



ACTIVE
Code Adoption Documents, Guidelines,
Advisories, Director's Orders
& Director's Safety Orders

as of

February 2, 2021

Elevating and Amusement Devices Safety Program
Technical Standards and Safety Authority

This file contains documents (or regulatory instruments) that form part of Ontario's Elevating Devices Regulatory Landscape.

The documents enclosed are those which are considered to be in Active status as of the date of this publishing.

For historic and archived versions please refer to the ARCHIVED Regulatory Documents Binder (ED-SKI).

Technical Standards & Safety Authority		ACTIVE Code Adoption Documents, Guidelines, Advisories, Director's (Safety) Orders			
ID No.	Date	This file contains current Active regulatory communication tools that form part of Ontario's Elevating Devices Regulatory Landscape	Active	Is Past Due?	Enforcement
ID No.	Date	CODE ADOPTION DOCUMENT	Status1	Status2	Enforcement
277/19	Feb-01-19	ED CAD Amendment - Updated to Parts 1,2,4,5,8, Re-Issue Parts 3,6,7	Active		Mandatory
272/18 amendment	Mar-30-20	SLM Continuing Education Requirements	Active		Mandatory
272/18	May-16-18	SLM Continuing Education Requirements	Active	see temporary amendment	Mandatory
268/14	Dec-05-14	Requirements for Transport Platforms	Active		Mandatory
265/14	Jan-07-14	Construction Hoist Interlocks	Active		Mandatory
194/08	Oct-08-08	Regulation of Parking Garage Lifts	Active		Mandatory
ID No.	Date	GUIDELINES	Status1	Status2	Enforcement
257/12	Sep-14-12	Guideline - Construction Hoist Operator Logs	Active		Mandatory
256/12	Sep-14-12	Guideline - Construction Hoist Maintenance Logs	Active		Mandatory
252/12-r2	Nov-15-19	Simplified Procedure to Correct / Revise a Registered Design Submission	Active		Mandatory
251/11-r2	Sep-15-13	Alterations Guideline for CAD 261/13-r1	Active		Mandatory
230/09	Jan-06-10	Incident Reporting Guidelines	Active		Mandatory
230/09 (Form)	Jan-06-10	Incident Reporting Form	Active		Mandatory
224/07-r1	Nov-30-12	Aging Ski Lift - Subsequent Engineering Assessments	Active		Mandatory
214/09-r2	Dec-01-20	Incident Reporting Requirements for Z98 Passenger Ropeway Devices	Active		Mandatory
214/09-r2 (Form)	Dec-01-20	Incident Reporting Requirements for Z98 Passenger Ropeway Devices	Active		Mandatory
ID No.	Date	ADVISORY - Enforcement Policy	Status1	Status2	Enforcement
293/21	Jan-25-21	Grounding of Transformers	Active		Mandatory
292/20	Dec-01-20	Construction Hoist and Transport Platform Hoistway Wiring	Active		Mandatory
291/20	Sep-18-20	Car Lighting Branch Circuits	Active		Mandatory
289/20	Sep-18-20	Monitoring of Cylinder Corrosion Protection	Active		Mandatory
284/20	Feb-14-20	Examination of a Construction Hoist (Elevating Device) Form	Active		Mandatory
284/20 (Form)	Feb-14-20	Examination of a Construction Hoist (Elevating Device) Form	Active		Mandatory
279/19	May-15-19	Construction Hoist & Transport Platform Brake Testing Frequency	Active		Mandatory
276/18-r1	Feb-01-21	CAT1 - Testing of Emergency Power	Active		Mandatory
276/18-r1 (Form)	Feb-01-21	CAT1 - Testing of Emergency Power Owner Checklist	Active		Mandatory

