2019 Edition

ASME A17.1/CSA B44 Handbook

ASME A17.1-2019, Safety Code for Elevators and Escalators

CSA B44:19, Safety Code for Elevators

Kevin L. Brinkman, PE

The American Society of Mechanical Engineers

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INTRODUCTION

This is the 13th edition of the ASME A17.1/CSA B44 Handbook. The idea for the Handbook came from Ed Donoghue and has grown from that simple idea to the valued resource we all know today. The history behind the Handbook is important, so I have included Mr. Donoghue's Introduction from the 2013 edition to provide that background.

> *In 1976 I was appointed to the A17 Editorial Committee with Al Land (Chair), William "Bill" Crager (A17 Chair), and Manuel Gutierrez (ASME Secretary). At the time, the A17 Editorial Committee was charged with a total editorial review of the A17.1 Code for the 1978 edition. Every Rule was scrutinized and editorially revised for clarification when appropriate.*
>
> *The Committee met weekly for this massive project. To avoid unintentionally changing the content of a Rule, it was essential that the Committee members had a clear understanding of the technical requirements and their intent. Bill Crager had a long history as a member of the A17 Committee, including 15 years as Committee Chairman. At the meetings, the members would look to Bill for his recollection of why a Rule was in the Code. Bill possessed an encyclopedic knowledge of the history of A17 requirements. His typical response would start by stating, "At the (date) A17 Meeting, the Committee approved the Rule for the following reason." At our next meeting, Bill would arrive with documents from his home file backing up his recollection — including the meeting dates.*
>
> *I quickly came to the conclusion that the "Bill Cragers" on the A17 Committee were mostly retired or would be retiring from Committee activities over the next few years. Their expansive knowledge of the past committee work and the rationale for the A17.1 Rules would no longer be available. This would be a loss not only to the A17 Committee but also to the users of the Code.*
>
> *I concluded that a Handbook for A17.1 would be an invaluable addition to the A17.1 Code, as the NEC® Handbook was an invaluable supporting document for the NEC®. I approached Mel Green, then director of ASME Codes and Standards, with a proposal to write an ASME A17.1 Handbook. He thought the idea had merit, and the first edition of the A17.1 Handbook was published at the time of publication of the 1981 edition of the A17.1 Code. A new edition of the Handbook was published thereafter with each new edition of the A17.1 Code and later the A17.1/B44 Code..." [Ed Donoghue]*

With each passing year, we see experts in the industry retire and we welcome new faces to the Code development process. The Handbook, much like the Code itself, is a living document. Each edition updates and expands upon the information provided in previous editions. I consider it a privilege to author this edition of the Handbook and hope to continue the tradition and build on the foundation that Mr. Donoghue and so many others have helped to create.

—Kevin Brinkman

FOREWORD

ASME A17.1/CSA B44, Safety Code for Elevators and Escalators, is written by a committee of technically qualified persons with a concern and competence in the subject within the Committee's scope and a willingness to participate in the work of the Committee. The ASME A17 Standards Committee is restricted to a maximum of 35 members of which no more than one-third can be from any single interest category. This requirement serves to ensure balance in the consensus process. In addition, there are over 300 members serving on the Regulatory Advisory Council, National Interest Review Group, Technical Committees, Administrative Committees, and Ad Hoc Committees. Technical revisions to ASME A17.1/CSA B44 are also submitted to the CSA B44 Technical Committee for their concurrence.

This Handbook incorporates the harmonization of ASME A17.1, *Safety Code for Elevators and Escalators*, and CSA B44, *Safety Code for Elevators*. Since 2000, editions of the CSA B44 and ASME A17.1 Codes have been identical, except for application deviations noted in CSA B44. Starting with ASME A17.1-2007/CSA B44-07, a single Code book has been published for use in the United States and Canada. A joint effort of the CSA B44 Technical Committee and the ASME A17 Standards Committee to harmonize requirements between CSA B44 and ASME A17.1 was started in the mid-1990s. The harmonization process compared and studied differences between the two codes over a number of years through discussions by joint ASME/CSA working groups. A harmonized requirement was formulated and proposed for review and approval through formal balloting by both the ASME A17 Standards Committee and the CSA B44 Technical Committee. If any member did not approve a proposed requirement, the member's rationale for disapproval was returned to the working committee for resolution. The working committee either revised the proposal or provided a reason for rejecting the comment. The revised proposal or rejection was once again balloted until negatives were resolved or the Chairman of the ASME A17 Standards Committee ruled consensus had been achieved. Many requirements went through multiple ballots before a consensus was achieved. As a result, requirements in ASME A17.1-2000 and CSA B44-00 and later editions of the Code are different from corresponding Rules and Clauses in the previous editions of ASME A17.1 and CSA B44. The harmonization process identified technical and editorial problems with requirements in both codes and in such cases formulated new requirements. The ASME A17 and CSA B44 Committees recognized that not all requirements could be fully harmonized, in particular requirements based on, or that depended on, other national codes or regulations, such as building, electrical, and fire codes. In such cases, two separate requirements were formulated, one for "jurisdictions enforcing NBCC" (meaning National Building Code of Canada) and another for "jurisdictions not enforcing NBCC" (meaning the United States).

In cases where no agreement on a requirement could be achieved or the publication schedule precluded continuation of discussions, the CSA B44 Technical Committee created Canadian exceptions from the ASME A17.1 requirements, known as Canadian deviations. These Canadian deviations appeared in the CSA B44-00 and CSA B44-04 editions. Both committees continue the harmonization process and endeavor to reduce the number of Canadian deviations in future editions. By January 2006, the list of deviations had shrunk to the point where the ASME A17 Standards Committee felt that all could be incorporated in the next edition of ASME A17.1, with an objective of publishing a single Safety Code for Elevators and Escalators for use in both the United States and Canada. That objective was met with the publication of ASME A17.1-2007/CSA B44-07.

ASME and CSA recognize that the Code must be written in a form suitable for enforcement by state, municipal, and other jurisdictional or regulatory authorities often referred to in the United States as "authorities having jurisdiction (AHJ)" and in Canada as "regulatory authorities (RA)"; as such, the text is concise, without examples or explanations. It is also recognized that this Code cannot cover every situation nor can it cover new technology before it is developed and field experience is gained. For these reasons, ASME agreed that a handbook would be useful to augment the Code by providing a commentary on the Code requirements.

This Handbook contains rationale for ASME A17.1/CSA B44 Code requirements along with explanations, examples, and illustrations of the implementation of requirements. In addition, it contains excerpts from other nationally recognized standards referenced by the Code. This information is intended to provide users of ASME A17.1/CSA B44 with a better understanding of, and appreciation for, the requirements. The net result should be increased safety for owners, manufacturers, installers, maintainers, consultants, the inspection community, and users of equipment covered by ASME A17.1/CSA B44.

Commentary in this Handbook was compiled from ASME A17 Committee minutes, correspondence, and interpretations, as well as conversations with past and present ASME A17 and CSA B44 committee members.

The original intent for requirements in ASME A17.1 and CSA B44 may be obscure in the Committee's records. Therefore, this Handbook will convey, through text, examples of calculations, tables, and illustrations, the end result of Code requirements as applied to equipment installed today where the original intent cannot be found. It should not be construed that examples and illustrations in this Handbook are the only means of complying with ASME A17.1/CSA B44 Code requirements, or that all illustrations necessarily represent all requirements contained in the Code. Some illustrations simply reflect general industry or specific company practices. With information of this type, it is hoped the reader will develop a better understanding of, and appreciation for, requirements in ASME A17.1/CSA B44.

Commentary contained in this Handbook is the opinion of the authors (both current and previous). It does not necessarily reflect the official position of ASME, the ASME A17 Standards Committee for Elevators and Escalators, CSA, or the CSA B44 Technical Committee. When an official interpretation of an ASME A17.1/CSA B44 requirement is required, the user should submit a request for interpretation to the Secretary of the ASME A17 Standards Committee in accordance with instructions in the Preface to ASME A17.1/CSA B44. Comments and suggestions for this and future editions of the ASME A17.1/CSA B44 Handbook should be addressed to:

Secretary, A17 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, New York 10016-5990
http://go.asme.org/Inquiry

ASME Elevator and Escalator Courses. ASME Professional Development is a leader in top-quality elevator and escalator education. Courses range from an introduction to elevators and escalators, inspection techniques, equipment modernization code requirements, and maintenance evaluation, to an in-depth review of ASME A17.1/CSA B44 using this Handbook as the course text. The course titled *Introduction to the Maintenance and Inspection of Elevators and Escalators (PD100)* is recommended as a prerequisite for persons with little or no experience in the industry. Other courses meet the needs of those who already have elevator and escalator experience as well as those who have an extensive background in the industry. To obtain a catalog of course material, contact:

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ABBREVIATIONS

Throughout this Handbook, references are made to the ASME A17 Standards Committee and CSA B44 Technical Committee. The term "ASME A17/CSA B44 Committee" is used for that purpose. References are also made to ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators*. The term "ASME A17.1/CSA B44" is used for that purpose. The reader should keep in mind the reference to the "ASME A17/CSA B44 Committee" is not intended to imply there is only one committee.

METRIC

The ASME A17.1/CSA B44 Handbook includes both metric and imperial units. Both are included in the commentary.

ASME A17.1/CSA B44 CODE REVISIONS

A summary of code changes from ASME A17.1-2016/CSA B44-16 through ASME A17.1-2019/CSA B44:19 along with approved balloted rationale are in the front of this Handbook. Revisions are made periodically to the Code to incorporate necessary or desirable changes determined from experience gained from the application of the procedures, and address developments in the elevator art. Approved revisions are published periodically. See Diagram 1 in the Foreword for the flowchart of the ASME A17 revision process. The Committee welcomes proposals from Code users. Such proposals should be as specific as possible, citing Section number(s), proposed wording, pertinent documentation, and a detailed description of the reasons for the proposal. Proposed revisions should be sent to:

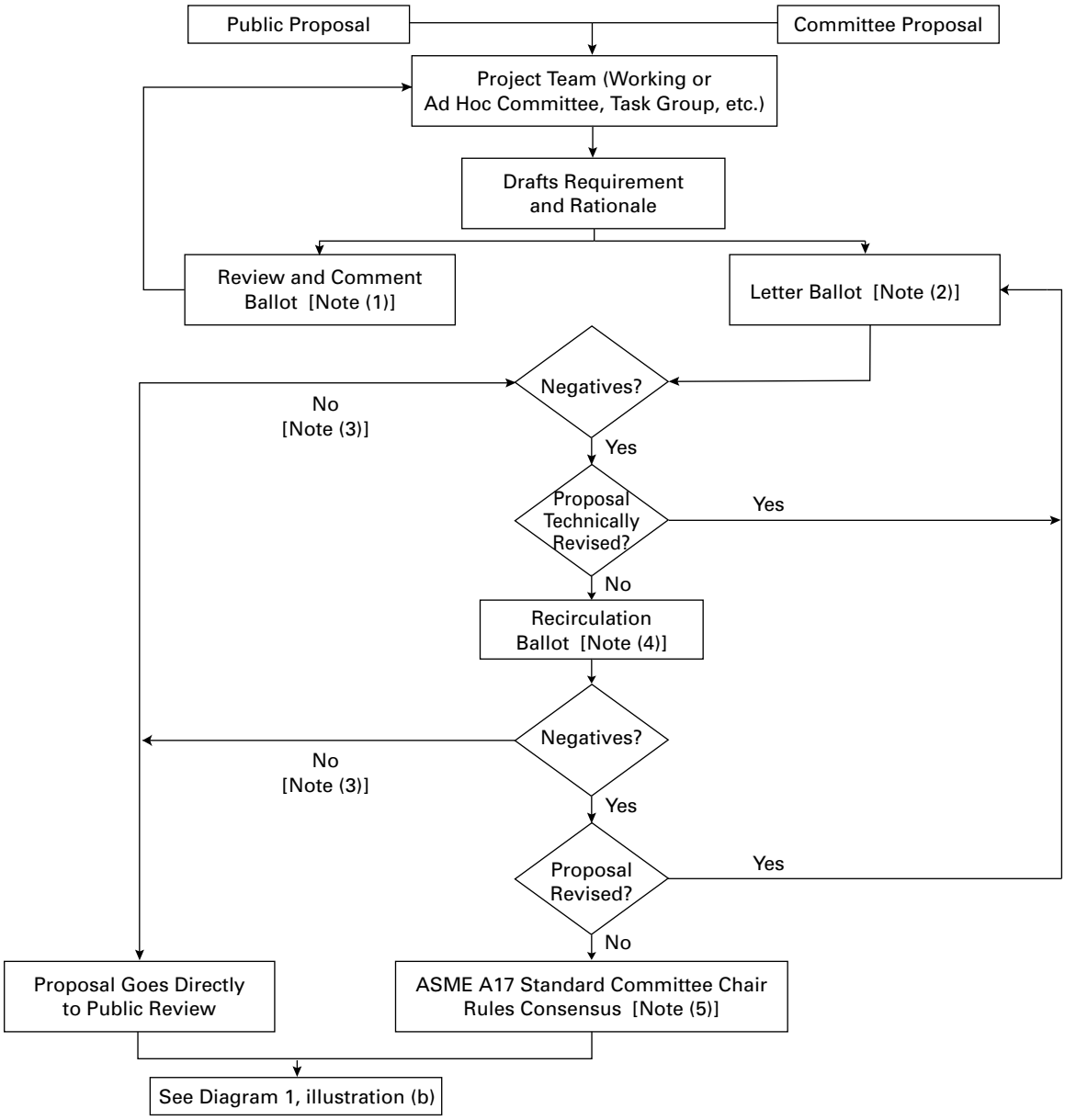
Secretary, A17 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

Revisions to ASME A17.1/CSA B44 occur after an intense formal process ensuring due process for all affected parties. The ASME A17 process is illustrated in Diagram 1, illustrations (a) and (b). The CSA process is the same as illustrated in Diagram 1.

ERRATA

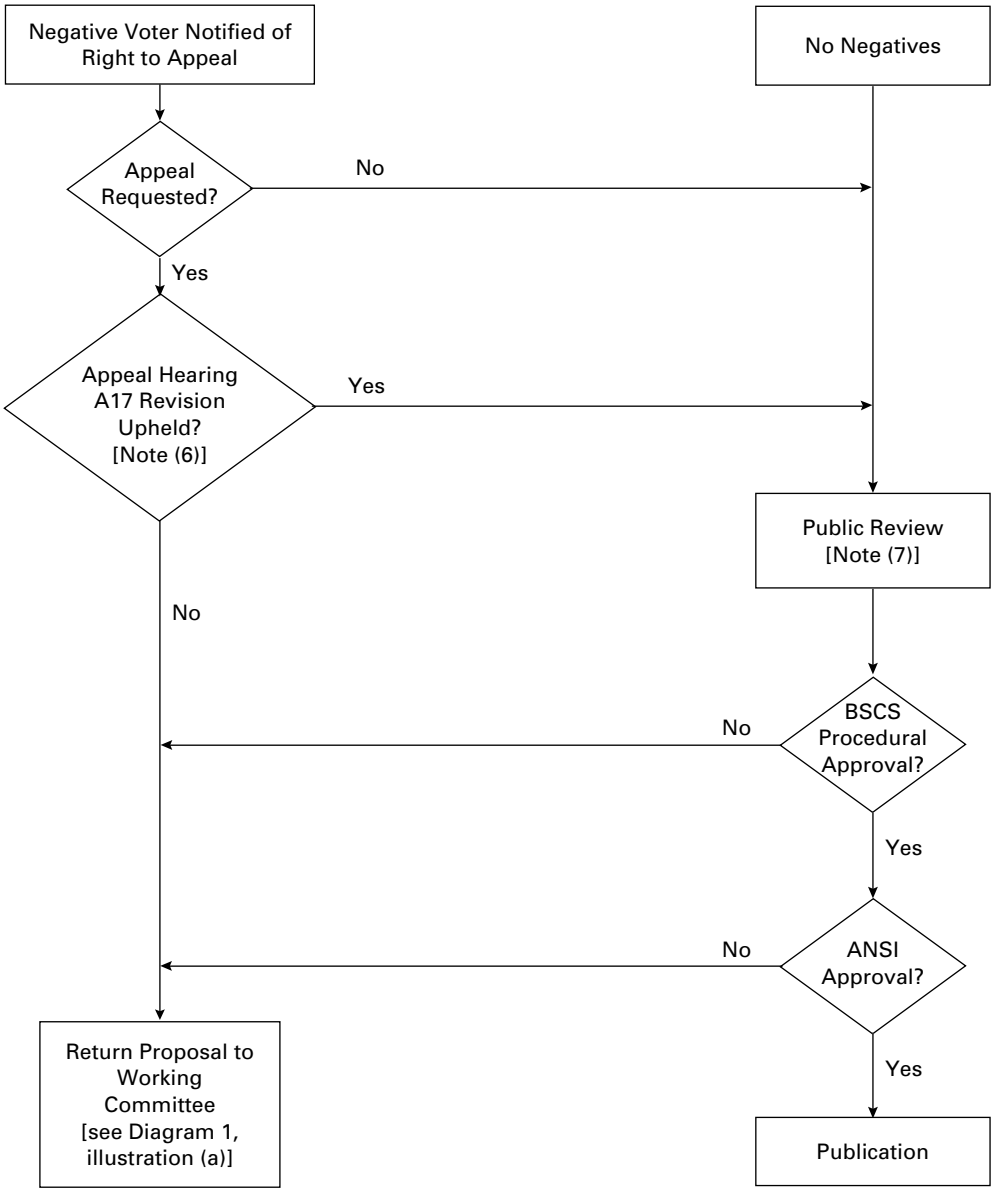
Errata to the current ASME A17.1/CSA B44 are published on the ASME A17 Committee page. Errata to prior editions of the Code are not readily available. The errata to ASME A17.1-2016/CSA B44-16 can be found in this Handbook within the Summary of Code Changes.

Diagram 1 ASME A17 Technical Revision Flowchart



(a)

Diagram 1 ASME A17 Technical Revision Flowchart (Cont'd)



(b)

NOTES:

(1) Project team determines who receives Review and Comment Ballot, e.g., Working Committee only, other Working Committees, ASME A17 Standards Committee, NIRG, RAC, and/or CSA B44.

(2) Letter Ballot of ASME A17 Standards Committee, NIRG, RAC, and CSA for distribution to CSA B44 Committee.

(3) All comments must be addressed. Editorial revision allowed with ASME A17 Standards Committee approval.

(4) Secretary contacts all negative voters (this includes ASME A17, CSA B44, RAC, NIRG) and asks them if they want to withdraw their negatives and notifies them of their rights to appeal. If all negatives are withdrawn, proposal proceeds to public review. See Diagram 1, illustration (b). Recirculation Ballot of ASME A17 Standards Committee if any remaining negatives. Ballot may include editorial revisions. Copy of ballot sent to CSA.

(5) Assuming at least two-thirds affirmative vote by ASME A17 Standards Committee on proposed revision.

(6) Three levels of appeal. First appeal to ASME A17 Standards Committee. Second appeal to ASME BSCS. Third appeal to ASME Board on Hearings and Appeals.

