ASME A17.1-2016/CSA B44-16

(Revision of ASME A17.1-2013/CSA B44-13)

# Safety Code for Elevators and Escalators

## Includes Requirements for Elevators, Escalators, Dumbwaiters, Moving Walks, Material Lifts, and Dumbwaiters With Automatic Transfer Devices

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The American Society of Mechanical Engineers

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The next edition of this Code is scheduled for publication in 2019. This Code will become effective 6 months after the Date of Issuance.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Code. Interpretations are published on the ASME Web site under the Committee Pages at http://cstools.asme.org/ as they are issued.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

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The American Society of Mechanical Engineers
Two Park Avenue, New York, NY 10016-5990

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(16)

# ASME FOREWORD

The first edition of this Code was published in January 1921. It was prepared by an American Society of Mechanical Engineers (ASME) Committee on Protection of Industrial Workers with the assistance of representatives of a number of interests including manufacturers, insurance carriers, regulatory bodies, and technical societies.

Subsequently, ASME requested the American Engineering Standards Committee (AESC) to authorize the organization of a Sectional Committee to undertake this revision. They acted favorably on this request and in January 1922 assigned sponsorship for the project jointly to the American Institute of Architects, the National Bureau of Standards, and ASME, all three of whom had taken an active part in the preparation of the first edition of the Code.

The organization meeting of the Sectional Committee A17 was held in November 1922. A number of meetings of the Committee were held during the next two years, and in July 1925, a revision of the 1921 Code was completed, approved by the AESC, and published as an American Standard.

Subsequent to the publication of the 1925 revision of the Code, the necessity for development research on the design and construction of car safeties and oil buffers and for the development of test specifications for various parts of elevator equipment was realized.

As a result, a Subcommittee on Research, Recommendations, and Interpretations was appointed in 1926. This subcommittee held regular meetings thereafter until interrupted by the war in 1940, and carried on an extensive test program at the National Bureau of Standards in connection with oil buffers and car safeties. Subsequent to the war, the name of this subcommittee was changed to "Executive Committee for the Elevator Safety Code."

The information gained as a result of these tests, together with the developments that had occurred in the design of the equipment as a result of installations made in very tall buildings, prompted the Sectional Committee to prepare and issue the third edition of the Code in 1931. The third edition was approved by the Sectional Committee in February 1931, and subsequently by the sponsors and by the American Standards Association (formerly the AESC) in July 1931.

Further experience and developments in the design of elevator equipment led the Sectional Committee, in line with its policy of revising the Code periodically, to prepare the fourth edition in 1937, which was approved by the sponsors and by the American Standards Association (ASA) in July 1937.

A fifth edition of the Code was well under way in 1940 when it was necessary to suspend the work due to the Second World War. However, a number of the revisions already agreed upon by the Sectional Committee and approved by the sponsors and by the ASA in April 1942 were issued as a supplement to the 1937 edition. They were subsequently incorporated in a reprint of the 1937 edition in 1945. In response to public demand, requirements for private residence elevators were also issued in a separate supplement, ASA A17.1.5-1953, and incorporated into the Code as Part V in the 1955 edition.

The Sectional Committee reinitiated consideration of the fifth edition of the Code in 1946. Due to the considerable period that had elapsed since the fourth revision in 1937, and to the very extensive developments in the elevator art, the Committee decided that the Code should be completely rewritten and brought up to date.

Special subcommittees were appointed to prepare the revisions of the various requirements. The membership of each subcommittee consisted of persons especially familiar with the requirements to be covered by that subcommittee. Fifteen subcommittees were set up with a total membership of over 150 persons. The membership of these subcommittees was not confined to members of the Sectional Committee. It also included other persons having expert knowledge of the subjects under consideration by the subcommittees. These subcommittees and their personnel were listed in the 1955 edition of the Code.

The drafts prepared by these subcommittees were widely circulated to interested groups for comment. After review of the comments and correlation of the drafts, the fifth edition of the Code was approved by the Sectional Committee, subsequently by the sponsors, and by the ASA in June 1955.

In December 1957, a Supplement to the Code listing a number of revisions was approved by the ASA and published by ASME.

A sixth edition was published in 1960 that incorporated the revisions contained in the 1957 Supplement as well as approximately 96 revisions that were approved by the Sectional Committee in March 1960.

In 1958 the scope of the A17 Code was enlarged to include moving walks. The membership of the Sectional Committee was expanded to include manufacturers whose primary interest in the Committee was the development of rules and regulations on moving walks. A

subcommittee prepared a Safety Code for Moving Walks, which was approved by the Sectional Committee, the sponsors, and by the ASA on March 20, 1962. This Code was published as Part XIII of the A17.1 Code, and was designated ASA A17.1.13-1962.

During 1962 and 1963, 38 additional changes to Parts I through XII of A17.1 were approved by the Sectional Committee, the sponsors, and the ASA, and were published as the 1963 Supplement to the 1960 edition of the Code.

A seventh edition was published in 1965 that incorporated the rules of the Safety Code for Moving Walks, ASA A17.1.13-1962, as Part XIII, the revisions covered by the 1963 Supplement as well as approximately 90 other revisions approved by the Sectional Committee, the sponsors, and the ASA. The title of the Code was also changed to the American Standard Safety Code for Elevators, Dumbwaiters, Escalators, and Moving Walks.

On August 24, 1966, the American Standards Association was reconstituted as the United States of America Standards Institute. The designation of standards approved as American Standards was changed to USA Standards. There was no change in the index identification or the technical content of the standards. At the same time, the ASA Sectional Committee, A17 on A Safety Code for Elevators, was changed to the USA Standards Committee, A17 on A Safety Code for Elevators. Four supplements to this edition were published from 1967 through 1970.

The United States of America Standards Institute changed its name to American National Standards Institute, Incorporated (ANSI) on October 6, 1969. At the time that the new name became effective, the designation USA Standard was changed to American National Standard and the name of committees changed from USA Standards Committees to American National Standards Committees. The alphabetical designation of standard documents was changed from USA to ANSI.

The eighth edition of the Code (1971) incorporated the revisions covered by the four supplements and an additional 94 revisions. Seven supplements were issued from 1972 through 1976. Part XIV covering material lifts and dumbwaiters with automatic transfer devices was added in supplement ANSI A17.1d-1975.

The ninth edition of the Code (1978) incorporated 75 revisions in addition to those covered by the previous supplements. Part XV covering special purpose personnel elevators was added and the reference codes, standards, and specifications were moved from the Preface to a new Part XVI. Two supplements to this edition were issued in 1979 and 1980.

The tenth edition of the Code (1981) incorporated the revisions covered by Supplements ANSI A17.1a-1979 and ANSI A17.1b-1980, as well as the following new material: Part XVII, Inclined Elevators; Appendix F, Seismic Regulations; and Appendix G, Recommended Practice for Accelerating Moving Walks. Rule 211.3 and Part V were also completely revised, with the private residence inclined lifts moved to Part XVIII. Numerous other revisions and additions that were approved since the time of the 1980 supplement were also included.