Technical Standards & Safety Authority		ACTIVE Code Adoption Documents, Guidelines, Advisories, Director's (Safety) Orders			
ID No.	Date	This file contains current Active regulatory communication tools that form part of Ontario's Elevating Devices Regulatory Landscape	Active	Is Past Due?	Enforcement
274/18	Sep-12-18	Deep Pit Access	Active		Mandatory
273/18	Sep-12-18	Brake Marking Plates on Elevator Driving Machine	Active		Mandatory
270/17	Dec-04-17	Construction Hoists in the Tunneling Sector	Active		Mandatory
ID No.	Date	ADVISORY - Information / Clarification	Status1	Status2	Enforcement
294/21	Jan-25-21	Federal non-mandated work	Active		Non Mandatory
290/20	Sep-18-20	Elevator Phones - Various Technologies	Active		Non Mandatory
288/20	Jun-15-20	Anniversary Dates for CAT Testing	Active		Non Mandatory
287/20	Jun-12-20	Foot Operated Elevator Operating Buttons	Active		Non Mandatory
286/20	Jun-12-20	Escalator Handrail Sterilization	Active		Non Mandatory
285/20	Apr-23-20	COVID-19 Elevator Shutdown	Active		Non Mandatory
283/19	Dec-09-19	Installation Code Edition	Active		Non Mandatory
282/19	Dec-03-19	R&O Mufflers	Active		Non Mandatory
281/19	Sep-05-19	Turnbull Spring Hitch	Active		Non Mandatory
280/19	Aug-30-19	Freight Elevator Fatality	Active		Non Mandatory
278/19	May-15-19	Otis Brake Lever fo 130, 131, 139, 159 series Gearless Machines	Active		Non Mandatory
ID No.	Date	SAFETY ORDER	Status1	Status2	Enforcement
271/18	Sep-17-18	B355 VPL'sLifts w/ Magnetic Reed Switches in Leveling and/or Anti-creep Circuits	Active		Mandatory
269/17	Jul-14-17	Requirement for Passenger Elevators with Single Speed Control	Active	Compliance Past Due	Mandatory
266/14	Jun-01-14	Galaxy Wiring Methods	Active	Compliance Past Due	Mandatory



Elevating and Amusement Devices Safety Division	Ref. No.: 194 / 08	Rev. No.:
Enforcement Procedure Bulletin	Date: October 8, 2008	Date:

Subject: Regulation of Parking Garage Lifts (PGL's)

Sent to: All PGL Suppliers, Contractors, Installers, Consultants

1. INTRODUCTION

1.1. General

All elevating devices in Ontario are subject to the requirements of Ontario Regulation 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*, unless the type of elevating device is specifically excluded from the Regulation.

The elevating devices regulation (209/01) has been recently amended by O.Reg 252/08 (effective **January 1, 2009**) and now clearly references Parking Garage Lifts (PGL's) as one of the many forms of regulated elevating devices.

Elevating devices used to elevate or lower vehicle(s) for the purpose of storing (parking) the vehicle are included in the Regulation.

A primary reason to reference and not exempt PGL's is that they are not specifically regulated by any other Ontario Regulation designed to protect the public. Therefore any persons involved with the ownership, operation, installation, and maintenance of these types of elevating devices used in publicly accessible locations are expected to comply with the requirements set forth in the Act and Regulation. The Act and the Regulation specifies a person's responsibilities.

The increase in PGL installations has prompted TSSA to work with the PGL industry to ensure the requirements of the elevating devices regulation are understood and the requirements followed for PGL installations and maintenance. As the regulatory requirements are new to many in this industry, TSSA is working to implement a phased approach to regulatory fulfillment. The purpose of this document is to inform responsible parties on the compliance requirements under the Regulations. Since compliance is expected to be achieved in stages, this document also specifies the minimum requirements and implementation timelines.

1.2. Subject of this Bulletin

This bulletin is intended to outline the requirements related to Parking Garage Lifts. The Regulation defines PGL as:

"Parking Garage Lift" means an elevating device that is used for lifting or lowering a vehicle in or about a parking facility.

This document is meant to address:

1. PGL Stackers - devices where vehicles are stored and are of the format:
 - PGL-Simple Stacker –A parking lift that has vertical motion only
 - PGL-Complex Stacker –A parking system which is not solely limited to vertical motion

Note: No persons ever ride a stacker.

2. PGL-Transfer Area – An area from which vehicles are transferred to, or returned from, the working area of the PGL. The transfer area is intended to allow for at least the driver to enter or leave the vehicle. The transfer area has means to ensure the public does not have access to the working area of the PGL.
Note: No persons ever ride the transfer device.

3. PGL-Automatic – A parking system which includes a PGL-Transfer Area, and a vehicle storage area consisting of a PGL-Simple Stacker or PGL-Complex Stacker as defined above.
Note: No persons ever ride in an automatic PGL.