(7) Public review comments sent to Working Committee. Working Committee may draft response, revise proposal, or withdraw proposal. If proposal is revised technically, it is subject to first-consideration ballot [see Diagram 1, illustration (a)]. Working Committee action subject to approval of ASME A17 Standards Committee.

ACKNOWLEDGMENTS

The author gratefully acknowledges the time, effort, and dedication of the many people and organizations that assisted in and contributed to the preparation of this 2019 edition of the ASME A17.1/CSA B44 Handbook.

I especially want to acknowledge and thank the following for their assistance and significant contributions to this edition of the Handbook:

Louis Bialy, Louis Bialy and Associates, LLC, San Rafael, CA— Section 2.13

Jeff Blain, Schindler Elevator Corp., Morristown, NJ — NFPA 70 Highlights

John Carlson, Schindler Elevator Corp., Morristown, NJ — Section 2.27

David McColl, Otis Elevator Co., Mississauga, ON — CSA C22.1 Highlights

Many people and organizations have made significant contributions to the Handbook over the years. It would be difficult to list everyone, but individual acknowledgments are included at the beginning of most sections of the Handbook. This book is truly an industry effort and is a testament to all of these contributions.

Of course, none of this would be possible without the years of effort by Ed Donoghue, who came up with the idea for the Handbook and authored every edition prior to 2016. This edition is really just an extension of all the work done previously by Ed and the many other contributors. I extend my sincere thanks and appreciation to Ed for all the encouragement, support, and guidance he provided me during this project. I am truly honored to call him my friend.

Finally, I would like to thank my wife, Vickie, and my family for their patience and understanding for the many hours and weekends needed to prepare the Handbook. It would not have been possible without their support.

SUMMARY OF CODE CHANGES ASME A17.1-2016/CSA B44-16 AND ASME A17.1-2019/CSA B44:19

This summary of Code changes identifies the Requirements that have been revised or added in ASME A17.1-2019/CSA B44:19 from those in ASME A17.1-2016/CSA B44-16. The rationale for the revisions are from the public review drafts that closed August 7, 2017; August 6, 2018; and December 24, 2018.

The "Rationale" reflects the balloted position of the ASME A17 Standards Committee and CSA B44 Technical Committee for revising or adding the requirement. The Record number in brackets immediately following each revision or addition is an administrative number used by the ASME A17 Committee.

Preface Revised "General"

RATIONALE: The International Building Code requires existing buildings to comply with ASCE 24 under certain conditions that would in turn affect new and existing elevators installed in an existing building. [Record 16-2562]

ASME Preface Revised to update references for ASME A17.8/CSA B44.8

RATIONALE: This proposal provides an editorial revision to wind turbine tower elevator references in ASME A17.1/CSA B44 addressing the binational scope of this Standard. [Record 18-1699]

Requirement 1.1.3 Revised

RATIONALE: The International Building Code requires existing buildings to comply with ASCE 24 under certain conditions that would in turn affect new and existing elevators installed in an existing building. [Record 16-2562]

Section 1.3 Revised definition of "car door interlock"

RATIONALE: To clearly define car door interlock as an electrical protective device in 2.26.2, which may have a traditional contact or be a SIL rated device according to 2.26.4. If it is a SIL rated device, it still has to meet the interlock requirements. Also, to correct the incorrect use of "landing zone." [Record 09-500]

Section 1.3 Revised definition of "car door or gate electric contact"

RATIONALE: To rename "door or gate electric contact" to "door or gate closed detection means" in order to avoid confusion and to clearly define the device as an electrical protective device in 2.26.2, which may have a traditional contact or be a SIL rated device according to 2.26.4.3; to remove a redundant definition. [Record 09-500]

Section 1.3 Revised definition of "car door or gate electric contact"

RATIONALE: To provide definitions for the existing terms referenced in Parts 4, 5, and 7 that reference old device terminology that has been updated in Parts 2 and 3.

NOTE: The intention is to delete these definitions when Parts 4, 5, and 7 are updated to the new terminology. [Record 15-531]

Section 1.3 Revised definition of "door or gate electric contact"

RATIONALE: To rename "door or gate electric contact" to "door or gate closed detection means" in order to avoid confusion and to clearly define the device as an electrical protective device in 2.26.2, which may have a traditional contact or be a SIL rated device according to 2.26.4.3; to remove a redundant definition. [Record 09-500]

Section 1.3 Revised definition of "door or gate electric contact"

RATIONALE: To provide definitions for the existing terms referenced in Parts 4, 5, and 7 that reference old device terminology that has been updated in Parts 2 and 3.

NOTE: The intention is to delete these definitions when Parts 4, 5, and 7 are updated to the new terminology. [Record 15-531]

Section 1.3 Added definition of "dynamic braking"

RATIONALE: Advances in electric motor control technology provides for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping

performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised. [Record 12-1111]

Section 1.3 Revised definition of "elevator discharge level"

RATIONALE: To clarify that the elevator discharge level applies to both a single and a group of elevators and to indicate that the discharge level is the elevator lobby to which building occupants are evacuated and that it could also include a sky lobby level during occupant evacuation operation. [Record 16-2357]

Section 1.3 Added definition of "executable software"

RATIONALE: To provide definitions for new software items. [Record 09-872]

Section 1.3 Added definition of "Fire Service Access Elevator (FSAE)"

RATIONALE: To add a definition for FSAE, which is required and specified in some building codes and related standards. [Record 12-1815]

Section 1.3 Revised definition of "hoistway door combination mechanical lock and electric contact"

RATIONALE: To rename the "hoistway door electric contact" to "closed detection means" and to clearly define the device as an electrical protective device in 2.26.2, which may have a traditional contact or be a SIL rated device according to 2.26.4.3. Also, to correct the incorrect use of "landing zone" and to use the new term for detection means in the Note. [Record 09-500]

Section 1.3 Revised definition of "hoistway door electric contact"

RATIONALE: To provide definitions for the existing terms referenced in Parts 4, 5, and 7 that reference old device terminology that has been updated in Parts 2 and 3.

NOTE: The intention is to delete these definitions when Parts 4, 5, and 7 are updated to the new terminology. [Record 15-531]

Section 1.3 Added definition of "hoistway door interlock"

RATIONALE: To clearly define hoistway door interlock as an electrical protective device in 2.26.2, which may have a traditional contact or be a SIL rated device according to 2.26.4.3. If it is a SIL rated device, it still has to meet the interlock requirements. Also, to correct the incorrect use of "landing zone." [Record 09-500]

Section 1.3 Revised definition of "hoistway door or gate electric contact"

RATIONALE: To rename "door or gate electric contact" to "door or gate closed detection means" in order to avoid confusion and to clearly define the device as an electrical protective device in 2.26.2, which may have a traditional contact or be a SIL rated device according to 2.26.4.3; to remove a redundant definition. [Record 09-500]

Section 1.3 Revised definition of "mechanical lock"

RATIONALE: To use the new term "closed detection means." [Record 09-500]

Section 1.3 Added definition of "relocation, escalator/moving walk"

RATIONALE: Relocation of escalators/moving walks is not defined in the Code. This is to clarify requirements when escalators/moving walks are relocated to a different wellway or pit or different bearing plates or supports. [Record 13-2265]

Section 1.3 Added definition of "restrictor, car door"

RATIONALE: To add definition for a car door restrictor. [Record 15-655]

Section 1.3 Added definition of "software-based parameters and/or variables"

RATIONALE: To provide definitions for new software items. [Record 09-872]

Section 1.3 Added definition of "unique software identifier"

RATIONALE: To provide definitions for new software items. [Record 09-872]

Section 1.3 Added definition of "valve, manually (manual) operated"

RATIONALE: To provide definition of manually operated valve. [Record 14-1437]

Requirement 2.2.2.5 Revised

RATIONALE: The current requirement is excessive and unnecessary to increase the level of safety for firefighters using elevators during fire emergencies. The proposal to have 11.4 m^3/h (3,000 gal/h) per hoistway is adequate to maintain a level of safety for firefighters. [Record 17-1013]

Requirement 2.7.3.3.2 Revised

RATIONALE: Clarification that vertical ladders are not permitted for spaces containing either controllers or motor generators. [Record 17-1522]

Requirement 2.7.5.1.2 Revised

RATIONALE: In accordance with Inquiry 06-26, a means to prevent unexpected vertical car movement is not required to be provided where there is no maintenance or inspection that could cause unexpected car motion. However, 2.7.5.1.2(e) assumes that this means is always provided. The proposed additional wording provides flexibility in the wording of the sign when it is not necessary to provide or engage the means. [Record 14-500]

Requirements 2.7.8, 2.7.8.1, 2.7.8.2 Revised

RATIONALE: Revise 2.7.8 to include Control Spaces. Revise 2.7.8.1 and 2.7.8.2 for clarity where all references are in the plural. [Record 15-2292]

Requirement 2.7.8.3 Revised

RATIONALE: To clarify that stop switches, duplex receptacles light switches, and lights that have been understood to apply to remote machine rooms/control rooms also apply to remote control spaces. [Record 15-2292]

Requirement 2.7.8 Revised

RATIONALE: Communication is equally important between the elevator car and remote-control spaces where there is a means to move the car within the control space. Replace the "and or" with "or" as it adds no clarity to the requirement. Revise for clarity where all references are in the plural. [Record 15-2292]

Requirement 2.8.2.4 Added

RATIONALE: Elevator hoistways can be extremely dangerous locations, and there are safety concerns when fire alarm technicians, who are not trained as elevator personnel, perform work installing, testing, and maintaining fire alarm initiating devices (FAIDs) located inside of the elevator hoistway.

The small size of the access panels in combination with the protective guards (cages) will prevent injury to fire alarm technicians while performing work on fire alarm initiating devices located inside the elevator hoistway and will prevent injury to elevator personnel should they be in the hoistway while fire alarm technicians are accessing the FAIDs. [Record 13-1901]

Requirement 2.8.3.1.4 Added

RATIONALE: To add requirements for air sampling type FAIDs that will be permitted to be used on elevator installations. [Record 13-1901]

Requirement 2.8.3.3.2(d) Added

RATIONALE: Currently there are many elevators that are not provided with Phase I Recall Operation, but any time you have sprinklers in the hoistway or machine room a shunt trip is still required.

This proposal will reduce the potential of passenger entrapment during sprinkler activation. [Record 16-555]

Requirement 2.8.3.3.4 Revised

RATIONALE: To clarify the car sill position in relation to the elevation 1 200 mm (48 in) above the pit floor using language used elsewhere in the Code, i.e., definition of elevator pit. [Record 16-3041]

Requirement 2.11.10.2 Revised

RATIONALE: To mitigate tripping and other hazards, the sills must be illuminated when the elevator is in service. The current edition does not address the situation where there is no building corridor. [Record 17-2980]

Requirement 2.11.11.5.7 Revised

(a) The current Code refers to entrance assembly in 2.11.11.5 that deals with panels. This proposal is to clarify that the scope of this requirement is for the assembled panel(s) and the related hanging and guiding means for the panel(s).

(b) To remove any ambiguity created by the use of the terms "approximately" as it relates to the area over which the force is to be applied and where the area can be readily measured and "appreciable" as it relates to the displacement or deformation of the panel as a result of the applied forces.

(c) To provide a reference to a similar requirement relating to the structural integrity of door panel(s) and safety retainers.

(d) To eliminate the implication that the Code requires a test by removing the reference to test from the requirement, thereby giving the option for structural analysis to demonstrate compliance. See also 2.11.11.8 where this requirement currently allows for structural analysis or testing.

(e) To make it clear that each panel must meet the requirements and that it is not required to apply the same force to all panels at the same time. [Record 15-656]

Requirement 2.12 Revised

RATIONALE: To use the new term "closed detection means." [Record 09-500]

Requirement 2.12.1.5 Revised

RATIONALE: To use the new term "closed detection means." [Record 09-500]

Requirement 2.12.2.4 Revised

RATIONALE: Editorial renumbering of the requirement. [Record 09-500]

Requirement 2.12.2.4.1 Added

RATIONALE: To add new requirement to clarify the type of devices that can be used to detect the locked position and to clearly define the closed and locked position as well as the open and unlocked position of the door. [Record 09-500]

Requirement 2.12.2.4.2 Revised; formerly 2.12.4.1

RATIONALE: To clarify that this requirement applies to traditional electrical contacts. A separate requirement is added for SIL rated devices. [Record 09-500]

Requirement 2.12.2.4.3 Added

RATIONALE: To add new requirements for interlocks with SIL rated devices as detection means having similar requirements to traditional electrical contacts. [Record 09-500]

Requirement 2.12.2.4.4 Revised; formerly 2.12.2.4.2

RATIONALE: Editorial renumbering of the requirement. [Record 09-500]

Requirement 2.12.2.4.5 Revised; formerly 2.12.2.4.3

RATIONALE: Editorial renumbering of the requirement and to address the application of SIL rated devices to detect the closed and locked position of the door. [Record 09-500]

Requirement 2.12.2.4.6 Revised; formerly 2.12.2.4.4

RATIONALE: Editorial renumbering of the requirement and to apply the new term "closed detection means" to the requirement and to include rules for SIL rated devices. [Record 09-500]

Requirement 2.12.2.4.7 Revised; formerly 2.12.2.4.5

RATIONALE: Editorial renumbering of the requirement. [Record 09-500]

Requirement 2.12.2.4.8 Revised; formerly 2.12.2.4.6

RATIONALE: Editorial renumbering of the requirement. [Record 09-500]

Requirement 2.12.3 Title revised

RATIONALE: To use the new term "closed detection means." [Record 09-500]

Requirement 2.12.3.4 Revised

RATIONALE: To include new wording for detection means and editorial correction of the referenced rules. [Record 09-500]

Requirements 2.12.3.4.1 and 2.12.3.4.2 Revised

RATIONALE: To use the new term "closed detection means." [Record 09-500]

Requirement 2.12.3.4.4 Revised

RATIONALE: To use the new term "closed detection means" and include new wording for SIL rated devices. [Record 09-500]

Requirement 2.12.3.5 Revised

RATIONALE: To use the new term "closed detection means." [Record 09-500]

Requirement 2.12.4 Title revised

RATIONALE: To use the new term "closed detection means." [Record 09-500]

Requirement 2.12.4.1 Revised

RATIONALE: To use the new term "closed detection means" and to include car door interlocks in the list of devices that require type tests. [Record 09-500]

Requirement 2.12.4.2 Revised

RATIONALE: To use the new term "closed detection means" and to include car door interlocks in the list of devices that require certification. [Record 09-500]

Requirement 2.12.4.3 Revised

RATIONALE: To direct the reader to any additional marking requirements if SIL rated devices are used. [Record 09-500]

Requirement 2.12.7.2.1 Revised

RATIONALE: To reinstate requirements from the 2013 edition of the Code, approved in TN 09-1907, which were inadvertently lost in the 2016 edition. [Record 17-2474]

Requirement 2.13.3.4.10 Revised

RATIONALE: This requirement should reference 8.13.2 and therefore would have the new requirements applied. The words "material and marking of all signs shall conform to 2.16.3.3, except that the" are a component of 8.13.2 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.13.4.2.4 Revised

RATIONALE: This requirement should reference 8.13.3 and therefore would have the new requirements applied. The words "conforming to 2.16.3.3" describe the requirements that are now referenced in the proposed 8.13.3 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.13.5 Revised

RATIONALE: The general language of 2.13.5.1 has been replaced by specific language that addresses all hazards.

(a) "Detection means of approaching objects" generally is three-dimensional (3D) protection means, and "detection means of objects in the door path" generally is two-dimensional (2D) car door/gate mounted protection means.

(b) To provide a practical and measurable time limitation to sense and respond to a door close malfunction. [Record 14-1101]

Requirement 2.13.5.2 Revised

RATIONALE: Approaching object detection means is permitted to be rendered inoperative at 450 mm (18 in.) to be consistent with current sensor technologies. When using multibeam detectors, the beams are active all the way to the 20 mm mark. Therefore, for someone to be able to insert their fingers into the door between 20 mm and zero would take a deliberate act. Even some modern light beam detectors sense the other door or the frame when they get within the last few millimeters, due to dirt on the sensors, sunlight on the panels causing heat, etc. To address entrapment of a body part between the door panels or the door and the strike jamb. To establish priority of building fire operations to ensure the fire integrity remains intact.

To warn passengers of impending door closure when kinetic energy is reduced and detection means are inoperative.

Rationale for minimum 915 mm (36 in.) door opening is that it is sufficient to permit passenger transfer.

Rationale for (a)(3) and (b): To provide a method for not unduly delaying the elevator when objects inadvertently traverse the approaching object detection zone. To clarify when the 20 s time interval is applicable. This time interval is consistent with ADAAG and ANSI/ICC A117.1. [Record 14-1101]

Requirement 2.13.5.3 Added

RATIONALE: To detect a person approaching an elevator from the landing and reduce the likelihood of them being struck by the doors. The locations of the points of verification were chosen based on the results of analysis and hazard assessment. It is understood that advanced detection prior to the leading edge in the plane of the hoistway door may occur, but after the leading edge has passed, the hazard is eliminated.

Traditional detection means, mounted on the car door, remain in operation. It is recognized that incidental contact may still occur; however, the incidence of such contact will be significantly reduced. [Record 14-1101]

Requirement 2.13.5.4 Added

RATIONALE: These are design requirements (not on-site test requirements) intended to reduce the likelihood of a body part being struck by or entrapped by the elevator doors. Targets are based on the following:

(a) ANSI A156.10-2005, SDO: BHMA, Section 8.1.2 Motion Sensors.

(b) Average walking speed for adult, per Nick Carey, "Establishing Pedestrian Walking Speeds" (Project Report, Portland State University, 2005; https://westernite.org/students-education/data-collection-fund).

(c) Anthropometric data for adults and children contained in ASME A17.7/CSA B44-7 and Alvin R. Tilley, Henry Dreyfuss Associates, *The Measure of Man and Woman: Human Factors in Design* (New York, John Wiley & Sons, 2002).

(d) People approaching elevator, clothed in attire ranging from black nonreflective to white reflective material as approximated by colors defined in FED-STD-595C. [Record 14-1101]

Requirement 2.13.5.5 Added

RATIONALE: These are design requirements (not on-site test requirements) intended to determine whether the detection means is operational prior to the start of the next door close command, regardless if single or multiple devices are used; otherwise there is no way to ensure that both detection fields remain operational. [Record 14-1101]

Requirement 2.13.5.6 Added

RATIONALE: To ensure ongoing functionality of the detection means. [Record 14-1101]

Requirement 2.14.1.5.1 Revised

RATIONALE: Under certain conditions the equipment may need to be accessed from the car top but the car is unable to move below the top landing, therefore access could only be through the top emergency exit from inside the car. This proposal allows the top emergency exit to be used from inside the car in conformance with the existing locking requirements in 8.4.4.1. [Record 18-1575]

Requirement 2.14.2.2 Revised

RATIONALE: To include new wording for closed detection means and renumbering of the referenced requirements. [Record 09-500]

Requirement 2.14.2.3.3 Revised

RATIONALE: Revise text to be consistent with the new definition for auxiliary power supply and emergency or standby power. [Record 17-710]

Requirement 2.14.4.2 Title revised

RATIONALE: To use the new term "closed detection means" and to be specific about car doors. [Record 09-500]

Requirement 2.14.4.2.1 Revised

RATIONALE: To use the new term "closed detection means" and editorially renumber.