The tenth edition of the Code was approved by the A17 Standards Committee. After publication of the tenth edition, the Committee was reorganized in accordance with the ANSI Accredited Organization Method under the sponsorship of ASME. With this reorganization, the National Bureau of Standards and the American Institute of Architects relinquished their roles as cosecretariats. The Standards, Conference, and Executive Committees were also restructured as the Main Committee and the National Interest Review Committee, with the Working Committees (subcommittees) continuing to operate as before.

This reorganization also promoted a change in the title of the Code to the ANSI/ASME A17.1 Safety Code for Elevators and Escalators. The title was also shortened for convenience, and it should not be construed that the Code no longer covers dumbwaiters, moving walks, or the other equipment included within the Scope of the Code.

Two supplements to the 1981 edition were issued: ANSI/ASME A17.1a-1982 and ANSI/ASME A17.1b-1983. The 1982 supplement included a new Part XX covering elevators used for construction. In the 1983 supplement, the requirements for private residence inclined lifts in Part XVIII were expanded and incorporated into a new Part XXI covering private residence inclined stairway chairlifts and inclined and vertical wheelchair lifts. Part XX was added to cover these same devices installed in buildings other than private residences. Requirements for screw-column elevators were also added and designated as Part XVIII.

The eleventh edition of the Code (1984) incorporated the changes made in the 1982 and 1983 supplements, as well as additional revisions.

The eleventh edition was updated with five supplements which were issued approximately every 6 months from 1985 through the spring of 1987. Appendix I (later redesignated as Appendix E) was added in ANSI/ASME A17.1a-1985. Requirements for rack-and-pinion elevators were added in ANSI/ASME A17.1c-1986, designated as Part XVI. The previous Part XVI (Reference Codes, Standards, and Specifications) was moved to Section 4 of the Introduction. In ANSI/ASME A17.1d-1986, the requirements for sidewalk elevators in Part IV, and alterations in Part XII, were completely revised.

The twelfth edition of the Code incorporated the changes made in supplements A17.1a-1985 through A17.1e-1987, as well as additional revisions. Among these changes was a complete revision of the requirements for dumbwaiters in Part VII. The format of the

Code was also changed editorially to incorporate Exceptions into the body of the Rules.

The thirteenth edition of the Code incorporated the changes made in A17.1a-1988 and A17.1b-1989 as well as additional revisions. Part XXII, Shipboard Elevators, was added in A17.1b-1989. Part XXIII, Rooftop Elevators, appeared for the first time in this edition.

The fourteenth edition of the Code incorporated the changes made in A17.1a-1991 and A17.1b-1992 as well as additional revisions. Safety requirements for seismic risk zone 3 and greater were moved from Appendix F into new Part XXIV, Elevator Safety Requirements for Seismic Risk Zone 2 or Greater. Requirements for seismic risk zone 2 were added to Part XXIV.

The fifteenth edition of the Code incorporated the changes made in A17.1a-1994 and A17.1b-1995 as well as additional revisions. Part XXV, Limited Use/Limited Application Elevators, was added in A17.1b-1995. The rules in Part III were harmonized with the CAN/CSA B44, Elevator Safety Standard, Sections 4 and 11, and Appendix G4.

The sixteenth edition of the Code incorporated changes made in A17.1a-1997 through A17.1d-2000. Requirements for mine elevators were also added in Section 5.9 of this edition. In addition, the entire Code was reformatted to incorporate a decimal numbering system. For this edition of the Code, cross-reference tables were provided to facilitate the correlation between requirements from the fifteenth edition of the Code and the renumbered requirements of the sixteenth edition and vice versa. This edition of A17.1 was the result of a joint effort between the ASME A17 Elevator and Escalator Committee and the CSA B44 Technical Committee to harmonize requirements between the ASME A17.1, Safety Code for Elevators and Escalators, and the CSA B44, Safety Code for Elevators.

The seventeenth edition of the Code incorporated changes made in A17.1a-2002 and A17.1b-2003. Additionally, in Sections 8.10 and 8.11, cross-references were updated to reflect ASME A17.2-2001, Guide for Inspection of Elevators, Escalators, and Moving Walks.

The eighteenth edition of the Code was a fully binational standard. All former deviations between the ASME A17.1 Code and the CSA B44 Code were fully addressed within this one Code. Additionally, this edition incorporated revisions to address the advancement of technologies used in the design and construction of elevator equipment that had enabled the installation of the equipment in other than traditional locations, such as machine rooms. New requirements were also added to address programmable electronic systems in safety-related applications of elevators.

The nineteenth edition of the Code incorporated changes made in A17.1a-2008 and A17.1b-2009. Major changes included former periodic inspections now being covered under maintenance requirements. New requirements were added to address the means and members of suspension, compensation, and governor systems for elevators. These new requirements were covered in detail through reference to ASME A17.6, which includes the material properties, design, testing, inspection, and replacement criteria for these means. It includes the requirements for steel wire rope, aramid fiber rope, and noncircular elastomeric-coated steel suspension members and provides direction for future constructions as new technology develops.

The twentieth edition of the Code contained well over one hundred revisions made to existing requirements, as well as some new requirements.

New requirements were added to address new types of elevator equipment being used in the industry, specifically wind turbine elevators and outside emergency elevators. In addition, requirements were added to address a new feature called Elevator Evacuation Operation (EEO), which allows for the use of elevators for occupant evacuation.

Besides the above, major changes included the following:

*(a)* The seismic requirements of the Code were revised to include seismic force levels as specified in the latest building codes in the United States (IBC) and Canada (NBCC). To facilitate incorporation of these requirements, ASME published Technical Report A17.1-8.4, *Guide for Elevator Seismic Design*.

*(b)* Requirements related to the maintenance control program were updated to improve clarity and organization for records, content, availability, and format.

*(c)* Regarding qualifications for elevator inspectors (QEI), effective January 1, 2014, accreditation of organizations that certify elevator inspectors and inspection supervisors was discontinued by The American Society of Mechanical Engineers. Requirements were revised in this area to allow for accreditation to be done by other organizations.

The twenty-first edition of the Code contains many revisions to existing requirements and the addition of some new requirements. Some areas of note, in which significant updates have been made, include, but are not limited to, seismic requirements for escalators; requirements for special purpose personnel elevators, rack-and-pinion elevators, residence elevators, and material lifts with obscured transfer devices; and the addition of elastomeric buffer requirements.

