Elevating and Amusement Devices Safety Division	Ref. No.: 295 / 22r1
Elevating Devices Code Adoption Document Amendment	Date: May 1, 2024

IN THE MATTER OF:

Technical Standards and Safety Act 2000, S.O. 2000, c. 16,

Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), *and*

Ontario Regulation 209/01 (Elevating Devices)

The Director for the purposes of Ontario Regulation 209/01 (Elevating Devices), pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), hereby provides notice that the ELEVATING DEVICES CODE ADOPTION DOCUMENT published by the Technical Standards and Safety Authority and dated June 1, 2001, as amended, is further amended as follows:

All sections of the Elevating Devices Code Adoption Document dated June 1, 2001 are hereby replaced with the following, and all previous amendments thereto are superseded:

1. The attached Elevating Devices Code Adoption Document - Amendment 295 / 22r1 dated May 1, 2024 is hereby adopted and updates the prior amendment dated February 1, 2022 as follows:

   (a) Parts 1 and 2 are in effect February 1, 2022, except as permitted in (c)iv and (d)i.

   (b) Part 3, is in effect August 1, 2022, except:

   i. New installations or alterations may conform to the adopted requirements prior to August 1, 2022.
   ii. New installations or alteration submissions received on or after August 1, 2022 which were sold while the prior adopted edition of ASME A17.1-2010/CSA B44-10 was (is) in effect may be permitted to conform to that Code if evidence of a signed contract is forwarded to TSSA for review and approval.
   iii. The requirements of Section 8.6 of ASME A17.1-2019/CSA B44:19 (maintenance) are in effect January 1, 2023.

   (c) Parts 4, Part 5, Part 6 (excluding devices defined in 6.1.1.(d)), and Part 7are in effect, August 1, 2022, except:

   i. New installations or alterations submissions for devices in Parts 6.1.1.(d), shall comply with (d) below.
   ii. New installations or alterations may conform to the adopted requirements prior to August 1, 2022.
   iii. New installations or alterations submissions for devices (excluding devices defined in 6.1.1.(d)) received on or after August 1, 2022 which were sold while the prior adopted edition of applicable code was (is) in effect may be permitted to conform to that Code if evidence of a signed contract is forwarded to TSSA for review and approval.
   iv. Logbook shall comply not later than January 1, 2023.

   (d) Part 6 (for devices defined in 6.1.1(d)), Part 8, and Part 9 are in effect March 1, 2022, except:

   i. Logbook shall comply not later than June 1, 2022.

2. This amendment is effective immediately.

3. Any person involved in an activity, process or procedure to which this document applies shall comply with this document.

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AJ Kadirgamar
Director, Ontario Regulation 209/01 (Elevating Devices)

Distribution: *Posted to TSSA website.*

ELEVATING DEVICES
CODE ADOPTION DOCUMENT
AMENDMENT 295/22r1

May 1, 2024

Elevating and Amusement Devices Safety Program
Technical Standards and Safety Authority

Background

This document and the codes it adopts establish requirements and minimum standards for the design, construction, installation, erection, maintenance and alteration of elevating devices.

Pursuant to s. 4(1) of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) made under the *Technical Standards and Safety Act, 2000*, the "Elevating Devices Code Adoption Document" published by TSSA and dated June 1, 2001 (the "CAD") forms a part of Ontario Regulation 209/01 (Elevating Devices).

CAD Amendment 295/22, replaces previous CAD Amendment 277/19.

Colour Coding and Reference Symbols Used in CAD Amendment 295/22r1

7.5	**blue bold** is a reference to another section in this CAD amendment
(197/06)	is a reference to a predecessor document (Director's Order, Enforcement Procedure, etc.)
7.2.4.	is a reference to a section in an external document or code
CAD 7.2.4.	is a reference to a section in an external document or code revised by this CAD
~~as part of~~	is a reference to text from a published code that is not adopted by the CAD
Red Text	is used to identify changes from the previous CAD Amendment or TSSA-specific additions to a published code
gold highlight	is used to identify changes to code language new in this CAD Amendment
★	is used to denote a TSSA-specific alteration
Underline	is used to identify changes under this r1 revision

Note:

1) The ASME A17.1-2019/CSA B44-19 code utilizes blue text (not bolded) when cross referencing sections within that code. Example;
NOTE: See Part 8 for additional requirements that apply to electric elevators.

2) Definitions contained in Ontario Regulation 209/01 apply to the CAD and adopted codes.

Table of r1 revisions

#	Revised CAD Section	Related Code section	Rationale
1	3.1.1 (a) Note:	B44 - General	Correction to a cross reference
2	3.1.1 (c)(9)	B44 2.13.5.2(a)(2)(-b)	Recognize and show in the CAD, a code change that was addressed in ASME Code Case 20-1017
3	3.1.1 (c)(10)	B44 2.24.8.5	Deletion of a Note:
4	3.3.4 (e)(2)	B44 8.6.3.16.1	Correction to numbering of "Replacement of the Complete Driving Machine" [8.6.3.16.1], addition of related testings of 8.10.2.4.1(a)
5	3.3.4 (e)(3)	B44 8.6.3.16.2	Correction to numbering of "Replacement of the Controller" [8.6.3.16.2], add testings of 8.10.2.4.1(b) / 8.10.3.4.1(a) in requirement (b) and clarify the replacement is considered an alternation.
6	3.3.4 (f)	B44 8.6.4.6.2	Amend B44 requirement 8.6.4.6.2 to align with CAD 3.1.1(c)(9) for setting a no load benchmark
7	3.4.4		Update to reflect latest edition of B44 Alteration Guideline or latest edition of B44 Alteration Checklist
8	3.1.1 (c)(31)	B44 8.10.2.4 & 8.10.3.4	Add missing test requirements that apply to replacements per CAD permissions 3.3.4 (e)(2) and 3.3.4 (e)(3)
9	5.3.4	Z98 11.8.4	Adjust language to correctly address prior requirements of a Director's safety order
10	5.5.3, 5.5.4		Correct the cross references in 5.5.3 and 5.5.4 to point to the appropriate 5.5 sections
11	5.9		Correct the cross references in 5.9.2 to the appropriate 5.9 sections
12	6.1.1(a)(3)	20.1.7(g)	Align with clause 20.1.4(g) of Z185:23
13	Table 6.5		Editorial correction (was Table 6.1)
14	Table 6.5, entry B6 & B2		B6: Correction to reflect code requirement as written, B2: Align with CAD & clause 20.1.4(g) of Z185:23
15	7.3.3		Update to reflect latest edition of B355 Alteration Guideline or latest edition of B355 Alteration Checklist
16	9.3.2		Correction to title, revise "integral" to "internal"

For more information contact:

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Table of Contents

Elevating Devices
Code Adoption Document
Amendment 295/22r1

Part 1

1 GENERAL

1.1 Definitions

1.1.1 The terms in this Code Adoption Document amendment (Document) have the same meaning as in the *Act* or the Regulation unless otherwise specified herein.

1.1.2 Where a provision of a code or standard adopted in this Document is inconsistent with the requirements of this Document, the provision of this Document shall prevail.

1.1.3 In this Document,

(a) "accredited" means that an organization has been evaluated and approved by an Authorized Agency to operate a Certification program, and is designated as such in a publication of the Authorized Agency. [CAD Amendment 277/19]

(b) "ANSI" means the American National Standards Institute.

(c) "CAN" means a standard recognised as a National Standard of Canada and approved by the Standards Council of Canada.

"certified" means equipment or materials accepted for inclusion in a publication by a certifying organization / certifying body.
NOTE: The means for identifying certified equipment may vary for each organization concerned with product evaluation, some of which do not recognize equipment as certified unless it is also marked. The authority having jurisdiction utilizes the system employed by the certifying organization / certifying body to identify a certified product. [CAD Amendment 277/19] [CAD Amendment 295/22]

(d) "certification body" means a body accredited in accordance with the Standards Council of Canada Act (Canada) to certify electrical products and devices and recognized by the Authority (O. Reg. 438/07, s. 1 (1)). [CAD Amendment 295/22]

(e) "certifying organization / certifying body" means an approved or accredited, independent organization concerned with product evaluation that maintains periodic inspection of production of certified equipment or material and whose certification states whether that equipment meets appropriate standards or has been tested and found suitable for use in a specified manner. [CAD Amendment 277/19] [CAD Amendment 295/22]

(f) "common mode failure" means the result of an event(s) which because of dependencies, causes a coincidence of failure states of components in two or more separate channels of a redundancy system, leading to the defined system failing to perform its intended function. [CAD Amendment 216-07]

(g) "CSA" means the Canadian Standards Association.

(h) "dedicated function fire alarm system" means a protected premises fire alarm system installed specifically to perform emergency control fire safety function(s) where a building fire alarm system is not required. See NFPA 72-2019. [CAD Amendment 261-13] [CAD Amendment 277/19]

(i) "field evaluation agency" means an inspection body accredited in accordance with the Standards Council of Canada Act (Canada) to evaluate electrical products and devices and recognized by the Authority (O. Reg. 438/07, s. 1 (1)); [CAD Amendment 295/22]

(j) "fire authority" as used in ASME A17.1 / CSA B44 has the same meaning as Chief Fire Official in Ontario Regulation 213/07. [CAD Amendment 277/19]

(k) "freight elevator-P" means a freight elevator upon which passengers are permitted to ride.

(l) "marked" means equipment or material to which has been attached a symbol or other identifying mark of an approved or accredited independent certifying organization, concerned with product evaluation, that maintains periodic inspection of production of marked equipment or material, and by whose marking the manufacturer indicates compliance with appropriate standards or performance in a specified manner. [CAD Amendment 277/19]

(m) "minor alteration – type A" means a minor alteration per Ontario Regulation 209/01 which requires the signature and seal of a professional engineer per Ontario Regulation 209/01, s. 15.(6).

(n) "minor alteration – type B" means a minor alteration per O. Reg 209/01, s. 19.(1) which may be signed as per Ontario Regulation 209/01, s. 15.(9).

(o) "Regulation" means Ontario Regulation 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*.

(p) "SIL" means Safety Integrity Level as used in standard IEC 61508 Functional safety of electrical/electronic/programmable electronic safety-related systems. [CAD Amendment 295/22]

(q) "software system failure" means a behaviour of the software, including its support (host) hardware, that is not in accordance with the intended function.

(r) "solid-state device" means an element that can control current flow without moving parts.

(s) "transport platform" means a temporarily installed construction hoist equipped with a car or platform that moves vertically in guides, and is tied to the building or structure, that is used for hoisting, lowering or otherwise moving authorized persons or materials and necessary tools to various access levels on a building or structure for construction, renovation, alteration, maintenance, demolition or other types of work of a building or structure. [CAD Amendment 277/19]

1.2 Referenced Documents

1.2.1 For undated references, the latest edition of the referenced document applies.

1.2.2 For dated references, any subsequent amendments or revisions of these referenced documents do not apply.

1.2.3 Where documents are referenced in reprinted materials, the edition intended by the reprinted publication shall apply. [CAD Amendment 277/19]

1.3 Exceptions

1.3.1 Except where otherwise indicated, this Document applies to all elevating devices and parts thereof.

1.3.2 Despite subsection **1.3.1** and unless otherwise specified in the Regulation, in this Document or by the director, the codes and standards referred to in this Document do not apply to existing elevating devices except for those sections respecting alterations, the inspection, testing, maintenance, operation and use of the elevating device, including signage and instructions relating to the use of the elevating device.

Part 2

2 GENERAL TECHNICAL REQUIREMENTS

2.1 Welding

2.1.1 The welding of a steel structure on an elevating device shall conform to the requirements of CSA Standard W59, Welded Steel Construction (Metal Arc Welding).

2.1.2 The welding of a steel structure on an elevating device shall be undertaken by a fabricator or contractor qualified to the requirements of CSA Standard W47.1, Certification of Companies for Fusion Welding of Steel Structures.

2.1.3 The field welding of piping and fittings on an elevating device shall conform to the requirements of CSA Standard B51, Code for the Construction and Inspection of Boilers.

2.1.4 Despite subsections **2.1.1**, **2.1.2** and **2.1.3**, an equivalent welding standard may be used if it is acceptable to the director.

2.2 Electrical

2.2.1 Electrical work and electrical equipment shall conform to the requirements of, the Ontario Electrical Safety Code as amended from time to time.

2.2.2 Elevating devices regulated under the device classes listed in **Part 3** to **Part 9** shall conform to,

(a) the general rules of the Ontario Electrical Safety Code;

(b) the specific rules of the Ontario Electrical Safety Code governing specific device classes; and

(c) the requirements of the codes and supplemental CAD requirements as adopted in **Part 3** to **Part 9** of the CAD.

(see; **Part 3** requirement **3.1.1(c)(4)**, **Part 4** requirement **4.1.5**, **Part 5** requirement **5.1.3**, **Part 6** requirement **6.3.2**, **Part 7** requirement **7.1.2**, **Part 8** requirement **8.1.2**, **Part 9** requirement **9.4.1(c)**) [CAD Amendment 295/22]

2.2.3 Devices not addressed in **Part 3** through to **Part 9** (considered special device(s)) shall,

(a) be certified to CAN/CSA C22.2 No. 14, Industrial Control Equipment, any requirements deemed applicable from a referenced standard, and any additional requirements as required by the director; or

(b) be approved per Ontario Regulation 438/07 s.2.(1) 2 by a field evaluation agency. [CAD Amendment 295/22]

2.2.4 Where *SIL* rated devices are permitted to be used by a specific code and are used in a control system, certification to IEC61508 (Functional safety of electrical/electronic/programmable electronic safety-related systems) of Electrical / electronic / programmable electronic systems (E/E/PES) or of software systems, shall be by a *certification body / certifying organization,* that is:

(a) accredited by Standards Council of Canada (SCC);

(b) accredited by ANSI as a National Recognized Testing Laboratory (NRTL); or

(c) acceptable to the director. [CAD Amendment 277/19] [CAD Amendment 295/22]

2.3 Maintenance Program, Log Book (Records), and other Records [CAD Amendment 295/22]

2.3.1 Every new and existing elevating device, except those devices covered by requirements set forth in **Part 3** and **Part 8** shall have a maintenance program in place that conforms to the following:

(a) a device specific program that specifies examinations, testing, cleaning, lubrication and adjustments of applicable components at regular intervals;

(b) the program shall be provided by the contractor maintaining the equipment;

(c) the maintenance program shall include, code and manufacturer required maintenance tasks, maintenance procedures and examinations and tests;

(d) the maintenance program and log book (records) shall be maintained and located in the machine room or at the device location. Where the maintenance program and/or log book (records) are maintained remotely from the machine room or designated location, instructions for on-site locating or viewing the maintenance program or log book (records) in either hard copy or electronic format shall be posted on the controller;

(e) The specified scheduled maintenance intervals shall, as applicable, be based on;

(1) equipment age, condition, and accumulated wear;

(2) design and inherent quality of the equipment;

(3) usage;

(4) environmental conditions;

(5) improved technology;

(6) the manufacturer's recommendations; or

(7) other interval imposed by the director.

