(Revision of ASME QEI-1-2013)

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Andard for the Qualification of Elevator Inspectors

Elevator Inspectors

Ash (Revision)

AN AMERICAN NATIONAL STANDARD



ASME QEI-1-2018 (Revision of ASME QEI-1-2013)

# Standard for the Qualification of Elevator Inspectors

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AN AMERICAN NATIONAL STANDARD



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# **FOREWORD**

Participants from the National Association of Elevator Safety Authorities, the National Elevator Industries, Inc., the American Insurance Association, and the Alliance of American Insurers met in early 1981 to discuss the trend among state and municipal governments to rely on private inspection agencies and self-inspection by elevator companies to perform inspections that had traditionally been done by the jurisdictional authorities. One of the prime concerns of the group was to develop a means for ensuring that the quality of the inspections remained at a high level. The group determined that addressing the qualifications of the persons performing the inspections is an important part of achieving this goal.

The American Society of Mechanical Engineers (ASME), which had been actively involved in elevator safety through the sponsorship of the A17 Elevator and Escalator Committee, was asked to participate in the group's discussions. ASME expressed an interest in this project and established an ad hoc committee consisting of members of the above organizations to develop a scope and guidelines for the establishment of a standards-writing committee.

On November 12, 1981, the ASME Council on Codes and Standards responded to this request and approved the formation of the ASME Committee on the Qualification of Elevator Inspectors (QEI Committee) to develop an American National Standard.

The goal established for the QEI Committee is to provide for the public health, safety, and welfare by supplementing existing standards in this field. ASME A17.1, Safety Code for Elevators and Escalators, covers design, construction, operation, inspection, testing, maintenance, alteration, and repair. ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks, supplements the Safety Code by providing guidelines for the inspection and testing of the equipment. Neither ASME A17.1 nor ASME A17.2, however, covers the qualifications of inspection personnel, and the duties of the inspector are only covered briefly in the Introduction to the Inspectors' Manual.

The excellent safety record of elevators, escalators, and related equipment has been maintained, in part, by quality field inspections and tests. However, advancing technology and safety requirements have highlighted the need for establishing uniform criteria for the persons performing these inspections. The quality of inspections, of course, depends on the competence of the inspector, and the Standard for the Qualification of Elevator Inspectors is dedicated to that purpose.

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.

With the harmonization of ASME A17.1 and CSA B44, the application of ASME QEI-1 is now widespread in Canada. To enable the effective use of ASME QEI-1 by the jurisdictions in Canada enforcing codes other than those published by ASME, the 2007 edition of ASME QEI-1 was revised to include reference to equivalent Canadian codes. The reference to any Canadian standard and access to or possession of those standards is necessary only in Canada or where Canadian standards are adopted or enforced.

The 2013 edition of ASME QEL-1 was revised to reflect a decision made by ASME to discontinue its QEI accreditation program. Effective January 1, 2014, accreditation of organizations that certify elevator inspectors and inspector supervisors was discontinued by ASME; therefore, requirements were revised in this area to allow for accreditation to be done by other organizations.

The 2018 edition of ASME QEI-1 updates the references to include ASME A17.6 and clarifies definitions. This revision of ASME QEI-1 was approved by the American National Standards Institute on June 29, 2018.

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PREFACE

**PURPOSE** This Standard is intended for the purpose of establishing uniform criteria, which will aid in

- (a) qualifying and training of inspection personnel for government agencies, insurance companies, elevator companies, building owners, and managers
- (b) providing guidance for accredited certifying organizations

It is also intended to serve as a guideline on which certification is based by detailing the expertise necessary in performing inspections.

It is recommended that state, municipal, and other jurisdictional authorities reference this Standard in their governing regulations covering subjects included in this Standard. Model language for enforcement authorities to recognize certified inspectors and inspector supervisors from accredited certifying organizations is shown in Nonmandatory Appendix D.

**FORM AND ARRANGEMENT** The Foreword, Preface, and Appendices are included in this Standard for information only. They have been approved by the ASME A17 Standards Committee. The requirements therein are nonmandatory.

**RELATED PUBLICATIONS** This Standard is one of the numerous codes and standards that have been developed and published by The American Society of Mechanical Engineers (ASME). These and publications from other organizations, all of which may be of special interest to users of this Standard, are listed in Nonmandatory Appendix A.

**CORRESPONDENCE WITH THE A17 STANDARDS COMMITTEE** ASME codes and standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard 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 10016-5990

**Proposing Revisions.** Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable as demonstrated by the experience gained from its application and in order to conform to

developments in the elevator field. Approved revisions will be published in the next edition.

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

**Requesting Interpretations.** Upon request, the A17 Standards Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the A77 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 above address. The request for an 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 paragraph number(s)

and the topic of the inquiry in one or two

words.

Edition: Cite the applicable edition of the Standard

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 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 A17 Standards

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# **ASME QEI-1-2018 SUMMARY OF CHANGES**

Following approval by the ASME QEI Committee and ASME, and after public review, ASME QEI-1-2018 was approved by ELY 2018 the American National Standards Institute on June 29, 2018.

ASME QEI-1-2018 includes the following changes identified by a margin note, (18).

