NEII® CENTRAL CODE COMMITTEE
November 9-10, 2016

KONE Inc.
Hilton Chicago O’Hare Airport
O’Hare International Airport
Chicago, IL 60666

Dial-in Number for Wednesday, November 9: (872) 240-3311
Access Code: 247-996-157

Dial-in Number for Thursday, November 10: (872) 240-3212
Access Code: 221-496-077

Please note we are using a new service for conference calls so we have a different number for each day. The call in numbers are a toll call.

Hotel information is provided in Attachment #1.

1. Call to Order - 8:00 a.m. (Central Time)

2. Record of Attendance.

3. Announcements.

4. Adoption of Agenda.

5. Approval of Minutes.


Please see Attachment #2 for a copy of the NEII® Central Code Committee roster. Members are requested to advise Kevin Brinkman of any corrections that should
be made.


A list of the Tier 1 jurisdictions is shown below and will be included on future agendas.

CA, FL, MA, NY and New York City, NV, WA, ON

8. **Local Elevator Code Issues.**

(a) **California.**

1) CA DOSH Status – Amy Blankenbiller
2) Hoistway Task Group on Top of Car Clearance
3) OSHA Requirements for Confined Space
4) Regenerative Power Test

(b) **NAVFAC** – Amy Blankenbiller

(c) **New York City**

1) Governor Access – Bruce Horne
2) Proposals to restrict MRL.

(d) **Illinois/Chicago** [Attachment #4]

(e) **Washington**

1) Elevator Division Audit
2) National Electric Code [Attachment #5]
3) Overhead in Hoistway
4) Emergency Exit

(f) **Nevada**

(g) **Alabama**

(h) **Florida**

(i) **Massachusetts** [Attachment #6]

(a) Interpretation Request 15-0964 on Dual Locks (Attachment #7).

(b) Interpretation Request 15-1952 on Product Specific (Attachment #8) – Joe Busse/Kevin Brinkman

(c) Escalator/Moving Walk Elapsed Time before Retardation Proposal (Attachment #9) – Vince Robibero/Kevin Brinkman

(d) Door Restrictor Proposal (ASME Record 15-655) (Attachment #10) – David McColl

(e) Inquiry 16-1311 on Governor Access (Attachment #11) – Bruce Horne

(f) Inquiry 16-1309 on ASME A17.2 (Attachments #12)

(g) Inquiry 16-1310 on ASME A17.1/CSA B44 Requirement 2.29.1 (Attachment #13)

(h) A17 Code Coordination Committee – Kevin Brinkman

(i) A17 Code Case – Kevin Brinkman

(j) NEII Members on ASME committees (Attachment #14)

(k) ASME Task Group on Two-Way Video Communications (Attachment #15) – Kevin Brinkman

(l) Remote Intervention

10. Electrical Codes.

(a) NEC.

(b) CEC.

12. **Accessibility Issues.**

(a) **ICC/ANSI A117.1** – Kevin Brinkman.

(b) **CSA B44, Appendix E** – David McColl

13. **Energy Efficiency.**

(a) **ASHRAE 90.1/189.1** – Joe Busse.

(b) **Product Category Reviews** – Phil Hampton.

Product Category Rules (PCR) for declaring life-cycle environmental impact of Lifts (elevators) have now been published in the International EPD® System. The committee decided not to recommend any modifications at this time, but to maintain this as a reference item for this committee.


15. **NEII® NOW Articles.**

The following author/article is scheduled for future editions:

- *Fall/Winter* – *David McColl* – *ISO Prescriptive Code*
- *Spring* – to be determined

16. **Liaison Committee Reports.**

(a) **NEII® Performance Standards Committee.**

(b) **NEII® Architectural Standards Committee.**
17. 2017 Budget.

18. Other Business.

(a) NEII in Canada, NEEA Code Committee – David McColl.

(b) NFPA 13 – Lawrence Taylor/Vince Robibero

(c) Update to CRA webpage - Karen Penafiel

(d) Position Paper on Sprinklers and Elevators [Attachment #17] – David McColl/Phil Hampton

(e) NEII Representatives on NFPA 80 & 105, UL STP

(f) Review Destination Oriented Elevator Systems Performance Criteria [Attachment #18]

(g) Partnering with NAESA

(h) FSAE – Mechanical Floor at Top of Building [Attachment #19]

(i) CPSC Petition on Residential Elevators [Attachment #20]


(a) Review Proposed Updates for NEII-1

1) Foreword [Attachment #21]
2) Reference Standards [Attachment #22]
3) Committee Members [Attachment #23]
4) ASME A17 Code Data Plate Checklist [Attachment #24]

(b) Reaffirm NEII-1 Sections

1) Architectural and Engineering Metric Layout Standards [Attachment #25]
2) Performance Standards Introduction and Scope [Attachment #26]
3) Pre-Modernization Performance Evaluation Form
   (Attachment #27)

(c) Discussion Items Regarding Updates for NEII-1
   1) Accessibility Criteria
   2) MCP Guidelines
   3) Green technology (e.g. regenerative drives)
   4) Performance Terminology matrix (Displacement Power Factor)

(d) Starts per Hour Specification for NEII-1 (Attachment #28)

(e) Adoption of ASME A17.3
   A suggestion was made at the last joint CCC-GAC to add a discussion item
   regarding increasing adoption of A17.3.

(f) CBC suggested code amendments (Attachment #29) – David McColl

(g) Use of 8 mm ropes

(h) Other

20. Review of Issues to bring to GAC/CCC meeting.

21. Time and Place for Future Meetings.

22. Adjournment.

The meeting is scheduled to adjourn at 12:00 p.m. on November 10, 2016 to be
followed by a joint meeting with the Government Affairs Committee. That
meeting is scheduled to adjourn at 5:00 p.m. on November 10, 2016.
Attachments:

1. Hotel information
2. Committee roster
3. CodeFinder Update
4. IECC Requirement for Escalator Regenerative Drive
5. NEC Interpretation Request
7. ASME Letter on Dual lock interpretation
8. Product Specific Interpretation Request
9. Escalator Elapsed Time before Retardation
10. TN on door restrictors
11. Inquiry on Governor Access
12. Inquiry on Alaska issue regarding A17.2
13. Inquiry on Alaska issue regarding Requirement 2.29.1
14. NEII members on ASME committees
15. Report of Task Group on Two Way Video Communication
16. 2018 IBC Proposal G38
17. Position paper on sprinklers and elevators.
18. DOE Performance Criteria
19. FSAE mechanical floor
20. CPSC Petition on Residential Elevators
21. NEII-1 Foreword
22. NEII-1 Referenced Standards
23. NEII-1 Committee Members
24. NEII-1 ASME Code Data Plate Checklist
25. NEII-1 Architectural and Engineering Metric Layout Standards
26. NEII-1 Performance Standards Introduction and Scope
27. NEII-1 Pre-Modernization Performance Evaluation Form
28. NEII-1 Starts per Hour Specification
29. CBC suggested code amendments
Hi All,

Please find a link below for hotel reservations at the Chicago Airport Hilton for our upcoming meeting on November 9-10 hosted by KONE. Please make your reservations as soon as possible. Please note when you make the reservation it will automatically show 3 nights but you can change the check in or check out dates.

The minutes from our July meeting have been posted on the committee webpage. Please let me know if you have any corrections.

I am also working on the agenda for our next meeting. Please let me know if you have an new items or updates to add to the agenda.

Please let me know if you have any questions. Thank you.

Regards,

Kevin L. Brinkman, PE
Code & Safety Director
National Elevator Industry, Inc.
925 W. Center St.
Eureka, IL 61530
309-467-2379 Office
309-208-0812 Cell
klbrinkman@neii.org

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From: Curry Philippa [mailto:Philippa.Curry@KONE.com]
Sent: Monday, October 10, 2016 3:27 PM
To: Mehta Divya <Divya.Mehta@KONE.com>
Cc: amy@ajbstrategies.com; Kevin Brinkman <klbrinkman@neii.org>; Karen Penafiel <kpenafiel@neii.org>; Curry Philippa <Philippa.Curry@KONE.com>
Subject: RE: Hilton Link for Reservations

Hello, here is the link for the hotel:

Your group page has been approved and has been published to the web.

**Your web page address is:** http://www.hilton.com/en/hi/groups/personalized/C/CHIOHHH-KON-20161108/index.jhtml?WT.mc_id=POG

Group Name: NEIL GAC/CCC Meeting
Group Code: KON
From: Mehta Divya
Sent: Thursday, October 06, 2016 3:57 PM
To: Curry Philippa <Philippa.Curry@KONE.com>
Cc: Amy Blankenbiller (amy@ajbstrategies.com) <amy@ajbstrategies.com>; 'klbrinkman@neii.org'<klbrinkman@neii.org>; Karen Penafiel <kpenafiel@neii.org>
Subject: Hilton Link for Reservations

Philippa,

I will be out of the office on vacation Friday 10/7 through Tuesday, 10/11, returning on Wednesday, 10/12. In my absence, will you please send the link directly to Amy, Kevin, and Karen? I have cced them on this email. They will circulate among the GAC and CCC.

Thank you so much!

Div

Divya R. Mehta
Senior Counsel, Codes & Products
KONE Inc.
4225 Naperville Rd., Ste. 400
Lisle, IL 60532
Telephone 630 955-4405
Email divya.mehta@kone.com
www.kone.us

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Committee Roster Detail - Central Code Committee

Name: AMY J. BLANKENBILLER
Title: NEII GOVERNMENT AFFAIRS DIRECTOR
Company: AJB STRATEGIES, LLC
Address 1: 5537 SW URISH ROAD
City: TOPEKA
State: KS
Zip: 66610-9155
Country: UNITED STATES
Phone 1: 785-286-7599
Fax: 785-408-5796
Phone 2: Ext: Mobile: 785-580-5070
Email: ajblankenbiller@neii.org
Category: Alternate

Name: SHELDON BORNSTEIN
Title: MANAGER PROJECT SUPPORT
Company: KONE INC.
Address 1: 6696 FINANCIAL DRIVE
Address 2: UNIT 2
City: MISSISSAUGA
State: ON
Zip: L5N 7J6
Country: CANADA
Phone 1: 905-819-4605
Fax: 905-858-3925
Phone 2: 416-252-6151
Ext: Mobile: 416-996-7637
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Category: Alternate

Name: KEVIN L. BRINKMAN, PE
Title: NEII CODE & SAFETY DIRECTOR
Company: KEVIN L. BRINKMAN & ASSOCIATES, LLC
Address 1: 925 WEST CENTER STREET
City: EUREKA
State: IL
Zip: 61530
Country: UNITED STATES
Phone 1: 309-467-2379
Fax: 309-467-3525
Phone 2: Ext: Mobile: 309-208-0812
Email: klbrinkman@neii.org
Category: Secretary

Name: JOSEPH BUSSE
Title: GENERAL MANAGER ENG/CHIEF CORPORATE ENGINEER.
Company: FUJITEC AMERICA, INC.
Address 1: 7258 INNOVATION WAY
City: MASON
State: OH
Zip: 45040
Country: UNITED STATES
Phone 1: 513-932-8000
Ext: 5203
Fax: 513-933-5582
Phone 2: Ext: Mobile: 513-739-0802
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<td>JOHN CARLSON</td>
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<tr>
<td>STEVE GRAINER</td>
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<tr>
<td>PHILLIP HAMPTON</td>
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<td>623</td>
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<tr>
<td>DOUG HENDERSON</td>
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<td>624</td>
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**John Carlson**
- **ID:** 818
- **Category:** Member
- **Company:** Schindler Elevator Corporation
- **Address 1:** P. O. BOPX 1935
- **City:** Morristown
- **State:** NJ
- **Zip:** 07962
- **Phone 1:** 973-397-6350
- **Email:** johncarlson@us.schindler.com

**Steve Grainer**
- **ID:** 461
- **Category:** Alternate
- **Company:** Mitsubishi Electric US, Inc.
- **Address 1:** 5900-A KATELLA AVENUE
- **City:** Cypress
- **State:** CA
- **Zip:** 90630-0007
- **Phone 1:** 714-220-4841
- **Email:** steve.grainer@meus.mea.com

**Phillip Hampton**
- **ID:** 623
- **Category:** Member
- **Company:** Thyssenkrupp Elevator Corporation
- **Address 1:** 9280 Crestwyn Hills Drive
- **City:** Memphis
- **State:** TN
- **Zip:** 38125
- **Phone 1:** 901-261-1550
- **Email:** phil.hampton@thyssenkrupp.com

**Doug Henderson**
- **ID:** 624
- **Category:** Member
- **Company:** Thyssenkrupp Elevator Corporation
- **Address 1:** P. O. Box 370
- **City:** Middleton
- **State:** TN
- **Zip:** 38052
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<tr>
<td>DENNIS KALGREN</td>
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<td>BRIAN LEE</td>
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<td><a href="mailto:doug.henderson@thyssenkrupp.com">doug.henderson@thyssenkrupp.com</a></td>
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<td><a href="mailto:bruce.horne@otis.com">bruce.horne@otis.com</a></td>
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<td><a href="mailto:brian.lee@meus.mea.com">brian.lee@meus.mea.com</a></td>
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<td>Name: BRUCE W. HORNE</td>
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<td>Title: MANAGER CODES &amp; PRODUCT COMPLIANCE</td>
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<td>Company: OTIS ELEVATOR COMPANY</td>
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<td>Name: DENNIS KALGREN</td>
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<td>Title: MANAGER CODES AND STANDARDS</td>
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<td>Company: KONE INC.</td>
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<tr>
<td>Name: BRIAN LEE</td>
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<tr>
<td>Title: ENGINEER</td>
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<td>Company: MITSUBISHI ELECTRIC US, INC.</td>
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<tr>
<td>Name: DAVID MCCOLL, P. ENG.</td>
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**Tier 2**

<p>| Los Angeles, CA          | 2004                     | n/a                     | n/a                     | n/a (8/16) (8/16)          | n/a (8/16) n/a            | n/a                               |                            |                        |                              |                              |
| San Francisco, CA        |                          |                        |                        | n/a                       | n/a                       | n/a                               |                            |                        |                              |                              |</p>
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</table>
| Missouri            | 2004 & 1a-05 & 15-05 | n/a | 2005-

...
2. **C405.9.2.1 Regenerative drive.** An escalator designed either for one way down operation or reversible operation shall have a variable frequency regenerative drive that supplies electricity to the building electrical system when the escalator is loaded with passengers whose combined weight exceeds 750 pounds. The escalator manufactures we spoke with do not have this technology available as of today. Again other municipalities have determined this is not feasible and have not adopted this provision.
Proposed NEC interpretation for NEII review and approval:

NFPA 70-2014 states "620.22 (A) Car light Source. A separate branch circuit shall supply the car lights, receptacle(s), auxiliary lighting power source and ventilation on each elevator car. The overcurrent device protecting the branch circuit shall be located in the elevator machine room or control room/machinery space or control space."

NFPA 70-2014 states "620.53 Car Light, Receptacle(s), and Ventilation Disconnecting Means. Elevators shall have a single means for disconnecting all ungrounded car light, receptacle(s), and ventilation power-supply conductors for that elevator car....Disconnecting means shall be numbered to correspond to the identifying number of the elevator car whose light source they control."

1) Is it the intent of 620.22 (A):
(a) that only one branch circuit is permitted to supply car lights, receptacle(s), auxiliary lighting power source and ventilation on each elevator car?
Proposed answer: NO

(b) that receptacle(s), auxiliary lighting power source and ventilation on each elevator car must be on the same branch circuit as the elevator car lights?
Proposed answer: NO

2) Is it the intent of 620.53 that car lights, receptacle(s), and ventilation of each elevator car:
(a) be controlled by a single disconnecting means?
Proposed answer: NO

(b) be controlled by disconnecting means other than the disconnecting means in 620-51.?
Proposed answer: YES

NEII Substation for the proposed answers for this interpretation:

NEII understood that these requirements do not limit the number of branch circuits and disconnecting means supplying power to receptacle(s), auxiliary lighting power source and ventilation for each elevator car, nor confine car receptacles, auxiliary lighting power source and ventilation to the branch circuit supplying car lighting. This understanding is rooted in the substantiation's of the NEC 1993 ROP TCR 12-71 for 620-22 (Log # 1114, 1266) and 1993 ROP TCR 12-90 for 620-53 (log #1251), which was to harmonize with the 1990 Canadian Electrical Code (CEC). Both ROP’s were affirmed by the Panel. Also, the substantiation for NEC 1995 ROP 12-47 for 620-22 (log #1289) and ROP statement 12-66 for 620.53 (Log# 1302) indicated that requirement 620-22 was understood to permit separate branch circuits and 620-53 clarified those circuits incorporated in the requirement.

NEC 1993 ROP TCR statement 12-71 for 620.22 (Log # 1114, 1266) provides in the substantiation that its purpose was to "agree with the 1990 Canadian Electrical Code C22.1-1990, Section 38-012. Also see proposals for a new section 620-54". The 1990 Canadian Electrical Code Rule 38-012(3) stated: "38-012 Branch Circuits for Car Lighting, Accessories, Heating and Air Conditioning:
(1) In passenger elevators, at least one branch circuit shall be provided solely for the lighting and accessories on each car."

NEC 1993 ROP TCR statement 12-90 for 620.53 (Log# 1251) provides in the substantiation that its purpose was to "reflect industry practice and to agree with the Canadian Electrical Code C22.1-1990, Section 38-034(1)(c). Also see proposals for revised Section 620-22 and new section 620-54". The 1990 Canadian Electrical Code section 38-034(1) (a), (b), and (c) stated: 
"(1) Disconnecting means shall be provided for the opening of all ungrounded conductors of:
(a) The drive motor and its ventilation and control circuits in each elevator, dumbwaiter and escalator operating individually or as one of a group.
(b) The signal dispatch and scheduling circuitry, common to a group of elevators, dumbwaiters, or escalators; and
(c) The branch circuit supplying the lighting and accessories in each elevator car and such circuit shall not be controlled by the disconnecting means described in paragraphs (a) or (b). "

NEC 1995 ROP statement 12-47 for 620-22 (log #1289) stated in the substation "To clearly identify equipment permitted on separate branch circuits."
This substantiation supports the understanding that the requirement does not confine car receptacles, auxiliary lighting power source and ventilation to the branch circuit supplying car lighting and is consistent with the 1993 ROP substantiation and 1990 CEC requirements.

NEC 1995 ROP statement 12-66 for 620.53 (Log# 1302) provides in the substantiation that its purpose was to “clarify the requirements and assist elevator mechanics to trouble shoot in case of power loss”.

Also NEII sees no safety hazard when more than one branch circuit and disconnecting means is provided to fulfill these requirements when identified and labeled in accordance with NEC.

In support of the interpretation answers NEII proposes the following modification of these requirements for clarification of intent:

**Proposed revision:**
NEC 620.22 (A) Car Light, Receptacle(s), Auxiliary Lighting and Ventilation Source. A separate At least one branch circuit shall supply the car lights, receptacle(s), auxiliary lighting power source and ventilation on each elevator car. The overcurrent device protecting the branch circuit shall be located in the elevator machine room or control room/machinery space or control space."

NEC 620.53 Car Light, Receptacle(s), and Ventilation Disconnecting Means. Elevators shall have a single at least one means for disconnecting all ungrounded car light, receptacle(s), and ventilation power-supply conductors for that elevator car.....Disconnecting means shall be numbered to correspond to the identifying number of the elevator car whose light, receptacle(s), and ventilation power-supply conductors source they control."

**Rationale:** clarification of intent.
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<th>Description</th>
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5/3/16
524 CMR: BOARD OF ELEVATOR REGULATIONS

(524 CMR 23.00: RESERVED)

(524 CMR 24.00: RESERVED)

(524 CMR 25.00: RESERVED)

524 CMR 26.00: CERTAIN ELEVATOR EQUIPMENT USED AS AUTOMOBILE PARKING DEVICES

(524 CMR 27.00: RESERVED)

(524 CMR 28.00: RESERVED)

524 CMR 29.00: STAGE, ORCHESTRA, AND ORGAN CONSOLE ELEVATORS

(524 CMR 30.00: RESERVED)

524 CMR 31.00: CASKET LIFTS INSTALLED IN LICENSED FUNERAL HOMES, MEMORIAL CHAPELS, OR PREPARATION ROOMS

524 CMR 32.00: VERTICAL RECIPROCATING CONVEYORS

(524 CMR 33.00: RESERVED)

(524 CMR 34.00: RESERVED)

524 CMR 35.00: SAFETY CODE FOR ELEVATORS AND ESCALATORS A17.1-2013 AND THE MASSACHUSETTS MODIFICATIONS TO THAT CODE

524 CMR 36.00: PERSONNEL HOISTS AND EMPLOYEE ELEVATORS ON CONSTRUCTION AND DEMOLITION SITES

524 CMR 37.00: SAFETY REQUIREMENTS FOR MATERIAL HOISTS

524 CMR 38.00: SAFETY STANDARDS FOR PLATFORM LIFTS AND STAIRWAY CHAIRLIFTS
PART 1: SCOPE AND ADMINISTRATION
SECTION 1.1 GENERAL

1.1.1 Adoption and Title. The Board of Elevator Regulations (BER) adopts and incorporates by reference, the ASME A17.1-2013/CSA B44.13 Safety Code for Elevators and Escalators, (A17.1-2013). Additionally, the BER adopts and incorporates by reference, ANSI/ASSEA 10.4-2016, Personnel Hoists and Employee Elevators on Construction and Demolition Sites (A10.4-2016); ANSI/ASSEA 10.5-2013, Safety Requirements for Material Lifts (A10.5-2013) and; ASME A18.1-2014, Safety Standard for Platform Lifts and Stairway Chairlifts (A18.1-2014).

The above adoption, together with Massachusetts modifications as set forth herein, shall collectively comprise the Massachusetts Board of Elevator Regulations, and is referred to as 524 CMR.

524 CMR contains Part 1 – Part 38 (see Table of Contents for Part Titles).

1.1.2 Scope. Conveyance equipment is regulated as follows:

(1) Except as otherwise provided by statute, the provisions of 524 CMR shall control the design, construction, installation, relocation, alteration, demolition, decommissioning, reclassification or material change, maintenance and operation of all elevators, escalators, lifts, dumbwaiters, moving walks, and special hoisting equipment, covered herein in all buildings and structures.

The design, construction, installation, maintenance and operation of all miscellaneous hoisting and elevating equipment shall be subject to such special requirements as are deemed necessary by the Board of Elevator Regulations (BER) having jurisdiction to secure their safe operation. The provisions of 524 CMR shall not apply to portable elevating devices used to handle materials only, and located and operated entirely within one story.

(2) The provisions of 524 CMR are not retroactive except as specifically provided in 524 CMR; and except further that if, upon inspection of any device covered by 524 CMR, the equipment is found in dangerous or unsafe condition, or there is an immediate hazard to those riding on or using such equipment, or the method of operation in combination with devices used is considered inherently dangerous in the opinion of the state elevator inspector, the state elevator inspector shall notify the owner in writing of the condition as required by 524 CMR 1.11: Unsafe Conveyance Equipment.

Existing conveyance equipment regulated by 524 CMR, but not undergoing permittable construction, installation, repair, relocation, alteration, demolition, reclassification or material change shall be inspected in accordance with the governing requirements of that version of 524 CMR in effect at the time of acceptable completion of construction, installation, repair, relocation, alteration, classification change or material change as applicable.

Note that all previous and current editions of 524 CMR are available at the MA Division of Publications and Regulations in the Office of the Secretary of the Commonwealth (617-727-2831).

Also note that the Secretary of the Commonwealth is the singular legal keeper of the record of all Codes of MA Regulation (CMR), including 524 CMR.

(3) All equipment and devices covered by 524 CMR shall meet the requirements of the applicable codes in effect at the time of design, construction, installation, relocation, alteration, demolition, decommissioning,
reclassification or material change.

EXCEPTIONS: All equipment and devices specifically exempted under the provisions of St. 1962, c. 288 and St. 1980, c. 324.

1.1.3 Authority. Refer to MGL c.143, §§ 68-71G

1.1.4 Intent. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through regulatory control of the design, construction, installation, relocation, alteration, demolition, decommissioning, reclassification or material change, operation, inspection, testing and/or maintenance of conveyance equipment regulated herein.

1.1.5 Referenced Codes. Referenced codes include the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations as identified in 101.4.1 through 101.4.3 and shall be considered part of 524 CMR to the prescribed extent of each such reference.

Work regulated by the specialized codes of M.G.L. c. 143, § 96 shall be designed, installed and inspected by individuals authorized to do so in accordance with the specialized codes. However, the impact of work regulated by the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations on work governed by 524 CMR and within the jurisdiction of the state elevator inspector, shall be subject to inspection by the state elevator inspector.

1.1.5.1 Building Code of Jurisdiction. Reference to the Building Code of Jurisdiction shall be considered reference to 780 CMR: The Massachusetts State Building Code. 780 CMR is enforced by the building official.

1.1.5.2 Architectural Access. Any reference in this code to accessibility shall be considered reference to 521 CMR: Architectural Access Board. 521 CMR is enforced by the building official.

1.1.5.3 Electrical. Any reference in this code to the National Electrical Code (NEC) shall be considered reference to 527 CMR 12.00: Massachusetts Electrical Code Amendments. 527 CMR 12.00 is enforced by wiring inspectors.

1.1.5.4 Gas and Plumbing. Any reference in this code to National Gas and Plumbing Codes shall be considered reference to 248 CMR: MA Fuel Gas and Plumbing Code. 248 CMR is enforced by gas and plumbing inspectors.

SECTION 1.2 APPLICABILITY

1.2.1 General. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of 524 CMR specify different materials, methods of construction or other requirements, the most restrictive shall govern.

1.2.2 Other Laws. The provisions of this code shall not nullify any provision of applicable state or federal law. Massachusetts General Laws (M.G.L.s) and the Code of Massachusetts Regulations (CMRs) are often referenced in this code. It is the code user's responsibility to determine all applicable laws and regulations relevant to sections in 524 CMR.
1.2.3 Application of References. References to Part or Section numbers, or to provisions not specifically identified by number, shall be construed to refer to such Part, Section or provision of 524 CMR. 

1.2.4 Referenced Codes and Standards. The codes and standards referenced herein shall be considered part of the requirements of 524 CMR to the prescribed extent of each such reference but limited in accordance with law. Where differences occur between provisions of 524 CMR and referenced codes and standards exist, the provisions of 524 CMR shall apply.

1.2.5 Partial Invalidity. In the event that any part or provision of 524 CMR is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

SECTION 1.3 – REGISTRATION NUMBERS REQUIRED

1.3.1 Registration Numbers for all Conveyance Equipment Regulated by 524 CMR. To provide a uniform system of identification of all elevators, dumbwaiters, moving stairways and other installed equipment that is regulated by 524 CMR, the following is required:

   (1) A permanent registration number shall be issued by the Elevator Section, Division of Inspection, Department of Public Safety. This number shall be noted on the approved layout or drawings and on all other documents pertaining to the unit during its life, e.g. data, records, permit applications, operating certificates, accident reports, decommissioning records.

   (2) A permanent record of the assigned registration numbers shall be maintained by the Elevator Section as directed by the Commissioner of Public Safety.

   (3) Registration numbers shall be permanently affixed/attached to all the following:

      (a) Car crosshead front and center so as to be visible when the hoistway door is opened;
      (b) Machine, pump unit or drive unit;
      (c) On the certificate.
      (d) The number shall also be affixed to the main line disconnect switch.
      (e) Escalators, the plate shall be located near the handrail entrance brush on the side of the unit containing the stop/start section at each end of the unit and on the disconnect switch, controller or machine.

   (4) Registration numbers shall be a minimum of ½" in height and of a contrasting color from the background color on which it is applied or mounted. This identification number shall be applied in the form of a metal or plastic plate only.

   (5) Existing Elevator Equipment. All permit applications for the required annual safety test shall be posted with the permanent registration number to be assigned to the unit. The inspector shall also note the registration number on the operating certificate before it is issued. The elevator firm conducting the annual safety test for the inspector having jurisdiction shall post the registration numbers on the equipment.

   (6) Only one registration number shall be assigned to each elevator.

   (7) Permanent registration numbers shall not be assigned to builders' elevators installed under 524
TABLE 1.3 Department of Public Safety Regulated Conveyance Class Codes

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<td>Passenger</td>
<td>P</td>
<td>Shipboard</td>
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1.4 DUTIES AND POWERS OF ELEVATOR INSPECTORS OF THE DEPARTMENT OF PUBLIC SAFETY

1.4.1 Municipal and State Enforcement of 524 CMR. The state elevator inspector is hereby authorized and directed to enforce the provisions of 524 CMR in accordance with M.G.L. c. 143, §§ 68-71G, as applicable.

1.4.2 Applications and Permits. The state elevator inspector shall receive applications, review construction documents and issue elevator permits for elevator and ancillary systems and all other regulated conveyance systems, narrow to design, construction, installation, relocation, alteration, demolition, decommissioning, reclassification or material change, and for inspection of the elevator and ancillary systems and all other regulated conveyance systems for which such permits have been issued and enforce compliance with the provisions of 524 CMR.

1.4.3 Notices and Orders. The state elevator inspector shall issue, in writing, all necessary notices or orders to ensure compliance with 524 CMR. Also see 524 CMR, Part 1, Section 1.11 as such relates to unsafe equipment.

1.4.4 Inspections. The state elevator inspector shall observe all of the required inspections.

1.4.5 Identification. The state elevator inspector shall carry proper identification when inspecting elevators and ancillary systems in the performance of duties under 524 CMR.

1.4.6 Right of Entry. Where it is necessary to make an inspection to enforce the provisions of 524 CMR, or where the state elevator inspector has reasonable cause to believe that there exists a condition which is contrary to or in violation of 524 CMR which makes the elevator and related ancillary systems and other regulated conveyance systems unsafe, dangerous or hazardous, the state elevator inspector is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by 524 CMR, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the state elevator inspector shall first make a reasonable effort to locate the owner or other person having charge or control of the structure or premises.
and request entry. If entry is refused, the state elevator inspector shall have recourse to the remedies provided by law to secure entry.

1.4.7 Department Records. The Department of Public Safety, assisted by the state elevator inspector, shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for the period required for retention of public records.

1.4.8 Liability. All claims of liability relative to state elevator inspectors shall be governed by M.G.L. c. 258.

1.4.9 Areas Prone to Flooding. See A17.1, Part 8.12.1, as further modified by 524 CMR, Part 35.

SECTION 1.5 PERMITS

1.5.1 Required. It shall be unlawful to construct, install, relocate, alter, demolish, decommission, reclassify or make material change, to any equipment for which provision is made or the installation of which is regulated by 524 CMR without first filing a permit application with the DPS. Refer to the DPS website at www.mass.gov/dps for permit application guidance.

Exception: Work Exempt from Elevator Permit. Except for activities which may require a permit pursuant to other laws, by-laws, rules and the specialized codes of M.G.L. c. 143, § 96, an elevator permit is not required for work not defined in 524 CMR, Part 10.

1.5.2 Repairs. Permit application or notice to the DPS Elevator Division is required for work defined in 524 CMR, Part 10.

1.5.2.1 Emergency Repairs. Where replacements and repairs governed by this code must be performed in an emergency situation, compliance with the detailed elevator permit application rules for an Emergency Elevator Permit / See the DPS website at www.mass.gov/dps for permit application guidance.

Note: Pursuant to the terms of the specialized codes of M.G.L. c. 143, § 96, 524 CMR procedures for emergency repairs do not apply to emergency repairs conducted under the specialized codes.

1.5.3 Application for an Elevator Permit. To apply for an elevator permit, the owner shall file a permit application on a form furnished by DPS at www.mass.gov/dps for permit application guidance.

1.5.3.1 Action on Application. An assigned DPS State Elevator Inspector shall examine or cause to be examined applications for elevator permits. Where proposed work has already received an elevator permit but scope of work changes, reapplication of permit is required along w/all required fees. The assigned DPS State Elevator Inspector shall issue or deny the permit, within 30 days of receipt of permit application. If the application or the construction documents do not conform to the requirements of 524 CMR and all pertinent laws (see note below) under the DPS State Elevator Inspector’s jurisdiction, the DPS State Elevator Inspector shall deny such application in writing, stating the reasons therefore.

1.5.5 Validity of Permit. The issuance or granting of an elevator permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of 524 CMR or of any other code or
ordinance of the jurisdiction. Permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on construction documents and other data shall not prevent the DPS State Elevator Inspector from requiring the correction of errors in the construction documents and other data. The DPS State Elevator Inspector is also authorized to prevent use of any device regulated by 524 CMR where in violation of this code.

1.5.6 Expiration. Every elevator permit issued shall become invalid unless the work on the site authorized by such permit is commenced within 365 days after its issuance. The DPS State Elevator Inspector is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

Exception: In large projects where it is known that project completion will exceed 365 days, at the time of elevator permitting, identification of the expected duration of project will be allowed considered.

1.5.7 Suspension or Revocation. The DPS State Elevator Inspector is authorized to suspend or revoke a permit issued under the provisions of 524 CMR code wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulation or any of the provisions of 524 CMR.

1.5.8 Placement of Permit. The permit or copy shall be kept on the site and visible until the regulated conveyance is certified by DPS.

SECTION 1.6 SUBMITTAL DOCUMENTS

1.6.1 General. Submittal documents consisting of construction documents, statement of special inspections, if applicable, and other data shall be submitted with each permit application. The construction documents shall be prepared and stamped by a registered design professional.

1.6.2 Construction Documents. Construction documents shall be in accordance with Sections 1.6.2.1 through 1.6.2.5, as applicable.

1.6.2.1 General Information on Construction Documents. Although electronically filed, Construction documents shall be dimensioned and drawn upon suitable material. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by DPS.

1.6.2.2 Base Flood Elevations. Base flood elevations shall be identified by the registered design professional when applicable and determined in accordance with methods set forth in the MA State Building Code (780 CMR).

1.6.3 Examination of Documents. DPS shall cause to be examined the subject submittal documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of 524 CMR and other pertinent laws or ordinances.

1.6.3.1 Approval of Construction Documents. When DPS approves all applicable construction
documents, an elevator permit shall be issued.

NOTE: The date such Construction Documents are approved by the Commonwealth of Massachusetts Department of Public Safety, Elevator Division shall be considered the date of installation, relocation, or material change for that equipment.

SECTION 1.7 FEES

1.7.1 Payment of Fees. An elevator permit shall not be valid until the fees prescribed by law have been paid, in the amount established by the applicable governing authority.

1.7.2 Schedule of Permit Fees. For state elevator permit fees, see 801 CMR 4.02: Rates for Installation, Repair, or Replacement of Elevators.

1.7.3 Work Commencing Before an Elevator Permit is Issued. Any person who commences any work governed by this code on an elevator before obtaining the necessary elevator permit shall be in violation of this code and subject to penalties.

1.7.4 Cancellation of Scheduled Inspections. Owner-cancelled inspections within ten days of the scheduled inspection will result in forfeiture of all fees and a requirement to refile for said inspection.

1.7.5 Related Fees. Payment of the elevator permit fee shall not relieve the applicant or holder of the elevator permit from the payment of other fees that are prescribed by law.

SECTION 1.8 INSPECTIONS

1.8.1 General. Construction or work for which an elevator permit is required shall be subject to inspection by the DPS State Elevator Inspector and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes and that all work shall be conducted, installed, protected and completed in a workmanlike and acceptable manner so as to secure the results intended by this code. Neither the DPS State Elevator Inspector nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

1.8.2 Required Acceptance Tests and Inspections. Acceptance tests and inspections shall be required on all new, relocated, altered, or decommissioned equipment subject to the provisions of 524 CMR.

1.8.3 Inspection Requests. It shall be the duty of the holder of the elevator permit or their duly authorized agent to notify the DPS State Elevator Inspector when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code. The DPS State Elevator Inspector shall require the permit holder or his representative to attend these inspections.
1.8.4 Inspection Following Decommissioning. Following decommissioning of an *elevator* an inspection by the DPS State *Elevator* Inspector shall be required.

1.8.5 Periodic Inspections. The *DPS State Elevator Inspector* shall inspect periodically existing *elevators*, escalators, and other regulated conveyances and parts thereof. Annual tests and periodic inspections, as applicable, shall be required on all equipment covered by 524 CMR, except as otherwise modified by other provisions of 524 CMR or M.G.L. c. 143, § 64. Also see permit application posting requirements of 524 CMR 1.3.1 (5).

1.8.6 Inspection Certificates. The inspector shall issue a certificate to the owner of the *elevator* or to the person in charge thereof, who shall post the certificate in a conspicuous place in or near the cab or car of such *elevator*. When the certificate frame is an integral part of the car operating panel and it is required to open said panel, the certificate must be installed by a Massachusetts licensed *elevator* mechanic. When posted in the lobby, the certificate and the corresponding *elevator* must be identified. The certificate shall be posted in a vandal resistant frame.

1.8.6.1 Limited Certificate of Compliance. The state *elevator* inspector is authorized to issue a limited certificate of compliance for any equipment covered by 524 CMR which is hereafter being installed, relocated or altered, to permit its limited use by the person designated therein during the period of such installation, relocation or alteration. Such certificate shall be signed by the state *elevator* inspector, shall bear the dates of issuance, renewal and/or expiration, and shall designate the class of service allowed.