The following is a complete list of past editions and supplements to the Code that have been published and the dates when they received final approval. The dates of issuance are also included for the documents published since 1974, and the dates on which they became effective are included for those published since 1978.

| Editions and Supplements | | Approved | Issued | Effective |
|---|---|---|---|---|
| First Edition | 1921 | January 1921 | ... | ... |
| Second Edition | A17–1925 | April 1925 | ... | ... |
| Third Edition | ASA A17–1931 | July 1931 | ... | ... |
| Fourth Edition | ASA A17.1–1937 | July 1937 | ... | ... |
| Supplements | ASA A17.3–1942 | April 1942 | ... | ... |
| | ASA A17.1.5–1953 | June 9, 1953 | ... | ... |
| Fifth Edition | ASA A17.1–1955 | June 15, 1955 | ... | ... |
| Supplements | ASA A17.1a–1957 | December 10, 1957 | ... | ... |
| Sixth Edition | ASA A17.1–1960 | August 29, 1960 | ... | ... |
| Supplements | ASA A17.1.13–1962 | March 20, 1962 | ... | ... |
| | ASA A17.1a–1963 | August 16, 1963 | ... | ... |
| Seventh Edition | ASA A17.1–1965 | July 29, 1965 | ... | ... |
| Supplements | USAS A17.1a–1967 | July 7, 1967 | ... | ... |
| | USAS A17.1b–1968 | December 11, 1968 | ... | ... |
| | USAS A17.1c–1969 | May 6, 1969 | ... | ... |
| | ANSI A17.1d–1970 | March 2, 1970 | ... | ... |
| Eighth Edition | ANSI A17.1–1971 | July 27, 1971 | ... | ... |
| Supplements | ANSI A17.1a–1972 | February 16, 1972 | ... | ... |
| | ANSI A17.1b–1973 | October 11, 1973 | ... | ... |
| | ANSI A17.1c–1974 | April 26, 1974 | September 15, 1974 | ... |
| | ANSI A17.1d–1975 | February 26, 1975 | October 31, 1975 | ... |
| | ANSI A17.1e–1975 | March 26, 1975 | October 31, 1975 | ... |
| | ANSI A17.1f–1975 | April 2, 1975 | October 31, 1975 | ... |
| | ANSI A17.1g–1976 | August 12, 1976 | November 30, 1976 | ... |
| Ninth Edition | ANSI A17.1–1978 | May 4, 1978 | June 15, 1978 | September 15, 1978 |
| Supplements | ANSI A17.1a–1979 | February 5, 1979 | March 30, 1979 | June 30, 1979 |
| | ANSI A17.1b–1980 | March 20, 1980 | May 15, 1980 | August 15, 1980 |
| Tenth Edition | ANSI/ASME A17.1–1981 | September 8, 1981 | October 22, 1981 | April 22, 1982 |
| Supplements | ANSI/ASME A17.1a–1982 | October 5, 1982 | November 30, 1982 | May 30, 1983 |
| | ANSI/ASME A17.1b–1983 | October 24, 1983 | December 23, 1983 | June 23, 1984 |
| Eleventh Edition | ANSI/ASME A17.1–1984 | August 16, 1984 | September 16, 1984 | March 16, 1985 |
| Supplements | ANSI/ASME A17.1a–1985 | February 27, 1985 | April 15, 1985 | October 15, 1985 |
| | ANSI/ASME A17.1b–1985 | August 6, 1985 | October 15, 1985 | April 15, 1986 |
| | ANSI/ASME A17.1c–1986 | March 5, 1986 | April 30, 1986 | October 31, 1986 |
| | ANSI/ASME A17.1d–1986 | September 8, 1986 | November 30, 1986 | May 31, 1987 |
| | ANSI/ASME A17.1e–1987 | February 18, 1987 | April 30, 1987 | October 30, 1987 |
| Twelfth Edition | ASME/ANSI A17.1–1987 | October 20, 1987 | January 15, 1988 | July 16,1988 |
| Supplements | ASME/ANSI A17.1a–1988 | October 6, 1988 | November 15, 1988 | May 16, 1989 |
| | ASME/ANSI A17.1b–1989 | November 10, 1989 | November 30, 1989 | May 31, 1990 |
| Thirteenth Edition | ASME A17.1–1990 | October 8, 1990 | February 8, 1991 | August 9, 1991 |
| Supplements | ASME A17.1a–1991 | October 21, 1991 | February 28, 1992 | August 29, 1992 |
| | ASME A17.1b–1992 | October 28, 1992 | December 29, 1992 | June 30, 1993 |
| Fourteenth Edition | ASME A17.1–1993 | October 18, 1993 | December 31, 1993 | July 1, 1994 |
| Supplements | ASME A17.1a–1994 | August 17, 1994 | December 31, 1994 | July 1, 1995 |
| | ASME A17.1b–1995 | October 5, 1995 | January 31, 1996 | August 1, 1996 |

| Editions and Supplements | | Approved | Issued | Effective |
|---|---|---|---|---|
| Fifteenth Edition | ASME A17.1–1996 | October 3, 1996 | December 31, 1996 | July 1, 1997 |
| Supplements | ASME A17.1a–1997 | January 8, 1998 | February 27, 1998 | August 28, 1998 |
| | ASME A17.1b–1998 | November 13, 1998 | February 19, 1999 | August 20, 1999 |
| | ASME A17.1c–1999 | May 13, 1999 | June 30, 1999 | December 31, 1999 |
| | ASME A17.1d–2000 | October 12, 2000 | November 30, 2000 | January 31, 2001 |
| Sixteenth Edition | ASME A17.1–2000 | October 16, 2000 | March 23, 2001 | March 23, 2002 |
| Supplements | ASME A17.1a–2002 | February 26, 2002 | April 4, 2002 | October 4, 2002 |
| | ASME A17.1b–2003 | April 10, 2003 | May 30, 2003 | November 30, 2003 |
| Seventeenth Edition | ASME A17.1–2004 | January 14, 2004 | April 30, 2004 | October 31, 2004 |
| Supplements | ASME A17.1a–2005 | March 18, 2005 | April 29, 2005 | October 29, 2005 |
| | ASME A17.1S–2005 | March 23, 2005 | August 12, 2005 | February 12, 2006 |
| Eighteenth Edition | ASME A17.1-2007/CSA B44-07 | February 20, 2007 | April 6, 2007 | October 6, 2007 |
| Supplements | ASME A17.1a-2008/CSA B44a-08 | September 19, 2008 | December 5, 2008 | June 5, 2009 |
| | ASME A17.1b-2009/CSA B44b-09 | November 17, 2009 | December 30, 2009 | June 30, 2010 |
| Nineteenth Edition | ASME A17.1-2010/CSA B44-10 | October 19, 2010 | December 30, 2010 | June 30, 2011 |
| Twentieth Edition | ASME A17.1-2013/CSA B44-13 | May 31, 2013 | October 21, 2013 | April 21, 2014 |
| Twenty-first Edition | ASME A17.1-2016/CSA B44-16 | July 25, 2016 | November 30, 2016 | May 30, 2017 |

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(April 2016)

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# ASME PREFACE (16)

## GENERAL

This Code is one of the 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 the 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.

This Code applies to new installations only, except Part 1, and Sections 5.10, 8.1, 8.6, 8.7, 8.8, 8.9, 8.10, and 8.11, which apply to both new and existing installations. Also, see ASME A17.3, Safety Code for Existing Elevators and Escalators, for further requirements.

The following conditions are not addressed in this Code:

*(a)* assignment of the responsibility for compliance to any particular party.

*(b)* establishment of a frequency for periodic inspections and tests. See Nonmandatory Appendix N for recommended inspections and test intervals.

*(c)* assignment of responsibility for persons authorized to make and witness inspections and tests.