_		Change Revised
Page	Location	Change
xiv	Preface	Revised
1	Section 1.2	(1) Definition for effective date added
		(2) Term inspection supervisor revised to inspector supervisor, definition revised, and term revised throughout
2	Section 1.3	Subparagraph (j) revised
3	1.5.2	(1) Introductory text editorially added
		(2) Subparagraph (f) added
5	Section 2.1	Subparagraph (a) revised
6	Section 2.2	Subparagraph (c)(2) revised
11	Nonmandatory Appendix A	Introductory paragraph designated A-1 and other paragraphs redesignated
12	A-12	(1) Addresses of ASME, ASSP (formerly ASSE), BOCA, and Elevator World revised
		Address of ATBCB deleted
		(3) Addresses of CSA and U.S. Access Board added
14	Figure C-1	Designation and caption added
16	E-2.2	Paragraphs E-2.3 and E-2.4 editorially redesignated as E-2.2.1 and E-2.2.2, respectively
	ORMDOC	

# Part 1 Introduction

# SECTION 1.1 SCOPE

# 1.1.1 Inspectors and Inspector Supervisors

This Standard includes requirements for the qualification, duties, and responsibilities of inspectors and inspector supervisors engaged in the inspection and testing of

- (a) hoisting and lowering mechanisms, equipped with a car or platform, that move between two or more landings. This equipment includes, but is not limited to, the following:
- (1) elevators (ASME A17.1/CSA B44) and, in Canadian jurisdictions, special-purpose personnel elevators (CSA B311)
- (2) platform and stairway chairlifts (ASME A18.1 or CSA B355)
- (b) power-driven stairways and walkways for carrying persons between landings. This equipment includes, but is not limited to, the following:
  - (1) escalators (ASME A17.1/CSA B44)
  - (2) moving walks (ASME A17.1/CSA B44)
- (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, the following:
  - (1) dumbwaiters (ASME A17.1/CSA B44)
- (2) material lifts and dumbwaiters with automatic transfer devices (ASME A17.1/CSA B44)
- (d) hoists and elevators (ANSI/ASSE A10.4 or CSA Z185) that are
  - (1) not an integral part of buildings
- (2) installed inside or outside buildings or structures during construction, alteration, or demolition operations
- (3) used to raise and lower workers and other personnel connected with or related to the structure

NOTE: Nonmandatory Appendix B also includes recommended qualifications and duties of inspector trainees.

### 1.1.2 Certification and Accreditation

Inspectors and inspector supervisors shall be certified in accordance with the requirements of this Standard. The organization that certifies the inspectors and inspector supervisors shall be accredited by an independent internationally or nationally recognized organization that accredits personnel certification bodies to ANSI/ISO/IEC 17024, or its equivalent.

# 1.1.3 Covered Inspections

This Standard applies to any person who is making an inspection to determine compliance with the requirements of ASME A17.1/CSA B44, ASME A17.3, CSA B44.1/ASME A17.5, ASME A18.1 or CSA B355, and ANSI/ASSE A10.4 or CSA Z185. It applies to persons typically employed by, but is not limited to, the following:

- (a) jurisdictional authorities
- (b) independent inspection agencies and elevator consultants
  - (c) insurers of the equipment
- (d) manufacturers, installers, and maintainers of the equipment
  - (e) building owners and managers
- (f) testing laboratories performing field inspections and tests (see also para. 1.1.4)

# 1.1.4 Exempt Inspections

This Standard does not cover personnel engaged in engineering and type testing as covered in Section 8.3 of ASME A17.1/CSA B44, Section 8 of ASME A18.1 or Appendix A of CSA B355, and CSA B44.1/ASME A17.5, including inspection by laboratories in association with these tests.

# SECTION 1.2 DEFINITIONS (18)

Terms used in this Standard shall have the meanings specified in the following definitions. Other terms used shall have the meanings specified in Section 1.3 of ASME A17.1/CSA B44 and Section 3 of ANSI/ASSE A10.4 or CSA Z185.

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.

ASME: The American Society of Mechanical Engineers.

*certified inspector:* a person certified by an accredited certifying organization as meeting the requirements of Part 2 of this Standard.

certified inspector supervisor: a person certified by an accredited certifying organization as meeting the requirements of Part 3 of this Standard.

*certifying organization:* an organization that certifies that persons are qualified to perform the duties of an inspector or inspector supervisor.

CEU: continuing education unit.

 $continuing\ education\ credit:\ one\ instructional\ contact\ hour\ equals\ 0.1\ CEU.$ 

*current edition:* the edition of the ASME A17 documents now being followed by the respective authority having jurisdiction.

effective date:

- (a) as it relates to the certification of documentation, the start date of the most recent certification of the inspector or inspector supervisor.
- (b) as it relates to the issuance and use of the ASME QEI-1 Standard and other ASME standards, generally 6 months after the issuance of the standard or as otherwise stated in the standard.
- (c) as it relates to other standards, the date, as determined by the publishing agency, when the document may be used by jurisdictions adopting the standard.

equivalent field: a field that deals with electronic, electrical mechanical (including hydraulic), and safety principles to the same degree of complexity as found in elevators.

*inspector:* a person meeting the qualifications of Section 2.1 who is engaged in the inspection and testing of equipment within the scope of ASME A17.1/CSA B44.

inspector supervisor: a person certified by an accredited certifying organization as meeting the requirements of Part 3 of ASME QEI-1 and who provides direct supervision or management oversight of QEI-certified inspectors and inspector trainees in the performance of their assigned responsibilities.