2.3.2 In addition to a maintenance program specified in **2.3.1**, each device shall have a log book (records) in a format acceptable to the director that includes, but is not limited to, the following:

(a) site name and address;

(b) contractor name;

(c) TSSA installation number;

(d) a description of the maintenance task (including code section or reference number), interval (frequency) of the task, and associated requirements of the maintenance program;

(e) indication of completion of maintenance task;

(f) year and month when the task was completed;

(g) the printed name, signature and mechanic certification number of the person(s) who completed the task, except that where tasks are not yet completed, or where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the task is complete or the defect is adjusted, repaired or replaced; and

(h) the maintenance logbook (records) shall include all repair, replacement and call-back activities and be kept on site for viewing by elevator personnel in either hard copy or electronic format. These records shall:

(1) include an explanation of the repair, replacement or call-back;

(2) include the date, and name of person(s) performing the task; and

(3) be retained by the owner of the equipment for the most recent 5 years if a repair or replacement record, or retained for at least 1 year if a call-back record.

2.3.3 Where the devices adopted by this CAD have operational requirements for training of individuals who use, operate or ride these devices, the training records of personnel such as authorized personnel, attendants, operators, freight handlers and/or occupants shall be located on-site in an appropriate location and readily available to an inspector upon request. (applicable to **Parts 3**, **4**, **5**, **6**, **7**, **8** and **9**). The device Owner shall be responsible to provide and maintain all training records.

2.3.4 In addition to the training records of personnel required in **2.3.3**, where operators, authorized personnel or competent persons are required to perform daily, weekly or other frequent checks prior to device operation, those records shall:

(a) reflect the items of **2.3.2 (a)** through **(g)** except the mechanic certification number in **2.3.2(g)** is not required; and

(b) be in a location as outlined in **2.3.1(d)**.
[CAD Amendment 295/22]

2.4 Rope & Stranded Cable Replacement *(17/84)(122/95)*

2.4.1 When changing or shortening ropes on counterweighted elevators, the installation shall be provided with a data plate permanently and securely attached in the pit, in the vicinity of the counterweight buffer, indicating the maximum designed counterweight runby.

2.4.2 The minimum stranding for cables used to relate any car or landing door shall be not less than 7 x 19 construction.

2.5 Relocation of an Elevating Device

2.5.1 Where an elevating device is relocated it shall meet the requirements of the applicable code or standard adopted in this Document, unless otherwise specified in this Document or by the director.

2.6 Alteration

2.6.1 Where an alteration is made to an elevating device the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of codes or standards adopted in this Document, including any changes set out in this Document. [CAD Amendment 250-11]

2.6.1 Unless otherwise specified in this Document, the adopted code or by the director, and without limiting generality of the Regulation, the following alteration to an elevating device shall constitute a major alteration:

(a) An increase by more than 10 percent in,

(1) the rated speed of the load-carrying unit,

(2) the maximum capacity, or

(3) the dead-weight of the machine, load-carrying unit or counter-weight;

(b) except for construction hoists, an increase or decrease in the distance of the travel of the load-carrying unit;

(c) a change in,

(1) the method or type of operation,

(2) the method or type of motion control,

(3) the type or size of guide rails or other guiding means for the load-carrying unit or counter-weight,

(4) the type of safety device or other safety stopping device for the load-carrying unit or counter-weight,

(5) the power supply to the machine,

(6) the type of driving machine or brake,

(7) the location of;

a) the elevating device,

b) elevating device controller,

c) the machine,

d) the load-carrying unit,

e) the counter-weight, or

(8) the working pressure of a hydraulic system by more than 10 percent;

(d) a replacement of the controller;

(e) changes that would result in a reclassification of the elevating device; and

(f) the addition of an entrance to the elevating device.

2.6.2 Unless otherwise specified in this Document or by the director, and without limiting the generality of the Regulation, any action or work performed on an elevating device that is not specified in subsection **2.6.1** and that results in a change to the original design or the operational characteristics of the elevating device or affects the inherent safety level of the elevating device, shall constitute a minor alteration.

2.7 Rack and Pinion Safeties

2.7.1 Any repair or rebuild of a type 'D' rack and pinion safety where the manufacturer has stated that such work shall only be performed by the manufacturer, may either be;

(a) repaired, rebuilt or replaced by the manufacturer; or

(b) repaired or rebuilt in accordance with a procedure certified by a professional engineer.

2.7.2 The procedure referred to in clause **2.7.1(b)** shall be filed with the director and shall be available to the inspector upon request.

2.8 Format of Submission Documents

2.8.1 Design submissions shall be submitted in the following electronic format:

(a) filled specification sheets shall be provided in excel format; and

(b) other supporting documentation shall be provided in unprotected PDF, excel or word format.

Note: Electronically received documents will be returned electronically at the conclusion of the design review. [CAD Amendment 295/22]

2.9 Hydraulic Elevating Device Oil Loss Monitoring Program *(143/99)*

2.9.1 Every contractor who maintains a hydraulic elevating device with buried cylinders or buried piping shall ensure there is a written oil loss monitoring program.

2.9.2 A "hydraulic elevating device" means a non-portable device for hoisting and lowering or moving persons or freight and includes an elevator, dumbwaiter, manlift, incline lift, construction hoist, stage lift, platform lift and special elevating device that incorporates one or more hydraulic cylinders.

2.9.3 The purpose of the oil loss monitoring program is to identify any loss of oil which cannot be accounted for in the hydraulic system.

2.9.4 If a contractor performs maintenance on a hydraulic elevating device with buried cylinders or buried piping, the contractor shall ensure that a written oil loss monitoring program is developed and maintained before the contractor performs work on the hydraulic elevating device.

2.9.5 The oil loss monitoring program shall include:

(a) the requirement to provide an oil loss monitoring log ("OLM log") for each hydraulic elevating device with buried cylinders or buried piping;

(b) the requirement for the OLM log to reference the elevating device installation number;

(c) the requirement to establish a fixed reference level for the oil and the requirement to mark the reference level on the tank, dip stick or other suitable location via permanent means;

Note: "permanent" implies affixed in such a manner so as to not be easily removed or repositioned.

(d) the requirement to document in the OLM log the location of the mark for the fixed reference level;

(e) the requirement to check that the oil level is at the established reference point when the device is level with the lowest landing during each scheduled maintenance visit;

(f) if the fixed reference level needs to be intentionally adjusted, the requirement to document and record the changes to the established reference level and reason for establishing the new reference level;

(g) the requirement to record in the OLM log any quantity of oil added or removed from the hydraulic system;

(h) that during each maintenance visit, even if no oil is added, the requirement to record in the OLM log the oil level and the date of the scheduled maintenance visit;

(i) if oil is added or removed, the requirement to record in the OLM log the dates oil was added or removed from the hydraulic system;

(j) the requirement to record in the OLM log the reason oil was added to or removed from the hydraulic system;

(k) the requirement to record in the OLM log the mechanic's printed and legible name, signature and certification number for every entry made;

(l) the requirement to keep the OLM log in the elevator machine room, in a readily identifiable location;

(m) the requirement that the OLM log be kept in the elevator machine room for a period of at least five years from the date of the last entry in the OLM log;

(n) the requirement to never allow oil levels to exceed the fixed reference level for the oil level;

(o) the requirement to record in the OLM log the frequency of oil monitoring activities;

(p) if there is any oil loss which cannot be accounted for, the requirement to immediately remove a hydraulic elevating device from service until the cause for the oil loss is determined and the cause and associated remedy noted in the OLM log;

(q) the requirement to report in writing any oil loss attributed to leaks in buried cylinders or buried piping to the TSSA Elevating Devices director within 7 days;

(r) the requirement to provide maintenance personnel adequate training related to the contractor's oil loss monitoring program;

(s) the requirement to maintain up-to-date written records showing who provided and who received the training referred to in **(r)**, the nature of the training and the date when it was provided. A record of training shall be available to the TSSA upon request;

(t) the requirement that the contractor's oil loss monitoring program be posted or otherwise available in the machine room; and

(u) the requirement that the collection containers shall not exceed 19 L (5 gal) per cylinder.

2.9.6 Oil that is returned to the hydraulic system from recovery containers, either by manual means or automatically via scavenger pumps, need not be recorded.

Note 1: if oil from recovery containers is not suitable for return to the tank, it must be measured and an equivalent amount must be added to the system when recovery containers are emptied. If additional oil is needed to reach the fixed reference level it must be recorded as new oil.

Note 2: As of May 1, 2015 every hydraulic elevating device (including elevators, dumbwaiters, manlifts, incline lifts, construction hoists, stage lifts, platform lifts and special elevating devices) required mitigation (replacement or other means) to protect against single bottom cylinder failures. Where single bottom cylinders continue to exist with supplemental hazard mitigation, or where buried piping remains, the Oil Loss Monitoring requirements of **2.9** apply. [CAD Amendment 277/19]

2.10 Proper Use of Jumpers *(Elevator Industry Field Employees' Safety Handbook) (01/82)*

2.10.1 Each contractor shall have written procedures for the use of jumpers when working on elevating device circuits. Each contractor is responsible for ensuring that their mechanics understand the procedure and are equipped to follow it. Each mechanic is responsible for ensuring that they adhere to the procedure. [CAD Amendment 246-11]

2.10.2 The written procedures shall contain not less than the minimum requirements prescribed in Section 6 of the 2015 edition of the Elevator Industry Field Employees' Safety Handbook (available from www.elevatorworld.com). [CAD Amendment-261-13] [CAD Amendment 277/19]

Note: This procedure is applicable to all devices regulated under Ontario Regulation 209/01.

2.11 Component Fastenings *(10/84) (36/86) (125/96) (193/05)*

2.11.1 Where components are fastened or retained via machine threads, roll pins, c-clips, or similar, precautions must be taken to ensure that the fastenings can satisfactorily remain secure while resisting movement or vibration of the equipment.

2.11.2 Where the effectiveness of a fastener is rapidly degraded as a result of removal and reinstallation during maintenance activities, such fasteners shall be replaced and not reused. [CAD Amendment 250-11]

2.12 Passage Across Roofs *(231/08)*

2.12.1 In addition to O. Reg 209/01, s .37, if passage across a roof is required for access to elevating device equipment the following shall apply to facilitate safe passage from the roof top access point to the elevating device equipment:

(a) a permanent and unobstructed walkway not less than 600 mm (24 in.) wide shall be provided

(b) adequate lighting that ensures shadows and/or glare are reduced to a minimum

(c) The means of access are maintained, including but not limited to ensuring: snow removal as needed, secure footing, no standing water, and the upkeep of safety equipment such as walkways, lifelines, stairs and fixed ladders.

(d) for buildings with any elevating device installation that was commissioned on or after December 27, 1985 (effective date of B44-M85) where there is no parapet at least 1070mm (42 in.) high around the roof or protecting a fall hazard on a side of the walkway, a guardrail meeting the requirements of the Occupational Health and Safety Regulations shall be provided on all sides of the walkway where a roof top edge and the associated fall hazard can be accessed.

(e) for buildings where all elevating device installation(s) were commissioned before December 27, 1985 where there is no parapet at least 1070mm (42 in.) high around the roof or protecting a fall hazard on a side of the walkway;

(1) a guardrail meeting the requirements of the Occupational Health and Safety Regulations shall be provided on all sides of the walkway where a roof top edge and the associated fall hazard can be accessed, or

(2) an engineered lifeline in lieu of a guardrail shall be provided that is designed to accommodate a travel restraint (safety belt) or fall arrest system meeting all applicable requirements of the Occupational Health and Safety Regulations.

2.13 Parts affecting Safe Operation [CAD Amendment-261-13]

2.13.1 Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced.

2.13.2 Where a defective part that can impact the safety of the operation is identified, the part shall be adjusted, repaired or replaced, or a risk assessment carried out to determine if the device can remain in service where the work cannot be carried out immediately. The nature of the defect and the anticipated date of repair or replacement shall be noted in the log book.

Part 3

3 ELEVATORS, DUMBWAITERS, ESCALATORS, MOVING WALKS, MATERIAL LIFTS AND FREIGHT PLATFORM LIFTS

3.1 Applied Codes and Standards [CAD Amendment 295-22]

3.1.1 The following are adopted and every elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of:

(a) ASME A17.1-2019/CSA B44-19 Safety Code for Elevators and Escalators,

Note: Parts 1, 5.10, 8.1, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11 and 8.12 apply to both new and existing installations, except 8.11 is not adopted (see 3.1.1(c)(30)). For the purpose of these parts, existing installations means devices installed under the 2019 code and prior editions; and

(b) ASME A17.6-2017 Standard for Elevator Suspension, Compensation, and Governor Systems.

(c) The requirements of ASME A17.1-2019/CSA B44-19 Safety Code for Elevators and Escalators are adopted with the following modifications and clarifications:

(1) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(2) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(3) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this Document and throughout the Code adopted in **3.1** shall be deemed to refer to the Ontario Regulation 332/12 (Building Code) made under the Building Code Act 1992, as amended, commonly known as Ontario Building Code or OBC;

(4) In addition to the requirements specified in **2.2**, electrical equipment where required in this standard shall be certified / listed to the requirements of CAN/CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment as required by 2.26.4.2 of the adopted code. [CAD Amendment 295/22]

(5) Where there is inconsistency between the Regulations and this Code (e.g. Requirement 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(6) Requirement 2.1.6.2 is amended by adding the following language (in red type only)

2.1.6.2 On sides not used for loading and unloading
(c) where recesses or setbacks exceeding 100 mm (4 in.) occur in the enclosure wall, the top of the recess or setback shall be beveled at an angle not less than 75 deg with the horizontal, except that on:

(1) horizontal mullions of curtain walls;

(2) horizontal surfaces of structural steel hoistway beams;

(3) foundation ledges; or

(4) a combination of the above,

where these horizontal surfaces form part of the hoistway of an observation elevator where bevelling would result in obstruction of glazing materials, the bevelling of these surfaces is not required. [CAD Amendment 295/22]

(7) Requirement 2.5.1.6 is amended by adding the following language (in red type only):

2.5.1.6 Clearance Between Car Platform Apron and Pit Enclosure.
Where the lowest landing sill, on each side of the hoistway, projects into the hoistway, the clearance between the car platform apron and the pit enclosure or fascia plate shall be not more than 32 mm (1.25 in.). This clearance shall be maintained, between the bottom vertical face of the apron and the pit fascia, until the car is resting on its fully compressed buffer.