## APPLICATION OF REQUIREMENTS TO NEW TECHNOLOGY

With the advent of new technologies, materials, and processes in the mechanical, structural, electronic, and optic fields, and the analytical capabilities now available, the need for flexibility to introduce products into the marketplace using these technical developments is desirable. Previous editions of ASME A17.1 had long-standing provisions, in Section 1.2, that suggested that Authorities Having Jurisdiction should recognize safety equivalent to that required by the Codes. This edition of ASME A17.1/CSA B44 recognizes ASME A17.7/CSA B44.7 provides a structured method for establishing the safety of designs and products and that compliance with ASME A17.7/CSA B44.7 is equivalent to compliance with the requirements in ASME A17.1/CSA B44.

## FORM AND ARRANGEMENT

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

The Foreword, Preface, Notes, and Appendices that are included in this document, and the Interpretations that are provided as a separate booklet are not part of this American National Standard. They are advisory in nature and are intended for clarification only.

In this edition, the revisions that are appearing for the first time are identified by (16). Where editorial changes have been made, they are identified by (ED). See also Summary of Changes.

## METRIC (SI) UNITS

This edition of the Code uses hard metric (SI) units wherever practical. The acceptable equivalent imperial units are shown in parentheses. Information on the usage of SI units and conversion to imperial units is contained in IEEE/ASTM SI 10-1997 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, or CAN/CSA-Z234.1, Canadian Metric Practice Guide.

Tables related to speed and load use the hard metric and hard imperial units in common practice, even though they are not exactly equivalent (e.g., see Table 2.22.4.1, Minimum Oil Buffer Strokes). The tabular values have been derived using 8.2.1 formulas and the metric and imperial values for buffer strokes, safety stopping distances, etc., are therefore not equivalent.

## ASME ELEVATOR PUBLICATIONS

The following ASME publications are of special interest to users of this Code. For prices and availability, contact:

ASME
150 Clove Road, 6th Floor
Little Falls, NJ 07424-2138
Tel: 800-843-2763
Fax: 973-882-1717
E-Mail: customercare@asme.org
ASME Web site: www.asme.org/shop

**ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks.** This Guide gives detailed procedures for the inspection and testing of elevators,

escalators, and moving walks required to conform to the Safety Code for Elevators and Escalators, A17.1–1955 and later editions and the Safety Code for Existing Elevators and Escalators, A17.3. Subsections are arranged to focus on routine and periodic inspection requirements, as well as acceptance criteria.

**ASME A17.3 Safety Code for Existing Elevators and Escalators.** This Code covers retroactive requirements for existing elevators and escalators. The purpose of this Code is to establish minimum requirements that will provide a reasonable degree of safety for the general public. While many of these requirements will also increase the degree of safety for the elevator mechanic and inspector, this area has not been specifically addressed at this time.

**ASME A17.4 Guide for Emergency Personnel.** This guide for emergency personnel (fire, police, etc.), building owners, lessees, and building operating managers explains the proper procedures to be used for the safe removal of passengers from stalled cars.

**CSA B44.1/ASME A17.5 Elevator and Escalator Electrical Equipment.** This Code contains requirements for obtaining, labeling, and listing electrical equipment for elevators, escalators, moving walks, dumbwaiters, material lifts, platform lifts, and stairway lifts.

**ASME A17.6 Standard for Elevator Suspension, Compensation, and Governor Systems.** This Standard covers the means and members of suspension, compensation, and governor systems for elevators within the Scope of ASME A17.1/CSA B44. This Standard includes the material properties, design, testing, inspection, and replacement criteria for these means. It includes the requirements for steel wire rope, aramid fiber rope, and noncircular elastomeric-coated steel suspension members, and provides direction for future constructions as new technology develops.

**ASME A17.7/CSA B44.7 Performance-Based Safety Code for Elevators and Escalators.** This American National Standard performance-based safety code covers the design, construction, installation, operation, testing, maintenance, alteration, and repair of elevators, dumbwaiters, escalators, moving walks, and material lifts.

**ASME A17.8 Safety Code for Wind Turbine Tower Elevators.** This American National Standard covers elevators permanently installed in a wind tower to provide vertical transportation of authorized personnel and their tools and equipment only.

**Published Interpretations.** Interpretations of the various A17 standards are published periodically.

Interpretations of A17.1 and A17.2 approved by the A17 Committee from June 14, 1972 through June 1979, were published in a separate book in 1980.

Starting with the 1981 edition of the Code, interpretations are published with each new edition and supplement of the applicable standard. A compilation of Interpretations Nos. 2–13 (June 1979–May 1989) has also been published by ASME.

**Handbook on A17.1/B44 Safety Code.** This handbook augments the A17.1/B44 Code with commentary, diagrams, and illustrations that are intended to explain the requirements of the A17.1/B44 Code.

The commentary contained in the Handbook is the opinion of the author and has not been approved by the A17 Committee or the B44 Technical Committee.

**QEI-1 Standard for the Qualification of Elevator Inspectors.** This Standard covers requirements for the qualification and duties of inspectors and inspection supervisors engaged in the inspection and testing of equipment within the scope of the A17.1/B44 Code.

**ASME A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts.** This safety Standard covers the design, construction, installation, operation, inspection, testing, maintenance, and repair of inclined stairway chairlifts and inclined and vertical platform lifts intended for transportation of a mobility impaired person only.

## CORRESPONDENCE WITH A17 COMMITTEE

ASME codes and standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this and other ASME A17 codes and standards may interact with the committee by requesting interpretations, proposing revisions, and attending committee meetings. Correspondence should be addressed to:

Secretary, A17 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016
http://go.asme.org/Inquiry

All correspondence to the Committee must include the individual's name and post office address in case the Committee needs to request further information.

**Proposing Revisions.** Revisions are made periodically to the Code to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the procedures, and in order to conform to developments in the elevator art. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Code. Such proposals should be as specific as possible, citing the Section number(s), the proposed wording, and a detailed description of the reasons for the proposal including any pertinent documentation.

## Abbreviations Used in This Code

| Abbreviation | Unit | Abbreviation | Unit |
|---|---|---|---|
| A | ampere | lb | pound (mass) |
| °C | degree Celsius | lbf | pound (force) |
| deg | degree (angle) | lx | lux |
| °F | degree Fahrenheit | m | meter |
| ft/min | foot per minute | $m^2$ | square meter |
| ft/s | foot per second | $m^3$ | cubic meter |
| ft | foot | mA | milliampere |
| fc | foot-candle | m/s | meter per second |
| $ft^2$ | square foot | $m/s^2$ | meter per second per second |
| $ft^3$ | cubic foot | mm | millimeter |
| $ft/s^2$ | foot per second per second | $mm^2$ | square millimeter |
| h | hour | $mm^3$ | cubic millimeter |
| Hz | hertz | MPa | megapascal |
| in. | inch | N | newton |
| $in.^2$ | square inch | psi | pound per square inch |
| $in.^3$ | cubic inch | s | second |
| kg | kilogram | SIL | Safety Integrity Level |
| kPa | kilopascal | V | volt |

**Requesting Interpretations.** Upon request, the A17 Committee will render an interpretation of any requirement of the Code. Interpretations can only be rendered in response to a written request sent to the Secretary of the A17 Standards Committee.

Requests for interpretation should preferably be submitted through the the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of the A17 Standards Committee at the above address. The request for interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject: Cite the applicable Section number(s) and the topic of the inquiry in one or two words.