1.8.6.2 Time Limitation. Limited certificates of operation shall be issued for periods of not more than 30 days. The state *elevator* inspector is authorized to renew the limited certificates of operation for additional periods of not more than 30 days each.

SECTION 1.9 APPEALS

1.9.1 General. Appeals of orders, decisions, determinations and failures to act made by any state or local agency or any person or state or local agency charged with the administration or enforcement of the state *elevator* code or any of its rules and regulations, except the specialized codes of M.G.L. c. 143, § 96 relative to the application and interpretation of 524 CMR shall be addressed by the Board of *Elevator Regulations* appeals board in accordance with M.G.L. c. 143, § 70. An application to file an appeal may be found at www.mass.gov/dps/elevators.

SECTION 1.10 VIOLATIONS

1.10.1 Unlawful Acts. It shall be unlawful for any person, firm or corporation to construct, install, relocate, alter, demolish, decommission, reclassify or cause material change to any equipment regulated by 524 CMR, or cause same to be done, in conflict with or in violation of any of the provisions of 524 CMR.

1.10.2 Notice of Violation. The *DPS State Elevator Inspector* is authorized to serve a notice of violation or order on the person responsible for the construction, installation, relocation, alteration, demolition, decommissioning, reclassification or material change to any equipment regulated by 524 CMR. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation and further note the availability of an *elevator* (conveyance) appeal process.
1.10.3 Enforcement. Violations to 524 CMR shall be enforced in accordance with the applicable provisions of M.G.L. c. 143, §§ 68-71 and the governing regulations of 524 CMR.

1.10.4 Violation Penalties. Any person who violates a provision of 524 CMR or fails to comply with any of the requirements thereof in violation of the approved construction documents or directive of the DPS State Elevator Inspector, or of a permit or certificate issued under the provisions of 524 CMR, shall be subject to penalties as prescribed by the applicable provisions of M.G.L. c. 143, §§ 68-71 and the governing regulations of 524 CMR.

1.10.5 Notice (Placarding) of Dangerous Conditions. See MGL. C.143, § 65

1.10.5.1 Issuance. The placard shall be in writing and shall cite the 524 CMR violations observed and shall be issued to the owner, the owner's agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order.

1.10.5.2 Unlawful Continuance. Any person who shall continue any work after having been served with a stop work order (placarding/seal out of service), except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by applicable portions of M.G.L. c. 143, §§ 68-71 and the governing regulations of 524 CMR.

SECTION 1.11 UNSAFE CONVEYANCE EQUIPMENT

1.11.1 Unsafe or Non-compliant Conditions. If upon inspection any equipment covered by 524 CMR is found in an unsafe condition, or not in accordance with the provisions of 524 CMR in effect at the time of its installation, or not in compliance with any of applicable Reference Standards, the state elevator inspector shall thereupon serve a written notice upon the building owner or lessee, or their designee, citing the section of 524 CMR or other referenced standard of which said equipment is in violation, stating the action required to bring the equipment into compliance, and the date when recommended repairs or changes shall be completed. After the service of such notice, it shall be the duty of the owner to proceed within the time allowed to make such repairs as are necessary to place the equipment in a safe and compliant condition. It shall be unlawful to operate such equipment after the date stated in the notice unless such recommended repairs or changes have been made and the equipment has been approved, or unless an extension of time has been secured from the state elevator inspector in writing. The state elevator inspector may withhold issuance of the inspection certificate until such time as the equipment is brought into compliance with all outstanding orders.

1.11.2 Power to Seal Equipment. The state elevator inspector in addition to any other penalties herein provided, shall have the power to seal out of service any device or equipment under his jurisdiction, covered by 524 CMR when in the case of emergency in the opinion of the state elevator inspector, such device is in a condition to render it unsafe for operation; or for willful failure to comply with 524 CMR.

1.11.2.1 Notice of Sealing Out of Service. Before sealing any device out of service, the state elevator inspector, except in the case of emergency, shall serve written notice upon the building owner or lessee stating intention to seal the equipment out of service and the reasons therefore.

1.11.2.2 Unlawful to Remove Seal. Any device sealed out of service by the state elevator inspector shall
be plainly marked with a sign or tag indicating the reason for such sealing. Any tampering with, concealing, defacing, or removal of the sign tag or seal without approval of the state elevator inspector shall constitute a violation 524 CMR.

1.11.3 Matters Not Provided For. If upon inspection by a state elevator inspector, any equipment covered by 524 CMR is determined to be in an unsafe or atypical state due to a condition not specifically provided for in 524 CMR or ASME A17.1, the inspector may, in their discretion take whatever action is deemed necessary in the interest of public safety. If any action is taken pursuant to 524 CMR 1.11.3, the inspector shall provide written notice to the owner or the person in charge of the equipment clearly describing the malady and otherwise follow the requirements of M.G.L. c.143, § 65.

SECTION 1.12 CONVEYANCE APPROVAL PROCESSES

1.12.1 General. Conveyance equipment regulated by 524 CMR must conform to all requirements of 524 CMR and where such equipment lacks features required by 524 CMR or contains features different than those required of 524 CMR, to be allowed utilized in Massachusetts, such conveyance equipment shall first be approved by the Board of Elevator Regulations (BER).

Such approvals fall into one of three categories:
(1) Prototype approval (required for product approval).
(2) Product approval (required after prototype approval if more than one installation is sought).
(3) Variance approval (Required when one installation is sought).

1.12.2 Approval Requirements. Application for product approval, prototype approval or variance approval shall be made on DPS application forms for such approval consideration (see www.mass.gov/dps). Any non-compliance with the requirements of 524 CMR must be specifically identified by 524 CMR Code section as part of any prototype or variance approval application.

1.12.2.1 Prototype Approval. If product approval is sought, prototype approval shall first be obtained by way of a variance request for each new prototype. All conveyance features which do not comply with 524 CMR shall be listed in the prototype approval application. A granted prototype approval shall be required prior to a permit for installation being issued by the Department of Public Safety Elevator Division.

1.12.2.2 Product Approval. Product approval must be obtained after installation is complete by way of an on-site review of the prototype by the Board of Elevator Regulations, or its designee. No further approvals will be required for future installations of the same conveyance model by the same manufacturer as long as it is manufactured and installed precisely according to the specifications of the product approval issued by the Board.

1.12.2.3 Variance Approval. Where prototype approval and/or product approval is not sought but where conveyance features do not comply with requirements of 524 CMR, variance approval is necessary. A granted variance shall be required prior to a permit for installation being issued by the Department of Public Safety Elevator Division.
(524 CMR 2.00: RESERVED)
524 CMR: BOARD OF ELEVATOR REGULATIONS

524 CMR 4.00: ACCIDENT AND INJURY REPORTING REQUIREMENTS

4.01 Scope. 524 CMR 4.00 applies to all elevators as defined by M.G.L. c. 143, § 62 and 524 CMR. Elevator owners shall be responsible to ensure compliance with 524 CMR 4.00.

4.02 Definitions Unique to 524 CMR Part 4

Accident. An incident occurring on or caused by an elevator which results in minor injury or serious injury or death to a person.

Accident report. A report filed by the owner of an elevator on a form provided by the Department.

Board. Board of Elevator Regulations.

Commissioner. Commissioner of the Department of Public Safety.

Department. Department of Public Safety.

Elevator. The term elevator shall include escalators, moving stairways, dumbwaiters, moving walks, freight elevators, including those subject to St. 1962, c. 288, material lifts and dumbwaiters with automatic transfer devices, wheelchair lifts, automatic people movers and other associated devices, except stair lifts located and installed in residential homes, and all other devices that are commonly included within the elevator industry.

Inspector. An elevator inspector employed by the Department of Public Safety.

Injury. Any bodily harm necessitating some form of medical treatment to a person including fatalities and including, but not limited to: lacerations, bruises, burns, and sprains, and broken bones.

Minor injury. Bodily harm which may or may not require first aid or significant treatment, but cannot be otherwise classified as a serious injury. This category shall include injuries in which treatment is limited to such things as the dispensation of over-the-counter medication or plastic adhesive strips, cleansing, rest, and other similar assistance.

Owner. The owner of an elevator or the owner’s agent or designee.

Serious injury. Bodily harm that results in death, dismemberment, significant disfigurement, loss of a body part or use thereof, a bone fracture, severe lacerations or other significant harm that requires emergency medical attention or hospitalization.

Serious mechanical failure. Events in which the elevator experiences measurable damage/failure and where safety of the public or workers is potentially at risk.

4.03 Reporting Requirements

(1) Notification. All accidents involving serious injury must be reported by the owner to the Department by telephone within one hour of occurrence or promptly upon first learning of the accident if beyond that
time frame. Notification telephone numbers can be found on the inspection certificates located inside the elevator. If the accident occurs on a weekend, holiday, or between the hours of 5:00 P.M. and 9:00 A.M. on a weekday, the accident must be reported to the Massachusetts Emergency Management Agency at (508) 820-2121.

(2) Written Reports. The owner of an elevator involved in an accident that results in a serious injury shall file a written accident report by facsimile or other electronic transmission with the Department within 48 hours of the accident. The report must be filed on the accident report form provided by the Department.

(3) Serious mechanical failure must be reported to DPS within 24 hours. Notification telephone numbers can be found on the inspection certificates located inside the elevator. If the serious mechanical failure occurs on a weekend, holiday, or between the hours of 5:00 P.M. and 9:00 A.M. on a weekday, the serious mechanical failure must be reported to DPS on the next business day.

4.04 Post-accident Requirements. Once an owner learns that a person has sustained a serious injury in an elevator accident, the elevator shall be immediately shut down until express consent to resume operation is granted by a supervisor of elevator inspectors employed by the Department. In the event of such an accident, the owner shall be responsible to ensure that the elevator and area surrounding the elevator are secured and are not disturbed, cleaned, or altered in any way until such time as an inspector has completed an investigation. The only exception to this requirement shall be acts in furtherance of ensuring the safety of the area or a person, or for the extraction of an injured person.

4.05 Violations. The Department may immediately shut down an elevator or revoke its inspection certificate, for any of the following violations:

(1) Continued operation of an elevator without proper authorization after an accident involving serious injury;

(2) Failure of an owner to notify the Department of an accident involving serious injury within an hour of its occurrence, or promptly after first learning of it;

(3) Failure of an owner to submit an accident report to the Department within 48 hours of an accident involving serious injury;

(4) Submission of an incomplete accident report by an owner to the Department;

(5) Failure to secure an elevator and the area surrounding an elevator subsequent to an accident involving serious injury and prior to the inspection of the elevator and area by an inspector;

(6) A violation of any provision of 524 CMR 4.00.

4.06 Shutdown Period and Appeal.

(1) Any elevator shut down pursuant to 524 CMR 4.05 shall remain shut down until express written authorization is given to the owner to resume operation from the Department. In determining how long an elevator shall remain shut down or whether to revoke a certificate of inspection, the Department shall
consider the seriousness of the violation, the deleterious effect of the violation on the public, any good faith on the part of the owner, and the owner’s history of previous violations.

(2) An owner may appeal a decision made pursuant to 524 CMR 4.05 to shut down an elevator or revoke an elevator’s inspection certificate to the Board of Elevator Regulations. Such appeal must be made in writing and received by the Board within 30 days of the date of the Department’s decision. The Board shall consider the factors outlined in 524 CMR 4.06(1) in reviewing the Department’s decision. Appeals from the Board’s decision shall be to Superior Court in accordance with M.G.L. c. 30A.

STATUTORY AUTHORITY

524 CMR 4.00: M.G.L. c. 143, § 68.
524 CMR: BOARD OF ELEVATOR REGULATIONS

524 CMR 5.00 ELEVATOR CONTRACTORS

5.01 Scope and Applicability. Unless specified elsewhere in 524 CMR, the provisions of 524 CMR 5.00 shall govern the registration, duties, responsibilities, and discipline of elevator contractors as the term is defined in 524 CMR 35.00: Elevator, Escalator, Dumbwaiters and Moving Walks: Definitions. No person or entity shall employ a Massachusetts licensed elevator mechanic(s), or be issued a permit in accordance with 524 CMR 1.5: Permits, for purposes of performing installation, alteration, modification, decommissioning maintenance, servicing, and/or repair of an elevator(s) without being registered with the Department of Public Safety, on behalf of the Board of Elevator Regulations, as an elevator contractor.

5.02 Registration.

(1) An application for a registration as an elevator contractor shall be made in writing on a form provided by the Department of Public Safety. No registration shall be issued unless the applicant has submitted a completed application evidencing all requirements of 524 CMR 5.00.

(2) An application for registration as an elevator contractor shall include:

(a) The official name of the elevator contractor, the permanent business address of the contractor, applicable contact information, and the name of a contact person(s) authorized to speak on behalf of the contractor.

(b) 1. For Corporations: an official document which lists the names and addresses of officers, directors, and major stockholders such as: a copy of the articles of incorporation, a current annual report as filed with the Secretary of the Commonwealth, a copy of the registration as a foreign corporation filed with the Secretary of the Commonwealth, or any other official documentation which lists the names and addresses of officers, directors, and major stockholders.

(b) 2. For Partnerships: either a copy of the current partnership agreement containing the requested information, or listing of the names and addresses of all partners on the application form.

(b) 3. For Applicants Using a DBA: a copy of the DBA certificate filed with a city or town pursuant to M.G.L. c. 110, § 5.

(c) The applicable registration fee as set in accordance with M.G.L. c. 7, § 3B.
(3) On behalf of the Board of Elevator Regulations, the Department of Public Safety shall issue a certificate evidencing such registration to applicants that meet the requirements of 524 CMR 5.00 and have successfully completed the application. All registrations issued pursuant to 524 CMR 5.00 shall be valid for two years from the date of issuance unless otherwise suspended or revoked by the Board of Elevator Regulations.

(4) The registrant shall have the responsibility of reporting any change of mailing address, email address, contact person, and/or change of circumstance to the Department of Public Safety. The information on file at the Department of Public Safety shall be deemed accurate for purposes of notification unless changed by the registrant.

(5) The Department of Public Safety may require an applicant to appear in person to answer questions or provide documents in conjunction with an application for registration in addition to those required under 524 CMR 5.00.

(6) Any false statement in an application for registration under this section, or any action intended to subvert the intent of 524 CMR 5.00 may be deemed grounds for any of the following:

   (a) denial of the application; or

   (b) if the registration has already been issued, suspension or revocation of the registration.

5.03 Duties and Responsibilities. A registered elevator contractor shall have the following duties and responsibilities:

(1) to ensure that every person who performs work on behalf of the contractor as an elevator constructor, maintenance person and repairman in the construction, maintenance, alteration, modification, servicing, or repair of elevators holds a license therefor granted by the Board of Elevator Examiners in accordance with M.G.L. c. 143, § 71C(1), or a temporary license therefor granted by the Commissioner of Public Safety in accordance with M.G.L. c. 143, § 71C(2), or is an elevator mechanic apprentice working under the direct and immediate field supervision of a licensed elevator mechanic.

(2) to ensure that no work requiring a permit or a variance in accordance with 524 CMR is performed by any person working on behalf of the contractor prior to obtaining a permit or variance.
(3) to ensure that all necessary variances from 524 CMR that are reasonably foreseeable have been obtained prior to filing a permit, and to submit variance approval along with the permit application.

(4) to ensure that all required permits and variances are posted all times where work is performed.

(5) to include its Department of Public Safety’s issued elevator contractor registration number and the signature of an authorized individual on all applications and correspondence filed with the Board of Elevator Regulations and / or the Department of Public Safety.

(6) to ensure that adequate and proper personnel timely appear for all annual tests, fire tests, and other inspections scheduled with the Department of Public Safety.

(7) to notify the building owner of an upcoming annual inspection within two (2) weeks of scheduling by the Department of Public Safety, including the need for the fire alarm company and / or emergency generator contractor if required.

(8) to adequately prepare an elevator for an inspection, which shall include but not be limited to: adequate pre-testing of all equipment prior to scheduled inspection and proper notification to building owner pursuant to 5.03(6).

(9) to cure all code violations subject to a 90-day work order issued by DPS within 90 days, ensuring that the elevator is adequately prepared for re-inspection. For a 60-day work order issued by DPS all work and proper documentation must be completed within the 60 day allotted timeframe.

(10) to certify that an elevator has been pre-tested prior to annual inspection.

(11) to provide accurate owner information to DPS.

(12) to ensure that any elevator under contract for repairs or service is registered with the Department of Public Safety.

(13) to timely file applications for annual inspections if given the authority to file those applications by the building owner.
(14) to obtain an elevator owner’s express consent to file any form on his or her behalf with the Department of Public Safety prior submitting the form.

(15) to ensure work performed and actions taken meet all applicable provisions in 524 CMR, including those codes adopted by reference therein, and M.G.L. c.143.

5.04 Discipline.

(1) Complaints. Any person may file a complaint against a registered elevator contractor. All complaints relative to a registrant must be in writing on a form provided by the Board of Elevator Regulations. All complaints must be received by the Board of Elevator Regulations within one year of the date of the alleged wrongdoing. The Board of Elevator Regulations may itself initiate a complaint at any time.

(2) Basis of Complaint. A complaint must allege wrongdoing by a registrant in the form of a violation of 524 CMR or M.G.L. c. 143.

(3) Review and Investigation of Complaints. The Board of Elevator Regulations may, in its discretion, investigate a complaint to determine whether a hearing will be held.

(4) Notice of Hearing. If the Board of Elevator Regulations determines that a hearing shall be held to resolve a complaint, reasonable notice shall be provided to the complainant and the registrant. Mailing of notice to the address on record with the Board of Elevator Regulations, and emailing the notice to the contact person identified by the registrant on the application for registration, shall be deemed satisfactory notice. The notice of hearing shall contain:

(a) The name of the complainant (if provided).

(b) The date, time and place of said hearing.

(c) The location of the incident giving rise to the complaint.

(d) A description of the situation giving rise to the complaint.

(e) A copy of the complaint filed with the Board of Elevator Regulations.

(5) Hearing. Hearings convened pursuant to 524 CMR 5.00 shall be presided over by a Board of Elevator Regulations and conducted pursuant to 801 CMR 1.02: Informal/Fair Hearing Rules and M.G.L. c. 30A. Any party may be represented by legal counsel.
If an elevator contractor, or a designee, does not appear for the hearing, the hearing may proceed in their absence and a decision rendered based upon the evidence presented, but only after a finding is made that the registrant was provided notice as required by 524 CMR 5.04(4).

(6) Subpoenas. The Board of Elevator Regulations may issue a subpoena in accordance with M.G.L. c. 30A, § 12 requiring the attendance and testimony of witnesses and the production of any evidence, including books, records, correspondence or documents, relating to any matter in question in the proceeding.

(7) Decisions and Discipline of Registrants. The Board of Elevator Regulations shall issue a written decision after the hearing in a reasonably prompt manner. If the Board of Elevator Regulations, acting on behalf of the Department of Public Safety, determines that a registrant has violated any provision of 524 CMR 5.0 or M.G.L. c. 143, they may suspend a registration for a fixed period of time, revoke a registration permanently, or issue a reprimand to the registrant. In reaching the decision the Board of Elevator Regulations shall consider any history of disciplinary issues, the severity of the offense, and any remedial action taken by the contractor. Further, the Board of Elevator Regulations may impose any terms and conditions upon a registrant which are reasonably calculated to ensure future compliance with 524 CMR and M.G.L. c. 143 by the registrant.

(8) Appeals. Any person aggrieved by a decision of the Board of Elevator Regulations may appeal such decision to the Board of Elevator Appeals in conformance with M.G.L. c. 143, § 70(b).
(524 CMR 6.00: RESERVED)
(524 CMR 7.00: RESERVED)
8.01 **GENERAL.** 524 CMR Part 8 prescribes the practical tests and inspections required of regulated conveyance equipment in Massachusetts and supplements test and inspection requirements of A17.1-2013. Where Part 8 requirements conflict with A17.1 requirements, 524 CMR, Part 8 requirements prevail.

8.02 **Practical Tests and Inspections.** A practical test of all equipment governed by 524 CMR as required by M.G.L. c. 143, § 64, shall consist of the following:

1. The initial “Acceptance Test” and subsequent annual tests and/or inspections shall be made of all equipment under the supervision of the state elevator inspector. Such tests shall conform to the following Acceptance Test: A contract load test at governing tripping speed where applicable shall be made for all new installations.

2. Prior to returning to service any equipment which has undergone a major alteration, material change, or which has been placed out of service due to non-use, accident or a cause of injury, or at the discretion of the state elevator inspector.

3. Subsequent Tests: A safety test with no contract-load shall be made in the presence of the state elevator inspector, once a year, or as otherwise specified by other sections of 524CMR or M.G.L. c. 143, § 64 of all safety devices and equipment to determine that they function as required by the applicable codes. It is further required that every fifth year a full-load safety test be conducted in the presence of the state elevator inspector. (Refer to 524 CMR 11.00 for elevators placed out of service.)

4. Car and counterweight safeties and governors shall be tested as follows: Governor operated instantaneous type safeties or sliding type safeties of elevators shall be tested at rated speed by tripping the governor by hand. The governor shall be separately tested for tripping speed.

5. Each governor shall be sealed directly after testing by the state elevator inspector conducting the test. No person other than a state elevator inspector, shall break or remove the seal.

6. The application of a safety having no speed governor shall be obtained by a free drop test which may be made without detaching the ropes.

7. Car and counterweight oil buffers, if any, shall be tested annually with no load on the platform at rated car speed, and with a full contract load every fifth year.

8. Contract load test for hydraulic elevators: A contract load test under the supervision of the state elevator inspector shall be made of every hydraulic elevator or dumbwaiter before the equipment is placed in regular service.
   
   (a) The test shall be made with no load and a test with full rated load on the car in order to determine the car speed under each specified condition of loading in both the up and down directions.
   
   (b) A test check of the working pressure including, in case of pressure tanks, a check of the accuracy of the tank pressure gauge.
   
   (c) A test of the relief valve by-pass pressure shall be made in accordance A17.1-2013.
   
   (d) After the test of the relief valve setting and system pressure test, the following test shall be performed and witnessed by a Massachusetts licensed elevator inspector employed by the
Departments of Public Safety. Cylinders that are not exposed shall be tested as follows:

1. Note the amount of oil in the pit and seal leak collection container.
2. Park the elevator at a convenient location and open the main line disconnect.
3. Mark the level of the oil in the tank.
4. Wait at least 15 minutes and measure the amount that the car has moved down.
5. Compute the volume of oil loss as a result of the car movement as follows:
   \[ V = 3.1416 \times R^2 \times L \]
   Where:
   \( V \) = volume of oil in cubic inches
   \( R \) = radius of plunger (in.)
   \( L \) = movement of car (in.)
6. Compare this to the change in volume in the pit seal collection container and the tank.
   Example: \( 1 = 7'' \), Plunger diameter = 6"
   \[ V = 3.1416 \times 9 \times 7 = 198 \text{ in}^3 \]
   (Note: 231 in³ = 1 U.S. gallon)
7. If necessary, continue the test to verify the source of the leak.
8. If it is determined that a leak exists underground, the unit should immediately be taken out of service.

(9) All private residence elevators shall be tested and inspected every five years. A test with a capacity load will be performed during each test.

(10) All escalators will be tested with contract load at the time of acceptance and will have a brake data plate installed. All escalators with brake date plates may be tested thereafter by verifying the brake torque. If the environment in which a unit is operating makes the stopping capability of the brake questionable, a weight test will be used to reconfirm the torque setting of the brake.

(11) All existing escalators without brake data plates or units with more than one driving machine will be tested with contract load at five year intervals and whenever the stopping capability of the brake is questionable.

(12) All escalators will require annually a step/skirt performance index test complying with A17.1-2013.

8.03 Unsafe or Non-compliant Conditions. See 524 CMR, Part 1, Section 1.11.1.

8.03 Power to Seal Equipment. See 524 CMR, Part 1, Section 1.11.2.

8.04: Notice of Sealing Out of Service. See 524 CMR, Part 1, Section 1.11.2.1.

8.05 Unlawful to Remove Seal. See 524 CMR, Part 1, Section 1.11.2.2.

8.06: Matters Not Provided For. See 524 CMR, Part 1, Section 1.11.

REGULATORY AUTHORITY
524 CMR 8.00: M.G.L. c. 143, § 69.
9.01 Licensed operators: General

No Person, Owner, Lessee, Employer or His Agent Shall Operate or Permit to be operated Any Non-Automatic Elevator Except By A Person Duly Licensed For Such Service By The Commissioner Of Public Safety, except:

(1) In case of emergency, such operation by a competent unlicensed person may be permitted for a period not exceeding two consecutive days, provided the Department of Public Safety is immediately notified. Such periods may be extended by the department where necessary to avoid undue hardship, but no single extension shall exceed a period of more than seven consecutive days.

(2) Licensed operators are not required for automatic operation or continuous pressure operation passenger or freight elevators or existing shipper rope elevators, when equipped with the proper safeguards. Where an operator has been designated to be in permanent charge of such elevators or where a car switch is employed, said operator shall be licensed.

(3) An operator’s license shall not be required of an elevator contractor or of a qualified mechanic engaged in the construction, maintenance, or repair of elevators or elevator hoistways, or of an inspector having authority to inspect elevators.

9.02 Granting of Licenses

(1) Whoever desires to act as operator of elevators herein required to be operated by a licensed person shall make application to the department on blanks to be furnished by the said department. A license shall not be granted to a person under 18 years of age.

(2) The applicant shall be given a practical examination as to his knowledge of the operation of elevators, particularly as to the safeguarding of passengers and the requirements of 524 CMR 9.00, by an inspector or examiner having jurisdiction, and if found competent shall be granted a license by the executive head of the department. Such executive head may, however, delegate the power to grant licenses to any inspector of the department having jurisdiction.

(3) Licenses shall be issued until the date of birth of the licensee occurring more than 12 months but not more than 24 months after the effective date of such license. If any such license or the renewal thereof expires in an even year, any subsequent renewal shall expire on the next anniversary of the licensee’s date of birth occurring in an even year. If any such license or renewal thereof expires in an odd year, any subsequent renewal shall expire on the next anniversary of the licensee’s date of birth occurring in an odd year. A license issued to a person born on February 29th shall, for the purposes of 524 CMR 9.02(3), expire on March first. If a license has not been renewed within three years from the date of issuance, a re-examination shall be required.

(4) Should a license become lost, a duplicate thereof shall be granted upon application to the department granting the original license.
(5) The applications and a record of the licenses issued shall be kept by such department.

9.03 Display of Licenses

A licensed operator shall at all times when operating an elevator be prepared to display his license on demand of the owner or tenant of the building, or of any person authorized to inspect the elevator, or of any police officer.

9.04 Revocation and Suspension of Licenses

(1) A willful falsification in the matter of a statement in an application shall be deemed sufficient cause for the revocation at any time of a license granted on said application.

(2) A license may be suspended or revoked by the Commissioner, if the holder is incompetent or untrustworthy or fails to comply with 524 CMR.

9.05 Instructions to Operators

Operators are required to Learn These Instructions Thoroughly and Keep a Copy Available For Use At All Times.

(1) Always open the service switch or lock the operating mechanism when placing the elevator out of service.

(2) Be sure the operating mechanism is in the “STOP” position before closing the service switch.

(3) Report any defects promptly to the person in charge.

(4) Do not attempt to make any repairs.

(5) Carry no passengers or freight while inspections, repairs, or adjustments are in progress, and operate the car only in response to directions from the inspector or person in charge. Do not move the car when anyone is in the pit or on top of the car except as he may direct.

(6) When in the opinion of the operator an excess load is to be carried, do not ride or allow others to ride on the elevator.

(7) Hoistway doors or gates shall always be closed and locked before the car is started. The car shall be brought to a stop at the landing level before either the car door or car gate where provided or the hoistway door or hoistway gate is opened manually.

(8) Keep car gates closed while car is running, and where no car gates are provided, keep passengers away from the open edge of the car platform.

(9) Limit the number of passengers or load to the contract capacity of the car and do not permit crowding or overloading.
(10) Do not reverse the operating device suddenly; stop the car before reversing.

(11) Move operating device to the stop position on approaching the terminal landings. Do not depend on the terminal stops in the ordinary operation of the car.

(12) Should the power go off while the car is in motion, move the operating device to the “STOP” position and start the car in the usual manner upon return of the power.

(13) Familiarize yourself with the emergency devices, understand their function, and know how to operate them.

(14) Should the car stop suddenly, shut off the power, call for the person in charge and operate the elevator only at their direction. While waiting, keep calm. Do not attempt to release any safety device; remember that it is safer to stay in the car until help arrives than to try to get out, and so instruct your passengers.

(15) Should the car refuse to stop, do not attempt to jump off.

(16) Before loading or unloading elevators with hand-rope type operation, lock the operating mechanism in the “STOP” position.

(17) Never leave the car in the ordinary course of operation nor leave the operating mechanism unprotected. When going off duty for any reason, even for a few minutes, be sure that the power is disconnected or that the operating mechanism is locked and the hoistway doors are closed.

(18) Always leave a hydraulic elevator operated by a lever at the lower landing with the lever in the position for down motion.

(19) In running a belt-driven elevator, be sure to pull the hand-rope as far as possible when starting the car. In doing so, you throw the belt full on the tight pulley, and thus prevent it from slipping. In stopping, use the centering rope.

(20) Never allow anyone to scuffle or fool on the elevator. It is always dangerous.

(21) Never, under any condition, allow anyone to get on or off the car while it is in motion.

(22) Keep your mind on your work. Always remain at your post while the car is moving, so that you can stop it quickly in an emergency.

(23) If an accident causing material damage or injury to a person by an elevator, escalator, dumb-waiter, or other devices governed by 524 CMR, requires medical attention, the person having knowledge of the accident, be he the owner, lessee, operator, or other person in charge, shall immediately report such accident to the inspector having jurisdiction, who shall forthwith inspect such elevator or devices herein described. Said inspector shall file a complete written report of his inspection with the Commissioner of Public Safety.
REGULATORY AUTHORITY

524 CMR 9.00: M.G.L. c. 143, § 69.
10.01 GENERAL. 524 CMR Part 10 describes those activities for which an elevator permit is required and additionally, those activities for which an elevator permit and follow-on testing is required. For permit and permit and inspection purposes, 524 CMR, Part 10 replaces the applicable portions of A17.1-2013, Parts 8.7 and 8.8.

10.02 Alterations of Elevators, Escalators and Dumbwaiters Requiring a Permit

The following alterations, repairs and replacement of any equipment governed by 524 CMR shall be considered an alteration and shall only be performed by persons with a Massachusetts Elevator Mechanics License as a construction, maintenance or repair mechanic in accordance with M.G.L. c. 143, § 71B. Such alterations, repairs or replacement shall also require a permit to be filed with the Commonwealth of Massachusetts, Department of Public Safety, Elevator Division.

(1) Replacement of ropes, or addition of rope equalizers, or rope fastening devices.
(2) Change in guide rails.
(3) Replacement of hoistway doors.
(4) Addition of hoistway locking devices and car door or gate electric contacts.
(5) Addition of or change in hoistway door and/or car door operating devices.
(6) Addition of roller guide shoes.
(7) Ventilation of hoistways and machinery spaces.
(8) Addition to or replacement of car enclosures, floors, interior panels or addition or replacement of car and hall fixtures.
(9) Replacement of more than three (3) consecutive damaged steps.
(10) Replacement of step or drive chain.
(11) Modification of existing deck barricade.

10.03 Alteration of Elevators, Escalators and Dumbwaiters Requiring a Permit and Test

The following alterations, repairs and replacement of any equipment governed by 524 CMR shall be considered an alteration and in addition requiring a permit to be filed with the Commonwealth of Massachusetts, Department of Public Safety, Elevator Division, and being performed by persons with a Massachusetts Elevator Mechanics License as a construction, maintenance or repair mechanic in
accordance with M.G.L. c. 143, § 71B, shall also require a subsequent test witnessed by a Massachusetts licensed elevator inspector employed by the Department of Public Safety as listed under 524 CMR 8.01(2).

(1) Increase in dead weight of car.

(2) Increase in dead weight of counterweight.

(3) Change in type of operation or control.

(4) Replacement of or change in type of car or counterweight safety.

(5) Replacement of driving machine by a new machine.

(6) Replacement of existing controller to a new controller.

(7) Replacement of existing machine brake to a new brake.

(8) Addition of hoistway access switches and/or car top operating devices.

(9) Addition of car-leveling or truck zoning devices.

(10) Change in type of car loading classes A, B, C.

(11) Installation, additions or alterations of fire emergency controls.

(12) Replacement of any hydraulic control valves and/or overspeed valves.

(13) Replacement of hydraulic plungers, cylinders, supply lines or complete jack units.

(14) Decommissioning of Elevator or Escalators in accordance with 524 CMR 11.03.

REGULATORY AUTHORITY

524 CMR 10.00: M.G.L. c. 143, § 69.
524 CMR 11.00  ELEVATORS PLACED OUT OF SERVICE OR DECOMMISSIONED

11.01 GENERAL. 524 CMR Part 11 sets minimum requirements for elevators and other regulated conveyances taken out of service and/or decommissioned and with or without intention to demolish said conveyance.

11.02 Elevators Placed Out of Service. All elevators, escalators, and dumbwaiters placed out of active service for a period not exceeding one year shall comply with the following:

(1) The owner or his agent shall notify the Department of Public Safety Elevator Division in writing, giving the date when the elevator, escalator, or dumbwaiter will be placed out of service, the reason for removal from service and the date of return to service. A current Inspection Certificate shall be required when placing it back in service during that year.

(2) The elevator main line disconnects shall be secured in an off position with the fuses removed.

11.03 Decommissioned Equipment. All elevators, escalators, and dumbwaiters place out of active service for a period exceeding one year shall be classified as decommissioned and comply with the following:

(1) The owner or his agent shall notify the Department of Public Safety Elevator Division in writing giving the date the elevator or dumbwaiter will be decommissioned. A decommissioning permit shall be required. Note that decommissioned elevators cannot be brought back into service without conforming to 524 CMR for new construction.

(2) The car and counterweight shall be lowered to the lowest landing.

(3) All ropes removed.

(4) Main line fuses removed.

(5) Service switch opened and the cabinet sealed with a padlock.

(6) Where landing doors remain in place, the doors shall be bolted securely in the closed position from the hoistway side.

(7) When landing gates are in place, the landing openings shall be totally enclosed and strongly reinforced. EXCEPTION: The lowest landing door shall be locked from the landing side.

(8) Hydraulic Decommissioning. When a hydraulic elevator is decommissioned the oil pipe line from the hoistway to the power unit, and the oil in the tank will be removed from the premises. The supply wires shall be disconnected at the main line switch and at the power unit.

(9) Inspection Required. Following decommissioning as described above, the decommissioned elevator shall be inspected by a DPS Elevator Inspector to ensure that the elevator car, counterweights, etc. have
been safely decommissioned.

(10) Moving Stairway Decommissioning. Any moving stairway which is permanently removed from service shall have the electrical power supply disconnected by removing the fuses and disconnecting the wiring on the load side of the disconnect switch. A permanent barricade shall be erected at each landing of said stairway to prevent access.

REGULATORY AUTHORITY

524 CMR 11.00: M.G.L. c. 143, § 69.
(524 CMR 15.00: RESERVED)
(524 CMR 16.00: RESERVED)
26.01 General. 524 CMR 26.00 has been developed in response to demands for a separate section of 524 CMR to cover the installation of certain elevator equipment in buildings or structures used exclusively for the parking of motor vehicles. It is felt that in many such installations, particularly where no person rides the elevator during the parking process, reasonable safety does not require that the elevators meet all of the requirements of 524 CMR (The Massachusetts Elevator Code) for conventional elevator installations.

26.02 Reference to Safety Codes. Installations shall be in accordance with accepted standards of engineering practice and, except as provided herein, shall conform to the minimum requirements of 524 CMR.

26.03 Scope and Classification. Under Scope, 524 CMR 26.00 applies only to: Elevators used exclusively for the parking of automobiles where, during the parking process, each automobile is moved either under its own power, or by means of a power-driven parking device onto and off the elevator directly into parking spaces or cubicles in line with the elevator, where no persons are normally employed or stationed in the parking areas. Also, devices used exclusively for the raising of automobiles above, or lowering them below, the point of loading automobiles on the device for the purpose of storing them on the device itself.

Exception: 524 CMR 26.00 does not apply to the design of the structure, of a crane or similar device on which the elevator may be mounted, or the design of any automobile parking dolly or mechanism, except the interlocking of the control of such device with the elevator control.
Under Classification, elevator equipment subject to 524 CMR 26.00 shall be classified as follows:

Class I. Elevators on which, during the parking process, one attendant rides for the purpose of operating the elevator and for the purpose of operating a power driven parking device or dolly to move the automobile onto and off the elevator, but is not required to get off the elevator.

Class II. Elevators on which, during the parking process, one attendant rides for the purpose of operating the elevator and driving the automobile, under its own power, onto and off the elevator.

Class III. Elevators operated from a central dispatching station or stations and on which the garage attendants do not ride during the parking process, and the operation of the elevators and the entire process of parking the automobile is automatically controlled.

26.04 Definitions. Definitions in 524 CMR Part 35, shall apply to 524 CMR 26.00 installations unless otherwise modified herein.

26.05 Construction of Hoistways and Hoistway Enclosures. Hoistway and hoistway enclosures shall be constructed as follows:

(1) For hoistway enclosures at levels where patrons deliver or receive motor vehicles, hoistway enclosures for Class I, II and III elevators shall be provided at all floors at which the customer delivers or receives his motor vehicle, hoistway enclosures shall be provided at portions of the hoistway accessible to the public.