*inspector trainee:* a person who is being trained to become an inspector.

latest edition: the latest edition in effect or the specific edition referenced by ASME A17.1/CSA B44, ASME A18.1 or CSA B355, and ANSI/ASSE A10.4 or CSA Z185. Where the referenced standard does not include an effective date and a specific edition is not referenced in ASME A17.1/CSA B44, ASME A18.1 or CSA B355, and ANSI/ASSE A10.4 or CSA Z185, the effective date shall be 6 months from the date of publication. More recent editions may be used.

# SECTION 1.3 QEI REFERENCED STANDARDS (18)

- (a) References to ASME A17.1/CSA B44 refer to the latest edition of ASME A17.1/CSA B44, an American National Standard and a National Standard of Canada, respectively.
- (b) References to ASME A17.2 refer to the latest edition of Guide for Inspection of Elevators, Escalators, and Moving Walks.
- (c) References to the National Electrical Code or Canadian Electrical Code refer to the latest edition of ANSI/NFPA 70, National Electrical Code, or Canadian Electrical Code C22.1.
- (d) References to ANSI/ASSE A10.4 refer to the latest edition of Safety Requirements for Personnel Hoists and Employee Elevators, or references to CSA Z185 refer to the latest edition of the Safety Code for Personnel Hoists.
- (e) References to building codes refer to the latest editions of the following:
  - (1) National Building Code
  - (2) Standard Building Code
  - (3) Uniform Building Code
  - (4) International Building Code
  - (5) National Building Code of Canada
- (f) References to standards regarding accessibility for people with disabilities refer to the latest editions of the following:
- (1) ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities, an American National Standard
- (2) ADAAG, Americans With Disabilities Act Accessibility Guidelines
- (3) ADA/ABAAG, Americans With Disabilities Act/ Architectural Barriers Act Accessibility Guidelines
- (g) References to ASME A17.3 refer to the latest edition of ASME A17.3, Safety Code for Existing Elevators and Escalators, an American National Standard.
- (h) References to CSA B44.1/ASME A17.5 refer to the latest edition of CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment, a National Standard of Canada and an American National Standard.
- (i) References to ASME A18.1 or CSA B355 refer to the latest edition of ASME A18.1, Safety Standard for Platform Lifts and Stairway Chairlifts, or CSA B355, Lifts for Persons With Physical Disabilities.
- (j) References to the Elevator Industry Field Employees' Safety Handbook refer to the latest edition of the Elevator Industry Field Employees' Safety Handbook.
- (k) References to CSA B311 refer to the latest edition of CSA B311, Safety Code for Manlifts. Any reference to a manlift is intended to equate to the special-purpose elevator identified in ASME A17.1/CSA B44.

(*l*) References to International Standard ANSI/ISO/IEC 17024, Conformity assessment — General requirements for bodies operating certification of persons, are to the first edition.

NOTE: See Nonmandatory Appendix A for related documents.

# SECTION 1.4 ACCREDITED CERTIFYING ORGANIZATION REFERENCE STANDARDS

Accredited certifying organizations with limited scope shall be required to hold only those documents that apply to that program.

The following list contains documents that shall be held by each accredited certifying organization:

- (a) current editions of ASME A17.1/CSA B44 and all previous editions with supplements of ASME A17.1, Safety Code for Elevators and Escalators, and CSA B44, Safety Code for Elevators
- (b) current edition with supplements of ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks
- (c) current and all previous editions with supplements of ASME A17.3, Safety Code for Existing Elevators and Escalators
- (d) current edition of ASME A17.4, Guide for Emergency Personnel
- (e) current and all previous editions with supplements of CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment
- (f) all published interpretations of ASME A17 documents from June 14, 1972, through to most current
  - (g) current edition of ASME A17.1 Handbook
- (h) current and all previous editions, beginning with the 1972 edition, of the National Electrical Code and the 1990 edition of the Canadian Electrical Code
- (i) current and all previous editions, beginning with the 1981 edition, of the International, National, Standard, and Uniform Building Codes and the 1990 edition of the National Building Code of Canada
- (j) current edition of ICC/ANSI A117.1 and ADAAG accessibility standards
- (k) latest edition of the Elevator Industry Field Employees Safety Handbook
- (*l*) current and all previous editions with supplements of ASME A18.1, Safety Standard for Platform Lifts and Stairway Chairlifts, or CSA B355, Lifts for Persons With Physical Disabilities
- (m) current and all previous editions with supplements of CSA B311, Safety Code for Manlifts
- (n) current and all previous editions with supplements of ANSI/ASSE A10.4, Safety Requirements for Personnel Hoists and Employee Elevators, or CSA Z185, Safety Code for Personnel Hoists

(o) current edition of International Standard ANSI/ISO/IEC 17024, Conformity assessment — General requirements for bodies operating certification of persons

# SECTION 1.5 CERTIFIED ELEVATOR INSPECTOR AND CERTIFIED ELEVATOR INSPECTOR SUPERVISOR REFERENCE STANDARDS

# 1.5.1 Personal Possession

Inspectors and inspector supervisors shall have in their personal possession the current edition of the documents listed below as required by their respective authority having jurisdiction

- (a) ASME A17.1/CSA B44, Safety Code for Elevators and Escalators
- (b) ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks
- (c) ANSI/NFPA 70, National Electrical Code, or Canadian Electrical Code C22.1
- (d) ASME A17.3, Safety Code for Existing Elevators and Escalators
- (e) ASME A18.1, Safety Standard for Platform Lifts and Stairway Chairlifts, or CSA B355, Lifts for Persons With Physical Disabilities
- (f) ANSI/ASSE A10.4, Safety Requirements for Personnel Hoists and Employee Elevators, or CSA Z185, Safety Code for Personnel Hoists
- (g) Elevator Industry Field Employees' Safety Handbook