Note 1: At this time, only the requirements of the transfer area of a PGL-Automatic will be addressed.
Note 2: A PGL with two or more loading and unloading landings is considered a PGL elevating device under section 1.3 below.

In this bulletin, PGL-Simple Stacker, PGL-Complex Stacker, PGL-Transfer Area and PGL-Automatic are referred to as “Parking Garage Lifts” (PGL’S).

1.3. Not the Subject of this Bulletin

1. Freight Elevators designed to carry motor vehicles;
2. Freight Platform Lifts designed to carry motor vehicles;
3. Material Lifts designed to carry motor vehicles.
4. Elevating devices used to lift a vehicle for the purpose of performing service on the automobile. (O.Reg.209/01 s2.(3)(g))
5. Simple or Complex PGL’s which are inaccessible to the general public and are provided with Transfer Area(s) as the sole means of loading and unloading . Transfer Area’s however are subject to the Regulation.

Where elevating devices described in 1, 2, and 3 above are used to carry vehicles, the requirements of B44 Safety Code for Elevators will form the bases of the design of the elevating device. These devices will be classified as PGL Elevators.

2. INTERPRETATION & ENFORCEMENT

Ontario Regulation 209/01 as amended by O.Reg. 252/08 specifically recognizes Parking Garage Lifts, and becomes effective on **January 1, 2009**.

Prior to **January 1, 2009**, Parking Garage Lifts were classified as a “special elevating device”, requiring compliance with prior editions of the Act, regulation and applicable codes.

To facilitate industry compliance, the enforcement process has been divided into two phases.

Phase 1

The first phase will ensure compliance for new and altered installations, which are commissioned on or after **January 1, 2009**.

Phase 2

The second phase will address compliance issues for existing installations.

- Identification of existing sites by **June 1, 2009**
- Periodic inspection activities beginning on or after **January 1, 2010**.

The following guidelines will be used to ensure compliance with the O.Reg. 209/01:

2.1. Scope of Work

- 2.1.1. This Regulation applies to the design, construction, installation, erection, maintenance, alteration, use and service of Parking Garage Lifts as defined in this bulletin, except where otherwise indicated.
O.Reg.209/01, s.2

2.2. Contractors and Contractor Registration

- 2.2.1. All contractors must be registered. O.Reg.209/01, s.14

- a) For the first phase of the regulation compliance project, contractor registration requirements will be varied.
- b) Only companies authorized and trained by the manufacturers/major manufacturer's representative may be eligible for registration.

- 2.2.2. All work performed on a PGL after January 1, 2009 must be done by a registered contractor.
O.Reg.209/01, s.21

- 2.2.3. Applications for contractor registration shall include:

- a) A letter from the equipment manufacturer/major manufacturer's representative stating that the contractor is authorized to perform work on their equipment.
- b) Verifiable proof of experience shall be included with the application.
- c) Name of mechanic(s) registered by TSSA (see 2.3)

- 2.2.4. Applications for contractor registration can be obtained from :

- a) <http://www.tssa.org/regulated/elevating/elevatingForms.asp> or
- b) By email at customerservices@tssa.org or
- c) Calling Customer Services Advisors at 1-877-682-TSSA (8772) or 416-734-3300 for the Toronto area.

2.3. Mechanic Requirements

- 2.3.1. No work shall be undertaken on a Parking Garage Lift unless by a registered mechanic, or by a mechanic-in-training under the supervision of a mechanic. O.Reg.209/01, s.24

- a) A Parking Garage Lift mechanic must have documented training under the regulation.
- b) A certification program for Parking Garage Lift mechanics will not come into effect until a later phase.
- c) Until the mechanic certification program is in place, manufacturers and contractors shall provide information and documentation about their training programs.
- d) Until the mechanic certification program is in place, mechanics shall provide information and documentation about their training history. Ideally this will take the form of a training certificate and log from their employer.
- e) The Elevating Device Regulation 209/01 requires all mechanics to:
 - 1) have full knowledge of the Act, Regulations and any applicable code
 - 2) not undertake work beyond their scope of training

- 2.3.2. Application for a mechanic's registration shall include:

- a) Relevant education history
- b) Related work experience
- c) PGL manufacturer training dates and training content
- d) A safety training workshop as per section 6(6) of O.Reg 222/01.

