada
A. Morris	Miami-Dade County ISD/Office of Elevator Safety Miami-Dade County, Florida, USA
J. S. Rearick	Rearick & Co. Inc. Kittanning, Pennsylvania, USA
V. P. Robibero	RobiberoV Consultancy LLC Houston, Texas, USA

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R. S. Seymour	Robert L. Seymour & Associates Inc. Frederick, Maryland, USA	
C. Shade	Ohio Department of Commerce Columbus, Ohio, USA	
D. Smarte	National Association of Elevator Contractors Bishopville, Maryland, USA	
W. M. Snyder	VTE Solution LLC Largo, Florida, USA	
J. Varon	G.A.L. Manufacturing Corp. Bronx, New York, USA	
H. M. Vyas	TY Lin International New York City, New York, USA	
J. Xue	Shanghai Institute of Special Equipment Inspection and Technical Research Shanghai, China	*Delegate*
D. S. Boucher	KONE Inc. Allen, Texas, USA	*Alternate*
J. Carlson	J Carlson Consulting LLC Oakland, California, USA	*Alternate*
C. S. Cowen	TK Elevator (Canada) Ltd. Toronto, Ontario, Canada	*Alternate*
G. DeCola	Omega Industries Elevator Consulting New York City, New York, USA	*Alternate*
L. W. Donaldson	Department of the Navy, Naval Facilities Command (NAVFAC) Washington, DC, USA	*Alternate*
A. Ghazanchaei	Otis Canada Inc. Mississauga, Ontario, Canada	*Alternate*
D. Griefenhagen	International Union of Elevator Constructors Hugo, Minnesota, USA	*Alternate*

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R. Kaspersma	Kone The Hague, Netherlands	*Alternate*
J. F. Kleine	Otis Elevator Co. Farmington, Connecticut, USA	*Alternate*
L. Metzinger	Alimak Group USA Inc. Houston, Texas, USA	*Alternate*
D. Morris	California Division of Occupational Safety and Health Monrovia, California, USA	*Alternate*
S. P. Reynolds	The Peelle Co. Ltd. Brampton, Ontario, Canada	*Alternate*
C. Romero	Motion Control Engineering Inc. Rancho Cordova, California, USA	*Alternate*
P. S. Rosenberg	Performance Elevator Consulting LLC Milwaukee, Wisconisn, USA	*Alternate*
J. L. Stabler	Stabler Associates Inc. St. Louis, Missouri, USA	*Alternate*
G. Lee	CSA Group Toronto, Ontario, Canada	*Project Manager*

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CSA Technical Committee on the Elevator Safety Code

D. McColl	Otis Canada Inc. Mississauga, Ontario, Canada *Category: Producer Interest*	*Chair*
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M. D. Do Couto	Toronto Transit Commission Toronto, Ontario, Canada	*Non-voting*

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A. Ghazanchaei	Otis Canada, Inc. Mississauga, Ontario, Canada	*Non-voting*
S. Gurumurthy	KONE Inc., Canada Mississauga, Ontario, Canada	*Non-voting*
A. S. Hopkirk	Trident Elevator Company Limited Scarborough, Ontario, Canada *Category: User/General Interest*	
A. Irving	Alberta Elevating Devices and Amusement Rides Safety Association (AEDARSA) Calgary, Alberta, Canada	*Non-voting*
R. Isabelle	KJA Consultants Inc. Toronto, Ontario, Canada *Category: User/General Interest*	
F. Kassem	TK Elevator (Canada) Limited Dorval, Québec, Canada	*Non-voting*
C. Kelesis	Toronto Transit Commission Toronto, Ontario, Canada	*Non-voting*
J. W. Koshak	Elevator Safety Solutions, LLC Germantown, Tennessee, USA	*Non-voting*
R. Kremer	Technical Standards & Safety Authority (TSSA) Toronto, Ontario, Canada	*Non-voting*