### 1.5.2 Access To

Inspectors and inspector supervisors shall have access to the following:

(18)

- (a) CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment
  - (b) building codes
    - (1) National Building Code
    - (2) Standard Building Code
    - (3) Uniform Building Code
    - (4) International Building Code
    - (5) National Building Code of Canada
- (c) standards regarding accessibility for people with disabilities
- (1) ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities
- (2) ADAAG, Americans With Disabilities Act Accessibility Guidelines
- (3) ADA/ABAAG, Americans With Disabilities Act/ Architectural Barriers Act Accessibility Guidelines
  - (d) fire protection codes
- (1) NFPA 13, Standard for the Installation of Sprinkler Systems
  - (2) NFPA 72, National Fire Alarm and Signaling Code

- (e) published interpretations of codes and standards referenced in paras. 1.5.1 and 1.5.2
- (f) ASME A17.6, Standard for Elevator Suspension, Compensation, and Governor Systems

# SECTION 1.6 CREDENTIALS

Inspectors and inspector supervisors shall not state or imply that they are certified by ASME or by an accrediting body.

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# Part 2 Qualifications and Duties of Inspectors

# SECTION 2.1 QUALIFICATIONS

(18)

An inspector shall meet the definition of "elevator personnel" in ASME A17.1/CSA B44, Section 1.3 and have documented training and at least 1 yr experience performing inspections and performing or witnessing tests specified in ASME A17.1/CSA B44, CSA B311, ASME A18.1 or CSA B355, and ANSI/ASSE A10.4 or CSA Z185. Verifiable evidence of training and experience shall be documented with the application for certification to the accredited certifying organization. An inspector shall also verify that he or she meets the following qualifications (see Nonmandatory Appendix B for the recommended qualifications and duties of inspector trainees):

- (a) knowledge of personal safety practices, including, but not limited to, the safety practices contained in the Elevator Industry Field Employees' Safety Handbook necessary to perform the following:
  - (1) acceptance inspections of new construction
- (2) routine and periodic inspections of existing quipment
- (3) inspections of equipment in hazardous environments, where applicable
- (b) familiarity with industry terminology, including the following:
- (1) terms defined and used in ASME A17.1/CSA B44, CSA B311, ASME A18.1 or CSA B355, and ANSI/ASSE A10.4 or CSA Z185
  - (2) terms used in ASME A17.2
- (3) terms defined and used in the National Electrical Code
- (4) administrative terminology used by the jurisdictional authority
- (c) ability to read architectural and installation drawings, including hoistway and machine room layouts
- (d) working knowledge of electrical, electronic, and circuit construction principles, including, but not limited to, the following:
  - (1) voltage, currents, and resistance
  - (2) series and parallel circuits
  - (3) grounding
  - (4) ability to read circuit diagrams
- (e) knowledge of the purpose and function of safety devices in the following locations:
  - (1) machine rooms and machinery spaces
  - (2) hoistways

- (3) on the cars
- (4) pits
- (5) escalators, moving walks, and other related equipment
- (f) working knowledge of mechanical principles as applied to structures, machines, mechanisms, and the effects of traction on ropes and sheaves
- (g) working knowledge of hydraulic principles as applied to the operation of valves, pumps, plungers, piping, and buffers
- (h) working knowledge of the various types of equipment; their code requirements, uses, and limitations; local regulations; and any special problems or applications as included in ASME A17.1 or CSA B44, ASME A17.1/CSA B44, CSA B311 (past and present), ASME A18.1 or CSA B355, ANSI/ASSE A10.4 or CSA Z185, and ASME QEI-1 and awareness of published interpretations of the Standards Committees
  - (1) classifications of usage
    - (-a) passenger elevators
    - (-b) freight elevators (Classes A, B, C1, C2, and C3)
    - (-c) private residence elevators
    - (-d) sidewalk elevators
    - (-e) special-purpose personnel elevators
    - (-f) inclined elevators
  - (-g) material lifts and dumbwaiters with automatic transfer devices
    - (-h) dumbwaiters
    - (-i) elevators used for construction
    - (-j) personnel hoists and employee elevators
    - (2) classifications of driving means
      - (-a) traction
      - (-b) winding drum
  - (-c) hydraulic (direct-plunger hydraulic, electro-hydraulic, maintained-pressure hydraulic, and roped hydraulic)
    - (-d) screw machine
    - (-e) rack and pinion
    - *(-f)* hand
    - (-g) belt and chain drives
    - (3) escalators and moving walks
  - (4) inclined and vertical wheelchair lifts and stairway chairlifts (ASME A17.1b-1998 and earlier)
  - (i) working knowledge of the functions and operation of elevator systems, including machines, motors, governors, and other machine room equipment; controllers;

position devices; door operator systems; hoistway systems; safety system testing and functions; pit equipment; escalators; moving walks; electrical devices; and hydraulics