Requirement 2.14.4.2.3 Revised

RATIONALE: The requirements for the detection means that use contacts to detect the closed position have been moved to 2.14.4.2.4. [Record 09-500]

Requirement 2.14.4.2.4 Added

RATIONALE: To use the new term "closed detection means" and to move the requirements for the contacts to a separate requirement. [Record 09-500]

Requirement 2.14.4.2.5 Revised

RATIONALE: Create new requirements specifically for SIL rated closed detection means. [Record 09-500]

Requirement 2.14.4.2.6 Revised; formerly 2.14.4.2.4

RATIONALE: Editorial renumbering of the referenced requirements. [Record 09-500]

Requirement 2.14.4.2.7 Revised; formerly 2.14.4.2.5

RATIONALE: To use the new term "closed detection means" and editorially renumber. [Record 09-500]

Requirement 2.14.4.2.8 Revised; formerly 2.14.4.2.6

RATIONALE: Editorial renumbering of the requirement. [Record 09-500]

Requirement 2.14.4.11 Revised

RATIONALE: A car door interlock with 30 mm openability with no fascia is equivalent in safety to a gate switch with 50 mm of openability with an evacuation deterrent (with 100 mm of openability) and fascia. This statement is based on the following observations:

(a) An interlock with 30 mm openability would disconnect power to the machine at the same amount of opening as a gate switch.

(b) The adult human forearm is typically more than 30 mm to 50 mm in diameter. Without the ability to get their arm out to the elbow, passengers will be unable to defeat the interlock without special knowledge and tools.

Since passengers will be unable to defeat the lock at 30 mm of openability, reducing the openability to 10 mm does not increase the safety. [Record 10-1885]

Requirements 2.14.5.7 Revised

RATIONALE: To clarify that the reference to 2.14.5.7 applies to car door restrictors, not car door interlocks. To update the references to include new requirement 2.14.5.7.6. However, the restriction function can be performed by either a car door interlock or a device dedicated to that function. [Record 15-655]

Requirement 2.14.5.7.5 Revised

RATIONALE: When this requirement was added to the 2013 Code as part of TN 02-3046, the rationale provided stated: "Require similar forces for means used to restrict car doors as those required for door interlocks in 8.3.3.4.8." It was considered necessary to have the restricting device provide equivalent protection to an interlock. However, this failed to consider that when this force is exerted at the bottom of the door panels, particularly tall doors (8 ft to 9 ft), the door panels will pivot, allowing a gap greater than the required 4 in. The new requirement should have been the same as the existing requirements for not only interlocks in 8.3.3.4.8, but also hoistway landing doors, as per 2.11.11.5.8. [Record 16-594]

It has been reported that some restrictors malfunction and do not lock properly. Adding requirements for engineering tests and a static test of car door restrictors with moving parts is similar to applicable requirements for car and hoistway door interlocks and will increase their robustness and reliability. [Record 15-655]

Requirement 2.14.5.7.6 Added

RATIONALE: To clarify that the reference to 2.14.5.7 applies to car door restrictors, not car door interlocks. To update the references to include new requirement 2.14.5.7.6. However, the restriction function can be performed by either a car door interlock or a device dedicated to that function.

Requirement 2.14.7.1.3(g)(4)

RATIONALE: To update reference to include all emergency signaling devices. [Record 16-1584]

Requirement 2.16.3.1 Revised

RATIONALE: This requirement should reference 8.13.1 and therefore would have the new requirements applied. The words "permanently and securely attached" are a component of 8.13.1 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.16.3.1 Revised

RATIONALE: To clarify the location of data plates. [Record 15-2590]

Requirement 2.16.3.2.2(f) Added

RATIONALE: To correct counterweight overbalance has an impact on safe elevator operation. This proposal requires that the designed overbalance range be provided. This proposal also requires that this information is present at the time of acceptance. This information will also be useful to convey safe overbalance limits if the elevator weight is changed/altered at a future date. [Record 17-338]

Requirement 2.16.3.3 Revised

RATIONALE: This requirement should reference 8.13.1 and therefore would have the new requirements applied. The words "be of such material and construction that the letters and figures stamped, etched, cast, or otherwise applied to the faces shall remain permanently and readily legible" are a component of 8.13.1 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.16.5 Revised

RATIONALE: This requirement should reference 8.13.2 and therefore would have the new requirements applied. [Record 10-0967]

Requirement 2.16.7.5 Revised

RATIONALE: This requirement should reference 8.13.1 and therefore would have the new requirements applied. [Record 10-0967]

Table 2.17.3 Revised

Change title of Table 2.17.3. The counterweight governor is allowed to trip up to 10% higher than that car governor; therefore, this table is not correct for counterweight safeties. [Record 14-1906]

Requirement 2.17.14 Revised

RATIONALE: This requirement should reference 8.13.3 and therefore would have the new requirements applied. The words "in a legible and permanent manner" are a component of 8.13.1 and therefore are deleted for clarity. Change metal to marking for consistency as this is a component of 8.13.3. [Record 10-0967]

Requirement 2.17.16 Revised

RATIONALE: This appears to be an incorrect reference to the incorrect requirement. It should be changed regardless of the outcome of the materials of the signage. It should reference 2.16.3.1 where the requirement is. Change metal to marking for consistency as this is a component of 8.13.3. [Record 10-0967]

Requirement 2.18.5.3 Revised

RATIONALE: This requirement should reference 8.13.3 and therefore would have the new requirements applied. The words "material and marking of the" are a component of 8.13.3 and therefore are deleted for clarity. Based on approved TN14-1596. [Record 10-0967]

Requirement 2.18.9 Revised

RATIONALE: This requirement should reference 8.13.3 and therefore would have the new requirements applied. Change metal to marking for consistency as this is a component of 8.13.3. The words "in a legible and permanent manner" are a component of 8.13.3 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.19.2.1 Revised

RATIONALE: The clarification of the requirements recognizes that failures of gear shafts can result in ascending car overspeed (free-wheeling of the drive sheave). Requirements 2.24.3 and 2.24.3.1 address fatigue and overload failures of the direct connection means. Consequently, free-wheeling of the drive sheave as a result of failure of the sheave shaft is not evident. [Record 16-2157]

Requirement 2.19.3.2 Revised

RATIONALE: To clarify Code requirements to recognize the common methods of ensuring that the driving machine brake torque serves to act directly on the driving machine sheave or sheave shaft. [Record 16-2157]

Requirement 2.19.3.2(i)(1) Revised

RATIONALE: It is recognized that the actuation of the emergency brake may create greater stresses than those created when only activated as described in 2.19.3.2(i)(2). An emergency brake should be able to meet the requirements of 2.19.3.2(i)(1) whether or not it is subject to the requirements of 2.19.3.2(i)(2). [Record 16-2152]

Requirement 2.19.3.2(i)(2) Revised

RATIONALE: Requirement 2.24.3 should be recognized in the design of emergency brake components subject to 2.19.3.2(d), 2.19.3.2(e), or 2.19.3.2(f). Requirement 2.24.3.2 applies to the stresses created on a machine due to emergency brakes mounted thereto, and only when the emergency brake is located on a driving machine. It is not a requirement that is dependent on whether the emergency brake is activated under normal or continuous-pressure operation. All machine-mounted emergency brakes address this requirement in 2.19.4. [Record 16-2152]

Requirement 2.19.3.2(k) Revised

RATIONALE: This requirement should reference 8.13.2 and therefore would have the new requirements applied. The sign materials, sizes, and construction are referenced in 8.13.2 and are deleted here for clarity. [Record 10-0967]

Requirement 2.19.3.3 Revised

RATIONALE: This requirement should reference 8.13.3 and therefore would have the new requirements applied. [Record 10-0967]

Requirement 2.20.2.1 Revised

RATIONALE: This requirement should reference 8.13.1 and therefore would have the new requirements applied. [Record 10-0967]

Requirement 2.20.2.2 Revised

RATIONALE: This requirement should reference 8.13.3 and therefore would have the new requirements applied. Delete "metal" for consistency as this is a component of 8.13.3. The words "material and marking of the rope data tag shall conform to 2.16.3.3, except that" are a component of 8.13.3 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.20.8.1(d)(1) Revised

RATIONALE: Requirement 8.6.2.2.1(b)(5) does not exist. The correct reference is 8.6.1.2.2(b)(5). [Record 17-1560]

Requirement 2.20.10.9 Revised

RATIONALE: This requirement should reference 8.13.1 and therefore would have the new requirements applied. Delete "metal" for consistency as this is a component of 8.13.1. The word "permanently" is a component of 8.13.1 and therefore is deleted for clarity. The words "material and marking of the rope data tag shall conform to 2.16.3.3, except that" are a component of 8.13.1 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.22.3.1 Revised

RATIONALE: To clarify the reference requirement. [Record 10-0967]

Requirement 2.22.3.3 Revised

RATIONALE: This requirement should reference 8.13.3 and therefore would have the new requirements applied. The words "Markings shall be made in a permanent and legible manner" are a component of 8.13.3 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.22.4.10 Revised

RATIONALE: Added reference for clarity. [Record 10-0967]

Requirement 2.22.4.11 Revised

RATIONALE: This requirement should reference 8.13.1 and therefore would have the new requirements applied. Change metal to marking for consistency as this is a component of 8.13.1. [Record 10-0967]

Requirement 2.22.5.1 Revised

RATIONALE: Application of the elastomeric buffers has the same system speed limitation as that of the spring buffers. The requirement specified within subclause (c) has been determined via type testing as required by ASME A17.1/CSA B44-2016 significant impact to the applicable load ranges for the current elastomeric buffers that have been used within North America for more than 15 years. The original objective was to codify the elastomeric buffers based on the decades of elevator industry experience that used this type of buffers both within North America and outside North America markets. It should be noted that the elastomeric buffers are required to comply with the retardation performance for empty car plus 70 kg (one passenger representation) and full-duty load. The elastomeric buffer retardation of subclauses (a) and (b) is the same that has applied to oil buffers for decades. [Record 17-1352]

Requirement 2.24.2.3.5 Added (including Note)

RATIONALE: Correct counterweight overbalance has an impact on safe elevator operation. This proposal requires that the designed overbalance range be provided. This proposal also requires that this information is present at the time of acceptance. This information will also be useful to convey safe overbalance limits if the elevator weight is changed/altered at a future date. [Record 17-338]

Requirement 2.24.8.5 Revised

RATIONALE: This requirement should reference 8.13.1 or 8.13.3 and therefore would have the new requirements applied. The words "permanently and legibly" are a component of 8.13.1 or 8.13.3 and therefore are deleted for clarity. [Record 10-0967]

Requirement 2.24.9.2.1 Revised

RATIONALE: B29.1M does not exist. The current document is ASME B29.1-2016. [Record 09-1764]

Requirement 2.24.9.2.1 Revised

RATIONALE: ASME A17.1/CSA B44 references to ASME B29 series standard are out of date as published. [Record 16-1019]

Requirement 2.26.1.5 Revised

RATIONALE: To include SIL rated devices in the requirements. [Record 09-500]

Requirement 2.26.1.5.5 Revised

RATIONALE: To include new wording for closed detection means. [Record 09-500]

Requirement 2.26.1.5.6 Revised

RATIONALE: To include new wording for door locked detection means. [Record 09-500]

Requirements 2.26.1.5.7 and 2.26.1.5.8 Revised

RATIONALE: To include SIL rated devices in the requirements. [Record 09-500]

Requirements 2.26.1.7 and 2.26.1.7.1 Added

RATIONALE: To provide requirements for documenting for the installation software related to ASME A17.1/CSA B44 safety functions in a similar manner as current Code provides with field wiring diagrams [see proposed 8.6.1.2.2(a)]. [Record 09-872]

Requirement 2.26.1.7.2 Added

RATIONALE: To provide for field-adjustable parameters used by the executable software that do not alter the USI to be permitted. Parameter changes shall not cause the USI to change. This is necessary for the integrity and traceability of the executable software functionality and the USI associated with it. [Record 09-872]

Requirement 2.26.1.7.3 Added

RATIONALE: To provide means for inspectors and mechanics to identify the installed software USI. [Record 09-872]

Requirements 2.26.2.14 and 2.26.2.15 Revised

RATIONALE: To include new wording for detection means. [Record 09-500]

Requirements 2.26.2.36 and 2.26.2.37 Revised

RATIONALE: Editorial renumbering of the referenced requirements. [Record 09-500]

Requirement 2.26.4.3.2 Revised

RATIONALE: To clarify the function of each of the two devices listed in 2.26.2.14. [Record 09-500]

Requirement 2.26.4.4 Revised

RATIONALE: To provide testing requirements at discrete frequencies throughout the ranges specified in ISO 22200:2009. The year is provided with the reference in section 9. [Record 13-1749]

Requirement 2.26.5 Revised

RATIONALE: To include new wording for car door or gate closed detection means. The bypass portion of each requirement was also separate in (4) as its own distinct requirement for bypassed circuits. [Record 09-500]

Requirement 2.26.9.3 Revised

RATIONALE: To include new wording for closed detection means and to include car door interlocks in the requirement. [Record 09-500]

Requirement 2.26.11 Revised

RATIONALE:

(a) It adds the missing reference and it lists the three references in the order already found in the QEI Standard.

(b) It reads better having a more descriptive noun inserted. [Record 15-2469]

Requirement 2.26.12.3 Revised

RATIONALE: To add a missing reference and list the three references in the order already found in the QEI Standard. Also, to correct the ADA title in the Reference Documents Section. [Record 15-2469]

Requirement Section 2.27 Revised

RATIONALE: To provide a reference to the building code for additional requirements for FSAE and OEO. [Record 12-1815]

Requirements 2.27.1.1.1, 2.27.1.1.2, and 2.27.1.1.3 Revised

RATIONALE: Advances in communication technology over the last decade are being underused by elevator emergency communications means, whereas accessing video remotely or text messaging is commonplace in everyday communication. Published IBC-2018 has requirements to better use these advances in communications to serve passengers who are unable to hear or unable to verbally communicate effectively when trapped in an elevator.

These added requirements are to clarify the IBC-2018 use of video and enhanced communications for people who are hearing or speech impaired.

The new requirements reduce the need for audible communication with a trapped passenger. New communication components are added to accommodate various passenger communication abilities. The term "two-way" is moved to requirement 2.27.1.1 because some communication components may not provide effective two-way communications for every passenger, as a passenger may only communicate verbally while others may only communicate visually.

Eliminated "voice" and changed "visual indication" to "message" to more accurately describe enhanced communications means.

Deleted the duplicate acknowledgment signal requirement that is now included in sentence (c). Added new sentence in (d) to provide a means for nonverbal communication with trapped passengers. Added new sentence in (e) to require a message that help is on the way. Removed language that was not necessary because the act of pressing the phone push button accomplished the notification that assistance is required.

Revised the existing permissive timed call termination to clarify that the voice notification to extend the call is from the communications means. Added ability to observe the car interior to help authorized personnel determine if a passenger is trapped and assess if additional actions are required for a successful rescue, independent of the passenger's ability to audibly communicate. [Record 16-3005]

Requirement 2.27.1.1.3 Revised

RATIONALE: Adds the missing reference and lists the three references in the order already found in the QEI Standard. [Record 15-2469]

Requirement 2.27.1.1.4 Revised

RATIONALE: These added requirements are to clarify the IBC-2018 use of video and enhanced communications for people who are hearing or speech impaired.

The new requirements reduce the need for audible communication with a trapped passenger. New communication components are added to accommodate various passenger communication abilities. The term "two-way" is moved to requirement 2.27.1.1 because some communication components may not provide effective two-way communications for every passenger, as a passenger may only communicate verbally while others may only communicate visually.

Changed authorized to emergency to coordinate with this section. Changed "visual indication" to "message" to more accurately describe enhanced communications means.

Revised the existing permitted timed call termination to clarify that the voice notification is from the communication means. Modified sentence (b) for emergency personnel to similar language of 2.27.1.1.3 for authorized personnel. [Record 16-3005]

Requirement 2.27.1.1.5 Revised

RATIONALE: To clarify that the communications means is transferred to standby or emergency power. [Record 16-3005]

Requirement 2.27.1.1.5 Revised

RATIONALE: Revise text to be consistent with the new definition for auxiliary power supply and emergency or standby power. [Record 17-710]

Requirement 2.27.1.1.6 Revised

RATIONALE: The term "two-way" is moved to 2.27.1.1 because some communication components may not provide effective two-way communications for every passenger, as a passenger may only communicate verbally while others may only communicate visually. Automatic verification is limited to the audible communication because automatic verification of the video portion is not readily available with current technology. [Record 16-3005]

Requirement 2.27.1.1.6 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.2.4.1 Revised

RATIONALE: Elevator specifications are appearing that call for unsecured selection buttons (e.g., strip switches). The proposed language clarifies that selection of an elevator to operate on emergency power shall be

secured by the Firefighter key. See also 2.27.8. The term "selection means" allows alternate methods in conjunction with the Firefighter key. The proposed language allows marking or a display to indicate the selected elevator and to indicate automatic selection mode. [Record 17-1888]

Requirement 2.27.2.4.2 Revised

RATIONALE: Elevator specifications are appearing that call for unsecured selection buttons (e.g., strip switches). The proposed language clarifies that selection of an elevator to operate on emergency power shall be secured by the Firefighter key. See also 2.27.8. The term "selection means" allows alternate methods in conjunction with the Firefighter key. The proposed language allows marking or a display to indicate the selected elevator and to indicate automatic selection mode. [Record 17-1888]

Requirement 2.27.2.4.5 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.2.4.5 Revised

RATIONALE: Elevator specifications are appearing that call for unsecured selection buttons (e.g., strip switches). The proposed language clarifies that selection of an elevator to operate on emergency power shall be secured by the Firefighter key. See also 2.27.8. The term "selection means" allows alternate methods in conjunction with the Firefighter key. The proposed language allows marking or a display to indicate the selected elevator and to indicate automatic selection mode. [Record 17-1888]

Requirement 2.27.2.4.6 Revised

RATIONALE: Elevator specifications are appearing that call for unsecured selection buttons (e.g., strip switches). The proposed language clarifies that selection of an elevator to operate on emergency power shall be secured by the Firefighter key. See also 2.27.8. The term "selection means" allows alternate methods in conjunction with the Firefighter key. The proposed language allows marking or a display to indicate the selected elevator and to indicate automatic selection mode. [Record 17-1888]

Requirement 2.27.3.1.2 Revised

RATIONALE: To require labeling that recognizes the current industry practice of indicating the elevators that the switch controls. Revise Note (2.27.3.1.2) to make it consistent with the building code for the switch location and to clarify the local authority may specify a different switch location from IBC/NBCC. Change to lowercase font to follow the same style as the rest of ASME A17.1/CSA B44 when referring to these recall switches. [Record 16-2357]

Requirement 2.27.3.1.2 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.3.1.4 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.3.1.5 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.3.1.6 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.3.1.6(h) Revised

RATIONALE: To clarify that visual signals illuminate and audible signals sound. To clarify the operation of the audible signal when the door is closed and to require the audible signals to continue to sound for a minimum of 5 s while the car is away from the recall level. [Record 17-945]

Requirement 2.27.3.1.6(j) Revised

RATIONALE: To relocate the Note with the first use of the term "fire command center" from after 2.27.3.1.2 to after 2.27.3.1.6(n)(5) where the term first appears in 2.27.3.1.6(f)(2). Change to lowercase font to follow the same style as the rest of ASME A17.1/CSA B44 when referring to these recall switches. To clarify the two-position fire recall switch. To allow the group fire recall switch to remove individual cars from fire service when placed on fire service by the car fire recall switch provided the switches are in the "OFF" position. [Record 16-2357]

Requirement 2.27.3.1.6(j) Revised

RATIONALE: To clarify the existing requirement regarding the interaction between the "FIRE RECALL" switch(es) and the automatic fire alarm initiation devices that may initiate recall to the alternate level before either "FIRE RECALL" switch(es) have been manually actuated. [Record 16-1505]

Requirement 2.27.3.2.3 Revised

RATIONALE: To clarify the change made in ASME A17.1-2013/CSA B44-2013 by TN 10-1883 that an active FAID in one elevator group's lobby shall recall only elevators associated with that lobby and not recall elevators that service the floor by a separate elevator lobby. [Record 16-2357]

Requirement 2.27.3.2.4 Revised

RATIONALE: Only the parts of 2.27.3.1.6 that use the term "designated level" need to be modified to "alternate level." [Record 17-1012]

Requirement 2.27.3.2.4 Revised

RATIONALE: To clarify when recall to an alternate level is in effect. [Record 17-1861]

Requirement 2.27.3.2.5 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.3.3.7 Revised

RATIONALE: To clarify 2.27.3.3.1(i) and 2.27.3.3.7 relating to the floor selection means. [Record 17-946]

Requirement 2.27.3.3.7 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.3.5.1 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.4.1 Revised

RATIONALE: To capture the current industry standard practice of indicating the elevators that the switch controls. Add Note (2.27.4.1) to make it consistent with the building code and 2.27.3.1.2. Change to lowercase font to follow the same style as the rest of ASME A17.1/CSA B44 when referring to these recall switches. To clarify which additional fire recall switch. [Record 16-2357]

Requirement 2.27.4.1 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.4.2 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.5.3 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.6 Revised

RATIONALE: Editorial revision where "FIRE RECALL" is changed to "fire recall" in instances where the requirement is not specifically addressing the lettering associated with the fire recall switch. See also Record 16-2357.