Note: Enclosures may be perforated for their entire height and need not be higher than six feet.

(2) For hoistway opening protection at floors where patrons deliver or receive motor vehicles, hoistway gates conforming to 524 CMR 26.06 shall be provided at each hoistway opening accessible to the public.

26.06 Hoistway Gates in Non-Fire-Resistive Hoistways. Hoistway gates in non-fire-resistive hoistways shall conform as follows:

(1) Gates shall be power operated, or they may be opened under power and may close by gravity if means are provided to limit the closing speed. Power opening and closing devices shall conform to the requirements of 524 CMR, Part 35.

(2) Gates may be perforated for their entire height, and need not be higher than six feet.

(3) Hoistway gates on Class I, II and III elevators shall be provided with interlocks, mechanical locks and contacts, or separate mechanical locks.

   EXCEPTION: Locking devices are not required on vertically sliding gates whose unbalanced weight is 65 lbs. or more when the car is not at the landing.

(4) Means shall be provided to prevent movement of the car in either the vertical or horizontal direction away from a landing unless the gate at that landing is in the closed position.
EXCEPTION: The means provided may permit horizontal movement of the car with the gate open in a zone of not more than two feet in either direction, provided that protective guards not less than six feet high and the width of the zone are installed on each side of the tower.

For cars having more than one hoistway or runway opening at a given loading position, a separate closing means shall be provided for each car door or gate and its corresponding hoistway or runway door or gate.

(5) The vertical clearance beneath the lower edge of the gate and the landing shall be not more than eight inches.

26.07 Protection at Other Levels. At levels other than floors where patrons deliver or receive motor vehicles, hoistway opening protection shall conform to the following:

(1) Adequate means shall be provided to retain the automobiles in the parking cubicles against the force of the wind or of gravity.

(2) Ropes or other dividers not less than 42" high shall be provided between the parking cubicles.


26.09 Car, Counterweight Buffers, Counterweights. Car and counterweight buffers shall conform to the following:

(1) Car and counterweight buffers shall conform to the following:
   (a) For Class I and II Elevators, the car and counterweight buffers shall be installed in accordance with the requirements of 524 CMR, Part 35.
   EXCEPTION: Spring buffers may be used under the following conditions:
      1. For electric elevators whose rated speed is not more than 300' per minute.
      2. For hydraulic elevators whose maximum speed in the down direction with rated load is not more than 300' per minute.
      3. The stroke of spring buffers for car speeds exceeding 200' per minute shall be equal to or greater than the following:
         201 - 250 ft. per min. - 6½"
         251 - 300 ft. per min. - nine inches
   (b) For Class III Elevators, the car and counterweight buffers shall be required only where there are occupied spaces or passageways underneath the hoistway, in which case both car and counterweight buffers shall be installed in accordance with the requirements of 524 CMR, Part 35 provided that such buffers may be located at each side of the car frame.

(3) Counterweights, where provided, shall conform to 524 CMR, Part 35.

26.10 Car Frames and Platforms: Design Requirements. Car frames, car platforms and their guiding members of Class I, II and III elevators shall conform to the requirements of 524 CMR, Part 35.

EXCEPTIONS:
   (a) The flooring may be perforated provided the openings will reject a ball having a
diameter of two inches or more.
(b) Where a parking dolly is used the portion of the floor where the dolly travels may be depressed.
(c) Four corner suspension roped hydraulic elevators are not required to have car crossheads.

26.11 Car Enclosures and Car Gates. Cars shall be enclosed on all sides not used for entrance and exit, with enclosures conforming to 524 CMR, Part 35 provided that the enclosure need be only six feet high, may be of openwork construction for its entire height, and no car top shall be required.

EXCEPTIONS:
(a) For Class I and II Elevators the enclosures may be omitted provided:
1. The car can be operated from the car only and the car operating device is permanently located and is of a type which will return automatically to the stop position when the hand of the operator is removed.
2. The operator's station is protected on the outside with an openwork metal enclosure at least six feet high which will reject a ball 1½" in diameter and where no car gate is provided is located not less than four feet from the nearer end of the platform.
3. A metal railing at least 42" high is provided, on the sides of the car not used for entrance and exit.

(b) For Class III Elevators the enclosure specified may be omitted if a metal railing at least 42" high is provided on the sides of the car not used for entrance and exit.

A car gate shall be provided at each car entrance and shall be equipped with means to prevent the movement of the car in either the vertical or horizontal direction away from a landing unless the gate is in the closed position.

EXCEPTIONS:
(a) The means provided to prevent movement of the car may permit horizontal movement of the car with the gate open in a zone of not more than two feet in either direction provided protective guards not less than six feet high and the width of the zone are installed on each side of the tower.
(b) The car gate may be omitted provided the following conditions are conformed with:
1. Where a dolly is used, means are provided to prevent operation of the elevator unless the dolly is properly positioned on the car platform.
2. When the motor vehicle is on the car platform means are provided to prevent operation of the elevator, unless the motor car is properly centered on the platform so that no portion of the vehicle projects beyond the platform.
3. For Class I and II elevators where the elevator can be operated from the car only by means of a permanently located operating device of a type which will return automatically to the stop position when the hand of the operator is removed.

26.12 Car and Counterweight Safeties and Speed Governors. Car safeties conforming to 524 CMR, Part 35 shall be provided. All operating parts of the safety shall be protected from the elements.

EXCEPTIONS:
(a) Car safeties may be omitted on:
1. Direct plunger elevators.
2. On Class III elevators where there is no occupied space or passageway underneath
the hoistway.
(b) The car safety device may be located in the upper part of the car frame instead of beneath the platform provided the car frame, car platform, car safety and the guide rails and their supports are designed to withstand the forces from loading and unloading and from application of the car safety at governor tripping speed with rated load on the platform within the stresses and deflections permitted by 524 CMR, Part 35.

Counterweight safeties shall be provided where there is an occupied space or passage underneath the hoistway.

Car or counterweight safeties, where required or used, shall be operated by speed governors conforming to 524 CMR, Part 35.

EXCEPTION: The tripping speed of speed governors for roped hydraulic elevators shall be based on the maximum speed attained by the elevator car in the down direction with rated load on the platform instead of on rated speed.

26.13 Electric and Hydraulic Driving Machines. Electric driving machines shall conform to the requirements of 524 CMR, Part 35.

Hydraulic driving machines, valves, piping, connections and tanks shall conform to the requirements of 524 CMR, Part 35.

EXCEPTION: Roped hydraulic driving machines may be used provided they conform to the applicable requirements of 524 CMR 26.14.

26.14 Roped Hydraulic Elevators. Piston rods of roped hydraulic elevators shall be so constructed and so roped that the piston shall be stopped before the car can be drawn into the overhead structure. Travel limiting stops of ample strength shall be provided in the cylinder to bring the piston to rest under full pressure without damage to the cylinder assembly or hydraulic system. Such stops shall be of the solid metal to metal type.

Traveling sheaves of roped hydraulic elevators shall be guided in metal guides. Sheave frames, where used, shall be of structural or forged steel having an elongation of not less than 14% in a length of two inches and shall be designed and constructed with a factor of safety of at least eight. A single continuous strap shall not be used for the sheave frame.

Cylinders, valves, piping, connections and tanks shall conform to the requirements of 524 CMR, Part 35. Piston rods of roped hydraulic elevators shall conform to the following:
(a) Piston rods in compression shall be designed and constructed in accordance with the applicable formula for plungers.
(b) Piston rods in tension shall be designed and constructed in accordance with the following formula:

\[ W = 7500A \]

Where: \( W \) = Allowable gross load, pounds applied to piston rod
\( A \) = Net cross-sectional area at root of threads in square inches.

(c) Means shall be provided to prevent eccentric loading on piston rods and to equalize loading on piston rods where two or more are used.
26.15 Requirements for Capacity and Loading. The capacity and loading requirements of 524 CMR 17.00 shall be conformed with, provided that the minimum rated load shall be based on the maximum weight of the motor vehicles to be parked and shall in no case be less than 5,000 lbs. per vehicle to be carried.

In addition to the information required by 524 CMR, Part 35, the crosshead data plate or a separate plate attached to the crosshead shall indicate the maximum speed of the car in the down direction with rated load on the platform for which the elevator is designed.

26.16 Terminal Stopping Devices and Operating and Control Devices. Terminal stopping devices shall conform to the requirements of 524 CMR, Part 35 for hydraulic elevators, provided that for roped hydraulic elevators there shall be installed, in addition to the terminal stopping devices therein specified, a separate automatic stop valve independent of the normal control valve and mechanically operated directly by the movement of the car.

Operating and control devices shall conform to the requirements of 524 CMR, Part 35 for electric elevators and for hydraulic elevators; additionally:

(a) Roped hydraulic elevators may have lever type operating devices provided they are self centering when released by the operator.

(b) The following electrical protective devices shall not be required:
1. Top of car operating device.
2. Stop switch on top of a car.
3. Hoistway door interlocks or electric contacts. (See 524 CMR 26.06(3)).
4. Car door or gate electric contacts. (See 524 CMR 26.11(2)).
5. Stop switch in pit.
6. Car emergency stop switch for roped hydraulic elevators with lever type operating devices.

Class III elevator cars shall be provided with a constant pressure operating device for operating the car for inspection, maintenance, and during emergencies, which shall be operative only when the operating device at the control dispatching station is inoperative. Means shall be provided at the central dispatching station for disconnecting the normal operating device and for making the constant pressure operating device in the car operative.

26.17 Requirements for Suspension Means. The suspension means for electric and hydraulic elevators shall conform to 524 CMR, Part 35. Car platforms may be suspended by wire ropes attached to each corner of the platform, subject to the following:

(1) A center car frame conforming in all respects to 524 CMR, Part 35 shall be provided except that the car crosshead may be omitted, providing:
   (a) The car frame stiles extend partly above and partly below the car platform so that the vertical distance between the top and bottom guide shoes on the car frame is not less than 40% of the distance between guide rails or of the length of the car platform, whichever is greater.
   (b) Guiding members or rope connections are so designed and installed as to prevent binding of the car frame in the guide rails when the car is raised and lowered.

(2) The car safety required by 524 CMR 26.12 is mounted on the center car frame located as required in 524 CMR, Part 35.
(3) The car safety shall be operated by a speed governor.

26.18 Inspection, Tests, Maintenance and Alterations. Inspections, tests, maintenance and alterations shall conform to the requirements of 524 CMR and of M.G.L. c. 143, § 64.

26.19 Members of the Public Not Allowed Above Receiving Level. No person other than those whose services are necessary for the operation, maintenance, or safety of the premises shall be permitted on an elevator or on any level other than the receiving level.

26.20 Operators to Be Licensed. No person shall operate, and no owner, lessee, employer or his agent shall cause or permit any elevator to be operated except by a person duly licensed for such service by the Commissioner of Public Safety.

EXCEPTION: An operator's license shall not be required of an elevator contractor or of a qualified licensed mechanic engaged in the construction, maintenance, or repair of elevators or elevator hoistways, or of an inspector having authority to inspect elevators.

(1) Granting of Licenses
(a) Whoever desires to act as an operator of elevators herein required to be operated by a licensed person shall make application to the Commissioner on blanks to be furnished by the Department of Public Safety. A license shall not be granted to a person less than 18 years of age.
(b) The applicant shall be given a practical examination as to his knowledge of the operation of elevators, and if found competent shall be granted a license by the Commissioner.
(c) Special licenses shall be issued for Class I, Class II, and Class III elevators respectively. No license shall be valid except for the class elevator for which it has been issued. Licenses shall be for the term of one year from the date thereof, and may be renewed yearly by the department. If a license has not been renewed within three years from the date of issuance, a reexamination shall be required.

(2) Display of Licenses. A licensed operator shall at all times when operating an elevator be prepared to display his license on demand of the owner or tenant of the building, or of any person authorized to inspect the elevator, or of any police officer.

(3) Revocation and Suspension of Licenses.
(a) A willful falsification in the matter of a statement in an application shall be deemed sufficient cause for the revocation at any time of a license granted on said application.
(b) A license may be suspended or revoked by the Commissioner, if the holder is incompetent or untrustworthy or fails to comply with 524 CMR 26.00.

REGULATORY AUTHORITY

524 CMR 26.00: M.G.L. c. 143, § 69.
29.01 Definitions. For purposes of convenience, Massachusetts definitions related to stage, orchestra, and organ console elevators are presented herein, rather than in 524 CMR, Part 35.

Car Aprons. Car aprons shall mean an enclosure of solid construction to enclose the space between the top of the hoistway enclosure and the underside of the platform when the platform extends above the top of the hoistway enclosure.

Orchestra Elevator. An orchestra elevator shall mean the platform for raising and lowering musicians of an orchestra in a substantially vertical direction at a speed not exceeding 15 feet per minute.

Organ Console Elevator. An organ console elevator shall mean a platform for raising and lowering an organ console including the organist, in a substantially vertical direction at a speed not exceeding 15 feet per minute.

Stage Elevators. A stage elevator shall mean a platform consisting of a section of the stage arranged to be raised and lowered to or above and below the stage level in a vertical direction at a speed not exceeding 15 feet per minute.

Standard Railing. A standard railing shall mean a railing not less than 42" in height with an additional rail between the top rail and the floor.

Toe Boards. Toe boards shall mean a board not less than six inches in height placed at right angles with floor or platform to prevent objects from falling from the floor or platform to the spaces below.

29.02 Hoistway Construction. The hoistways of Orchestra and Organ console elevators shall be of two hour fire resistive construction immediately below the top landing.
The complete surface of the hoistway within the limits of travel shall be of smooth finish, devoid of surface roughness, and without any projections or recesses except for landing entrances, guides, and guide brackets, vertical slots where required for concealed guides, junction boxes and conduit or wiring. All projections or recesses at landing entrances shall be beveled on the underside or shall be guarded with metal plates. The angle of such bevels or guard plates shall not be less than 75° from the horizontal.

29.03 Clearance and Pits. A pit shall be provided at the bottom of every hoistway of such depth that when the platform is at its lowest limit of travel the distance between the lowest point of the underside of the platform framing shall be in accordance with the following: The clear vertical distance between the underside of the car platform or between the underside of any equipment attached thereto, exclusive of the car frame channels, car safety blocks, guide shoes and any aprons or guards attached to the car sill, and the pit floor when the car rests on the fully compressed buffer shall not be less than two feet. In measuring this clearance, the depth of any trenches or depressions in the pit shall not be included.

29.04: Machine Rooms, Sheave Rooms and Secondary Levels. All machine rooms shall be located above or below or contiguous to any side of the hoistway.

EXCEPTIONS: Oil hydraulic machine rooms and entrance to machine rooms shall be located not more than ten feet from any side of the hoistway.

29.05 Hoistway Doors. The bottom landing openings of hoistways shall be protected by sliding or swinging doors of 1½ hour fire resistive construction.

29.06 Railings and Toe Boards. Railings and toe boards shall be provided at floor levels of orchestra and organ console elevators.

29.07: Guide Rails. Steel guide rails shall be used for guides of stage and organ console elevators.

29.08 Door Interlocks. All hoistway landing doors shall be equipped with interlocks as described in 524 CMR, Part 35.

29.09 Lifting Capacity. The lifting capacity of an orchestra or console elevator shall be equal to a live load of not less than 25 lbs. per square foot of floor area of the platform. All railings, aprons, wiring conduits, etc., shall be considered as part of moveable platforms.

29.10 Stage Elevators. The lifting capacity of a stage elevator shall be equal to a live load of not less than 75 lbs. per square foot of floor area of that platform.

29.11 Control Apparatus for Orchestra and Organ Console Elevators. Operating switches shall be provided in a suitable location on the platform of orchestra and console elevators.

An emergency stop switch, which will cut off the sources of power, shall be provided in the car adjacent to the operating device for all of the above elevators and shall be identified by the distinctive color of Red.

Emergency stop switches may be operated by buttons or levers but shall be of the manually opened and closed type so installed that when opened gravity will not tend to close the switch.
An emergency stop switch shall be installed in the pit of every orchestra and console elevator.

A manually operated multiple disconnecting switch shall be installed in the main line of each electric orchestra or console elevator or motor generator set machine.

The disconnect switch shall be located adjacent to and visible from the elevator machine or motor generator set to which it is connected and shall, where practicable, be located in the machine room at the lock jam side of the entrance door.

29.12 Driving Machines. Where elevating screws are used they shall be of the direct connected type, either worm or beveled gears, and all gears shall be enclosed in a protective housing.

Where a stage, orchestra or console elevator is not supported or operated by screws, plungers or similar means, car safeties shall be provided under the platform capable of stopping and holding the platform with full rated load at any point of its travel.

29.13 Control and Operating Devices and Systems. Motor controller requirements are as set forth below:

(1) Motor Controller. A suitable lighted room shall be provided outside of the hoistway for the motor controller and brake unless the motor and controller and brake are located in the pit in which case masonry piers or columns shall be provided of sufficient strength to take the impact of a full loaded car.

(2) Location of Motor and Controller. Where the motor and controller are located in a hoistway pit or in a pit adjacent to the lifting platform, access to same shall be provided by means of a door entirely below the bottom of the platform when the platform is at its lowest limit of travel. This door shall be of sufficient width and height to make the entrance readily accessible.

(3) Terminal Limit Switches. Enclosed terminal limit switches located in the hoistway shall be provided and arranged to automatically bring the car platform to rest as it approaches either terminal landing.

(4) Final Limit Switches. Enclosed final limit switches shall be provided at the top and bottom of the hoistway arranged to cut off the current and stop the platform if it should travel beyond the terminal limit switch. Electric power elevators having winding drum machines shall have the stopping switches on the machines and also in the hoistway operated by the movement of the car.

29.14 Factor of Safety and Hoistway Requirements. See below:

(1) Elevator Platform Construction. The platform of stage, orchestra, organ console elevators shall be of steel frame construction designed with a safety factor of not less than six based on the rated load, uniformly distributed. All other parts of the equipment shall have a safety factor as required by 524 CMR, Part 35.

(2) Installations in the Same Hoistway. When orchestra and organ console elevators are installed in the same hoistway the adjacent sides shall be provided with solid dividing wall partitions with not less than ¾ hour fire resistive construction.

(3) When the travel of a stage, orchestra or organ console elevator extends above the top of the hoistway.
enclosure, aprons of substantial construction shall be provided on the platform of sufficient depth to enclose the space between the top of the hoistway enclosure and the underside of the platform plus three inches when the platform is at its limit of travel.

(4) The lower edge of the aprons shall be beveled at an angle of at least 75° with the horizontal.

REGULATORY AUTHORITY

524 CMR 29.00: M.G.L. c. 143, § 69.
524 CMR 31.00: CASKET LIFTS INSTALLED IN LICENSED FUNERAL HOMES, MEMORIAL CHAPELS, OR PREPARATION ROOMS.

Section

31.01: Definitions
31.02: Requirements

31.01: Definition unique to 524 CMR, Part 31

The term casket lift shall mean a car, cage, or platform raised or lowered substantially vertical in permanent guides or rails, including the necessary operating mechanism and used for the purpose of transporting caskets and related materials only. The lift shall be operated only from the landing by continuous pressure key operated switch. No person shall be permitted to ride on the car. Casket lift installations are not designed as freight elevators.

31.02: Requirements

(1) Hoistway Enclosures.
   (a) The hoistway shall be of two hours fire resistive construction. The inside of the hoistway shall be of smooth finish without any projections or recesses except for landing entrances, guides and guide brackets, vertical slots when used for concealed guides, junction boxes and conduits for wiring.
   EXCEPTIONS: For casket lifts not exceeding 15' travel, a hinged vertical lifting hoistway cover shall be permitted when the lifting arms on the car will open and close the hoistway cover automatically, and provided the key operated switch is located only at the hoistway cover landing. The hoistway cover shall be installed to automatically close when the car leaves the upper landing opening.
   (b) Hoistway covers shall be made of not thinner than seven eighth inch stock strongly battened if of wood or of equally strong and steel metal construction and shall support a load of not less than 1,000 lbs. Hinges shall be of either T or heavy strap hinges secured to the floor with lag screws or otherwise bolted through the hoistway cover.
   (c) All projections or recesses at landing shall be beveled on the underside, or shall be guarded with metal plates. The angle of such bevels shall be not less than 60° or more than 75° from the horizontal.

(2) Ventilation. Not compulsory if not required by cities and towns in the Commonwealth.

(3) Pits. A pit shall be provided at the bottom of every hoistway when the car is at the lowest landing, and the distance between the lowest point of the car platform framing and to the floor of the pit shall not be less than five inches. The clearance between the car and the hoistway shall not exceed 1½".

(4) Hoistway Doors. All landing openings shall be protected by swing or horizontal slide doors of solid construction and a fire test of 1½ hours fire rated assembly.

(5) Door Clearance. Landing doors shall be so located that the distance from the face of the
doors to the edge of the hoistway shall not be more than four inches from the face of the door section nearest to the car.

(6) **Vision Panels.** Each door shall be provided with a vision panel not less than 20 square inches and the total area of one or more vision panels in any door shall be not more than 80 square inches. Each clear panel opening shall reject a ball six inches in diameter.

(7) **Interlocks.** All landing doors shall be equipped with electro-mechanical interlocks.

(8) **Car Platform.** The car platform size shall not exceed 96" long by 40" deep.

(9) **Car Floor.** The car floor shall be wood plank or steel plate supported by a steel frame.

(10) **Car Enclosure.** Casket lifts shall be enclosed with solid sheet steel partitions on the unused sides not less than 42" wide and 42" in height and shall be flush.

(11) **Capacity.** The full load capacity shall not exceed 750 lbs.

(12) **Speed.** The contract speed shall not exceed 25 feet per minute.

(13) **Travel.** The total travel of lifts serving more than one floor shall not exceed 25'.

(14) **Control Operation.** The car shall be operated from the landing opening only by key operated continuous pressure switch.

(15) **Guide Rails.** Steel guides shall be used on all installations.

(16) **Car Safety.** Cars suspended by ropes or chains of the winding drum type shall be provided with a car safety located within the car frame. The safety shall be of the instantaneous type.

(17) **Machines.**
   (a) May be of the winding drum type.
   (b) May be of the traction type.
   (c) May be of the hydraulic type.
   (d) The installation of belt driven and chain drive machines is prohibited.

(18) **Hydraulic Electric Systems.** The electric system shall be so interlocked that due to electrical power failure, the car platform will remain in the position to the power failure and will move only on the resumption of power when the operating key switch is activated to start operation.

(19) **Hydraulic Valves.** An overload relief valve shall be installed in the hydraulic circuit to prevent operation of the platform if loaded above rated capacity.

(20) **Mechanical Stops.** Mechanical stops shall be installed to prevent lifting platform from traveling above the predetermined level.
(21) **Hydraulic Piping and Connections.** Flexible hose and fittings may be installed between the check valve or control valve and cylinder if they comply with the following requirements: Steel wire reinforced rubber covered hose shall have a bursting strength of ten times working pressure and the hose must be replaced at least once every six years.

(22) **Ropes and Chains.** Car platforms suspended by ropes or chains shall have not less than 2” steel ropes or equivalent number of steel roller or multiple link steel chains. Rope or chain fastenings may be thimbles and clamps or other approved type of fastening.

(23) **Safety Factor.** Suspension of car platforms by ropes or chains shall be at least six.

(24) **Slack - Rope - Chain.** A slack rope or slack chain switch shall be installed in connection with all machinery of the winding drum type which will automatically shut off the power and apply the brake and stop the machinery, if the load carrying platform is obstructed in its descent.

(25) **Voltage.** The maximum system or circuit potential permitted in the hoistway or landing operating devices shall not exceed 240 volts.

(26) **Riders.** All persons are prohibited from riding on a casket lift.

(27) **Signs.** A sign shall be provided on the car in a conspicuous location with letters at least one inch reading CAPACITY 750 POUNDS. A sign shall be located on the car reading NO RIDERS with letters one inch high.

REGULATORY AUTHORITY

524 CMR 31.00: M.G.L. c. 143, § 69.
Section

32.01: Scope and Application

32.02: Definitions

32.03: Hoistway Enclosure

32.04: Backstops

32.05: Machine Rooms

32.06: Hoistway Doors and Gates

32.07: Car Enclosures

32.08: Driving Machines and Control Equipment

32.09: Operating Protective Devices

32.10: Practical Tests and Inspections

32.11: Controlled Access Facility

32.12: Non-Controlled Access Facility

32.13: Alterations

32.01: Scope and Application

(1) 524 CMR 32.00 is promulgated by the Board of Elevator Regulations pursuant to the authority granted by M.G.L. c. 143, §§ 68 and 71E.

(2) The standards in 524 CMR 32.00 shall apply to the new installation, alteration, and maintenance of power driven Vertical Reciprocating Conveyors (VRC) as defined in 524 CMR 32.02. A registered design professional shall indicate conformance to these requirements and any additional requirements under the Massachusetts State Building Code (780 CMR) verifying a safety factor of three for all structural components.

(3a) Vertical Reciprocating Conveyors shall be subject to inspection as provided in 524 CMR, Part 32.

(3b) Existing vertical reciprocating conveyors installed prior to April 15, 2009 shall be subject to the following requirements:
- Top and bottom limits;
- Backstops;
- Signage;
- Safeties (instantaneous or valve overspeed);
- Safety operated switches required on safeties;
- Suitable enclosure for machinery;
- Electrical and mechanical interlocks must be provided;
- Interlocks cannot be accessible from outside the hoistway;
- Corridor push button w/stop switches;
- Car light;
- Other if deemed a safety issue.

(4) Vertical Reciprocating Conveyor wiring and electrical equipment shall be installed in
accordance with 527 CMR 12.00.

(5) No riders shall be permitted on Vertical Reciprocating Conveyors while the lift is in operation.

(6) Individuals performing work relative to the construction, maintenance, or repair of Vertical Reciprocating Conveyors within the Commonwealth shall be subject to the licensing requirements of M.G.L. c. 143, § 71B.

(7) A permit for installation, alteration, relocation, or material change of a Vertical Reciprocating Conveyor must be obtained from the Department of Public Safety in accordance with 524 CMR Part 1 prior to the commencement of any such work.

32.02: Definitions Unique to 524 CMR Part 32

The following definitions shall apply to the installation, alteration, repair and maintenance of equipment covered by 524 CMR 32.01:

ASME. American Society of Mechanical Engineers.

Controlled Access Facility. Any facility where the use of facility and access thereto is restricted only to persons leasing or otherwise using space.

Doubled-ended Platform. A lift that is capable of being loaded and unloaded from more than one side of the platform.

Electromechanical Interlock. A device that prevents the operation of the VRC unless all hoistway doors and car gates (when provided) are closed and locked when locking is possible when the lift is away from landing.

Final Limit Switch. An electromechanical switch, device or system actuated by position of the car causing the main drive power to be disconnected from the driving machine when the lift reaches floor level or if the lift travels beyond the terminal landings.

General Public. People other than employees or owner's agent of the facility where a VRC is installed and operated.

Travel Limit Switch. A device that mechanically limits the travel of the lift when the platform arrives or travels beyond the terminal landings. This device may be used in conjunction with a final limit device or system.

Vertical Reciprocating Conveyor (VRC). A power driven stationary conveyance permanently installed, and comprised of a car or platform that moves in guides, serves two or more floors or landings, and travels in a vertical or inclined direction. It is an isolated self-contained lift, and is not part of a mechanized conveyor system. VRCs are normally installed in a commercial or industrial area not accessible to the General Public or intended to be operated by the General Public.
32.03: Hoistway Enclosure

(1) The hoistways of all VRCs that penetrate any fully enclosed solid floor above the bottom landing shall be enclosed throughout their height and constructed in accordance with 780 CMR (Massachusetts State Building Code) in effect at that time of installation.

(2) Where 524 CMR 32.03(1) does not apply, hoistway enclosures shall be constructed at each landing according to the following standards:
   (a) Enclosure Height of the hoistway shall be not less than 96 inches (2440-mm) and shall terminate as determined by the highest part of the lift, machinery or relating support structure.
   (b) Enclosures shall be constructed with material having the ability to withstand a 100 pound lateral force without deflection and reject a ball two inches (50-mm) in diameter.
   (c) Where the VRC is adjacent to a stairway, the enclosure shall be of solid or perforated construction and shall not be less than 96 inches (2440-mm) above any step. Perforated construction shall reject a ball one inch (25-mm) in diameter.

32.04: Backstops

(1) Where a double-ended platform is not accessible from both sides at a landing, the enclosure shall be provided with a backstop located on the hoistway enclosure opposite the landing opening. When car doors or gates are provided, backstops are not required.

(2) The strength of the material used for the backstop shall be sufficient to withstand normal load impacts.

(3) The backstop shall extend a minimum of 43 inches (1100-mm) high and not less than two inches (50-mm) below the platform or to floor level, as measured with the lift at floor level. The width of the backstop shall be not less than the clear opening.

(4) The distance measured horizontally from the platform to the backstop shall not exceed 1½ inches (38-mm).

32.05: Machine Rooms

Machine rooms or suitable enclosures around machinery and control equipment shall be required and shall meet the requirements of A.17.1-2013 Section 2.7 except as modified by 524 CMR 35.00.

32.06: Hoistway Doors and Gates

(1) The openings at each landing shall be provided with gates or doors that guard the full width of the opening and prevent entry to any hoistway area during material lift operation. Hoistway gates or doors shall extend vertically not more than two inches (50-mm) from the landing threshold and to a minimum height of 72 inches (1830-mm) above the landing
(2) The horizontal running clearance between the platform and landing threshold shall not be
less than ½ inch (13 mm) nor greater than 1½ inches (40-mm).

(3) The horizontal clearance between the platform edge and the inside surface of the hoistway
door shall not exceed five inches (130-mm).

(4) Each hoistway gate or door shall have an Electromechanical Interlock or combination
mechanical door lock and contact to prevent the door from opening while the material lift is in
operation and to prevent the material lift from operating if a door or gate is open at any landing.
The interlock shall be located so it is not accessible from the landing side when the hoistway
doors are closed. Access to the interlock through use of special tool is permitted provided the
interlock is located not more than 84 inches (2130-mm) from floor level.

(5) There shall be a sign on each landing door or gate reading "NO RIDERS." Letters on the
sign shall be a minimum of two inches (50-mm) high and be a contrasting color to the
surrounding background.

(6) Power doors, when provided, shall conform to the following:
   (a) Swing door closing force shall not exceed 10-lbf (45-N).
   (b) Horizontal sliding or vertical operating doors closing force shall not exceed 30-lbf
       (133-N).
   (c) The maximum closing speed for doors shall not exceed 1-ft/sec (0.305-m/s).
   (d) The control device to open and close the door shall be within sight of the hoistway
door it controls. Door control shall be of the constant pressure type and shall not be
controlled automatically.

32.07: Car Enclosures

(1) The enclosure on the sides not used for loading and unloading shall be constructed to
prevent material from falling into or against the hoistway enclosure during operation and will
be constructed to reject a two inches (50 mm) ball. In no case shall the enclosure be less than 43
inches (1100 mm) high.

(2) Car Gates are not Required. Where provided, car gates shall be a minimum of 43 inches
(1100-mm) high and provided with a gate switch contact to prevent operation of the lift unless
the car gate is in the closed position.

(3) A snap chain, drop bar or similar device may be installed across all loading sides of the lift
platform.

(4) A capacity sign shall be installed on conveyor and clearly visible showing the maximum
rated capacity. The capacity sign lettering shall not be less that ¾ inch high.

(5) A "NO RIDERS" sign shall be installed on the conveyor. The lettering shall not be less
than ¼ inch high.
(6) Conveyors shall be equipped with an electric light or lights; not less than two lamps shall be provided. The minimum illumination at the landing edge of the conveyor platform when the landing doors are open shall not be less than five foot candles.

(7) A car light switch is not required on the conveyor, but it shall be required in the machine room.

32.08: Driving Machines and Control Equipment

(1) Driving machines, pump units and other equipment shall be permanently secured in place and shall not be supported by hooks, cables, chains, similar devices or configurations. Chain hoists, rope falls or similar hoisting devices are prohibited from use as the main driving machine.

(2) The diameter of drive sheaves for traction machines and drums shall not be less than 30 times the diameter of the hoisting cables. The diameter of all other sheaves shall not be less than 21 times the diameter of the hoisting cables.

(3) The controller, driving machine and other equipment requiring periodic service and repair shall be readily accessible. Where machines are located in the hoistway, a safe means of access shall be provided from outside the hoistway to facilitate maintenance and repairs. Where equipment access panels are located more than 72 inches (1830-mm) above floor level, stairs or fixed ladders shall be provided. Stairs and fixed ladders shall comply with ASME A17.1.2.7.3.3.1.

(4) Illumination of work areas containing machines and controls shall be provided with an electric light or lights; not less than two lamps shall be provided. The minimum illumination of not less than ten foot candles as measured at a point in front of the equipment. An electrical outlet conforming to 527 CMR shall be provided within 72 inches of the control equipment.

(5) Controllers shall not be located in the hoistway and shall be located in a control room.

(6) Machine rooms and/or control rooms shall meet the requirements of 524 CMR 35.00: Section 2.26.

(7) Machines located in a hoistway shall meet the minimum guidelines for a Machine Roomless (MRL) installation.

(8) By-pass pressure on hydraulic units shall be set not to exceed 150% of working pressure and shall be sealed.

(9) An overspeed valve (rupture valve) shall be installed in the oil line of hydraulic units between the overspeed valve and the jack. Only threaded or welded pipe may be used between the overspeed valve and the jack.

32.09: Operating Protective Devices
(1) Each conveyor suspended by wire ropes, chains or similar means shall be equipped with car safeties. The car safety shall be capable of stopping the car and sustaining the car with 125% of its rated load. Upon activation of the car safeties, an electric safety switch shall be provided that will cause the power to be disconnected from the main driving means.

(2) Each lift shall be provided with top and bottom travel limits and Final Limit Switches.

(3) Control stations shall be permanently installed on the outside of each landing. The control stations shall be in view of the hoistway and shall have an emergency mechanical set-reset type stop switch. The control stations shall be located at a point outside the hoistway so it is not possible for the same person to operate the control and ride the lift.
32.09: continued

(4) A lift with a winding drum machine shall be provided with a slack rope switch or slack chain that will cause the main power to be removed from the driving machine. The device shall be of the manually reset type.

32.10: Practical Tests and Inspections

Before a conveyor is allowed to operate, the requirements of 524 CMR 8.00 shall be met, where applicable.

32.11: Controlled Access Facility

All employees who intend to use a VRC in a Controlled Access Facility shall be trained as to its safe operation. A record shall be kept on file by the facility documenting the individuals who have received such training. No employee of said facility may operate a VRC unless he or she has been trained on its safe operation.

32.12: Non-Controlled Access Facility

VRCs may not be operated by the General Public. If a VRC is located in a non-Controlled Access Facility, the area surrounding the VRC shall be secured so that members of the public do not have access to the unit. There shall be a sign on or adjacent to the unit reading "NO RIDERS." Letters on the sign shall be a minimum of two inches (50-mm) high and be a contrasting color to the surrounding background.

32.13: Alterations

Alterations to existing lifts shall cause the equipment affected by the alteration to comply with 524 CMR 32.00.

REGULATORY AUTHORITY

524 CMR 32.00: M.G.L. c. 143, §§ 68 and 71E.
524 CMR: BOARD OF ELEVATOR REGULATIONS

524 CMR 35:00: SAFETY CODE FOR ELEVATORS AND ESCALATORS A17.1-2013 and THE MASSACHUSETTS MODIFICATIONS OF THAT CODE

Massachusetts incorporates by reference, the SAFETY CODE FOR ELEVATORS AND ESCALATORS (ASME A17.1-2013/CSA B44-13) with the following Part 35 modifications for new and existing conveyance equipment regulated by 524 CMR and where permittable construction, installation, repair, relocation, alteration, decommissioning, classification change or Material Change is proposed.

See 524 CMR, Part 1 for general administrative requirements.

See Scope, Part 1, Section 1.01 of 524 CMR for a description of the Part numbering scheme utilized in 524 CMR in its entirety.

A17.1, Part 1, Sections 1.1, inclusive and 1.2, inclusive are further modified by 524 CMR, Part 1, inclusive.

524 CMR does not adopt A17.2, A17.3, A17.4, A17.5 A17.6 or A17.7; other Referenced Standards identified in A17.1-2013, Section 9 are accepted to the degree that such are not in conflict with express requirements of 524 CMR.

Existing conveyance equipment regulated by 524 CMR, but not undergoing permittable construction, installation, repair, relocation, alteration, decommissioning, reclassification or Material Change shall be inspected in accordance with the governing requirements of that version of 524 CMR in effect at the time of acceptable completion of construction, installation, repair, relocation, alteration, classification change or Material Change as applicable.

Note that all previous and current editions of 524 CMR are available at the MA Division of Publications and Regulations in the Office of the Secretary of the Commonwealth (617-727-2831).

Also note that the Secretary of the Commonwealth is the singular Legal Keeper of the Record of all Codes of MA Regulation (CMR), including 524 CMR.

PART 1
GENERAL

SECTION 1.1 SCOPE

1.1.2 Equipment Not Covered by This Code

Add a new first paragraph that reads:
Although equipment identified in 1.1.2 (a) – (u) is not covered by A17.1, 524 CMR, Parts 36-38 additionally address: Personnel Hoists (Part 36), Material Hoists (Part 37), Platform and Stairway Chairlifts (Part 38).

