ASME A17.2-2017
(Revision of ASME A17.2-2014)

Guide for Inspection of Elevators, Escalators, and Moving Walks

Includes Inspection Procedures for Electric Traction and Winding Drum Elevators, Hydraulic Elevators, Inclined Elevators, Limited-Use/Limited-Application Elevators, Private Residence Elevators, and Escalators and Moving Walks

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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The American Society of Mechanical Engineers
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FOREWORD

Following the publication of the 1925 edition of the Safety Code for Elevators, Dumbwaiters, and Escalators, requests for a handbook or manual covering the inspection of elevators were received by the A17 Committee. This Committee appointed a subcommittee to prepare such a manual. Cities, states, insurance companies, elevator manufacturers and maintenance companies, and the federal government furnished the Committee with material based on their field experiences. A final draft was prepared and was unanimously approved by the A17 Committee, the Code Sponsors, and the American Standards Association [currently known as the American National Standards Institute (ANSI)], and the first edition of the Manual was published in 1937 simultaneously with the fourth edition of the Code.

A second edition of the Manual was prepared by the Committee to bring it in line with the fourth edition of the Code, including the 1942 Supplement. A new Part, covering the inspection of escalators, and new Appendices, covering descriptions of various types of safeties, methods for determining stopping distances of gradual-type safeties, guide rail data, types of speed governors, and the handling and socketing of wire rope, were added. The second edition of the Manual was approved by the American Standards Association and was published in 1945.

The third edition of the Manual was published in 1960 and included revisions to bring it in line with the 1960 edition of the Code.

The fourth edition of the Manual was published in 1973 to bring it in line with the 1971 editions of the Code, including the 1972 Supplement, and to update the inspection procedures. A new Part, covering the inspection of moving walks, was also added.

The Inspectors' Manual Subcommittee was reactivated in 1976 to review the Manual and coordinate it with a proposed new edition of the Code. The Subcommittee, during its review, felt that it was time for the Manual to take a new format. Thus, the fifth edition of the Manual, published in 1979, was reorganized into four major Parts: Electric Elevators, Hydraulic Elevators, Escalators, and Moving Walks. Each Part was further divided into three major Divisions: Routine Inspection, Periodic Inspection and Test, and Acceptance Inspection and Test. New Appendices were added to this edition, containing sample inspection checklists for electric elevators, hydraulic elevators, escalators, and moving walks. A considerable amount of new material was also added to the Manual to bring it in line with the 1978 edition of the Code.

In order to keep the Manual as current as possible, the Committee began the policy of publishing supplements on a regular basis. Supplements were issued in 1980 and 1981 to update the 1979 edition.

The sixth edition of the Manual contained the revisions included in the 1980 and 1981 Supplements, as well as many other revisions made to keep the Manual in line with new Code requirements and to add more comprehensive inspection and testing procedures. The title of this edition was also changed to ANSI/ASME A17.2, Inspectors' Manual for Elevators and Escalators. This change was made to reflect a reorganization of the A17 Committee structure, and to shorten the title for convenience.

The seventh edition of the Manual included the revisions in the 1983 and 1984 Supplements, as well as other new revisions. One of the major revisions was the Inspection Checklists in Nonmandatory Appendix E, which were expanded to include routine and periodic inspections and tests in addition to acceptance inspections and tests.

The eighth edition included the revisions in the 1986 and 1987 Supplements, as well as other revisions that were detailed in the Summary of Changes section.

In 1989, the Inspectors' Manual Committee polled the inspection community to determine which portions of the Manual were most effective and the direction that should be taken to meet the needs of inspectors. In response to requests for equipment-specific inspection guidelines, techniques, and cautionary notes as well as field convenience, the concept of individual equipment inspection manuals was developed. The Committee decided to concentrate initially on three major segments. As a result, the Inspectors' Manual was published in three volumes: A17.2.1, Electric Elevators; A17.2.2, Hydraulic Elevators; and A17.2.3, Escalators and Moving Walks. Each volume addressed inspection procedures for ensuring compliance with the A17.1 Code since 1955 and the A17.3 Code. It was the Committee's plan to publish additional manuals to address inspection of other equipments, such as roped hydraulic elevators, dumbwaiters, sidewalk elevators, private residence elevators, hand elevators, material lifts and dumbwaiters with automatic transfer devices, special-purpose personnel elevators, rack-and-pinion elevators, inclined elevators, screw-column elevators, elevators used for construction, wheelchair and stairway chairlifts, shipboard elevators, and rooftop elevators.