NOTE: Record 16-2357 is proposing this change for 2.27.3.1.2, 2.27.7.1, and all of the applicable requirements in 2.27.11. For this reason, these requirements are not included in this proposal. Requirements 2.27.3.1.6 and 2.27.4.1 are included in this proposal since the requirement is only partially addressed by Record 16-2357. [Record 17-1886]

Requirement 2.27.7.1 Revised

RATIONALE: To clarify that the instruction signage applies only to the group fire recall "red" switch [see 2.27.3.1.1(b)] and the instruction signage will not apply to the OEO per car fire recall "yellow" switch [see 2.27.11.1.2(b)]. The instruction signage for the "red" group fire recall switch is more than sufficient for a trained firefighter to understand the use and operation of the "yellow" car fire recall switch(es) in a single elevator or a single group of elevators or multiple group of elevators operating on OEO. Change to lowercase font to follow the same style as the rest of ASME A17.1/CSA B44 when referencing these recall switches. [Record 16-2357]

Requirement 2.27.7.4 Relocated to 2.27.10.2

RATIONALE: Relocate similar requirements for a "Firefighters' Elevator" required by the NBCC. [Record 12-1815]

Figure 2.27.9 Revised

RATIONALE: Editorially revised pictograph. [Record 17-3291]

Requirements 2.27.10 and 2.27.10.1 Added

RATIONALE: The International Building Code and NFPA 5000® require Fire Service Access Elevators in buildings with an occupied floor more than 120 f t (37 m) above the lowest level of fire department vehicle access. [Record 12-1815]

Requirement 2.27.10.1 Revised

RATIONALE: Add requirement to provide signal(s) for hoistway lighting when FEO is active. [Record 16-1506]

Requirement 2.27.10.2 Added; relocated former 2.27.7.4 to this Requirement

RATIONALE: Relocate similar requirements for a "Firefighters' Elevator" required by the NBCC. [Record 12-1815]

Requirement 2.27.11 Revised

RATIONALE: To clarify the difference between Occupant Evacuation Operation (OEO) of ASME A17.1/CSA B44 and Occupant Evacuation Elevators (OEE) of the building code. To delete any implied operational requirement and instead reference the actual requirements. To clarify requirements when destination-oriented control systems are used for OEO and how to modify the terms car and landing call. [Record 16-2357]

Requirement 2.27.11.1 Revised

RATIONALE: The items under 2.27.11.1 are modifications for FEO when OEO is provided. To clarify this affects the fire service operation of the elevators even if OEO is currently not active. [Record 16-2357]

Requirement 2.27.11.1.1 Revised

RATIONALE: To clarify for a group of two or more cars that the modification only applies to the labeling of the group fire recall switch(es) and to recognize that the labeling for the group that is controlled by the two-position switch is now specified by 2.27.3.1.2. The modified labeling is not permitted for a single car not in a group. [Record 16-2357]

Requirement 2.27.11.1.2 Revised

RATIONALE: To clarify that for a group of two or more cars, an additional FEO key switch shall meet the requirements of 2.27.3.1 and 2.27.8. To clarify that the switch is required to be marked with the unique car number of 2.29.1.1 and "CAR FIRE RECALL" and provide an editorial change where "GROUP FIRE RECALL" changes to "group fire recall" to follow the same style as the rest of ASME A17.1/CSA B44. The additional "CAR FIRE RECALL" switch is not permitted for a single car not in a group. To clarify the labeling requirements of the switch and car identification including an example as a Note. [Record 16-2357]

Requirement 2.27.11.1.3 Revised

RATIONALE: To clarify that OEO continues when cars or a group are removed from Phase I Emergency Recall Operation. OEO is terminated by 2.27.11.6.10. [Record 15-636]

Requirement 2.27.11.1.3 Revised

RATIONALE: The revisions are shown based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. Change to lowercase font to follow the same style as the rest of ASME A17.1/CSA B44 when referencing these recall switches. [Record 16-2357]

Requirement 2.27.11.1.4 Revised

RATIONALE: To follow the same style as the rest of ASME A17.1/CSA B44 when referencing fire recall switches and to reference the 2.27.3 requirement for the associated illuminated visual signal instead of repeating the requirement. [Record 16-2357]

Requirement 2.27.11.1.5 Revised

RATIONALE: To clarify that OEO continues when cars or a group are removed from Phase I Emergency Recall Operation. OEO is terminated by 2.27.11.6.10. [Record 15-636]

Requirement 2.27.11.1.5 Revised

RATIONALE: The revisions are shown based on ASME A17.1/CSA B44-2016 and the approved Record 15-636 changes. To clarify that the individual elevator will return to OEO with the rest of the elevators in the group when removed from Phase I Operation under these conditions. To follow the same style as the rest of ASME A17.1/CSA B44 when referring to fire recall switches. The Note was added to provide clarification of the group car fire recall switch "RESET" operation. [Record 16-2357]

Requirement 2.27.11.1.6 Revised

RATIONALE: To follow the same style as the rest of ASME A17.1/CSA B44 when referring to fire recall switches. To simplify and clarify that the group fire recall switch cannot override the individual car fire recall switch when in the "ON" position. To allow the group fire recall switch to reset all cars in the group under the correct conditions. The Note was added to provide clarification of the group fire recall switch "RESET" operation. [Record 16-2357]

Requirement 2.27.11.1.7 Revised

RATIONALE: To simplify the language and to follow the same style as the rest of ASME A17.1/CSA B44 when referring to fire recall switches. [Record 16-2357]

Requirement 2.27.11.1.8 Added

RATIONALE: To require use of the variable message sign when OEO is not active. [Record 16-2357]

Requirement 2.27.11.2 Revised

RATIONALE: The requirement is renumbered for clarity. To clarify that the variable message sign is required to be on a single elevator that is not part of a group. To allow other everyday messaging or a power indicator, which would help identify when a variable message sign is active and be consistent with other emergency communication systems that permit dual usage of signage. To indicate that the variable message sign must display some message in order to comply with this requirement and 2.27.11.6.10 when OEO was terminated. [Record 16-2357]

Requirement 2.27.11.3 Deleted and changed to reserve for future use

RATIONALE: For occupant evacuation elevators, per the building code, the elevator lobbies are protected spaces that are pressurized, while the egress landing is likely an open lobby. After a FEO Phase I recall, the elevator hoistway doors in the protected lobbies are closed, mitigating any smoke leakage into the pressurized lobbies from a lower pressure hoistway. This eliminates the need to close the doors at the Recall Level (egress landing) after a Phase I recall. [Record 16-2357]

Requirement 2.27.11.4 Revised

RATIONALE: Remove requirement for position indicators for OEO since the doors are not required to be closed by modification to 2.27.11.3, but if provided, position indicators are required to remain operative similar to during FEO; see 2.27.3.1.6(f)(3)(-b). An operational

position indicator could aid firefighters in selecting an elevator for individual fire recall during OEO. [Record 16-2357]

Requirement 2.27.11.5.1 Revised

RATIONALE: To clarify that the discharge level is not to be included in the contiguous block of floors to be evacuated by the elevators. The signage indicates that passengers should not use elevators and car calls for other floors that are disabled. To use the terms "elevator evacuation zone," "OEO," and "Phase 1 Emergency Recall Operation." [Record 15-636]

Requirement 2.27.11.5.1 Revised Note

RATIONALE: To clarify the term "active alarm" as significant within the OEO requirements in addition to eliminating confusion with the initiating devices of 2.27.3.2. Since the Code is performance oriented, the objective for evacuation is stated without prescriptive interface requirements, therefore the elevator system and fire alarm system installers need to coordinate their systems. An identical note appears in NFPA 72® Appendix A. [Record 15-636]

Requirement 2.27.11.5.1 Revised

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. The requirement is renumbered for clarity. To not duplicate or conflict with signal interface requirements of NFPA 72®, to clarify that the expansion of the zone is due to additional alarms, to clarify only alarms in this group's discharge level, and to add the requirement on the elevator system to provide status to the fire alarm system. [Record 16-2357]

Requirement 2.27.11.5.2 Revised

RATIONALE: To remove a duplicated requirement found in NFPA 72®. Note (2.27.11.5.2) was added to provide guidance on where to find the location of the total building activation means. [Record 16-2357]

Requirement 2.27.11.6 Revised

RATIONALE: Editorial changes to clarify the scope of OEO for each group of elevators or single elevator in the building. To clarify that 2.27.11.6.1 through 2.27.11.6.10 apply when OEO is in effect. [Record 16-2357]

Requirement 2.27.11.6.1 Revised

RATIONALE: Requirement 2.27.11.5 establishes the term "elevator evacuation zone" to describe the block of floors to evacuate; this harmonizes the terms for requirements of 2.27.11.6. To clarify the estimated time display is only required once a call is registered at the floor and to clarify the requirement for the discharge level message sign. [Record 15-636]

Requirement 2.27.11.6.1 Revised

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. To clarify that the estimated time when less than one minute must be displayed. To add missing Code reference to each Note. To clarify that only the elevators for this group need to be out of OEO to change the message and to clarify what message shall be displayed on each floor (whether it be discharge, evacuation, or other), and to distinguish "not available" from "out of service." Deleted examples to ensure that no modes of operation are excluded. To use the terms (elevator, car, occupants, and passengers) in a consistent manner where "occupants" occupy the building and where "passengers" are using the elevators. [Record 16-2357]

Requirement 2.27.11.6.2 Revised

RATIONALE: To clarify the text requirements only apply to the variable text message sign and not the visual signal. [Record 15-636]

Requirement 2.27.11.6.2 Revised

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. Change "car" to "elevator" to be consistent with the usage in other parts of 2.27.11 and delete "quickly" as it is an unenforceable term and displaying this extra term could delay the communication of the primary action to exit the elevator. To clarify that the text minimum height requirement only applies to the variable message sign. The requirement is renumbered for clarity. [Record 16-2357]

Requirement 2.27.11.6.2 Added Note

RATIONALE: To provide sample text inside the car for conditions where the car is stopped at a floor other than the discharge level or at the discharge level. [Record 16-2357]

Requirement 2.27.11.6.3 Revised

RATIONALE:
(a) Restructure for clarity.
(b) To clarify by using common terminology of "elevator evacuation zone" instead of "contiguous block of floors."

(c) To permit performance-based dispatching during total building evacuation instead of requiring top down dispatching to move the maximum number of occupants from the evacuation zone with greatest efficiency.

(f) To add an exception to specify the operation when a seismic event occurs. [Record 15-636]

Requirement 2.27.11.6.3 Revised

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. Restructured and changed sequence to eliminate redundant use of the term "in effect." Deleted 2.27.11.6.3(b) since 2.27.11.6.3(a) defines the enabled landing calls and other parts define the operation when answering landing calls. Clarified that passengers enter an elevator on answering landing calls and that the travel direction is limited only with passengers. Clarified that answering additional landing call with passengers is permitted. Moved 2.27.11.6.4 to 2.27.11.6.3(b). [Record 16-2357]

Requirement 2.27.11.6.4 Revised

RATIONALE: The second sentence is redundant to 2.27.11.6.7. [Record 15-636]

Requirement 2.27.11.6.4 Revised

RATIONALE: Based on approved Record 15-636 changes. Moved to 2.27.11.6.3(b). [Record 16-2357]

Requirement 2.27.11.6.5 Revised

RATIONALE: To clarify by using common terminology of "elevator evacuation zone" instead of "a floor that is being evacuated." To use car call as the determination if the car is unoccupied. To require DOB to remain operative. [Record 15-636]

Requirement 2.27.11.6.5 Revised

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. Change "car" to "elevator" to be consistent with the usage in other parts of 2.27.11. To clarify door operation when OEO is initiated for an elevator without car calls and that parking with the doors closed with the door open buttons(s) active applies to both scenarios only when there is no landing call. The term "without delay" is removed to recognize a car may be traveling away from the evacuation zone when OEO is initiated and the controller is permitted to determine where a car stops to reverse direction. [Record 16-2357]

Requirement 2.27.11.6.6 Revised

RATIONALE: To clarify by using common terminology of "elevator evacuation zone" instead of "a floor that is being evacuated." To use car call as the determination if the car is unoccupied. To require DOB to remain operative. [Record 15-636]

Requirement 2.27.11.6.6 Revised

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. Editorial revision to clarify the subject is the elevators. Change "car" to "elevator" to be consistent with the usage in other parts of 2.27.11. To clarify door operation when OEO is initiated for an elevator with car calls and that parking with the doors closed with the door open buttons(s) active applies to both scenarios only when there is no landing call. The term "without delay" is removed to recognize a car may be traveling away from the evacuation zone when OEO is initiated and the controller is permitted to determine where a car stops to reverse direction. [Record 16-2357]

Requirement 2.27.11.6.7 Revised

RATIONALE: To clarify by using common terminology of "elevator evacuation zone" instead of "a floor that is being evacuated." To clarify it was never intended for there to be an exact time for the car call to be registered. [Record 15-636]

Requirement 2.27.11.6.7 Added

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. To clarify the concern that a new landing call shall not prevent a loading car from departing. For modern dispatching algorithms, call allocation to cars is optimized based on many variables; there is no need to specify how to allocate new call demand or when to dispatch additional cars to a floor. To permit new technology to be used for allocating elevator service to a landing such as based on number of people waiting at the landing. Change "car" to "elevator" to be consistent with the usage in other parts of 2.27.11. [Record 16-2357]

Requirement 2.27.11.6.8 Revised

RATIONALE: A range of 60% to 80% is provided to prevent overloading the elevator. At 100% capacity doors are prevented from closing and voice notification is provided to prevent overloading the elevator. The door stalling sentence is not necessary because the reduced kinetic energy requirements (nudging) are covered in 2.13.4.2.1. To provide requirements for when the audible signal is to actuate (i.e., nudging). Change "car" to "elevator" to be consistent with the usage in other parts of 2.27.11. [Record 16-2357]

Requirement 2.27.11.6.8 Added Note

RATIONALE: To provide sample text for when the elevator is overloaded at an evacuation floor while on OEO. [Record 16-2357]

Requirement 2.27.11.6.9 Revised

RATIONALE: To clarify by using common terminology of "elevator evacuation zone" instead of "a floor that is being evacuated," "block of floors," and "block." [Record 15-636]

Requirement 2.27.11.6.9 Revised

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. To be consistent in the use of the term "elevator" instead of "car" in this section, to clarify how parking is terminated by new demand and that it will return to parking only if no demand for a new 60 s period occurs. The parking floor was changed to a floor within the zone because all elevator lobbies are safe since no FAID has initiated Fire Phase I Recall; this allows for better positioning of parked cars if possible based on additional building population information. [Record 16-2357]

Requirement 2.27.11.6.10 Revised

RATIONALE: The revisions shown are based on ASME A17.1-2016/CSA B44-2016 and the approved Record 15-636 changes. To clarify that the termination of OEO is per group. [Record 16-2357]

Requirement 2.28.1(k) Added

RATIONALE: The location of the access panels and protective guards affects the elevator installer, elevator personnel, the fire alarm system designer, and fire alarm technicians. Indicating the location of these on the layout drawings ensures that the information required by all parties can be found in one place. This information is also useful to the AHJs who inspected both the elevator and the fire alarm system. [Record 13-1901]

Requirement 2.29.1.3(i) Revised

RATIONALE: None provided (update to reference section only). [Record 15-1684]

Requirement Section 3.12 Revised

RATIONALE: To include the new terminology for closed detection means, consistent with changes made in Part 2 (see TN 09-500). [Record 15-531]

Requirement 3.12.2 Revised

RATIONALE: To include the new terminology for closed detection means, consistent with changes made in Part 2 (see TN 09-500). [Record 15-531]

Requirement 3.19.2.5 Revised

RATIONALE:

(a) Revise language to more performance-based language.