Note:

- 1) Mechanic registration is a prerequisite for contractor registration
- 2) Mechanic registration is an interim step toward mechanic certification.

2.4. Installation Locations and Maintenance Lists

2.4.1. Contractors shall provide a list of all Parking Garage Lifts which they have **installed** in the province of Ontario prior to January 1, 2009.

- a) Installation lists shall be provided to TSSA by June 1, 2009.
- b) Lists will not need to include installations at private dwellings houses, including the land upon which the private dwelling house is situated.
- c) Installation lists should include:
 - 1) the device(s) address,
 - 2) owner of device(s) – if known
 - 3) owner's phone number and address – if known
 - 4) number of devices (power units and load carriers per power unit)
 - 5) Total load and load carrier capacity ratings

2.4.2. Contractors shall provide a list of all Parking Garage Lifts under their **maintenance**. O.Reg.209/01, s.23

- a) Maintenance lists shall be provided to TSSA by June 1, 2009
- b) Lists will not need to include installations at private dwellings houses, including the land upon which the private dwelling house is situated.
- c) Contractor licensing in subsequent years will require disclosure of all installations under their maintenance.
- d) Maintenance lists should include:
 - 1) the device(s) address,
 - 2) owner of device(s)
 - 3) owner's phone number and address
 - 4) number of devices (power units and load carriers per power unit)
 - 5) Total load and load carrier capacity ratings

Note: Condominiums are not included in the private dwelling house exemption as they have components / areas which are not exclusive to the owners of a single private dwelling, so they need to be included on the list.

2.5. Submission Requirements for New and Altered Installations

2.5.1. **New** and/or **altered** Parking Garage Lifts shall conform to the *Technical Standards and Safety Act, 2000*, Ontario Regulation 209/01 and the Elevating Devices Code Adoption Document. Engineering and inspection related documents (design submission documents) related to the installation shall be provided with the application for registration of a new installation. The engineering data will identify the applied codes and provide statements of hazard assessment and mitigation. O.Reg.209/01, s.5 (1), 5(2), 15, 16, 17

- a) The first required design submissions will apply to any **new** or **altered** installation which will be commissioned / put into operation after **January 1, 2009**.
- b) The design submission for registration of a **new** or **altered** installation shall include those items listed in O.Reg 209/01, s.15.(4), and shall also include:
 - 1) Proof of electrical equipment certification to CEC C22.1, CSA, cUL, or equivalent.
 - 2) Proof of manufacturer welding certification to CSA W47.1, or equivalent.
 - 3) Number of load carrying units driven by the power unit.
 - 4) Total Capacity of the device and the capacities of the individual carriers.

- 5) Operator Training Program
- 6) Assessment of Hazards and Mitigation - Identify how all minimum safety requirements are to be addressed (crush, shear, fall, shock hazards)
- 7) Testing procedures to demonstrate the effectiveness of safety devices and features.

2.5.2. All documents of a design submission shall be under the signature and seal of a professional engineer of Ontario. O.Reg.209/01, s.15. (6)

- a) Submitting engineers will be attesting compliance to any applicable regulations and codes and will ensure that matters effecting safety are addressed in a manner reflecting good engineering practice.

2.6. Inspection of New and Altered Installations

2.6.1. A contractor who installs or alters a Parking Garage Lift shall arrange for an initial inspection after ensuring the device complies with the registered design submission and the device is in a safe operating condition.

2.6.2. The initial inspection fee is the responsibility of the installing contractor. O.Reg.209/01, s.25, s. 44.

2.6.3. Contractors are reminded that new installations are not to be turned over for use until the device has passed an initial inspection.

2.6.4. Devices undergoing alterations minor in nature and which do not impact safety features can be returned to service but must be inspected within 60 days O.Reg.209/01, s.19

2.6.5. Full Load tests or loading with vehicles of representative weight will be required on all new devices (and where applicable on altered devices). Loads and/or other test equipment shall be provided by the contractor. O.Reg.209/01, s.44

2.6.6. At the initial inspection the following must be present:

- a) Operator Training Program
 - b) A training log book – to record the names of trained persons
- Note: Operators shall be trained and their names recorded in the training log book prior to operation of the device.