(8) Requirement 2.10.2 is amended by adding the following language (in red type only) (see also **3.8.2**):

2.10.2 Standard Railing
Note: A standard railing has the same meaning as a guard rail in R.R.O. 1990, Reg. 851, s. 14

2.10.2.3 Toe-board
Note: Ontario Regulation 851 (Industrial Establishments) requires a toe-board that extends from the surface to be guarded to a height of at least 125 mm (5 in.) if tools or other objects may fall on a worker. Where this hazard is not present the 100mm (4 in.) provision in A17.1/B44 may apply.

2.10.2.4 Strength of Standard Railing
Note: Refer to R.R.O. 1990, Reg. 851, s. 14 and the Building Code for strength requirements applicable in Ontario. [CAD Amendment 295/22] *(245/10)*

(9) Requirement 2.13.5.2 is amended by the following (in red type only):

2.13.5.2 Rendering Inoperative
(a) The reopening device(s) shall be permitted to be rendered inoperative
(1)…<no change>
(2) for detection of approaching objects
(-a)… <no change>
(-b) when 5 s ~~20 s~~ have transpired after the detection means of approaching objects first detects an object. When an object is detected in the path of the doors, the 5 s ~~20 s~~ duration shall reset.
Note: The change to 5 seconds is from ASME Code Case 20-1017. [CAD Amendment 295/22r1]

(10) Requirement 2.24.8.5 is amended by adding the following language (in red type only):

2.24.8.5 Brake Information Plates. The brake setting and method of measurement shall be provided on the driving machine on a data plate complying with 8.13.1 or a marking plate complying with 8.13.3 and shall be readily visible after installation.
The brake setting method if field adjustable shall specify either the required no load torque for both the clockwise and counter clockwise directions, the no load braking slide distance associated with the car travelling in the up direction, or another method that can be used to verify the brake's correct holding capacity with no load, otherwise the driving machine brake shall be tested annually with rated load (see 8.6.4.20.4(a)) or via accepted alternative tests methods for brakes (see 8.6.4.20.4(b)). Where the brake is not field adjustable, the brake information plate shall advise "brake(s) are not field adjustable" and shall reference the unique procedure document (see 8.6.1.2.2(b)(3)) where the method of measurement is provided. [CAD Amendment 295/22r1]

(11) Requirement **2.27.3.2. Phase I Emergency Recall Operation by Fire Alarm Initiating Devices** is amended by deleting text where noted and adding the following language (in red type only):

2.27.3.2.2 In jurisdictions enforcing the NBCC, smoke detectors, or heat detectors in environments not suitable for smoke detectors (fire alarm initiating devices), used to initiate Phase I Emergency Recall Operation, shall be installed in conformance with the requirements of the NBCC, and shall be located

(a) at each elevator lobby served by the elevator
(b) in the associated elevator machine room, a machinery space containing a motor controller or driving machine, a control space, or a control room, ~~and~~
(c) in the elevator hoistway, when sprinklers are located in those hoistways, and
(d) in elevator and dumbwaiter shafts, where required by the Building Code (O. Reg. 332/12 Article 3.2.4.11.(2)(e))

2.27.3.2.2.1 Where a building fire alarm system is not required by OBC the initiating devices referred to in 2.27.3.2.2 shall be installed and shall be connected to a Dedicated Function Fire Alarm (DFFA). The installation of this control panel shall conform to the following:

(1) the panel shall be permanently identified as "Elevator Recall Control and Supervisory Control Unit" in lettering not less than 6mm (0.25in.) in height;

(2) the installation or alteration of any fire alarm systems or DFFA system must be installed in accordance with CAN/ULC-S524 (Installation of Fire Alarm Systems); and

(3) where a DFFA has been installed to serve as an Elevator Recall Control and Supervisory Control Unit, the system shall be subject to inspection and testing in accordance with CAN/ULC-S536 (Inspection and Testing of Fire Alarm Systems). For these systems the owner or contractor shall provide written confirmation of testing at the initial inspection, and confirmation of annual testing shall be available to an inspector upon request.

NOTES:
(1) 2.27.3.2.2: Smoke and heat detectors (fire alarm initiating devices) are referred to as "fire detectors" in the NBCC. Pull stations are not deemed to be fire detectors.
(2) 2.27.3.2.2(b): A machinery space containing a motor controller or driving machine located in the elevator hoistway or a control space located in the elevator hoistway requires a fire alarm initiating device regardless of the presence of sprinklers.
(3) The installation or alteration of a fire alarm system, including dedicated function fire alarm systems require permits and installation by qualified personnel.
(4) See 8.6.11.1 for notes related to DFFA testing.
[CAD Amendment 261/13-r1] [CAD Amendment 295/22]

2.27.3.2.4 When Phase I Emergency Recall Operation to the designated level is not in effect, Phase I Emergency Recall Operation to an alternate level (see Section 1.3) shall conform to the following:

(a) the activation of a fire alarm initiating device specified in 2.27.3.2.1(a) or 2.27.3.2.2(a) that is located at the designated level shall cause all elevators serving that level to be recalled to an alternate level, except alternate floor recall is not required if the *floor area* containing the recall level is *sprinklered,* as permitted by the Building Code (O. Reg 332/12 article 3.2.4.15.(3)).
[CAD Amendment 250-11]

(b) the requirements of 2.27.3.1.6(c), 2.27.3.1.6(e) through 2.27.3.1.6(h), and 2.27.3.1.6(j) through

2.27.3.1.6(n)

(c) the requirements of 2.27.3.1.6(a), 2.27.3.1.6(b), 2.27.3.1.6(d), and 2.27.3.1.6(i), except that all references to the "designated level" shall be replaced with "alternate level"

(12) The opening requirement of 3.7 – Machinery Spaces, Machine Rooms, Control Spaces and Control Rooms, is amended by adding the following language (in red type only):

A machinery space outside the hoistway containing a hydraulic machine and a motor controller shall be a machine room, or a machinery space with headroom of not less than 2130 mm (84").
[CAD Amendment 250-11]

(13) Requirement 3.15.1.1 (Car Frames and Platforms) is amended by adding the following language (in red type only):

3.15.1.1 Direct-acting hydraulic elevators shall be provided with car frames and platforms conforming to Section 2.15, subject to the modification hereinafter specified, except 2.15.9.2(b) is not adopted. (See CAD 3.10).
(See 3.18.2.3 for connection between plunger and platform or car frame.)
A car frame shall not be required, provided 3.15.1.1.1 through 3.15.1.1.6 are conformed to.

(14) Requirement 5.2.1.4.4 – Alternative to Top Car Clearance Requirement, is adopted for new and existing buildings

(15) Requirement 5.2.1.14 is amended by adding the following language (in red type only):

(n) where conformance to 2.14.1.7 is required and the provisions of 5.2.1.4.4 have been utilized , the provisions of 8.7.2.14.5.2 for collapsible railing design are permitted for new installations.
[CAD Amendment 250-11] [CAD Amendment 295/22]

(16) Requirement 5.2.1.15.2 is amended by adding the following language (in red type only):

5.2.1.15.2 Platform Guards. *(166/01)*

(a) Requirement 2.15.9.2 applies to LU/LA elevators that utilize traction drives and that serve 3 or more floors, except that where the device conforms to (1) and (2), the requirements of (b) shall be permitted:
  (1) the elevating device is equipped with a car door interlock;
  (2) means are provided to move the car toward the landing to facilitate emergency evacuations which comply with 2.7.6.4.3.

(b) Requirement 2.15.9.2 does not apply to LU/LA elevators utilizing hydraulic or roped hydraulic drive and serving 2 or more floors, provided that the following requirements are met:

  (1) The platform guard shall have a straight vertical face, extending below the floor surface of the platform of not less than the depth of the unlocking zone (see 2.12.1) plus 75 mm (3 in.) but in no case less than the maximum distance from the landing that it takes to stop and hold the car upon detection and actuation of the device as prescribed in 2.19.2.

  (2) Owners of LULA elevators shall complete and sign a SUPPLEMENTARY OWNERS REPORT FOR LULA ELEVATORS indicating their understanding that:
    (i) only elevator personnel are permitted to unlock hoistway doors;
    (ii) only emergency personnel are permitted to perform emergency evacuations;
    (iii) access to the unlocking device is controlled or has a controlled procedure; and

(iv) owners shall ensure the appropriate building personnel are made aware of these requirements.

(3) Signage shall be provided on the apron plate that meets the following criteria:
(i) lettering shall be a minimum of 16 mm in height;
(ii) the sign shall remain permanent and readily legible, viewable from the hall; and
(iii) the context of the message shall convey the following information;
(a) a 'warning' advising of the potential fall hazard that exists below when the car is above the floor level;
(b) lower the car prior to attempting rescue of trapped passengers; and
(c) lowering and rescue by trained personnel only. [CAD Amendment-250-11]

(17) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(18) Sections 5.3, 8.6.7.3 and 8.7.5.3 – Private Residence Elevators, are not adopted;

(19) Sections 5.4, 8.6.7.4 and 8.7.5.4 – Private Residence Inclined Elevators, are not adopted;

(20) Sections 5.7, 8.6.7.7 and 8.7.5.7 – Special Purpose Personnel Elevators, are not adopted;

(21) Sections 5.8, 8.6.7.8 and 8.7.5.8 – Marine Elevators, are not adopted;

(22) Sections 5.9, 8.6.7.9 and 8.7.5.9 – Mine Elevators, are not adopted;

(23) Section 5.10 "Elevators Used for Construction" is adopted with the following modifications:

"Elevators Used for Construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

a) 5.10.1.9.5(a) is not adopted,

b) 5.10.1.9.5(b) is revoked and the following substituted:

5.10.1.9.5(b)
(b) Regardless of car speed ~~For elevators with car speeds over 1.75 m/s (350 t/min)~~, hoistway doors shall be provided with either of the following:
(1) interlocks conforming to 2.12.2; or
(2) combination mechanical locks and electric contacts conforming to 2.12.3

(24) Requirements 6.1.6.2.1 regarding starting and 6.1.6.3.1 regarding stopping and 6.1.4.1.1 regarding speed variation are amended by adding the following language (in red type only):

Escalator operation in accordance with Section 5.3.5 of NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail Systems (2020 Edition), shall be permitted for transit facilities. [CAD Amendment 261-13-r1] [CAD Amendment 295-22]

Where remote stopping is provided as permitted by NFPA 130, in addition to the requirements of NFPA 130, the circuits shall duplicate the requirements for emergency stops as specified in A17.1/B44 6.1.6.3.1(c) and 6.1.6.10. Deceleration rates shall be those specified in NFPA 130. In lieu of he requirements specified in A17.1/B44 6.1.6.3.1(a) and (b), the remote stop switches shall be suitably identified and protected to prevent misuse.

Where remote starting is provide as permitted by NFPA 130, the starting circuits shall duplicate the start switch requirements of A17.1/B44 6.1.6.10. In addition to the requirements of NFPA 130

5.3.5.10, where the escalator is not visible from the location of the remote start switch, a visual means shall be provided to ensure it is safe to start the escalator from the remote location.
[CAD Amendment 295-22]

(25) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(26) Sections 7.8 to 7.10 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item **2(3)(j)** of the Elevating Device Regulation 209/01, are not adopted;

(27) The requirements of Section 8.6. Maintenance, Repair, Replacement and Testing is adopted as modified and clarified in **3.3** of this Document;

(28) The requirements of Section 8.7 – Alterations, is adopted, as modified and clarified in **3.4** of this Document;

(29) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;

(30) Section 8.9 – Code Data Plate, is adopted except that the requirements for existing devices shall only apply to Major or Minor A altered installations to B44-19 or later.

Note: requires information about the code to be used for inspections and tests effective at the time of the installation. (see 283/19) [CAD Amendment 295/22] ;

(31) Section 8.10 Acceptance Inspection and Tests, is amended by adding the following language:

8.10.2.4 / 8.10.3.4 Inspection and Test Requirements for Replacements

8.10.2.4.1
(a) Where a driving machine is replaced (see 8.6.3.16.1), tests shall be performed as specified in 8.10.2.2.2(o), and (u) through (z), (cc)(1), (cc)(2), (cc)(3) [except (cc)(3)(-c), unless required as installed or last altered], (dd), and (kk); and 8.10.2.2.1(q).
Tests as specified in requirements 8.10.2.2.2(cc)(3) and (jj) are required if these features were present when the unit was installed or last altered.

(b) Where a controller is replaced (see 8.6.3.16.2); tests shall be performed, if these features were present when the unit was installed or last altered, as specified in 8.10.2.2.1(c), (j), (l)(5), (q), and (t); 8.10.2.2.2(r), (s), (t), (v), (aa), (bb), (ff), (gg), (jj) and (kk); 8.10.2.2.6; and 8.10.2.2.3(o). All electric protective devices shall be tested for proper operation.

8.10.3.4.1
(a) Where a controller is replaced (see 8.6.3.16.2); tests shall be performed, for those features that were present when the unit was installed or last altered, as specified in 8.10.2.2.1(l)(5), and 8.10.2.2.2(q), (s), (t)(1), (t)(2), (t)(4), and (ll); and 8.10.2.2.1(t), and 8.10.2.2.3(o). All electrical protective devices shall be tested for proper operation.
[CAD Amendment 295/22-r1]

(32) Section 8.11 - Periodic Inspection and Test Requirements are not adopted.

3.2 Performance Based Safety Code

3.2.1 Where conformance with the prescriptive requirements in **3.1** are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 (R2012) Performance-based safety code for elevators and escalators.

3.3 Maintenance, Repair, Replacement, and Testing

3.3.1 A Maintenance Control Program (MCP) referred to in the code adopted in **3.1** shall have the same meaning as "general instructions for maintenance' referred to in Ontario Regulation 209/01 s.25.(2).

3.3.2 A copy of the Maintenance Control Program shall be provided for every new elevating device installation as required in Ontario Regulation 209/01, s.15.(4)(c).

3.3.3 Where a Maintenance Control Program has been implemented on an existing device, a copy of the Maintenance Control Program (MCP) shall be supplied to the owner of the elevating device.