(b) Allow measurement of system pressure by a pressure-sensing means with associated pressure display. Providing access for system pressure readings without having to connect a pressure gauge provides equivalent or better safety for elevator personnel when measuring system pressure. [Record 14-1436]

Requirement 3.19.4.1 Revised

RATIONALE: Rules rewritten in light of the new definition for manually operated valve and defined security levels for valves inside and outside the hoistway. The shutoff valve is not required in normal operation of the elevator. [Record 14-1437]

Requirement 3.19.4.4 Revised

RATIONALE: Revise language to more performance-based language. Allow manual lowering either by direct or by access from outside the hoistway. [Record 14-1437]

Requirement 3.26.1 Revised

RATIONALE: Added reference to new 3.26.11.1. [Record 09-872]

Requirement 3.26.4.2 7.4.14.8 Added

RATIONALE: To include the new terminology for closed detection means, consistent with changes made in Part 2 (see TN 09-500). [Record 15-531]

Requirement 3.26.8 Revised

RATIONALE: Revise language to more performance-based language. Allow loss of pressure sensing by a switch, a sensor, or other means. [Record 14-1268]

Requirement 3.26.11 Added

RATIONALE: To provide field-adjustable parameters used by the executable software that do not alter the USI be permitted. Parameter changes shall not cause the USI to change. This is necessary for the integrity and traceability of the executable software functionality and the USI associated with it. To include hydraulic based software functions in the USI requirement. [Record 09-872]

Requirement 3.26.11.1 Added

RATIONALE: To provide field-adjustable parameters used by the executable software that do not alter the USI be permitted. Parameter changes shall not cause the USI to change. This is necessary for the integrity and traceability of the executable software functionality and the USI associated with it. To include hydraulic based software functions in the USI requirement. [Record 09-872]

Requirement 3.26.11.2 Added

RATIONALE: To provide field-adjustable parameters used by the executable software that do not alter the USI be permitted. Parameter changes shall not cause the USI to change. This is necessary for the integrity and traceability of the executable software functionality and the USI associated with it. To include hydraulic based software functions in the USI requirement. [Record 09-872]

Requirement 3.26.11.3 Added

RATIONALE: To provide means for inspectors and mechanics to identify the installed software USI. To provide field-adjustable parameters used by the executable software that do not alter the USI be permitted. Parameter changes shall not cause the USI to change. This is necessary for the integrity and traceability of the executable software functionality and the USI associated with it. To include hydraulic based software functions in the USI requirement. [Record 09-872]

Requirements 4.2.12.1, 4.2.12.2, and 4.2.12.3 Revised

RATIONALE: These requirements were originally intended to be revised as part of Record 10-0967. It is the author's understanding that the changes to 4.2.12 were supposed to be removed from the proposal after Ballot 16-493 because only the requirements within the purview of the MDC were to be considered. However, the proposal following that ballot included the language from 4.12.2 with black strikethrough of the requirements and rationale. It seems like this was mistaken to mean that these should be deleted from the Code rather than deleted from the Record. It is the authors understanding that an Errata will be proposed to address this revision. [Record 10-0967]

Requirements 5.2.1.4.3, 5.2.1.4.4, and 5.2.1.4.5 Revised

RATIONALE: Correct the references to Parts 2 and 3 in 5.2.1.4.3 and 5.2.2.1.1, and modify 5.2.1.4.3, 5.2.1.4.4, 5.2.1.4.5, and 5.2.2.1.1 to remove the reference to "refuge space." Modified 5.2.1.4.5(b) to reflect new Code requirements as in 2.4.7.2. [Record 17-2519]

Requirement 5.2.1.16.2 Revised

RATIONALE: To clarify that the data plate is required and to specify the location of data plates. [Record 16-454]

Requirement 5.2.2.1.1 Revised

RATIONALE: Correct the references to Parts 2 and 3 in 5.2.1.4.3 and 5.2.2.1.1, and modify 5.2.1.4.3, 5.2.1.4.4, 5.2.1.4.5, and 5.2.2.1.1 to remove the reference to "refuge space." Modified 5.2.1.4.5(b) to reflect new Code requirements as in 2.4.7.2. [Record 17-2519]

Requirement 5.3.1.3 Revised

RATIONALE: Editorial correction to the dimension. Updated requirements and reference when bodily entry is required.

Editorially changed reference for nonremovable means to correct section. [Record 06-1653]

Requirement 5.3.1.5 Revised

RATIONALE: The requirements were expanded to cover other equipment to protect the elevator equipment due to the possibility of having controls and machines in the hoistway space. [Record 06-1653]

Requirement 5.3.1.6 Added

RATIONALE: A new section has been added to provide requirements to address the new definitions as they relate to MRL private residence elevators. [Record 06-1653]

Requirement 5.3.1.6.1 Added

RATIONALE: This new requirement has been added to address the safety concerns related to working areas.

The words "to protect from accidental contact" were struck from the proposal for Ballot 08-424 due to disapproved comment.

The words "located on or adjacent to" added because, in residential applications, space or other concerns may prevent signage from being located adjacent to the guarding. [Record 06-1653]

Requirement 5.3.1.6.2 Added

RATIONALE: Provisions have been added to cover these types of spaces located outside the hoistway. [Record 06-1653]

Requirement 5.3.1.6.3 Added

RATIONALE: Provisions have been added to cover these types of spaces not addressed in the Private Residence Standard previously. [Record 06-1653]

Requirement 5.3.1.6.4 Added

RATIONALE: Provisions have been added to cover these types of spaces not addressed in the Private Residence Standard previously. [Record 06-1653]

Requirement 5.3.1.6.5 Added

RATIONALE: Provisions have been added to cover these types of spaces not addressed in the Private Residence Standard previously. [Record 06-1653]

Requirement 5.3.1.6.6 Added

RATIONALE: A new section was added to address the requirements for closing and locking all applicable access doors and openings. [Record 06-1653]

Requirement 5.3.1.6.7 Added

RATIONALE: Provisions have been added to address these spaces not addressed in the Private Residence Elevator Standard previously. [Record 06-1653]

Requirement 5.3.1.6.8 Added

RATIONALE: Added provisions to address safety concerns associated with the machine and or controller mounted on the car. [Record 06-1653]

Requirement 5.3.1.6.9 Added

RATIONALE: Provisions have been added to address these spaces not addressed in the Private Residence Elevator Standard previously. [Record 06-1653]

Requirements 5.3.1.7 through 5.3.1.21 Renumbered; formerly 5.3.1.6 through 5.3.1.20

RATIONALE: Renumbered due to addition of new Requirement 5.3.1.6. [Record 06-1653]

Requirements 5.3.1.7.1 and 5.3.1.7.2 Revised; formerly 5.3.1.6.1 and 5.3.1.6.2

RATIONALE: Added the requirements to address remote machine and/or control space installations. [Record 06-1653]

Requirement 5.3.1.7.3 Added

RATIONALE: Added the requirements to address remote machine and/or control space installations. [Record 06-1653]

Requirement 5.3.1.8.1 Revised; formerly 5.3.1.7.1

RATIONALE: Current language does not specify a maximum clearance around the hoistway door. These requirements are meant to prevent someone from reaching under or around a hoistway door. The distance is based on anthropometric data of a 3-year-old child's finger and hand. [Record 14-1004]

Requirement 5.3.1.9.1 Revised; formerly 5.3.1.8.1

RATIONALE: Moved the car-top strength and railing requirements to the appropriate section. [Record 06-1653]

Requirement 5.3.1.9.2 Revised; formerly 5.3.1.8.2

RATIONALE: Eliminated reference to requirements for vertically sliding doors since they are not allowed on private residence elevators. [Record 15-1171]

Requirement 5.3.1.17.2 Revised; formerly 5.3.1.16.2

RATIONALE: Completion of harmonization. In addition, there are no safety concerns that should restrict rack-and-pinion usage for residential elevators. [Record 15-2308]

Requirement 5.3.1.17.2(b)(1) Revised; formerly 5.3.1.16.2(b)(1)

RATIONALE: Current language only allows for steel and cast iron — change to allow only metal with material properties that comply with Section 2.24 to be used. [Record 17-1760]

Requirement 5.3.1.17.2(j) Revised; formerly 5.3.1.1.16.2(j)

RATIONALE: Completion of harmonization. In addition, there are no safety concerns that should restrict rack-and-pinion usage for residential elevators. [Record 15-2308]

Requirement 5.3.1.19.2.2 Revised; formerly 5.3.1.18.2.2

RATIONALE: To make it clear that if the landing door or gate is not cycled at a landing, then the elevator will accept calls. The requirement is for the controller to check for a condition where the landing door is cycling but the car door or gate is not cycling. [Record 15-2307]

Requirement 5.3.1.19.9 Added

RATIONALE: New requirements were added to address the control space or control room remote from elevator drive machine. [Record 06-1653]

Requirement 5.3.1.22 Added

RATIONALE: User instructions are needed for safe operation and proper maintenance of the elevator and instructions need to be on the premises. [Record 06-1653]

Section 5.9 Revised

RATIONALE: Add wording to address the mine elevator operating environment. While their "limited use and types of constructions of mines served" contribute substantially to their delineation as a "Special Application Elevator," the conditions that this special application elevator operates in can contribute substantially to additional requirements in Part 2 of ASME A17.1/CSA B44. [Record 16-1175]

Requirement 5.9.2 Revised

RATIONALE: Mine elevator hoistways are not enclosed, therefore accessible areas near the hoistway must be protected (see the definition of Mine Hoistway). Unguarded walkaways may exist around the upper perimeter of the pit behind the landing doors. No requirements are in place to address fall hazards into the pit and contact with moving elevator equipment in the mining environment. Editorial changes to renumber new and current requirements 5.9.2.2 and 5.9.2.3. [Record 17-1565]

Requirement 5.9.4 Revised

RATIONALE: Requirement 2.4.12 was rewritten; the term "refuge" has been removed from this section of the Code (2.4.12) and rewritten in 2.4.7.1 and therefore the reference section number has changed. Since 5.9.14.3 requires car-top protection, no distance above the required car-top protection is specified. [Record 16-1178]

Requirement 5.9.7 Revised

RATIONALE: To make the following editorial changes from ASME A17.1-2016/CSA B44-2016 so it is consistent with current Code in Part 2 as follows: The current section uses the words "Machine Rooms and Machinery Spaces" in the title. Propose adding wording to the title to reflect consistency with current Code language in Section 2.7. [Record 16-1176]

Requirement 5.9.8 Revised

RATIONALE: To make the following editorial changes from ASME A17.1-2016/CSA B44-2016 so it is consistent with current Code in Part 2 as follows: The original reference to 2.8.2 was to "Pipes, Ducts, Tanks and Sprinklers" NOT "Electrical Equipment and Wiring." The original reference to 2.8.4 was to "Air Conditioning" NOT "Electrical Heaters."

The current section uses the words "Equipment in Hoistways and Machine Rooms" in the title; propose adding wording to the title and reference numbering to reflect the appropriate current Code language and numbers in Section 2.8. [Record 16-1176]

Requirement 5.9.10 Revised

RATIONALE: To make the following editorial changes from ASME A17.1-2016/CSA B44-2016 so it is consistent with current Code in Part 2 as follows: The current section uses the word "Guarding" in the title; propose adding wording to the title to reflect current Code language in Section 2.10. [Record 16-1176]

Requirement 5.9.17 Revised

RATIONALE: To make the following editorial changes from ASME A17.1-2016/CSA B44-2016 so it is consistent with current Code in Part 2 as follows: Relocate this requirement to Section 5.9 to be consistent with the numbering system in Part 2. [Record 16-1176]

Requirement 5.9.20 Revised

RATIONALE: To make the following editorial changes from ASME A17.1-2016/CSA B44-2016 so it is consistent with current Code in Part 2 as follows: In 2010 edition of ASME A17.1/CSA B44, the word "ropes" was changed to "means" to accommodate the use of aramid fiber and elastomeric coated steel suspension members. Editorial revision to change the word "ropes" to "means" to reflect current Code language. [Record 16-1176]

Requirement 5.9.21 Revised

RATIONALE: To make the following editorial changes from ASME A17.1-2016/CSA B44-2016 so it is consistent with current Code in Part 2 as follows: Relocate this requirement to Section 5.9 to be consistent with the numbering system in Part 2. [Record 16-1176]

Requirement 5.9.22 Revised

RATIONALE: Mine elevator hoistways are provided with deep pits to address water accumulation and other environmental conditions. Reduced stroke buffers are not needed. [Record 18-190]

Requirement 5.9.26 Revised

RATIONALE: Add subsection headings for editorial clarification. Delete "with defects in the automatic operation" to eliminate the need for that specific condition. Strikeout the editorial renumbering previously approved by the Standards Committee on February 19, 2015 (TN14-2093) and restore the numbering as it appears in ASME A17.1-2016/CSA B44-2016. [Record 16-324]

Requirement 5.9.30 Revised

RATIONALE: Renumber this section to provide a new section for 5.9.30 as per the numbering format in Part 2. [Record 16-1177]

Section 5.11 Revised to update references for ASME A17.8/CSA B44.8

RATIONALE: This proposal provides an editorial revision to Wind Turbine Tower Elevator references in ASME A17.1/CSA B44 addressing the binational scope of this standard. [Record 18-1699]

Requirements 6.1.3.9.1, 6.1.3.9.2, and 6.1.3.9.3 Revised

RATIONALE: Current language pertaining to the calculations of factors of safety for escalator and moving walk systems contains ambiguities leading to confusion and different calculation approaches by designers. The current Code language leaves open to interpretation whether analysis of the driving machine parts and power transmission members should be based on a stationary condition, i.e., not in motion, or an operating condition, i.e., with motion at constant velocity/speed (not accelerating), and whether system losses and other applied loads encountered on the components during operation are to be considered.

Application of system losses and any additional loads imposed on the system while operating in the upward (lifting) direction are intended to be included with the machinery-rated load for assessment of factors of safety on driving machine parts and power transmission systems of escalators and moving walks. Current requirements pertaining to factors of safety on escalator and moving walk drive machine parts and power transmission members are revised to address ambiguities and confusion on the application of system losses and any additional loads imposed on the systems. Revisions are also made to applicable escalator and moving walk requirements to correct and clarify that required factors of safety are minimum values and the loads from which the factors of safety are calculated are fixed values. [Record 17-1408]

Requirements 6.1.3.10, 6.1.3.10.2, 6.1.3.10.3, and 6.1.3.10.4 Revised

RATIONALE: Current language pertaining to the calculations of factors of safety for escalator and moving walk systems contains ambiguities leading to confusion and different calculation approaches by designers. The current Code language leaves open to interpretation whether analysis of the driving machine parts and power transmission members should be based on a stationary condition, i.e., not in motion, or an operating condition, i.e., with motion at constant velocity/speed (not accelerating), and whether system losses and other applied loads encountered on the components during operation are to be considered.

Application of system losses and any additional loads imposed on the system while operating in the upward (lifting) direction are intended to be included with the machinery-rated load for assessment of factors of safety on driving machine parts and power transmission systems of escalators and moving walks. Current requirements pertaining to factors of safety on escalator and moving walk drive machine parts and power transmission members are revised to address ambiguities and confusion on the application of system losses and any additional loads imposed on the systems. Revisions are also made to applicable escalator and moving walk requirements to correct and clarify that required factors of safety are minimum values and the loads from which the factors of safety are calculated are fixed values. [Record 17-1408]

Requirement 6.1.3.12 Revised

RATIONALE: An informal interpretation request was received from a committee member concerning the width of the headroom in 6.1.3.12, Headroom. The requirement only specifies the minimum headroom height, leaving the width to inference and judgment. A TN was requested to remedy this condition and further clarify the height specification. [Record 14-2426]

Requirements 6.1.5.3.1 and 6.1.5.3.3 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.1.5.3.4 Added

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.1.6.3.1 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.1.6.3.1 Revised

RATIONALE: Revision to clarify the location of the stop button using the language from 6.1.6.2.1. [Record 15-1376]

Requirements 6.1.6.3.3, 6.1.6.3.6, 6.1.6.3.7, and 6.1.6.3.9 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirements 6.1.6.3.11 and 6.1.6.3.12 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirements 6.1.6.3.14 and 6.1.6.3.16 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.1.6.4, 6.1.6.5, 6.1.6.6, and 6.1.6.8 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake

rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.1.6.10.4 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.1.6.11 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

Stopping performance monitoring is as critical as the handrail speed monitor or missing step in preventing the electrical protective devices that are permitted to use dynamic braking from being ineffective. [Record 12-1111]

Requirement 6.1.6.13 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised. [Record 12-1111]

Requirements 6.2.3.10.1, 6.2.3.10.2, and 6.2.3.10.3 Revised

RATIONALE: Current language pertaining to the calculations of factors of safety for escalator and moving walk systems contains ambiguities leading to confusion and different calculation approaches by designers. The current Code language leaves open to interpretation whether analysis of the driving machine parts and power transmission members should be based on a stationary condition, i.e., not in motion, or an operating condition, i.e., with motion at constant velocity/speed (not accelerating), and whether system losses and other applied loads encountered on the components during operation are to be considered.

Application of system losses and any additional loads imposed on the system while operating in the upward (lifting) direction are intended to be included with the machinery-rated load for assessment of factors of safety on driving machine parts and power transmission systems of escalators and moving walks. Current requirements pertaining to factors of safety on escalator and moving walk drive machine parts and power transmission are revised to address ambiguities and confusion on the application of system losses and any additional loads imposed on the systems. Revisions are also made to applicable escalator and moving walk requirements to correct and clarify that required factors of safety are minimum values and the loads from which the factors of safety are calculated are fixed values. [Record 17-1408]

Requirements 6.2.3.11, 6.2.3.11.2, 6.2.3.11.3, 6.2.3.11.4, and 6.2.3.11.5 Revised

RATIONALE: Current language pertaining to the calculations of factors of safety for escalator and moving walk systems contains ambiguities leading to confusion and different calculation approaches by designers. The current Code language leaves open to interpretation whether analysis of the driving machine parts and power transmission members should be based on a stationary condition, i.e., not in motion, or an operating condition, i.e., with motion at constant velocity/speed (not accelerating), and whether system losses and other applied loads encountered on the components during operation are to be considered.