In 1993, the Inspectors' Manual Committee was asked to review equipment installed prior to the 1955 edition

of A17.1. ASME A17.2.3 included inspection and testing procedures for ensuring compliance with some requirements in pre-1955 editions of A17.1.

In 1999, based on feedback from the user community, the A17 Main Committee approved the Inspectors' Manual Committee's recommendation to consolidate the three existing manuals: A17.2.1-1996, Inspectors' Manual for Electric Elevators (including A17.2.1a-1997 and A17.2.1b-1998 Addenda); A17.2.2-1997, Inspectors' Manual for Hydraulic Elevators (including A17.2.2a-1998 Addenda); and A17.2.3-1998, Inspectors' Manual for Escalators and Moving Walks (including A17.2.3a-2000 Addenda). The resulting A17.2-2001, Guide for Inspection of Elevators, Escalators, and Moving Walks, represented an editorial consolidation of the three manuals. The revised standard also included technical revisions that had been approved by the A17.1 Committee since the previous publications.

The second edition of the consolidated Guide was published in 2004. Nonmandatory Appendix B appeared for the first time in this edition.

The third edition of the Guide included revisions that were detailed in the Summary of Changes section.

The fourth edition of the Guide included revisions that were detailed in the Summary of Changes section.

The fifth edition of the Guide included revisions that were detailed in the Summary of Changes section. This edition also added an Inspection Guide for Private Residence Elevators.

The sixth edition of the Guide included revisions that were detailed in the Summary of Changes section. This edition also added an inspection guide for limited-use/limited-application (LU/LA) elevators.

This seventh edition of the Guide includes revisions detailed in the Summary of Changes section. This edition also adds the acceptance checklist for occupant evacuation operation.

The following is a list of past editions and supplements and the dates on which they received final approval. The dates of issuance are also included for documents published since 1979.

Editions and Supplements		Approved	Issued
First Edition	ASA A17.2-1937	July 1937	...
Second Edition	ASA A17.2-1945	October 22, 1945	...
Third Edition	ASA A17.2-1960	August 10, 1960	...
Addenda	ASA A17.2a-1965	July 29, 1965	...
Supplement	USAS A17.2b-1967	July 7, 1967	...
Fourth Edition	ANSI A17.2-1973	May 29, 1973	...
Fifth Edition	ANSI A17.2-1979	February 18, 1979	May 15, 1979
Supplement	ANSI A17.2a-1980	August 11, 1980	September 15, 1980
Supplement	ANSI A17.2b-1981	November 23, 1981	January 15, 1982
Sixth Edition	ANSI/ASME A17.2-1982	September 22, 1982	November 30, 1982
Supplement	ANSI/ASME A17.2a-1983	September 23, 1983	December 20, 1983
Supplement	ANSI/ASME A17.2b-1984	August 16, 1984	September 16, 1984
Seventh Edition	ANSI/ASME A17.2-1985	July 23, 1985	October 31, 1985
Supplement	ANSI/ASME A17.2a-1986	September 8, 1986	October 31, 1986
Supplement	ANSI/ASME A17.2b-1987	September 11, 1987	October 30, 1987
Eighth Edition	ANSI/ASME A17.2-1988	August 25, 1988	October 31, 1988
Addenda	ANSI/ASME A17.2a-1989	November 10, 1989	December 31, 1989
Addenda	ANSI/ASME A17.2b-1990	October 8, 1990	January 21, 1991
First Edition	ASME A17.2.1-1993	January 22, 1993	May 31, 1993
Addenda	ASME A17.2.1a-1994	August 18, 1994	December 31, 1994
Addenda	ASME A17.2.1b-1995	August 10, 1995	January 29, 1996
Second Edition	ASME A17.2.1-1996	September 6, 1996	January 31, 1997
Addenda	ASME A17.2.1a-1997	December 16, 1997	January 30, 1998
Addenda	ASME A17.2.1b-1998	November 13, 1998	February 19, 1999
First Edition	ASME A17.2.2-1994	April 14, 1994	May 31, 1994
Addenda	ASME A17.2.2a-1995	August 10, 1995	January 10, 1996
Addenda	ASME A17.2.2b-1996	September 6, 1996	December 31, 1996