3.3.4 Section **8.6 Maintenance, Repair, Replacement, and Testing** is adopted with the following modifications:

(a) **8.6.1.2 General Maintenance Requirements** is amended by adding the following language (in red type only) to the end of requirement 8.6.1.2.1:

8.6.1.2.1 A written Maintenance Control Program (MCP) shall be in place to maintain the equipment in compliance with the requirements of Section 8.6. The MCP shall specify examinations, tests, cleaning, lubrication, and adjustments to applicable components at regular intervals (see Section 1.3 for the definition of "maintenance") and shall comply with the following:

(e) The specified scheduled maintenance intervals (see Section 1.3) shall, as applicable, be based on
- *(1)* equipment age, condition, and accumulated wear
- *(2)* design and inherent quality of the equipment
- *(3)* usage
- *(4)* environmental conditions
- *(5)* improved technology
- *(6)* the manufacturer's recommendations and original equipment certification for any SIL rated devices or circuits (see 8.6.3.12 and 8.7.1.9)
- *(7)* the manufacturer's recommendations based on any ASME A17.7/CSA B44.7–approved components or functions

(f) The scheduled maintenance interval based on 8.6.1.2.1(e) shall also conform to the following:
- *(1)* the maintenance interval for an elevating device shall not exceed three months
- *(2)* the maintenance interval for Oil Loss Monitoring (see **CAD 2.9**) shall not exceed three months
- *(3)* the inspection of Suspension Means addressed in 8.6.4.1 shall not exceeding 12 months and shall be replaced per the replacement criterion specified in ASME A17.6.
- *(4)* the maintenance interval for door systems in 8.6.4.13 shall not exceed six months, and [CAD Amendment 261-13] [CAD Amendment 295/22]
- *(5)* the interval for category tests shall be,
  (a) category 1 tests are performed annually,
  (b) category 3 tests are performed every 3 years and
  (c) category 5 tests are performed every 5 years. [CAD Amendment 261-13]

(b) **8.6.1.4.1 On-Site Maintenance Records** is amended by adding the following language (in red):

8.6.1.4.1 On-Site Maintenance Records

(a) *Maintenance Control Program Records*

(3) MCP records shall be viewable on-site by elevator personnel in either hard copy or electronic format acceptable to the authority having jurisdiction and shall include but not limited to the following:

(-a) site name and address,

(-b) service provider (Contractor) name,

(-c) conveyance identification (ID) (TSSA or MCCR installation number) and type,

(-d) date of record,

(-e) a description of the maintenance task, interval, and associated requirements of 8.6,

(-f) indication of completion of maintenance task,

(-g) year and month when the task was performed,

(-h) Contractor's Registration Number, and

(-i) the printed name, signature and mechanic certification number of the person(s) who completed the task, except that where tasks are not yet completed, or where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the task is complete or the defect is adjusted, repaired or replaced. *(242/10)*
[CAD Amendment 261-13]

(c) **8.6.1.4.2 Call Backs (Trouble Calls)** is amended by adding with the following language (in red type only):

These records shall be maintained for a minimum of one year.
[CAD Amendment 261-13] [CAD Amendment 295/22]

(d) **8.6.1.7 Periodic Tests** is amended by adding with the following language (in red type only):

8.6.1.7 Periodic Tests
The frequency of periodic tests shall be established by the authority having jurisdiction as required by 8.11.1.3.

NOTE(s):

(1) The recommended intervals for periodic tests can be found in Nonmandatory Appendix N.

(2) Anniversary dates are based on the Month and Year of an acceptance test. Subsequent Category tests shall not exceed the number of months of a given category test interval.

(3) Staggered CAT test dates for a group of devices (caused by staggered acceptance test dates) may be consolidated provided they do not exceed the date of the device with the shortest retest date.

(4) Acceptance testing following a qualifying major alteration may be used to reset an applicable anniversary date of a subsequent Category test.

(5) Changes to Anniversary dates shall be noted in the logbook with rationale.

(6) Category tests performed late shall not reset anniversary dates. *(288/20)*
[CAD Amendment 295/22]

8.6.1.7.1 Is not adopted

(e) **8.6.3 Replacements** is amended as follows:

(1) by adding the following language (in red type only),

8.6.3.11 Replacement of Valves and Piping.
Where any valves, piping, or fittings are replaced, replacements shall conform to Section 3.19 with the exception of 3.19.4.6. Replacement control valves shall conform to the Code under which they were installed. When changing valves, pressure piping, or fittings to a different type, see 8.7.3.24.
[CAD Amendment 295/22]

(2) by adding requirement 8.6.3.16 and corresponding test requirement 8.10.2.4.1(a) as follows,

8.6.3.16.1 Replacement of the Complete Driving Machine

(a) Where an electric elevator driving machine (see A17.1/B44 Section 1.3) is replaced, it shall be considered an alteration and shall conform to 8.7.2.25.1 except, the replacement driving machine shall be permitted to conform to the code under which the original machine was installed, or altered if;

(1) the driving machine is replaced with equipment approved by the original equipment elevator manufacturer as being equivalent to the original make and model or,

(2) the replaced driving machine is certified by a licensed professional engineer as being equivalent to the original make and model and able to meet the original design criteria of the elevator system

(b) Where an electric elevator driving machine is replaced in accordance with 8.6.3.16.1(a)(1) or 8.6.3.16.1(a)(2) it shall be inspected and tested in accordance with the requirements specified in 8.10.2.4.1(a) See CAD section 3.1.1(c)(31).

[CAD Amendment 295/22] [CAD Amendment 295/22r1]

(c) Where a driving machine is replaced and does not qualify as a replacement under 8.6.3.16.1(a)(1) or 8.6.3.16.1(a)(2) it shall be considered an alteration and shall conform to the requirements of 8.7.2.25.1(a) except that:

(1) if the elevator controllers are pre-B44-00 and the installation had ascending car overspeed and unintended car movement protection, then

(i) ascending car overspeed and unintended car movement protection shall be retained;

(ii) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later; and

(iii) the means shall require manual reset.

(2) if the elevator controllers are pre-B44-00 and the installation had only ascending car overspeed protection, then

(i) ascending car overspeed protection shall be retained;

(ii) the addition of unintended car movement protection is permitted;

(iii) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later; and

(iv) the means shall require manual reset.

(3) if the elevator controllers are pre-B44-00 and ascending car overspeed and unintended car movement protection was not previously existing:

(i) ascending car overspeed and unintended car movement protection shall be provided;

(ii) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later; and

(iii) the means shall require manual reset. *(226/07)*

[CAD Amendment 250-11]

(3) by adding requirement 8.6.3.16.2 as follows,

8.6.3.16.2 Replacement of Controller *(226/07)*

(a) Where an elevator controller is replaced, with either;

(1) a motion controller,

(2) an operation controller,

(3) a motion and operation controller, or

(4) a door controller

it shall be considered an alteration and shall conform to 8.7.2.27.4 or 8.7.3.31.5 as applicable.

(b) Where a controller specified in (a) is replaced with equipment equivalent to the original make and model, due to;

(1) damage or loss, and

(2) for the purpose of matching other equipment in the group it shall be permitted to conform to the code under which the original controller was installed or last altered, and shall be considered an alteration as in (a) and

inspected and tested in accordance with the requirements specified in 8.10.2.4.1(b) or 8.10.3.4.1(a) as applicable. See CAD section 3.1.1(c)(31)

[CAD Amendment 295/22] [CAD Amendment 295/22r1]

(4) by adding requirement 8.6.3.27 as follows,

8.6.3.27 Replacement of Anticreep Leveling Device *(226/07)*
Where an anticreep leveling device is replaced it shall conform to 8.7.3.31.3.

(f) **8.6.4 Maintenance and Testing of Electric Elevators** is amended as follows:

(1) by adding the following language (in red type only),

8.6.4.1 Suspension and Compensation Means
8.6.4.1.1 Suspension and compensating means shall be kept sufficiently clean so that they can be visually inspected. Suspension Means shall be inspected at intervals not exceeding 12 months.
[CAD Amendment 250-11]

(2) by adding the following language (in red type only),

8.6.4.6.2 If any part of the driving-machine brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the brake when required (see 2.24.8.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity. A test complying with 8.6.4.20.4 or a test meeting CAD 8.6.4.19.25 shall be performed.
[CAD Amendment 295/22-r1]

(3) by adding the following language (in red type only) to the beginning of requirement 8.6.4.13,

8.6.4.13 Door Systems
The maintenance of door systems shall be completed at an interval not exceeding 6 months.
[CAD Amendment 250-11] [CAD Amendment 295/22]

(4) by adding the following language (in red type only),

8.6.4.15 Car Emergency System. Emergency operation of signaling devices (see Section 2.27), lighting (see 2.14.7), communication (see 2.27.1.1.2, 2.27.1.1.3, and 2.27.1.2), and ventilation (see 2.14.2.3) shall be maintained. Where a dedicated function fire alarm system has been added to comply with CAD requirement 2.27.3.2.2(b) the owner shall ensure that testing of the "Elevator Recall Control and Supervisory Control Unit" is performed annually.
[CAD Amendment 261-13-r1]

(5) by adding the following language (in red type only),

8.6.4.19.11 Ascending Car Overspeed Protection and Unintended Car Movement Devices, and Emergency Brake
(c) Tests. Unintended car movement shall be subjected to tests with no load in the car at the slowest operating (inspection) speed in the up direction. Testing shall confirm compliance with 2.19.2 due to an elevator rollaway caused by a brake and releveling failure. [CAD Amendment 261-13]

(6) by adding the following language (in red type only),

8.6.4.19.25 Driving Machine Brakes
The driving machine brake shall be tested annually to verify compliance with 2.24.8.3 and ensure they are adjusted properly per the Brake Information Plate (see **2.24.8.5** in the CAD).
[CAD Amendment 250-11] [CAD Amendment 295/22]

(7) by adding the following language (in red type only),

8.6.4.20 Periodic Test Requirements — Category 5
NOTE: For test frequency, see 8.11.1.3.

Where category 5 tests require the use of load for testing purposes, alternative no load methods shall be permitted where the alternative method is acceptable to the director.

(8) by adding the following language (in red type only) to the end of this requirement,

8.6.4.20.1 Car and Counterweight Safeties
(c) Governor-operated wood guide-rail safeties shall be tested by tripping the governor by hand with the car at rest and moving the car in the down direction until it is brought to rest by the safety and the hoisting ropes slip on traction sheaves or become slack on winding drum sheaves (Item 2.29.2.). (Note: Aligns with 4.2.2.1 of B44.2-10)
[CAD Amendment 250-11]

(9) by adding the following language (in red type only) to the end of this requirement,

8.6.4.20.6 Emergency Terminal Stopping and Speed-Limiting Devices.
Note: During Category testing it is not the expectation that this test be performed at rated load. No load testing is permissible. [CAD Amendment 295/22]

(10) by adding the following language (in red type only) to the end of this requirement,

8.6.4.20.11 Emergency Brake.
(c) Alternative Test Method for Emergency Brakes. The alternative test methods shall comply with 8.6.11.10 and the following:

(1) Any method for verifying conformity of the emergency brake with the applicable Code requirements (see 2.19.3.2) shall be permitted, including the testing method of the emergency brakes with or without any load in the car, provided that when applied the method verifies that the emergency brake performs or is capable of performing in compliance with 8.6.4.20.11(a) and 8.6.4.20.11(b).
(2) A test tag as required in 8.6.1.7.2 shall be provided.
[CAD Amendment 295/22]

(g) **8.6.5 Maintenance and Testing of Hydraulic Elevators** is amended as follows:

(1) by adding the following language (in red type only) to the end of requirement 8.6.5.7,

8.6.5.7 Record of Oil Usage.
The record of oil usage shall follow the oil loss monitoring requirements of section 2.9 of this Code Adoption Document.
[CAD Amendment 250-11]

(2) by deleting the noted text and adding the following language (in red type only),

8.6.5.14.3 Additional Tests. The following tests shall also be performed:
(a) Normal terminal stopping devices (8.6.4.19.5) (Item 3.5.2)
(b) Governors (8.6.4.19.3) (Item 2.13.2.2)
(c) Safeties (8.6.4.19.2) (Item 5.8.2)
(d) Oil buffers (8.6.4.19.1) (Item 5.12)
(e) Firefighters' Emergency Operation (8.6.4.19.6) (Items 6.1 through 6.5, as applicable)
(f) Standby or emergency power operation (8.6.4.19.7) (Item 1.17.2.2)
NOTE: Absorption of regenerated power (2.26.10) does not apply to hydraulic elevators.
(g) Sequence operation of power door systems (Item 4.7)
(h) Terminal Speed-Reducing Device ~~Emergency terminal speed-limiting device and emergency terminal stopping device~~ (3.25.2) (Item 3.6.2.2)
(i) Low oil protection operation (3.26.9) (Item 2.39.2)
(j) Auxiliary Power Lowering Device. The auxiliary power lowering device, where provided, shall be tested with no load in the car for conformance with applicable requirements (3.26.10) (Item 2.44).
(k) Requirement 2.26.10 does not apply

[CAD Amendment 295/22]

(h) **8.6.8.15.19 Step Skirt Performance Index** is amended as follows;

(1) by adding the following language (in red type only) to the end of requirement 8.6.8.15.19,

8.6.8.15.19
(f) The step/skirt performance index shall conform to the requirements in 8.6.8.3 or ASME A17.3 requirement 5.1.11 (Item 7.17). The results of the test output and graphs shall be kept in the MCP. [CAD Amendment 295/22]

(i) **8.6.11 Special Provisions** is amended as follows:

(1) by adding the following language (in red type only) to the notes section of the this requirement,

8.6.11.1 Firefighters' Emergency Operation
Note(s):
(1) See Nonmandatory Appendix AA for additional operational verification.
(2) Where a dedicated function fire alarm (DFFA) system has been added to comply with CAD requirement **2.27.3.2.2(b)** the owner shall ensure that testing of the "Elevator Recall Control and Supervisory Control Unit" is performed annually in accordance with CAN/ULC-S536 (Inspection and Testing of Fire Alarm Systems), with written confirmation of testing provided in the machine room or location of the elevator's log books. [CAD Amendment 261-13-r1]

(2) by deleting text as noted and adding the following language (in red type only) to requirement 8.6.11.6.1(b),

8.6.11.6 Escalators and Moving Walks Startup and Procedures
8.6.11.6.1
b) Out of service or stopped escalators ~~shall~~ should not be used as a means of access or egress by non-authorized personnel and ~~shall~~ should be properly barricaded if accessible to the general public to prevent such use.
NOTE(S):
(1) Proper barricades are described in the Elevator Industry Field Employee Safety Handbook-Escalator/Moving Walk Barricades.
(2) Per provisions in OBC and NFPA 130, escalators in rapid transit facilities may form part of the pedestrian egress route.
(3) Stationary escalators do not have uniform tread rise and may pose unique risks not associated with typical stairways.
(4) The treadway of a stationary escalator relies on the escalators brake to ensure the treadway will not move under loading conditions (eg pedestrian traffic). Escalators should never be used as a stairway if the brakes holding capacity is suspect. See **8.6.11.6.2(c2)** for confirmation of adequate breaking capacity. See **CAD 3.21** for stopping distance check sign.
(5) See **CAD 2.13** for parts affecting safe operation and risk assessment for device use.
[CAD Amendment 261-13]

(3) by adding the following language (in red type only) to requirement 8.6.11.6.2,

8.6.11.6.2 The following procedure shall be utilized when starting an escalator or moving walk:
(a) Prior to starting the unit, observe the steps or pallets and both landing areas to ensure no persons are on the unit or about to board. Run the unit away from the landing.
(b) Verify correct operation of the starting switch.
(c1) Verify correct operation of the stop buttons.