Application of system losses and any additional loads imposed on the system while operating in the upward (lifting) direction are intended to be included with the machinery-rated load for assessment of factors of safety on driving machine parts and power transmission systems of escalators and moving walks. Current requirements pertaining to factors of safety on escalator and moving walk drive machine parts and power transmission are revised to address ambiguities and confusion on the application of system losses and any additional loads imposed on the systems. Revisions are also made to applicable escalator and moving walk requirements to correct and clarify that required factors of safety are minimum values and the loads from which the factors of safety are calculated are fixed values. [Record 17-1408]

Requirement 6.2.3.15 Revised

RATIONALE: An informal interpretation request was received from a committee member concerning the width of the headroom in 6.1.3.12, Headroom. The requirement only specifies the minimum headroom height, leaving the width to inference and judgment. A TN was requested to remedy this condition and further clarify the height specification. [Record 14-2426]

Requirement 6.2.5.3.1 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.2.5.3.3 Added

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirements 6.2.6.3.1, 6.2.6.3.3, 6.2.6.3.6, 6.2.6.3.8, 6.2.6.3.9, and 6.2.6.3.10 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.2.6.3.1 Revised

RATIONALE: To clarify the location of the stop button using the language from 6.2.6.2.1 and to provide an editorial update to Code definitions. [Record 15-1376]

Requirements 6.2.6.4, 6.2.6.5, 6.2.6.6, and 6.2.6.7 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.2.6.9.4 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 6.2.6.12 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Part 7 Scope revised

RATIONALE: Hand dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power dumbwaiters, and their requirements should be removed from the Code. [Record 16-2767]

Section 7.1 Revised

RATIONALE: Hand dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power dumbwaiters, and their requirements should be removed from the Code. [Record 16-2767]

Requirement 7.1.10 Scope revised

RATIONALE: Hand dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power dumbwaiters, and their requirements should be removed from the Code. [Record 16-2767]

Requirements 7.1.11.1.2, 7.1.11.2.2, 7.1.11.3.2, 7.1.11.12.9, and 7.1.12.2 Deleted

RATIONALE: Hand dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power dumbwaiters, and their requirements should be removed from the Code. [Record 16-2767]

Section 7.2 Revised

RATIONALE: Hand dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power dumbwaiters, and their requirements should be removed from the Code. [Record 16-2767]

Requirements 7.2.6.1.2, 7.2.10.2, 7.2.10.2.1, and 7.2.10.2.2 Deleted

RATIONALE: Hand dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power dumbwaiters, and their requirements should be removed from the Code. [Record 16-2767]

Requirement 7.2.12.1 Revised

RATIONALE: Hand dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power dumbwaiters, and their requirements should be removed from the Code. [Record 16-2767]

Requirement 7.4.3 Revised

RATIONALE: Requirement 2.1.1.2.2(e) allows glass hoistway enclosures and this should not be allowed. Clarify that 2.1.1.1 still applies for Type B material lifts when fire-resistive construction is required. Material lifts are only permitted in areas not accessible to the general public such as warehouses and factories. They are used exclusively for moving freight, which is typically moved on hand pallet trucks, carts, or powered material handling equipment. The risk of impact to the glass is higher in these types of environments compared to passenger elevators and glass should not be permitted. [Record 16-3121]

Requirement 7.4.4 Revised

RATIONALE: The original clause is unclear. [Record 16-3120]

Requirement 7.5.1.1.7 Revised

RATIONALE: Require a car-top railing when a car top is provided on a Type B material lift. [Record 16-3108]

Requirement 7.5.10(f)(1) Revised

RATIONALE: Allow the driving machine to be located above the platform when a car top is provided. This allows alternative material lift designs with the machine above the car in the hoistway while also enhancing the safety of the operator and material handler by providing a car top in these situations. [Record 16-3108]

Requirement 7.6.7 Revised and **Requirement 7.6.7.1** added

RATIONALE: Require Type A hydraulic material lifts to have identical Code requirements for terminal stopping devices as hydraulic passenger and freight elevators. [Record 16-2769]

Requirement 7.6.7.2 Added

RATIONALE: Retain the terminal stopping device requirements for Type B hydraulic material lifts. [Record 16-2769]

Requirement 7.6.8.1(f) Added

RATIONALE: Clarify that final terminal stopping devices are not required on hydraulic material lifts. [Record 16-2769]

Requirement 8.1.2(j) Revised

RATIONALE: Provide an editorial correction to reference number and revise to be consistent with the change to 3.19.2.5. [Record 14-1436]

Requirement 8.1.2(z) Added

RATIONALE: To add reference for Group 1 security key for the top emergency exit cover, including previously missing reference from 8.4.4.1. [Record 18-1575]

Requirements 8.1.3(l) and 8.1.3(m) Added

RATIONALE: Correlation between Part 5 and Part 8. [Record 06-1653]

Section 8.3 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 8.3.3.1 Revised

RATIONALE: To include new wording for closed detection means and editorial correction for type tests. [Record 09-500]

Requirement 8.3.3.3.1 Revised

RATIONALE: To include requirements for testing with SIL rated devices and the E/E/PES system connected to it. Even though the SIL rated device is certified and listed as such, it still has to be type tested according to the requirements in Section 8.3. If the SIL rated device or E/E/PES output has electrical contacts, it must be tested at the maximum rated current and voltage. Devices with a SIL rating have already been tested for electrical connection and calculated failure probability. [Record 09-500]

Requirement 8.3.3.3.2 Revised

RATIONALE: To include SIL rated devices in the requirement. [Record 09-500]

Requirement 8.3.3.4 Revised

RATIONALE: Test requirements specified in 8.3.3.4.2 and 8.3.3.4.6 are specific to electrical contacts. Note that these tests are not additive in the 1 000 000 cycles total. [Record 09-500]

Requirement 8.3.3.4.2 Revised

RATIONALE: To clarify that this test is required for electrical contacts and the electric contact output of a SIL rated device. [Record 09-500]

Requirement 8.3.3.4.3 Revised

RATIONALE: To clarify the continuation of tests for the different devices. [Record 09-500]

Requirement 8.3.3.4.6 Revised

RATIONALE: To clarify that this test is only required for electric contacts in non-SIL rated devices. [Record 09-500]

Requirement 8.3.3.4.10 Revised

RATIONALE: To include the SIL rated devices and to clarify the requirements and align the requirement with 2.12.2.4.4. [Record 09-500]

Requirement 8.3.3.4.11 Revised

RATIONALE: To include the SIL rated devices. [Record 09-500]

Requirement 8.3.6 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 8.3.14 Added

RATIONALE: It has been reported that some restrictors malfunction and do not lock properly. Adding requirements for engineering tests and a static test of car door restrictors with moving parts similar to applicable requirements for car and hoistway door interlocks will increase their robustness and reliability. [Record 15-655]

Requirement 8.4(a)(3) Revised

RATIONALE: NBCC Requirement 4.1.8.1states that $S(0.2)$ as part of the exception language. NBCC Requirement 4.1.8.4(6) defines $S(0.2)$ as $F_aS_a(0.2)$ as found in NBCC 2005. This proposal will make Sections 8.4 and 8.5 consistent with NBCC. [Record 17-1561]

Requirement 8.4.10.1.4 Revised

RATIONALE: Requirement 8.4.10.1.4 deals with the counterweight displacement detection device actuation whereas 8.4.10.1.3 deals with the seismic detection device actuation. [Record 15-1684]

Requirement 8.5(a)(3) Revised

RATIONALE: NBCC requirement 4.1.8.1 states that $S(0.2)$ is part of the exception language. NBCC requirement 4.1.8.4(6) defines $S(0.2)$ as $F_aS_a(0.2)$ as found in NBCC 2005. This proposal will make Sections 8.4 and 8.5 consistent with NBCC. [Record 17-1561]

Requirement 8.6.1.1.2 Revised

RATIONALE: Section 8.6 now includes the requirements for Periodic Tests. When these requirements were moved to Section 8.6 from Section 8.11, the use of references to ASME A17.2 items was maintained, but not explained in 8.6. This Note is to clarify the usage of the term. [Record 14-0640]

Requirement 8.6.1.1.4 Added

RATIONALE:

(a) It is a common occurrence for the latest Code to require safety devices and other items on new equipment that are not required by the Code adopted by the Authority Having Jurisdiction (AHJ). Manufacturers comply with the latest Code when manufacturing new equipment and provide all required safety devices. It has sometimes been unclear whether these safety devices were required to function and be tested during acceptance and periodic tests. In addition, the proper method of testing these devices is sometimes unknown or unclear. The addition of the above requirement would allow the Code to address these issues; currently it does not.

(b) Placement of the operating requirements and test procedures in the On-Site Documentation will provide the AHJ the information necessary to properly inspect and test the device without referring to the subsequent editions of ASME A17.1/CSA B44 or ASME A17.3 that they have not adopted. Those requirements and procedures may be taken from the subsequent editions of ASME A17.1/CSA B44 or ASME A17.3.

(c) Today, the person or firm maintaining the equipment does not necessarily maintain the device that was designed and installed. It is also common for documentation containing specifications and testing requirements for the unit's safety devices to be missing or nonexistent. To properly inspect and test some of the safety devices, especially devices written into the controller software, it is necessary to have an inspection and test procedure for the safety device developed by its manufacturer, and to have it available at the time of inspection or test. The addition of the above requirement would allow the Code to specify that inspection and test

documentation be kept with the unit at all times, so that the safety devices may be properly inspected and tested.

(d) In the case where the device is required by subsequent editions of ASME A17.1/CSA B44 or ASME A17.3, the Code requirement and/or testing procedure would satisfy the documentation requirement for the On-Site Documentation.

(e) Manufacturers/Installers sometimes include safety devices and features beyond Code requirement to enhance the safety of equipment. This may be done because of design features or to ensure the maximum safety allowed by the state of technology. Also, compliance with ASME A17.7/CSA B44.7 designs may require additional safety features or devices. This proposal will require subsequent maintenance providers to maintain these safety features/devices in accordance with the purpose of this Code stated in Section 1.2. [Record 10-1618]

Requirement 8.6.1.2.2(e) Added

RATIONALE: To provide requirements for documentation for the installation software related to ASME A17.1/CSA B44 safety functions in a similar manner as the current Code provides with field wiring diagrams (see proposed 2.26.1.7.1). To clarify the scope of the requirement for the new Software record keeping. [Record 09-872]

Requirement 8.6.1.2.3 Added (Errata)

RATIONALE: Requirement 8.6.1.2.2 was inadvertently removed in the 2013 edition instead of being renumbered. [Record 08-1348]

Requirement 8.6.1.4.1(b)(3) Added

RATIONALE: To add the unique software identifier and test record in the repair and replacement record. [Record 09-872]

Requirement 8.6.2.3 Revised

RATIONALE: To include the test required for pull-out and pull-through when doing a repair. [Record 17-1098]

Requirement 8.6.4.2 Revised

RATIONALE:

(a) If lubricants have been applied to governor ropes, the governor ropes shall be replaced.

(b) The cross reference of 8.6.4.18.2 does not exist and needs to be corrected as shown in the proposal. [Record 14-1002]

Requirement 8.6.4.19.2 Revised

RATIONALE:

(a) Clarify condition of governor and safety switches during tests.

(b) Controller, service tools, and accelerometers can provide accurate speed readings.

(c) A properly operating emergency brake would prevent application of the car or counterweight safety. Therefore, it should not be allowed to operate during the test.

(d) To provide language consistent with NFPA 70E®, Electrical Safety in the Workplace, in order to avoid the disconnecting means being used to remove power from the driving machine motor and brake because the risk of arc-flash is increased when it is opened under load.

(e) Provide a reference to revised Table 2.29.2(b) in ASME A17.2, giving the maximum and minimum stopping distances for actual speed in 5 ft/min increments for speed through 1,000 ft/min and 10 ft/min increments up through 2,400 ft/min and in increments of 0.05 m/s through 12 m/s. [Record 14-1906]

Requirement 8.6.4.19.8 Revised

RATIONALE: To be consistent with 2.13.4.2.4. [Record 10-0967]

Requirement 8.6.4.19.8 Revised

RATIONALE: Requirement 8.6.5.14.6 was added in the 2016 edition and is consistent with 8.6.4.19.8. It should not be confused with 8.6.5.14.3(g). Requirement 8.6.5.14.3(g) should be changed to properly sync with ASME A17.2, Item 4.7. ASME A17.2, Item 4.6 can be removed since it does not contain a periodic inspection or test and the Code reference (8.6.4.19.8) in 8.6.5.14.3(g) can be removed since it is not relevant to sequence operation and is covered in 8.6.4.19.8 and 8.6.5.14.6. Since ASME A17.2, Item 4.7 relates to sequence operation, the name of the test should be changed to reflect its relationship to Item 4.7.

ASME A17.2, Items 1.8.1 and 1.8.2 in 8.6.4.19.8 and 8.6.5.14.6, respectively, relate to periodic inspections and Category 1 tests but the reference to Items 1.8.1 and 1.8.2 should just be refined to ASME A17.2, Item 1.8. Add the following Category 1 test for electric elevators to be consistent with the Category 1 test for hydraulic elevators. [Record 18-1392]

Requirement 8.6.4.19.17 Added

RATIONALE: To add the applicable ASME A17.2 items for the Earthquake Inspections and Tests. [Record 18-1372]

Requirement 8.6.4.19.18 Added

RATIONALE: To ensure ongoing functionality and proper operation of the detection means. To ensure that the means of on-site checking is consistent with the method described in ASME A17.2, Item 1.1.1. [Record 14-1101]

Requirement 8.6.4.19.19 Added

RATIONALE: Requirement 8.6.5.14.6 was added in the 2016 edition and is consistent with 8.6.4.19.8. It should not be confused with 8.6.5.14.3(g). Requirement 8.6.5.14.3(g) should be changed to properly sync with ASME A17.2, Item 4.7. ASME A17.2, Item 4.6 can be removed since it does not contain a periodic inspection or test and the Code reference (8.6.4.19.8) in 8.6.5.14.3(g) can be removed since it is not relevant to sequence operation and is covered in 8.6.4.19.8 and 8.6.5.14.6. Since ASME A17.2, Item 4.7 relates to sequence operation, the name of the test should be changed to reflect its relationship to Item 4.7.

Items 1.8.1 and 1.8.2 in 8.6.4.19.8 and 8.6.5.14.6, respectively, relate to periodic inspections and Category 1 tests but the reference to Items 1.8.1 and 1.8.2 should just be refined to Item 1.8.

Add the following Category 1 test (8.6.4.19.18) for electric elevators to be consistent with the Category 1 test for hydraulic elevators. [Record 18-1392]

Requirement 8.6.4.19.20 Added

RATIONALE: To clarify that there may be additional unique testing procedures and/or unique tests not described in ASME A17.2, but required by the manufacturer, for equipment applied under alternative arrangements and equipment specified in an ASME A17.7/CSA B44.7 Code Compliance Document (CCD). Such unique testing procedures and/or unique tests not described in ASME A17.2 are currently required to be part of the MCP On-site Documentation per 8.6.1.2.2(b)(2), 8.6.1.2.2(b)(3), and 8.6.1.2.2(b)(4). [Record 17-196]

Requirement 8.6.4.20.1 Revised

RATIONALE:

(a) To clarify condition of governor and safety switches during tests.

(b) Controller, service tools, and accelerometers can provide accurate speed readings.

(c) A properly operating emergency brake would prevent application of the car or counterweight safety. Therefore, it should not be allowed to operate during the test.

(d) To provide language consistent with NFPA 70E®, Electrical Safety in the Workplace, in order to avoid the disconnecting means being used to remove power from the driving machine motor and brake because the risk of arc-flash is increased when it is opened under load.

(e) To provide a reference to revised Table 2.29.2(b) in ASME A17.2, giving the maximum and minimum stopping distances for actual speed in 5 ft/min increments for speed through 1000 ft/min and 10 ft/min increments up through 2400 ft/min and in increments of 0.05 m/s through 12 m/s. [Record 14-1906]

Requirement 8.6.4.23 Added

RATIONALE: To provide guidelines for on-site testing by the service provider of executable software repairs or replacements when these software changes relate to the applicable electric and hydraulic elevators.

NOTE: On-site records [8.6.1.4.1(b)(1)] already require the recording of changes in Requirement 8.6.4. [Record 09-872]

Requirement 8.6.5.14.3 Revised

RATIONALE: None provided. Updated Item numbers. [Record 16-1335]

Requirement 8.6.5.14.3 Revised

RATIONALE: Requirement 8.6.5.14.6 was added in the 2016 edition and is consistent with 8.6.4.19.8. It should not be confused with 8.6.5.14.3(g). Requirement 8.6.5.14.3(g) should be changed to properly sync with A17.2, Item 4.7. ASME A17.2, Item 4.6 can be removed since it does not contain a periodic inspection or test and the Code reference (8.6.4.19.8) in 8.6.5.14.3(g) can be removed since it is not relevant to sequence operation and is covered in 8.6.4.19.8 and 8.6.5.14.6. Since ASME A17.2, Item 4.7 relates to sequence operation, the name of the test should be changed to reflect its relationship to Item 4.7.

Items 1.8.1 and 1.8.2 in 8.6.4.19.8 and 8.6.5.14.6, respectively, relate to periodic inspections and Category 1 tests but the reference to Items 1.8.1 and 1.8.2 should just be refined to Item 1.8.

Add the following Category 1 test for electric elevators to be consistent with the Category 1 test for hydraulic elevators. [Record 18-1392]

Requirement 8.6.5.14.6 Revised

RATIONALE: To be consistent with 2.13.4.2.4. [Record 10-0967]

Requirement 8.6.5.14.6 Revised

RATIONALE: Requirement 8.6.5.14.6 was added in the 2016 edition and is consistent with 8.6.4.19.8. It should not be confused with 8.6.5.14.3(g). Requirement 8.6.5.14.3(g) should be changed to properly sync with ASME A17.2, Item 4.7. ASME A17.2, Item 4.6 can be removed since it does not contain a periodic inspection or test and the Code reference (8.6.4.19.8) in 8.6.5.14.3(g) can be removed since it is not relevant to sequence operation and is covered in 8.6.4.19.8 and 8.6.5.14.6. Since ASME A17.2, Item 4.7 relates to sequence operation, the name of the test should be changed to reflect its relationship to Item 4.7.

ASME A17.2, Items 1.8.1 and 1.8.2 in 8.6.4.19.8 and 8.6.5.14.6, respectively, relate to periodic inspections and Category 1 tests, but the reference to Items 1.8.1 and 1.8.2 should just be refined to ASME A17.2, Item 1.8.

Add the following Category 1 test for electric elevators to be consistent with the Category 1 test for hydraulic elevators. [Record 18-1392]

Requirement 8.6.5.14.8 Revised

RATIONALE: To add the applicable A17.2 items for the Earthquake Inspections and Tests. [Record 18-1372]

Requirements 8.6.5.14.9 and 8.6.5.14.10 Added

RATIONALE: To clarify that there may be additional unique testing procedures and/or unique tests not described in A17.2, but required by the manufacturer, for equipment applied under alternative arrangements and equipment specified in an ASME A17.7/CSA B44.7 Code Compliance Document (CCD). Such unique testing procedures and/or unique tests not described in ASME A17.2 are currently required to be part of the MCP on-site documentation per 8.6.1.2.2(b)(2), 8.6.1.2.2(b)(3), and 8.6.1.2.2(b)(4). [Record 17-196]

Requirements 8.6.5.16.1, 8.6.5.16.2, and 8.6.5.16.3 Revised

RATIONALE: None provided. Updated Item numbers. [Record 16-1335]

Requirement 8.6.5.16.4 Revised

RATIONALE: To add inspections procedures for plunger gripper. To editorially amend table for clarity. [Record 16-2552]

Requirement 8.6.6.1.1 Revised

RATIONALE: Requirements 8.6.5.14 through 8.6.5.16 are hydraulic elevator requirements.

Background: Regarding ASME A17.1-2016/CSA B44-16, Requirement 8.6.6.1.1, it appears that TN 11-1731 was approved, and it removed hydraulic type elevator references from Rack-and-Pinion Elevator Periodic Tests, which makes sense as I am not aware of any hydraulic rack-and-pinions. The result was the language was deleted from ASME A17.1-2013/CSA B44-13. Then TN 12-961 was approved, resulting in its language being published in ASME A17.1-2016/CSA B44-16. The "pre-TN 11-1731" language was placed into TN 12-961, resulting in the hydraulic references being placed back in ASME A17.1-2016/CSA B44-16, Requirement 8.6.6.1.1. [Record 17-2717]

Requirement 8.6.7.9.6 Revised

RATIONALE: To establish retirement criteria for mine elevator compensating chains. The compensating chains are required by 5.9.21 to have a factor of safety of 5. A 20% loss in diameter will typically result in a minimum loss of cross-sectional area of 20% with an approximate proportional loss of strength. Requirement 8.6.7.9.6 requires mine elevator compensating chain retirement when the factor of safety is 4 or less. [Record 18-191]

Requirement 8.6.8 Revised

RATIONALE: Currently the requirements for periodic testing of moving walks is contained in 8.6.8.15, while the maintenance requirements for moving walks is contained in 8.6.9. Except for 8.6.8.15, all of 8.6.8 specifically only applies to maintenance of escalators. However, 8.6.8.15 covers periodic testing of both escalators and moving walks.