- (j) working knowledge of inspection and testing procedures as described in ASME A17.2 and awareness of published interpretations of those procedures
- (k) working knowledge of applicable building, fire, electrical, and accessibility codes
- (1) demonstrated ability to perform the duties specified in Section 2.2
- (m) working knowledge of the requirements of ASME A17.3 and awareness of published interpretations of ASME A17.3
- (n) awareness of CSA B44.1/ASME A17.5 and Standards Committee-published interpretations to the extent that it is specified in ASME A17.1/CSA B44 and ASME A18.1 or CSA B355
- (o) must have in his or her personal possession the latest edition of ASME QEI-1 and access to Standards Committee-published interpretations, as well as the current editions of the documents required by the respective authority having jurisdiction and listed in para. 1.5.1
- (p) must have access to current editions of documents referenced in para. 1.5.2

# SECTION 2.2 DUTIES

The duties of an inspector include the following:

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- (a) making acceptance inspections and witnessing tests 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 therein
- (b) making routine or periodic inspections and witnessing tests of existing installations to determine that the equipment is in apparent safe operating condition, has not been altered except in conformity to the applicable code or regulations, and performs in accordance with test requirements
- (c) reporting the results of the inspection and testing in accordance with the appropriate administrative procedures and the following:
- (1) The certified inspector's report shall include a clear description of the scope of the inspection performed, including the type of inspection (acceptance, periodic, or routine) and whether the inspection was performed in accordance with the applicable requirements of ASME A17.1/CSA B44, Section 8.10 or Section 8.11; ASME A18.1, Section 10, or CSA B355, Appendix A2; or ANSI/ ASSE A10.4, Section 26, or CSA Z185, Section 24. If any other type of inspection was performed, the report shall include a complete description of the scope of the inspection. The ASME checklist forms as published by ASME for electric elevators, hydraulic elevators, and esca-

lators and moving walks shall only be used when the inspection complies with the requirements in ASME A17.1/CSA B44, Section 8.10 or Section 8.11.

- (2) The report shall be signed by the certified inspector and shall include his or her certification number and certifying agency. Electronic or written signatures are acceptable to meet this requirement.
- (3) All Code deficiencies noted in the report shall include a reference to the applicable code and rule number(s).
- (4) The report shall include the date and time that the inspection was conducted.
- (d) maintaining his or her personal copy of ASME QEI-1 to be the latest edition, as well as the current edition of documents referenced in para. 1.5.1

# SECTION 2.3 MAINTENANCE OF QUALIFICATION

In order to maintain qualification as an elevator inspector, an individual shall

- (a) become familiar with the application of new technology, including in the electronic and material fields.
- (b) maintain knowledge of current local administrative or operating procedures necessary to discharge duties.
- (c) maintain knowledge of recent revisions and awareness of published interpretations of ASME A17.1/CSA B44, ASME A17.2, ASME A17.3, CSA B311, ASME A18.1 or CSA B355, ANSI/ASSE A10.4 or CSA Z185, and awareness of CSA B44.1/ASME A17.5 to the extent specified in ASME A17.1/CSA B44 and ASME A18.1 or CSA B355, as well as the applicable requirements in building, fire, electrical, and accessibility codes.
- (d) comply with the code of ethics (conduct) established by the accredited certifying organization (see Section 4.1).
- (e) have in his or her possession the latest edition of ASME QEI-1 and published interpretations as well as the current edition of documents referenced in para. 1.5.1, plus access to the documents referenced in para. 1.5.2. The inspector shall attest to compliance with the above in writing or by electronic submission upon certification and annual renewal of certification.
- (f) obtain 1.0 continuing education unit (CEU) on an annual basis by participating in continuing education and professional development activities acceptable to the accredited certifying organization. Continuing education credit may be awarded for a wide variety of activities that involve training, education, or other endeavors wherein the objective includes achieving relevant professional knowledge, skills, and abilities beyond those required for initial certification.

# (1) Accruing CEUs

(-a) During the 12-month period prior to the renewal application date, the inspector shall accrue the

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CEUs required. The inspector shall keep documents and records of each activity during the renewal period.

- (-b) An affidavit shall be submitted along with the certification renewal confirming that the information is accurate. A renewal applicant shall retain documentation for 2 yr from the date of the renewal. The documentation for any activities relating to CEUs shall be submitted upon request to the accredited certifying organization.
- (2) Acceptable Continuing Education Credit and Professional Development Activities
- (-a) participation as a student in a seminar or technical session delivered by an accredited certifying organization, or approved by an accredited certifying organization and delivered by a related professional association, state code enforcement licensing agency, standards-writing organization, or any related federally sponsored program. Each clock-hour of attendance is equivalent to 0.1 CEU.
- (-b) touring of manufacturing or testing facilities directly related to elevator technology being presented in an associated classroom training session. A maximum of 0.5 CEU may be credited per annual renewal period.
- (-c) successful completion of a self-study course related to elevator technology and its related disciplines, offered by an accredited certifying organization, state code enforcement licensing agency, or accredited academic institution equivalent to not more than 0.2 CEU per annual renewal period.
- (-d) successful completion of an online renewal update course shall be acceptable for not more than 0.2 CEU per annual renewal period.
- (-e) instruction of a seminar or technical session delivered for a related professional association, state code enforcement licensing agency, accredited certifying organization, standards-writing organization, or any related federally sponsored program shall be acceptable for 0.1 CEU for each clock-hour of instruction delivered.