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Second Edition	ASME A17.2.2-1997	November 18, 1997	December 31, 1997
Addenda	ASME A17.2.2a-1998	November 13, 1998	February 5, 1999
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Addenda	ASME A17.2.3b-1997	November 18, 1997	December 31, 1997
Second Edition	ASME A17.2.3-1998	November 16, 1998	February 26, 1999
Addenda	ASME A17.2.3a-2000	June 22, 2000	August 10, 2000
First Edition	ASME A17.2-2001	October 4, 2001	December 31, 2001
Second Edition	ASME A17.2-2004	July 22, 2004	March 31, 2005
Third Edition	ASME A17.2-2007	July 11, 2007	October 5, 2007
Fourth Edition	ASME A17.2-2010	September 8, 2010	December 9, 2010
Fifth Edition	ASME A17.2-2012	September 14, 2012	October 22, 2012
Sixth Edition	ASME A17.2-2014	December 16, 2014	March 13, 2015
Seventh Edition	ASME A17.2-2017	October 26, 2017	January 26, 2018

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(March 2017)

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PREFACE (17)

FORM AND ARRANGEMENT

This Guide addresses how-to inspection guidelines, techniques, and cautionary notes in a logical sequence. Subsections are arranged to focus on routine inspection requirements, followed by periodic test (annual and 5 yr) and acceptance criteria. Appropriate references to the latest edition of the Code, in effect at the time of this Guide's publication, are listed at the end of each subsection. The referenced numbers may not be the same in earlier editions. This Guide is organized as follows: Parts 1 through 6 apply to electric and hydraulic elevators [including limited-use/limited-application (LU/LA) elevators where applicable], Parts 7 and 8 apply to escalators, Parts 9 and 10 apply to moving walks, and Part 11 applies to machine-room-less (MRL) elevators. The Parts are arranged to show the location of the inspection:

Part 1 Elevator — Inside of Car
Part 2 Elevator — Machine Room
Part 3 Elevator — Top of Car
Part 4 Elevator — Outside Hoistway
Part 5 Elevator — Pit
Part 6 Elevator — Firefighters' Service
Part 7 Escalator — External
Part 8 Escalator — Internal
Part 9 Moving Walk — External
Part 10 Moving Walk — Internal
Part 11 Elevator — Machine-Room-Less (MRL)

Each inspection location is further subdivided as follows:

X Location of inspection
X.X Item to be inspected
X.X.1 Periodic inspections (routine)
X.X.1.1 Electric elevators (as applicable)
X.X.1.2 Hydraulic elevators (as applicable)
X.X.1.3 Electric LU/LA elevators (as applicable)
X.X.1.4 Hydraulic LU/LA elevators (as applicable)
X.X.2 Periodic test
X.X.2.1 Electric elevators (as applicable)
X.X.2.2 Hydraulic elevators (as applicable)
X.X.2.3 Electric LU/LA elevators (as applicable)
X.X.2.4 Hydraulic LU/LA elevators (as applicable)
X.X.3 Acceptance
X.X.3.1 Electric elevators (as applicable)
X.X.3.2 Hydraulic elevators (as applicable)
X.X.3.3 Electric LU/LA elevators (as applicable)
X.X.3.4 Hydraulic LU/LA elevators (as applicable)
X.X.4 Code references
X.X.4.1 Electric elevators (as applicable)
X.X.4.2 Hydraulic elevators (as applicable)
X.X.4.3 Electric LU/LA elevators (as applicable)
X.X.4.4 Hydraulic LU/LA elevators (as applicable)

When a requirement within A17.1 or A17.3 cross-references another requirement, the cross-reference is shown with the referring requirement in braces, { }. For the A17.1-2000 and later edition requirements, where no direct cross-reference is found within the A17.1-2000 Cross-Reference Table, the prior code Rule (A17.1d-2000 and earlier editions) is shown in parentheses, ( ), with a preceding "NR" designation.

Subsection numbering of items may not be sequential when there are no inspection or test procedures indicated within this Guide.

NOTE: This Guide addresses the requirements of A17.1-1955 and later editions and the latest edition of A17.3. Some requirements in earlier editions of A17.1 are also addressed. The inspector is referred to the particular edition of the A17.1 Code that applies for requirements prior to 1955.

This Guide includes the pertinent requirements from prior editions of A17.1 that differ from the requirements in the latest edition. As the inspector becomes familiar with the prescribed order of inspection procedures, variations may be appropriate. The Foreword, Preface, and Nonmandatory Appendices that are included in this Guide have been approved by the A17 Committee but are not part of this American National Standard.

NOTE: See also section 2, "Application," in the Introduction of this Guide.

REQUIREMENTS FOR EXISTING INSTALLATIONS

Elevators and escalators in jurisdictions that have adopted A17.3, the Safety Code for Existing Elevators and Escalators, and installations that have been altered in accordance with Part XII of the Safety Code for Elevators and Escalators, A17.1d-1986 and later editions, must, as a minimum, conform to the requirements identified in this Guide as "A17.3." If an existing installation does not meet the requirements of the A17.3 Code, it must be upgraded. If an existing installation was required to meet more stringent requirements, it must continue to meet those requirements.