1.1.3 Application of Parts. Add additional sentence as follows:
Where parts of Codes and/or Standards, referenced by 524 CMR conflict with specific requirements of sections of 524 CMR, the section requirements of 524 CMR shall prevail.

SECTION 1.3
DEFINITIONS
In addition to Definitions contained in A17.1, Part 1, Section 1.3, inclusive, the following MA amendments are to be included in Section 1.3 (where Definitional conflicts exist, the MA Definition shall apply):

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

**authority having jurisdiction**: the organization, office, or individual responsible for enforcement of this Code. Where compliance with this Code has been mandated by legislation or regulation, the “authority having jurisdiction” is the *regulatory authority* (see *regulatory authority* and MGL c.143, §§ 62- 71G).

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

**control room, elevator, dumbwaiter, material lift**: an enclosed control space outside the hoistway, intended for full bodily entry, that contains the motor controller. The room could also contain electrical and/or mechanical equipment used directly in connection with the *elevator, dumbwaiter, or material lift* but not the electric driving machine or the hydraulic machine.

**control space, elevator, dumbwaiter, material lift in Massachusetts**. NOTE: In Massachusetts, *control spaces* must satisfy the requirements for *control rooms*. The controller and motor controller must be in a *control room*.

**DPS State Elevator Inspectors** – See MGL c.143, §§ 62-66 and 71B.

**elevator**: Conveyance devices addressed in MGL c. 143, § 71E.

**escalator**: Certain conveyance devices addressed in MGL c. 143, § 71E.

**machine room, elevator, dumbwaiter, material lift**: an enclosed machinery space outside the hoistway, intended for full bodily entry, that contains the electric driving machine or the hydraulic machine. The room could also contain electrical and/or mechanical equipment used directly in connection with the *elevator, dumbwaiter, or material lift*.

**maintenance**: a process of routine examination, lubrication, cleaning, and adjustment of parts, components, and/or subsystems for the purpose of ensuring performance in accordance with the applicable Code requirements (See also *repair* and *replacement*).

**MA-Registered Elevator Contractors** – See 524 CMR, Part 5.
MA-Licensed Elevator Mechanics – See MGL c.143, §§ 71B-71C.

MA-trained Firefighters – MA recognized firefighters, who, additionally, have received training in elevator emergency operations.

Material Change: The following shall be considered Material Changes:
(a) If the speed of the elevator is increased.
(b) If the capacity of an existing elevator is increased.
(c) If the travel of an existing elevator in extended.
(d) If the machine room of an existing elevator is relocated; or
(e) If the classification of an elevator is changed from freight to passenger.

Exceptions: Any change from DC (direct current) to AC (alternating current) or any change in voltage shall not be considered a Material Change, provided that the speed or capacity of the installation is not increased.

material lift: an elevator designed or modified for the purpose of transporting materials that are manually or automatically loaded or unloaded and are not a vertical reciprocating conveyor (see 1.3). Material lifts without an automatic transfer device are Type A or Type B. On Type A material lifts no persons are permitted to ride. On Type B material lifts authorized personnel are permitted to ride.

modernization: see alteration.

Phase I Emergency Recall Operation: the operation of an elevator where it is automatically or manually recalled to the recall level and removed from normal service because of activation of firefighters’ emergency operation.

Phase II Emergency In-Car Operation: the operation of an elevator by firefighters where the elevator is under their control.

private residence: a separate dwelling or a separate apartment in a multiple dwelling that is occupied only by the members of a single family unit.

private residence elevator: see elevator and private residence.

readily accessible: capable of being reached quickly for operation, renewal, or inspection, without requiring those to whom ready access is a requisite to climb over or remove obstacles or resort to portable ladders, chairs, etc.

regulatory authority: the person or organization responsible for the administration and enforcement of the applicable legislation or regulation governing the design, construction, installation, operation, inspection, testing, maintenance, or alteration of equipment covered by this Code. (See also authority having jurisdiction.)
**524 CMR: BOARD OF ELEVATOR REGULATIONS**

*rehabilitation:* see alteration; maintenance; repair; and replacement.

*repair:* reconditioning or renewal of parts, components, and/or subsystems necessary to keep equipment in compliance with applicable Code requirements. (See also replacement and maintenance.)

*replacement:* the substitution of a device or component and/or subsystems, in its entirety, with a unit that is basically the same as the original for the purpose of ensuring performance in accordance with applicable Code requirements. (See also repair and maintenance.)

**REGULATORY AUTHORITY**

M.G.L. c. 143, § 69.

**PART 2**

**ELECTRIC ELEVATORS**

**SECTION 2.1  CONSTRUCTION OF HOISTWAYS AND HOISTWAY ENCLOSURES**

2.1.3  Floor Over Hoistway

2.1.3.4  Area to Be Covered by Floor  
Where a floor over a hoistway is required by 2.1.3.1, the floor shall extend over the entire area of the hoistway and cover the entire machine room.

2.1.4  Control of Smoke and Hot Gases  
Delete entire paragraph and replace w/ the following:

2.1.4(a) Venting systems (or pressurization systems) for the elimination of (or preclusion of) smoke and gasses in the hoistway are required and shall be designed by MA-registered design professionals and installed by licensed HVAC personnel and certification (a stamped, written statement that hoistway ventilation complies with 524 CMR) that such applicable code requirements have been met shall be displayed in the elevator machine room or control space.

2.1.4(b) “Temperature: The temperature of the elevator machine room or control space shall be maintained at not less than 50°F. and not more than 90°F. by natural air circulation or by an HVAC system.

2.1.4(c) Closed vents in elevator hoistways, required by 780 CMR, Chapter 13, shall be opened by: (1) machine room or control room and/or hoistway thermostat, designed to open at a temperature of not more than 90°F. (2) By a building fire alarm system, or (3) In the event of a power failure.

2.1.4(d) Vents shall not be located adjacent to the hoist ropes, governor rope, selector tape, or traveling cables.
2.1.5  Windows and Skylights. Delete entire section and replace with the following:

Windows and Skylights

Windows in hoistway walls or elevator cars are prohibited. If the elevator hoistway is completely outside the general outline of the building, the rear wall of the car and the related hoistway wall can be of laminated safety glass with a maximum window frame depth of two inches. Curtain walls or window walls cannot enclose the hoistway. Windows and skylights and their frames and sashes in machine rooms shall conform to the requirements of 780 CMR: The Massachusetts State Building Code and 527 CMR: Fire Prevention Regulations."

2.1.6  Projections, Recesses, and Setbacks in Hoistway Enclosures

2.1.6.2 Delete (b) and renumber (a), (b) and (d) as (a), (b) and (c) and otherwise amend to read as follows;

2.1.6.2(a) Delete: “100 mm (4 in.)” and Insert: “50 mm (2 in.)”.

2.1.6.2(b) Delete: “100 mm (4 in.)” and Insert: “50 mm (2 in.)”.

SECTION 2.2  PITS

2.2.4  Pit Access

2.2.4.4 delete and replace with:

Pits shall be accessible only to licensed elevator mechanics, authorized personnel accompanied by a licensed mechanic, and to other authorized personnel only after the equipment has been made safe by a licensed elevator mechanic. When access to the pit is via a pit door, signage reading: DANGER - ACCESS ONLY ALLOWED WHEN ACCOMPANIED BY A MASSACHUSETTS-LICENSED ELEVATOR MECHANIC shall be placed on the public side of the locked pit door. The signage letter size shall be a minimum of ¾ inch high and shall be of a contrasting color with that of the background.

SECTION 2.7  MACHINERY SPACES, MACHINE ROOMS, CONTROL SPACES AND CONTROL ROOMS

2.7.1  Enclosure of rooms and spaces. Change Title to read:

Enclosure of rooms and spaces, including ventilation and temperature requirements

For ventilation and temperature requirements for machine rooms and machine spaces, comply with the applicable requirements of 524 CMR, Part 35, Section 2.1.4.

2.7.3.4  Access Doors and Openings

2.7.3.4.1 Add a new (d):

(d) be identified with a sign that will read “ELEVATOR MACHINE ROOM - NO STORAGE ALLOWED” and on separate lines additionally add: “DANGER - ACCESS ONLY ALLOWED WHEN ACCOMPANIED BY A MASSACHUSETTS-LICENSED ELEVATOR MECHANIC” The letter size shall be a minimum of ¾ inch high and shall be of a contrasting color with that of
the background.

2.7.3.4.1 Add a new (e):
(e) Per MGL c.143, § 71B, only Massachusetts-licensed elevator personnel are allowed in machine rooms, and control rooms. Where unauthorized personnel, for maintenance and other reasons must access such areas, they are statutorily-required to be accompanied by Massachusetts-licensed elevator personnel.

2.7.3.4.4 Delete entire paragraph and replace with:
2.7.3.4.4 Access doors for control spaces outside the hoistway shall conform to width and height requirements of Section 2.7.3.4.2

2.7.6 Location of Machinery Spaces, Machine Rooms, Control Spaces, Control Rooms and Equipment

2.7.6.3.2. Delete in entirety and Replace with:
2.7.3.6.2. The motor controller shall be located in a control room.

2.7.9 Lighting, Temperature, and Humidity in Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms

2.7.9.1 Lighting - In (b) Delete the phrase “where practicable” as shown below:
   (b) for machine rooms and control rooms, inside the room and on the lock-jamb side of the access door.

2.7.9.1 Lighting – Add (c) that reads:
   (c) “Motion or heat detecting devices used to turn (on or off) the lights in the machine room, pit, car, or the car top are prohibited.”

2.7.9.2 Temperature and Humidity Replace the first sentence as follows but otherwise retain the paragraph:
First sentence - Machinery spaces, machine rooms, control spaces, and control rooms shall be provided with natural or mechanical means to keep the ambient air temperature in the range of 50°F to 90°F and humidity in the range specified by the elevator equipment manufacturer to ensure safe and normal operation of the elevator.

SECTION 2.8 EQUIPMENT IN HOISTWAYS, MACHINERY SPACES, MACHINE ROOMS, CONTROL SPACES, AND CONTROL ROOMS

2.8.3 Pipes, Ducts, Tanks, and Sprinklers

2.8.3.3. Delete in its entirety and replace with the following:
2.8.3.3 Sprinklers shall not be permitted in power passenger or freight elevator hoistways, pits, machine rooms, or control spaces.
2.8.3.3.1 thru 2.8.3.3.4 Delete in their entirety.

2.8.5 Air Conditioning

2.8.5.4 Delete all and replace with:

2.8.5.4 Should any access be necessary in or through elevator machine rooms, or machinery spaces, for any reason, all personnel shall be accompanied by a Massachusetts-licensed elevator mechanic.

SECTION 2.11 PROTECTION OF HOISTWAY OPENINGS

2.11.1.2 Emergency Doors in Blind Hoistways Replace (h) as follows:

(h) The locking system shall consist of the 3502 key and cylinder and Fire Service shall only be activated with the use of the 3502 key and cylinder. The possession of the Massachusetts Firefighters key number 3502 shall be limited to fire department personnel, Massachusetts licensed elevator mechanics and Massachusetts elevator inspectors employed by the Department of Public Safety. This key shall not be a part of a building master key system.

2.11.1.4 Access Openings for Cleaning of Car and Hoistway Enclosures. Delete entire paragraph.

2.11.2 Types of Entrances

2.11.2.1 (d) Delete (d) in its entirety.

2.11.6 Opening of Hoistway Doors

2.11.6.2 Add a new (e) that reads:

(e) any exit leading from any elevator hoistway door to the outside of the building.

SECTION 2.12 HOISTWAY DOOR LOCKING DEVICES AND ELECTRIC CONTACTS, AND HOISTWAY ACCESS SWITCHES

2.12.6 Hoistway Door Unlocking Devices

2.12.6.1 General. Delete entire paragraph and substitute:

2.12.6.1 General Hoistway door unlocking devices shall be provided for use by Massachusetts licensed elevator mechanics and trained Firefighters at every landing where there is a passenger entrance. The types of hoistway door unlocking devices are subject to prior approval of the Massachusetts Board of Elevator Regulations. The use of unlocking device special tools by anyone other than Massachusetts licensed elevator mechanics and trained Firefighters is prohibited.

2.12.6.2.3 Delete entire paragraph.
2.12.6.2.4 Delete entire paragraph.
2.12.6.2.5 Delete entire paragraph.
SECTION 2.14  CAR ENCLOSURES, CAR DOORS AND GATES, AND CAR ILLUMINATION


2.14.3  Freight Car Enclosures

2.14.3.1  Enclosure Material. Delete entire section and replace as follows:
2.14.3.1  Enclosure Material. Cab enclosure walls and the car top shall be made of metal without perforations, except for car gate(s) and the area above them.

2.14.4  Passenger and Freight Car Doors and Gates, General Requirements

2.14.4.5.1(d) Delete entire (d) section.

2.14.4.7  Vertically Sliding Doors and Gates

2.14.4.7.2  DELETE and Replace as shown:
2.14.4.7.2  Gates shall be constructed of metal, and shall be of a design that will reject a ball 50 mm (2 in.) in diameter, except that if multisection vertical lift gates are used, the panel shall be designed to reject a ball 10 mm (0.375 in.) in diameter.

SECTION 2.16  CAPACITY AND LOADING

2.16.4  Carrying of Passengers on Freight Elevators

2.16.4.1  DELETE and REPLACE as shown:
2.16.4.1  (a) Freight elevators may be used only by those persons required for handling freight.
2.16.4.1  (b) It shall be allowable at stated hours to carry employees, but not the general public, on a freight elevator, provided that the freight elevator conforms to the load-carrying requirements for passenger elevators and a special permit is granted by the enforcing authority subject to the following:
2.16.4.1  1) Car-switch operated elevators and continuous-pressure operated elevators shall be in charge of a licensed operator when used to carry employees at stated hours.
2.16.4.1  2) Stated hours shall be determined by the enforcing authority.

2.16.5  Signs Required in Freight Elevator Cars

2.16.5.1.3  Delete Section 2.16.5.1.3.

SECTION 2.26  OPERATING DEVICES AND CONTROL EQUIPMENT
2.26.2 Electrical Protective Devices

2.26.2.21 In-Car Stop Switch In the second sentence, change “Group 1 Security” to “Group 2 Security”.

2.26.4 Electrical Equipment and Wiring

2.26.4.1 Add the following paragraphs:

2.26.4.1 Additionally:

(a) The main line disconnect switch or circuit breaker shall be located inside the machine room door or control room door. The operating handle shall be positioned on the side of the disconnect closest to the lock jamb and not more than 450 mm (18 inches) horizontally from the lock jamb. The handle shall be at a height of not more than 1700 mm (66 inches) above the finished floor at its highest point. In the case of multi-car machine rooms, the switches shall be grouped together as close as possible to that location.
(b) In the case of a machine room with double swing doors, the doors shall swing out and the switch(s) shall be on the wall adjacent to the hinge side of the active door panel.
(c) The switches shall be so designed that they may be locked out and tagged in the open position.
(d) If the fused disconnect switch or circuit breaker is not visible from the elevator machine to which it is connected, a second disconnect switch shall be installed that is visible from the machine.

SECTION 2.27 EMERGENCY OPERATION AND SIGNALING DEVICES

2.27.2 Emergency or Standby Power System

2.27.2.4.5 Add the following final paragraph:

2.27.2.4.5 Where an emergency or standby system is required by 780 CMR (The Massachusetts State Building Code), said system shall operate the elevator or elevators in the event of normal power failure, and the requirements of 2.27.2.1 through 2.27.2.5 shall be complied with. If an emergency or standby system is not required by building code but exists and operates the elevator or elevators, the requirements of 2.27.2.1 through 2.27.2.5 shall be complied with. If less than all cars can be run at the same time, all cars shall be sequenced one or more at a time to the fire recall floor automatically, after which the selector switch located at that floor, can designate a preferred car.”

2.27.3 Firefighter’s Emergency Operation: Automatic Elevators

2.27.3.1 Phase 1 Emergency Recall Operation

2.27.3.1.1 Add a new “(d)” that reads:

(d) The phase 1 hall key switch shall be marked with the off position vertical and in the center.
The key shall be inserted with the cut side facing up.

2.27.3.1.6 Delete (j) and Replace with a new (j) which reads:
(j) When an elevator(s) has gone to the alternate level due to the activation of a fire alarm initiating device at the designated level, the manual activation of the fire-recall switch at the designated level shall cause the car to recall to that level.

2.27.3.3 Phase II Emergency In-Car Operation. Delete first sentence of the second paragraph and Replace with:
The key shall be removable in each position. The hold position in the center shall be vertical. The key shall be inserted with the cut side facing up.

2.27.3.7 Delete the first sentence of the second paragraph and Replace with:
For all installations performed under ASME A17.1, the firefighters’ operation panel cover shall be openable with the use of a 3502 key. The key switch grooves shall be constructed and installed with the cut side facing up.

2.27.7 Firefighter’s Emergency Operation: Operating Procedures
2.27.7.4 Delete entire section.

2.27.8 Switch Keys Delete entire section and replace with:
2.27.8 Switch Keys Firefighter’s Emergency Operation shall only be activated with the use of the 3502 key and cylinder. The possession of the Massachusetts Fire Fighters Key number 3502 shall be limited to fire department personnel, licensed elevator mechanics and elevator inspectors and used only in the performance of their official duties. This key shall not operate any other switch unless specifically described in these regulations and shall not be a part of a building master key system.

2.27.9 Elevator Corridor Call Station Pictograph. Delete entire section and Replace as follows:
2.27.9 Fire Emergency Hall Buttons Signs. There shall be a sign securely fastened to the wall over every hall button station. Minimum size shall be 3¼" x 2¼". The lettering shall be impressed or engraved on a contrasting background, and shall read and be sized as follows:

<table>
<thead>
<tr>
<th>SIGNAGE</th>
<th>LETTERING SIZE</th>
<th>LETTERING COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Case of</td>
<td>1/8 inch equals 14 point lettering</td>
<td>Color: Black</td>
</tr>
<tr>
<td>Fire</td>
<td>3/8 inch equals 30 point lettering</td>
<td>Color: Red</td>
</tr>
<tr>
<td>In This Building</td>
<td>1/8 inch equals 14 point lettering</td>
<td>Color: Black</td>
</tr>
<tr>
<td>Use Exit Stairways</td>
<td>3/16 inch equals 16 point lettering</td>
<td>Color: Red</td>
</tr>
<tr>
<td>Do Not Use This Elevator</td>
<td>1/8 inch equals 14 point lettering</td>
<td>Color: Black</td>
</tr>
</tbody>
</table>

2.27.10 Reserved for Future Use. Delete in entirety and Replace with:
2.27.10 Medical Emergency Elevators.
(1) Medical Emergency Elevators.
(a) All new buildings, or complete new additions to existing buildings in which an elevator is being installed, shall be provided with at least one passenger
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elevator designed to accommodate the loading and transportation of an ambulance gurney or stretcher (24” wide by 84” long with 5” radius corners) in its horizontal position. Complete new additions to existing buildings shall mean a hoistway constructed outside the confines or footprint of the existing building.

(b) The hoistway and car shall be provided with power operated passenger type horizontally sliding doors, minimum size to be 42” wide by 78” high. When center opening doors are used they shall be located on the narrow end of the car or car size and/or the door size will be altered to comply with 524 CMR 2.27.10(c).

(c) Elevator capacity, platform size, and entrance configuration of medical emergency elevators shall be capable of accommodating the designated gurney or stretcher with equivalent ease.

(2) Medical Emergency Key Switches and Markings.

(a) This elevator shall be controlled by a two position key switch at the main floor of a building and by a similar key switch in the car operating panel. The lock and key shall be that manufactured by Medeco Security Locks, Inc. and the key number shall be 65W-2650-T101-26-R7. The lock shall be arranged so that the switch shall be off when the key is in a vertical position and it shall be on when the key cut is facing approximately 90° to the right of the vertical. The key shall only be removable in the off position.

(b) Only elevator companies or manufacturers authorized by the Massachusetts Department of Public Safety, Elevator Section may order this lock.

(c) Only personnel authorized by the Massachusetts Department of Public Safety, Elevator Section may purchase this key.

(d) Both locks shall be identified with the words "MEDICAL EMERGENCY" engraved adjacent to the lock. The lettering shall be a minimum of 14 points with lettering or background color blue.

(3) Medical Emergency Operation.

(a) When the main floor key is turned to the on position, it shall activate a continuous audible signal in the car which can be the same signal used for fireman's service. It shall also activate a visual signal in the car and at the main floor key call station that reads Medical Emergency. All car calls shall be canceled and be unable to be re-registered. The car shall not accept any hall calls after this service is activated.

(b) When the car is in motion, the in car stop switch shall be de-activated.

(c) When the car is moving toward the main floor it shall return non-stop and open its doors on arrival. It shall not comply with 524 CMR 2.27(3)(b) until the car begins to move.

(d) When the car is moving away from the main floor it shall reverse direction at the next available floor without opening its doors and return non-stop to the main floor.

(e) When the car is at a floor, other than the main floor with its doors open, they shall close without delay, and the car return to the main floor.

(f) The car shall return to the main floor after being called by the EMS main floor switch and open its doors even if the main floor EMS key switch has been returned to the off position during travel. On arrival at the main floor the audible signal in the car shall cease.
(g) Upon arrival at the main floor the doors shall open and if the main floor EMS key switch is "on" they shall remain open until that switch is turned "off". If the main floor EMS key switch is "off" the visual signals shall remain illuminated for a minimum of 60 seconds. During this delay the EMT must insert his key into the car control panel and turn it to the "on" position to retain control of the car. Upon expiration of the delay, without the key in the car being turned on the car shall return to normal service.

(h) If the elevator is an automatic car with attendant or independent service operation it shall activate its audible and visible signal and if on attendant service shall return to automatic operation after a minimum of 15 seconds and a maximum delay of 60 seconds and then proceed to the main floor.

(4) Car Operation.

(a) Upon entering the car it shall not accept a call unless the in car EMS key switch is turned to the on position. After turning that key on and registering a call, the car shall automatically close its doors and proceed to the call. All door zone detection devices shall be operative. If more than one call is registered, it shall stop at the first call and cancel all others at which time a second choice can be made.

(b) Upon arriving at the desired floor, the doors shall open automatically and the EMT shall remove his key when the switch is in the off position, the car shall then remain at that floor and will not accept a call or move away from that floor until the key is again turned on.

(c) The car must be returned to the main floor on EMS service and the key removed in its off position before returning the car to normal operation.

(d) If the car is on any form of special service such as inspection, firefighters, etc., when EMS service is initiated the audible and visible signals in the car shall be activated but the car shall not respond to the main floor EMS call.

(e) If the car has responded to a Medical Emergency call prior to a call for fireman's service, the EMT call for service shall not be overridden by firefighters service call until it returns to the main floor but the fireman's service audible and visible signals shall be activated.

(5) Designation. Medical Emergency Service shall be identified as follows:

(a) At the main floor this elevator shall be identified by the national medical symbol (star of life), shown below.

(b) These symbols (two) shall be permanently attached to the hoistway door frame on each side of that frame at right angles to the sill at a height not less than 66" and not more than 78" above the floor level at the sill.

(c) The symbol shall be blue in color with contrasting background, the staff and serpent shall be white.

(d) The symbol itself shall be two to three inches in height.

EXCEPTIONS: The following elevator installations need not comply with 524 CMR 2.27.10:

(a) Elevators in structures such as rock quarries, steel towers, dams, storage bins, smoke stacks, tanks (and other special industrial installations) where the elevators
are used only by maintenance and operating personnel or in hospitals where the normal services of an EMT are available.
(b) Elevators in buildings or structures where each landing is at ground level or is accessible to ground by a ramp.
(c) Elevators in buildings or structures equipped with stairs that extend no more than one floor above or below the building entrance grade and with a configuration that shall accommodate the carrying of a gurney or stretcher on said stair and when said stair conforms to 780 CMR et seq. (the Massachusetts State Building Code) and is permitted by the authority having jurisdiction.

SECTION 2.28 LAYOUT DRAWINGS

2.28.1 Information Required on Layout Drawings. Add a new first sentence that reads:
2.28.1 Information Required on Layout Drawings For work requiring an elevator permit (see 524 CMR, Part 1, Section 1.5), permit applications and elevator layouts must be filed and approved by the DPS State Elevator Inspector having jurisdiction before any work can begin. All of the following requirements must be satisfied in Permit applications.

After 2.28.1(j), add additional information as follows:
(k) all plans for elevator installations shall be signed by a registered professional engineer or a registered architect and shall bear his registering stamp certifying that he has examined the plans and finds that the building will structurally support the elevator contract load plus its tare as they are shown on the elevator drawing. The architect or engineer shall not be responsible for any material on the elevator drawing. The complete installation shall comply with 524 CMR: Massachusetts Elevator Code at the time of filing;
(l) type of hoistway material to be used;
(m) height of hoistway in regard to roof of building. Fire rating of building roof;
(n) registered design professional stamped, written statement that hoistway ventilation complies with 524 CMR;
(p) type of hoistway doors, fire rating of doors must be shown on the layout, filling around hoistway door frames and headers for proper fire rating, grouting of landing sills;
(q) type of approved interlock;
(r) buffers, type and rating;
(s) governor, type and name plate data depicting tripping speed of the governor and that of the overspeed switch, construction of material of governor rope and size;
(t) hoist rope, size, number of, and breaking strength;
(u) type of safety and location;
(v) type of drive machine, speed and capacity;
(w) type of control. Voltage and amperes.
(x) Base flood identification when applicable.

PART 3 HYDRAULIC ELEVATORS

SECTION 3.7 MACHINERY SPACES, MACHINE ROOMS, CONTROL SPACES AND CONTROL ROOMS
In 3.7 “preamble” delete and replace as follows:
Hydraulic machines, motor controllers and/or motion controllers are not allowed in a hoistway or pit and shall be located in a machine room.

### 3.7.1.11 Location of Machine Rooms
Create a new section 3.7.1.11 that reads:
When it is not possible to locate the machine room adjacent to the hoistway, in addition to all normal requirements, the following provisions shall apply:

(a) The oil pipeline, from where it leaves the machine room to where it enters the hoistway, shall have a minimum of schedule 80.
(b) The pipe shall have no fittings, bends or welding in it from the hoistway to the machine room.
(c) The distance from the hoistway to the machine room shall not exceed three meters (ten ft.).
(d) The oil line pipe shall always be visible for inspection.
(e) Two-way voice communication shall be installed between the car and the machine room.

### SECTION 3.19 VALVES, PRESSURE PIPING, AND FITTINGS

#### 3.19.3.3.1
Delete and replace with:
Flexible hose and fitting assemblies shall:

(a) not be installed between the jack and power unit, nor project into or through any wall. Installation shall be accomplished without introducing any twist in the hose, and shall conform with the minimum bending radius of SAE 100, R2 type, high pressure, steel wire reinforced, rubber-covered hydraulic hose specified in SAE J517.

3.19.3.3.1: Retain remaining requirements lettered (b) through (f).

#### 3.19.4.7 Overspeed Valves
Delete the paragraph and replace with:

Unless the hydraulic elevator is installed with a governor-operated safety, an overspeed (rupture) valve shall be provided and connections and attachments shall conform to 3.19.4.7.1 through 3.19.4.7.6.

#### 3.19.4.7.3 Installation of Overspeed Valves
Add a new first sentence.

On all hydraulic elevators the piping between the overspeed valve and the hydraulic jack shall be welded or threaded.

#### 3.19.4.7.3 Installation of Overspeed Valves
Retain the remaining language and numbering scheme of of 3.19.4.7.3.

### SECTION 3.26 OPERATING DEVICES AND CONTROL EQUIPMENT

#### 3.26.4 Electrical Protective Devices
Delete the first paragraph of 3.26.4 and Replace with:
3.26.4 **Electrical Protective Devices.** Electrical protective devices shall be provided in conformance with 2.26.2, and the following requirements, except the words “driving-machine motor and brake” in 2.26.2 shall be replaced with “hydraulic machine,” and shall conform to 2.26.4 and 3.26.4.1 and 3.26.4.2.

3.26.10 Auxiliary Power Lowering Operation

3.26.10.3. Add a final sentence that reads:
The door open button shall remain operative.

**SECTION 3.28 LAYOUT DATA**

3.28.1 **Information Required on Layout Drawing.** Add a new first sentence that reads:
For applications for any conveyance permitting (see 524 CMR Part 1, Section 1.5), elevator (all regulated conveyances) layouts must be filed and approved before any work can begin.

After 3.28.1(o), add the following additional information:

(p) all plans for elevator installations shall be signed by a registered professional engineer or a registered architect and shall bear his registering stamp certifying that he has examined the plans and finds that the building will structurally support the elevator contract load plus its tare as they are shown on the elevator drawing. The architect or engineer shall not be responsible for any material on the elevator drawing. The complete installation shall comply with 524 CMR: Massachusetts Elevator Code at the time of filing;
(q) type of hoistway material to be used;
(r) height of hoistway in regard to roof of building. Fire rating of building roof;
(s) registered design professional stamped, written statement that hoistway ventilation complies with 524 CMR;
(t) location of machine room, relative to the hoistway;
(u) type of hoistway doors, fire rating of doors must be shown on the layout, filling around hoistway door frames and headers for proper fire rating, grouting of landing sills;
(v) type of approved interlock;
(w) buffers, type and rating;
(x) governor, type if any and nameplate data depicting tripping speed of the governor and that of the over-speed switch, construction of material of governor rope and size;
(y) hoist rope, size, number of, and breaking strength;
(z) type of safeties, overspeed valve(s) and location;
(aa) type of valve unit, pressure relief setting, piston size and travel;
(bb) capacity and speed, voltage and current;
(cc) Base flood identification when applicable.

**PART 5 SPECIAL APPLICATION ELEVATORS**

**SECTION 5.2 LIMITED-USE/LIMITED-APPLICATION ELEVATORS**
SECTION 5.2.1 Electric Limited-Use/Limited-Application Elevators

5.2.1 Add a scoping sentence that reads:
5.2.1 Electric Limited-Use/Limited-Application Elevators All Limited Use/Limited Application Elevators in Massachusetts are required to comply with the provisions of 521 CMR (MA Architectural Access Board Regulations) as applicable.

5.2.1.1 Construction of Hoistway and Hoistway Enclosures Add new final sentence that reads:
All hoistways and machine rooms shall be ventilated in accordance with the requirements of Part 35, section 2.1.4.

5.2.1.1.2 (a), (b) and (c ): Delete (a) and renumber (b) and (c ) as (a) and (b).

5.2.1.4.1 Bottom Car Clearance Delete and Replace as shown:
5.2.1.4.1 Bottom Car Clearance. Elevators shall conform to Section 2.4.1, inclusive.

5.2.1.4.2 Alternative to Bottom Car Clearance Requirements. Delete entire section.

5.2.1.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms. Delete entire paragraph and replace with:
5.2.1.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms. Machine rooms and machinery spaces shall conform to the requirements of section 2.7 except as modified by 524 CMR 35.00.

5.2.1.11 Protection of Hoistway Landing Openings Add a new 5.2.1.11(f) that reads:
(f) Landing door panels must be a minimum of 915 mm (36 in.) wide. Note: A tolerance of 16 mm (5/8 in.) is permitted.

5.2.1.11 Protection of Hoistway Landing Openings Add a new 5.2.1.11(g) that reads:
(g) Landing doors shall be set no more than the following dimensions from the hoistway edge of the landing sill, and shall be rated in conformance with the Massachusetts State Building Code 780 CMR.

(1) For swing doors – 19 mm (¾ in.).
(2) For horizontal sliding doors – 57 mm (2¼ in.), and shall have sight guards.

5.2.1.11 Protection of Hoistway Landing Openings Add a new 5.2.1.11 (h) that reads:
(h) Vision panels shall be installed in all swing doors per 2.11.7.1, except 2.11.7.1.6. The inside face of the glass must be substantially flush with the inside face of the door. If laminated safety glass is used, the Z97.1 marking on each piece of glass must be visible after installation. Note that conformance to MGL c.143, §§ 3T, 3U and 3V, as applicable, is also required.

5.2.1.13 Power Operation of Hoistway Doors and Car Doors and Gates. Delete 5.2.1.13 and substitute:
5.2.1.13 Power Operation of Hoistway Doors and Car Doors and Gates. Power operation shall be as described in 521 CMR as

5.2.1.14 Car Enclosures, Car Doors, and Car Illumination. Delete (f) and replace with: (f) Doors shall be of the horizontally sliding type and so arranged to reduce the possibility of pinching.

5.2.1.14 Car Enclosures, Car Doors, and Car Illumination. Add a new (n) that reads: (n) Emergency battery operated lighting shall be provided in all Limited-use/Limited-application elevators.

EXCEPTION: If an emergency generator provides emergency car lighting within ten seconds after power failure, a battery operated lighting unit is not required.

5.2.1.27 Emergency Operations and Signaling Devices. Delete entire paragraph and Replace with: 5.2.1.27 Emergency Operations and Signaling Devices Emergency operation and signaling devices shall conform to 524 CMR, 2.27.1 and 2.27.2 except 2.27.1.2. All Limited use/Limited application elevators shall be provided with a means of two-way conversation between the car and a point outside the hoistway or building attended 24 hours a day.

5.2.2.7 Valves, Pressure piping and Fittings. Delete sentence and Replace with: 5.2.2.7 Valves, Pressure piping and Fittings. Valves, pressure piping, and fittings shall conform to 3.19 except 3.19.3.3. Note that flexible hose is prohibited between the power unit and the jack.

5.2.2.14. Emergency Operations and Signaling Devices. Delete entire paragraph and replace with: 5.2.2.14. Emergency Operations and Signaling Devices. Emergency Operations and Signaling Devices shall conform to 5.2.1.27 as modified in 524 CMR 35.00.”

SECTION 5.3 PRIVATE RESIDENCE ELEVATORS

5.3.1.1 Construction of Hoistway and Hoistway Enclosure. Delete entire section 5.3.1.1 and Replace with: 5.3.1.1 Construction of Hoistway and Hoistway Enclosure. Hoistways and machine rooms shall conform to 2.1.1.1 and 2.7.1.1.

5.3.1.1. Delete and Replace with: 5.3.1.1. Each residential elevator shall have its own machine room, control space, or control room. Such machine room, control space or control room shall meet the following requirements:

(1) it shall be enclosed with materials of the same fire rating as that required for the hoistway in the building in which they are installed;
(2) it shall be kept locked at all times when not being accessed by licensed or authorized personnel;

(3) it shall not be located within, or at the top of, the hoistway;

(4) it shall be provided with self-closing, self locking doors not less than 30 inches wide by 6 feet 6 inches high equipped with spring-locks that can be opened by hand from the inside of the machine room, control space or control room;

(5) elevator controller and main line voltage disconnect equipment located within the control space shall conform to the NFPA 70 code regulation in effect at time of installation;

(6) it shall be located at a maximum distance of ten feet from the hoistway;

(7) minimum equipment clearances within 524 CMR and the National Electric Code may be calculated and obtained with the machine room, control space, or control room doors in the fully open position with flexible cords that adhere to NEC 400.4 to all external connections so equipment may be repositioned to meet the clear working space requirements of NEC 110.26(A);

(8) all doors shall be identified with a sign that reads "ELEVATOR CONTROL SPACE"; and,

(9) it shall have a light fixture(s) containing a minimum illuminance of 19 foot candles measured at floor level.

5.3.1.1.3 Hoistway Ventilation. Add a new section 5.3.1.1.5 that reads:

5.3.1.1.3 Hoistway Ventilation. When the hoistway is enclosed and the elevator services a garage or penetrates fire rated floors as required by the MA State Building Code, then the hoistway must be ventilated per the requirements of Section 2.1.4, inclusive.

5.3.1.7 Protection of Hoistway Openings

5.3.1.7.2 Clearance Between Hoistway Doors or Gates and Landing Sills and Car Doors or Gates. Delete: “75 mm (three in.).” and Replace with: “19 mm (¾ in.).” Also delete: “125 mm (five in.)” and Replace with: “75 mm (three in.).”

5.3.1.7.4 Locking Devices for Hoistway Doors and Gates. Delete 5.3.1.7.4 and substitute: Landing doors shall be provided with UL listed hoistway door interlocks.

5.3.1.8.3 Light in Car. Add a new final sentence that reads: Emergency battery operated car lighting shall be provided in all private residence elevators.

5.3.2 Private residence Hydraulic Elevators
5.3.2.2 Driving Machines, Sheaves and Supports for Direct Plunger and Roped Hydraulic Driving Machines

5.3.2.2.3 Add a new subsection that reads:

5.3.2.2.3: Flexible hose shall not be installed between the power unit (pump) and the jack – also see Section 3.19.3.3.

SECTION 5.10 ELEVATORS USED FOR CONSTRUCTION

To the opening preamble of Section 5.10, Add the following additional paragraphs:

Devices included under the requirements of SECTION 5.10

(1) Elevators used for construction and other Workman’s Hoists, except as regulated by 524 CMR, Part 36, shall be considered temporary workman’s elevators and shall be installed by a person holding a Commonwealth of Massachusetts license for the construction, maintenance and repair of elevators. Either a licensed Massachusetts elevator mechanic or a licensed Massachusetts hoisting engineer only, shall operate them.