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D. Laguerre	Schindler Elevator Corporation Toronto, Ontario, Canada *Category: Producer Interest*	
D. Lenardis	Public Service Procurement Canada Ottawa, Ontario, Canada	*Non-voting*
S. E. MacArthur	Government of Prince Edward Island, Department of Housing, Land & Communities Charlottetown, Prince Edward Island, Canada *Category: Regulatory Authority*	
R. Marsiglio	H. H. Angus & Associates Ltd. Toronto, Ontario, Canada *Category: User/General Interest*	
P. McClare	Nova Scotia Technical Safety, Department of Labour, Skills, and Learning Halifax, Nova Scotia, Canada *Category: Regulatory Authority*	
E. McClaskey	International Union of Elevator Constructors Pleasant Hill, California, USA *Category: User/General Interest*	
K. L. McGettigan	Elevator Industry Work Preservation Fund Effingham, New Hampshire, USA *Category: User/General Interest*	
A. McGregor	Rooney, Irving & Associates Ltd. Ottawa, Ontario, Canada	*Non-voting*
C. McIntyre	Canadian Elevator Industry Educational Program Pickering, Ontario, Canada *Category: User/General Interest*	
D. McLellan	Technical Standards & Safety Authority (TSSA) Toronto, Ontario, Canada *Category: Regulatory Authority*	
M. Mihai	Technical Standards & Safety Authority (TSSA) Toronto, Ontario, Canada	*Non-voting*
T. Miller	Priestman Neilson & Associates Ltd. Ottawa, Ontario, Canada *Category: User/General Interest*	

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R. Murphy	Garaventa Canada Ltd. Surrey, British Columbia, Canada *Category: Producer Interest*	
H. Nuri	Toronto Transit Commission Toronto, Ontario, Canada	*Non-voting*
S. Palko	Technical Safety Authority of Saskatchewan (TSASK) Regina, Saskatchewan, Canada	*Non-voting*
M. Pedram	Burlington, Ontario, Canada *Category: Producer Interest*	
H. Peelle	The Peelle Company Limited Brampton, Ontario, Canada *Category: Producer Interest*	
A. Pozzebon	Fujitec Canada, Inc. Richmond Hill, Ontario, Canada	*Non-voting*
A. Reistetter	National Elevator & Escalator Association Mississauga, Ontario, Canada	*Non-voting*
S. Reynolds	The Peelle Company Limited / Canadian Elevator Contractors Association Brampton, Ontario, Canada	*Non-voting*
E. Ryba	Public Services and Procurement Canada Ottawa, Ontario, Canada *Category: User/General Interest*	
R. Santos	Technical Safety Authority of Saskatchewan (TSASK) Regina, Saskatchewan, Canada *Category: Regulatory Authority*	
R. Scharfe	Pembroke, Ontario, Canada	*Non-voting*
P. Sorensen	Technical Safety BC Vancouver, British Columbia, Canada	*Non-voting*
K. Steeves	Province of New Brunswick Department of Public Safety Moncton, New Brunswick, Canada *Category: Regulatory Authority*	

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M. Tevyaw	MHT Codes & Consulting Specialists Burlington, Ontario, Canada	*Non-voting*
S. Thomas	Government of the Northwest Territories Yellowknife, Northwest Territories, Canada *Category: Regulatory Authority*	
E. Towson	Technical Safety BC West Kelowna, British Columbia, Canada *Category: Regulatory Authority*	
B. Virk	UT Elevator Inc. Toronto, Ontario, Canada *Category: Producer Interest*	
J. Virk	UTE Elevator Inc. Toronto, Ontario, Canada	*Non-voting*
K. Virk	UT Elevator Inc. Toronto, Ontario, Canada	*Non-voting*
M. Wu	Société de transport de Montréal (STM) Montréal, Québec, Canada *Category: User/General Interest*	
L. Yang	CSA Group Toronto, Ontario, Canada *Category: User/General Interest*	
M. Zingarelli	MAD-Elevator Inc. Mississauga, Ontario, Canada	*Non-voting*
G. Lee	CSA Group Toronto, Ontario, Canada	*Project Manager*

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Foreword

Present requirements provide a framework for standards of safety for current products whose technologies have become state-of-the-art and commonplace. The ASME A17 and CSA B44 Committees have demonstrated responsiveness to prepare new requirements to cover newly introduced designs and technologies throughout their long histories.