- (-f) serving as an officer, member, or alternate on an ASME A17.1 or A18.1 Committee (Standards Committee, Subcommittee, Working Group, Project Team, or Ad Hoc Committee), CSA B355 or CSA B44 Committee (Subcommittee, Working Group, Project Team, or Ad Hoc Committee), ANSI/ASSE A10.4 Committee (Subcommittee, Working Group, Project Team, or Ad Hoc Committee), or CSA Z185 Committee (Subcommittee, Working Group, Project Team, or Ad Hoc Committee) for 1 yr shall be acceptable for 0.1 CEU per committee meeting attended.
- (-g) attending an ASME A17.1/CSA B44, ASME A18.1, or CSA B355 Committee (Standards Committee, Subcommittee, Working Group, Project Team, or Ad Hoc Committee) meeting shall be acceptable for 0.05 CEU per committee meeting attended.
- (-h) attendance at in-house training during employment as an inspector or inspector supervisor directly related to the performance of duties other than ASME Code issues shall be acceptable for 0.1 CEU per clock-hour of attendance, not to exceed 0.4 CEU per annual renewal period.
- (-i) participation as a student in an accredited academic institution in coursework related to the elevator industry in the mechanics, electrical, electronic, and hydraulic fields shall be acceptable for 0.1 CEU for each academic credit, not to exceed 0.6 CEU per certification year.
- (-j) publication of a paper, book, or technical article for an academic institution or professional trade journal related to elevator devices shall be acceptable for 0.3 CEU per published article, not to exceed 0.6 CEU annually.
- (-k) participation in an organization's internal management meetings is not eligible for equivalent CEUs.

# Part 3 Qualifications and Duties of Inspector Supervisors

# SECTION 3.1 QUALIFICATIONS

An inspector supervisor shall have the qualifications of Section 2.1 and the following:

- (a) demonstrated aptitude for leadership, administration, and management (should acquire management training within the first year).
- (b) demonstrated in-depth knowledge of the applicable codes.
- (c) demonstrated ability to perform the administrative and technical duties in Section 3.2. An inspector supervisor shall also meet one of the following experience requirements:
- (1) 5 yr experience as an elevator inspector or in a job in an equivalent field at an equivalent level, 2 yr of which must have been spent dealing directly with elevator inspections.
- (2) 4 yr experience as an elevator inspector and a diploma or certificate of successful completion from a technical/vocational school (including high school) in an equivalent field.
- (3) 3 yr experience as an elevator inspector and a bachelor's degree in an equivalent field.
- (4) 2 yr experience as an elevator inspector and a bachelor's degree in engineering from an accredited school in an equivalent field.
- (d) in his or her personal possession, the latest edition of ASME QEI-1, as well as the current editions of the documents referenced in para. 15.1
- (e) workplace access to current editions of the documents referenced in para. 1.5.2.

# SECTION 3.2 DUTIES

# 3.2.1 Administrative

The administrative duties of an inspector supervisor include, but are not limited to, the following:

- (a) scheduling of inspections and assignments
- (b) training of inspectors and, where appropriate, others requiring elevator safety familiarity
  - (c) developing a budget
  - (d) selecting new inspectors and trainees

- (e) maintaining and analyzing records that include records of inspections, accident reports, and inspector performance, including inspector compliance with the requirements of Section 2.2
- (f) handling personnel matters, such as performance appraisals and disciplinary actions
- (g) handling public relations matters and serving as a liaison to concerned parties
  - (h) mediating disputes
- (i) assuring that inspectors under his or her supervision perform their duties in compliance with the requirements of Section 2.2
- (*j*) maintaining his or her personal copy of ASME QEI-1 to be the latest edition, as well as the current edition of the documents referenced in para. 1.5.1

# 3.2.2 Technical

- The technical duties of an inspector supervisor include, but are not limited to, the following:
- (a) reviewing inspection reports and ensuring enforcement of legally adopted requirements
- (b) reviewing applications for waivers and variances and making recommendations to the proper authorities as required
  - (c) mediating disputes
- (d) answering questions on Code and obtaining formal interpretations from code-developing organizations
- (e) actively participating in relevant code-developing committees on the national, regional, or local level
  - (f) assuring review of elevator plans and drawings
  - (g) investigating complaints and accidents
- (h) helping to develop local policies and laws and advocating adoption of the latest national codes

# SECTION 3.3 MAINTENANCE OF QUALIFICATION

To maintain the qualification as an inspector supervisor, an inspector supervisor shall

(a) conform to the requirements of Section 2.3. In addition, candidates renewing a supervisory certification shall have an additional 0.3 CEU in classroom coursework offered by an accredited certifying organization, state code enforcement licensing agency, or accredited

academic institution equivalent related to management or supervision techniques.

- (b) attend or conduct at least one professional-level seminar or workshop per year related to one or more of the above duties.
- (c) spend a minimum of 10% of work time with the inspectors in the field or demonstrate a combination of providing training, administration, or support for QEI

inspectors actively engaged in the performance of inspections.

(d) have in his or her possession the latest edition of ASME QEI-1, as well as the current edition of the documents referenced in para. 1.5.1, plus workplace access to the documents referenced in para. 1.5.2. The inspector supervisor shall attest to compliance with the above in writing or by electronic submission upon certification and annual renewal of certification.

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# Part 4 **Requirements for Accredited Certifying Organizations**

# **SECTION 4.1 CODE OF ETHICS (CONDUCT)**

Accredited certifying organizations shall establish a code of ethics (conduct), a policy on conflict of interest, and a means for implementation and enforcement. Nonmandatory Appendices E, F, and G provide guidance to satisfy the requirements in this Section for a code of ethics (conduct).