This proposal provides requirements to specifically address the periodic testing for moving walks and creates a link between 8.6.9 and 8.6.8.15. [Record 14-1893]

Requirement 8.6.8.3.3 Revised

RATIONALE:

(a) To correct the referenced requirement.

(b) To add the referenced requirement to 8.6.8.3.3(c). [Record 16-2452]

Requirement 8.6.8.15 Revised

RATIONALE: Currently the requirements for periodic testing of moving walks is contained in 8.6.8.15, while the maintenance requirements for moving walks is contained in 8.6.9. Except for 8.6.8.15, all of 8.6.8 specifically only applies to maintenance of escalators. However, 8.6.8.15 covers periodic testing of both escalators and moving walks.

This proposal provides requirements to specifically address the periodic testing for moving walks and creates a link between 8.6.9 and 8.6.8.15. [Record 14-1893]

Requirement 8.6.8.15.4 Revised

RATIONALE: Advances in electric motor control technology provide for improvement to braking/stopping performance of escalators. Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load. Current brake

rules in the Code prohibit these possible improvements and are revised.

In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails. [Record 12-1111]

Requirement 8.6.8.15.25 Added

RATIONALE: Skirt obstruction devices should be tested during a Category 1 Test and not a Periodic Inspection. Requirements for testing skirt obstruction devices were revised to improve personnel safety and prevent potential equipment damage. Testing these devices when the unit is moving can be unsafe or damage equipment. Corrected cross-references. [Record 14-1903]

Requirement 8.6.8.15.26 Added

RATIONALE: To clarify that there may be additional unique testing procedures and/or unique tests not described in ASME A17.2, but required by the manufacturer, for equipment applied under alternative arrangements and equipment specified in an ASME A17.7/CSA B44.7 Code Compliance Document (CCD). Such unique testing procedures and/or unique tests not described in ASME A17.2 are currently required to be part of the MCP on-site documentation per 8.6.1.2.2(b)(2), 8.6.1.2.2(b)(3), and 8.6.1.2.2(b)(4). [Record 17-196]

Requirement 8.6.9 Revised

RATIONALE: Currently the requirements for periodic testing of moving walks is contained in 8.6.8.15, while the maintenance requirements for moving walks is contained in 8.6.9. Except for 8.6.8.15, all of 8.6.8 specifically only applies to maintenance of escalators. However, 8.6.8.15 covers periodic testing of both escalators and moving walks.

This proposal provides requirements to specifically address the periodic testing for moving walks and creates a link between 8.6.9 and 8.6.8.15. [Record 14-1893]

Requirement 8.6.10 Revised

RATIONALE: This proposal provides an editorial revision to Periodic Tests of Dumbwaiters requirement language based the rationale of TN 02-04 indicating the changes were only intended to be an editorial relocation of the requirements; these changes were accidentally deleted by TN 02-04 and are being reinstated. [Record 18-1270]

Requirement 8.6.11.1 Revised

RATIONALE:

(a) This TN offers enhanced FEO operational verification via a nonmandatory appendix. The reference to the nonmandatory appendix is contained in a Note.

(b) The proposed nonmandatory appendix intends to enhance the value of the current monthly operation of the recall system by adding verification of select operational features that can easily be performed by an authorized person who has been instructed in the applicable optional outcomes.

(c) The enhanced verification of items contained in the nonmandatory appendix serves to ensure the desired operability of FEO throughout the year, until elevator personnel are required to further confirm additional operational integrity via Category 1 testing as required in 8.6.4.19.

(d) The proposal also clarifies that deficiencies, if found, should be reported to elevator personnel.

(e) The proposal makes this requirement applicable in Canadian jurisdictions. [Record 12-1776]

Requirement 8.7.1.4 Revised

RATIONALE: Punctuation and wording related to escalator and walk welded parts is incorrect and confusing and is revised. Remove the comma after "escalator" and after "walks" to show that the trusses referred to are those of the escalator or moving walk. Make the second "walks" singular as the plural is encompassed in the term "trusses." Change the "or" between "escalators" and "moving" to "and." [Record 15-801]

Requirement 8.7.1.10 Added

RATIONALE: To provide guidelines for on-site verification of executable software when these software changes relate to the alteration of an Electric or Hydraulic Elevator. Part 2 requires the USI to be permanently viewable on-site. As part of an alteration the elevator is tested under the alteration and the Code data plate reflects the requirements that must be fulfilled by the installed software. [Record 09-872]

Requirements 8.7.2.2, 8.7.2.3, 8.7.2.4, 8.7.2.5, 8.7.2.6, 8.7.2.7, and 8.7.2.8 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, and 8.7.2.10.4 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.2.11, 8.7.2.12, and 8.7.2.13 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirement 8.7.2.11.5 Revised

RATIONALE: Since the scope of 2.14.5.7 no longer speaks to hoistway doors, the title and content of 8.7.2.11.5 should be revised. [Record 16-1036]

Requirements 8.7.2.14 and 8.7.2.14.5 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.2.15.1 and 8.7.2.15.2 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from the Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirement 8.7.2.16.1(g) Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an alteration. [Record 16-2636]

Requirements 8.7.2.16.1, 8.7.2.16.2, 8.7.2.16.3, and 8.7.2.16.4 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.2.17.1 and 8.7.2.17.2 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.2.25.1 and 8.7.2.25.2 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirement 8.7.2.25.2 Revised

RATIONALE: To clarify that Identification (Section 2.29) is required to be added for certain alterations, but to only include elevators in the same group. [Record 15-776]

Requirement 8.7.2.25.2 Revised

RATIONALE: To provide the same level of protection to workers on car-top and in pit for installations altered with a change of location of the machine to the hoistway as is provided on new installations. [Record 16-1035]

Requirement 8.7.2.26.1 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.2.27.1, 8.7.2.27.2, 8.7.2.27.3, 8.7.2.27.4, 8.7.2.27.5, 8.7.2.27.6, 8.7.2.27.7, 8.7.2.27.8, and 8.7.2.27.9 Revised

RATIONALE: To add Test Requirements for an Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirements 8.7.2.27.4, 8.7.2.27.5, and 8.7.2.27.6 Revised

RATIONALE: To clarify that Identification (Section 2.29) is required to be added for certain alterations, but to only include elevators in the same group. [Record 15-776]

Requirement 8.7.2.27.4(c) Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an alteration. [Record 16-2636]

Requirement 8.7.2.27.5(m) Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an alteration. [Record 16-2636]

Requirement 8.7.2.27.6(o) Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an alteration. [Record 16-2636]

Requirement 8.7.2.28 Revised

RATIONALE: To add OEO Operation that was overlooked in the previous edition. [Record 09-872]

Requirement 8.7.2.28 Revised

RATIONALE: To clarify that Identification (Section 2.29) is required to be added for certain alterations, but to only include elevators in the same group. [Record 15-776]

Requirement 8.7.2.28 Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an alteration. [Record 16-2636]

Requirement 8.7.2.28 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

8.7.2.31.6(l) Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an alteration. [Record 16-2636]

Requirement 8.7.3 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.3.3, 8.7.3.4, 8.7.3.5, 8.7.3.6, 8.7.3.7, and 8.7.3.8 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.3.10, 8.7.3.11, 8.7.3.12, 8.7.3.14, 8.7.3.15, 8.7.3.16, 8.7.3.17, 8.7.3.18, 8.7.3.19, 8.7.3.20, and 8.7.3.21 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirement 8.7.3.17(f) Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an alteration. [Record 16-2636]

Requirements 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.22.3 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.3.23.1, 8.7.3.23.2, 8.7.3.23.3, 8.7.3.23.4, 8.7.3.23.5, 8.7.3.23.6, and 8.7.3.23.7 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirements 8.7.3.24, 8.7.3.25, 8.7.3.26, 8.7.3.27, 8.7.3.28, and 8.7.3.30 Revised

RATIONALE: To add test requirements for an alteration (and to add reference from Section 8.7 requirements to the alteration testing requirements). [Record 17-443]

Requirement 8.7.3.24 Revised by creating subsections

RATIONALE: For requirement 8.7.3.24(a): The current Section 8.7 language imposes alteration requirements where an existing control valve is replaced with a valve of a different type.

"Different type" is not well understood by users of the Code, despite the requirements in 3.19.4.6.2(d), which ultimately correlate type to a manufacturer's model.

To allow latitude in replacement part selection while addressing safety concerns and before an alteration requirement is enacted, this proposal

(a) clarifies that "type" implies manufacturer's "model"

(b) adds permissions to install a different "model or type" provided that the "model or type" has been deemed a direct replacement by any OEM for the original

(c) ensures mechanical and electrical items essential for safety are retained (such as maximum flow capacity, pressure ratings, coil voltages, number of coils)

To revise the language to clearly convey if system modifications are required to properly install the new valve, this change is deemed an alteration since it involves more than a simple swap of a component.

RATIONALE: For 8.7.3.2.24(b) through 8.7.3.24(e), to bring greater clarity to the current requirements of 8.7.3.24 as follows:

(a) If component changes involve other system changes this requirement applies.

(b) Add specifics to deal with shutoff valve, manual lowering valve, and overspeed valve as these are currently omitted from the requirements.

(c) Editorially separate the issues being discussed.

(d) Provide a cross reference to 8.6.3.11 for replacement permissions. [Record 11-1174]

Requirements 8.7.3.31.1, 8.7.3.31.2, 8.7.3.31.3, 8.7.3.31.4, 8.7.3.31.5, 8.7.3.31.6, 8.7.3.31.7, 8.7.3.31.8, 8.7.3.31.9, 8.7.3.31.10, 8.7.3.31.11, and 8.7.3.31.12 Revised

RATIONALE: To add Test Requirements for an Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.3.31.5 Revised

RATIONALE: Record 09-652, which modified ASME A17.1-2013/CSA B44-13, had an incorrect referenced requirement. Requirement 8.7.3.28 pertains to Guide Rails, Supports, and Fastenings; that is not correct. This modification corrects the referenced requirement. [Record 17-1214]

Requirement 8.7.3.31.5(c) Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an alteration. [Record 16-2636]

Requirements 8.7.3.31.5, 8.7.3.31.6, 8.7.3.31.7, and 8.7.3.31.8 Revised

RATIONALE: To clarify that Identification (Section 2.29) is required to be added for certain alterations, but to only include elevators in the same group. [Record 15-776]

Requirement 8.7.3.31.7(m) Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an Alteration. [Record 16-2636]

Requirement 8.7.3.31.8 Revised

RATIONALE: To update the references for Emergency Operations and signaling requirements (Sections 2.27 and 3.27) for an alteration, to require Emergency Operations and Signaling devices to be altered but modified by the affected alteration requirements for Emergency Operations and Signaling in 8.7.2.28 and 8.7.3.1.8. This clarifies the scope and extent of work to be completed due to an Alteration. [Record 16-2636]

Requirement 8.7.3.31.13 Added

RATIONALE: To add Requirements for Alteration or Addition of Door Monitoring Systems to Hydraulic Elevators. [Record 17-443]

Requirement 8.7.5.7 Revised

RATIONALE: To provide a better understanding of what is required in a Special Purpose Personnel Elevator that is subject to an Alteration per ASME A17.1/CSA B44 definition: "*alteration*: any change to equipment, including its parts, components, and/or subsystems, other than maintenance, repair, or replacement; alteration, as part of repair or replacement that is included with other work that is classified as an alteration." [Record 16-3034]

Requirements 8.7.5.7.1 through 8.7.5.7.28 Added

RATIONALE: To provide a better understanding of what is required in a Special Purpose Personnel Elevator that is subject to an Alteration per ASME A17.1/CSA B44 definition: "*alteration*: any change to equipment, including its parts, components, and/or subsystems, other than maintenance, repair, or replacement; alteration, as part of a repair or replacement that is included with other work that is classified as an alteration." [Record 16-3034]

Requirements 8.7.6.1.5 and 8.7.6.1.6 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.1.7 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). Additional Rationale for 8.7.6.1.7: to affirm and clarify the exception permitted to 6.1.3.6.5 (Flat Steps) specified in General Requirements (8.7.6.1.1). [Record 17-443]

Requirement 8.7.6.1.8 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.1.9 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). Additional rationale for 8.7.6.1.9: to clarify that "the truss" in this requirement means truss structural members corresponding/ equivalent to "members on which the support of the….escalator depends" referenced in 8.7.1.4 and 8.7.1.5. Parts or members that are a part of, or affixed to, the truss but are not structural or supporting the escalator would not require compliance with 8.7.1.4 and 8.7.1.5. Conformance to 8.7.1.5 is a necessary additional requirement for modification of structural members. [Record 17-443]

Requirements 8.7.6.1.10, 8.7.6.1.11, 8.7.6.1.12, and 8.7.6.1.13 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.1.14 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). Additional rationale for 8.7.6.1.14: revised editorially for clarity. [Record 17-443]

Requirements 8.7.6.1.15 and 8.7.6.1.16 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.1.17 Revised

RATIONALE: To add requirement for meeting Static Control and to add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.1.18 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirements 8.7.6.2.5, 8.7.6.2.6, 8.7.6.2.7, and 8.7.6.2.8 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.2.9 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). Additional rationale for 8.7.6.2.9: to clarify that "the truss" in this requirement means truss structural members corresponding/ equivalent to "members on which the support of the….moving walk depends" referenced in 8.7.1.4 and 8.7.1.5. Parts or members that are a part of, or affixed to, the truss but are not structural or supporting the escalator would not require compliance with 8.7.1.4 and 8.7.1.5. Conformance to 8.7.1.5 is a necessary additional requirement for modification of structural members. [Record 17-443]

Requirements 8.7.6.2.10, 8.7.6.2.11, 8.7.6.2.12, and 8.7.6.2.13 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.2.14 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). Additional rationale for 8.7.6.2.14: Edited for clarity. [Record 17-443]

Requirement 8.7.6.2.15 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.2.16 Revised

RATIONALE: To add requirement for meeting Static Control and to add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.2.17 Revised

RATIONALE: To add link to Test Requirements for Alteration (and to add reference from Section 8.7 Requirements to the Alteration Testing Requirements). [Record 17-443]

Requirement 8.7.6.2.18 Added

RATIONALE: To add a requirement for alterations on Entrances and Egresses on Moving Walks consistent with Escalators. [Record 17-443]

Requirement 8.10.1.3 Note revised

RATIONALE: To clarify the Notes in 8.10.1.3 and 8.11.1.2 so that they do not conflict with ASME A17.2, Introduction, which indicates that ASME A17.2 covers recommended procedures. [Record 14-1900]

Requirement 8.10.2.2.1(i) Revised

RATIONALE: To be consistent with 2.13.4.2.4. [Record 10-0967]

Requirement 8.10.2.2.1(j)(2) Revised

RATIONALE: To correct references to the appropriate requirements in Part 2. [Record 15-2455]

Requirement 8.10.2.2.1(j)(2) Revised

RATIONALE: To correct references in ASME A17.1/CSA B44, Requirement 8.10.2.2.1(j)(2). [Record 17-2716]

Requirement 8.10.2.2.1(m) Revised

RATIONALE: To segregate and clarify that Item 1.20 deals with seismic requirements while Item 1.13 deals with standard requirements for an emergency exit. [Record 16-1335]

Requirement 8.10.2.2.2(ff) Revised

RATIONALE: To add emergency terminal stopping means in Section 8.10. [Record 16-1232]

Requirement 8.10.2.2.2(ii) Revised

RATIONALE:

(a) Controller, service tools, and accelerometers can provide accurate speed readings.

(b) Some modern AC drives do not allow for overspeeding the elevators. Therefore, the only way to test is by releasing the brake or at rated speed.

(c) Both the car and counterweight safety overspeed switches need to be made inoperative to ensure they do not cause early application of the brake.

(d) A properly operating emergency brake would prevent application of the car or counterweight safety. Therefore, it should not be allowed to operate during the test.

(e) To provide language consistent with NFPA 70E®, Electrical Safety in the Workplace, in order to avoid the disconnecting means being used to remove power from the driving machine motor and brake because the risk of arc-flash is increased when it is opened under load.

(f) To provide a reference to revised Table 2.29.2(b) in ASME A17.2 to give the maximum and minimum stopping distances for actual speed in 5 ft/min increments for speed through 1,000 ft/min and 10 ft/min increments up through 2,400 ft/min and in increments of 0.05 m/s through 12 m/s. [Record 14-1906]

Requirement 8.10.2.2.2(tt) Added

RATIONALE: To provide inspection criteria to ensure that the controller has a means to view the USI (see 2.26.1.7.3). [Record 09-872]

Requirement 8.10.2.2.3(k) Revised

RATIONALE: Correct counterweight overbalance has an impact on safe elevator operation. This proposal requires that the designed overbalance range be provided. This proposal also requires that this information be present at the time of acceptance. This information will also be useful to convey safe overbalance limits if the elevator weight is changed/altered at a future date. [Record 17-338]

Requirements 8.10.2.2.3(s), 8.10.2.2.3(t), 8.10.2.2.3(dd), and 8.10.2.2.3(ff) Revised

RATIONALE: None provided. Updated references and Item numbers. Add new item (ll) to 8.10.2.2.3. [Record 16-1335]

Requirement 8.10.2.2.3(ll) Added

RATIONALE: None provided. Updated references and Item numbers. [Record 16-1335]

Requirement 8.10.2.2.5(f) Revised

RATIONALE: None provided. Updated references and Item numbers. [Record 16-1335]

Requirement 8.10.2.2.9 Revised

RATIONALE: None provided (corrected a reference). [Record 16-1335]

Requirement 8.10.2.3.2(a) Revised

RATIONALE: Addition of Inspection and Test requirements for an Alteration Phase 1 Door Reopening performance covered in 8.10.2.2.1(a). [Record 17-443]

Requirement 8.10.2.3.2(d) Revised

RATIONALE: Testing of Emergency Power is required, if installed. [Record 17-443]

Requirement 8.10.2.3.2(g) Revised

RATIONALE: To add requirements from 8.10.2.3.2(j) for rated load changes. Testing of Emergency Power is required, if installed. [Record 17-443]

Requirement 8.10.2.3.2(i) Revised

RATIONALE: To reference test and Inspection Requirements for Alterations with an Increase or Decrease in Rise. [Record 17-443]

Requirement 8.10.2.3.2(j) Revised

RATIONALE: Inspection and Testing for Rated Load is 8.10.2.3.2(g), Travel is 8.10.2.3.2(n), Class of Loading Alteration is 8.10.2.3.2(p), and Freight to Passenger is 8.10.2.3.3(q). The references from this requirement will be added to those, making individual Test and Inspection requirements. [Record 17-443]

Requirements 8.10.2.3.2(l) and 8.10.2.3.2(m) Revised

RATIONALE: To specify the exact requirement in Alteration section. [Record 17-443]

Requirement 8.10.2.3.2(n) Revised

RATIONALE: To add requirements from 8.10.2.3.2(j) for travel changes. [Record 17-443]