2.6.7. Testing by the contractor will include a demonstration of test procedures included in the design submission.

2.7. Applied Codes and Standards

2.7.1. No code, standard or other technical rule has been authorized under section 36 of the *Technical Standards and Safety Act, 2000* for the Parking Garage Lift. General engineering practice normally applied to elevating devices shall apply.

- a) If the lift was built to the European Standard EN 14010 Equipment for power-driven parking of motor vehicles, TSSA will deem that it meets an acceptable code except where the EN 14010 is in direct conflict with another North American standard applicable in Ontario. (example: Canadian Electrical Code or general requirements of the Code Adoption Document) O.Reg.209/01, s.5 (2)

2.8. Existing Installations / Devices

2.8.1. Existing Parking Garage Lifts shall comply with the Regulation.

- a) Periodic inspection of existing Parking Garage Lift installations shall commence after **January 1, 2010**.
- b) Existing Parking Garage Lifts are ones that have been commissioned / put into operation prior to **January 1, 2009**.

- c) Owners will be responsible for the inspection fees and future safety inspections, at such intervals as determined by TSSA. O.Reg.209/01, s.4 (1), s.44.
- d) Alterations of Existing Parking Garage Lifts shall conform to the Code Adoption Document.
 - 1) Alterations shall be performed by registered contractors.
- e) Identification of general safety and regulatory violations during the first periodic inspection of existing Garage Parking Lifts may require modifications to bring the devices into compliance.
- f) Safety requirements for existing lifts will be determined and refined over time by TSSA in conjunction with an Industry Working Group made up of manufacturer, contractor, and owner representatives.
- g) Data-capture for existing devices will be conducted by TSSA field staff during the first periodic inspection.
- h) After the first Periodic inspection is complete, TSSA will determine the frequency for the next Periodic inspection. (Frequency will be determined using a risk based model)

2.9. Device License

- 2.9.1. Every Parking Garage Lift requires a license that must be posted at the device and is to be renewed on an annual basis by the owner. O.Reg.209/01, s.12, s.28, s.30.
- a) During the Initial inspection, an application for the device license will be supplied to the owner to fill in and return to the inspector along with payment based on the current license fee schedule.
 - b) Owners of existing devices shall apply for a license prior to **January 1, 2010**.
 - c) The initial application for the licensing of an existing device shall include:
 - 1) Owner name and address
 - 2) Device address
 - 3) Number of load carriers (per power unit)
 - 4) Total load and load carrier capacity ratings
 - 5) Description of controls used to prevent access to the device by the general public
 - d) Each power unit will constitute an installation and will require a separate license.

2.10. Maintenance Requirements and Records (Logbook)

- 2.10.1. The owner shall ensure the device is maintained by a registered contractor. Maintenance and maintenance frequency shall be in accordance with the manufacturer's recommendations, but in no case shall the time between maintenance visits be longer than one year. O.Reg.209/01, s.32
- a) For new or altered installations, maintenance requirements are effective **January 1, 2009**.
 - b) Maintenance requirements of existing installations are effective **June 1, 2009**.
 - c) Maintenance shall include inspection and testing of the safety device. O.Reg.209/01, s.33.
- 2.10.2. Every owner of a Parking Garage Lift and every contractor shall maintain a log book, in accordance with the manufacturer's recommendations, for the device that they own or maintain. The log book shall be readily available at the location of the device. O.Reg.209/01, s.34
- a) A manufacturer supplied list of items requiring regular maintenance and the recommended maintenance frequency for each item shall be provided by the supplier of the equipment and should be included as part of the maintenance log book.
 - b) Log books shall remain on site for 5 years as per O.Reg.209/01, s.34.(2)
 - c) Maintenance requirements for PGL's will be determined and refined over time by TSSA in conjunction with an Industry Working Group made up of manufacturer, contractor, and owner representatives.