(c2) Observe steps stop within the distance on the daily stopping distance check sign (usually one step length or less), as required by **CAD 3.21**. This requirement does not apply to Escalators installed to B44-2019 or later.

(d) Verify correct operation of each stop button cover alarm, if furnished.

(e) Visually examine the steps or treadway for damaged or missing components; combplates for broken or missing teeth; skirt or dynamic skirt panels and balustrades for damage.

(f) Verify that both handrails travel at substantially the same speed as the steps or the treadway, are free from damage or pinch points, and that entry guards are in place.

(g) Visually verify that all steps, pallets, or the treadway is properly positioned.

(h) Verify that ceiling intersection guards, anti-slide devices, deck barricades, and caution signs are securely in place.

(i) Verify that demarcation lighting is illuminated, if furnished.

(j) Check for uniform lighting on steps/tread not contrasting with surrounding areas.

(k) Verify that the safety zone is clear of obstacles and that the landing area and adjacent floor area are free from foreign matter and slipping or tripping hazards.

(l) Check for any unusual noise or vibration during operation.

If any of the conditions in (a) through (l) is unsatisfactory, the unit shall be placed out of service. Barricade the landing areas and notify the responsible party of the problem.
[CAD Amendment 261-13] [CAD Amendment 295/22]

(4) by adding the following language (in red type only),

8.6.11.10 Category 5 tests without Load via Alternative Test Methodologies
8.6.11.10.1 Where Permitted. Alternative methods without load are permitted for Category 5 testing of the following, subject to approval by the authority having jurisdiction:
(a) car and counterweight safeties per 8.6.4.20.1
(b) oil buffers per 8.6.4.20.3
(c) driving-machine brakes per 8.6.4.20.4
(d) braking system, traction, and traction limits per 8.6.4.20.10
(e) emergency brake per 8.6.4.20.11
NOTE: See Section 8.10, Note (2).
[CAD Amendment 295/22]

(5) by adding the following language (in red type only),

8.6.11.10.3 Alternative Test Method Procedure.
The alternative test method shall
(a) include requirements to obtain and verify car and counterweight masses if necessary for the test
(b) have a procedure document that
(1) defines the permissible equipment range and limitations regarding use
(2) establishes monitoring and calibration criteria for tools or measuring devices as appropriate
(3) defines the test setup procedure
(4) provides instructions on how to interpret results and correlate the results to pass–fail criteria
(c) describe how to correlate no-load test results with previously acquired full-load and no-load results if necessary for the test method
(d) be included in the MCP [see 8.6.1.2.1(a)]
(e) include the information required by 8.6.1.2.2(b)(5) where applicable
(f) require a report conforming to 8.6.11.10.4
[CAD Amendment 295/22]

(6) by adding the following language (in red type only),

8.6.11.10.4 Alternative Test Method Report.

The alternative test method report shall

(a) identify the alternative test tool (make/model) used to perform the test
(b) identify the company performing the tests, names of personnel conducting and witnessing the tests, and testing dates
(c) contain all required printouts or record of tests required to demonstrate compliance with the testing requirement that were gathered during an acceptance test
(d) identify which results from the baseline test are to be used for future compliance evaluation if necessary for the test method
(e) record the car and counterweight masses that were obtained per 8.6.11.10.3(a) during the acceptance test and during any subsequent Category 5 test if required by the test method
(f) contain all subsequent Category 5 results with pass–fail conclusions regarding Code compliance
(g) remain on-site or shall be available to elevator personnel and the authority having jurisdiction [CAD Amendment 295/22]

3.4 Alterations

3.4.1 Notwithstanding section **2.6**, alterations of an elevator, dumbwaiter, escalator, moving walk, and material lifts shall conform to the requirements of the code adopted in subsection **3.1** and as specified by the director.

3.4.2 Alterations to freight platform lifts type - B shall conform to the requirements for Material Lifts Type - B as required by the code adopted in subsection **3.1** and as specified by the director.

3.4.3 Alterations to freight platform lifts type - A shall conform to the requirements for Material Lifts Type- B as required by the code adopted in subsection **3.1** and as specified by the director, except that 'in-car' controls are prohibited and no persons shall be permitted to ride.

3.4.4 Alteration submission documents shall adhere to the latest edition of Director's Guideline on alterations (296/22 as revised) and shall be accompanied by a completed alterations checklist (latest edition). [CAD Amendment 295/22r1]

3.5 Rated Load

3.5.1 For the purpose of this Document and subsection 31.(3) of the Regulation, "rated load" in the code adopted in subsection **3.1**, means "maximum capacity".

3.6 Rope Clips

3.6.1 Rope clip fastenings shall not be used when suspension ropes are changed on an existing elevator.

3.7 Access to Machine Rooms and Spaces

3.7.1 Every elevator shall have a safe and convenient access to its machine room and machinery space. [CAD Amendment 246-11]

3.8 Requirements for Existing Passenger and Freight Elevators *(245/10) (173/02)*

3.8.1 Notwithstanding section 4 of the Regulation, every existing passenger and freight elevator that was installed before the 1st day of May, 1981 and that does not have car safeties, a speed governor, a braking system and hoistway-door interlocks or hoistway-door locks and contacts conforming to the requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition,

shall conform to the applicable requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition. [CAD Amendment 246-11]

3.8.2 All elevators equipped with a car top that is intended to serve as a platform for a worker, "where the perpendicular distance between the edges of the car enclosure top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance and on sides where there is no hoistway enclosure", shall be equipped with a guardrail in conformance with 2.10.2 as amended in this Document (see **3.1.1(c)(11)**) and as modified by 2.14.1.7 or as permitted by 8.7.2.14.5.2 of the code adopted in **3.1** [CAD Amendment 250-11] [CAD Amendment 295/22]

3.8.3 All existing passenger and freight elevators with full or partial car tops shall be equipped with a car top maintenance station and a structurally sound working surface. [CAD Amendment 250-11]

3.9 Requirements for Existing Dumbwaiters or Freight Platform Lifts *(253/12)*

3.9.1 Every existing power dumbwaiter or freight platform lift that was installed before the 1st day of May, 1981 and that does not have hoistway-door interlocks or hoistway-door locks and contacts shall be provided with a locking device that shall prevent the device from moving until the door or gate is closed and that shall prevent the door or gate from being opened unless the device is at the corresponding landing. [CAD Amendment 246-11]

3.9.2 All type 'A' and type 'B' freight platform lifts and type 'B' material lifts utilizing hoistway door mechanical lock and contracts shall have their mechanical lock and contacts upgraded to interlocks by May 1, 2014. New or modified circuits relevant to this upgrade shall be arranged such as to comply with A17.1-2010/B44-10, requirement 2.26.9.3.1(a) and (b). When a single ground or failure as specified in 2.26.9.3.1 occurs, the car shall not be permitted to restart. [CAD Amendment 263-13-r1]

3.10 Platform Apron Requirements *(166/01) (260/14)*

3.10.1 Every passenger elevator installed before the 1st day of May, 1981 and currently operated in an apartment building, condominium apartment building or educational institution and every passenger elevator installed after that date in any building, shall be provided at the entrance side with a smooth apron made of metal not less than 1.5 mm (1/16 in.) thick, or made of material of equivalent strength and stiffness, reinforced and braced to the car platform such that:

(a) it does not extend less than the full width of the widest hoistway door opening;

(b) it has a straight vertical face, extending below the floor surface of the car-platform, of not less than 1,200 mm (48 in.), except that for an existing elevator this may be reduced where the hoistway pit is not deep enough to accommodate a larger vertical face;

(c) its lower portion is bent back at an angle not less than 60 degrees and not more than 75 degrees from the horizontal with a bent leg length of not less than 20 mm (0.8 in.) and not greater than 32 mm (1.25 in.); and

(d) it is securely braced and fastened in place to withstand a constant force of 500 newtons applied at right angles to and:

(1) at 450 mm (18 in.) from the top without deflecting more than 6 mm (0.25 in.), or

(2) at 1,150 mm (46 in.) millimetres from the top without deflecting more than 50 mm (2 in.),

and without permanent deformation.

3.10.2 Every passenger elevator referred to in subsection **3.10.1** shall have a pit deep enough to accommodate the apron required in subsection **3.10.1**, and to provide a minimum 25 mm (1 in.) clearance between the bottom edge of the apron and the pit floor when the car is on fully compressed buffers, except as permitted in **3.10.1(b)**.

3.10.3 Where an existing pit depth does not permit the length of apron required by **3.10.1(b)** and the clearances required in **3.10.2**, the apron is permitted to be either;

(a) Retractable and incorporating the appropriate switches to determine apron is fully extended before travelling 1200mm (48 in.) above the lowest landing, or

(b) The maximum length the pit depth allows, when taking into consideration the minimum code required runbys and buffer stroke, in conjunction with the addition of a car door restrictor. *(260/14)* [CAD Amendment 295/22]

3.10.4 Traction drive Limited-Use/Limited-Application (LULA) elevators serving 3 or more floors shall conform to **3.10.1** and **3.10.2**, otherwise 2 stop traction, hydraulic or roped hydraulic drive Lulas' are exempt from these requirements provided that;

(a) a supplementary owners report for Lula elevators has been filed with the Director and;

(b) a permanent and readily visible sign viewable from the hall landing has been provided on the apron in lettering not less than 16 mm in height, that advises;

(1) of a potential fall hazard below the car,

(2) to lower the car prior to rescue and,

(3) that lower and rescue shall be undertaken by trained personnel only. [CAD Amendment 246-11]

3.11 Door Safety Retainers for Single Slide Doors *(61/88, 97/92,109/93)*

3.11.1 Every existing passenger elevator with single slide landing doors shall be equipped with safety retainers and shall ensure that:

(a) the retainer shall withstand without detachment or permanent deformation, a force of 1000 Newtons applied upward at any point along the width of the door panel and, while this force is maintained, an additional force of 1000 Newtons applied perpendicular to the door at its centre over an area of 300 x 300 mm (15 x 15 in); and

(b) the installation of retainers was done in accordance with instructions supplied by the manufacturer of the door safety retainers. [CAD Amendment 246-11]

3.12 Low Pressure Switch *(160/01)*

3.12.1 Every hydraulic elevator where the top of the cylinder when at its highest elevation is above the storage tank, shall be equipped with a low pressure switch to prevent operation of the lowering valve(s) and other requirements specified by the code at time of installation or alteration. [CAD Amendment 246-11]

3.13 Hoarding / Screening Between Hoistways Required

(Elevator Industry Field Employees' Safety Handbook)

3.13.1 Hoarding or hoistway screening shall be provided where a licensed elevator is operating in a multiple hoistway, and construction or modernization work is being performed in an adjacent portion of that multiple hoistway, that portion of the elevator's hoistway where the work is performed shall be fully separated. This separation shall as a minimum meet the requirements of Section 8.3 of the 2015 edition of the Elevator Industry Field Employees' Safety Handbook (available from www.elevatorworld.com). [CAD Amendment 295/22]

3.14 Installation Number

3.14.1 Every elevator shall have its installation number engraved or painted on the car crosshead or other conspicuous location on the top of the car, visible from the point of access.

3.15 Attendant Operation

3.15.1 Where an elevator is controlled from one location only, an attendant shall be stationed at the controls while the elevator is available for operation.

3.16 Persons Permitted to Ride

3.16.1 Except for a freight elevator-P, no person other than an attendant(s) or freight handler(s) shall ride or be permitted to ride in a freight elevator.

3.16.2 No person other than an attendant(s) or a designated freight handler(s) shall ride or be permitted to ride in a freight platform lift-Type B or a material lift Type-B. [CAD Amendment 246-11]

3.16.3 No person shall ride or be permitted to ride on a freight platform lift-Type A or a material lift Type-A. [CAD Amendment 246-11]

3.16.4 Despite **3.16.1** and **3.16.2**, a person(s) may remain inside a motor vehicle that is on an elevating device if the device is designated as a Class B- motor vehicle loading, and the device is operated by a trained attendant or operator. [CAD Amendment 246-11]

3.17 Escalator Caution Signs

3.17.1 Every escalator installed prior to March 23, 2002 shall be fitted with a caution sign that meets the requirements of 6.1.6.9.1 ASME A17.1-2019/CSA B44-19 Safety Code for Elevators and Escalators. [CAD Amendment 246-11] [CAD Amendment 295/22]

3.18 Repositioning of an Escalator

3.18.1 Despite subsection **2.5** of this Document repositioning of an escalator within the same building or premises shall not constitute a new installation.

3.19 Escalator Brake Requirements *(85/91) (247/11)*

3.19.1 Escalators installed under CAN/CSA B44-M90 or later editions of the code shall have a data tag as required by the code at the time of the installation. Escalators installed under a prior code edition shall have a data tag in conformance with **3.19.2**.

3.19.2 Every escalator shall have a permanent and readily visible data plate affixed to the brake or machine, indicating:

(a) the method of checking the brake setting and as a minimum shall include:

(1) the minimum torque, or

(2) the maximum spring length, or

(3) other checking method; and

(b) the maximum no-load stopping distance as related to the torque, spring length, or other method, and

(c) the testing procedure and interval. [CAD Amendment 246-11]

3.19.3 Every escalator shall have device specific brake adjustment procedures or instruction that provides instruction for the maintenance mechanics to correctly adjust and check the escalator brake(s).

3.19.4 The instructions or procedures shall

(a) be posted or made otherwise available in the upper escalator pit;

(b) include detailed instructions for setting the escalator brake;

(c) include all information provided on the existing brake data tag;

(d) be of durable material such that the information contained therein will remain legible;

(e) as a minimum include the maximum no-load stopping distance as related to the manufacturer's specified brake torque, spring length etc. Where this information is missing and cannot be obtained from the original manufacturer, it is acceptable for a professional engineer in the province of Ontario to determine the no-load stopping distance; and

(f) include the method of checking the brake setting such as the 'minimum torque', or the 'maximum spring length', or other method.