Edition: Cite the applicable edition and supplement of the Code for which the interpretation is being requested.

Question: Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.

Proposed Reply(ies): Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.

Background Information: Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format will be rewritten in this format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

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.

**Attending Committee Meetings.** The A17 Standards Committee and the various Working Committees regularly hold meetings and/or telephone conferences, all of which are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the Standards Committee.

(16)

# CSA PREFACE

This is the fourth edition of ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators*. It replaces the previous editions of ASME A17.1/CSA B44, published in 2013, 2010, and 2007; and the previous editions of CSA B44, published in 2004, 2000, 1994, 1990, 1985, 1975, 1971, 1966, 1960, and 1938.

This Code is the result of a joint effort by the CSA B44 Technical Committee on the Elevator Safety Code and the ASME A17 Committee on Elevators and Escalators to harmonize the provisions of CSA B44 and ASME A17.1. This edition of ASME A17.1/CSA B44 consists of the complete ASME A17.1 Code, with additional requirements applicable only in Canadian jurisdictions. These Canadian requirements are prefaced in the body of the Code by the following: "In jurisdictions enforcing the NBCC . . .".

CSA B44 was originally developed to facilitate the implementation of uniform legislation across Canada and to replace the existing legislation, which had proved inadequate for prevailing elevator practices. The primary purpose of the Code is to establish minimum requirements, suitable for adoption by regulatory authorities throughout Canada, for the design, installation, and maintenance of elevators, escalators, dumbwaiters, moving walks, and material lifts. It is also intended as a standard reference for architects, consulting engineers, elevator manufacturers, and building owners.

This Code was reviewed for use in Canada by the CSA Technical Committee on the Elevator Safety Code under the jurisdiction of the CSA Strategic Steering Committee on Mechanical Industrial Equipment Safety.

*2016*

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 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) Standard designation (number);

(b) relevant clause, table, and/or figure number;

(c) wording of the proposed change; and

(d) rationale for the change.

# ASME A17.1-2016/CSA B44-16
# SUMMARY OF CHANGES

Following approval by the ASME A17 Elevator and Escalator Committee, and after public review, ASME A17.1-2016/CSA B44-16 was approved by the American National Standards Institute on Juy 25, 2016. It was issued on November 30, 2016, and is effective as of May 30, 2017.

ASME A17.1-2016/CSA B44-16 incorporates the revisions and editorial changes made since the previously published edition. Revisions are identified by a margin note, **(16)**. Changes made to correct errors, as well as other new editorial changes, are identified by **(ED)**. The following is a summary of the latest revisions and changes:

| *Page* | *Location* | *Change* |
|---|---|---|
| viii–xii | ASME Foreword | Revised |
| xxi–xxiii | ASME Preface | Revised |
| xxiv | CSA Preface | Revised |
| 2–17 | Section 1.3 | (1) Definitions of *backup rollers*, *counterweight displacement detection device*, *elastomeric buffer*, *seismic detection device*, and *sound engineering practice* added<br>(2) Definitions of *bumper*, *controller motor*, *traction machine*, and *unlocking zone* revised<br>(3) Definitions of *displacement switch*; *driving machine, traction climbing*; *elevator, wind turbine tower*; *guide rope fixes*; *operation, automatic call*; *operation, automatic send*; *platform landing*; *seismic switch*; *tail line*; and *travel path* deleted |
| 25 | 2.4.2.2 | Revised |
| | Table 2.4.2.2 | Title revised |
| | 2.4.6.1.1 | Subparagraph (c)(2) revised |
| 26 | 2.4.8 | Subparagraph (d)(2) revised |
| 27 | 2.5.1.5.3 | Subparagraph (a) revised |
| 32, 33 | 2.7.5.3.3 | Revised |
| | 2.7.5.4 | Subparagraph (a)(1) revised |
| | 2.7.6.3.2 | Subparagraphs (e) and (f) added |
| | 2.7.6.4.1 | Subparagraph (b) revised |
| 36 | 2.8.3.3.4 | First paragraph revised |
| 40 | 2.11.6.1 | Revised |
| 47 | 2.11.19.3 | Second sentence corrected by errata |
| | 2.12.1 | First paragraph added |

| *Page* | *Location* | *Change* |
|---|---|---|
| 50–52 | 2.12.6.2.3 | Revised |
| | 2.12.6.2.5 | Revised |
| | 2.12.7.2 | Revised in its entirety |
| | 2.12.7.3.3 | Subparagraphs (c) and (e) revised |
| | 2.13.2.1.1 | Revised |
| | 2.13.2.2.1 | Revised |
| 56 | 2.13.3.4.10 | Subparagraphs (a) and (c) editorially revised |
| 58, 59 | 2.14.1.5.1 | Subparagraphs (e) and (f) revised |
| | 2.14.1.7.1 | First sentence revised |
| | 2.14.1.7.2 | Revised |
| 62 | 2.14.4.2.4 | Subparagraphs (a) and (b) revised |
| 64 | 2.14.5.7 | Phrasing corrected by errata |
| | 2.14.5.7.1 | Revised |
| | 2.14.5.7.3 | Revised |
| | 2.14.5.7.4 | In subpara. (b)(2)(-a), "sufficient" corrected by errata to "insufficient" |
| | 2.14.5.8 | First sentence revised |
| 65, 66 | 2.14.5.10 | Revised and redesignated as 2.14.6.4 |
| | 2.14.6.1.1 | Revised |
| | 2.14.6.4 | Former 2.14.5.10 revised and redesignated as 2.14.6.4 |
| 68 | 2.15.6.3 | Revised |
| | 2.15.7.2 | Revised |
| 79 | Table 2.18.2.1 | Under "SI Units," first two entries in third column revised |
| 80 | 2.18.5.3 | Last paragraph revised |
| | 2.18.6.2 | Last sentence revised |
| 84–86 | 2.20.2.2.1 | Subparagraph (d) revised |
| | 2.20.3 | Second paragraph revised |
| | 2.20.8.1 | First paragraph and subparas. (d)(2) and (f) revised |
| | 2.20.8.2 | Subparagraph (c) revised |
| | 2.20.8.3 | Subparagraph (c) revised |
| 93 | 2.22.1.1 | First paragraph revised, and 2.22.1.1.4 through 2.22.1.1.6 added |
| | 2.22.2 | In first paragraph, last sentence added |
| 94 | 2.22.4.5 | Revised |
| 96 | 2.22.5 | Added |