Alterations, if made, must conform to the requirements of A17.1 Part XII, and the entire installation must conform to the requirements of A17.3. The alteration requirements in A17.1 Part XII may be more stringent than the requirements of A17.3. The equipment must conform to the more stringent of the two.

METRIC (SI) UNITS

This edition of the Guide uses both imperial and metric (SI) units. The format of the units in the Guide are in the order found in the referenced Code [e.g., imperial (metric) or metric (imperial)]. 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.

DEFINITIONS

For definitions, see Section 3 of ASME A17.1d-2000 and earlier editions (section 1.3, A17.1-2000/B44-00 and later editions).

ASME ELEVATOR PUBLICATIONS

This Guide is one of the numerous codes and standards that have been or are being developed and published by The American Society of Mechanical Engineers (ASME). The following publications are of special interest to users of this Guide. For prices and availability, contact

ASME Order Department
150 Clove Road
Little Falls, NJ 07424-2100
Tel: 800-843-2763
Fax: 973-882-1717
E-mail: customercare@asme.org
ASME Website: www.asme.org/catalog

ASME A17.1/CSA B44, Safety Code for Elevators and Escalators

This American National Standard safety code covers the design, construction, installation, operation, testing, maintenance, alteration, and repair of elevators, dumbwaiters, escalators, moving walks, and material lifts and dumbwaiters with automatic transfer devices.

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. Although many of these requirements also increase the degree of safety for the elevator mechanic and inspector, this area has not been 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 A17.7/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.

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 have been published with each new edition and supplement of A17.1/B44. 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 Codes 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 THE 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:

The American Society of Mechanical Engineers
Secretary, A17 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
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 Guide 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 elevator technology. Approved revisions will be published periodically.

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

Requesting Interpretations

On request, the A17 Committee will render an interpretation of any requirement of the Guide. 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 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 Item number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition and supplement of the Guide for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific item 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 the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

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.

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	m/s	meter per second
fc	footcandle	m/s^2	meter per second per second
ft^2	square foot	mA	milliampere
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	V	volt
kPa	kilopascal		

ASME A17.2-2017
SUMMARY OF CHANGES

Following approval by the ASME A17 Elevator and Escalator Committee and ASME, and after public review, ASME A17.2-2017 was approved by the American National Standards Institute on October 26, 2017.

The 2017 edition of ASME A17.2 includes revisions that are identified by a margin note, **(17)**. In addition, all third-level and higher list items have been redesignated. The following is a summary of the latest revisions and changes:

Page	*Location*	*Change*
xix–xxiii	Preface	Revised
1–4	Introduction	(1) Section 2 and Note in section 4 revised (2) In section 7, subpara. (b)(15) added (3) In Table 1, addresses updated
5	Item 1.1.1	Subparagraph (d) added
	Item 1.1.4	In Items 1.1.4.1 and 1.1.4.2, requirements from A17.1a-2008/B44a-08 and later editions added
7–10	Item 1.5.1	Second and third paragraphs in subpara. (a), second paragraph in subpara. (b), and subpara. (d) added
	Item 1.5.3	First paragraph revised
	Item 1.5.4	Requirements from A17.1-2010/B44-10 and later editions added
	Item 1.6	Revised in its entirety
16	Item 1.14.1	Note added
21	Item 2.3.3	Revised in its entirety
	Item 2.4.1	Subparagraph (c) added
22	Item 2.4.3.2	Added
23	Item 2.6	Items 2.6.1 and 2.6.3 revised in their entirety
	Item 2.7.1	Revised
24, 25	Item 2.10.3	Revised in its entirety
26, 27	Item 2.12	(1) Subparagraph 2.12.1.1(a)(3)(-b) and Item 2.12.2 revised in their entirety (2) In Item 2.12.3, second paragraph added (3) In Item 2.12.4.1, requirements for A17.1-2013 and later editions added and requirements for A17.1-2007/B44-07 and later editions revised
32	Item 2.13.3	In Items 2.13.3.1 and 2.13.3.2, subpara. (c) added