2.11. Operating Requirements (for Owners)

- 2.11.1. Every owner of an elevating device shall ensure that the attendants and operators have knowledge of the device and complies with the *Technical Standards and Safety Act, 2000* and O.Reg.209/01. O.Reg.209/01, s.40, s. 13.
- 2.11.2. Owners shall have an operator training program and a log of trained persons.
- 2.11.3. Operation shall be restricted to only trained operators through the use of keys or equivalent systems.
- 2.11.4. Owners shall annually renew and post the device license at the power unit, controller or operating station.
- 2.11.5. Owners shall post:
- a) The installation number tag at the power unit and identify each load carrier unit.
 - b) Shall post a capacity sign (in kilograms) at the operating station and each load carrier.
 - c) Shall post safe operating procedure signage at each operating station.
 - 1) Signs may be shared between operating stations.
 - 2) The sign must be legible from the operating station otherwise individual signs shall be required.
- 2.11.6. Where an accident or incident occurs, the owner and/or contractor shall notify TSSA as per requirements of O.Reg.209/01, s.36.
- 2.11.7. Every owner of a Parking Garage Lift shall ensure safe and unobstructed access to all serviceable parts of the device for maintenance and service.
- 2.11.8. Keys for access to all locked parts of the device shall be readily available. O.Reg.209/01, s.37.

3. Regulatory Requirement Summary

- *Technical Standards and Safety Act 2000*, S.O. 2000, c.16
- Ontario Regulation 209/01 (Elevating Devices)
- Ontario Regulation 222/01 (Certification and Training of Elevating Device Mechanics)

Electronic copies of these documents can be found on the Government of Ontario web site at:

<http://www.e-laws.gov.on.ca> or
<http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act>

- Elevating Devices Code Adoption Document
- Enforcement Procedure Bulletin 194/08

Electronic copies of these documents can be found on the TSSA web site at:

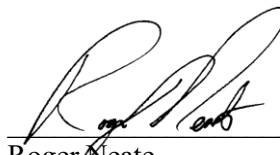
<http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act>

4. Effective Date

This enforcement procedure is effective immediately.



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Developed in consultation with the PGL Industry Task Group



Elevating and Amusement Devices Safety Program	Ref. No.: 214/09-r2
Director's Guideline	Date: December 1, 2020

Subject: Incident Reporting Guideline as applicable to Passenger Ropeways & Passenger Conveyors
Distribution: Posted on TSSA website and distribution to TSSA Ski Lift Advisory Council

1. Introduction

This Director's Guideline 214/09-r2 addresses current challenges with reporting and shutdown requirements when dealing with incidents under section 36 of Ontario Regulation 209/01 (*Elevating Devices*) [hereinafter the *Regulation*] that:

- require the services of a medical practitioner, and
- occur in the load and unload area of a ski lift.

This document provides guidance to passenger ropeway and conveyor operators, mechanics and licensees about the requirements to report incidents and when a restart of passenger ropeways and conveyors is permissible following an incident, only if certain conditions are met.

Operators, license holders and mechanics are advised to use their best judgment when making determinations about the reporting requirements and the restart allowances under section 36 of the *Regulation*. This Guideline does not supersede or override the regulatory requirements of section 36 of the *Regulation*.

2. Effective Date

This Director's Guideline 214/09-r2 is in effect October 1, 2020. Director's Guideline 214/09-r1 is revoked on September 30, 2020.

3. Definitions

For the purpose of administering the requirements of the *Regulation* and affording flexibility of administration of those requirements, the following definitions are used for this incident reporting guideline as applicable to Passenger Ropeways and Passenger Conveyors only. Note: '**defined terms**' are shown in **bold italic**

"medical practitioner" means a physician, nurse, dentist, chiropractor or physiotherapist legally qualified to practice their profession in Ontario, and a paramedic as defined under the Ambulance Act.

"critical injury requiring a medical practitioner" means an injury of a serious nature including injuries that may,

- (a) place a life in jeopardy
- (b) produce unconsciousness
- (c) result in a substantial loss of blood
- (d) involve a fracture of an arm, leg, collar bone, hip bone, vertebrae; and/or
- (e) require the use of a spinal back board for a head or vertebrae injury.

"non-critical injury requiring a medical practitioner" means an injury other than **critical injury requiring a medical practitioner**

"non-critical injury" means an injury where no medical practitioner services were sought or required

“Category 1 Injury” means a **critical injury requiring a medical practitioner**

“Category 2 Injury” means a **non-critical injury requiring a medical practitioner**

“Category 3 Injury” means a **non-critical injury**

“unseated patron incident” means a patron that is unseated or hanging onto or from the chairlift

“loading area, above surface ropeway” means the area from the wait to load sign to the point where a fall from the seat begins to exceed 3 meters

“unloading area, above surface ropeway” means the area where a fall from the seat becomes less than or equal to 3 metres to a point 3 metres past the tangent of the upper bull wheel