| *Page* | *Location* | *Change* |
|---|---|---|
| 108, 109 | 2.24.8.6 | Revised |
| | 2.25.2.1.2 | First paragraph revised |
| | 2.25.3.2 | Third paragraph revised |
| 111 | 2.25.4.1.8 | Subparagraph (a) revised |
| 116 | 2.26.2.5 | Subparagraph (b) revised |
| 118 | 2.26.4.2 | Note added |
| | 2.26.4.3.1 | Note added |
| 121, 122 | 2.26.7 | Revised |
| | 2.26.8.2 | Second paragraph revised |
| | 2.26.9.3.2 | Subparagraph (b) revised |
| 126 | 2.27.2.4.4 | Revised in its entirety |
| 127 | 2.27.3.1.6 | Subparagraphs (c) and (d) revised |
| 129–131 | 2.27.3.2.1 | Note added |
| | 2.27.3.2.2 | Note (2) added |
| | 2.27.3.2.4 | Subparagraph (c) revised |
| | 2.27.3.3.1 | Subparagraph (c) revised |
| 132 | 2.27.3.3.7 | Second paragraph revised |
| 133 | 2.27.3.3.8 | Revised |
| 136 | 2.27.11.1.5 | Subparagraph (a) editorially revised |
| 140, 141 | 2.29.1.1 | Revised |
| | 2.29.1.2 | Revised in its entirety |
| | 2.29.1.3 | Subparagraph (i) revised |
| 144 | 3.6.3 | Subparagraph (c) added |
| 154 | 3.22.1.2.1 | Revised |
| | 3.22.1.2.2 | Revised |
| 157–159 | 3.26.8 | Revised |
| | 3.27.2 | Revised |
| | 3.27.4 | Revised |
| 160–167 | Section 4.1 | Revised in its entirety |
| | 4.2.2.3 | Revised |
| | 4.2.2.4 | Revised |
| 176 | 5.1.11.4 | Revised |
| 182, 183 | 5.2.1.13 | Revised |
| | 5.2.1.14 | (1) Former subpara. (f) deleted, and remaining subparagraphs redesignated<br>(2) Subparagraphs (k) and (l) [formerly subparas. (l) and (m), respectively] revised |

| *Page* | *Location* | *Change* |
|---|---|---|
| | | (3) Subparagraph (m) added |
| | 5.2.1.15.2 | Revised |
| | 5.2.1.22 | Revised |
| 185 | 5.2.2.5 | Revised |
| 186 | 5.3.1.7.1 | Revised |
| 187, 188 | 5.3.1.7.2 | Revised |
| | 5.3.1.8.2 | Subparagraph (d) added |
| | 5.3.1.8.3 | New 5.3.1.8.3 added, and former 5.3.1.8.3 redesignated as 5.3.1.8.4 |
| 190 | 5.3.1.14.1 | Revised |
| 193 | 5.3.1.19 | Revised in its entirety |
| 201 | 5.6.1.4 | Revised |
| 205 | 5.7.1.2 | Revised |
| | 5.7.2 | Revised in its entirety |
| | 5.7.3.2 | Revised |
| | 5.7.4.2 | Revised |
| | 5.7.4.3 | Added |
| 207 | 5.7.10.4.1 | Revised |
| | 5.7.13.1 | Revised |
| | 5.7.13.2 | (1) First paragraph revised<br>(2) Former 5.7.13.2.2 deleted, and former 5.7.13.2.3 redesignated as 5.7.13.2.2 |
| 208 | 5.7.16 | Revised in its entirety |
| | 5.7.17 | Revised |
| | 5.7.18.1.2 | Revised |
| 209, 210 | 5.7.18.1.3 | Added |
| | 5.7.18.1.4 | Added |
| | 5.7.18.3 | Revised |
| | 5.7.19 | Revised in its entirety |
| 211 | 5.7.22 | Revised |
| 214 | 5.9.14.3 | Subparagraph (d) revised |
| 215 | 5.9.26 | Revised in its entirety |
| | 5.9.27 | Revised |
| 220 | Section 5.11 | Revised |
| 227 | 6.1.3.10.1 | Revised |
| | 6.1.3.10.2 | Editorially revised |
| 228 | 6.1.5.3.2 | Revised |
| 230 | 6.1.6.3.4 | Revised |

| *Page* | *Location* | *Change* |
|---|---|---|
| 232 | 6.1.6.7 | Revised |
| 234 | 6.1.7.4.3 | Revised |
| 239 | 6.2.3.11.1 | Revised |
| | 6.2.3.11.2 | Editorially revised |
| 240 | 6.2.5.3.1 | Subparagraph (d)(5) added |
| 243, 244 | 6.2.6.8 | New 6.2.6.8 added, and subsequent paragraphs redesignated |
| 245 | 6.2.7.4.3 | Revised |
| 246 | 7.1.4.3.1 | Editorially revised |
| 247 | 7.1.4.3.2 | Editorially revised |
| | 7.1.7.10 | Revised |
| 249, 250 | 7.1.12.1.1 | Revised |
| | 7.1.12.1.3 | Revised |
| 252 | 7.2.3.2 | Revised |
| 253 | 7.2.6.3.1 | Subparagraph (d) revised |
| | 7.2.6.3.2 | Subparagraph (c) revised |
| 254 | 7.2.6.5 | Subparagraph (b) revised |
| | 7.2.6.8.1 | Subparagraph (b) revised |
| 256 | 7.2.12.31 | New 7.2.12.31 added, and former 7.2.12.31 through 7.2.12.38 redesignated as 7.2.12.32 through 7.2.12.39, respectively |
| | 7.2.12.40 | Added |
| 258 | 7.3.11.10 | Added |
| | 7.4.2.2 | Former subpara. (c) deleted, and subsequent subparagraphs redesignated |
| 260 | 7.4.6.1.4 | Revised |
| 261 | 7.4.13.2.5 | Revised |
| 262 | 7.4.14 | (1) Requirement 7.4.14.6 revised<br>(2) Requirement 7.4.14.7 and Note added |
| | 7.5.1.1.1 | Revised |
| 264 | 7.5.4.3 | Revised |
| 266, 267 | 7.5.12.1.3 | New 7.5.12.1.3 added, and former 7.5.12.1.3 through 7.5.12.1.23 redesignated as 7.5.12.1.4 through 7.5.12.1.24, respectively |
| | 7.5.12.1.25 | Added |
| | 7.5.12.2.6 | Revised |
| 268 | 7.5.12.2.34 | Added |

| *Page* | *Location* | *Change* |
|---|---|---|
| 271, 272 | 7.9.2.4 | New 7.9.2.4 added, and former 7.9.2.4 through 7.9.2.20 redesignated as 7.9.2.5 through 7.9.2.21, respectively |
| | 7.9.2.7 | Revised |
| | 7.9.2.8 | Revised |
| | Section 7.11 | Deleted |
| 273, 274 | 8.1.2 | In Note, new subparas. (q) and (r) added, and existing subparagraphs redesignated |
| | 8.1.3 | In Note, new subparas. (g) and (h) added, and subsequent subparagraphs redesignated |
| | 8.1.4 | In Note, subpara. (e) added |
| 277 | 8.2.2.4 | Revised |
| 278 | 8.2.3.1 | Revised |
| 293 | Section 8.3 | Subparagraph (a)(7) added |
| 297, 298 | 8.3.3.4.2 | Subparagraphs (a) and (b) revised |
| 301 | 8.3.11.3 | Revised |
| | 8.3.11.4 | Revised |
| 302, 303 | 8.3.13 | Added |
| | 8.3.13.5 | Editorially revised |
| | 8.3.13.7.3 | Editorially revised |
| 304 | Section 8.4 | (1) Subparagraphs (a)(1), (a)(3), and (b) revised<br>(2) Subparagraph (d) added |
| 305, 306 | 8.4.2.3.3 | Revised |
| | 8.4.2.3.4 | Revised |
| | 8.4.3.1.5 | Added |
| | 8.4.4.1 | Requirement 8.4.4.1.2 deleted |
| 310 | Fig. 8.4.8.2-3 | "One intermediate tie bracket" callout arrow revised |
| 314 | Fig. 8.4.8.2-7 | "One intermediate tie bracket" callout arrow revised |
| 315 | Fig. 8.4.8.2-8 | Under "(Imperial Units)," unit of measure for $W_a$ 1 revised |
| 316 | 8.4.8.6.1 | Subparagraph (h) deleted |
| 317, 318 | Table 8.4.8.7 | Nomenclature and Notes editorially revised |
| 319–324 | 8.4.9.1 | First sentence revised |
| | 8.4.10 | Revised in its entirety |
| 329–333 | 8.4.14.1 | First line and Note (2) of subpara. (a), and Note (2) of subpara. (b) revised |