(2) Overhead Protection: There shall be installed on all elevators used for construction and workman’s hoists and similar devices including open platforms used for the installation of elevators under construction or modernization, a roof to protect the workers from falling objects. The roof shall be constructed of solid material. Debris netting or similar overhead protection may be used up to three floors or 30 feet, whichever is greater.

(3) Elevators used for construction and workman’s hoists and other similar devices must be equipped with one the following safety devices:
   (a) a safety device, which acts on a wire rope, which is supported independently from the rigging used to support and hoist the working platform;
   (b) a safety device, which grabs the wire rope, used to support and hoist the working platform;
   (c) instantaneous safeties.

(4) Elevators used for construction, workman’s hoists and other similar devices must be provided with a 42” guard rail completely around the platform area and a 12” kick-plate completely around the platform area.

(5) Inspection and Load Tests: Once a piece of equipment has been approved and released by a private elevator contractor, it shall be re-classified and designated as a temporary workman's elevator and must be inspected by a state elevator inspector. The state inspection shall consist of a load and safety test. No non-elevator construction personnel shall be transported on such equipment until the releasing
elevator contractor has faxed over an intended designation change to the Department of Public Safety. (Exception: non-elevator trade persons may be conveyed to perform work in or around the elevator hoistway.) Once the designation change is date stamped submitted to the Department of Public Safety, the equipment may be operated prior to the state inspection to convey construction personnel for a period not to exceed 30 days, if operated by a duly licensed elevator mechanic. Once the designated equipment passes inspection, the state elevator inspector shall issue a temporary use certificate which shall be valid for 90 days.

(6) Inspection and Load Test is not required by the State on open platforms used for the installation of elevators under construction or modernization.

PART 6

ESCALATORS AND MOVING WALKS

SECTION 6.1

ESCALATORS

6.1.2.2 Add a new paragraph that reads:
6.1.2.2 Escalator rooms shall be ventilated per Part 35, Section 2.1.4(a) but venting need not be directly to the outside of the building.

6.1.7 Lighting, Access and Electrical Work

6.1.7.3.2 Add a new second sentence that reads:
6.1.7.3.2 All access doors and side access panels shall be electrically contacted and render the escalator inoperative when open.”

Amend 6.1.7.3.3 to read: The key shall be of Group 1 Security (see 8.1).

6.1.7.3.3 Add a new final sentence that reads:
The key to side access panels shall be restricted to licensed elevator mechanics only.

6.1.7.4 Electrical Equipment and Wiring

6.1.7.4.1 Add a new final sentence:
A fused disconnect switch or circuit breaker shall be installed and connected into the power supply line of each escalator. Disconnect switches or circuit breakers shall be of the manually closed multi-pole type and be located with the upper machinery space of the escalator. Where circuit breakers are used as a disconnecting means, they shall not be of the instantaneous type and shall not be opened automatically by a fire alarm system.

SECTION 6.2

MOVING WALKS
6.2.1 Protection of Floor Openings

6.2.2.1 Protection Required. Add a new final paragraph that reads:
Moving walk rooms shall be ventilated per Part 35, Section 2.1.4(a) but venting need not be
directly to the outside of the building.

6.2.7 Lighting, Access and Electrical Work

6.2.7.3.3 Delete the final sentence and Replace with:
The key shall be of Group 1 Security (see 8.1).

6.2.7.3.3 Add the following new additional final paragraph:
All access doors shall be electrically contacted and render the moving walk inoperative when
open.

PART 8
GENERAL REQUIREMENTS

SECTION 8.1 SECURITY

8.1.1 General. Delete in its entirety and Replace with:
8.1.1 General. Key(s) used to access or operate elevator, escalator, moving walk, dumbwaiter,
and material lift equipment shall conform to the following:
(a) Keys used to open any other lock in the building shall not access or operate the devices
classified as Security Group 1, 2, 3, or 4.
(b) The same key shall be permitted to access or operate all of the devices within only one assigned
group.
(c) Only MA-licensed Elevator personnel shall have access to all assigned groups.

8.1.2 Group 1: Restricted. Delete and Replace with:
8.1.2 Group 1: Restricted. Group 1 covers access or operation of equipment, (including machine
spaces, control spaces and hoistways) restricted to licensed elevator personnel only.

8.1.2 Group 1: Restricted. Additionally, Delete all notes, (a) – (w)

8.1.3 Group 2: Authorized personnel. Delete and Replace, as follows:
8.1.3 Group 2: Authorized personnel. Group 2 covers access or operation of equipment by
authorized and licensed elevator personnel.

NOTE: See the following:
(a) Requirement 2.7.3.4.2, machine room and control room access doors.
(b) Requirements 2.7.3.4.3 and 2.7.3.4.4, machinery spaces and control spaces as specified.
(c) Requirement 2.14.7.2.1(b), car light control switch or its locked cover.
(d) Requirement 3.19.4.1, access to manually operated shutoff valve.
(e) Requirement 5.6.1.25.2(b), rooftop elevator keyed operation switch.
(f) Requirement 6.1.6.2.1(d), escalator starting switch.
(g) Requirement 6.1.7.3.3, escalator side access door to interior.
(h) Requirement 6.2.6.2.1(d), moving walk starting switch.
(i) Requirement 6.2.7.3.3, moving walk side access door to interior
(j) Requirement 2.26.2.21, in-car stop switch or its locked cover.
(k) Requirements 2.27.2.4.1 and 2.27.8, emergency or standby power access selector switch.

8.1.4 Group 3: Emergency Operation. Delete and Replace as follows:
8.1.4 Group 3: Emergency Operation. Group 3 covers access or operation of equipment by emergency, and licensed elevator personnel. The key required to operate the locks identified in (a) – (e) below shall be the Massachusetts firefighter’s 3502 key.”

(a) Requirements 2.27.2.4.1 and 2.27.8, emergency or standby power access selector switch.
(b) Requirements 2.27.3.1.1 and 2.27.8, Phase I Emergency Recall Operation switch.
(c) Requirements 2.27.3.3 and 2.27.8, Phase II Emergency In-Car Operation switch.
(d) Requirement 2.26.2.21, in-car stop switch or its locked cover.
(e) Requirements 2.27.8, Firefighters Emergency Operation (FEO) switch, 2.11.1.2(i), emergency door in blind hoistway, and 8.4.4.1.1, top emergency exits shall all be operated by the Massachusetts firefighter’s 3502 key.

SECTION 8.4
ELEVATOR SEISMIC REQUIREMENTS

8.4.4 Car Enclosures, Car Doors and Gates, and Car Illumination

8.4.4.1 Top Emergency Exits

8.4.4.1.1 Delete in entirety and Replace with:
8.4.4.1.1 The requirements specified in 2.14.1.5 shall apply except that the top emergency exit shall be so arranged that it can be opened from within the car by means of MA Firefighters 3502 key with a keyed spring-return cylinder-type lock and the top emergency exit shall opened from the top of the car without the use of a key. The possession of the Massachusetts Firefighters key number 3502 shall be limited to trained fire department personnel and Massachusetts licensed elevator mechanics. This key shall not be a part of a building master key system.

SECTION 8.6
MAINTENANCE, REPAIR, REPLACEMENT, AND TESTING

8.6.1 General Requirements

8.6.1.1 Maintenance, Repair, and Replacement

8.6.1.1.2 Delete (c), retaining only (a) and (b).
8.6.1.2.2 On-Site Documentation. Delete all of (b)(1-4) and Replace with:
(b) Annual inspection must be performed in accordance with 524 CMR, Part 8, as applicable.

8.6.1.2.2 On-Site Documentation  Delete (d)(2)

8.6.4 Maintenance and Testing of Electric Elevators

8.6.4.9.1 Add a new Section 8.6.4.9.1 that reads:
8.6.4.9.1 The cleaning of the exterior of transparent car enclosures or transparent hoistway enclosures from inside the hoistway shall be performed only by licensed elevator personnel.

SECTION 8.10
ACCEPTANCE INSPECTIONS AND TESTS

8.10.1.1 Persons Authorized to Make Acceptance Inspections and Tests

8.10.1.1.1 Delete entire section and Replace with:
8.10.1.1.1 The acceptance inspection shall be conducted by licensed elevator mechanics witnessed by an elevator inspector employed by the Massachusetts Department of Public Safety.

8.10.1.1.3 Delete in entirety.

8.10.1.2 Accreditation of Certifying Organizations  Delete in entirety.
8.10.1.3 Applicability of Inspection and Test Requirements. Delete (a) and substitute: “524 CMR.”; also Delete (c).

SECTION 8.11
PERIODIC INSPECTIONS AND WITNESSING OF TESTS

8.11.1 General Requirements for Periodic Inspections and Witnessing of Tests

8.11.1.1 Persons Authorized to Make Periodic Inspections and Tests. Delete in entirety and Replace with:
8.11.1.1 Persons Authorized to Make Periodic Inspections and Tests. Periodic inspections shall be made by licensed elevator mechanics witnessed by an inspector employed by the Massachusetts Department of Public Safety.”

8.11.1.2 Applicability of Inspection Requirements  Delete (c) and Replace with “524 CMR” and Delete Notes 1 and 2.

8.11.1.3 Periodic Inspection and Test Frequency. Delete and Replace with:
8.11.1.3 Periodic Inspection and Test Frequency. See 524 CMR 8.

8.11.2 Periodic Inspection of Electric Elevators

8.11.2.1 Periodic Inspection Requirements. Delete in entirety and Replace with:
8.11.2.1 Periodic Inspection Requirements. See 524 CMR 8.
8.11.3 Periodic Inspection of Hydraulic Elevators. Delete in entirety and Replace with:
8.11.3 Periodic Inspection of Hydraulic Elevators. See 524 CMR 8.

8.11.4 Periodic Inspection of Escalators and Moving Walks

8.11.4.1 Periodic Inspection and Test Requirements. Delete in entirety and Replace with:
8.11.4.1 Periodic Inspection and Test Requirements. See 524 CMR 8.

REGULATORY AUTHORITY
524 CMR 35.00: M.G.L. 143, § 69.
524 CMR: BOARD OF ELEVATOR REGULATIONS

524 CMR 36:00 PERSONNEL HOISTS AND EMPLOYEE ELEVATORS ON CONSTRUCTION AND DEMOLITION SITES

Massachusetts incorporates by reference, ANSI/ASSE A10.4-2016, Personnel Hoists and Employee Elevators on Construction and Demolition Sites with the following Part 36 Massachusetts modifications for new and existing conveyance equipment regulated by 524 CMR.

Note that MGL c.143, §§ 62-71E overlay on all aspects of ANSI/ASME A10.4 as herein adopted as do all other MA General Laws having applicability.

Due to operator and/or worker and/or general public safety concerns, use of this A10.4 Standard in Massachusetts, may require a variance request and approval based on DPS Elevator Inspector review of the Elevator Permit application construction documents and/or field observations.

3. DEFINITIONS

3.4 Authorized Personnel. Amend by adding the final sentence that reads:
Also see MA-Licensed Elevator Mechanics per MGL c.143, §§ 71B-71C.

3.48 Qualified Person. Add a new final paragraph that reads:
In Massachusetts, registered design professionals (RDPs) must satisfy requirements set forth by the Division of Regulations for architects and engineers; persons performing work regulated by the Specialized Codes (refer to MGL c.143, § 96 as it relates to electrical, plumbing, gas-fitting, etc.) must be licensed accordingly and personnel physically working on elevator machines and regulated accessories must be MA-licensed Elevator Mechanics.

3.49 Qualified Elevator Inspector (QEI). Delete and replace with:
3.49 Qualified Elevator Inspector. See MGL c.143, §§ 62-66 and 71B.

17. CAR ENCLOSURES

17.6 Car Top Emergency Access. Delete reference to Section 17.6.4 and Replace with reference to Section 17.6.5.

17.6.5 Add a new Section 17.6.5 that reads:
Operation of the car with top emergency exit open is permissible only when a Massachusetts licensed elevator mechanic is available to assist in the movement of the elevator. The Car shall not be operated at a speed of more than 0.75 m/s (50 ft. /min.) when properly opened by authorized personnel. The emergency exit shall be supplied with a 3502 security key that shall allow only emergency personnel and licensed mechanics to open the exit.
24. OPERATING AND OPERATION DEVICES AND CONTROL EQUIPMENT

24.1.4 Wireless Control – Delete this Section in its entirety.

24.1.5 Design Principle for Wireless Control – Delete this Section in its entirety.

24.2.16 Add a new Section 24.2.16 that reads:

**24.2.16 Emergency Control Operation (ECO).** Emergency Control Operation (ECO) shall serve the purpose of supporting the Fire Department in an emergency situation only. Emergency Control Operation shall be installed when Firefighters Service phase I and II are not available and fully functional.

24.2.16.1 Add a new Section 24.2.16.1 that reads:

24.2.16.1 Upon initial completion of installation and prior to placing each elevator used for construction into service, a representative of the installing company and the operating company shall meet with the Fire Department having jurisdiction to review the operation of each elevator. The Fire Department having jurisdiction will leave written proof of the review upon completion and this document will be needed for the elevator to pass the initial inspection as well as subsequent inspections with the Department of Public Safety Elevator Division.

24.2.17 Phase I Emergency Control Operation. Add a new Section 24.2.17 that reads:

24.2.17 Phase I Emergency Control Operation. A three position key-operated switch shall be installed in front of each elevator or bank of elevators and shall be at located at the level determined by the Fire Department having jurisdiction. The three position switch shall be labeled “Emergency Control Operation” and its positions marked “RESET,” “OFF,” and “ON” (in that order), with the “OFF” position as the center position. The “Emergency Control Operation” letters shall be a minimum of 25.4 mm (1.0 Inch) high, red in color with a contrasting background.

24.2.17.1 Add a new Section 24.2.17.1 that reads:

24.2.17.1 The key used to operate the Phase I ECO switch shall be removable in the “ON” and “OFF” positions.

24.2.17.2 Add a new Section 24.2.17.2 that reads:

24.2.17.2 All Phase I ECO switches shall be provided with an illuminated visual signal to indicated when Phase I emergency recall operation is in effect. The visual signal shall maintain illumination until the elevator is returned to normal operation.

24.2.17.3 Add a new Section 24.2.17.3 that reads:

24.2.17.3 When an ECO switch is in the “ON” position, a visual beacon lamp, red in color, shall illuminate the elevator cab and an audible signal shall be provided to alert the attendant to return nonstop to the designated level. The visual beacon shall remain illuminated during the entire Emergency Operation procedure. A visual signal in the car operating panel shall read “EMERGENCY OPERATION- RETURN TO LEVEL _” (insert level designated to be the Emergency Operation access floor). The audible and COP visual signals shall remain in effect until the elevator is returned to the recall floor and phase II is enacted.
24.2.18 Phase II Emergency Control Operation. Add a new Section 24.2.18 that reads:
24.2.18 Phase II Emergency Control Operation. A two position key operated switch, located in the car operating panel, shall override the operators disable key (5.10.7.1) in the event that no operator is on site and/or the unit in not in operation. This two position switch shall be labeled “Emergency Control Operation” and its positions marked “OFF” and “ON” in that order. The “Emergency Control Operation” letters shall be a minimum of 25.4 mm (1.0 inch) high, red in color with a contrasting background. The key used to operate the Phase II ECO switch shall be removable in the “OFF” position only.

24.2.19 Switch Keys. Add a new Section 24.2.19 that reads:
24.2.19 Switch Keys. The key switches required for ECO Phase I and Phase II shall be operable by the 3502 key only (cut side up).

24.2.20 Removing Elevator from Normal Operation. Add a new Section 24.2.20 that reads:
24.2.20 Removing Elevator from Normal Operation. When not in use, the construction elevator shall be left at the designated fire control floor or floors and shall also be left with the operators disable key switch (5.10.7.1) in the off position state so that it may be commandeered by a trained firefighter for emergency purposes only. When a construction elevator equipped with Emergency Operation is inoperable and not able to be left in a disabled state of normal operation without elevator personnel on site, the Fire Department having jurisdiction shall be notified.

24.2.20.1 Add a new Section 24.2.20.1 that reads:
24.2.20.1 An operator’s disable security key switch shall be installed in the car station labeled “OPERATION” and its position shall be marked “OFF” and “ON” in that order. The “Operation” letters shall be a minimum of 12.7mm (0.5 inches) high with a contrasting background. When in the “ON” position, the unit shall run as intended. When in the “OFF” position, the unit shall be disabled. Each unit shall be left in the off position when not fully attended by a licensed elevator mechanic or operating engineer.

24.2.21 Return to Normal Operation. Add a new Section 24.2.21 that reads:
24.2.21 Return to Normal Operation. Upon completion of use in Emergency Operation, the responding Fire Department shall lock out / tag out the construction elevator(s) until a Massachusetts licensed elevator mechanic arrives on site to review each elevator and is satisfied with the condition of each unit. The Massachusetts Licensed Elevator Mechanic may then reset the unit(s) and returning the construction elevator(s) to normal operation.

24.2.21.1. Add a new Section 24.2.21.1 that reads:
24.2.21.1 An “Emergency Control Reset” momentary reset switch shall be located in the elevator controller for the purpose of returning the elevator to normal operation. The “Emergency Control Reset” switch in the lobby must be in the reset position for the “Emergency Control Reset” switch in the controller to reset the elevator to normal attendant operation. Only a Massachusetts licensed elevator mechanic shall reset an elevator used for construction from Emergency Control Operation to normal operation.
26. INSPECTIONS AND TESTS OF PERSONNEL HOISTS

26.1.2 Persons Authorized to Witness Installation and Annual Acceptance Inspections and Load Tests. Delete the first paragraph and replace with:

26.1.2 Persons Authorized to Witness Installation and Annual Acceptance Inspections and Load Tests. Inspections and load tests as defined in 26.1.1 shall be witnessed by a DPS Elevator Inspector employed by the MA Department of Public Safety.

26.1.2 Persons Authorized to Witness Installation and Annual Acceptance Inspections and Load Tests. In the second paragraph, Replace the phrase as shown:

26.1.2 Persons Authorized to Witness Installation and Annual Acceptance Inspections and Load Tests. The following tests should be witnessed by a qualified elevator inspector (QEI) employed or authorized by the enforcing authority. The following tests shall be witnessed by a DPS Elevator Inspector employed by the MA Department of Public Safety:

26.4.2 Persons Authorized to Make Periodic Inspections and Tests. Delete the paragraph and Replace with:

26.4.2 Persons Authorized to Make Periodic Inspections and Tests. Periodic inspections and load tests shall be made by a DPS Elevator Inspector of the Department of Public Safety.
524 CMR 37:00 SAFETY REQUIREMENTS FOR MATERIAL HOISTS

Massachusetts incorporates by reference, ANSI/ASSE A10.5-2013, Safety Requirements for Material Hoists, with the following Part 37 Massachusetts modifications for new and existing conveyance equipment regulated by 524 CMR.

1. General  Add a new preamble under General that reads:
   1. General.

   MGL c.143, §§ 62-71E and related regulations of 524 CMR overlay on all aspects of A10.5 as herein adopted as do all other MA General Laws and regulations having applicability.

   Due to operator and/or worker and/or general public safety concerns, use of this A10.5 Standard in Massachusetts, may require a variance request and approval based on DPS Elevator Inspector review of the Elevator Permit application construction documents and/or field observations.
524 CMR 38:00 SAFETY STANDARDS FOR PLATFORM LIFTS AND STAIRWAY CHAIRLIFTS

Massachusetts incorporates by reference, ASME A18.1-2014, Safety Standard for Platform Lifts and Stairway Chairlifts, with the following Part 37 Massachusetts modifications for new and existing conveyance equipment regulated by 524 CMR.

1. INTRODUCTION

Add a new preamble under INTRODUCTION that reads:

MGL c.143, §§ 62-71E and related regulations of 524 CMR overlay on all aspects of ASME A18.1 as herein adopted as do all other MA General Laws and regulations having applicability.

Due to operator and/or worker and/or general public safety concerns, use of this A18.1 Standard in Massachusetts, may require a variance request and approval based on DPS Elevator Inspector review of the Elevator Permit application construction documents and/or field observations.

1.1.1 Equipment Covered by this Standard. Add a new final paragraph that reads: “The requirements of 521 CMR must be satisfied in order to utilize this Standard.”

1.3 Definitions.

Add a new first paragraph that reads:

1.3 Definitions. The definitions of 524 CMR shall override definitions of A18.1 where applicable.

Table 1.5-1 Reference Documents – Delete reference to QEI (latest edition).

2.13 Code Data Plate. Add the requirement that state identification requirements of 524 CM Part 1 must also be included.

10.2.1 Inspections and Test Periods. Delete in entirety and Replace with: “Refer to 524 CMR for test and inspection requirements.”
Interpretation Submittal Form

1. Inquirer Information
   - First Name:* Kevin
   - Last Name:* Brinkman
   - Company/Organization:* National Elevator Industry, Inc.
   - Address 1:* 925 W. Center St.
   - Country:* United States
   - Town/City:* Eureka
   - Phone:
   - Email:* klbrinkman@neii.org
   - Confirm Email:* klbrinkman@neii.org

2. Request for Interpretation
   - Standard Designation:* A17.1
     - Paragraph/Fig./Table No:* 2.26.5, 2.11.3, 2.11.11.7.2, and definitions of door and entrance assembly.
   - Subject: Entrances and locks
   - Inquiry(ies):* Question #1) Is an “entrance assembly” a singular entity in the sense of being inclusive of all door panels (i.e. “door(s)”)? Question #2) Is the term “landing door” as used in 2.26.5(b)(2) meant to be the same as “hoistway door”? Question #3) With respect to question #1) and with reference to the A17.1/B44 definition of “door” (emphasis on the singular) as being inclusive as a single entity possibly consisting of multiple panels. The opening paragraph of 2.26.5 as related to the entrance door(s) is written in the plural, i.e. “hoistway doors”, whereas the 2.26.5(a) and 2.26.5(b) are written in the singular tense, i.e. “landing door”. Is the singular tense of “landing door” in 2.26.5(b)(2) meant to be understood as the entire entrance door inclusive of multiple panels, regardless of the number of individual panels in the hoistway door system? Question #4) For an entrance assembly that complies with 2.11.11.7.2 (2.11.11.7.2 Panels shall be equipped with hoistway door interlocks on each driven panel…), is it required that each individual per panel interlock contact of such a multi-panel door (emphasis on the singular “door”) comply with 2.26.5(b)(2)? Question #5) Would an entrance assembly described in Question #4), where two interlock contacts of two driven panels are wired in series at the local entrance wiring system and then returned to the controller as a series circuit, be in compliance with 2.26.5(b)(2) if such detection of a shorted contact within an interlock assembly itself occurs when both contacts are shorted and not when only one of the contacts is shorted. (Note: “Shorted” in question #5 is intended to understood as by both intentional means or by unintentional means). Question #6) For a single hoistway entrance with more than one driven door panel within the entrance assembly, and where an interlock is provided for each door panel and the interlocks are wired in series, are the multiple interlocks functionally considered a single interlock contact in the context of 2.26.5(b)(2)?

   - Proposed Reply(ies): 1) Yes 2) Yes 3) Yes 4) No 5) Yes 6) Yes

   - Background Info:
   - Background File:
3. Important, Please Read

Requests for interpretation must be limited to an interpretation of a particular requirement in the Standard or Code Case. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity. Additionally, the committees cannot consider consulting type questions such as the following:

1) a review of calculations, design drawings, or descriptions of equipment or parts to determine compliance with the requirements in the Standard;
2) a request for assistance in performing any Code-prescribed functions related to, but not limited to, material selection, designs, calculations, fabrication, inspection, testing, or installation;
3) a request seeking the rationale for a requirement in the Standard since these are based upon consideration of technical data and the experience and expertise of the individual committee members.

If your inquiry does not meet the requirements for submittal as stated above, it may not be accepted by the committee for review.

For all matters other than requests for interpretation, please go to www.asme.org.
Interpretation Request Record #15-1952 (Revised questions)

Subject: Requirement 8.11.1.7 Unique or Product-Specific Procedures or Methods
Requirement 8.6.1.2.2 On-Site Documentation
Requirement 8.6.4.19 Periodic Test Requirements — Category 1
Requirement 8.6.4.20 Periodic Test Requirements — Category 5


Background:

This inquiry seeks to clarify the use of the words “Unique or Product Specific Procedures or Methods” within and as related to the cited requirements. Additionally, it seeks to clarify what tests are required and what is required in terms of on-site written documentation for periodic tests and whether an alternate method (such as an automated test procedure built into the control system) can be provided in lieu of written documentation of procedures?

Referenced Requirements:
8.11.1.7 Unique or Product-Specific Procedures or and Methods.
8.6.1.2.2(b) On-Site Documentation.
Note: These requirements are tied together by the reference note at the end of 8.11.1.7

Question 1:
For electric elevators, does the word “test” in 8.11.1.7 and the word “tests” in 8.6.1.2.2(b) refer to those test categories listed in 8.6.4.19 and 8.6.4.20?
Proposed Answer Q1: Yes.

Question 2:
For electric elevators, does the word “test” in 8.11.1.7 and the word “tests” in 8.6.1.2.2(b) refer to tests not listed in 8.6.4.19 and 8.6.4.20?
Proposed Answer Q2: No.

Question 3:
If the answer to Question 2 is “Yes”, which ASME A17.1-2013/CSA B44-13 requirements are referred to other than those listed in 8.6.4.19 and 8.6.4.20?
Proposed Answer Q3: See answer to question 2.

Question 4:
For electric elevators, Are do the Unique procedures or methods for tests referred to in 8.11.1.7 inclusive of include those described in 8.6.1.2.2(b)(2), (3), and (4)?
Proposed Answer Q4: Yes.

Background note: The Code context of Unique procedures or methods for tests is defined as those listed in 8.6.1.2.2(b):

- Sil Devices:
- Alternative compliance via variance
- Alternative compliance via A17.7.

In other words, unique is not used in the context of the Code in a generic sense of the word unique.

Question 5:
a) Are Do the Unique procedures or methods for tests referred to in 8.11.1.7 exclusively only those include any procedures or tests not described in 8.6.1.2.2(b)(2), (3), and (4) ?

Proposed Answer Q5 a): Yes. No.

b) If the answer to Question 5 a) is "Yes", which ASME A17.1-2013/CSA B44-13 requirements are referred to other than those listed in 8.6.1.2.2(b)(2), (3), and (4)?

Proposed Answer Q5 b): See answer to Question 5 a)

Question 6:
With respect to 8.11.1.7, is the requirement to be understood as both a) and b) as paraphrased below?

- a) “Where Unique procedures or unique methods are required … (etc. as written in 8.11.1.7)” and
- b) “Where Product specific procedures or product specific methods are required … (etc. as written in 8.11.1.7)”

Proposed Answer Q6: Yes.

Question 7:
With respect to 8.11.1.7, is the requirement to be understood as: Unique = Product Specific.

Proposed Answer Q7: No.

Rationale: The intent of questions 6 and 7 is to clarify whether unique is different than product specific in this context. The 8.11.1.7 wording is a bit ambiguous, and it could be falsely inferred that some sort of all-inclusive undefined product specific requirements for on-site testing documentation is required by the Code.

Question 8:
For electric elevators, with respect to the phrase “... procedures or methods ...” within 8.11.1.7 [emphasis on the word “or”], if a method is provided by the manufacturer or installer for the purpose of execution of a Category 1 (8.6.4.19) or Category 5 (8.6.4.20) test, is it then also required for the manufacturer or installer to provide a written procedure within the on-site documentation for such a method.

Proposed Answer Q8: No.

Rationale: A method (e.g. an automated test built into the controller) can be provided in lieu of a written procedure and therefore a written procedure is not required to be provided within on-site documentation.

Question 9:
For electric elevators, with respect to the phrase “... procedures or methods ...” within 8.6.1.2.2(b)(2), (3) and (4) [emphasis on the word “or”], if a method is provided by the manufacturer or installer to execute a Category 1 (8.6.4.19) or Category 5 (8.6.4.20) test, is it then also required for the manufacturer or installer to provide a written procedure within the on-site documentation for such a method.

Proposed Answer Q9: No. Yes

Rationale: A method (e.g. an automated test built into the controller) could be provided in lieu of a written procedure. NEII requests that this be reviewed for a possible technical revision.
Question 10:
Are the procedures specifically identified in the Code as *required to be written* as stated in 8.6.1.2.2(b)(1) the same and exclusively only those listed in 8.6.1.2.2(c), and (d)?
Proposed Answer Q10: Yes.

Question 11:
For testing of electric elevators, are the *procedures or methods required for elevator personnel* in 8.6.1.2.2(b) the same as and exclusively those referred to as *product-specific procedures or methods* in 8.11.1.7?
Proposed Answer Q11: (none given by the requestor).

Background note: Q11 is difficult to answer, so we didn’t include a proposed answer. We think this wording *required for elevator personnel* is problematic and perhaps should be studied and reconsidered in a TN project.

Question 12:
Are the test categories of 8.6.4.19 and 8.6.4.20 always to be considered to be *unique, product specific, or both unique and product specific*.

Are the test categories of 8.6.4.19 and 8.6.4.20 always to be considered to be:
- a) unique,
- b) product specific,
- c) both unique and product specific.

Proposed Answer Q12: a) No, b) No, c) No;

Question 13:
Are written procedures (provided as part of on-site documentation) required for all of the test categories of 8.6.4.19 and 8.6.4.20?
Proposed Answer Q13: No. *Requirement 8.6.1.2.2(b)(1) exempts procedures and tests described in A17.2*
Hi Geraldine,

I would like to request a change to requirements 6.1.4.1.2(e)(3) for escalators and 6.2.1.4.2(e)(3) for moving walks in order to clarify the requirement. I have included a draft proposal in the attached document. Please forward to the appropriate committee for consideration at their next meeting. Please feel free to contact me with any questions. Thank you.

Regards,

Kevin L. Brinkman, PE
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Draft Proposed TN (revised)

6.1.4.1.2(e)(3) Passenger detection means shall remain active at the egress landing to detect any passenger person approaching against the direction of escalator travel and shall cause the escalator to accelerate to full rated speed and sound the alarm (see 6.1.6.3.1) at the approaching landing before the passenger person reaches the comb plate. Where a person was detected approaching the egress, the alarm is permitted to be silenced once full rated speed is reached, and the escalator is permitted to resume reduced speed when person(s) are no longer detected at that egress.

6.2.4.1.2(e)(3) Passenger detection means shall remain active at the egress landing to detect any passenger person approaching against the direction of moving walk travel and shall cause the moving walk to accelerate to full rated speed and sound the alarm (see 6.2.6.3.1) at the approaching landing before the passenger person reaches the comb plate. Where a person was detected approaching the egress, the alarm is permitted to be silenced once full rated speed is reached, and the moving walk is permitted to resume reduced speed when person(s) are no longer detected at that egress.

**Rationale:** Clarification of intent. The purpose of 6.1.4.1.2(e)(3) and 6.2.4.1.2(e)(3) is to assure that persons approaching the conveyance from the opposite direction of travel are warned of their wrong approach by an alarm and the acceleration of the conveyance to full speed. The code does not clearly address when the alarm can be silenced and reduced speed resumed. Once person(s) have stepped out of the detection area of the egress of the conveyance there is no further need for the warning in which case the proposed language permits the alarm to be silenced and the conveyance to resume reduced speed.
Revised Proposal 03.01.2016

Add a definition for car door restrictor to Section 1.3:

**restrictor, car door**: a device, the function of which is to restrict the opening of the car door under certain conditions when outside the unlocking zone.

**Rationale:**
To clarify the difference between a car door interlock and a car door restrictor.

Modify requirement 2.14.5.7:

**2.14.5.7 Restricted Opening of Car Doors.** Car doors of passenger elevators shall be provided with a car door interlock conforming to 2.14.4.2 or a car door restrictor conforming to 2.14.5.7.1 through 2.14.5.7.5.

**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.

Add new requirement 2.14.5.7.6:

**2.14.5.7.6** Each type and make of car door restrictor that has moving parts shall be listed and certified as follows:

(a) they shall be type tested in conformance with 2.14.5.7.6.1
(b) they shall be listed/certified in conformance with 2.14.5.7.6.2
(c) they shall be marked in conformance with 2.14.5.7.6.3

**2.14.5.7.6.1 Type Tests.** Each type and make of car door restrictor shall conform to the type tests specified in 8.3.XX. The tests shall be done by or under the supervision of a certifying organization.

**2.14.5.7.6.2 Listing/Certification.** Each type and make of car door restrictor shall conform to the general requirements for tests and certification specified in 8.3.1.

**2.14.5.7.6.3 Identification Marking.** Each listed/certified device shall be labeled. It shall be permanently attached to the device, and shall be so located as to be readily visible when the device is installed in its operating position. The labels shall include the following data:

(a) the name, trademark, or certifying organization file number by which the organization that manufactured the product can be identified
(b) the certifying organization name or identifying symbol
(c) statement of compliance with ASME A17.1/CSA B44
(d) a distinctive type, model, or style letter or number
(e) rated test force
(f) date (month and year) devices subjected to type test specified in 2.14.5.7.6.1
(g) if the device has only been type tested and listed/certified for use on a private residence elevator, the label shall indicate the restricted use
New Requirement:
8.3.XX Type Tests of Car Door Restrictors

8.3.XX.1 General. This Section specifies the type test of car door restrictors that have moving parts.

8.3XX.2 Examination Before Test. Prior to testing, the certifying organization shall examine each device submitted to ascertain that it conforms to the applicable requirements in Part 2.

8.3.XX.3 General Requirements

8.3.XX.3.1 Required Tests and Procedure. Each device submitted shall be subjected to and shall successfully pass the following tests:

8.3.XX.3.2 Tests Car Door Restrictors without moving parts. Tests of car door restrictors that do not have any moving parts shall not be required.

8.3.XX.3.3 Tests of Car Door Restrictors that have moving parts. The testing equipment shall actuate the mechanical restricting members of the car door to restrict and then un-restrict the car door at each cycle of operation during the tests specified by 8.3.XX.4

8.3.XX.4 Required Tests and Procedure. Each device submitted shall be subjected to and shall successfully pass the following tests in 8.3.XX.4.1 through 8.3.XX.4.4.

8.3.XX.4.1 Endurance Test. The device, lubricated in accordance with the manufacturer’s instructions, shall complete 960 000 cycles of operation without failure of any kind, without excessive wearing or loosening of parts. For private residence elevators the number of cycles shall be reduced to 25 000.

8.3.XX.4.2 Test Without Lubricant. After completion of the test specified by 8.3.XX.3.4, the device used therein shall be used for this test. The device, except self-lubricating bearings and bearings of a type not requiring frequent replenishment of lubricant, shall then be taken apart and freed of lubricant by washing in nonflammable liquids having cleansing characteristics. After reassembling, the device shall, without other than the usual initial adjustment (i.e., without adjustment especially made to meet the conditions of the particular test) and without further attention, complete 25 000 cycles or 20 000 cycles for private residence elevator of operation without failure of any kind, without excessive wearing or loosening of parts.

8.3.XX.4.3 Test in Moist Atmosphere. After completion of the test specified by 8.3.XX.4.2, the device used therein shall be used for this test. The device shall be subjected continuously, in an unventilated enclosure, to an atmosphere saturated with a range of 3.5% to 5% solution of sodium chloride for 72 consecutive hours. During this period, it shall be operated for only 10 consecutive cycles at the end of each of the first two 24 h periods and shall be allowed to stand exposed to the air for 24 h, and shall not fail in a manner that creates an unsafe condition.
The device shall again be lubricated and shall, without adjustment and without further attention, complete 15,000 cycles or 10,000 cycles for private residence elevator of operation without failure of any kind.

8.3.XX.4.4 Static Test. After completion of the endurance test in 8.3.XX.4.1, a type test shall be made consisting of a static force applied over a period of 300 s with the force increasing incrementally. The force shall be applied in the opening direction of the door and at a location as near to the restricting element as possible, but not to exceed 300 mm (12 in.). The force shall be 1,000 N (225 lbf) applied at right angles to the panel evenly distributed over an area 5 cm² (0.78 in.²) in a round or square section in the case of a restricting device intended for use with swinging doors.

Rationale:
Elevator personnel including the inspection community have reported that many restrictors do not lock properly and malfunction on a regular basis. Adding requirement to type test and certify car door restrictors with moving parts to similar applicable requirements for car and hoistway door interlocks will increase their robustness and reliability.

The purpose of this proposal is to ensure static load capability required by code for car door restrictors with moving parts after they are subjected to the same dynamic endurance tests as required on hoistway door interlocks.
Interpretation Submittal Form

1. Inquirer Information

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2. Request for Interpretation

Standard Designation:* A17.1
NOTE: if your question(s) applies(y) to more that one standard, select the most appropriate standard and reference any others in your inquiry
Edition/Addenda:* ASME A17.1/CSA B44 2007 and later editions and ASME A17.1s-2005
Paragraph/Fig./Table No:* 2.7.6.3.4
Subject: Means to prevent movement of the car when servicing the governor
Inquiry(ies):* Since the car governor is used to activate the car safeties when the car is moving in the down direction, is this requirement therefore to prevent movement of the car in the down direction only?
Proposed Reply(ies): Yes
Background Info:
Requirement 2.7.6.3.4(a) includes the wording “means are furnished to prevent movement of the car when servicing the governor”. The means described in this clause, which is required to prevent movement of the car while working on the governor, is different than the means described in Requirement 2.7.5.1.1 for working on the drive-machine brake or an emergency brake, or of elevator motion controllers. The prescriptive requirements of the means in section 2.7.5.1.2 do not provide the equivalent level of protection for the mechanic when working on top of the car to remove the governor rope or governor. The requirement for the means as stated in 2.7.5.1.2 is 125% (based on 2.16.8 reference) of the static unbalanced weight of the system, this is not the same rating as full load on safeties. The safety risk while standing on top of the car with the governor rope removed from the safety linkage/release carrier is that the safety/governor overspeed protection system is no longer operable; therefore there is no protection from suspension means failure. Thus the equivalent level of safety when performing work on the governor or governor ropes while on top of the elevator car would be achieved by attaching a sling to the car and securing it to an overheard structure or beam rated for the full weight of the elevator cab with personal and tools, to prevent downward movement of the car in the event of a suspension means failure.