# **SECTION 4.2** PUBLIC DISCLOSURE OF INSPECTORS' AND INSPECTOR SUPERVISORS' IDENTITIES

Accredited certifying organizations shall maintain a current list, including addresses, of all certified persons. A list shall be made available to the public and shall be posted on the accredited certifying organization's website. The list shall contain each inspector's or supervisor's name, state of residence, certification a minima a minima tuni pri ciick to view the full pri ciick to view the full pri chick to view the ful number, and expiration date. The public list shall be updated a minimum of every 30 days.

# NONMANDATORY APPENDIX A RELATED DOCUMENTS

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### A-1 GENERAL

This Appendix includes descriptions of internationally, nationally, or regionally recognized documents pertinent to the inspection of elevators, escalators, and related equipment. The jurisdictional authority should be consulted to determine whether these codes and standards are legally in force, the applicable editions, and the existence of any modifications or additions to the requirements.

# **A-2 ELEVATOR CODES**

ASME A17.1/CSA B44, Safety Code for Elevators and Escalators, covers the design, construction, operation, inspection, testing, maintenance, alteration, and repair of elevators, escalators, dumbwaiters, moving walks, material lifts and dumbwaiters with automatic transfer devices, vertical and inclined wheelchair lifts, and stairway chairlifts (publisher: ASME).

ASME A17.3, Safety Code for Existing Elevators and Escalators, covers retroactive requirements for electric and hydraulic elevators, and for escalators (publisher: ASME).

CSA B311, Safety Code for Manlifts, specifies minimum requirements for the design, construction, installation, operation, inspection, testing, alteration, and maintenance of permanently installed manlifts for the vertical transportation of authorized personnel and, where authorized, their tools and equipment such manlifts are typically installed in structures such as grain elevators, radio antennas, bridge towers, underground facilities, dams, power plants, and pulp mills (publisher: CSA).

ANSI/ASSE A10.4, Safety Requirements for Personnel Hoists and Worker Elevators, covers the design, construction, installation, operation, inspection, testing, maintenance, alteration, and repair of hoists and elevators that are not an integral part of buildings and are installed inside or outside buildings or structures during construction, alteration, and demolition operations and are used to raise and lower workers and other personnel connected with or related to the structure (publisher: ASSP).

CSA Z185, Safety Code for Personnel Hoists, covers structures and hoists that are not a permanent part of buildings, structures, or other works and that are used during construction, alteration, or demolition to raise

and lower persons and/or materials connected with or related to a building project (publisher: CSA).

# **A-3 ELECTRICAL CODES**

ANSI/NFPA 70, National Electrical Code, or Canadian Electrical Code C22.1 covers the installation of electric conductors and equipment in buildings and other structures. National Electrical Code Article 620 and Canadian Electrical Code Section 38 pertain specifically to elevators, escalators, and related equipment (publishers: NFPA and CSA).

ASME A17.1/CSA B44, Safety Code for Elevators and Escalators, requires electrical equipment to be certified to CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment (publishers: ASME and CSA).

### A-4 BUILDING CODES

The following are the most widely used building codes in the United States and Canada. They include requirements relative to the construction of hoistways, venting, standby (emergency) power, and means of egress.

- (a) International Building Code (publisher: ICC)
- (b) National Building Code (publisher: BOCA)
- (c) Standard Building Code (publisher: SBCCI)
- (d) Uniform Building Code (publisher: ICBO)
- (e) National Building Code of Canada (publisher: NBCC)

# A-5 ACCESSIBILITY STANDARDS

The following three standards include specifications for making elevators accessible to, and usable by, people with disabilities:

- (a) ICC/ANSI A117.1, American National Standard, Accessible and Usable Buildings and Facilities (publisher: ICC)
- (b) ADAAG, Americans With Disabilities Act Accessibility Guidelines (publisher: U.S. Access Board)
- (c) ADA/ABAAG, Americans With Disabilities Act/ Architectural Barriers Act Accessibility Guidelines (publisher: U.S. Access Board)

### A-6 FIRE PROTECTION CODES

The following codes are referenced in ASME A17.1/CSA B44 and include requirements relative to emergency operations and equipment located in hoistways and machinery spaces:

- (a) NFPA 13, Standard for the Installation of Sprinkler Systems
  - (b) NFPA 72, National Fire Alarm and Signaling Code

# A-7 INSPECTORS' GUIDE

ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks, provides recommended inspection and testing procedures for elevators, escalators, and moving walks, based on the requirements of ASME A17.1/CSA B44. It also includes pertinent information on the inspection of equipment installed under earlier editions of ASME A17.1/CSA B44 and other information useful to the inspector.

# A-8 INTERPRETATIONS OF ASME A17 PUBLICATIONS

Interpretations of the various ASME A17 publications are issued periodically. The interpretations of ASME A17.1 and ASME A17.2, approved by the ASME A17 Committee from June 14, 1972, through June 14, 1979, were published in a book in 1980. A second book of interpretations, covering the period from June 1979 through May 1989, was published in 1989. Both interpretation books are available from ASME. From 1981 through 2016, interpretations were published with each new edition and supplement of the applicable standard (publisher: ASME).

# A-9 PLATFORM LIFT AND STAIRWAY CHAIRLIFT STANDARDS

ASME A18.1, Safety Standard for Platform Lifts and Stairway Chairlifts, and CSA B355, Lifts for Persons With Physical Disabilities, cover 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. The devices have a limited vertical travel, operating speed, and platform area.