| *Page* | *Location* | *Change* |
|---|---|---|
| | 8.4.14.1.1 | Subparagraph (a) and Note (2) revised |
| | 8.4.14.1.2 | Second paragraph revised |
| | Section 8.5 | Revised in its entirety |
| 334 | 8.6.1.2.1 | Subparagraph (f) deleted |
| | 8.6.1.2.2 | (1) Subparagraph (b)(5) added<br>(2) New subparas. (c)(1) and (c)(3) added, and existing subparagraphs redesignated |
| 336, 337 | 8.6.1.7.5 | Added |
| | 8.6.2.4 | Revised |
| | 8.6.3.2.1 | Note deleted |
| | 8.6.3.4.3 | Revised |
| 338 | 8.6.3.6 | Revised in its entirety |
| | 8.6.3.8 | Subparagraph (b) revised |
| | 8.6.3.9 | Revised |
| 339 | 8.6.3.15 | Added |
| 340 | 8.6.4.4 | Revised in its entirety |
| 341 | 8.6.4.13.2 | Last sentence added |
| 342 | 8.6.4.19.2 | Subparagraph (a) revised |
| | 8.6.4.19.8 | Last sentence added |
| 343 | 8.6.4.19.11 | Revised |
| | 8.6.4.19.12 | Subparagraph (b) revised |
| | 8.6.4.19.15 | Last sentence added |
| | 8.6.4.19.17 | Added |
| 345 | 8.6.4.20.11 | Revised |
| 346 | 8.6.4.22.1 | First sentence revised |
| | 8.6.4.22.2 | First sentence revised |
| 347 | 8.6.5.14.3 | Subparagraphs (d) and (e) revised |
| | 8.6.5.14.6 | Last sentence added |
| | 8.6.5.14.8 | Added |
| | 8.6.5.16.1 | Last sentence revised |
| | 8.6.5.16.2 | Revised |
| 348 | 8.6.5.16.3 | First sentence revised |
| | 8.6.6.1 | Revised |
| | 8.6.6.1.1 | First sentence revised |
| 349 | 8.6.7.9 | Revised |
| | 8.6.7.9.5 | First sentence revised |
| 352 | 8.6.8.15.1 | Revised |

| *Page* | *Location* | *Change* |
|---|---|---|
| 353 | 8.6.8.15.23 | Revised |
| | 8.6.8.15.24 | Revised |
| 355 | 8.6.11.6.1 | Subparagraph (a) revised |
| 356, 357 | 8.6.11.10.3 | Subparagraph (e) revised |
| | 8.6.11.11 | First sentence revised |
| | 8.6.11.15 | Added |
| | 8.7.1.3 | Last sentence added |
| 358 | 8.7.2.2 | Revised |
| 359 | 8.7.2.10.1 | Subparagraphs (a), (b), and (c) revised |
| 360–362 | 8.7.2.11.1 | Revised |
| | 8.7.2.11.3 | Revised |
| | 8.7.2.14.1 | Revised |
| | 8.7.2.14.2 | Subparagraph (i) revised |
| | 8.7.2.14.5 | Added |
| | 8.7.2.15.2 | Subparagraph (e) revised |
| | 8.7.2.16.1 | Subparagraph (g) revised |
| | 8.7.2.16.4 | Subparagraphs (a) and (g) revised |
| 363–365 | 8.7.2.17.2 | Subparagraphs (b)(4), (b)(10), and (c)(2) revised |
| | 8.7.2.19 | Last paragraph added |
| | 8.7.2.21.1 | Revised |
| | 8.7.2.21.3 | Revised |
| | 8.7.2.21.4 | Revised |
| | 8.7.2.25.1 | Subparagraphs (a) and (c) revised |
| 366 | 8.7.2.27.5 | Subparagraph (f)(6) revised |
| 367 | 8.7.2.28 | Subparagraph (a) revised |
| | 8.7.3.2 | Revised |
| 369 | 8.7.3.22.1 | Subparagraph (c) revised |
| | 8.7.3.22.2 | Subparagraph (c) revised |
| 370 | 8.7.3.27 | First sentence revised |
| 371 | 8.7.3.31.6 | Subparagraph (f)(6) revised |
| 372 | 8.7.3.31.8 | Subparagraph (a) revised |
| 375 | 8.7.6.1.18 | Added |
| 376 | 8.7.6.2.17 | Added |
| | 8.8.1 | Subparagraph (b) revised |
| | 8.8.2 | Revised |
| 377 | 8.9.3 | Last paragraph added |

| *Page* | *Location* | *Change* |
|---|---|---|
| 378–383 | 8.10.1.7 | Added |
| | 8.10.2.2.1 | Subparagraph (m) revised, and subpara. (y) added |
| | 8.10.2.2.2 | Subparagraphs (cc)(3)(-c)(-2) and (rr) revised |
| | 8.10.2.2.3 | (1) Subparagraphs (d), (d)(1), (d)(2), (s), (t), (dd), (ff)(3), and (ff)(4) revised<br>(2) Subparagraph (ll) added |
| | 8.10.2.2.5 | Subparagraphs (c) and (f) revised |
| 384 | 8.10.2.2.9 | Revised |
| | 8.10.2.3.2 | Subparagraph (a) revised |
| 385 | 8.10.3.2.1 | (1) Subparagraphs (m) and (q) revised<br>(2) Subparagraph (y) added |
| 386 | 8.10.3.2.2 | Subparagraphs (a), (b), (c), (f), (g), (i), (l), (m), (p) through (s), (cc), (dd), (ff), and (gg) revised |
| 387, 388 | 8.10.3.2.3 | (1) Subparagraphs (d), (d)(1), (d)(3), (d)(4), (e), (g), (j), (k), (m), (o), (ff)(3), and (ff)(4) revised<br>(2) Subparagraph (d)(5) deleted<br>(3) Subparagraph (kk) added |
| | 8.10.3.2.4 | (1) Subparagraphs (a), (b), and (c) revised<br>(2) Subparagraph (o) added |
| | 8.10.3.2.5 | (1) Subparagraphs (d), (f), (i) through (l), and (o) revised<br>(2) Subparagraph (v) added |
| 389–393 | 8.10.3.3.2 | Subparagraph (a) revised |
| | 8.10.4.1.1 | (1) Subparagraphs (i)(1)(-h), (r), and (t)(6) revised<br>(2) Subparagraph (u) added |
| | 8.10.4.1.2 | Subparagraphs (m) and (x) revised |
| | 8.10.4.2.2 | Subparagraph (a) revised, and subpara. (j) added |
| 394 | 8.10.5.16 | Added |
| 396, 397 | 8.11.1.9 | Added |
| | 8.11.2.1.1 | (1) Subparagraphs (d) and (m) revised<br>(2) Subparagraph (y) added |
| | 8.11.2.1.2 | Subparagraph (nn) revised |
| | 8.11.2.1.3 | Subparagraphs (l), (dd), and (qq) revised |
| 399 | 8.11.3.1.6 | Revised |
| 401 | 8.11.5.16 | Added |
| 403–409 | Section 9.1 | Updated to reflect new and revised references |