3. Important, Please Read

Requests for interpretation must be limited to an interpretation of a particular requirement in the Standard or Code Case. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.
Additionally, the committees cannot consider consulting type questions such as the following:

1) a review of calculations, design drawings, or descriptions of equipment or parts to determine compliance with the requirements in the Standard;

2) a request for assistance in performing any Code-prescribed functions related to, but not limited to, material selection, designs, calculations, fabrication, inspection, testing, or installation;

3) a request seeking the rationale for a requirement in the Standard since these are based upon consideration of technical data and the experience and expertise of the individual committee members.

If your inquiry does not meet the requirements for submittal as stated above, it may not be accepted by the committee for review.

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Interpretation Submittal Form

* Denotes required field

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2. Request for Interpretation

Standard Designation:* A17.1
Edition/Addenda:* A17.1/B44 - 2010 and later editions; A17.2 - 2014
Paragraph/Fig./Table No:* A17.1/B44 Section 8.10; A17.2 Item 2.29
Subject: Inspection and Test requirements for new installations
Inquiry(ies):* Where a requirement in ASME A17.1/CSA B44, Section 8.10 (e.g., 8.10.2.2.2(ii)) references an item in ASME A17.2 (e.g., Item 2.29),

a) is the guidance in A17.2 that all sections of Item 2.29 be performed as part of the Inspection and Test Requirements for New Installations, i.e., 2.29.1, 2.29.2, and 2.29.3; or

b) Is the guidance in A17.2 that only the subsection applicable to Inspection and Test Requirements for New Installations, i.e., 2.29.3, need to be performed?

Proposed Reply(ies): a) No
b) Yes

Background Info:
Background File:

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**Interpretation Submittal Form**

* Denotes required field

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### 1. Inquirer Information

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<tr>
<th>First Name:*</th>
<th>Kevin</th>
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<tbody>
<tr>
<td>Last Name:*</td>
<td>Brinkman</td>
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<td>Company/Organization:*</td>
<td>National Elevator Industry, Inc.</td>
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### 2. Request for Interpretation

<table>
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<th>Standard Designation:*</th>
<th>A17.1</th>
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<tr>
<td>Paragraph/Fig./Table No:*</td>
<td>2.29.1 in 2007 and 2.29.1.1 in 2010 and 2013</td>
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<tr>
<td>Subject:</td>
<td>Identification</td>
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<tr>
<td>Inquiry(ies):*</td>
<td>The requirement states &quot;In buildings with more than one elevator, each elevator in the building shall be assigned a unique alphabetical or numerical identification&quot;. 1) When a new elevator(s) is installed in a building with existing elevators, does this require each existing elevator be assigned a unique identification number or letter in addition to the new elevator(s)? 2) Does this requirement become applicable to existing elevators when a new elevator(s) is installed?</td>
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<td>Proposed Reply(ies):</td>
<td>1) No 2) No</td>
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### NEII Members on ASME/A17 Committees

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Legend: (Ch) Chair; (V) Vice-Chair; (A) Alternate; (Co) Contributing
Task Group Draft Proposal for Emergency Communications

2.8.2.2 Only such electrical wiring, raceways, cables, coaxial wiring, and antennas used directly in connection with the elevator, including wiring for signals, for communication with the car, for lighting, heating, air conditioning, and ventilating the car, for fire detecting systems, for pit sump pumps, and for heating and lighting the hoistway and/or the machinery space, machine room, control space, or control room shall be permitted to be installed inside the hoistway, machinery space, machine room, control space, or control room.

2.27.1 Car Emergency Signaling Devices
2.27.1.1 Emergency Communications
2.27.1.1.1 A two-way communications means between the car and a location staffed by authorized personnel, shall be provided.

2.27.1.1.2
(a) Two-way communications shall be directed to a location(s) staffed by authorized personnel who can take appropriate action.
(b) If the call is not acknowledged [2.27.1.1.3(c)] within 45 s, the call shall be automatically directed to an alternate on- or off-site location.

2.27.1.1.3 The two-way communications means within the car shall comply with the following requirements:
(a) In jurisdictions enforcing NBCC, Appendix E of ASME A17.1/CSA B44, or in jurisdictions not enforcing
NBCC, ICC/ANSI A117.1, except as modified by 2.27.1.

(b) A push button to actuate the two-way communications means shall be provided in or adjacent to a car operating panel. The push button shall be visible and permanently identified with the “PHONE” communications symbol (see 2.26.12.1). The identification shall be on or adjacent to the “PHONE” communications push button. When the push button is actuated, the emergency two-way communication means shall initiate a call for help and establish two-way communications. **Automated systems to validate the presence of passengers are permitted.**

(c) A visual indication on the same panel as the “PHONE” communications push button, a message shall be displayed that is activated by authorized personnel, to acknowledge that the two-way communications link means has been established and the video means is active. The visual indication message shall be extinguished when the two-way communications link is terminated.

(d) On the same panel as the communications push button a message shall be displayed, that is activated by authorized personnel, to indicate when help is on the way.

(e) The two-way communications means shall provide on demand to authorized personnel, information that identifies the building location and elevator number and that assistance is required.

(f) After the call acknowledgement signals are message is sent [2.27.1.1.3(c)], the two-way voice communications shall be available between the car and authorized personnel.

(g) The two-way communications, once established, shall be disconnected only when authorized personnel outside the car terminate the call or a timed termination occurs. A timed
termination by the two-way communications means in the elevator, with the ability to extend the call by authorized personnel, is permitted if voice notification is sent by the communications means to authorized personnel a minimum of 3 min after communications has have been established. Upon notification, authorized personnel shall have the ability to extend the call; automatic disconnection shall be permitted if the means to extend are not enacted within 20 s of the voice notification.

(g) (h) The two-way communications means shall not use a handset in the car.

(h) (i) The two-way communications shall not be transmitted to an automated answering system. The call for help shall be answered by authorized personnel.

(i) (j) Operating instructions shall be incorporated with or adjacent to the “PHONE” communications push button.

(k) A means to display a minimum of 720p video of occupants in the car to authorized personnel.

Rationale: Added requirements to comply with a change in the 2018 IBC which includes a requirement for a live video system and enhanced communications for the hearing and speech impaired. Changed “PHONE” to communications to more accurately reflect the function of the push button. Eliminated “voice” and changed “visual indication” to “message” to more accurately describe enhanced communication means.

Added new sentence in (b) to allow automated systems to validate presence of passengers based on Inquiry 13-1022. The requirement for the 720p video is to establish a minimum video quality, which is commonly available.
Where the elevator rise is 18 m (60 ft) or more, a two-way voice communications means within the building accessible to emergency personnel shall be provided and comply with the following requirements:
(a) The means shall enable emergency personnel within the building to establish two-way voice communications to each car individually. Two-way voice communications shall be established without any intentional delay and shall not require intervention by a person within the car. The means shall override voice communications to outside of the building.
(b) Two-way voice communications, once established, shall be disconnected only when emergency personnel outside the car terminates the call or a timed termination occurs. A timed termination by the two-way communications means in the elevator, with the ability to extend the call by authorized emergency personnel, is permitted if voice notification is sent by the communications means to emergency personnel a minimum of 3 min after communications has been established. Upon notification, authorized emergency personnel shall have the ability to extend the call; automatic disconnection shall be permitted if the means to extend are not enacted within 20 s of the voice notification.
(c) Once the two-way voice communications has been established, the visual indication [see 2.27.1.3(e)] a message, that is activated by emergency personnel, to indicate that help is on site, shall be displayed within the car shall illuminate. The visual indication message shall be extinguished when the two-way communications is terminated.
(d) Operating instructions shall be incorporated with or adjacent to the two-way *voice* communications outside the car. Instructions shall conform to 2.27.7.3.

*Rationale:* Added requirements to comply with a change in the 2018 IBC which includes a requirement for a live video system and enhanced communications for the hearing and speech impaired. Changed authorized to emergency to coordinate with this section. Eliminated “voice” and changed “visual indication” to “message” to more accurately describe enhanced communication means.

[need to come up with a symbol to represent “communications”]

Dawn would like the calls to go to 911 operator or at least give the passenger that option. Also would like to consider whether the high rise provisions get extended to other essential buildings.
2015 International Building Code

Revise as follows:

[F] 3003.1 Standby power. In buildings and structures where standby power is required or furnished to operate an elevator, the operation shall be in accordance with Sections 3003.1.1 through 3003.1.4. In addition, upon loss of normal power, each elevator shall be provided with standby power to allow elevator to return to the designated floor level established in accordance with Section 3003.1.2, to stop at that floor level and open the cab door.

2015 International Fire Code

607.2 Standby power. In buildings and structures where standby power is required or furnished to operate an elevator, standby power shall be provided in accordance with Section 604. Operation of the system shall be in accordance with Sections 607.2.1 through 607.2.4.

In addition, upon loss of normal power, each elevator shall be provided with standby power to allow elevator to return to the designated floor level established in accordance with Section 607.2.2, to stop at that floor level and open the cab door.

Reason: Emergency Operation requirements for elevators and conveying systems are regulated in IBC Section 3003.1. This IBC section stipulates that standby power is required only for those elevators identified by other sections of the code or where voluntarily furnished. The IBC identifies the elevators required to have standby power in Sections 403.4.8, 3003, 3007, 3008, 2702.2.2, 1009.4 and 1009.5. These elevators are primarily used in high rise buildings and to provide accessible routes or accessible means of egress. Generally, elevators operate using the building's primary power source under normal conditions. Under emergency conditions when the primary power source is unavailable, the elevators identified in these code sections automatically receive power from a standby power source for continued functionality.

However, elevators not required to have standby power cease to operate once the primary power source is unavailable. At times elevators can malfunction even without loss of the building’s primary power source and cease to operate. The result of the loss of primary power for these elevators is that passengers are stranded inside the elevator cab until the resumption of the building's primary power, repair of the elevator system, or rescue by emergency personnel. In any case, it is unacceptable to strand people in elevators for any reason. It goes counter to the intent of IBC Chapter 10 to provide an unrestricted means of egress by stranding people in elevators.

The IBC is quite diligent about not allowing obstructions in a means of egress and even prescribing door controls that will allow unrestricted exit access and even requires redundant features if one feature fails to operate properly. The IFC also is quite diligent about maintaining means of egress components. The code, however, does not address getting stuck in elevators. Getting stuck in elevators is quite a common issue and does have serious potential life safety risks. There are many documented and undocumented stories of people getting stuck in elevators when power failures occur or elevator operation malfunctions. The highest risk of elevator operation failure is due to mechanical malfunctions even though elevators are routinely inspected and certified as being maintained properly. The risk of being trapped in an elevator of due to loss of power, either from the building's primary power source or power to an individual elevator, appears to be very low. Because there is no code requirement to provide standby power to all elevators, this feature is provided only as an owner's option. Currently, there is no reliable source of information available to document the number of incidents where people have been stuck in elevators due to primary power failures or maintenance issues. However, based on media coverage and articles of such incidents, there is an apparent plethora of cases where people are stranded in elevators for various reasons.

The usage of elevators for fire fighters and emergency personnel in order to save time in an emergency situation has been endorsed by the IFC in Sections 607.1 and 1103.3. These sections are shown below:

607.1 Emergency operation.

Existing elevators with a travel distance of 25 feet (7620 mm) or more shall comply with the requirements in Chapter 11. New elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1.

1103.3 Elevator operation.

Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for firefighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.1. Even though the IFC has required new elevators and existing elevators, under certain provisions, to be provided with Phase I emergency recall operation and Phase II emergency in-car operation features, the FC does not require standby power for these elevators. The potential of power failure for these elevators under emergency operating conditions while fire fighters and emergency personnel are in the elevators may be an issue which needs to be addressed.

This code change proposal will at least require sufficient standby power to get people to a floor level and open the elevator door so that people can access an exit. It does not require full elevator operation; it simply allows people to not get stuck in an elevator due to primary power loss. To require standby power to allow this function for all elevators does not present an undue burden to the owners and operators. There certainly is an initial cost impact to provide this.
feature, however, it is insignificant when compared to dealing with potential litigation or physical harm caused by getting stuck in an elevator.

https://www.psychologytoday.com/blog/fighting-fear/201205/stuck-in-elevator

**Cost Impact:** Will increase the cost of construction

Cost Impact: Will increase the cost of construction

There are basically two types of elevators: hydraulic, and traction elevators. Each type of elevator has significantly different design features which could address this code change proposal. I've listed only a few possible design solutions; however, other options may exist. Industry can offer alternate design solutions which may be proprietary and still meet the intent of this code change proposal. One very real possibility is that an auxiliary power generator can be provided to supply the standby power for these elevators without significant costs. Most buildings, regardless of size, which have elevators installed will already be providing an auxiliary power generator to address other issues such as egress lighting, supplemental power supply for equipment and fixed furnishings, door controls, HVAC backup power, fire alarm and detection, automatic sprinkler systems, etc.; and to add an additional load to this generator for the elevator standby power would be negligible in cost. This cost would not be possible to determine as it depends on the building requirements aside from the elevator loads.

**HYDRAULIC ELEVATORS:** Battery low warning is already an option for hydraulic elevators which can be added for up to approximately $5,000 per elevator. With this feature the elevators could be lowered to a floor level and exiting be obtained through the opened elevator doors.

**TRACTION ELEVATORS:** Traction elevators, as opposed to hydraulic elevators, depend on a counterweighted mechanism operated with an electric motor drive. Traction elevators are not limited in lift height and more costly than hydraulic elevators in initial cost. As such, the standby power requirements are much greater than hydraulic elevators. There are currently two options for providing standby power: either by an auxiliary generator; or an "Emergency Rescue Unit" (ERU) type system. See comment above regarding auxiliary power generators for other building requirements. However, if a stand-alone power generator is used for the elevator automatic evacuation function, a single generator can cost at a minimum of $5,000 to $10,000. Some elevator manufacturers can provide the ERU which will provide enough standby power to allow the elevator to stop at the nearest floor and open the doors. The estimated cost for the ERU is in the $10,000 to $20,000 range per elevator. There seems to be a current industry limitation on these ERUs for the elevator motors not exceeding 50 horse power and not allowing DC motors. However, in those cases, an auxiliary power generator may need to be installed.
SPRINKLERS AND ELEVATORS

The Safety Code for Elevators and Escalators, ASME A17.1/CSA B44 has requirements pertaining to the safe operation of elevators when sprinklers are provided in elevator machine rooms and hoistways. [ASME A17.1d-2000 and earlier editions, Rule 102.2(c)] [ASME A17.1-2000 thru ASME A17.1S-2005, Section 2.8.2.3] [ASME A17.1/CSA B44-2007 and later editions, Section 2.8.3.3.2]. In jurisdictions not enforcing the National Building Code Canada (NBCC), the Code requires that a means be provided to automatically remove the mainline (electric) power supply from the affected elevator upon or prior to the application of water from sprinklers. The intent of this requirement is to prevent water from being applied to an electrically energized elevator system. Water can “short out” critical safety circuits and may allow the elevator to operate in an unsafe manner such as with open doors. Water may also impinge on the elevator brake’s ability to stop the car or hold the car at a floor. If the electric power is removed from the elevator before the application of water, the car will be stopped (at rest) with power off, and the potential for an elevator accident resulting from the application of water will be greatly reduced.

The ASME A17.1/CSA B44 Code prohibits the elevator control from being the means to disconnect the power. The requirement states; “This means shall be independent of the elevator control …”. The reason for this requirement is that the elevator control may be on fire or if there is sufficient heat, the elevator controller may no longer function reliably and therefore cannot be relied upon to give a signal to disconnect the main line power supply and allow sprinklers to actuate.

The ASME A17.1/CSA B44 Code does not endorse a particular design. The Code is written in performance language, allowing the designers to implement the Code requirements in different ways. One example of how the disconnection of the main line power supply could be implemented in compliance with the requirements in ASME A17.1/CSA B44 (e.g. a means independent of the elevator control) is to use a heat detector to shut down elevator power prior to sprinkler operation as specified in the National Fire Alarm Code, NFPA 72. The heat detector would have a lower temperature rating and a higher sensitivity compared to the sprinkler. The heat produced by the fire triggers the heat detector which actuates the shunt-trip breaker or disconnect switch to remove the mainline power to the affected elevator(s). When the temperature increases to the actuation level of the sprinkler head, water is applied to the electrically de-energized (powered down) elevator system.

An issue that many people raise is the potential for an elevator car to be stopped between landings. This is a remote possibility, moreover:
It is unlikely, as the smoke detector in the machine room probably initiated Phase I recall prior to the temperature activating the heat detector;

Stopping a moving elevator is not considered unsafe and in fact is exactly what the ASME A17.1/CSA B44 Code mandates whenever an electrical protective device determines that continued operation may be hazardous;

In the 25 + years this requirement has been in the ASME A17.1/CSA B44 Code, there has not been a reported incident of power removal due to shunt-trip breaker actuation stopping an elevator car between landings.

If after reading the above, a concern still persists about the extreme unlikely probability of stopping the car between landings, the following design appears to conform to the ASME A17.1/CSA B44 requirements and may decrease further this potential. Remember, if the elevator control system is on fire, or the ambient temperature in the machine room is above the operating temperature of the equipment, no system can assure the car will only stop at a landing.

- The machine room heat detector in addition to the smoke detector could initiate Phase I Emergency Recall Operation.

- When the machine room heat detector is actuated, the fire alarm system could provide a predetermined time delay before actuating the shunt-trip breaker or disconnect switch and permit sprinkler activation. The predetermined time should be not less than the time required to complete Phase I recall.

With the addition of Occupant Evacuation Operation in the 2013 edition of A17.1/B44, a recommendation is made in Appendix V, Building Features for Occupant Evacuation Operation, to prohibit sprinklers in elevator machine rooms and hoistways. Combined with other mitigations to protect those spaces, this will provide the maximum time possible for building occupants or firefighters to use the elevators without the risk of the elevator(s) stopping prematurely or between floors.

**Approved:**

The NEII® Central Code Committee is responsible for maintaining this policy. This policy shall be in effect for three (3) years from the date of approval by the NEII® Central Code Committee.

**NEII® Central Code Committee:** 01-Aug-13
1. **Scope**

   The elevator core may comprise as much as 15%-20% of a building's floor area, therefore determining the proper size and the number of elevators is an important aspect of building design. Providing too few elevators can seriously compromise a building's efficiency and marketability. Designing a building with more elevators than needed is bad economics. Therefore a proper and thorough elevator system traffic analysis must be performed for the elevator arrangement being proposed.

   Note: For terms and definitions see Performance Terminology Matrix

2. **Analysis Methods**

   As part of a specific design process there are two methods of traffic analysis. For simpler cases, a calculation method may be sufficient; it is based on the concept known as up-peak traffic and determines up-peak handling capacity and interval. For all cases with more complex traffic demands which includes all cases with Destination Control Systems, a Simulation Method should be used. A design may be considered as complex when one or more of the following conditions apply:

   - The traffic control is a Destination Control System.
   - The number of floors served by the elevator group is greater than 18 floors.
   - The population served by the elevator group is greater than 250 per elevator.
   - The elevator group serves more than one entrance floor.
   - The building has transfer floors, where people can change from one elevator group to another.
   - The lobby shape is unusual (e.g. distance, line of sight, cross traffic).
   - There are more than six elevators in a group.
   - A group contains elevators of different specification (e.g.: capacity, speed, door type.).
   - Not all elevators in the group serve all floors.
   - The elevator group serves levels below the entrance floor.
   - There are "magnet" floors (e.g. restaurant, fitness center, shopping level, etc.) other than the main entrance floor.

3. **Performance Metrics**

   The standard performance metrics when using the up peak calculation method are **handling capacity** and **interval**. Performance metrics for the simulation method are **handling capacity** and **average waiting time**. More recently with the advent of destination dispatch systems, additional metrics such as average time to destination, average number of intermediate stops, and percentage of long waits also apply as key performance indicators.
3.1. Handling Capacity: Describes the 5-Minute Handling Capacity (5-Min HC) that an elevator system must be able to achieve for various elevator passenger arrival rates that can be expected for various types of buildings.

3.2. Interval: This metric is relevant when the analysis method is the up-peak traffic calculation.

3.3. Waiting Time: In the case of the simulation method the relevant metrics are the handling capacity and the average waiting time.

3.4. Time to Destination: Describes waiting time plus travel time.

The following table specifies the acceptable values for the standard parameters:

Table: Minimum Performance Metrics

<table>
<thead>
<tr>
<th>Type of Building</th>
<th>5-Min HC as a Percentage of the elevator group's total population and traffic period.</th>
<th>Interval (seconds)</th>
<th>Waiting time (seconds)</th>
<th>Time to Destination (seconds)</th>
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<tbody>
<tr>
<td>Central business district multi-tenant office building</td>
<td>≥ 12 up peak and ≥ 11 lunch</td>
<td>≤ 30 up peak and ≤ 40 lunch</td>
<td>≤ 22 up peak and ≤ 30 lunch</td>
<td>80 to 100</td>
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<tr>
<td>Central business district single tenant office building</td>
<td>15 to 17 up peak and 13 to 15 lunch</td>
<td>≤ 30 up peak &lt; 40 lunch</td>
<td>≤ 22 up peak and ≤ 30 lunch</td>
<td>80 to 100</td>
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<tr>
<td>Suburban office building</td>
<td>8 to 10 up peak</td>
<td>≤ 30 up peak</td>
<td>≤ 25 up peak</td>
<td>100 to 120</td>
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<tr>
<td>Self-parking garage</td>
<td>8 to 10 peak</td>
<td>≤ 45</td>
<td>≤ 40</td>
<td>100 to 120</td>
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<tr>
<td>Hotel</td>
<td>≥ 12</td>
<td>≤ 40</td>
<td>≤ 40</td>
<td>100 to 120</td>
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<tr>
<td>Residential</td>
<td>≥ 7</td>
<td>≤ 60</td>
<td>≤ 45</td>
<td>100 to 120</td>
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</table>
Note 1: Department stores, industrial buildings, and hospitals require more complex analysis to determine the appropriate metrics as discussed in the references listed above.

Note 2: The type of dispatching system (e.g. conventional up/down hall buttons or destination dispatch) should be indicated along with the performance metrics.

3.5. Percentage of Long Waits (%LW): In office buildings a reliable predictor of passenger satisfaction or complaints is the percentage of passengers that experience a wait time of greater than 90 sec. In this case the criteria is as follows:

Good Performance: %LW < 5%
Acceptable Performance: %LW < 10%

3.6. Average Number of Intermediate Stops (IS): In some cases it is difficult to have general classifications for average destination time with buildings of varying travel height. A better classification has been the number of intermediate stops that the average passenger experiences between their origin and destination floors (IS). In the case of office buildings:

Good Performance: IS ≤ 2
Acceptable Performance: IS ≤ 3

References


ISO WD 4190-6, “Lifts — Passenger lifts to be installed in office buildings, hotels and residential buildings — Part 6: Planning and selection”

CIBSE Guide D: Transportation Systems in Buildings 2015
Kevin Brinkman

From: Henderson, Doug <doug.henderson@thyssenkrupp.com>
Sent: Thursday, June 02, 2016 6:42 PM
To: Kevin Brinkman
Cc: Hampton, Phil
Subject: FW: FSAE - mechanical floor at top of building

Kevin,

Consider this topic for the next CCC meeting.

Regards,
Doug Henderson
Codes and Standards

ThyssenKrupp Elevator Americas
9280 Crestwyn Hills Drive
Memphis, TN 38125

Cell: 901 652 3649
Direct: 731-376-3004
E-mail: doug.henderson@thyssenkrupp.com

From: Henderson, Doug
Sent: Thursday, June 02, 2016 6:39 PM
To: Hoffman, John C.
Cc: Hampton, Phil
Subject: RE: FSAE - mechanical floor at top of building

John,

This is a building code question, so all I can do is give my opinion which is as follows:

Clause 3007.1 is a general requirement not a specific requirement, therefore “every floor” should be understood in a general sense which, in my interpretation is, every floor of the building where service is provided to the riding public.

If further clarification is needed we can get NEII involved for an official interpretation from ICC.

Further, the issue is not addressed in A17.1. However, there is a Task Group looking into codifying the operation for Fire Service Access Elevators. This issue can also be addressed by the TG. Any A17.1 code language will not be published until 2019 at the earliest.

Regards,
Doug Henderson
From: Hoffman, John C.
Sent: Thursday, June 02, 2016 3:19 PM
To: Henderson, Doug
Subject: FW: FSAE - mechanical floor at top of building

Doug:

For the code that says every floor must be served by the FSAE elevator also include serving a mechanical floor located at the top of the building?

Regards,
John Hoffman
New Installation Sales Manager, Manhattan Branch
ET-AMS/FLD
T: +1 917 344 2022, M: +1 646 996 8061 john.hoffman@thyssenkrupp.com

From: John Saling [mailto:john.saling@fs2ec.com]
Sent: Thursday, June 02, 2016 8:57 AM
To: Hoffman, John C.
Subject: FSAE

Hi John,

I have a question as far as what you are seeing with how FSAE elevators are arranged. The code says the FSAE shall serve all floors in the building. In tall buildings with high speed cars it's typical to have the top occupied floor served, then a mechanical floor and then the EMR level. If a 1200 fpm car is going to be the FSAE, it couldn't serve the mechanical floor below the EMR level. Are you seeing such mechanical floors served by the FSAE?
Thanks,

John Saling
Principal

Fortune Shepler Saling Inc.
Elevator Consultants

Ph: 862.400.6382
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visit us at www.fs2ec.com
UNITED STATES CONSUMER PRODUCT SAFETY COMMISSION

Petitioners:
The Safety Institute
Carol Pollack-Nelson, Ph.D., Independent Safety Consulting
Cash, Krugler & Fredericks, LLC

PETITION FOR RECALL TO REPAIR/RETROFIT AND RULEMAKING

Petitioners, The Safety Institute, Carol Pollack-Nelson, and Cash, Krugler & Fredericks, LLC (hereinafter "Petitioners"), pursuant to 16 C.F.R. § 1051 Procedure for Petitioning for Rulemaking, request that the U.S. Consumer Product Safety Commission initiate mandatory rulemaking to set safety standards for the design and installation of residential elevators to eliminate excessive space between the elevator car door/gate (interior door) and hoistway or swing door (exterior door).

In many home elevators, and similar versions found in older apartment and commercial buildings, the clearance between the two doors is large enough to allow children as old as 12 years to fit between them. When the elevator is called to another floor, the hoistway door automatically locks, and the child’s body is carried along with the elevator car until it meets the obstruction of the sill, where the child’s body – usually the head – is crushed. Industry has been aware of these dangers for more than 80 years, but has failed to adopt an appropriate, safe voluntary standard to address this design flaw. At least 55 child deaths have occurred since 1967; the most recent known death occurred in 2009. Since 2010, there have been three serious permanent debilitating injuries resulting from child entrapment.

A mandatory standard is required because the gap between the doors that is permitted by the voluntary standard has caused deaths and serious injuries. Efforts to work through the voluntary standards process, as described in this petition, have not adequately addressed the defect and therefore, have not reduced the risk of harm. In fact, 35 years ago, the voluntary standards committee actually changed the dimensions for residential elevators from a maximum gap of 4 inches between the two doors, to the less-safe 5-inch gap.

The petitioners also request that the U.S. Consumer Product Safety Commission order a recall (to repair) of all residential elevators that allow a gap between the hoistway and swing doors of more than 4 inches. Recalled defective doors should be retrofitted with a device that would either detect the presence of a child or small adult in the door path and prevent the elevator from operating or physically fill the gap to prevent children and small adults from becoming entrapped.

Industry Knowledge of Design Defect

The elevator industry has known about the entrapment hazard in swing door elevators for...
at least eight decades. In 1931, Otis Elevator Company obtained a patent for an inexpensive 6-inch space guard to prevent child entrapment. In 1932, Otis sent a letter to its customers warning them about this hazard. In 1943, the company followed up; an Otis General Service Manager sent an inter-office memo reiterating the dangers of excessive space between the hoistway doors and the threshold. The elevator company was concerned that buildings may have changed hands since the original alert went out, leaving the current owners unaware of the threat, or that the original owner ignored the warning or installed a space shield, which fills the gap and makes it impossible for a child to fit in the space, but failed to remove projecting hardware.

In 1955, the first Residence Elevator Code addressed the entrapment issue. ASME Elevator Safety Code limited distance between the doors to a maximum of 4 inches. (At the time, there were no accordion doors on elevators – this was a flat-to-flat measurement.) But, in 1981, for unknown reasons, the ASME changed the rule to widen the gap, allowing a maximum of 5 inches between the doors.

ASME standard A 17.1, Sec. 5.3.1.7.2 states:

Clearance Between Hoistway Doors or Gates and Landing Sills and Car Doors or Gates. The clearance between the hoistway doors or gates and the hoistway edge of the landing sill shall not exceed 75 mm (3 in). The distance between the hoistway face of the landing door or gate and the car door or gate shall not exceed 125 mm (5 in.).

In 1950, Otis General Service Manager again noted “recent occurrence of accidents” caused by excessive space between the hoistway and elevator car doors, suggesting that many elevators remained unremedied. A 1963 memo noted the rise in liability claims against the company and suggested a survey of all Otis elevators under a service contract with sub-standard safety conditions— including the condition of too much space between the hoistway and elevator doors.

In the early 1990s, the residential elevator industry introduced accordion doors for home elevators; this only increased the entrapment hazard. The accordion door’s flexibility and its peaks and valleys create excess space, above and beyond the 5-inch gap permitted by

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1 Subject: Automatic Elevator Space conditions Between the Hoistway Doors and the Threshold; H.R. Otto; Otis Elevator Company; September 30, 1943.
2 Subject: Automatic Elevator Space conditions Between the Hoistway Doors and the Threshold; H.R. Otto; Otis Elevator Company; September 30, 1943.
4 Standard A 17.1, Sec. 5.3.1.7.2; ASME.
5 Terry Garmey Speaks About Tucker Smith and the Campaign to Repair 4,000 Guards on OTIS Elevators; Smith Elliott Smith & Garmey; http://www.fairwarning.org/wp-content/uploads/2013/12/TuckerSmithArticle.pdf
6 Terry Garmey Speaks About Tucker Smith and the Campaign to Repair 4,000 Guards on OTIS Elevators; Smith Elliott Smith & Garmey; http://www.fairwarning.org/wp-content/uploads/2013/12/TuckerSmithArticle.pdf
the ASME Standard. A child or small adult can fit into those valleys, and when the hoistway (exterior) door is closed and the elevator moves, they can be seriously injured or killed. Some elevator designers, installers and others purportedly following the ASME A 17.1 5-inch rule do not take into account the extra space created by the valleys, which, in effect, can increase the gap by an additional three inches or more.

In 2003, the Otis Elevator Company, as part of a settlement with the family of an eight-year-old boy who died after becoming entrapped between elevator doors, launched a national safety campaign, equipping 4,000 elevators with space guards. Otis also sent letters to other manufacturers urging them to check the size of the gap between elevator doors and offered free space guards for Otis-manufactured elevators.7

Over the years, a number of tragic accidents have occurred on elevators with swing-type hoistway doors, including the deaths of numerous children. These accidents have demonstrated the safety risk posed by elevators with swing doors. If the hoistway door and car gate are both closed, the space between them would be wide enough to fit a child or small adult. Should the elevator be called up while the person is in that space, serious injury or death is likely to result. These tragedies can be avoided.8

In addition, Otis' Director of Worldwide Standards, Lou Bialy, highlighted the danger posed by this defect in a trade publication, Elevator World, entitled Space Between Swing Doors Collapsible Gates Still A Hazard.9 As recently as March 2014, elevator experts James Filippone and John Koshak reiterated the dangers of child entrapment in another Elevator World article entitled Solutions Needed to Ensure Children's Safety.

Safer and Feasible Alternative Designs

Safer design options reduce the gap between the hoistway and car doors. Such designs recognize the ergonomic factors that contribute to the hazard. For example, as the CPSC's own anthropometry data show, children's heads are larger than their bodies, and the most vulnerable children, ages 2-3.5 years, have head breadths of less than five inches.10

The CPSC and others have identified 4 inches as a key element of safe design in other contexts, such as the allowable space between staircase spindles, specifically to prevent head entrapment.11 The CPSC's Public Playground Safety Handbook recommends a more conservative maximum allowable gap of 3.5 inches, specifically to prevent a child's

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7 Letter to National Wheelovator; Raymond Moncini; Otis Elevator Company; December 8, 2003
8 Letter to National Wheelovator; Raymond Moncini; Otis Elevator Company; December 8, 2003
9 Space Between Swing Doors Collapsible Gates Still A Hazard; Lou Bialy; Elevator World; May 2003
10 Change in the Physical Dimensions of Children in the United States; U.S. Consumer Product Safety Commission; April 27, 1998
11 Ergonomics and Design Review; Rani Leuder; Helvey v. ThyssenKrupp Access Corporation; October 22, 2012
head from entering the space and becoming entrapped.\textsuperscript{12}

In addition, history shows that the design alternatives are feasible. From 1955, when ASME's first residential elevator code was published, until 1980, when the dimension was changed, the voluntary industry standard called for a maximum gap of 4 inches between the two doors.

Individual states have more stringent standards than those set by ASME. Massachusetts’ elevator code, for example, restricts any gap between the hoistway doors and the car doors or gates to 3 inches.\textsuperscript{13} In the state of Georgia, an effort to follow suit is underway. The amendment to the International Residential Code proposed by the State Fire Marshal’s office, which oversees elevator codes, reads:

> Passenger elevators, limited-use/limited-application elevators or private residence elevators shall have hoistway landing openings that meet the Georgia amended requirements of ASME A17.1 Sections 5.3.1.1 and 5.3.1.7.2. The clearance between the hoistway doors or gates and the hoistway edge of the landing sill shall not exceed 3/4 inch (19 mm). The distance between the hoistway face of the landing door or gate and the car door or gate shall not exceed 3 inches (75 mm).\textsuperscript{14}

This change is scheduled to be finalized by the Georgia Department of Public Affairs in November and go into effect in January 2015.

A reduction of the clearance is feasible because it does not change the manufacture of the elevator itself; rather it guides the installation of the hoistway door. Currently, in residential settings, the exterior door is typically set flush to the wall, like any other door in a home. This setting typically creates the excessive gap. Installers can exacerbate the gap by misinterpreting the 5” Rule in the voluntary standard as measuring the distance between the closest points between the doors, rather than the furthest point. In fact, manufacturers’ designs often instruct installers to measure between the hoistway door and the peak of an accordion car door, rather than to the valley. Those who do not take into account the extra space beyond the peak of the accordion door can create up to 8 inches of refuge space, which permits entry by a child.

Voluntary Standards Have Not Prevented Risk of Harm

In 83 years, the industry not only has failed to address the entrapment hazard, it actually increased the potential for injury and death by re-writing the voluntary standard to allow a wider gap between the hoistway and exterior door.

\textsuperscript{12} Public Playground Safety Handbook; U.S. Consumer Product Safety Commission; undated
\textsuperscript{13} ASME A17.1 Sections 5.3.1.1 and 5.3.1.7.2; 524 CMR Board of Elevator Regulations; PDF Pg. 214; September 28, 2012
\textsuperscript{14} Georgia State Amendments to the Residential Elevator Codes for One and Two-Family Dwellings; August 13, 2014
The voluntary ASME standard has failed to safeguard children from injuries and deaths. According to CPSC’s own figures, there were an estimated 1600 injuries associated with residential elevators in just a two-year period.

The most recent figures from CPSC’s NEISS system show that an estimated 1,600 injuries associated with residential elevators and lifts were seen in emergency departments from 2011 through 2012. CPSC only has jurisdiction over elevators customarily used by consumers in a residential setting. Some of those injuries included children becoming entrapped in the gap of residential elevators, tragically leading to fatalities and serious injuries. The agency has an active and ongoing compliance investigation regarding the safety of residential elevators and the entrapment hazard they can present. While CPSC investigates the role and responsibilities of manufacturers and installers when it comes to the safety of residential elevators, owners of residential elevators should take steps to ensure children do not have unsupervised access to in-home elevators. 15

In addition, the entrapment hazard has led to a number of child deaths. In the early 1990s, the Otis Elevator company revealed to the plaintiffs in a New Jersey case the deaths or severe injuries to 34 children from 1983-1993 in the southern New York and New Jersey area alone16 and an additional 16 deaths from 1947 to 1963.17 More recently, the petitioners are aware of five more deaths and two catastrophic injuries in which children were entrapped and crushed in residential elevators. 18

The ASME Voluntary Standards Process Has Been a Failure

The ASME standards-setting process has not produced a substantive change to the voluntary residential elevator standard in nine years of committee meetings, despite members repeatedly bringing up the excessive gap issue.