3.20 Fire Code Retrofits *(60/88, 105/93, 127/96, 149/99, 219/07)*

3.20.1 Where an alteration is in response to a Fire Code Retrofit order, **all** elevators in the group, affected by the retrofit order shall be provided with:

(a) manual phase one recall operation;

(b) automatic phase one recall operation;

(c) phase two in-car operation;

(d) Firefighter's Emergency Operation conforming to any code edition after and including CAN/CSA – B44-00 Update No. 2 Safety Code for Elevators, but in no case shall the code edition be less than the code under which the device was originally installed.

(e) FEO-K1 keys for all FEO switches; and

(f) An FEO-K1 key for each switch location. [CAD Amendment 250-11]

3.20.2 Where Fire Alarm Initiating Devices need to be added to facilitate recall, their installation shall be as required in 2.27.3.2 as revised in this Document.

Note: Where a yellow hat designation was provided on an elevator that received an FCR upgrade, the yellow hat designation is required to remain, even if a subsequent alteration occurred that introduced a newer form of FEO Operation, switch markings however shall be upgraded from yellow to red.

3.21 Escalator Stopping Distance Check *(247/11)*

3.21.1 All escalators, except those incorporating stopping distance performance monitoring as defined in 6.1.5.3.4 (d) of B44-2019, shall have a "Daily Stopping Distance Check" sign posted at each end of the escalator near the stop button or start switch. [CAD Amendment 295/22]

3.21.2 The check sign shall communicate the following:

(a) Stop the empty running escalator. If the escalator travels more than " X" step(s) before stopping, do not restart. Barricade and call for service.

(1) The value of "X" in 3.21.2(a) shall be replaced with 1 or 2, and shall indicate the permitted number of steps, rounded to the nearest whole number, that was determined by the elevator contractor, that reflects the needed no load stopping distance required by the escalator brake.

3.21.3 The person(s) authorized by the owner to carry out the daily prestart checks of the escalator shall also perform the daily stopping distance check to verify the escalator braking capability aligns with the information contained on the stopping distance check sign. [CAD Amendment-261-13]

Part 4

4 MANLIFTS

4.1 Applied Code

4.1.1 Every newly installed or altered manlift shall conform to the requirements of CSA Standard B311-02 (R2018), Safety Code for Manlifts and any applicable changes set out in this document.

4.1.2 Conformance to Appendix A, B, & C is mandatory.

4.1.3 Section 7.32.9 of B311 applies to all Power-Type Manlifts. Top-of-car operating stations are not limited to lifts with wireless control and shall be provided on each power-type manlift.

4.1.4 Section 7.32 of B311: Note that requirements of section 7.36, Control and Operating Circuits, apply to "Wireless Control" as well. [CAD Amendment 246-11]

4.1.5 In addition to the requirements specified in **2.2**, electrical equipment where required in this standard shall be certified / listed to the requirements of CAN/CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment as required by 7.34.2 of CSA B311-02. [CAD Amendment 295/22]

4.2 Top of Car Requirements for Power Type Manlift

4.2.1 Every power type manlift shall be provided with,

(a) a top-of-car operating device; and

(b) a protective guard railing on the top of the car.

4.3 Inspection and Testing of Safety Brake

4.3.1 The inspection and testing of a safety brake on an endless belt type manlift required in subsection 33.(2) of the Regulation shall ensure compliance with clause 5.2.2.3 of CSA Standard B311-M1979, Safety Code for Manlifts and Supplement No. 1 1984.

4.3.2 The inspection and testing of a safety device and overspeed governor on a counter-balanced or power type manlift required in subsection 33.(3) of the Regulation shall ensure compliance with clause 6.11.8 or 7.6.8.2, as the case may be, of CSA Standard B311-M1979, Safety Code for Manlifts and Supplement No. 1 1984.

Part 5

5 PASSENGER ROPEWAYS AND PASSENGER CONVEYOR

5.1 Applied Code

5.1.1 Every new or altered passenger ropeway and passenger conveyor shall conform to the applicable requirements of CSA-Z98-19, Passenger ropeways and passenger conveyors, and any additional applicable requirements set out in this document.

5.1.2 Existing installations shall conform to CSA-Z98-19 clause 4.2 as applicable, any requirements applicable at the time of the original installation or subsequent alteration and any applicable requirements set out in this document .

5.1.3 In addition to the requirements specified in **2.2.**, electrical equipment shall be certified / listed to the requirements of CAN/CSA C22.2 No. 14, Industrial Control Equipment.

5.2 Definitions

5.2.1 In Part **5** of this document,

(a) "safety circuits" means electrical/electronic/programmable electronic system E/E/PES of a passenger ropeway or passenger conveyor having an ability to carry out the functions necessary for mitigation of unacceptable failures by preventing movement or limiting speed of passenger ropeway or conveyor.

NOTE:
1) Preventing movement may require a passenger ropeway or conveyor to stop or to prevent unwanted start-up
2) Limiting speed may require appropriate acceleration, deceleration or speed.

5.3 Amendments to CSA Z98-19

5.3.1 The requirements of 4.25.2.5 are amended by adding the following language (in red type only):

4.25.2.5 For conveyors, surface and above-surface ropeways, the brake shall be actuated by a device independent of the emergency brake overspeed device if the line velocity exceeds the design maximum speed by 10%.

5.3.2 The requirements of 4.31.1.10 are amended by adding the following language (in red type only):

4.31.1.10 *Safety circuits* shall incorporate redundancy and monitoring mechanisms to detect system failure. Monitoring of redundancy incorporated in *safety circuits* shall be done as a minimum, once per day. Relays and contactors used in *safety circuits* shall have force guided, mirrored, or mechanically linked contacts for monitoring purposes. Redundancy in *safety circuits* using software systems shall use diversification to avoid common mode failure. [CAD Amendment 246-11]

5.3.3 The requirements of 4.31.8.3 are amended by adding the following language (in red type only):

4.31.8.3 Photoelectric safety switches shall be
a) approved by their manufacturer for use in safety-related systems for persons; and
b) used in accordance with the manufacturer's instructions, or
c) as qualified in **5.5.5** of this Document. (SIL requirement)

5.3.4 The requirements of 11.8.4 are amended by deleting text as noted and adding the following language (in red type only):

11.8.4
The entire exposed length of each rope (including tensioning ropes and guys) and all connections shall be visually examined at established intervals not exceeding one year or 2000 h of operation, whichever comes first, or immediately after any incident that could affect the condition of the rope. In the case of rope counterweighted tensioning systems the whole rope needs to be examined, not just the exposed sections of rope. *(184/03)*

5.3.5 The requirements of 12.17 are amended by adding the following language (in red type only):

12.17 Periodic load testing
At intervals not exceeding five years, above-surface ropeways shall be load tested in accordance with procedures established by the manufacturer. For above-surface ropeways with detachable grips, load testing shall include the requirements of Clause 12.16.11.
Note: *A sample of a five-year load test report is included as Annex H.*
Where the Annex H template is not used, the owner's template should as a minimum have the same information. [CAD Amendment 295/22]

5.3.6 The requirements of 12.18 are amended by adding the following language (in red type only):

12.18 Non-destructive tests of carriers on above-surface ropeways
12.18.1 General
12.18.1.1 Carriers shall be tested and/or inspected in accordance with criteria established by the manufacturer. These requirements shall also apply to work carriers. [CAD Amendment 295/22]

5.4 CSA Z98-19 clauses 4.31.1.7 "Safety levels" and 4.31.1.8 "Safety Considerations" (General Applicability)

[CAD Amendment 246-11]

5.4.1 If all applicable prescriptive requirements of the code are met, the general applicability of clauses 4.31.1.7 "Safety levels" and 4.31.1.8 "Safety Considerations" shall not apply.

5.4.2 Any variance to or deviation from the prescriptive requirements related to the design of *safety circuits (see definitions)* shall comply with clauses 4.31.1.7 "Safety levels" and 4.31.1.8 "Safety Considerations".

5.4.3 New configurations or novel designs which cannot be precisely classified in CSA Z98-19, shall ensure that their *safety circuit* designs comply with 4.31.1.7 "Safety levels" and 4.31.1.8 "Safety Considerations".

5.4.4 Where feature(s) of *safety circuits* for a passenger ropeway or conveyor is not specified in CSA Z98-19, *safety circuits* shall comply with 4.31.1.7 "Safety levels" and 4.31.1.8 "Safety Considerations".

5.4.5 Where conformance to clauses 4.31.1.7 "Safety levels" and 4.31.1.8 "Safety Considerations" is required by the code, *Safety circuits* may alternatively conform to:

(a) a SIL 3 rating in accordance with the applicable requirements of IEC 61508-2:2010 (Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems); and

(b) IEC 61508-3:2010 (Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 3: Software requirements).

5.5 Single Failure Protection

5.5.1 Every passenger ropeway installed before June 1, 2001 shall be so constructed and installed that the failure of any single, magnetically operated switch, contactor containing metal-to-metal contacts or relay to release does not prevent the passenger ropeway from stopping in response to an emergency stopping device nor permit the passenger ropeway to start or run if any emergency stopping device is activated.

5.5.2 Every passenger ropeway installed on or after June 1, 2001 shall be so constructed and installed that none of the following events prevents the passenger ropeway from stopping in response to an emergency stopping device nor permits the passenger ropeway to start or run if any emergency stopping device is activated;

(a) the occurrence of a single ground;

(b) the failure of a single magnetically operated switch, contactor or relay;

(c) the failure of a single solid-state device; or

(d) a software system failure.

5.5.3 The devices used to satisfy the requirements of **5.5.2** shall be checked prior to starting of the passenger ropeway, as a minimum, once per day.

5.5.4 Where a single ground is detected as set out in clause **5.5.2(a)** or an event referred to in **5.5.2(b)** to **5.5.2(d)** is detected, the passenger ropeway shall not restart.

5.5.5 Implementation of redundancy in a passenger ropeway by a software system is permitted provided that there is diversification to avoid common mode failure.

5.6 Records

5.6.1 In addition to the requirements in **2.3**

(a) All non-destructive testing (NDT) records shall be kept from a historical reference date of October 1, 2001 or from the date any passenger ropeway or passenger conveyor was commissioned if after October 1, 2001, until the passenger ropeway or passenger conveyor is dismantled.

(b) a record of all engineering and assessment reports referred to in **5.10** of this Document shall be kept until the above-surface passenger ropeway is dismantled.

5.7 Preseason Inspection *(168/02)*

5.7.1 The holder of a licence for a passenger ropeway shall perform a preseason inspection prior to the start of each ski season to ensure that the lift is in compliance with requirements as set out in **part 5** of this document.

5.7.2 The results of the inspection shall be recorded in a form acceptable to the director.

5.8 Aging Ski Lift Assessment

5.8.1 Every above-surface passenger ropeway shall be subjected periodically to a complete engineering review and assessment to ensure its continued operational safety in accordance with guidelines set by the director. Note: see latest edition of Director's guideline 224/07.

5.9 Requirements to Limit Tube Tow Detachment *(178/03 & 182/03)*

5.9.1 The word "tube(s)" has the same meaning as "secondary carrier(s)" used in Z98.

5.9.2 Tube tows shall comply with the requirements of **5.9.3** through **5.9.7**

5.9.3 The designer shall specify the method to verify the haul rope tension.

5.9.4 Connection of Tubes to Towing Attachments

(a) Manufacturers/designers of tube tows shall verify that the type of tube attachment connection is compatible for their towing attachment design.

(b) Manufacturers/designers of tube tows must allow for a safety margin that will ensure that the tubes will not detach as a result of changes in the tension force on the tether connecting the towing attachment to the tube. Changes of tension force on tether due to uneven tow path, foreseeable movement of passengers in tubes, passengers feet dragging on snow while seated in an acceptable position in tubes and acceleration/deceleration feature of tube tows shall be considered.

(c) For tube tows with automatic detachment at a predetermined unloading point, manufacturers/designers of tube tows shall specify minimum and maximum weight restrictions of tube users.

5.9.5 Tubes

(a) Tube sizes shall match tow path design so that a detached tube will slide clear of the uphill path of any of the following tubes.

(b) Tubes shall be designed to accommodate the passenger size.

5.9.6 Towing attachments

(a) The length of tube towing attachment shall be designed to maintain a minimum operational clearance from the snow along the tube tow-path and hauling rope while the tube is being hauled along the tow path.

(b) Factor of safety of all attachments to the haul rope and components for pulling tubes shall be based upon their impact strength at low temperatures.

(c) The designer/manufacturer shall specify the maximum tension force on all attachments to the haul rope and components for pulling tubes along their tow path.

(d) The designer/manufacturer shall specify procedures for inspection of all attachments to the haul rope and components for pulling tubes to verify their safety. Inspection procedures shall include criteria to evaluate the necessity of their replacement.

5.9.7 Tow Path, Crossfall and Containment Barriers

(a) Means to protect passenger in a tube against contacting any part of tube tow including grips shall be provided along the entire length of the tow path.

(b) Means shall be provided to keep tubes on the pre-defined tow path.

5.10 Alterations

5.10.1 Where an alteration is made to a passenger ropeway or passenger conveyor the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of **5.1**.

5.10.2 One or more of the following actions on a passenger ropeway or passenger conveyor shall constitute a major alteration:

(a) an increase or decrease in,
  (1) the rated speed of the carriers,
  (2) the maximum capacity of the ropeway;

(b) an increase or decrease by more than ten per cent, or an accumulated increase or decrease by more than ten per cent, of the dead weight of the carriers or counter-weight system;

(c) an increase or decrease in the length or rise of the travel of the passenger ropeway;

(d) a change,

  (1) in the carrier design or manufacturer,

  (2) in the line sheaves and sheave assemblies design,

  (3) in the type of power supply to the machine,

  (4) in the type of driving machine,

  (5) in the location of a machine or tensioning system,

  (6) in the type of tensioning system,

  (7) that would result in a reclassification of the passenger ropeway,

  (8) in tower length or an addition of a new tower.

(e) a change in,

  (1) the method or type of operation,

  (2) the method or type of motion control

  (3) location of the controller

  (4) a replacement of the controller,

(f) an alteration to the controller, other than an alteration to the motor starters.

5.10.3 Any action or work performed on a passenger ropeway that results in a change to the original design or the operational characteristics of the passenger ropeway or affects the inherent safety of the passenger ropeway and not listed in subsection **5.12.2** shall constitute a minor alteration.