Page	*Location*	*Change*
	Item 2.13.4	In Items 2.13.4.1 and 2.13.4.2, requirements for A17.1S-2005 and later editions added
37	Item 2.20.4	Deleted Item 2.20.4.4
54–56	Item 2.43.3.1	Last sentence added
	Item 2.43.4.1	Requirement for A17.1S-2005 and later editions added
	Item 2.44	Added
	Item 2.45	Added
57, 58	Item 3.2.1	Last paragraph added
	Item 3.2.4	Revised in its entirety
	Item 3.4.1.1	First paragraph revised
59	Item 3.4.1.2	First paragraph revised
	Item 3.4.3.1	Subparagraph (b) deleted and subpara. (c) redesignated as (b)
	Item 3.4.3.2	First paragraph and subpara. (c) deleted and subpara. (d) redesignated as (c)
	Item 3.4.4.1	Revised
64, 65	Item 3.11	(1) In Item 3.11.1, Note added (2) In Item 3.11.3, second and third paragraphs added (3) In Item 3.11.4, requirements for A17.1-2013/B44-13 and later editions added
74–78	Item 3.23	(1) Title revised (2) Subparagraph 3.23.1(c)(1)(-c) and Items 3.23.2.1 and 3.23.4.1 revised (3) In Item 3.23.1, subparas. (e) and (f) added (4) Figures redesignated
85	Item 4.1.3	Second paragraph added
93	Figure 5.2.3.1	Redesignated from Fig. 5.2.3
95	Item 5.5.1	Cross reference to Item 3.16 revised
98	Item 5.9.2.1	In subpara. (a), second paragraph revised
102–104	Item 5.17	Added
111–114	Item 6.4.2	Figures redesignated
129	Figure 7.9.1(c)	“Thread” revised to “tread” in right side of figure
132	Item 7.11	Revised in its entirety
157	Figure 9.15.1	Redesignated from Figure 9.17.1
168	Part 11	Introductory paragraph revised
	Item 11.1.3	Last paragraph revised
169	Item 11.4	Deleted

Page	*Location*	*Change*
	Item 11.6	Deleted
170	Item 11.10	Deleted
	Item 11.11	Deleted
172–175	Item 11.21	Figures redesignated per style of book
179–192	Mandatory Appendix I	Second-level heads added throughout for proper nesting
195–211	Mandatory Appendix II	Subheads redesignated throughout per style in text
	Item II-1.4.3	Subparagraph (a) revised
	Item II-1.7.3	(1) Subparagraph (d) revised (2) Subparagraph (e) and subsequent paragraph added
	Table II-1.7.3	Added
	Item II-1.7.4	(1) Requirements for A17.1-2007/B44-07 through A17.1-2013 revised (2) Requirement for A17.1-2016 and later editions added
216, 247	Nonmandatory Appendix A	In Checklist for Hydraulic Elevators, Item 5.17 added
258, 263–332	Nonmandatory Appendix B	(1) In Acceptance Checklist for A17.1-2002/B44-02, Items 8–10 redesignated as Items 7–9 (2) In Acceptance Checklist for A17.1-2010/B44-10, Items 15–26 redesignated as Items 14–25 (3) Acceptance Checklist for A17.1-2016/B44-16 added
417	Nonmandatory Appendix H	Added
418–424	Nonmandatory Appendix I	Added

GUIDE FOR INSPECTION OF ELEVATORS, ESCALATORS, AND MOVING WALKS

(17)

Introduction

1 SCOPE

This Guide covers recommended inspection and testing procedures for electric and hydraulic 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. This Guide also addresses some requirements from editions of A17.1 prior to 1955.

This Guide also includes Canadian references and applicable exceptions for CSA B44-00 and later editions. Exceptions or deviations applicable in Canada are identified with the same ASME requirement number prefaced with a lowercase "c" for CSA B44-00 through CSA B44-04 Update 1.

NOTES:

(1) This Guide may not reflect the latest requirements in the current ASME A17.1/CSA B44 and ASME A17.3 Codes.

(2) The inspection procedures in Parts 1 through 6 apply for limited-use/limited-application (LU/LA) elevators, except as modified.

2 APPLICATION

This Guide is intended to assist qualified inspectors performing routine inspections and witnessing periodic and acceptance inspections and tests. It is not intended to serve as a basis for government regulations. This Guide does not contain information on handling discrepancies noted during an inspection and test. The authority having jurisdiction in their legislation adopting the Code is responsible for addressing this subject. The acceptance inspection and testing procedures apply only to the extent that they conform to the latest edition of the A17.1/B44 Code. The routine and periodic inspection and testing procedures apply only to the extent that they conform to the applicable Code requirements that were in effect at the time of installation or alteration. The inspection and testing procedures do not take into account local regulations that may differ.

It is recognized that inspectors will not be able to accomplish all the inspection procedures specified in this Guide during each inspection. Qualified inspectors have the knowledge and experience to recognize potential deficiencies and to focus the inspection in those areas.

This Guide uses the following format to describe the appropriate inspection and test:

(a) Periodic Inspections. The examination and operation of equipment at specified intervals by an inspector to check for compliance with the applicable Code requirements.