In 2005, the A-17 committee began discussing revisions to the “Clearance” section of the standard. Several members of the A-17 Committee lobbied to change the Clearance dimensions of the standard back to the original dimensions. Minutes of the committee meetings between September 2006 and June 2007 show that some committee members expressed concern about the hazardous gap permitted by the standard. However, the group rejected any proposals for revising the standard to require tighter clearances and more precisely described measuring points to ensure that home elevators would comply.19

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15 Email to The Safety Record Blog; Scott Wolfson; US Consumer Product Safety Commission ; August 27, 2013
16 The Elevator Design Hazard That’s Been Killing Children for Decades; The Safety Record Blog; July 11, 2013
17 Elevator Safety Flaws Persist, Despite History of Tragic Accidents; Shawn Hubler; Fair Warning; December 8, 2013
18 Appendix A; Elevator Entrapment Deaths and Injuries
19 A17 Residence Elevator Committee; Minutes; September 19, 2006- June 18, 2007
For example, Calvin Rogier, chief of the state of Michigan’s Elevator Safety Division, suggested that the language be modified to only allow for a 4-inch clearance, because when accordion doors are used, the clearance from the face of the hoistway door to the furthest part of the accordion door resulted in a clearance of 5.5-inches. At one such meeting, he said “The clearances between the car and the hoistway door must be reduced to provide an acceptable level of safety for the families using this device. Accidents dealing with this area have been deadly.”\(^\text{20}\)

Another committee member, Richard Gregory, an elevator consultant, described an incident that occurred in Michigan in which a 10-year-old boy who had slipped between the hoistway door and the accordion door was fatally crushed when the lift was called to a floor below. It would be easy to reduce clearances in elevators with wide gaps with products readily available on the market, he said in an email to the committee chairman.\(^\text{21}\)

“It's easy, it saves lives. So it should be done,” Gregory wrote.\(^\text{22}\)

Despite repeated attempts to persuade the majority of members that the excessive gap was a serious safety problem that resulted in a child’s death, the committee decided that the status quo should remain: “The committee feels assured that the measurement criteria presented will provide for adequate safety. In addition, the 5-inch dimension has been in the standard for many years.”\(^\text{23}\)

Not only has the subcommittee failed to revise the standard in order to adequately address this hazard, they recently considered making the Clearances section of the standard even more lenient. At the first quarterly meeting of 2013, the committee was poised to codify the latest revisions, which included measuring instructions that would have allowed designers to consider the shortest point when measuring the clearance, instead of the farthest point. Fortunately, a member of the larger standards committee made an impassioned and successful plea to reject the change.

More recently, the committee shelved a proposal to reduce the gap between the doors on existing elevators to a 4-inch maximum, while it awaits the results of an internal hazard analysis. Although the A17 committee had been looking at this issue since 2005, they just voted to perform a hazard analysis last year. The committee also weighed a proposal to clarify the rule and make explicit that the 5-inch maximum dimension/constraint must be measured between the farthest points between the doors - not the closest. Even if the Committee immediately approved both, any rule change is effectively delayed for another three years, when the next edition of the Elevator Safety Code is published.

\(^\text{20}\) A17 Residence Elevator Committee; Minutes; September 19, 2006- June 18, 2007; Carl Rogier; PDF Pg. 10; Responses to Letter Ballott #05-1123 Comments; November 28, 2005
\(^\text{21}\) Accordion Door Accident; email; Richard Gregory to Al Vershell; June 27, 2006
\(^\text{22}\) Accordion Door Accident; email; Richard Gregory to Al Vershell; June 27, 2006
\(^\text{23}\) A17 Residence Elevator Committee; Minutes; September 19, 2006- June 18, 2007; Carl Rogier; PDF Pg. 10; Responses to Letter Ballott #05-1123 Comments; November 28, 2005
We have no reason to believe that will happen. Nine years have elapsed since the ASME committee first considered modifying requirements for clearances. To date, the standard still has not been revised to effectively address the hazard. Clearly, industry has demonstrated its unwillingness to correct the problem on its own and there is insufficient industry buy-in supporting the change. For example, when one member suggested amending the rule to reflect that the measurements should be taken from the farthest points, it was rejected: “The Committee feels assured that the measurement criteria presented will provide for adequate safety.” 24 In another instance, a small group within the committee voted against the proposed rule, with one member arguing: “Those clearances between the car and hoistway doors must be reduced to provide an acceptable level of safety for the families using this device. Accidents dealing with this area have been deadly for those involved.” 25 Even when confronted with the history of child deaths, the response was: “The committee feels assured that the measurement criteria presented will provide for adequate safety. In addition, the 5” inch dimension has been in the standard for many years.” 26

More importantly, even if ASME A17 amends the rule, its adoption is not automatic. Any jurisdiction (whether city, county or state) may adopt any version of the A17 Elevator Safety Code. Many jurisdictions are decades behind. For example, some states today use the 2004 or older versions, even though there have been many subsequent versions. Other jurisdictions, such as South Carolina, do not have any code for residential elevators and do not require permitting or inspections for single family residential elevators. Children represent a vulnerable population who need the protection of a strong mandatory standard when the voluntary standards process has repeatedly failed to offer reasonable and feasible protections against potentially grievous injury.

The ASME’s standard-setting process, unfathomable delays and rationale for rejecting proposed changes is at odds with the purpose of developing a safety standard. Industry’s inaction is even more egregious given that methods for addressing the hazard are technologically and economically feasible and have been for many years. Further, to conclude that a standard should not be changed simply because it has existed for many years is not the result of a credible standards-writing process.

Ironically, the elevator industry has launched the homeSAFE (Safety Awareness for Elevators) Campaign, to increase home elevator safety awareness. The campaign is sponsored by Association of Members of the Accessibility Equipment Industry (AEMA), National Association of Elevator Contractors (NAEC), National Association of Elevator Safety Authorities International (NAESA) and ThyssenKrupp Access. The HomeSAFE Campaign recommends that homeowners make sure the gap between the accordion and swing doors be no more than 4 inches, even as the ASME committee refused to codify this advice into its own standards:

24 TN05-803 Residence Elevator Committee; Attachment 8C; Pg. 5
25 TN05-803 Residence Elevator Committee; Attachment 8C; Pg. 6
26 TN05-803 Residence Elevator Committee; Attachment 8C; Pg. 6
Measure the gap between the elevator door and the hoistway door to verify it is not wide enough for a child to become entrapped. ASME Codes require the space be no more than 5 inches; but for additional safety precautions, homeSAFE recommends the space between the hoistway door and cab gate is no more than 4 inches. Features such as space guards or special hoistway doors can help reduce the space between the elevator door and the hoistway door. Other safety devices such as light curtains also may help detect someone in the space between doors.27

Petition Request

The Petitioners hereby formally submit this Petition for Rulemaking under the authority and process set forth in 16 CFR § 1051 Procedure for Petitioning for Rulemaking and request the Commission to promulgate a mandatory standard that constrains the space between residential elevator hoistway doors and car doors/gates to 4 inches when measured from the inside of the hoistway door to the farthest point on the car door/gate (i.e., the valley for an accordion door).

Under Sec. 9 [15 U.S.C. § 2058] Procedure for Consumer Product Safety Rules, the Commission must meet certain criteria to commence a rulemaking: identify the product and the risk of injury associated with that product, ensure a rule is in the public interest, and consider the adequacy of any already existing voluntary standard in eliminating or adequately reducing an unreasonable risk.

The petitioners believe that the record clearly establishes the hazard — the entrapment risk posed by excessive space between the inner and outer elevator doors; the significant risk of injury and fatality; and the failure of the voluntary standard to mitigate or eliminate the hazard despite the feasibility of a technical fix.

To ensure the safety of existing elevators, the Petitioners also request that the Commission commence a recall to repair, requiring all manufacturers to retrofit existing elevators to prevent children and small adults from becoming entrapped. Several technologies exist to eliminate this hazard. For example, light curtains use light beams and sensors to detect a presence between the doors and interrupt the operation of the elevator if something or someone is in this space. This would prevent the scenario of the elevator car being called to another floor while a child is entrapped between the car door/gate and the hoistway door. Door baffles (or space guards) are another potential solution. These after-market space blockers fill the excess clearance space, removing the opportunity for children or small adults to fit themselves in the space between the car and hoistway doors.

The Petitioners appreciate the Commission's consideration of this request. We are available to discuss this petition at your convenience.

27 http://homesafecampaign.com/safe-home-elevator-installation/
Respectfully submitted,

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Interest of Petitioners
This petition is brought by three organizations on behalf of all children and their families affected by residential elevators:

The Safety Institute is a 501 (c) 3 non-profit organization whose focus is on injury prevention and product safety. The Safety Institute examines areas of injury prevention and product safety across a broad spectrum. The Institute bases its plans and priorities on issues that require greater study and emphasis, as well as those which may be underserved by other organizations and advocates. The Institute gives special attention to those areas of emerging importance to injury and product safety, including the effects of new and changing technologies.


Cash, Krugler & Fredericks, LLC is a law firm representing victims and their families in cases involving catastrophic injury and death. The firm pursues this petition on behalf of the families with whom they have worked whose children have suffered brain injuries, paralysis and other disabilities due to residential elevator hazards.
Appendix A

Elevator Entrapment Deaths and Injuries

According to CPSC statistics, there were an estimated 1,600 injuries associated with residential elevators in a two-year period. The following incidents are a small sample of the injuries and deaths:

1958: Three-year-old girl died, caught between the inner grill and outer door
San Francisco, California

- The three-year-old girl ran ahead to press the button for the automatic elevator as her babysitter prepared to leave;
- The elevator arrived at the fourth-floor and the outside door opened. The girl was caught between the inner grill and outer door, which closed behind her;
- Somebody pressed the button on another floor and the young girl was crushed to death.¹

1961: Seven-year-old boy died, crushed when he became wedged between the elevator door and the gate
Red Bank, New Jersey

- The seven-year-old boy who may have been playing or hiding from a playmate when the incident occurred, became wedged between the elevator door and the gate;
- The boy’s body was found wedged in the space between the door and the gate of the elevator, which was stuck between the third and fourth floors of the apartment building.²

1962: Three-year-old girl died, caught between the wall and the moving elevator
Brooklyn, New York

- Three-year-old girl was crushed to death between the wall and the moving elevator;
- Police said the victim somehow managed to get the inner door open and took hold the fourth-floor outer door as the self-service elevator descended in a Brooklyn apartment.³⁴

¹ Charleston Daily Mail, Thursday, May 8, 1958, Page 1; http://newspaperarchive.com/us/west­virginia/charleston/charleston-daily-mail/1958/05-08/
⁴ Toledo Blade, May 23, 1962; http://news.google.com/newspapers?id=1350&dat=19620523&id=RbxOAAAAIBAJ&sjid=MgEAAAAIBAJ&pg=6627,511812
1976: Seven-year-old boy died, trapped between the outer door and the wall of the elevator shaft
Newark, New Jersey

- The seven-year-old boy became trapped in the building's elevator between its outer door and the wall of the elevator shaft;
- The elevator was activated and the boy was dragged up to the third floor;
- Another child who was racing up a nearby stairway to beat the elevator opened it, saw the victim wedged within it, and ran to seek help;
- Rescue workers worked for four and one-half hours to free the child; he died while still trapped.5

1977: Ten-year-old girl; crushed in an elevator between the hoist way door and the gate
Yonkers, New York

- Ten-year-old girl was crushed in an elevator between the hoistway door and the gate. 6

1980: Seven-year-old boy sustained broken leg, bruising and scarring
Newark, New Jersey

- The seven-year-old boy was getting out of the elevator at a basement landing when he found himself trapped as the car gate closed behind him and the hoistway door was not open;
- Someone else called the car, and it ascended with the young boy stuck between the car gate and hoistway door. 7

1986: 12-year old boy died, trapped between elevator door and swing gate
Newark, New Jersey

- The 12-year-old boy became wedged between the swing hatch door and the elevator car gate;
- The elevator received an up call and traveled away from the basement landing, crushing the child between the wall immediately above the basement door header and the 2nd landing sill and leading edge of platform with toe guard. 8

5 Portee v. Jaffee | Leagle.com; http://leagle.com/decision/198017284NJ88_1169.xml/PORTEE%20v.%20JAFFEE
7 Liberty Mutual, accident report, December 9, 1980
8 Otis Elevator company, accident report, April 14, 1987
1997: **Four-year old girl died, caught between floors in a residential elevator**
Chicago, Illinois

- Four-year-old girl was caught between the floors of an elevator in a residential building;
- Her mother had gotten off before her and the other children pressed the call button.9

2001: **Eight year-old boy died, entrapped between swing door of residential elevator**
Bethel, Maine

- The 8-year-old boy pushed the call button and opened the swinging door; the door closed behind the boy; before he could open the collapsible gate a maid on the second floor pushed the call button, interlocking the outer door and trapping the child in the gap between the outer swing door and collapsible gate;
- The young boy was nearly decapitated and died in front of his family;
- The distance between the outer swing door and collapsible gate was seven inches.
- Otis settled and sent notices to the elevator industry about the hazard.10,11

2002: **Two sisters, ages six and seven died, heads crushed in residential elevator**
Monmouth County, New Jersey

- Two girls were lying down in the elevator with their heads partly across the threshold as the car rose;
- The safety feature was disabled allowing it to descend while the girls’ heads stuck out past the gate;
- They died when their heads were wedged against part of the shaft.12

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10 Space Between Swing Doors Collapsible Gates Still A Hazard; Lou Bialy; Elevator World; May 2003
11 Terry Garmey Speaks About Tucker Smith and the Campaign to Repair 4,000 Guards on OTIS Elevators; Smith Elliott Smith & Garmey; http://www.fairwarning.org/wp-content/uploads/2013/12/TuckerSmithArticle.pdf
2003: Ten-year-old boy died, entrapped and crushed in swing door of residential elevator equipped with an accordion door
Mass City, Michigan

- The ten-year-old boy got caught between the hoistway door and the accordion door;
- The elevator started going down crushing the boy who then suffocated;
- The distance to the peak of the accordion door was approximately 5", but valleys were much deeper;
- The family’s expert notified ASME A17 Residence Elevator Committee of this incident in 2006.¹³

2004: Five-year-old boy died, crushed between elevator door and hoistway door
Dallas, Texas

- The five-year-old boy entered the elevator with his two-year-old brother in their family’s multistory condominium;
- The accordion-style gate was not closed, allowing the boy’s body to be extended outside the door as the elevator started moving up;
- As the elevator ascended, his head was crushed by the second floor landing.¹⁴,¹⁵

2006: Eleven-year-old girl died, entrapped between the elevator and shaft walls
Carolina Beach, North Carolina

- The 11-year-old girl was thought to have entered and exited the elevator with another child;
- The owner of the residence went to use the elevator and was unable to open the door;
- The fire department was notified and upon responding and opening the downstairs elevator found the girl pinned in the elevator shaft between the elevator and shaft walls.¹⁶

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¹³ ASME A17 Residence elevator committee 2006 meeting minutes
¹⁵ The Dallas Morning News, Saturday June 19, 2004, Page 2B;
¹⁶ Caroline Beach Police Department, North Carolina, Incident/Investigation report July 23, 2006
2009: Nine-year-old boy died, pinned in an elevator shaft between the wall and the door 
Sturgis, Kentucky

- A nine-year-old boy attending his grandmother’s wedding ceremony died when he became pinned in a church elevator shaft;
- He wandered off by himself and was riding the elevator in the church sanctuary between the first and second floors;
- He became pinned between the elevator and the wall; there were no witnesses.\(^{17}\)

2010: Three-year-old boy suffered catastrophic brain injury, entrapped between hoistway door and accordion door 
Cummings, Georgia

- The three-year-old boy was entrapped between the hoistway (exterior) door and elevator accordion door;
- After child closed the hoistway door, the door automatically locked by way of an interlock;
- When mother hit the call button from the 3rd floor, the child was trapped in this space; the elevator rose toward the third floor and then stopped and re-leveled;
- The child was crushed by the elevator when it re-leveled down to the second floor;
- The distance between the hoistway door to accordion door varied by nearly 3”;
  - 4.875” to tip of the accordion door / 7.5” to valley of the accordion door;
- Injuries are catastrophic and permanent. Child diagnosed with an anoxic brain injury due to deprivation of oxygen for an extended period of time; he cannot communicate with the outside world or move in any meaningful way;
- This incident was reported to the CPSC on December 7, 2012.\(^{18}\)


\(^{18}\) Jacob Helvey, Elevator Incident report date, December 7, 2012; http://www.saferproducts.gov/ViewIncident/1289132
November 2013: Ten-year old boy suffered catastrophic brain injury and quadriplegia, entrapped and pinned under elevator car
Murrells Inlet, South Carolina

- Ten-year-old boy suffered a catastrophic brain injury when he became trapped in an Elmira residential elevator manufactured by Cambridge Elevating, Inc. out of Cambridge, Canada;
- As the elevator began to rise with the car gate open, the child peered over the edge of the car platform and down into the elevator shaft;
- As the car continued to rise, the child's head came into contact with the doorframe, pinning his head under the elevator car;
- The car continued to rise up to the third floor, where the child was found laying face down on the floor of the elevator car with his head and neck trapped under the car platform;
- The jaws of life were eventually required to rescue the child from the elevator;
- In addition to multiple fractures, he suffered catastrophic brain injury.\(^\text{19}\)

\(^{19}\) Jordan Nelson Elevator Incident report date September 5, 2014;
http://www.saferproducts.gov/ViewIncident/1427183
In January 1938, National Elevator Industry, Inc. (NEII®), then known as National Elevator Manufacturing Industries, Inc. (NEMI) issued a booklet containing data sheets known as Elevator Layout Standards. That first effort to standardize led to the establishment of the elevator code requirement for minimum capacities as stated in an early edition of the Elevator Layout Standards.

In establishing standards of elevator car sizes the capacity in pounds per square foot to which the platforms are loaded must form the basis for establishing the standard. The 1937 edition of the American Standard Safety Code for Elevators, A17.1, contained capacity and loading curves for passenger elevators. During the prior two years the Central Code Committee of NEMI made an exhaustive study of this subject. The Committee unanimously agreed that loadings beyond those shown in the A17.1 curves were not only possible, but also frequently occurred in practice. The Committee established a basis for determining the relationship between capacity and loading and derived an equation, which was approved by the Sub-Committee on Research, Recommendation and Interpretation of the Sectional Committee on a Safety Code for Elevators. The passenger elevator platforms listed in the data sheets conforms to the curve established by this equation, which became a part of the A17.1 Code. NEII published five editions of the Elevator Layout Standards. In 1983 the 6th edition was published as the Vertical Transportation Standards. The name reflected an expansion of the specifications in the document, to include dumbwaiters and escalators.

Since the operatorless elevator became the accepted standard for major office buildings, the performance of the equipment continues to receive increased attention. Once the elevator operator was removed, passengers expected better service and increased comfort. During the late 1950's specifications for elevator equipment became more detailed. Brake to brake flight times received great attention. In the early 1970's buildings became taller and car speed increased. Performance time and ride quality such as acceleration and deceleration, plus horizontal and vertical vibrations, became important standards. Noise produced by equipment has become important. Doors were expected to operate at the highest speed commensurate with safety, smoothness and sound level requirements. Modifications to existing equipment could adversely affect safety and life expectancy. Specifications that included performance requirements were often confusing, difficult to interpret, and may have been impossible to satisfy without exposing owners and contractors to possible public and contract liability. In 1994 a supplement to the NEII Vertical Transportation Standards was issued containing performance standards.

The 8th edition expanded on previous industry efforts to develop standards and guidelines. The standard also recognized the industry's transformation to provide hard metric equipment. Maintenance guidelines were included for the first time. The document was once again renamed: Building Transportation Standards and Guidelines, NEII – 1 - 2000.

In 2005, NEII concluded it could best serve the industry by converting NEII-1 to an electronic document that would be under continuous maintenance. When revisions or new material are available they can be published immediately, rather than wait for the next scheduled publication. NEII-1 is now available at www.neii.org. This edition of NEII-1, includes performance standards for machine-room less (MRL) elevators. Architectural and engineering standards for MRL elevator are not included. At this time, there is not sufficient similarity amongst MRL elevators to establish standards. Users needing MRL elevator architectural and engineering standards are advised to check out the NEII member companies' web sites, which can be accessed at http://www.neii.org/members1.cfm. Also added to NEII-1 are: temporary power guidelines; temporary power supply guideline form; electromagnetic compatibility guidelines; ASME A17.1/CSA B44 Code data plate checklist; seismic and flood requirement data form; destination oriented elevator performance terminology matrix and building conditions affecting escalator performance.

Architects, engineers, consultants, builders, owners, elevator suppliers and other individuals involved in the furnishing and installation of building transportation systems will find these standards an invaluable source of reference and information.

Commented [JV1]: “was” instead of “were”
Commented [JV2]: No comma
Commented [JV3]: No comma
Commented [JV4]: Add comma
Commented [JV5]: I still think this applies today unless we come out with an agreement based on the values OEMs entered on Attachment #2
Commented [JV6]: Colon instead of semicolon
The standards and guidelines in this document comply with the requirements in the following documents. When the local code authority has adopted requirements different from the following; conformance to the local code is required.

**REFERENCE DOCUMENTS**

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<th>TITLE</th>
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<td>ADA/ABA AG</td>
<td>American Disabilities Act/Architectural Barriers Act Accessibility Guidelines</td>
<td>US Access Board</td>
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<td>ADAAG</td>
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<td>ASCE/SEI 7-10</td>
<td>Minimum Design Loads for Buildings and Other Structures</td>
<td>ASCE</td>
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<td>Flood Resistant Design and Construction</td>
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<td>ASME A17.3-2008-2015</td>
<td>Safety Code for Existing Elevator and Escalators</td>
<td>ASME</td>
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<td>ASME A17.7-2007/CSA B44.7-07</td>
<td>Performance-Based Safety Code for Elevators and Escalators</td>
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<td>FGI</td>
<td>FGI Guidelines for Design and Construction of Health Care Facilities</td>
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<td>International Building Code</td>
<td>ICC</td>
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<td>IEEE-519-19922014</td>
<td>Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems</td>
<td>IEEE</td>
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<tr>
<td>ISO 8041-2005</td>
<td>Human Response to Vibration – Measuring Instrumentation</td>
<td>ANSI</td>
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<tr>
<td>NFPA 70-2011-2017</td>
<td>National Electrical Code®</td>
<td>NFPA</td>
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<td>NFPA 72-2010-2016</td>
<td>National Fire Alarm Code®</td>
<td>NFPA</td>
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<tr>
<td>UFAS</td>
<td>Uniform Federal Accessibility Standard</td>
<td>US GPO</td>
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# PROCUREMENT INFORMATION

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<th>ADDRESS AND PHONE NUMBER</th>
<th>ORGANIZATION</th>
<th>ADDRESS AND PHONE NUMBER</th>
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</table>
| ANSI         | American National Standards Institute, Inc.  
25 West 43rd Street  
New York, NY 10036  
Telephone: (212) 642-4900  
http://www.ansi.org | IEEE         | Institute of Electrical and Electronics Engineers, Inc.  
445 Hoes Lane  
P. O. Box 1331  
Piscataway, NJ 08855-1331  
Telephone (732) 981-1721  
Telephone (800) 678-4333  
http://www.ieee.org |
| ASCE         | American Society of Civil Engineers  
1801 Alexander Bill Drive  
Reston, VA 20191  
Telephone: (800) 548-2723  
http://www.asce.org | NFPA         | National Fire Protection Association  
1 Batterymarch Park  
P. O. Box 9101  
Quincy, MA 02269-9101  
Telephone (617) 770-3000  
http://www.nfpa.org |
| ASME         | ASME Order Department  
22 Law Drive  
Box 2300  
Fairfield, NJ 07007-2300  
Telephone (201) 882-1167  
Telephone (800) 843-2763  
http://www.asme.org | US ATBCB     | United States Access Board  
131 F Street, NW, Suite 1000  
Washington, DC 20004-1111  
Telephone (202) 272-0020  
http://www.access-board.gov |
| CSA          | Canadian Standards Association  
178 Rexdale Boulevard  
Etobicoke, Ontario M9W1R3 Canada  
Telephone (416) 747-4044  
Telephone (800) 463-6727  
Superintendent of Documents  
Washington, DC 20402  
Telephone (202) 512-1800  
Telephone (866) 512-1800  
http://www.gpo.gov |
| FGI          | Facilities Guidelines Institute  
1919 McKinney Avenue  
Dallas, TX 75201  
http://www.fgiguidelines.org | ICC          | International Code Council  
5203 Leesburg Pike, Suite 600  
Falls Church, VA 22041  
Telephone (703) 931-4533  
http://www.intlcode.org |
ARCHITECTURAL STANDARDS COMMITTEE

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Randy Leckman, Otis Elevator Company
Brian Schleeter, KONE Inc.
Sheila N. Swett, International Association of Elevator Consultants
Javier Varona, Schindler Elevator Corporation

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Barry Blackaby, Otis Elevator Company
Frank D'Angelo, National Association of Elevator Contractors
Doug Henderson, ThyssenKrupp Elevator Corporation
Jay Popp, International Association of Elevator Consultants
Vincent Robibero, Schindler Elevator Corporation
Tony Shelton, KONE Inc.

Karen Penafiel
NEII Executive Director
The 1996 edition of A17.1 requires the installation of a Code Data Plate when an alteration is made. The requirement reads as follows:

Rule 1200.6 Code Data Plate

A data plate that indicates the Code and edition in effect at the time of installation shall be provided. The data plate shall also specify the Code and edition in effect at the time of alteration and the Rule(s) in Part XII that were complied with. The data plate shall be in plain view, securely attached on the mainline disconnect or on the controller.

The data plate shall be of such material and construction that the letter and figures stamped, etched, cast, or otherwise applied to the face shall remain permanently and readily legible. The height of the letters shall be not less than ⅛ in. (3.2 mm).

The requirements for the Code Data Plate are given in ASME A17.1 - 2000 (CSA B44-00) and later editions in 8.7.1.8, which in turn refers to 8.6.1.5, then to 8.9. The requirements are similar to those given in ASME A17.1 - 1996 Rule 1200.6. See A17.1/CSA B44 for complete information.

Additional requirements for the Code Data Plate are found in A17.7/CSA B44.7, Section 2.11.2 which states the Code Data Plate shall include the following statement: "This elevator complies with ASME A17.7/CSA B44.7. See Maintenance Control Program."

Following are two “Checklists” that list the various code requirements that are usually involved with a modernization project. In code language, modernization is called an alteration. One checklist applies to Electric Elevators. The other applies to Hydraulic Elevators. These two types of equipment are involved in the majority of alterations. In many jurisdictions, the code does not become effective until it is officially adopted. Therefore, two columns of requirements are provided. One lists the Code Rules from the 1996 Edition, including the 1997, 1998, 1999 and 2000 Addenda. The second lists the various requirements from ASME A17.1 – 2000 (CSA B44-00) and later editions. Be sure to use those that apply to the code in force where the equipment is located.

ASME A17.1 – 1996 Table 1200 has been relocated to Appendix "L" in the A17.1 - 2000 (CSA B44-00) and later editions. These tables will simplify the task of locating the various requirements that apply to each individual project.

The intention of these “Checklists” is to provide a tool for the contract engineer or contract processor to ensure compliance with ASME A17.1/CSA B44. The checklists will also provide the data for the person who will prepare the data tag. Please note that the actual material and construction of the tag is in code language, therefore provides a broad selection for the actual tag. In most cases, we expect the mechanic will prepare and install the tag.
Enter the Code under which the elevator was installed and the Code under which the elevator had been previously altered: ____________________________________________________________

<table>
<thead>
<tr>
<th>If alteration is made to:</th>
<th>A17.1 1996 with Addenda Part XII</th>
<th>A17.1 – 2000 and later Section - 8.7</th>
<th>Applies, check here</th>
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<tbody>
<tr>
<td>Alterations - General Requirements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When any alteration is made, the entire installation must conform to ASME A17.3 - 1996 with Addenda</td>
<td>1200.1</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Tests after alteration must conform to Part X or Section 8.10</td>
<td>1200.3</td>
<td>8.7.1.3</td>
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</tr>
<tr>
<td>Welds made where support is involved</td>
<td>1200.4b &amp; 1200.4c</td>
<td>8.7.1.4</td>
<td>8.7.2.14.5</td>
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<tr>
<td>Removal of emergency stop switch - in car stop switch</td>
<td>1200.5b</td>
<td>8.7.2.14.5 or 8.7.2.27.2</td>
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<tr>
<td>Door reopening device as part of alteration</td>
<td>1200.5d</td>
<td>8.7.2.13</td>
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<tr>
<td>Temporary wiring</td>
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<tr>
<td>Alteration in Hoistway or Pit</td>
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<td>Hoistway enclosure, or addition of elevator to hoistway, or alteration of hoistway vent/fan</td>
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<td>Location or guarding of counterweight</td>
<td>1201.4</td>
<td>8.7.2.3</td>
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<td>Pit</td>
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<td>Vertical car or counterweight clearances and runby</td>
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<td>Horizontal car or counterweight clearances</td>
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<td>Space below car or counterweight</td>
<td>1201.9</td>
<td>8.7.2.6</td>
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<td>Hoistway entrances (doors, sills, tracks, hangers, etc.)</td>
<td>1201.10</td>
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<td>Hoistway door locks or access switches</td>
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<td>Power door operation (motor) (engine)</td>
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<td>8.7.2.12</td>
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<td>Rails or rail supports</td>
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<td>Buffers or bumpers</td>
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<td>Counterweight</td>
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<td>Speed governors or governor ropes</td>
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<td>8.7.2.19</td>
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<td>Travel (rise) of elevator</td>
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<td>Car frame or platform</td>
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<td>Car or counterweight safeties</td>
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<td>8.7.2.9</td>
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<td>Speed governors or governor ropes</td>
<td>1202.7</td>
<td>8.7.2.19</td>
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<th>A17.1 - 2000 and later Section 8.7</th>
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<td>Welds made where support is involved</td>
<td>1200.4b &amp; 1200.4C</td>
<td>8.7.1.4 &amp; 8.7.1.5</td>
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<td>Removal of emergency stop switch - in car stop switch</td>
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<td>Door reopening device as part of alteration</td>
<td>1200.5d</td>
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<td>Temporary wiring</td>
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<td>Alteration in Hoistway or Pit</td>
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<td>Hoistway enclosure, or addition of elevator to hoistway, or alteration of hoistway vent/fan</td>
<td>1203.1</td>
<td>8.7.3.1</td>
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<td>Hoistway electrical equipment, wiring, pipes, or ducts</td>
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<td>8.7.3.2</td>
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</tr>
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<td>Vertical car or counterweight clearances and runby</td>
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<td>8.7.3.5</td>
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</tr>
<tr>
<td>Space below car or counterweight</td>
<td>1203.1i</td>
<td>8.7.3.6</td>
<td></td>
</tr>
<tr>
<td>Hoistway entrances (doors, sills, tracks, hangers, etc.)</td>
<td>1203.1j</td>
<td>8.7.3.10</td>
<td></td>
</tr>
<tr>
<td>Hoistway door locks or access switches</td>
<td>1203.1k</td>
<td>8.7.3.11</td>
<td></td>
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<tr>
<td>Power door operation (motor) (engine)</td>
<td>1203.1m</td>
<td>8.7.3.12</td>
<td></td>
</tr>
<tr>
<td>Rails or rail supports</td>
<td>1203.2</td>
<td>8.7.3.28</td>
<td></td>
</tr>
<tr>
<td>Buffers or bumpers</td>
<td>1203.2b</td>
<td>8.7.3.27</td>
<td></td>
</tr>
<tr>
<td>Counterweight</td>
<td>1203.2c</td>
<td>8.7.3.26</td>
<td></td>
</tr>
<tr>
<td>Speed governors or governor ropes</td>
<td>1203.2g</td>
<td>8.7.3.16</td>
<td></td>
</tr>
<tr>
<td>Driving machine (plunger and cylinder) (jack assembly)</td>
<td>1203.3</td>
<td>8.7.3.23.1, 8.7.3.23.2, 8.7.2.23.3 &amp; 8.7.2.23.5</td>
<td></td>
</tr>
<tr>
<td>Increase in working pressure (this rule appears in two places - hoistway-pit and machine room)</td>
<td>1203.3d</td>
<td>8.7.3.23.4</td>
<td></td>
</tr>
<tr>
<td>Travel (rise) of elevator</td>
<td>1203.4a</td>
<td>8.7.3.22.1</td>
<td></td>
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<tr>
<td>Alteration to the Car</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car frame and platform</td>
<td>1203.2d</td>
<td>8.7.3.14</td>
<td></td>
</tr>
<tr>
<td>Car enclosure (cab), car doors or gates, or car illumination</td>
<td>1203.2e</td>
<td>8.7.3.13</td>
<td></td>
</tr>
<tr>
<td>Car or counterweight safeties</td>
<td>1203.2f</td>
<td>8.7.3.15</td>
<td></td>
</tr>
<tr>
<td>Car capacity, loading or classification</td>
<td>1203.2i, 1203.2j, 1203.2k</td>
<td>8.7.3.17, 8.7.3.18, 8.7.3.19 &amp; 8.7.3.20</td>
<td></td>
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<tr>
<td>Change in dead weight of car</td>
<td>1203.2m</td>
<td>8.7.3.21</td>
<td></td>
</tr>
<tr>
<td>Alteration to Machinery Spaces, Machine Room, Control Spaces and Control Room</td>
<td>1203.1b</td>
<td>8.7.3.7</td>
<td></td>
</tr>
<tr>
<td>If alteration is made to:</td>
<td>A17.1-1996</td>
<td>A17.1 - 2000 and later</td>
<td>Applies, check here</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
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<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Machinery Spaces, machine room, control spaces and control room electrical equipment, wiring pipes or ducts</td>
<td>1203.1c</td>
<td>8.7.3.8</td>
<td></td>
</tr>
<tr>
<td>Alterations to machinery or sheave beams, supports or foundations for power unit. Note: Under the 1996 Code, the plunger and cylinder are called the driving machine</td>
<td>1203.1e</td>
<td>8.7.3.9</td>
<td></td>
</tr>
<tr>
<td>Speed governors or governor ropes</td>
<td>1203.2g</td>
<td>8.7.3.16</td>
<td></td>
</tr>
<tr>
<td>Increase in working pressure (this rule appears in two places - hoistway-pit and machine room)</td>
<td>1203.3d</td>
<td>8.7.3.23.4</td>
<td></td>
</tr>
<tr>
<td>Relocation of power unit (pump, valve &amp; tank)</td>
<td>1203.3f</td>
<td>8.7.3.23.6</td>
<td></td>
</tr>
<tr>
<td>Rated speed</td>
<td>1203.4</td>
<td>8.7.3.22.2, 8.7.3.22.3</td>
<td></td>
</tr>
<tr>
<td>Installation of valve of different type (replacement of discrete valves with a block type is not an alteration)</td>
<td>1203.5</td>
<td>8.7.3.24</td>
<td></td>
</tr>
<tr>
<td>Tank</td>
<td>1203.6</td>
<td>8.7.3.29</td>
<td></td>
</tr>
<tr>
<td>Terminal stopping device</td>
<td>1203.7</td>
<td>8.7.3.30</td>
<td></td>
</tr>
<tr>
<td>Controller, power supply, top of car inspection control</td>
<td>1203.8</td>
<td>8.7.3.31</td>
<td></td>
</tr>
<tr>
<td><strong>Labeled and listed devices</strong></td>
<td><strong>1203.8</strong></td>
<td><strong>8.7.3.31.4</strong></td>
<td></td>
</tr>
<tr>
<td>Change in type of control (motion control)</td>
<td>1203.8</td>
<td>8.7.3.31.6</td>
<td></td>
</tr>
<tr>
<td>Change in type of operation</td>
<td>1203.8</td>
<td>8.7.3.31.7</td>
<td></td>
</tr>
<tr>
<td>Emergency operations and signaling</td>
<td>1203.8h</td>
<td>8.7.3.31.8</td>
<td></td>
</tr>
<tr>
<td>Auxiliary power lowering unit</td>
<td></td>
<td>8.7.3.31.9</td>
<td></td>
</tr>
</tbody>
</table>
PART 2
ARCHITECTURAL
AND ENGINEERING
METRIC LAYOUT
STANDARDS

NEII - 1
Building Transportation Standards and Guidelines
ARCHITECTURAL AND ENGINEERING
METRIC LAYOUT STANDARDS

1.0 INTRODUCTION AND SCOPE:

This eighth edition of the National Elevator Industry, Inc. (NEII) Building Transportation Standards and Guidelines, NEII-1 provides dimensional data for a wide range of passenger, hospital, freight, observation, LU/LA and private residence elevators (both overhead and basement machine drive) requirements for electric and hydraulic system applications plus dumbwaiters, moving walks and escalators. Also furnished in this edition is a guide for usage, metric conversion assistance and specification and drawing checklists.

This edition illustrates typical arrangements of elevators. A single car can be accommodated in a hoistway by using the clear inside dimension. Conversely, additional cars can be accommodated by adding clear inside hoistway dimensions plus allowance for divider beams. Check the pages of this standard for elevator machine rooms for overhead machinery space and arrangement with respect to the interior hoistway wall lines. Consult elevator supplier if assistance is required.