The ASME A17 and CSA B44 Code Committees will continue their longstanding policies of revising Codes and Standards to keep them abreast of developments in the industry. The ASME A17 and CSA B44 Committees have responded to new developments throughout their histories, as evidenced by the inclusion of requirements to recognize technological advances (such as increased car speeds, solid state electronic devices, observation elevators, installation of counterweights in separate hoistways, material lifts and dumbwaiters with automatic transfer devices, special purpose personnel elevators, inclined elevators, elevators used for construction, limited-use/limited-application elevators, and shipboard elevators).

In a progressive elevator industry, designs and products emerge that are not specifically covered in the ASME A17.1/CSA B44 Code or ASME A17.8/CSA B44.8, whichever is applicable. Since Code requirements cannot anticipate future development and innovation in the elevator industry, they are written to reflect state-of-the-art technologies following introduction. Accordingly, products will be introduced prior to requirements being adopted into the ASME A17.1/CSA B44 Code or ASME A17.8/CSA B44.8, whichever is applicable.

With new materials and processes in mechanical, structural, electronic, and optics areas, in addition to analytical capabilities now available, the need for flexibility to introduce products resulting from maturing technical developments is heightened. The ASME A17 and CSA B44 Code Committees realized long ago that the time gap between the introduction of new technologies and introduction of relevant specific requirements in the Codes could hinder progress. Therefore, they introduced long-standing provisions, in Section 1.2, that suggest that Authorities Having Jurisdiction or Regulatory Authorities, hereafter referred to as AHJ, should recognize new systems, methods, or devices provided that they assure safety equivalent to that required by the Codes. However, the lack of a structured method for assessment of equivalency has proven to be a problem in the practical implementation of Section 1.2 provisions.

This performance-based Code, ASME A17.7/CSA B44.7, provides an objective and structured method for establishing design and product safety. It is in the public interest that safe designs and products be introduced into the marketplace. Safeguards must be provided, and documentation must be presented to show that designs and products are equivalent or superior in quality, strength, stability, fire resistance, effectiveness, durability, and safety to that intended by the ASME A17.1/CSA B44 Code. This structured method also provides a consistent means of demonstrating safety of designs and products, which will be helpful to AHJ.

This second edition of ASME A17.7/CSA B44.7 adds the availability of this Code to be used with escalators and moving walks, as well as ASME A17.8/CSA B44.8, because the wind turbine tower elevators requirements were removed from ASME A17.1-2013/CSA B44-13 and moved into a newly created ASME A17.8/CSA B44.8 Standard for wind turbine tower elevators.

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ASME Preface

General

This is the second edition of the performance-based Code which is one of numerous codes and standards developed and published by the American Society of Mechanical Engineers (ASME) under the general auspices of the American National Standards Institute, Inc. (ANSI).

The Code is intended to serve as the basis for design, construction, installation, operation, testing, inspection, maintenance, alteration, and repair of elevators, dumbwaiters, escalators, moving walks, and material lifts.

Safety codes and standards are intended to enhance public health and safety. Revisions result from committee consideration of factors such as technological advances, new data, and changing environmental and industry needs. Revisions do not imply that previous editions were inadequate.

The following conditions are not addressed in this Code:

a) assignment of the responsibility for compliance to any particular party;
b) frequency of periodic inspections and tests; and
c) assignment of responsibility for persons authorized to make and witness inspections and tests.