5.10.4 Minor alterations shall be reported and inspected as required by section 19 of the Regulation.

5.11 Manufacturers/Designers Bulletins

5.11.1 Manufacturer(s) of passenger ropeway(s) or conveyor(s) shall inform owners about the requirements associated with their safety bulletins or alerts in addition to the requirement of Section 35 of the Regulation.

5.11.2 In addition to the requirement of Section 35 of the Regulation, owner(s) of passenger ropeway(s) or conveyor(s) shall inform manufacturer(s) about findings which may require the issuing of a safety bulletin or alerts.

5.11.3 Owners are responsible to carry out the requirements of manufacturer's safety bulletin or alerts.

5.12 Incident Reporting *(214/09)*

5.12.1 In addition to the requirements of Ontario Regulation 209/01 s.36, the reporting of incidents shall be in compliance with Director's Guideline 224/09 latest edition. [CAD Amendment 295/22]

Part 6

6 CONSTRUCTION HOISTS and TRANSPORT PLATFORMS

6.1 Applied Code

6.1.1 Every construction hoist or transport platform shall conform to the applicable requirements of the following:

(a) workers' rail guided construction hoists shall conform to CAN/CSA Standard Z185-M87(R2001), Safety Code for Personnel Hoists, except;

(1) clause 11.1.2 Winding Drum Machines is not adopted. Winding drum machines are not permitted;

(2) where a workers' rail guided construction hoists is equipped with a counterweight having a mass greater than the mass of the empty car, the device shall be provided with Ascending Car Overspeed protection in accordance with the requirements of ASME A17.1 / CSA B44 adopted in **Part 3** of this Document; and [CAD Amendment 295/22]

(3) clause 20.1.7(g) is amended by deleting text as noted and adding the following language (in red type only):

20.1.7(g) ~~In the case of drives with multiple pinions, any one drive shall be capable of sustaining the car with rated load.~~ In the case of drives with multiple brake motors, the remaining brake motor(s) shall be capable of sustaining the car with the rated load in the event of the failure of any one brake motor. (see table 6.5 [CAD Amendment 295/22r1]

(b) workers' rope-guided construction hoist shall conform to, American National Standard ANSI/ASSE A10.22 – 2007 Safety Requirements for Rope-guided and Non-guided Workers' Hoist, except references to NFPA 70 shall be replaced with Ontario Electrical Safety Code.

(c) material construction hoist shall conform to CSA Standard Z256-M87(R2006), Safety Code for Material Hoists, except;

(1) clause 12.1.2 Winding Drum Machines is not adopted. Winding drum machines are not permitted.

(d) transport platforms, shall conform to CSA Standard B354.12-17 Design, calculations, safety requirements, and test methods for mast climbing transport platforms (MCTPs). [CAD Amendment 295/22]

and any applicable changes set out in this document. [CAD Amendment 246-11]

6.1.2 Where the requirements in the above adopted codes do not address new or present day designs or technologies or where the requirements fail to adequately address safety issues, a hazard analysis, risk assessment and hazard mitigation shall be performed. [CAD Amendment 295/22]

6.2 Operation, Safe Use and Training [CAD Amendment 295/22]

6.2.1 The practices for safe use and operation of a mast climbing transport platforms, and the requirements for the training of persons installing, dismantling, operating and, or using a mast climbing transport platform shall conform to the applicable requirements of CSA B354.13-17/B354.14-17 Safe use and best practices for mast climbing transport platforms (MCTPs) / Training for mast climbing transport platforms (MCTPs).

6.2.2 Every construction hoist referenced in **6.1.1(a) to (c)** shall follow the safe use, operation and training requirements identified in CSA B354.13-17/B354.14-17 Safe use and best practices for mast climbing transport platforms (MCTPs) / Training for mast climbing transport platforms (MCTPs).

Where a construction hoist of type of **6.1.1(a), (b) or (c)** is installed the term MCTPs in CSA B354.13 and CSA B354.14, shall be replaced with the appropriate device type being installed and the requirements of these standards followed as appropriate to the specific device type. [CAD Amendment 295/22]

6.2.3 Every car, cage or platform listed in **6.1.1** shall be equipped with a sign as follows:

(a) The sign shall display the message, “Only Operators who have their valid “Operator’s Proof of Training” card on their person shall operate this device”;

(b) The sign shall be of such material and construction that the letters are stamped, etched, cast or otherwise applied to remain permanently visible; and

(c) The height of the letters shall not be less than 12 mm (1/2 in.).

6.3 Electrical Requirements

6.3.1 In addition to the electrical requirements of the standards adopted in **6.1**, construction hoists shall comply with the following:

(a) in the case of devices designed to **6.1.1(a)** or **6.1.1(c)** no electrical protective device shall be rendered ineffective due to the following:

(1) the occurrence of a single ground;

(2) a software system failure;

(3) failure of a switch which does not have contacts that are positively separated;

(4) failure of a contactor;

(5) failure of a relay; or

(6) failure of a solid-state device;

(b) in the case of devices designed to **6.1.1(b)** the circuits of the deadman control switch, the circuits of the limit switches which prevent overtravel, or the circuits of the automatic friction brake shall not be rendered ineffective due to the items listed in **6.3.1(a)(1)** to **6.3.1(a)(6)** above;

(c) Redundant software systems used to satisfy the requirements of **6.3.1(a)** or **6.3.1(b)** shall have a level of diversification sufficient to avoid common mode failures;

(d) Control equipment incorporating solid-state device s and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for “safety circuits.” The interference shall not:

(1) in the case of devices meeting **6.1.1(a)** or **6.1.1(c)**, render any electrical protective device ineffective and shall not cause the car to move; or

(2) in the case of devices meeting **6.1.1(b)**, render the Deadman Control Switch, Limit Switches, or the Automatic Friction Brake ineffective and shall not cause the cage to move.

If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment;

(e) In the case of devices meeting **6.1.1(a)** or **6.1.1(c)**, the normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel; and

(f) Construction hoists meeting **6.1.1(a)** or **6.1.1(c)**, employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase. [CAD Amendment 216-07] [CAD Amendment 295/22]

6.3.2 In addition to the requirements specified in **2.2**, electrical equipment shall be:

(a) certified / listed to the requirements of CAN/CSA C22.2 No. 14, Industrial Control Equipment; or

(b) where permitted by the director, approved per Ontario Regulation 438/07 s.2.(1) 2 by a field evaluation agency. [CAD Amendment 295/22]

6.4 Hoistway Door or Gate Interlocks or Locking Devices *(ED-265-14)*

6.4.1 The requirements of clause 7.5 of CSA Z185 and CSA Z256, are supplemented with the following;

Hoistway door interlocks used to satisfy the requirements of 7.5 shall be evaluated and pre-approved for use by TSSA prior to device licensing. Such components shall either be identified with a manufacturers make and model, or shall reference a TSSA component filing number. *(ED-265-14)* [CAD Amendment 295/22]

6.4.2 The requirements of clause 4.4.6.1 of CSA B354.12 as amended in this Document are supplemented with the following;

Landing door interlocks, or mechanical locks used to satisfy the requirements of 4.4.6.1(h) and **4.4.6.1(i)** of **6.6.1(c)** as amended in this Document, shall be evaluated and pre-approved for use by TSSA prior to device licensing. Such components shall either be identified with a manufacturers make and model, or shall reference a TSSA component filing number. [CAD Amendment 295/22]

6.5 Brake and Safety Testing [CAD Amendment 295/22]

6.5.1 Brake and safeties shall be tested per the adopted code requirements as summarized in table **6.5** below;

Table 6.5

	A	B	C	D	E	F	G
1	**Code / Item**	**Load**	**Speed**	**On Initial**	**Every 3 Months**	**Every 6 Months (periodic)**	**On Full Extension**
2	Z185 Brake	125% 20.8.5 open each brake, remaining hold CAD 6.1.1(a)(3)	Normal operation down 20.8.5	By contractor TSSA witnessed	By contractor Pass recorded in LOG BOOK	By contractor TSSA witnessed	By contractor TSSA witnessed
3	Z185 Safety	100% 24.4.2	Down at gov'r tripping speed 19.1.2.1				
4	B354 Safety* (*unless multiple drives)	110% 4.5.6.1.1 5.2.2.4.2 *see 4.5.7 if multiple drives	Down at overspeed detector tripping 4.5.6.2.3.2				
5	B354 Braking System	125% 5.2.2.3e)	Rated speed 5.2.2.3e)				
6	B354 If Multiple drives Brake	open each brake, remaining hold 110% 4.5.7b)	Rated speed 5.2.2.4.3				

Denotes Brakes Denotes Safeties

6.6 Amendments to CSA B354.12 [CAD Amendment 295/22]

6.6.1 The requirements of **6.1.1(d)**, mast climbing transport platforms are adopted with the following language and clarifications;

(a) Requirement 4.4.3.1 is amended by deleting the noted text:

4.4.3 Platform roof
4.4.3.1 General
The platform roof protection is ~~not~~ mandatory. ~~The environment around the transport platform should be verified to determine if the roof is required or not. Based on a risk analysis, it might become necessary to have this protection.~~

(b) Requirement 4.4.5.2 Low height base enclosure is not adopted.

(c) Requirement 4.4.6.1 General is amended by deleting text where noted and adding the following language (in red type only):

4.4.6 Landing level protection (see Figure 10)
4.4.6.1 General
e) Fall hazards around the building floor gate shall be covered to prevent any fall. The maximum opening shall be 100mm (4 in) ~~200 mm (8 in)~~.

f) The gate shall not exceed the width of the platform transfer ramp by more than 100mm (4 in) ~~200 mm (8 in)~~ on either side.

g) All gates should be clearly signed with “GATES TO BE KEPT CLOSED UNLESS TRANSPORT PLATFORM IS PRESENT” and “AUTHORIZED PERSONNEL ONLY”. Uppercase letters shall have a minimum height of 35 mm (1-3/8 in). This signage is optional.

h) Based on a risk analysis, or as required by local regulations, it might be necessary to provide a mechanical interlocking mechanism between the landing safety level gate and the inboard platform gate. This mechanism should
   i) prevent opening of the landing level safety gate while the transport platform is not present;
   ii) prevent the transport platform from moving while the landing level gate is open; and
   iii) ensure that the landing level safety gate can only be open from the platform.

i) Where a landing safety gate does not utilize an electrical / mechanical interlock, the landing level gate shall be unlocked by the action of the car gate / ramp.
The ramp shall not be able to retract until the landing safety gate is in the closed position, and shall not be able to fully retract unless that landing level safety gate is locked. Locks and or interlocks shall not be accessible from the landing side when the gate is closed.

(d) Requirement 4.4.6.2 Landing level safety gate height is revised as follows:

4.4.6.2 Landing level safety gate
4.4.6.2.2 Reduced height
Is not adopted.

6.6.2 **Loading Platforms** [CAD Amendment 295/22]

If a loading platform is used, it shall be provided with overhead protection equivalent to that required in 4.4.3. Running clearances at the platform base and at the overhead protection shall be risk assessed.

Part 7

7 PLATFORM LIFTS AND STAIR LIFTS FOR BARRIER-FREE ACCESS

7.1 Applied Code

7.1.1 Each newly installed elevating device designated as a platform lift[1] or stair lift[2] for barrier free access shall conform to the requirements of CSA B355:19 Platform lifts and stair lifts for barrier-free access[3] including any applicable changes set out in this Document.

[1] Platform lift refers to: enclosed stair platform lifts, unenclosed stair platform lifts, enclosed vertical platform lifts, or unenclosed vertical platform lifts as referenced in Ontario Regulation 209/01.
[2] Stair lift refers to: stair chair lifts as referenced in Ontario Regulation 209/01.
[3] Platform lifts and stair lifts for barrier-free access has the same meaning as Lifts for persons with physical disabilities as referenced in Ontario Regulation 209/01. [CAD Amendment 295/22]

7.1.2 This edition of the B355 code incorporates the requirements previously contained in CAN/CSA-B613, Private residence lifts for persons with physical disabilities. References and requirements related to Private Residence lifts in this code are not adopted.

7.1.3 In addition to the requirements specified in **2.2**, electrical equipment where required in this standard shall be certified / listed to the requirements of CAN/CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment as required by 8.1.2 of CSA B355:19. [CAD Amendment 295/22]

Note: This edition incorporates the requirements previously contained in CAN/CSA-B613, *Private residence lifts for persons with physical disabilities*.

7.2 Maintenance

7.2.1 In addition to the requirements in **2.3**, all Platform lifts and stair lifts for barrier-free access shall conform to the maintenance requirements of CSA B355:19 Platform lifts and stair lifts for barrier-free access including Annex B and any applicable changes set out in this Document.

7.3 Alterations [CAD Amendment 295-22]

7.3.1 Notwithstanding section **2.6**, alterations made to elevating devices covered by the scope of CSA B355:19 Platform lifts and stair lifts for barrier-free access (previously CSA B355 Lifts for Persons with Physical Disabilities) shall conform to the requirements of the code adopted in subsection **7.1** and as specified by the director.

7.3.2 Alterations to elevating devices covered under the scope of CSA B355 shall follow the requirements specified in B355:19 Annex D – Alterations.

7.3.3 Alteration submission documents shall also adhere to the Director's Guideline on alterations (latest edition) and shall be accompanied by a completed alterations checklist (latest edition).
[CAD Amendment 295-22] [CAD Amendment 295-22r1]

7.4 Access and Usage of Device [CAD Amendment 295/22]

7.4.1 The owner of a barrier free access lift shall,

(a) ensure that instructions are posted at every operating station detailing how to,

(1) request assistance, or

(2) gain access to the device, complete with detailed operating instructions and appropriate hazard warnings; and

(b) control access to and/or usage of the device by means of a key or other equivalent means to ensure only authorized personnel can operate and use such devices, or

(c) perform a risk assessment of hazards related to the potential for harm and/or misuse for a given location of the device and keep a copy of the risk assessment which shall be produced to an inspector upon request and, provide means to ensure that persons using the device can do so in a safe manner while protecting the general public by limiting access to the device.
Note: see **Annex A.**

7.5 Access and Control Means [CAD Amendment 295/22]

7.5.1 The control of device usage may be achieved through a combination of means, such as but not limited to,

(a) key-control;

(b) electronic security means such as keypads, card reader, near field communication devices;

(c) call and release controls, or call and video surveillance controls;

(d) restriction lifting timers based on time of day, day of week or other time bases interval as appropriate for the location;

(e) restriction by location;

(f) training of users and recognition of authorized personnel; or

(g) permitting use only by attendant operation.
Note: see **Annex A.**

7.5.2 Where key-control means is used, the key shall be removable only when in the “off” position.

7.6 Control and Access Risk Assessment Report

7.6.1 In addition to those requirements set out in sections 15 and 16 of the Regulation, the design submission for a lift for barrier free access shall include a report, detailing the proposed methods of compliance with sections **7.4** Access and Usage of Device and **7.5** Access and Control Means of this Document. [CAD Amendment 295/22]

7.6.2 In addition to the requirements of section 29 of the Regulation, where there is change in the ownership of a lift for persons with physical disabilities or a substantive change in the type of occupancy of a building in which a lift for persons with physical disabilities is installed, the new owner of the lift shall submit to the director an updated version of the report required in **7.6.1**. [CAD Amendment 295/22]

Part 8

8 WIND TURBINE TOWER ELEVATORS [CAD Amendment 277/19]

8.1 Applied Code

8.1.1 Each newly installed wind tower turbine elevator shall conform to the requirements of ASME A17.8-2016 / CSA B44.8-16, Standard for wind turbine tower elevators including any applicable changes set out in the CAD.