Requirement 8.10.2.3.2(o) Revised

RATIONALE: Phase 1 Door Reopening performance covered in 8.10.2.2.1(a). [Record 17-443]

Requirement 8.10.2.3.2(p) Revised

RATIONALE: To add requirements from 8.10.2.3.2(j) for change in class of loading. [Record 17-443]

Requirement 8.10.2.3.2(q) Revised

RATIONALE: To add requirements from 8.10.2.3.2(j) for change in freight to carry passengers. [Record 17-443]

Requirement 8.10.2.3.2(s) Revised

RATIONALE: Testing of Uncontrolled Motions/Ascending Car is required, if installed. [Record 17-443]

Requirement 8.10.2.3.2(u) Revised

RATIONALE: To correct Requirement Reference. [Record 17-443]

Requirement 8.10.2.3.2(v) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to driving machine components. [Record 17-443]

Requirement 8.10.2.3.2(x) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to a change in the driving machine sheave. [Record 17-443]

Requirement 8.10.2.3.2(y) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the vertical car and counterweight clearances. [Record 17-443]

Requirement 8.10.2.3.2(z) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the horizontal car and counterweight clearances. [Record 17-443]

Requirement 8.10.2.3.2(aa) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the protection of spaces below hoistways. [Record 17-443]

Requirement 8.10.2.3.2(bb) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the machinery spaces, machine rooms, control spaces, and control rooms. [Record 17-443]

Requirement 8.10.2.3.2(cc) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the electrical equipment and wiring. [Record 17-443]

Requirement 8.10.2.3.2(dd) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the hoistway door locking devices, access switches, and parking devices. [Record 17-443]

Requirement 8.10.2.3.2(ee) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Door reopening device. [Record 17-443]

Requirement 8.10.2.3.2(ff) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Enclosures, Car Doors and Gates, and Car Illumination. [Record 17-443]

Requirement 8.10.2.3.2(gg) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Ascending Car/Uncontrolled Motion Protection. [Record 17-443]

Requirement 8.10.2.3.2(hh) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Suspension Means. [Record 17-443]

Requirement 8.10.2.3.2(ii) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Counterweights. [Record 17-443]

Requirement 8.10.2.3.2(jj) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Inspection Operation and inspection Operation With Open Door Circuits. [Record 17-443]

Requirement 8.10.2.3.2(kk) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Leveling or Truck Zoning Devices. [Record 17-443]

Requirement 8.10.2.3.2(ll) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Change in Power Supply. [Record 17-443]

Requirement 8.10.2.3.2(mm) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Stop Switch. [Record 17-443]

Requirement 8.10.2.3.2(nn) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Electrical Protective Devices. [Record 17-443]

Requirement 8.10.2.3.2(oo) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Door Monitoring System. [Record 17-443]

Requirement 8.10.2.3.2(pp) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Emergency Signal/ Alarm. [Record 17-443]

Requirement 8.10.2.3.2(qq) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the car frame and platform. [Record 17-443]

Requirement 8.10.2.3.2(rr) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Top Railing. [Record 17-443]

Requirement 8.10.3.2.1 Revised

RATIONALE: To segregate and clarify that Item 1.20 deals with seismic requirements while Item 1.13 deals with standard requirements for an emergency exit. [Record 16-1335]

Requirements 8.10.3.2.2, 8.10.3.2.3, and 8.10.3.2.4 Revised

RATIONALE: None provided. Updated references and Item numbers. [Record 16-1335]

Requirement 8.10.3.2.2(jj) Added

RATIONALE: To provide inspection criteria to ensure that the controller has a means to view the USI (see 2.26.1.7.3). [Record 09-872]

Requirement 8.10.3.2.5 Revised

RATIONALE: To segregate and clarify that Item 5.16 deals with seismic requirements while Item 5.14 deals with standard requirements for supply piping. [Record 16-1335]

Requirement 8.10.3.2.5(d) Revised

RATIONALE: Item 5.9 basically includes all of the text in Item 5.12, except that apparently Item 5.9 was carried over from ASME A17.2.1, Electric Elevators, and Item 5.12 apparently was carried over from ASME A17.2.2, Hydraulic Elevators (see the references). This proposed revision is to relocate Item 5.12 into Item 5.9. See TN 15-1226, Proposed Revision to ASME A17.1/CSA B44 and ASME A17.2, Relocation of Language in Item 5.12 to Item 5.9, Car and Counterweight Buffers. [Record 16-2553]

Requirement 8.10.3.2.5(n) Revised

RATIONALE: To add inspections procedures for plunger gripper. To editorially amend table for clarity. [Record 16-2552]

Requirement 8.10.3.3.2 Revised

RATIONALE: To bring greater clarity to the current requirements of 8.7.3.24 as follows:

(a) If component changes involve other system changes, this requirement applies.

(b) Add specifics to deal with shutoff valve, manual lowering valve, and overspeed valve as these are currently omitted from the requirements.

(c) Editorially separate the issues being discussed.

(d) Provide a cross-reference to 8.6.3.11 for replacement permissions. [Record 11-1174]

Requirement 8.10.3.3.2 Revised

RATIONALE: To update correct references to Section 8.10. [Record 16-1335]

Requirement 8.10.3.3.2(a) Revised

RATIONALE: To add of Inspection and Test requirements for an Alteration Phase 1 Door Reopening performance covered in 8.10.3.2.1(a). [Record 17-443]

Requirement 8.10.3.3.2(d) Revised

RATIONALE: To add requirements from 8.10.3.3.2(j) for increase in the weight of the car. [Record 17-443]

Requirement 8.10.3.3.2(g) Revised

RATIONALE: To add requirements from 8.10.2.3.2(j) for increase of the rated load. [Record 17-443]

Requirement 8.10.3.3.2(j) Revised

RATIONALE: Inspection and Testing for increase for Rated Load is 8.10.3.3.2(g), for increase in the weight of the car is 8.10.3.3.2(d). The references from this requirement will be added to those, making individual Test and Inspection requirement. Editorial change to remove duplicate word in requirement. [Record 17-443]

Requirement 8.10.3.3.2(n) Revised

RATIONALE: To clarify which exact requirements in 8.7.3.23 require this inspection and test. [Record 17-443]

Requirement 8.10.3.3.2(n) Revised

RATIONALE: To correct references. [Record 17-2705]

Requirements 8.10.3.3.2(q) and 8.10.3.3.2(r) Revised

RATIONALE: To correct Requirement References. [Record 17-443]

Requirement 8.10.3.3.2(t) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the addition of a Plunger Gripper. [Record 17-443]

Requirement 8.10.3.3.2(u) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Pits. [Record 17-443]

Requirement 8.10.3.3.2(y) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the vertical car and counter-weight clearances. [Record 17-443]

Requirement 8.10.3.3.2(z) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the horizontal car and counter-weight clearances. [Record 17-443]

Requirement 8.10.3.3.2(aa) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the protection of spaces below hoistways. [Record 17-443]

Requirement 8.10.3.3.2(bb) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the machinery spaces, machine rooms, control spaces, and control rooms. [Record 17-443]

Requirement 8.10.3.3.2(cc) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Electrical Equipment and Wiring. [Record 17-443]

Requirement 8.10.3.3.2(dd) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the hoistway door locking devices, access switches, and Parking Devices. [Record 17-443]

Requirement 8.10.3.3.2(ee) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Door re-opening device. [Record 17-443]

Requirement 8.10.3.3.2(ff) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Enclosures. [Record 17-443]

Requirement 8.10.3.3.2(gg) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Ascending Car/Uncontrolled Motion Protection. [Record 17-443]

Requirement 8.10.3.3.2(hh) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Suspension Means. [Record 17-443]

Requirement 8.10.3.3.2(ii) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Top of Car Operating Devices. [Record 17-443]

Requirement 8.10.3.3.2(kk) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Leveling or Truck Zoning Devices. [Record 17-443]

Requirement 8.10.3.3.2(ll) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Anticreep Leveling Devices. [Record 17-443]

Requirement 8.10.3.3.2(mm) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Change in Power Supply. [Record 17-443]

Requirement 8.10.3.3.2(nn) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Stop Switch. [Record 17-443]

Requirement 8.10.3.3.2(oo) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Electrical Protective Devices. [Record 17-443]

Requirement 8.10.3.3.2(pp) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Door Monitoring System. [Record 17-443]

Requirement 8.10.3.3.2(qq) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Car Emergency Signal/ Alarm. [Record 17-443]

Requirement 8.10.3.3.2(rr) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Auxiliary Power Lowering Operation. [Record 17-443]

Requirement 8.10.3.3.2(ss) Added

RATIONALE: To add Inspection and Test Requirements for an alteration made to the Hydraulic Pump Motor Starter. [Record 17-443]

Requirements 8.10.4.1.1 and 8.10.4.2.2 Revised

RATIONALE: None provided. Updated references and Item numbers. [Record 16-1335]

Requirement 8.10.4.1.2(t) Revised

RATIONALE: Skirt obstruction devices should be tested during a Category 1 Test and not a Periodic Inspection. Requirements for testing skirt obstruction devices were revised to improve personnel safety and prevent potential equipment damage. Testing these devices when the unit is moving can be unsafe or damage equipment. Corrected cross-references. [Record 14-1903]

Requirement 8.10.4.2.2(k) Added

RATIONALE: To provide Testing requirements for alterations to comb plates. [Record 17-443]

Requirement 8.10.4.2.2(l) Added

RATIONALE: To provide Testing requirements for alterations to Lighting, Access, and Electrical Work. [Record 17-443]

Requirement 8.10.4.2.2(m) Added

RATIONALE: To provide Testing requirements for alterations to Entrance and Egress. [Record 17-443]

Requirement 8.10.4.2.2(n) Added

RATIONALE: To provide Testing requirements for alterations to Variable Frequency Drive Motor Control. [Record 17-443]

Requirement 8.11.1.2 Note revised

RATIONALE: To clarify the Notes in 8.10.1.3 and 8.11.1.2 so that they do not conflict with the ASME A17.2, Introduction, which indicates that ASME A17.2 covers recommended procedures. [Record 14-1900]

Requirement 8.11.1.4.1 Revised

RATIONALE: Skirt obstruction devices should be tested during a Category 1 Test and not a Periodic Inspection. Requirements for testing skirt obstruction devices were revised to improve personnel safety and prevent potential equipment damage. Testing these devices when the unit is moving can be unsafe or damage equipment. Corrected cross-references. [Record 14-1903]

Requirement 8.11.2.1.1 Revised

RATIONALE: To segregate and clarify that Item 1.20 deals with seismic requirements while Item 1.13 deals with standard requirements for an emergency exit. [Record 16-1335]

Requirement 8.11.2.1.2 Revised

RATIONALE: To provide for correct or missing references within Sections 8.10 and 8.11. [Record 16-1335]

Requirement 8.11.2.1.2(oo) Added

RATIONALE: To provide inspection criteria to verify the USI in the on-site documentation matches the required viewable USI for apparatus and the maintenance record (8.6.1.4.1). [Record 09-872]

Requirement 8.11.2.1.6 Revised

RATIONALE: To include the reference to ASME A17.2. It was unintentionally overlooked during the last update. [Record 17-214]

Requirement 8.11.3.1.2(dd) Added

RATIONALE: To provide inspection criteria to verify the USI in the on-site documentation matches the required viewable USI for apparatus and the maintenance record (8.6.1.4.1). [Record 09-872]

Requirement 8.11.3.1.5(d) Revised

RATIONALE: Item 5.9 basically includes all of the text in Item 5.12, except that apparently Item 5.9 was carried over from A17.2.1, Electric Elevators, and Item 5.12 apparently was carried over from ASME A17.2.2, Hydraulic Elevators (see the references). This proposed revision is to relocate Item 5.12 into Item 5.9. See TN 15-1226 Proposed Revision to ASME A17.1/CSA B44 and ASME A17.2, Relocation of Language in Item 5.12 to Item 5.9 Car and Counterweight Buffers. [Record 16-2553]

Requirement 8.11.3.1.5(r) Revised

RATIONALE: To add inspections procedures for plunger gripper. To editorially amend table for clarity. [Record 16-2552]

Requirement 8.11.3.1.6 Revised

RATIONALE: None provided. Updated Item numbers. [Record 16-1335]

Section 8.13 Added

RATIONALE: To provide a location in Code for reference to signage requirements. [Record 10-0967]

Requirements 8.13.1 and 8.13.2 Added

RATIONALE: To provide a location in Code for reference to signage requirements. [Record 10-0967]

Requirement 8.13.3 Added

RATIONALE: To add new section to recognize some marking plates or tags require the addition of data by field personnel. [Record 10-0967]

Part 9 Revised

RATIONALE: To provide clarification as to the term "latest edition." [Record 17-2152]

Part 9 Revised to add "FED-STD-595C"

RATIONALE: None provided. [Record 14-1101]

Section 9.1 Revised to update references for ASME B29.1

RATIONALE: The standards referenced have been updated and/or reaffirmed and, as ASME documents, the "latest edition" may be used in lieu of the edition date per CSP-9, para. (h)(2)(ii):

"If a revision of the referenced document cannot affect the provisions for safety or result in undesirable technical provisions in its referencing standard, then the referencing standards committee may omit the date of the referenced standard. Where the date is not cited, the words 'latest edition' should be appended to the title."

The requirements in ASME A17.1-2016/CSA B44-16 make no reference to these documents. [Record 09-1764]

Section 9.1 Revised to update reference for ADA/ABAAG

RATIONALE: To add the missing references to Section 9.1, Referenced Documents. [Record 15-2469]

Section 9.1 Revised to update references for CSA C22.2 and UL 924

RATIONALE: To update referenced standards to current editions.

Note: Requirement 5.11.14.8.4 has the same references. [Record 16-48]

Section 9.1 Revised to update reference for ASME B29.1

RATIONALE: ASME A17.1/CSA B44 references to ASME B29 series standard are out of date as published. [Record 16-1019]

Section 9.1 Revised to update references for ASME A17.8/CSA B44.8

RATIONALE: To provide an editorial revision to Wind Turbine Tower Elevator references in ASME A17.1/CSA B44 addressing the binational scope of this standard. [Record 18-1699]

Nonmandatory Appendix F, Table F-1 Revised

RATIONALE: To revise Table F-1 in Nonmandatory Appendix F to be consistent with Code requirements in 2.24.8.2 and 2.16.8. [Record 12-1695]

Appendix G, Figure G-1 Revised

RATIONALE: To align Appendix G with Part 2, requirement 2.10.2.1, Top Rail for Standard Railing. [Record 15-2290]

Nonmandatory Appendix L Revised

RATIONALE: Revisions to the table are to update to the current Code and correct errors. [Record 15-2448]

Nonmandatory Appendix P, Table P-1 Revised

RATIONALE: To add inspections procedures for plunger gripper. To editorially amend table for clarity. [Record 16-2552]

Nonmandatory Appendix S Title revised

RATIONALE: None provided. [Record 14-1101]

Nonmandatory Appendix S Revised (Added New Figures S-13, S-14, S-15, and S-16)

RATIONALE: None provided. [Record 14-1101]

Nonmandatory Appendix X Revised

RATIONALE: To revise Table X to current ASME A17.1-2016/CSA B44-16 outline syntax and correct or revise corresponding Code sections. [Record 17-1353]

Nonmandatory Appendix AA Added

RATIONALE:

(a) This TN offers enhanced FEO operational verification via a nonmandatory appendix. The reference to the nonmandatory appendix is contained in a Note.

(b) The proposed nonmandatory appendix intends to enhance the value of the current monthly operation of the recall system by adding verification of select operational features that can easily be performed by an authorized person who has been instructed in the applicable optional outcomes.

(c) The enhanced verification of items contained in the nonmandatory appendix serves to ensure the desired operability of FEO throughout the year, until Elevator personnel are required to further confirm additional operational integrity via Category 1 testing as required in 8.6.4.19.

(d) The proposal also clarifies that deficiencies, if found, should be reported to elevator personnel.

(e) The proposal makes this requirement applicable in Canadian jurisdictions. [Record 12-1776].

Index Revised

RATIONALE: To be consistent with the change to 3.26.8. [Record 14-1268]

Part 1
General

SECTION 1.1
SCOPE

ASME A17.1/CSA B44, Safety Code for Elevators and Escalators, and ASME A17.7/CSA B44.7, Performance-Based Safety Code for Elevators and Escalators, are the accepted guides for design, construction, installation, operation, inspection, testing, maintenance, alteration, and repair of elevators, dumbwaiters, escalators, moving walks, and material lifts. They are the basis in total or in part for elevator codes used throughout the United States and Canada.

ASME A17.1/CSA B44 and ASME A17.7/CSA B44.7 are only guides unless adopted as law or regulation by an authority having jurisdiction.

Local jurisdictions may, in their adopting legislation, occasionally revise and/or include requirements in addition to those found in ASME A17.1/CSA B44 and ASME A17.7/CSA B44.7. It is therefore advisable to check with the local jurisdiction before applying code requirements in any area.

Requirement 1.1.1(c) was revised in ASME A17.1-2013/CSA B44-13 to clarify that devices with hoisting and lowering mechanisms equipped with a car serving two or more landings and restricted to the carrying of materials but not classified as a dumbwaiter or material lift are not covered by the Code.

Requirement 1.1.2 outlines examples of equipment not covered by ASME A17.1/CSA B44 and ASME A17.7/CSA B44.7. Requirement 1.1.3 specifies those Parts and requirements of the Code that apply only to new installations, as well as those that apply to both new and existing installations. Requirement 1.1.3 was revised in ASME A17.1-2019/CSA B44:19 to include Section 8.12 because the International Building Code requires existing buildings to comply with ASCE 24 under certain conditions that would in turn affect new and existing elevators installed in an existing building.

SECTION 1.2
PURPOSE AND EXCEPTIONS

ASME A17.1/CSA B44 requirements provide a framework for standards of safety for current products whose technologies have become state-of-the-art and commonplace. Throughout their long histories, the ASME A17 and CSA B44 Committees have shown responsiveness in preparing new requirements to address new designs and technologies.Throughout their long histories, the ASME A17 and CSA B44 Committees have shown responsiveness in preparing new requirements to address new designs and technologies.

However, elevator technology is advancing at a rapid pace. The advent and wide use of the Essential Safety Requirements (ESRs) of the Lifts Directive in the European Union (EU) has accelerated the pace of change. As safe elevators based on new technology become available, worldwide demand for these products increases. Elevator codes based on prescriptive language take time to change, given the nature of the consensus process upon which they are based. This hampers introduction of new technology into jurisdictions without a uniform, structured process acceptable to AHJ.

ASME A17.1-2004 and CSA B44-04 recognized the need for a method to introduce new technology. The preface to those Codes stated the following:

> **Application of Requirements to New Technology**
>
> Where present requirements are not applicable or do not describe new technology, the authority having jurisdiction should recognize the need for exercising latitude and granting exceptions where the product or system is equivalent in quality, strength or stability, fire resistance, effectiveness, durability, and safety to that intended by the present Code requirements.

This issue was further addressed in Section 1.2 of both Codes, which states the following:

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

While the purposes of these provisions in the Codes are clear, implementation was difficult, as there was no uniform process for establishing equivalent safety that could be readily applied. The ASME A17 and CSA B44