Correspondence with ASME A17 Committee

General. ASME codes and standards are developed and maintained by committees with the intent to represent the consensus of concerned interests. Users of ASME codes and standards may correspond with the committees to propose revisions or cases, report errata, or request interpretations. Correspondence for this Code should be sent to the staff secretary noted on the committee's web page, accessible at https://go.asme.org/A17committee.

Revisions and Errata. The committee processes revisions to this Code on a periodic basis to incorporate changes that appear necessary or desirable as demonstrated by the experience gained from the application of the Code. Approved revisions will be published in the next edition of the Code.

In addition, the committee may post errata on the committee web page. Errata become effective on the date posted. Users can register on the committee web page to receive email notifications of posted errata.

This Code is always open for comment, and the committee welcomes proposals for revisions. Such proposals should be as specific as possible, citing the paragraph number, the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent background information and supporting documentation.

Interpretations. Upon request, the committee will issue an interpretation of any requirement of this Code. An interpretation can be issued only in response to a request submitted through the online Inquiry Submittal Form at http://go.asme.org/InterpretationRequest. Upon submitting the form, the inquirer will receive an automatic email confirming receipt.

ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Code requirements. If, based on the information submitted, it is the opinion of the committee that the inquirer should seek assistance, the request will be returned with the recommendation that such assistance be obtained. Inquirers can track the status of their requests at http://go.asme.org/Interpretations.

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ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Interpretations are published in the ASME Interpretations Database at http://go.asme.org/Interpretations as they are issued.

Committee Meetings. The A17 Standards Committee regularly holds meetings that are open to the public. Persons wishing to attend any meeting should contact the secretary of the committee. Information on future committee meetings can be found on the committee web page at https://go.asme.org/A17committee.

Note:

1) *This Code was developed under procedures accredited as meeting the criteria for American National Standards and it is an American National Standard. The standards committee that approved the code or standard was balanced to ensure that individuals from competent and concerned interests had an opportunity to participate. The proposed standard was made available for public review and comment, which provided an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.*
2) *ASME does not "approve," "rate," or "endorse" any item, construction, proprietary device, or activity. ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor does ASME assume any such liability. Users of a standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.*
3) *Participation by federal agency representatives or persons affiliated with industry is not to be interpreted as government or industry endorsement of this Code.*
4) *ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.*

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CSA Preface

This is the second edition of ASME A17.7/CSA B44.7, *Performance-based safety code for elevators and escalators*. It supersedes the previous edition published in 2007. This is a fully harmonized binational Code.

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

This Code was prepared for use in Canada by the CSA Technical Committee on the Elevator Safety Code, under the jurisdiction of the CSA Strategic Steering Committee on Public Safety, and has been formally approved by the CSA Technical Committee.

This Code has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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 Code is stated in its Scope, it is important to note that it remains the responsibility of the users of the Code to judge its suitability for their particular purpose.*
3) *This Code 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 sections of this Code.*
4) *A request for interpretation can be submitted to clarify the meaning of a provision in this Code. To submit a request for interpretation, please refer to www.csagroup.org/request-for-interpretation. Committee interpretations are processed in accordance with the* CSA Directives and guidelines governing standardization *and are available on the* Standards Activities *page at standardsactivities.csagroup.org.*
5) *This Code is subject to review within 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) *Code designation (number);*
   b) *relevant section, table, and/or figure number;*
   c) *wording of the proposed change; and*
   d) *rationale for the change.*

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Form and arrangement

General

This Code consists of parts and sections, each covering a specific subject so as to facilitate reference to the requirements.

The foreword, prefaces, notes, and nonmandatory appendices included in this Code and any interpretations provided subsequently are not part of this Code. They are advisory in nature and are intended for clarification only.