(b) Periodic Test. The testing and detailed examination and operation of equipment at specified intervals witnessed by an inspector to check for compliance with the applicable Code requirements.

(c) Acceptance. The initial inspection and test of new or altered equipment to check for compliance with the applicable Code requirements.

The procedures in this Guide are recommendations only and are intended to illustrate a method of complying with the requirements in ASME A17.1d-2000 and earlier editions and A17.1-2000/B44-00 and later editions, Requirements 8.10 and 8.11. The person performing the inspection and test may employ other methods to demonstrate compliance with the applicable Code requirement. Qualified inspectors have the knowledge and experience to recognize potential deficiencies and to focus the inspection where necessary.

Where, as an example, no inspection procedure is specified for periodic inspections or periodic tests, it indicates that the Code requirements need no explanation. This does not indicate that no inspection or test of the specified item is required. The item is to be inspected or tested for compliance with the applicable Code requirements.

If, as an example, the acceptance inspection has a test procedure that differs from the test procedure specified under periodic test, the acceptance test procedure should be followed in addition to the periodic test procedure.

This Guide contains inspection procedures for compliance with the applicable Code only. A17.1d-2000 and earlier editions Rule 1000.2 and A17.1-2000/B44-00 and later editions Requirements 8.10.1.2 and 8.11.1.2 read in part "the inspection and test required by this Part are to determine that the equipment conforms to the applicable Code requirements at the time of installation and any alteration." This Guide contains no recommendations that exceed the requirements of A17.1d-2000 and earlier editions Rule 1000.2; A17.1-2000/B44-00 and later editions Requirements 8.10.1.2 and 8.11.1.2; and A17.3.

To facilitate making inspections and tests, sample checklists can be found in Nonmandatory Appendix A of this Guide. The checklist Item numbers correspond to the Item numbers in this Guide. The checklists also contain appropriate A17.1 and A17.3 references for each Item.

NOTE: See also "Form and Arrangement" in the Preface of this Guide.

3 QUALIFICATIONS OF INSPECTORS

Inspectors and inspection supervisors are required by ASME A17.1-2010 and earlier editions to be certified by an organization accredited by The American Society of Mechanical Engineers Qualifications for Elevator Inspectors Committee in accordance with the requirements set forth in the Standard for the Qualification of Elevator Inspectors, ASME QEI-1, and to be recognized by the authority having jurisdiction. Effective January 1, 2014, accreditation of organizations to certify inspectors and inspection supervisors is no longer within the purview of The American Society of Mechanical Engineers.

4 PERSONAL SAFETY

Inspectors should have knowledge of the personal safety practices including, but not limited to, the safety practices contained in *The Elevator Industry Field Employees' Safety Handbook* (EIFESH) as required by ASME QEI-1.

The EIFESH contains safety precautions an inspector is likely to need for most inspections. Because of the large variation in elevator equipment and possible unique elevator designs, it is the responsibility of each inspector, mechanic, and consultant to determine the safe manner in which to conduct each test and inspection before starting each procedure. It is not the inspector's responsibility to ensure the safety of all participants in the tests and inspections. Inspectors are still advised to be aware of safety for themselves and others. Some elevator manufacturers, inspection organizations, and maintenance companies have safety procedures that go beyond the requirements in the EIFESH or are unique to their organization or equipment. When this is the case, the safer procedures should be followed. In past editions of the A17.2 Inspectors' Guide, specific cautions and safety warnings were part of the body of the Guide. Those cautions and warnings were removed, with the inspector directed to use the EIFESH or other safety materials that may apply. The A17.2 Inspectors' Guide is for the use of trained elevator personnel who are aware of the hazards inherent in working with elevator equipment. Trainee inspectors are advised to use extra caution while learning inspection techniques and test procedures.

NOTE: *The Elevator Industry Field Employees' Safety Handbook* is available from Elevator World, Inc., P.O. Box 6507, 354 Morgan Avenue, Mobile, AL 36606 (www.elevatorbooks.com).

5 DUTIES OF INSPECTORS

The duties of inspectors are

(a) when witnessing acceptance inspections and tests of new or altered installations, to determine whether all parts of the installation conform to the requirements of the applicable code or regulations and whether the required safety devices function as required.

(b) when making routine and/or periodic inspections and tests, to determine that the equipment conforms to the applicable Code edition (edition under which it was installed, A17.3, and local requirements) and that alterations conform with Code requirements. Determine that periodic tests performed by the owner or his agent are conducted in accordance with Code requirements and that the results of these tests demonstrate Code compliance.