2.0 ACCESSIBILITY:

The Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines (ADA/ABA AG); Americans with Disabilities Accessibility Guidelines for Buildings and Facilities (ADAAG); the American National Standard for Accessible and Usable Buildings and Facilities, ICC/ANSI A117.1; and the Uniform Federal Accessibility Standard (UFAS), require elevators to be wheelchair accessible. The elevator must have sufficient space for wheelchair users to enter the car, maneuver within reach of controls and exit from the car. Elevators with car dimensions and entrance types, which provide wheelchair accessibility, conforming to the above standards, are identified by Note (c) or (d).

The information regarding their requirements contained in these standards are only to be used as general guidelines. It shall be the user’s responsibility to check and comply with all applicable codes and regulations.

3.0 NOMENCLATURE MATRIX:

<table>
<thead>
<tr>
<th>ELEVATORS</th>
<th>DIMENSIONS</th>
<th>DESIGNATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO-4190</td>
<td>NEII-1</td>
<td></td>
</tr>
<tr>
<td>CAR</td>
<td>Width</td>
<td>(b_1)</td>
</tr>
<tr>
<td>Depth</td>
<td>(d_1)</td>
<td>(d1)</td>
</tr>
<tr>
<td>Height</td>
<td>(h_4)</td>
<td>(h4)</td>
</tr>
<tr>
<td>ENTRANCE</td>
<td>Width</td>
<td>(b_2)</td>
</tr>
<tr>
<td>Height</td>
<td>(h_3)</td>
<td>(h3)</td>
</tr>
<tr>
<td>HOISTWAY</td>
<td>Width</td>
<td>(b_3)</td>
</tr>
<tr>
<td>Depth</td>
<td>(d_2)</td>
<td>(d2)</td>
</tr>
<tr>
<td>Overhead</td>
<td>(h_1)</td>
<td>(h1)</td>
</tr>
<tr>
<td>Pit Depth</td>
<td>(d_3)</td>
<td>(d3)</td>
</tr>
<tr>
<td>MACHINE ROOM</td>
<td>Width</td>
<td>(b_4)</td>
</tr>
<tr>
<td>Depth</td>
<td>(d_4)</td>
<td>(d4)</td>
</tr>
<tr>
<td>Height</td>
<td>(h_2)</td>
<td>(h2)</td>
</tr>
<tr>
<td>RATED SPEED</td>
<td>(V_n)</td>
<td>(Vn)</td>
</tr>
</tbody>
</table>
4.0 IMPERIAL AND METRIC REFERENCE CHARTS:

The following charts show the acceptable hard metric units for the commonly used imperial units. This is not a direct conversion but should be used as a reference to assist in selecting hard metric equipment.

<table>
<thead>
<tr>
<th>ELEVATOR CAPACITY</th>
<th>ELEVATOR SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPERIAL</td>
<td>METRIC</td>
</tr>
<tr>
<td>lb</td>
<td>kg</td>
</tr>
<tr>
<td>ft/min</td>
<td>m/s</td>
</tr>
<tr>
<td>2000</td>
<td>900</td>
</tr>
<tr>
<td>2500</td>
<td>1000</td>
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<tr>
<td>3000</td>
<td>1275</td>
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<tr>
<td>3500</td>
<td>1600</td>
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<tr>
<td>4000</td>
<td>1800</td>
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<td>4500</td>
<td>2000</td>
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<td>5000</td>
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<td>8000</td>
<td>3500</td>
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<td>10000</td>
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<td>500</td>
<td>1300</td>
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<tr>
<td>700</td>
<td>1800</td>
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<tr>
<td>1000</td>
<td>2100</td>
</tr>
<tr>
<td>1200</td>
<td>2400</td>
</tr>
</tbody>
</table>

CAUTION: These units are not intended to be used interchangeably.

5.0 DIMENSIONS:

Dimensions “b1” and “d1” are finished inside car dimensions. All dimensions need to be verified with the elevator, escalator or moving walk supplier prior to commencing construction of the hoistway or wellway.
PART 5
PERFORMANCE STANDARDS AND DEFINITIONS (METRIC AND IMPERIAL)
1.0 INTRODUCTION:

The industry requires performance standards that are clearly stated, easily applied and accepted by contractors, consultants and building owners. The National Elevator Industry, Inc. Building Transportation Standards and Guidelines have for many years solved mechanical and space requirement problems. The NEII® Performance Standards and Definitions are intended to reduce problems of compliance in the performance area. The NEII Performance Standards and Definitions in NEII®-1 are not to be confused with the Performance-Based Safety Code for Elevators and Escalators, ASME A17.7/CSA B44.7.

In 1992, the NEII Board of Directors authorized formation of a Committee with the following purpose and objective:

- To develop standards that can be used by the industry as guidelines for elevators, escalators and moving walks to achieve acceptable performance while maintaining code and safety compliance.

The Committee included representatives from the NEII member companies, the Code & Safety Consultant to NEII, National Association of Elevator Contractors, International Association of Elevator Consultants and Elevator World. The Committee members provided expertise in all areas of the elevator industry:

- Codes and Safety
- Consulting
- Engineering
- Field Practices
- Sales

The Committee agreed that performance terms must be defined and measurement methods must be developed before overall performance standards could be issued. The Committee also concluded that standards must be based on product lines, equipment class and vintage. This standard has been critiqued by numerous NEII members and approved by the NEII Central Code Committee.

The standards contained in this document reflect equipment limitations. Performance requirements beyond these standards may increase the cost of equipment. Increased liability exposure, non-code conformance, increased maintenance costs and reduced life expectancy may also be experienced.

2.0 SCOPE:

The performance standards that follow apply to new elevators, escalators and moving walks installations. These standards may apply to existing elevators, escalators and moving walks when modernized.

Refer to the Part 6 Modernization and Part 7 Maintenance for existing installations guidelines.
PRE-MODERNIZATION PERFORMANCE EVALUATION
FORM

ELEVATOR IDENTIFICATION NUMBER: _______________________________________________________
SYSTEM TYPE: __________________________ BUILDING: ______________________________________
ADDRESS: __________________________________ CITY: __________________________ STATE: _________
CAPACITY (kg)(lb):_________ SPEED (m/s)(ft/min):_________ STOPS: _______ OPENINGS: ________
RISE (m)(ft-in.):_____________ DOOR TYPE: ______________ DOOR OPENING (mm)(ft-in.): _____________
POWER: V____ A________ PHASE: _______ Hz: _______ NUMBER OF WIRES: _______________
CAR INSIDE (ft – in.) (mm) WIDTH: ___________________ DEPTH: ____________________________

<table>
<thead>
<tr>
<th></th>
<th>Existing Measurement</th>
<th>Notes</th>
<th>Standard Specification</th>
<th>Deviation</th>
<th>Limiting Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MOTION:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acceleration (m/s²) or (ft/s²)</td>
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<tr>
<td>Deceleration (m/s²) or (ft/s²)</td>
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<tr>
<td>Contract Speed Regulation (± %)</td>
<td></td>
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<tr>
<td>Vertical Vibration Z axis (milli-g)</td>
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<tr>
<td>Horizontal Vibration - (S/S) Y axis (milli-g)</td>
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<tr>
<td>Horizontal Vibration - (F/B) X axis (milli-g)</td>
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<tr>
<td>Stopping Zone (mm) or (in.)</td>
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<tr>
<td><strong>TIMING:</strong></td>
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<tr>
<td>Performance Time (s)</td>
<td></td>
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<tr>
<td>Door Opening Time, Nominal (s)</td>
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<tr>
<td>Door Closing Time (s)</td>
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<tr>
<td><strong>SOUND:</strong></td>
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<tr>
<td>Door Sound - Opening (dBA)</td>
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<tr>
<td>Door Sound - Closing (dBA)</td>
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<tr>
<td>Door Sound - Reversal (dBA)</td>
<td></td>
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<tr>
<td>Sound in Car at Rated Speed (dBA)</td>
<td></td>
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<tr>
<td>Sound in Stopped Car, Door Closed, Fan On (dBA)</td>
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</tr>
<tr>
<td>Sound in Machinery Spaces, Machine Room, Control Spaces and Control Room (dBA)</td>
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</tr>
</tbody>
</table>

**NOTES:**
1. Use separate form for each elevator.
2. Typical measurements taken with a maximum of two people in the car.
3. Circle unit of measurement used in completing this form.
4. "Notes" reference individual user comments on attached separate sheet on factors that may affect compliance with contract specifications.
5. Also complete "Pre-Modernization Checklist".

Name __________________________ Date __________________________

23-Nov-11

Add to performance definitions:

**Term:** Starts Per Hour (SPH)

**Definition**

1) A specification for the duty required of the elevator equipment expressed as the number of starts from a landing over a period of one hour.

2) A corresponding rating of elevator equipment, typically that of the elevator hoist machine or hydraulic pump unit.

**How measured:** Specified as number of SPH: e.g. 180 or 240

**Equipment Accuracy**

Add to end of Part 4:

**Starts Per Hour (SPH) Guidelines:**

In order to provide robust equipment that is rated to perform during peak building traffic periods and so that the elevator equipment will provide the expected service life and value, elevator specifications may require a minimum capability for elevator SPH.

As a point of reference, hydraulic power units may be required to operate at 80 or 120 SPH while electric elevators typically might be required to operate at 180 or even 240 SPH. For typical building floor heights and required flight time including door open and close time, 240 SPH is the practical maximum for electric elevators.

Correspondingly, elevator equipment hydraulic power units, electric motors, drives) must be able to operate at the defined SPH duty and machinery space ambient temperature maximum while not exceeding the design attribute for maximum operating temperature. The elevator equipment is then said to be “rated” at X SPH.

For elevator manufacturers, the SPH rating is justified and ensured by third party certification as required by the elevator safety Code. In accordance with applicable standards, elevator hoist machine motors are thermally tested at the determined full load electrical terminal values (motor amps and volts). The thermal test is completed once temperature rise stability is satisfied. If the maximum measured temperature rise above ambient is less than the maximum allowable operating temperature for the motor insulation materials, as adjusted for maximum machinery space ambient, then the motor can be rated to be applied at that level of RMS thermal load.

The RMS load can then be associated to SPH considering peak acceleration and flight time specifications. Manufacturers then apply motors to jobs within these constraints. Therefore motor operating temperature in application will be less than CSA thermally tested limit as long as RMS duty is less than the rated duty.

**Relationship to Machine Insulation Systems Ratings:**

The maximum hot-spot operating temperature is reached by adding the rated ambient temperature of the machine (often 40°C), a temperature rise, and a 10 °C hot-spot allowance. Electrical machines are usually designed with an average temperature below the rated hot-spot temperature to allow for acceptable life. Insulation does not suddenly fail if the hot-spot temperature is reached, but useful operating life declines rapidly; a rule of thumb is a halving of life for every 10 °C.

Insulation materials used in the construction of motors have advanced to the point where acceptable motor operating temperature is much higher than it was previously. Class F (Class 155) insulation materials are commonly
used in elevator motor designs. This means that if the maximum machinery space ambient temperature does not exceed 40 C, then with some design margin, the allowable temperature rise of the motor is 105 degrees C.

This rating can then be applied to the elevator design considering overall system mass and performance requirements. (i.e. flight time)

Average Load versus worst Case:

The SPH rating of motors can be based on average load or full load. The maximum SPH thermal condition is realized intermittently, only during Up/Down peak periods.
The Division of the State Architect (DSA) has received a large number of suggested code amendments and has conducted a preliminary review and categorization of these items. The following categorized lists reflect staff’s preliminary categorization and may be revised. The categorized items are presented in no particular order and do not imply that DSA is or is not planning to develop them for formal submittal to the Building Standards Commission.

**STATE LEGISLATIVE MANDATE**

1. 11B-226.5(?) Adult Changing Places/Facilities – Add scoping and/or technical requirements as applicable.

**NEEDED TO COMPLY WITH FEDERAL STANDARDS**

1. Add new Public Rights-of-Way Accessibility Guidelines upon adoption by USDOJ.
2. Add new Outdoor Developed Areas requirements upon adoption by USDOJ.

**PETITIONS AND ITEMS REFERRED BY THE BUILDING STANDARDS COMMISSION**

1. Consider Chapter 2 definition of “Equivalent facilitation”
2. Consider Chapter 2 definition of “Reasonable portion”
3. Consider Chapter 2 definition of “Accessible route”
4. Consider Chapter 2 definition of “Technically infeasible”
5. Consider Chapter 4, Section 419.7 “Live / work units accessibility”
6. Consider Chapter 9, Section 11B-908.4.2.2 “Manual fire alarm boxes – height”
7. Consider Chapter 11B, Section 11B-202.4 Exception 2 Path of travel requirements “preceding edition”

**ITEMS IDENTIFIED BY STAKEHOLDERS AND/OR STAFF**

**Chapter 2 Definitions**

1. Revise definition of “accessible” - consider deleting use of derogatory term “persons with disabilities”.
2. Revise definition of “accessible route” - consider deleting use of derogatory term “persons with disabilities”.
3. Revise definition of “alteration” to align with new definition of “adjusted construction cost” – consider last sentence, “Normal maintenance, reroofing, painting or wallpapering, or changes to mechanical and electrical systems are not alterations unless they affect the usability of the building or facility.”
4. Revise definition of “alteration” to capitalize the term “occupancy” and/or add the word “group” to indicate the term refers to the Occupancy Groups of CBC Chapter 3.
5. Revise the definition of “assembly area” to clarify what is meant by the term “public meeting rooms”, specifically are public meeting rooms considered public use areas for use by the general public versus employee meeting rooms or team rooms?
6. Revise the definition of “assembly area” to add language to indicate assembly area is any place two or more may assemble; and assembly areas may occur in any occupancy.
7. Revise new definition of SIGN to include “displayed verbal information” consistent with 2013 CBC definition of SIGNAGE.
8. Revise the definition of “technically infeasible” – the phrase “other existing physical or site constraints” is vague, without clear definitions, and requires subjective interpretation.
9. Revise definitions to clarify relationship or difference between WORKSTATION (one or a small number of employees) and COMMON USE (two or more people).

Chapter 9 – Fire Protection Systems
10. 907.4.2 Manual fire alarm boxes – Clarify access requirements.
11. 907.4.2.2, Exception, Manual fire alarm boxes – Should exception exempting height of existing fire alarm boxes continue to be carried forward in future cycles.

Chapter 10 – Means of Egress
12. 1010.1.5 Exception 6 – Door, floor elevation – correct bad reference to Section 1103.2.9.
13. 1013.4 Raised character and braille exit signs - Delete reference to Section 1013.1 within item 5.

Chapter 11B – Accessibility to Public Buildings, Public Accommodations, Commercial Buildings and Public Housing
14. Division 2 Scoping – Add Chapter 2 scoping requirements and Chapter 6 technical requirements for eye-wash stations.
15. 11B-202.4 Path of travel – add: “If the primary path of travel is fully compliant, then additional paths of travel shall be considered until a site, complex, campus or other facility are fully accessible and compliant.”
16. 11B-202.4 Path of travel Exception for seismic mitigation – Further study exception limiting access upgrades when there is a seismic mitigation project in an existing building.
17. 11B-202.4 Path of travel Exception for seismic mitigation – Don’t reduce regulations for alterations or earthquake safety.
18. 11B-202.4 Exception 7 Path of travel – Add fire sprinklers, fire suppression systems, and fire alarm systems to list of projects that do not trigger path of travel requirements.
19. 11B-203.9 Employee workstations – Clarify scoping requirements for electrical switches & receptacles in private offices – see related items for 11B-308.1.1 and 11B-308.1.2.
20. 11B-206.2.1 Site arrival points – Add language to prohibit accessible routes from going behind parked vehicles.
21. 11B-206.2.1 Exceptions 2 & 3 Site arrival points – Rescind Exceptions 2 & 3
22. 11B-206.2.3.2 Distance to elevators – Section requires elevators to be within 200’ of travel of each stair. Clarification needed to indicate where on the stairway the measurement begins. Use of “stairway” rather than “stair” may be helpful.
23. 11B-206.2.4 Spaces and elements – Clarify the meaning/intent of the phrase “unless exempted by Section 11B-206.2.3, Exceptions 1 through 7” as it relates to mezzanines – is accessibility always required or can the elevator exceptions be applied? 11B-206.2.3 Multi-story buildings and facilities, Exception 1 provides an exception for certain types of multi-story buildings.
24. 11B-206.2.8 Employee work areas – Coordinate with the terminology of related section 11B-203.9, specifically circulation paths located within “employee workstations” vs “employee work areas”.
25. 11B-206.4.1 Accessible routes, Entrances - Possible conflict between 11B-206.4.1 and 11B-206.4.4, 11B-206.4.6, 11B-206.4.8, and 11B-206.4.9; does requirement for all entrances to be accessible override case-specific requirements?
26. 11B-206.4.8 Service entrances – Clarify requirements for service entrances. Example: at truck loading docks are service entrances required to comply? …accessible route from the truck well to the entrance?
27. 11B-208 & 11B-501 – Develop requirements for curbside van accessible parking
28. 11B-208.3.1 Parking spaces, Location, General (and 11B-502.5) – Is Exception 1 (permitting van parking spaces to be grouped on one level within multi-story parking facilities) applicable to all facilities or just existing facilities? See related proposed code change for 11B-502.5 Vertical Clearance.
29. 11B-209 Passenger drop-off and loading zones and bus stops – Terminology was changed from “passenger loading zone” to “passenger drop-off and loading zone” in previous code cycle – coordinate the terminology of 11B-206.2.1 (1 location); 11B-206.4.10 (2 locations); 11B-208.1, Exc (1 location); 11B-503.5 (2 locations).
30. 11B-213.3.1 Toilet compartments – add new exception to require women’s toilet rooms to provide an ambulatory toilet compartment, even if it has fewer than six water closets, when an adjacent men’s toilet room is required to provide an ambulatory toilet compartment.
31. 11B-216 Signs – 11B-703.7.2.7 provides technical requirements for pole-supported pedestrian traffic-control buttons – should Division 2 also provide scoping requirements?
32. 11B-216.1 – Signs in detention and correctional facilities – Amend exception to clarify public use areas means open to the general public, such as visiting or parole hearing facilities.

33. 11B-216.1 Exception 1 Signs, General – Do not exempt building directories.

34. 11B-216.5 Parking – add exception to not require accessible parking spaces to be identified in parking lots with two or fewer total parking spaces.

35. 11B-233 Residential facilities – Revise Chapter 11B housing requirements to be consistent with standards adopted by the federal Department of Housing and Urban Development, including the 2014 HUD standards.

36. 11B-233 Residential facilities – Clarify scope of Chapter 11B to make explicit that “publicly funded” and “public use” housing includes all covered housing that receives any kind of public funding and not just publicly owned housing.

37. 11B-233.3.1.2 Residential dwelling units with adaptable features – It is not clear whether Section 11B-233.3.1.2 applies to covered multifamily dwellings only (as required in Chapter 11A), or to all dwelling units, including single family dwellings. The exception may also be misleading and could create a conflict with Chapter 11A, based on different requirements for dwelling unit kitchens in Chapters 11A and 11B.

38. 11B-233.3.1.2 Residential dwelling units with adaptable features – consider adding Chapter 11A, Division IV requirements for adaptable units to Chapter 11B, Section 11B-809 and deleting all references to Chapter 11A within Chapter 11B.

39. 11B-233.3.1.2.3 Ground floors above grade – Chapter 11A exempts carriage units. Does DSA-AC intentionally not address carriage units in this section?

40. 11B-233.3.1.2.4 Multi-story residential dwelling units – The first paragraph (and numbered items) of this section address elevator buildings, while the exception sets requirements for non-elevator buildings. It appears that the exception is not really an exception to the first paragraph (elevator buildings), but prescribes separate requirements for non-elevator buildings. HCD believes it may provide more clarity to separate this exception from this subsection and create a separate subsection for non-elevator buildings. Additionally, if the intent of this section is to align with Chapter 11A, Chapter 11A requires a bathroom (or powder room) and a kitchen on the primary entry level for multistory dwelling units in elevator buildings.

41. 11B-233.3.4.1 Alterations to vacated buildings – The existing language in Sections 11B-233.3.4, 11B-233.3.4.1, 11B-3.4.2 and 11B-233.1, as well as the definition of PUBLIC HOUSING, does not clarify the scoping. This has resulted in varying interpretations and enforcement by the local jurisdictions. HCD recommends that DSA-AC clarify the scoping.

42. 11B-245.3 Public accommodations located in private residences – Amend “commercial facility” to “public accommodation” to be consistent with recent change.

43. 11B-246 (?) Develop requirements for accessibility of camp shelters and cabins at camp grounds and camping facilities.
44. 11B-247 Detectable warnings – Study scoping requirements to clarify use of DWs at hazardous vehicular areas.

45. 11B-247.1.2.2 Detectable warnings at curb ramps – DWs should not be required at on-site locations away from the PROW. DWs cause slips, trips and falls.

46. 11B-303.5 Changes in level, Warning curbs – clarify language where warning curb is required. 2010 CBC 1133B.8.1 included “such as at planters and fountains”

47. 11B-306.2 Toe Clearance and 11B-306.3 Knee Clearance – 11B-306.2.3, Ex 2, refers to ‘built-in’ dining and work surfaces; 11B-306.3.3, Ex 2, does not include the term ‘built-in’; 11B-306.3.4, Ex, refers to ‘built-in’ dining and work surfaces. Shouldn’t they all be consistent?

48. 11B-306.2 Toe Clearance and 11B-306.3 Knee Clearance - Consider deleting the reference to 11B-226.1 found in 11B-306.3.2, Ex 2 & 11B-306.3.3, Ex 2 so that picnic tables are not excluded from the requirements for toe and knee clearance.

49. 11B-306.3.3 Knee clearance at lavatories – modify to eliminate 29” high knee clearance at front edge of a counter with a built-in lavatory.

50. 11B-308.1.1 and 308.1.2 Electrical switches and receptacles - Should scoping provisions be moved into Division 2? See related item for 11B-203.9.

51. 11B-309.4 Operable parts, Operation – Exempt emergency exit and panic hardware from 5 pounds maximum force.

52. 11B-403.5.1 Walking surfaces, Clear width – Amend sidewalk/walk width to 36” minimum, in alterations where 36” is infeasible reduce to the minimum necessary. Provide specified conditions to determine infeasibility.

53. 11B-403.5.1 Walking surfaces, Clear width – Why are Chapter 10 corridor & aisle width requirements duplicated in this section?

54. 11B-404.2 Doors, doorways, and gates, Manual doors – Require electric openers for heavy entry doors.

55. 11B-404.2 Doors, doorways, and gates, Manual doors – Require automatic doors at business entrances.

56. 11B-404.2.3 Doors, doorways, and gates, Manual doors, clear width – Require 36” minimum width doorways.

57. 11B-404.2.4.3 Recessed doors and gates – Figures indicate that the 8” dimension is measured from the face of the wall, not the face of the door, as indicated in the text.

58. 11B-404.2.4.3 Recessed doors and gates – Clarify that 24” dimension is applicable at exterior side of door only.

59. 11B-404.2.5 Doors, doorways, and gates, Manual doors, Thresholds – require thresholds to be flat with no rise whatsoever.

60. 11B-404.2.7 Door and gate hardware – Study adding SFM requirement (or reference to SFM requirement) for lever hardware with return that extends to within ½” of door in hotels.
61. 11B-405.7.5 (Ramps) Doorways – Consider adding a similar section to the requirements for curb ramps. Often doors are located at the landings of curb ramps, especially since parking spaces are supposed to be closest to the entrance.

62. 11B-406 Curb ramps, blended transitions and islands – revise section to require curb ramps at all intersection corners with 1:12 maximum slope, 5’ landing, no side ramps.

63. 11B-406 Curb ramps, blended transitions and islands – Section 11B-406 is inefficient because it fails to provide a requirement to paint the flared sides of curb ramps to match the color of the adjacent curb. Such failure most likely causes increased pedestrian trips, stumbles, falls and sever injuries.

64. 11B-406.5.9 Clear space at diagonal curb ramps – Clarify intent of section if there is a “dedicated right turn lane.”

65. 11B-407.4.9 Elevators, Elevator car requirements, Emergency communication – Require Video Relay Services in elevators for two-way communication with people who are deaf, hard of hearing, or speech impaired.

66. 11B-411.2 Destination oriented elevators, Elevator landing requirements – Consider changing the word “pressed” to “activated” in several subsections.

67. 11B-411.2.1.1, Exception Destination oriented elevators, Elevator landing requirements, Hall call consoles, Location – Consider the following revision:

11B-411.2.1.1 Location. Hall call consoles shall be ...

Exception: Hall call consoles beyond those required by Section 11B-411.2.1.1 shall be permitted to be provided outside the elevator landing and to be wall-mounted, pedestal-mounted, or mounted on a kiosk or security turnstile. Additional hall call consoles or devices integrated with elevator systems are not required to meet the requirements of 11B-411.2.

68. 11B-411.2.1.2.4.3 Destination oriented elevators, Elevator landing requirements, Hall call consoles, Required features, Display screen, Duration – Consider the following revision:

11B-411.2.1.2.4.3 Duration. Elevator assignment characters shall be displayed for a minimum of 5 3/4 seconds.

69. 11B-411.2.1.4.1.2 Destination oriented elevators, Elevator landing requirements, Hall call consoles, Additional features, Hall call console additional buttons, Identification – Consider the following revision:

11B-411.2.1.4.1.2 Identification. Buttons shall be identified by raised characters and symbols, white on a black background, complying with Section 11B-703.2 and Braille complying with Section 11B-703.3. Identification shall be placed on the control button or immediately to the left of the control button to which the designation applies.

70. 11B-411.2.1.5.1 Destination oriented elevators, Elevator landing requirements, Hall call consoles, Button requirements, Size – Consider the following revision:

11B-411.2.1.5 Button requirements. ...
71. 11B-411.4.11 Destination oriented elevators, Elevator door requirements, Floor
destination indicators – Consider the following revision:
11B-411.4.11 Floor destination indicators. There shall be a visual display on each elevator car door jamb
a visual display or inside the car indicating floor destinations.
72. 11B-411.4.11 Destination oriented elevators, Elevator door requirements, Floor
destination indicators – Consider the following revision:
11B-411.4.11 Floor destination indicators. There shall … floor destinations.

Exception: Visual displays indicating floor destinations in addition to those required by 11B-411.4.11 are
not required to meet the requirements of 11B-411.4.11.
73. 11B-411.4.11 Destination oriented elevators, Elevator door requirements, Floor
destination indicators, Height – Consider the following revision:
11B-411.4.11.1 Height. Floor destination characters shall be 1 inch (25 mm) 5/8 inch (16 mm) high
minimum complying with Section 11B-703.5.3.
74. 11B-502.2 Parking spaces, Vehicle spaces – Study proposed new Exception 2
permitting overhang of landscape areas (and 11B-502.7.2) – Should permitted
overhang be 24” or 36”? Should overhang of circulation paths be permitted for
consistency? How to regulate what type of vegetation is installed? See related proposed
code change for 11B-502.7.2 Wheel stops.
75. 11B-502.2 Parking spaces, Vehicle spaces – Modify figures to show wheel stop location
3’ from head end of parking stall.
76. 11B-502.3.2 Parking spaces, Access aisle, Length – Commenter noted that the
language of 11B-202.4, Exc 2 in the 2016 CBC will refer to the 2013 CBC, not the 2010
CBC; thereby creating a conflict with existing angled parking spaces and the
requirements of 11B-502.3.2. The commenter proposed that a new exception for
existing angled parking be added to 11B-502.3.2:
Exception: The length of access aisles at existing angled parking spaces constructed in compliance with
the 2010 California Building Code shall not be required to comply with Section 11B-202.4.
77. Figure 11B-502.3.3 Parking spaces, Access aisle, Parking identification – since ISA is
not required to have a border, remove depiction of border.
78. 11B-502.4 Exception Parking floor or ground surfaces – require 5% maximum slope
outside of accessible parking and access aisle to transition to the surface of the
adjacent ground.
79. 11B-502.5 Parking structure vehicle height - add new exception permitting 80” instead
of 98” min. vertical clearance at parking spaces & access aisles and vehicular routes
serving them in existing multi-story parking facilities.
80. 11B-502.5 Parking structure vehicle height – Keep 98”/do not reduce to 80”
81. 11B-502.8 Parking spaces, Additional signs – Clarify sign required to be visible from
each accessible parking space?
82. 11B-505.2.1 Handrails, Where required, Orientation (stair handrails) – New section
requires at least one handrail to be in the direction of the stair run and perpendicular to
the nosing. Consider expanding to include ramp handrails with an exception for curved ramps.

83. Figure 11B-505.7.2 Handrail non-circular cross section – Revise to show a thickness for the handrail in section. As drawn, it appears the inside of the handrail material must have a 2-1/4” cross-sectional dimension rather than the outside of the handrail material.

84. 11B-505.10 Exception 1 Handrails, Handrail extensions – change language from “dogleg stairs and ramps” to “dogleg stairs or ramps”

85. 11B-507 (?) Accessible routes through parking – Consider adding new section consistent with proposed changes to ANSI 117.1 for 2015:

507 Accessible Routes through Parking: Where accessible routes pass through parking facilities, the routes shall be physically separated from vehicular traffic.

Exceptions:
1. Accessible routes crossing drive aisles ...
2. Accessible routes only from parking spaces and access aisles ...

86. 11B-604.4 Water closets and toilet compartments, Seats – Prohibit use of add-on toilet seat risers. The gap between the seat riser and the bowl creates unsanitary conditions.

87. 11B-604.7 Water closets and toilet compartments, Dispensers – Add standards for placement of sanitary napkin/tampon disposal units – 12” in front of toilet, 19” minimum above floor, below grab bar.

88. 11B-604.7 Water closets and toilet compartments, Dispensers – Add standards for allowable type of toilet paper dispensers and placement below grab bar within a foot of the front of the toilet. Large TP dispensers require users to have good hand, arm, finger dexterity to grasp the paper; they also require the user to reach up into the unit past the saw edge. Outlaw these units from accessible toilet stalls.

89. 11B-605 Urinals – Consider adding new code requirements for urinal compartments to address the trend towards communal or gender-shared restroom facilities where the toilet and urinal fixtures are all in partitioned compartments and the shared lavatories are in an open area.

90. 11B-606.5 Lavatories and sinks, Exposed pipes and surfaces – Should the requirements of 11B-606.5 apply to all sinks & lavatories?

91. 11B-608.4 Shower seats – Add exception to allow fixed, ligature-resistant seats in detention and correctional facilities.

92. 11B-608.5.3 Shower compartments, Controls, Alternate roll-in type shower compartments – Confirm CBC language regarding centerline location of controls at 39” to 41” above the shower floor does not conflict with ADA Standards. Clarify location of controls in text and/or add centerline to figure.

93. 11B-608.6 Shower spray unit and water – Issue of disabled users sitting in cold water waiting for water to warm when fixed shower heads are permitted in lieu of hand-held spray unit.

94. 11B-608.6 Shower spray unit and water – consider adding new exception to address anti-ligature concerns:
Where subject to excessive vandalism, two fixed shower heads shall be permitted instead of a hand-held spray unit in medical care, detention, and other facilities required to provide anti-ligature elements. Each shower head shall be installed so it can be operated independently of the other. One shower head shall be located at a height of 48 inches (1219 mm) maximum above the shower finish floor.

95. 11B-609.3 Grab bars, Spacing – Prohibit vertical grab bars above the horizontal grab bar.

96. 11B-609.4 Grab bars, Position of grab bars - Change mounting height of toilet grab bars to 33” above floor to centerline of bar.

97. 11B-703.7.2.6.1, 11B-703.7.2.6.2, & 11B-703.7.2.6.3 Signs, Symbols of Accessibility, Symbols, Toilet and bathing facilities geometric symbols – These sections indicate that the geometric symbols “shall contrast with the door” – since not every entrance to toilet or bathing rooms has a door, shouldn’t these sections indicate contrast with the surface the geometric symbols are being installed on, instead of the door?

98. 11B-703.7.2.6.4 Edges and vertices on geometric symbols - Add the requirements of this section to the general requirements for tactile signs.

99. Table 11B-703.8.4 Low Resolution VMS Character Height – Consider adding an asterisk (*) to the end of Table 703.8.4 header and the related footnote (*) below the table: * For elevator variable messaging signs see Title 24 Part 30.

100. 11B-705 Detectable warnings – Study technical requirements to clarify use of DWs at hazardous vehicular areas.

101. Figure 11B-705.1(a) – Detectable warnings - correct dome height to correspond with text - 0.2”

102. 11B-705.1.1.2 Detectable warnings, Dome spacing – add requirements for detectable warnings installed in radial pattern – study dome spacing.

103. 11B-706 Assistive Listening Systems – Clarify technical requirements (and 11B-219 scoping requirements).


105. 11B-805.4.1 Medical care and long-term care facilities; Examination, diagnostic and treatment rooms; Beds, exam tables, procedure tables, gurneys and lounge chairs – requirement for 36” wide clear space, full-length of each side of beds, exam tables, procedure tables, gurneys and lounge chairs is “excessive” and not consistent with 2010 ADAS requirement for 30x48 clear floor space.

106. 11B-805.7 Built-in cabinets and work surfaces in medical care facilities – Add exception to not require knee space and counter height requirements at workstations normally used by standing persons; where five or more workstations are located together, one shall be repositionable so it can be made accessible.

107. 11B-806.2.3 Transient lodging guest rooms – Add requirements for standard height from floor to top of mattress.

108. 11B-812.5.2 Electric vehicle charging stations, Accessible routes, Accessible route to EV charger – The wording of this section that requires an accessible route
“between the vehicle space and the EV charger which serves it” is not clear. It seems to imply a 48” space is required between the vehicle space and the charger, but this is not reflected in the figure. The language should be further amended to change the word “between” to “connecting”.

109. 11B-812.5.4 Electric vehicle charging stations, Accessible routes, Arrangement – The phrase “to the maximum extent feasible” lacks specificity. Consider the definition provided in the ADA Title III regulations.

110. 11B-812.8.1 Electric vehicle charging stations, Identification signs, Four or fewer – Clarify that where there are 4 or fewer EVCS, a “van accessible” sign is not required.

111. Figure 11B-812.9 Electric vehicle charging stations, Surface marking – Revise figure to be consistent with Manual on Uniform Traffic Control Devices – text should be shown on 3 lines: EV CHARGING ONLY

112. 11B-902 Dining surfaces and work surfaces – Revise the reference to 11B-306 within Section 11B-902.2 to clarify requirements for knee space at dining and work surfaces. Section 11B-902.2 should reference 11B-306.3.2 & 11B-306.3.3, Exception 2, not 11B-306 in its entirety.

113. 11B-1003.2 Boarding piers at boat launch ramps. Revise requirements to 1:12 maximum slope with level areas every 30 feet or so.

CURRENTLY ADDRESSED BY THE CBC AND/OR REFERENCED STANDARDS

1. Residential facilities, General – Clarify what type of housing is covered by the term “Public Housing”. Is it: 1) Housing owned and/or operated by public entities (State agencies, local government agencies, housing authorities); 2) Privately owned housing operated by or on behalf of a public entity; or 3) Privately owned housing using public funds for alterations? (e.g. seismic retrofitting, energy upgrade, weatherization programs, alterations of substandard housing, CDBG projects, etc)? [DSA: refer to Chapter 2 definition of Public Housing]

2. Require sidewalks to be free from obstructions – telephone & electric poles, utility boxes, café tables, chairs, fences [DSA: refer to 11B-108 and 11B-403.5.1]

3. No double entry doors into restrooms that could trap [DSA: refer to 11B-404.2.6]

4. Mirrors over bathroom sinks to see myself when washing hands [DSA: refer to 11B-603.3]

5. Toilets – sometimes too low [DSA: refer to 11B-108 and 11B-604.4]

6. Toilets – sometimes crowded by storage items [DSA: refer to 11B-108]

7. Hallways – sometimes crowded by storage items [DSA: refer to 11B-108]
8. Van parking access aisle – need 8’ clearance
   [DSA: refer to 11B-502.2 Exception and 11B-502.3.1]
9. Accessible route from accessible parking to the building entrance
   [DSA: refer to 11B-208.3]
10. Accessible route from entrance to accessible seating
    [DSA: refer to 11B-206.2.4]
11. Prohibit large TP dispensers above the horizontal grab bar.
    [DSA: refer to 11B-604.9.6 and 11B-609.3]

OUTSIDE SCOPE AND APPLICATION OF THE CBC
1. Multiple chemical sensitivities, electohypersensitivities – don’t rollback regulations.
2. Restore requirements for access at movable restaurant tables.

OUTSIDE DSA’s AUTHORITY
1. Lack of curb cuts in Richmond
2. Condition of roadways
3. Non-accessible restaurant in Berkeley

INCONSISTENT WITH FEDERAL OR STATE LAW
1. 11B-707.3 Automatic teller machines, fare machines and point-of-sale devices,
   Operable parts – revise language to require sound and touch instead of sound or touch.
2. 11B-602.7 Drinking fountain for standing persons – require spout outlets to be 40”-50”
   above finish floor or ground
3. 11B-604.4 Toilets, seats – Change toilet seat height to 18”-20” range.
4. 11B-609.3 Grab bar spacing – add exception to allow a nominal ⅛” reduction of the 1½”
   gap between the grab bar and a recessed combination seat cover, toilet paper
   dispenser, and sanitary napkin disposal unit.

INCONSISTENT WITH FORMAT OR ORGANIZATION OF THE CBC
1.