“surface lift user zone” means anywhere along the tow path, from the wait to load point to the unload point

“In the Zone” means one of the three defined areas;

- **loading area, above surface ropeway**, or
- **Unloading area, above surface ropeway**, or
- **surface lift user zone**

“Between the Zone” means the areas of an above surface lift between the loading and unloading zone

Category 1, 2, and 3 Injury Summary Table

Injury Category	Critical or Non-Critical	Requires service of a medical practitioner
Category 1 Injury	Critical (a) places life in jeopardy (b) produces unconsciousness (c) results in a substantial loss of blood (d) involves a fracture of an arm, leg, collar bone, hip or vertebrae (e) requires the use of a spinal back board for a head or vertebrae injury	Yes
Category 2 Injury	Non-critical	Yes
Category 3 Injury	Non-critical	No

Note: At all times, license holders, operators and mechanics are expected to use their best judgment when deciding whether or not an injury should be deemed Category 1, 2 or 3. The standard imposed will be one of a “reasonable person” based on the information available at the time the report is made.

4. Incident Type and Returning Passenger Ropeways to Service

Table of Operational and Reporting Requirements based on Incident Type

For the purpose of administering the requirements of O.Reg 209/01 s.36 **Incidents** as they relate to passenger ropeways, the following table reflects the provisions of this incident reporting guideline.

Reg.	Incident / Injury	Location	Operation	Notification to Director	Written Report
36.(1)	Death	Anywhere on lift	Shut Down ☒!	Immediately by owner s.36.(1)(a) ☒!	Maintaining contractor within 24 hrs s.36.(1)(b) 📄 24h
	Category 1 Injury (critical)				
36.(2) as 36.(1)	Category 2 Injury (non-critical) Category 3 Injury[†] (†fall from chair, non-critical) or Unseated Patron Incident	Between the Zone	After site is safe* and/or injured person rescued. Do not disturb scene. Operation only by inspector permission, after issue identified and device safety restored s.36.(7) & s.36.(8)		
36.(1) as 36.(2)	Category 2 Injury (non-critical)	In the Zone	No shut down. Lift restart permitted	Owner and Maintaining contractor within 24 hours of being aware s.36.(2)(a) s.36.(3)(a) ☒ 24h	Owner and Maintaining contractor within 7 days of being aware s.36.(2)(b) s.36.(3)(b) 📄 7d
36.(2)	Category 3 Injury (non-critical)				
	Property damage	Anywhere on lift			
36.(3)	Equipment exposure to harmful events impacting safe operation		Shut Down ☒!	Same as above	Same as above
36.(4)	Mechanic finds equipment in a condition that constitutes an immediate hazard		After site is safe*. Do not disturb scene. Operation only by inspector permission, after issue identified and device safety restored s.36.(7) & s.36.(8)	The mechanic must notify the Owner or Maintaining Contractor immediately ☒!	
36.(5)	Licence holder finds or becomes aware of equipment in a condition that constitutes an immediate hazard			Owner within 24 hours of being aware s.36.(5)(b) ☒ 24h	Owner within 7 days of being aware s.36.(5)(c) 📄 7d

☒ = Shut Down ☒ = Call 📄 = Report ! = immediately, 24h = 24hour, 7d = 7days * = permits lift evacuation

5. Reporting

a) What should I do if I am uncertain about my notification and reporting obligations?

If you are in doubt as to whether reporting is required, you are encouraged to report the finding, or contact TSSA's Spills Action Centre at 1 (877) 682-8772 (menu option 1) for further clarification.

b) How do I Report?

An incident reporting form (specific to ski lifts) is available online at www.tssa.org
Incidents may be reported via:

- Telephone Notification - TSSA's customer contact centre at 1 (877) 682-8772
- Written Notification - via email to ski-incident@tssa.org

Where the regulation requires immediate reporting, reporting must be done by telephone.

6. Background

Ontario Regulation 209/01 (Elevating Devices) as amended by O.Reg 252/08, came into effect on January 1, 2009, and introduced new requirements related to the reporting of incidents. To provide further clarification on these new requirements Director's Guideline 214/09 was published.