(c) to report the results of inspections and tests in accordance with applicable local regulations.

It is not the function or duty of inspectors to make any repairs or adjustments to the equipment, nor to recommend methods or procedures for correction of deficiencies.

6 ARRANGEMENT FOR INSPECTION

The inspecting authority or the inspector should request that the owner or his agent make the following arrangements prior to an inspection or test:

(a) Provide qualified personnel for periodic and acceptance inspections and tests to perform the tests specified in the applicable code or regulations.

(b) Have a person familiar with the operation of the elevator available to accompany and assist during the inspections. The inspector should be accompanied by a person familiar with the operation of the equipment to assist him during his inspections.

7 RECOMMENDED EQUIPMENT

(a) It is recommended that the inspector have the following equipment:

(1) flashlight with a nonconductive case

(2) 6-ft (2-m) rule of nonconductive material

(3) set of thick gages

(4) small hammer, preferably a ½-lb (0.2-kg) ball peen

(5) marking chalk or crayon

(6) small metal mirror

(7) safety hat (nonconductive)

(8) copy of the latest applicable codes and standards (e.g., A17.1, A17.3, NFPA 70)

(9) copy of the applicable local regulations

(10) copy of the latest edition of *The Elevator Industry Field Employees' Safety Handbook*

(11) copy of the checklists contained in this Guide

(12) padlock, multiple lock device, and "Do Not Start" tags

(13) caliper

(14) telescoping pointer with an alligator clip and business cards or stiff paper

(15) other items such as an eraser, kitchen spatula, etc. (for escalators and moving walks)

(16) stopwatch or timer

(17) 50-ft (15-m) nonconductive tape and 25-ft (7.5-m) tape

(18) tachometer, which reads directly in ft/min (m/s)

(19) multimeter

(20) level, 30-deg/60-deg triangle, and protractor or angle finder

(21) door test scale (gage) to check closing door force

(22) a light meter that can accurately measure light levels from 0 fc to 19 fc (0 lx to 200 lx)

(b) Periodic and Acceptance Inspection and Tests. In addition to the equipment specified in (a) above, the following should be provided by the owner or contractor:

(1) suitable test weights.

(2) dynamometer.

(3) copy of all pertinent drawings, specifications, data sheets, and required test procedures.

(4) transceiver.

(5) come-along and "Chicago" grip or midline rope clamps.

(6) "Out of Service" signs and/or barricades at hoistway doors.

(7) pressure gage with damping (either liquid filled or an in-line snubber) to provide a steady reading. The gage should have full-scale reading of twice the expected pressure, an accuracy of no less than 1% of full-scale reading, and a calibration sticker that shows that it has been calibrated within the last year.

(8) no. 16-gage copper wire or equivalent.

(9) keys for access and operation of all elevator equipment.

(10) jack and pipe stand or other suitable support.

(11) plumb line (for escalators).

(12) torque wrench (for escalators).

(13) skirt/step performance index test apparatus and accessory apparatus.

(14) comb-step/comb-pallet device test apparatus and accessory apparatus.

(15) acceleration-measuring device that can record or display speed and the deceleration rate to use when testing a hydraulic elevator plunger gripper.

NOTE: If iron counterweight sections are used as test weights and scales are not available to accurately determine their weight in pounds, their approximate weight can be determined by multiplying the product of the length, breadth, and thickness in inches by 0.26. If weights are lead, multiply by 0.41. If weights are steel, multiply by 0.28. Deduct for the volume of any holes or slots. The above lists of recommended equipment do not constitute all the equipment that may be required to perform the inspections or tests.

8 REFERENCE DOCUMENTS

Table 1 lists the organizations from which documents referenced in this Guide can be procured.

Table 1 Procurement Information

Organization	Address and Phone Number
ANSI	American National Standards Institute, Inc. 25 West 43rd Street New York, NY 10036 Telephone: (212) 642-4900 www.ansi.org
ASME	The American Society of Mechanical Engineers Two Park Avenue New York, NY 10016-5990 Telephone: (212) 591-8500 www.asme.org ASME Order Department 150 Clove Road, 6th Floor Little Falls, NJ 07424-2139 Telephone: (800) 843-2763
ASTM International	American Society for Testing and Materials 100 Barr Harbor Drive P.O. Box C700 West Conshohocken, PA 19428-2959 Telephone: (610) 832-9585 www.astm.org
CSA	Canadian Standards Association 178 Rexdale Boulevard Toronto, Ontario M9W 1R3, Canada Telephone: (416) 747-4044 www.csagroup.org
Elevator World, Inc.	Elevator World, Inc. P.O. Box 6507 354 Morgan Avenue Mobile, AL 36606 www.elevatorbooks.com
IEEE	Institute of Electrical and Electronics Engineers, Inc. 445 Hoes Lane Piscataway, NJ 08854 Telephone: (732) 981-0060 www.ieee.org
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471 Telephone: (617) 770-3000 www.nfpa.org