8.1.2 In addition to the requirements specified in **2.2**, electrical equipment where required in this standard shall be certified / listed to the requirements of CAN/CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment as required in 2.26.4.2 of the adopted code. [CAD Amendment 295/22]

8.2 Amendments to ASME A17.8-2016 / CSA B44.8-16

8.2.1 The requirements of 2.20.2.10 c) are amended by deleting the noted text:

2.20.2.10 c) A readily visible hour meter shall be provided on all suspended elevator cars and the suspension steel wire ropes shall be replaced after 250 h of operation. ~~or after 5 years, whichever occurs first.~~

8.2.2 The requirements of 2.31 are amended by adding the following language (in red type only):

2.31 Maintenance, repair, replacement, and testing
Maintenance, repair, replacement, and testing shall conform to ASME A17.1/CSA B44, 8.6. The maintenance interval for a wind turbine tower elevator shall not exceed the manufacturers' recommendations, but in no case shall it exceed 18 months. [CAD Amendment 295/22]

Part 9

9 PARKING GARAGE LIFTS (PGL's) [CAD Amendment 295/22]

9.1 Applied Code

9.1.1 Each newly installed or altered parking garage lift shall conform to the requirements of

BS EN 14010:2003+A1:2009 Safety of machinery - Equipment for power driven parking of motor Vehicles - Safety and EMC requirements for design, manufacturing, erection and commissioning stages,including any applicable changes set out in this Document.

9.1.2 Where standards referenced in **BS EN 14010:2003+A1:2009,**

(a) conflicts with a standard or regulation enforced by another authority having jurisdiction applicable in the Province of Ontario, the requirements referenced within BS EN 14010 shall be superseded by those requirements;

(b) have corresponding standards developed by Standards Developing Organizations (SDO's) recognized by Standards Council of Canada (SCC), those standard shall be considered alternative acceptable standards for use in the design of parking garage lifts.
Note: Refer to Director's Guideline 298-22 for a listing of standards that have been cross referenced to those utilized in BS EN 14010:2003+A1:2009;

(c) do not have corresponding standards as noted in (a) or (b), the referenced standard and it's requirements shall apply.

9.2 Definitions

9.2.1 In part 9 of this document:

(a) "*authorized personnel*" means persons who have been instructed in the operation of the equipment and designated by the owner to use the equipment.

(b) *"Electrical Protective Device" or "EPD"* means a device capable of or intended to safeguard someone or something from a serious hazard.

(c) *Load Carrying Unit" or "LCU" means* the unit or platform on which a vehicle is carried into the working area.

(d) "***PGL***" means a parking garage lift as defined in Ontario Regulation 209/01.

(e) "*PGL Automatic, external transfer area*" means a ***PGL*** that:
- i. operates under automatic control;
- ii. contains a ***transfer area*** that:
  - a. does not contain a lifting and/or lowering device; and
  - b. is physically separated from the ***working area*** by means of a ***working area door*** ; and
- iii. where vehicles may be driven into and out of the ***transfer area*** by the general public.

(Note: see exemption O.Reg 209/01 s2.(3)(j))

(f) "*PGL Automatic, internal transfer area*" means a ***PGL*** that:
- i. operates under automatic control;
- ii. contains a ***transfer area*** that:
  - a. contains a lifting and/or lowering device; and

b. is physically separated from the ***working area***; and

iii. where vehicles may be driven into and out of the ***transfer area*** by the general public.

(g) "*PGL Complex Automatic*" means a ***PGL***:

i. that operates under automatic control;

ii. that contains a ***transfer area*** that:

a. has ***load carrying unit(s)*** that move in a vertical and/or horizontal direction; and

b. is not physically separated from the ***working area***;

iii. where vehicles must be driven into and out of the transfer area by *authorized personnel*; and

iv. where door or gates separate the transfer and working areas from the access area.

(h) "*PGL Complex*" means a ***PGL***:

i. that operates under continuous pressure push button (CPPB) control;

ii. where the ***load carrying unit(s)*** move in a vertical and/or horizontal direction; and

iii. where vehicles are driven into and out of the ***working area*** by *authorized personnel*.

(i) "*PGL Simple*" means a ***PGL***:

i. that operates under continuous pressure push button (CPPB) control;

ii. where the ***load carrying unit(s)*** only moving in a vertical direction; and

iii. where vehicles are driven into and out of the ***working area*** by *authorized personnel*.

(j) "*transfer area*" means area within automatic parking equipment in which vehicles are transferred to, or taken from, to reach the *working area*. The transfer area is intended to allow for at least the driver to leave or to enter the vehicle.

(k) "*working area*" means area in which the vehicle is handled. Within *automatic* parking equipment this area is not intended to be accessed by the user.

(l) "*working area door*" means a door between the transfer area and the working area.

9.3 Application

9.3.1 *PGL Automatic, external transfer area*

Where a *PGL Automatic, external transfer area* is installed, the exemption criteria of requirements of Ontario Regulation 209/01 s2.(3)(j) apply. Where a vehicle enters a *transfer area* that is arranged to be physically separated from the *working area* by a *working area door*, and the device,

(a) meets the requirements of the standard adopted in **9.1** including 5.11, 5.12;

(b) provides effective patron detection means for persons in the transfer area; and

(c) utilizes interlocks on all doors accessing the transfer and working areas,

such devices shall be permitted to be exempted under the provisions of Ontario Regulation 209/01 s2.(3)(j).

9.3.2 *PGL Automatic, internal transfer area*

9.3.2.1 Transfer Area

Where a vehicle enters a *transfer area* that is part of a working hoistway, the *transfer area* shall be regulated and assessed for compliance with application requirements of the adopted code and the following:

(a) patron detection methods (ref 5.11.11, 5.11.12.3);

(b) effective means to prevent persons from accessing the working area (ref 5.11.3); and

(c) interlocking of all doors used to prevent lift unintended start-up, or initiate a stop (ref 5.11.5)

9.3.2.2 **Lifts**

Lifts operating from within a transfer area shall be regulated as part of the transfer area of **9.3.2** and assessed as follows:

(a) Lifts travelling in the up direction only where the parking garage lift platform has no fall / freefall risk, the parking garage platform shall be assessed for;

(1) Any hazards that a driver and passengers departing the area may be exposed to that is part of or associated with the lifting device (gaps, path and clearances) (ref 5.5.3, 5.5.6, 5.5.7, 5.11.8); and

(b) Lifts that can travel in a downward direction directly from the transfer area shall be assessed for:

(1) requirements of (a) above;

(2) means to hold and support the elevating device and it's rated load when in the transfer area (eg. brakes, pins, suspension or supports, etc.); and

(3) means to mitigate freefall (eg. safeties, buffers, rupture valves, etc.).

9.3.3 ***PGL Complex Automatic***

Devices categorized as *PGL Complex Automatic* shall meet the applicable requirements of the standard adopted in **9.1**, and shall have the following features:

(a) automatic operation is provided to store and retrieve vehicles;

(b) gates are required to separate the access area from the *transfer area(s)*;

(c) the closing of doors or gates that provide access to the *transfer area* shall be under constant pressure push buttons control or if means are provided to automatically stop the doors in the event of obstruction detection power closing is permitted, power opening of doors or gates is permitted;

(d) vehicles are driven into the *transfer area* and onto a *load carrying unit* (*LCU*) by *authorized personnel*;

(e) there is no transfer devices on the *LCU*;

(f) the *working area* of the device is not intended for user access; and

(g) the parking system moves the *LCU* in a vertical direction of travel, horizontal travel of the *LCU* is permitted but not required.

9.3.4 ***PGL Complex***

Devices categorized as *PGL Complex* shall meet the applicable requirements of the standard adopted in **9.1**, and shall have the following features:

(a) CPPB operation is provided, automatic operation is not permitted;

(b) gates are not required to separate the access area from the working area; however where travel can occur in the downward direction, means shall be provided to protect against falling

(c) vehicles are driven into the *working area* and onto a *load carrying unit* (*LCU*), or under an *LCU* by *authorized personnel*;

(d) there is no transfer devices on the *LCU*;

(e) the *working area* of the device is intended for user access; and

(f) the parking system moves the *LCU* in a vertical direction of travel, horizontal travel of the *LCU* is permitted not but required.

9.3.5 ***PGL Simple***

Devices categorized as *PGL Simple* shall meet the applicable requirements of the standard adopted in **9.1**, and shall have the following features:

(a) CPPB operation is provided, automatic operation is not permitted;

(b) gates are not required to separate the access area from the working area; however where travel can occur in the downward direction, means shall be provided to protect against falling;

(c) vehicles are driven into the *working area* and on a *load carrying unit* (*LCU*), or under an *LCU* by *authorized personnel*;

(d) there is no transfer devices on the *LCU*;

(e) the *working area* of the device is intended for user access; and

(f) the parking system moves the *LCU* in a vertical direction of travel only, there is no horizontal motion of the *LCU*.

Note: see **Annex B** for Comparison Table of Device Type Features.

9.4 Electrical Requirements

9.4.1 In addition to the electrical requirements of **2.2** and the applicable requirements of the standards adopted in **9.1**, parking garage lifts controls systems shall also ensure conformance to the following:

(a) the occurrence of a single ground or the failure of:

(1) a switch which does not have contacts that are positively separated;

(2) a contactor;

(3) a relay;

(4) a solid-state device; or

(5) software system (including host hardware),

shall not render any electrical protective device ineffective;

(b) the occurrence of a failure in 9.4.1(a) shall not allow the device to restart;

(c) shall be certified / listed to the requirements of CAN/CSA C22.2 No. 14, Industrial Control Equipment; or

(d) where permitted by the director, approved per Ontario Regulation 438/07 s.2.(1) 2 by a field evaluation agency. [CAD Amendment 295/22]

9.5 Access to control equipment

9.5.1 Control equipment shall be arranged with the following provisions:

(a) safe and convenient access for authorized personnel (not located in pits where a pit is provided);

(b) adequate lighting, working clearance and headroom at the controller;

(c) in a locked enclosure or a control panel in a locked machine room; and

(d) a lockable disconnect.

Note: Clearances around control equipment shall conform to the Ontario Electrical Safety Code.

9.6 Pits

9.6.1 Pits where provided shall conform to the requirements for pits as provided in ASME/CSA A17.1/B44 with respect to access, illumination, and stop switches.

9.7 Installation Number

9.7.1 For details on the assignment of installation numbers for parking garage lift systems refer to **Annex B**.

Annex A (informative)

1.0 NOTES ON REQUIREMENTS of Part 7 [CAD Amendment 295/22]

Requirement 7.4 and 7.5
Commentary on Assessment of Risk and Location Scenarios

a) Where the owner of the device is able to control and identify persons who will be using the device or the area where the device is installed and the owner familiarizes those persons in advance of using the area or device with the safety rules and procedures concerning the use of the area and the device, the device may be permitted to be free of access control means provided the potential for intentional misuse (such as children playing) has been considered and managed (ie. adult condo lobby, area within a seniors residence).

b) In high demand, high traffic areas, primarily associated with adult usage, time of day / day of week controls supplemented with live monitoring may permit periods where devices are fully unrestricted during peak hours, but revert to suitably defined restrictions in off peak periods (ie Toronto's PATH Network, professional office building lobby).

c) In areas where there is a higher probability of children playing, key control or call and release controls with surveillance shall be the only acceptable means to ensure safety and prevent misuse (ie. Local arena, public recreation centres).

d) In areas such as schools, where owners can identify typical users (such as in a) above, keypad controls or other means of assurance that only authorized personnel can gain access to the device shall be required (ie. Public / private schools, day care centres).

e) ASME A17.7-2007/CSA B44.7-07 (R2012) Performance-based safety code for elevators and escalators contains risk assessment methodologies and templates.

Annex B (informative)

1.0 NOTES ON REQUIREMENTS of Part 9 [CAD Amendment 295/22]

Requirement 9.3
Comparison Table of Device Type Features

Device Type	CAD Section	Regulated under O.Reg 209/01	Users	Description	Patron Detection	Lift Operation	Door Operation	Axis of Motion	Physically separated working area	Doors/Gates separate Access Area from Working and / or Transfer Area
PGL Automatic, external transfer area	9.3.1	Exempt, by s2.(3)(j)	Public	**Fully automatic vehicle storage and retrieval system** having a transfer area where the vehicle is transferred horizontally to and from the transfer area to the storage area.	Yes	Automatic	Automatic	>1	Yes	Yes
PGL Automatic, internal transfer area	9.3.2	Yes	Public	**Fully automatic vehicle storage and retrieval** system having a transfer area where the vehicle is transferred vertically to and from the transfer area to the storage area.	Yes	Automatic	Automatic	>1*	Yes	Yes
PGL Complex Automatic	9.3.3	Yes	Authorized Personnel	**Automatic** Parking system where the transfer area is also part of the storage area and gates are provided to keep people from entering the system while in operation.	Yes, for objects in the door path	Automatic	CPPB or Automatic if c/w obstruction detection	>1*	No	Yes, between access and working area
PGL Complex	9.3.4	Yes	Authorized Personnel	**Semi-Automatic** (Deadman operation) Parking system where the transfer area is also part of the storage area.	No	CPPB	CPPB	>1*	No	Not required, unless fall hazard between access and working area
PGL Simple	9.3.5	Yes	Authorized Personnel	Parking system that incorporates vertical motion only and requires continuous pressure push button operation.	No	CPPB	CPPB	1*	No	Not required, unless fall hazard between access and working area

* must include lifting/lowering motion for Regulation 209/01 to be applicable

Requirement 9.7
Commentary on Installation Number Assignment

The parking devices that are associated with an electrical disconnect means, (as required by the electrical code) shall be considered as one parking garage system. Each system that is controlled by it's own disconnect will be assigned an installation number.