Abbreviation	Unit	Abbreviation	Unit
h	hour	m/s^2	meter per second per second
J	Joule		
kg	kilogram	mm	millimeter
kg/m^2	kilogram per square meter	mm^2	square millimeter
kPa	kilopascal	mm^3	cubic millimeter
lx	lux	MPa	megapascal
m	meter	N	Newton
m^2	square meter	s	second
m^3	cubic meter	W	Watt
m/s	meter per second		

Acronyms used in this Code

AECO	Accredited Elevator/Escalator Certification Organization
AHJ	Authority Having Jurisdiction (Regulatory Authority)
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CCD	Code Compliance Document
CSA	Canadian Standards Association
EN	European Norms
EPD	Electrical Protective Device
FMEA	Failure Mode and Effects Analysis
FOS	Factor of Safety
FTA	Fault Tree Analysis
GESR	Global Essential Safety Requirement
ISO	International Organization for Standardization
KE	Kinetic Energy
LCU	Load-Carrying Unit (Car)
MCP	Maintenance Control Program
MOSAR	Method Organized for Systematic Analysis of Risk

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PES	Programmable Electronic System
PHA	Preliminary Hazard Analysis
RA	Risk Assessment
SCC	Standards Council of Canada
SIL	Safety Integrity Level
SP	Safety Parameter
S/P	Severity/Probability
TC	Technical Committee
UTS	Ultimate Tensile Strength

Note: *See also Part 5 for acronyms used for referenced standards.*

SI (metric) units

This Code is written in SI (metric) units. Information on SI usage and conversion to imperial units is contained in IEEE/ASTM SI 10-2016, *Standard for the Use of the International System of Units (SI): The Modern Metric System*, ASME Guide SI-1, *Orientation and Guide for Use of SI (Metric) Units*, and ISO 80000-1, *Quantities and units — Part 1: General*.

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ASME A17.7-2025/CSA B44.7:25
Performance-based safety code for elevators and escalators

PART 1 GENERAL

SECTION 1.1 SCOPE

1.1.1 Equipment Covered by this Code

This Code covers the design, construction, operation, inspection, testing, maintenance, alteration, and repair of the following equipment and its associated parts, rooms, spaces, and hoistways, where located in or adjacent to a building or structure:

a) hoisting and lowering mechanisms, equipped with a car, that move between two or more landings. This equipment includes, but is not limited to, elevators (see 1.3);
b) power-driven stairways and walkways for carrying persons between landings. This equipment includes, but is not limited to, escalators and moving walks (see 1.3); and
c) hoisting and lowering mechanisms, equipped with a car, that serve two or more landings and are restricted to the carrying of material by their limited size or limited access to the car. This equipment includes, but is not limited to, dumbwaiters and material lifts (see 1.3).

Note: *Only elevators, escalators, and moving walks are covered in this edition. Other equipment is to comply with 1.2(a).*

1.1.2 Equipment Not Covered by this Code

Equipment not covered by this Code includes, but is not limited to, the following:

a) personnel hoists within the scope of ANSI A10.4 and CSA Z185;
b) material hoists within the scope of ANSI A10.5 and CSA Z256;
c) platform lifts and stairway chairlifts within the scope of ASME A18.1 and CSA B355;
d) manlifts within the scope of ASME A90.1 and CSA B311;
e) mobile scaffolds, towers, and platforms within the scope of ANSI A92 and the CSA B354 series of standards;
f) powered platform and equipment for exterior and interior building maintenance within the scope of ASME A120.1 and CSA Z271;
g) conveyors and related equipment within the scope of ASME B20.1;
h) cranes, derricks, hoists, hooks, jacks, and slings within the scope of ASME B30, CSA Z150, CSA B167, and CSA Z248;
i) industrial trucks within the scope of ASME B56 and CSA B335;
j) portable equipment, except for portable escalators;
k) tiering or piling machines used to move material to and from storage located and operating entirely within one story;
l) equipment for feeding or positioning material at machine tools, printing presses, etc.;
m) skip or furnace hoists;
n) wharf ramps;
o) amusement devices;
p) stage and orchestra lifts;
q) lift bridges;

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