| *Page* | *Location* | *Change* |
|---|---|---|
| 410, 411 | Section 9.2 | Updated to reflect new and revised references |
| 415 | Fig. B-1 | Cross-reference to 2.12.1 added |
| 430 | Fig. G-1 | Revised |
| 452 | Table N-1 | Revised |
| 478 | Nonmandatory Appendix T | Deleted |
| 479 | Table U-1 | "Best engineering practice (BEP)" revised to "sound engineering practice (SEP)" |
| 482 | Nonmandatory Appendix W | Deleted |
| 483 | Table X-1 | Item 28 revised |
| 485 | Table X-3 | Item 21 revised |
| 490 | Nonmandatory Appendix Z | Added |

**SPECIAL NOTE:**

The interpretations to ASME A17.1 issued from July 2012 through October 2015 follow the last page of this edition as a separate supplement, Interpretations No. 33.

# 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 (see Section 1.2):

*(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 Section 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 Section 1.3).

*(c)* hoisting and lowering mechanisms equipped with a car that serves two or more landings and is restricted to the carrying of material by its limited size or limited access to the car. This equipment includes, but is not limited to, dumbwaiters and material lifts; it does not include vertical reciprocating conveyors (see Section 1.3).

### 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, CSA B355, and CSA B613

*(d)* manlifts within the scope of ASME A90.1 and CSA B311, and in jurisdictions enforcing NBCC Special Purpose Personnel Elevators (ASME A17.1, Section 5.7)

*(e)* mobile scaffolds and towers; platforms within the scope of ANSI/SAIA A92 and CSA-B354

*(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, CSA Z202, and CSA Z248

*(i)* industrial trucks within the scope of ASME B56 and CSA B335

*(j)* portable equipment, except for portable escalators, that are covered by Section 6.1

*(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

*(r)* railroad car lifts and dumpers

*(s)* mechanized parking garage equipment

*(t)* line jacks, false cars, shafters, moving platforms, and similar equipment used for installing an elevator

*(u)* platform-type elevators installed on board a marine vessel

NOTES:

(1) A maritime, industrial-use device with no car enclosure. Controls are located outside of the hoistway. Typically utilizes elevator-type rail systems and elevator-type interlock systems.

(2) Not a platform lift within the scope of A18.1.

*(v)* dock levelers (freight platform lifts) having a rise of 500 mm (20 in.) or less

*(w)* in Canadian jurisdictions, devices having a rise of 2 000 mm (79 in.) or less and used only for the transfer of materials or equipment

*(x)* in jurisdictions enforcing NBCC, mine elevators within the scope of Section 5.9

### 1.1.3 Application of Parts

This Code applies to new installations only, except Part 1, and Sections 5.10, 8.1, 8.6, 8.7, 8.8, 8.9, 8.10, and 8.11, that apply to both new and existing installations.

### 1.1.4 Effective Date

The requirements of this edition to the Code are effective as of the date noted on the Summary of Changes page of this document with the exception of 8.10.1.1.3 and 8.11.1.1 that shall be effective immediately. The authority having jurisdiction will establish the effective date for their local regulations.

## SECTION 1.2
## PURPOSE AND EXCEPTIONS

### 1.2.1 Purpose

The purpose of this Code is to provide for the safety of life and limb, and to promote the public welfare. Compliance with this Code shall be achieved by

*(a)* conformance with the requirements in ASME A17.1/CSA B44; or

*(b)* conformance with some of the requirements in ASME A17.1/CSA B44 and for systems, subsystems, components, or functions that do not conform with certain requirements in ASME A17.1/CSA B44, conform with the applicable requirements in ASME A17.7/CSA B44.7; or

*(c)* conformance with the requirements in ASME A17.7/CSA B44.7

### 1.2.2 Exceptions to ASME A17.1/CSA B44

The provisions of this Code 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 Code, provided that there is technical documentation to demonstrate the equivalency of the system, method, or device.

**1.2.2.1** The specific requirements of this Code shall be permitted to be modified by the authority having jurisdiction based upon technical documentation or physical performance verification to allow alternative arrangements that will assure safety equivalent to that which would be provided by conformance to the corresponding requirements of this Code.

**1.2.2.2** This Code contains requirements that are also covered in the National Building Code of Canada (NBCC). Reference to the NBCC is recognition that said requirements are not within the scope of this Code in Canada.

In jurisdictions not enforcing the NBCC, the use of the NBCC is not intended.

**1.2.2.3** Exceptions shall be based on the requirements of 1.2.2.1.

(16)

## SECTION 1.3
## DEFINITIONS

Section 1.3 defines various terms used in this Code. In addition, some nomenclature and terminology used in the elevator industry and other ASME publications are defined.

**access switch:** see *hoistway access switch.*

**accredited certifying organization:** a certifying organization that holds valid Documentation of Accreditation issued by an independent internationally or nationally recognized accrediting organization that accredits personnel certification bodies.

NOTE: A Certificate of Accreditation is an example of such documentation.

**accrediting body:** an independent internationally or nationally recognized organization that accredits organizations concerned with personnel certification.

**alteration:** any change to equipment, including its parts, components, and/or subsystems, other than maintenance, repair, or replacement.

*alteration, as part of an:* a repair or replacement that is included with other work that is classified as an alteration.

**alternate level:** a floor level identified by the building code or fire authority, other than the designated level.

**annunciator, car:** an electrical device in the car that indicates visually the landings at which an elevator landing signal registering device has been actuated.

**applied frame entrance:** a wraparound or partial addition to an existing entrance frame used to improve the appearance or to provide the required clearances.

**approved:** acceptable to the authority having jurisdiction.

**authority having jurisdiction:** the organization, office, or individual responsible for enforcement of this Code. Where compliance with this Code has been mandated by legislation or regulation, the "authority having jurisdiction" is the regulatory authority (see *regulatory authority)*.

**authorized personnel:** persons who have been instructed in the operation of the equipment and designated by the owner to use the equipment.

**automatic transfer device:** a power-operated mechanism that automatically moves a load consisting of a cart, tote box, pallet, wheeled vehicle, box, or other similar object from and/or to the car.

**auxiliary power lowering device:** an alternatively powered auxiliary control system that will, upon failure of the main power supply, allow a hydraulic elevator to descend to a lower landing.

**backup roller(s):** a roller that limits the separation of a pinion from a rack.

**base, building:** the level at which the horizontal seismic ground motions are considered to be imparted to the structure.