Part 1
Elevator — Inside of Car

ITEM 1.1
DOOR REOPENING DEVICE

(17) 1.1.1 Periodic Inspections

For elevators installed under A17.1-1955 through A17.1d-1975, power opening of the car door was permitted to take place anywhere in the hoistway. For elevators installed under A17.1e-1975, power opening of the car door was permitted to take place only within the landing zone.

CAUTION: In any of the following tests where the inspector uses an object to test the reopening device, the object must not be inserted when the door is nearing its fully closed position.

(a) Mechanical Reopening Device (Safety Edge). Actuate the device while the doors are being closed and note whether car and hoistway doors stop and reopen. For vertically sliding car doors or gates, a stop and reopen is not required for obstructions within 5 in. (127 mm) of the sides of the opening.

(b) Electronic Reopening Device. Place an object in front of the leading edge of the car door at various positions while it is being closed. The car and hoistway doors should stop and reopen. For vertically sliding car doors or gates, a stop and reopen is not required for obstructions within 5 in. (127 mm) of the sides of the opening.

(c) Photoelectric Reopening Device. To qualify as a reopening device that complies with the Code, the device must sense the presence of the obstruction anywhere within the opening along the leading edge of the car door. Determine the location of the light beam or beams with relation to the car floor. Where an invisible beam is used, the position of the beam can be determined by an examination of the equipment. While the car and hoistway doors are being closed, obstruct the beam, which should cause the doors to stop and reopen. This type of device is usually installed in addition to a mechanical or electronic reopening device.

(d) For freight or other elevators installed under A17.1a-2008/B44a-08 and later editions and provided with vertically power-operated doors, ensure that a means to detect various size objects within the opening is provided. Refer to Nonmandatory Appendix S in A17.1/B44 for detailed drawings of the areas of detection and the size requirements for the objects to be detected. The installer should have a written procedure for demonstrating that the detection means complies with the Code, and the procedure should be documented in the Maintenance Control Program (MCP).

NOTE: For LU/LA elevators, vertical reopening devices do not apply. Vertically opening doors are not permitted.

1.1.2 Periodic Test

1.1.3 Acceptance

1.1.4 References (17)

1.1.4.1 Electric Elevators. A17.1d-2000 and earlier editions — Section 112 and Rule 1001.2(a)(1).

A17.1-2000/B44-00 and later editions — Requirements 2.13, 8.10.2.2.1(a), and 8.11.2.1.1(a).

A17.1a-2008/B44a-08 and later editions — Requirement 2.13.3.4.

A17.3 — Section 2.8.

1.1.4.2 Hydraulic Elevators. A17.1d-2000 and earlier editions — Section 112 {Rule 300.13} and Rules 1001.2(a)(1) and 1004.2(a)(1).

A17.1-2000/B44-00 and later editions — Requirements 2.13 {3.13}, 8.10.3.2.1(a), and 8.11.3.1.1(a).

A17.1a-2008/B44a-08 and later editions — Requirement 2.13.3.4 {3.13}.

A17.3 — Section 2.8.

1.1.4.3 Electric LU/LA Elevators. A17.1d-2000 and earlier editions — Section 2500.13, 112 {NR 112.2(b)(3), 112.3(b), 112.3(d), and 112.6}.

A17.1-2000/B44-00 and later editions — Requirements 5.2.1.13, 2.13 {NR 2.13.1(b), 2.13.2.2.3, 2.13.3.4, and 2.13.6}.

1.1.4.4 Hydraulic LU/LA Elevators. A17.1d-2000 and earlier editions — Section 2500.13, 112 {NR 112.2(b)(3), 112.3(b), 112.3(d), and 112.6}.

A17.1-2000/B44-00 and later editions — Requirements 5.2.1.13, 2.13 {NR 2.13.1(b), 2.13.2.2.3, 2.13.3.4, and 2.13.6}.

ITEM 1.2
STOP SWITCHES

1.2.1 Periodic Inspections

An emergency stop switch must be provided on freight elevators and existing passenger elevators with perforated enclosures. An emergency stop switch or in-car switch must be provided on passenger elevators.

(a) Emergency Stop Switch. Operate the emergency stop switch and note whether the car stops promptly. On elevators installed under A17.1b-1980 and later editions, the stop switch should also activate an audible signaling