### A-10 HANDBOOKS

The following handbooks augment the applicable codes with comments, diagrams, and illustrations that are intended to clarify the intricate requirements of the codes. They are especially useful in the training of new inspectors.

(a) Handbook on ASME A17.1/CSA B44, Safety Code for Elevators and Escalators (publisher: ASME)

- (b) The National Electrical Code Handbook (contains the complete text of the National Electrical Code; publisher: NFPA)
- (c) ADA and Building Transportation, A Handbook on Accessibility Regulations for Elevators, Wheelchair Lifts, and Escalators (publisher: Elevator World, Inc.)
- (d) Elevator Industry Field Employees' Safety Handbook (publisher: Elevator World, Inc.)

### A-11 CONFORMITY ASSESSMENT STANDARD

International Standard ANSI/ISO/IEC 17024, Conformity assessment — General requirements for bodies operating certification of persons is a well-established authoritative standard for accrediting organizations that certify people.

# A-12 PROCUREMENT INFORMATION

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The preceding documents can be purchased from their respective publishers as listed below.

American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036 (www.ansi.org)

The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990 (www.asme.org)

The American Society of Safety Professionals (ASSP) [formerly the American Society of Safety Engineers (ASSE)], 520 N. Northwest Highway, Park Ridge, IL 60068 (www.assp.org)

Building Officials and Code Administrators (BOCA), 4051 W. Flossmoor Road, Country Club Hills, IL 60478 (www.iccsafe.org)<sup>1</sup>

Canadian Standards Association (CSA), 178 Rexdale Boulevard, Toronto, Ontario M9W 1R3, Canada (www.csagroup.org)

Elevator World, Inc., 354 Morgan Avenue, Mobile, AL 36606 (www.elevatorworld.com)

International Code Council (ICC), 500 New Jersey Avenue, NW, Washington, DC 20001 (www.iccsafe.org)

International Conference of Building Officials (ICBO)<sup>1</sup>

National Fire Protection Association (NFPA),1 Batterymarch Park, Quincy, MA 02169-7471 (www.nfpa.org)

Southern Building Code Congress International (SBCCI)<sup>1</sup>

U.S. Access Board, 1331 F Street NW, Suite 1000, Washington, DC 20004–1111 (www.access-board.gov)

<sup>&</sup>lt;sup>1</sup> Now available from International Code Council (ICC), 500 New Jersey Avenue, NW, Washington, DC 20001.

# **NONMANDATORY APPENDIX B** RECOMMENDED QUALIFICATIONS AND DUTIES OF INSPECTOR TRAINEES

# **B-1 QUALIFICATIONS**

An inspector trainee should have the following qualifications:

- (a) ability in written and oral communication as demonstrated by one of, or a combination of, the following:
  - (1) high school diploma or certificate of equivalency
  - (2) aptitude test
  - (3) job experience
- (b) ability to understand mathematical, mechanical, and electrical principles as demonstrated by one of, or a combination of, the following:
  - (1) aptitude test
  - (2) training program
  - (3) technical/vocational school
  - (4) school of higher learning
  - (5) job experience
  - ASIMENO RIMIDO C. COM. Click (c) physical ability to perform duties in a safe manner

# **B-2 DUTIES**

The duties of an inspector trainee include, but are not limited to, the following:

- (a) acquiring a knowledge of and observing all personal safety practices
- (b) acquiring knowledge and experience to meet the qualifications of inspector, as described in Section 2.1
- (c) performing tasks assigned by an inspector or inspector supervisor
- (d) studying Code requirements related to tasks performed and as assigned by the inspector or inspector supervisor
- (e) studying basic mechanical and electrical principles as they apply to assignments
- $\stackrel{\triangleright}{(f)}$  clearly and accurately recording the findings of the inspection as directed by the inspector or inspector supervisor
- (g) performing inspections under the direct supervision of an inspector or inspector supervisor
- (h) actively participating in selected meetings, seminars, and education programs

# **NONMANDATORY APPENDIX C SAMPLE CERTIFICATION CARD**

See Figure C-1.

### Figure C-1 Sample Certification Card (18)

Front

[ACCREDITED CERTIFYING ORGANIZATION'S NAME]

Photograph Certified Person

Click to view the full PDF of ASME OF LAND VIEW the full PDF of ASME OF LA This is to certify that [Certified Person's Name] is qualified as an [Elevator Inspector/Insp. Supvr.]

Certification #

Effective Date:

**Expiration Date:** 

[Authorized Signature]

The [Accredited Certifying Organization's Name] hereby certifies that the person to whom this card is issued has fulfilled the requirements of the ASME QEI-1 Standard for the Qualification of Elevator Inspectors.

The [Accredited Certifying Organization's Name] has been accredited by [name of accrediting body] to issue this certification.

[Accredited Certifying Organization's Name]

[Accredited Certifying Organization's Address]

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# NONMANDATORY APPENDIX D MODEL LANGUAGE FOR ENFORCEMENT AUTHORITIES TO RECOGNIZE CERTIFIED INSPECTORS AND INSPECTOR SUPERVISORS FROM ACCREDITED CERTIFYING **ORGANIZATIONS**

Inspectors and inspector supervisors shall meet the minimum qualifications set forth in ASME QEI-1.

Inspectors and inspector supervisors shall be certified at and instanting and by an accredited certifying organization that certifies inspectors and inspector supervisors, in accordance with the requirements set forth in ASME QEI-1.