After experiencing lift restart delays due to the new incident reporting protocols, the ski industry approached TSSA with their challenges. Subsequently guideline 214/09-r1 was issued to provide flexibility for lift restarts if certain protocols were followed. After several operating seasons utilizing the provisions of the updated guideline the ski industry has again conveyed challenges with delays when following the reporting protocols and challenges when an injury may involve the broad definition a medical practitioner. This Director's Guideline is an updated effort to address those challenges.

<director>

Director, Ontario Regulation 209/01(Elevating Devices) appointed under the *Technical Standards and Safety Act, 2000*.

This Guideline has been developed in consultation with the Ski Lift Advisory Council.

Legal Disclaimer

This document contains a **Guideline** (ED 214/09-r2) to assist members of the industry in understanding roles and responsibilities under section 36 of Ontario Regulation 209/01 (Elevating Devices) as adopted by the *Technical Standards and Safety Act, 2000*, S.O. 2000, Ch.16. This Guideline may be used for informational purposes only.

Although the information and materials are carefully prepared and are believed to be reliable and accurate, the Technical Standards and Safety Authority (TSSA) does not accept any legal responsibility for the contents herein or for any consequences, including direct or indirect liability, arising from reliance on the information or use thereof. The information set forth through the Guideline may be revised or withdrawn at any time without prior notice.

In no event shall the TSSA, its employees, directors, or officers, be liable for any direct, indirect or incidental damages, injury, loss, costs or expenses related to reliance on the information provided or its use, however caused, including but not limited to, special or consequential damages, lost revenue, business interruption, lost or damaged data or any other commercial or economic loss howsoever caused irrespective of whether TSSA is advised of the possibility of such damages, injury, loss, cost or expense. TSSA does not provide any legal advice and users of the Guideline should consult with their own lawyer for legal advice.

The guideline contained herein does not have the force of law. In the event of a conflict between this guideline and any applicable legislation or regulation which may apply, the relevant law shall apply.

Appendix 'A'

From Ontario Regulation 209/01

INCIDENTS

Reporting of incidents

- 36.** (1) Where an incident occurs in connection with an elevating device that results in the death of a person or injury to a person that requires the services of a medical practitioner,
- (a) the owner of the device shall notify the director by telephone immediately; and
 - (b) the contractor maintaining the device shall submit to the director, in the form provided by the designated administrative authority, a written report giving full particulars within 24 hours of first becoming aware of the incident. O. Reg. 252/08, s. 21.
- (2) Where an incident occurs in connection with an elevating device, other than an incident described in subsection (1), the owner and the contractor maintaining the device shall,
- (a) notify the director by telephone or other means within 24 hours of first becoming aware of the incident;
 - (b) each submit to the director in the form provided by the designated administrative authority a written report giving full particulars within seven days of first becoming aware of the incident. O. Reg. 252/08, s. 21.
- (3) Where there has been a fire, flood or other significant exposure to water, vandalism, impact or lightning strike that may adversely affect the safe operation of an elevating device, the owner and the contractor maintaining the device shall,
- (a) notify the director by telephone or other means within 24 hours of first becoming aware of the condition that may adversely affect the safe operation of the device;
 - (b) each submit to the director, in the form provided by the designated administrative authority, a written report giving full particulars within seven days of first becoming aware of the condition. O. Reg. 252/08, s. 21.
- (4) Where a mechanic finds that an elevating device is in a condition that constitutes an immediate hazard to the safety of a person or property, he or she shall immediately remove the device from service and notify the owner or contractor maintaining the device. O. Reg. 252/08, s. 21.
- (5) Where a licence holder for an elevating device finds or becomes aware that the device is in a condition that constitutes an immediate hazard to the safety of a person or property, the licence holder shall,
- (a) immediately remove the device from service;
 - (b) notify the director by telephone or other means within 24 hours of making the finding; and
 - (c) within seven days of making the finding, submit to the director in the form provided by the designated administrative authority a written report giving full particulars. O. Reg. 252/08, s. 21.
- (6) The written report shall contain the results of an investigation carried out by the contractor following the incident or finding that the elevating device was in a condition that constituted an immediate hazard. O. Reg. 252/08, s. 21.
- (7) Where an incident or condition of a type referred to in subsection (1), (3), (4) or (5) occurs, no person shall, except for the purpose of making the site safe or rescuing a person injured in the incident, interfere with, disturb, destroy, carry away or alter any wreckage, article or thing at the scene of or connected with the incident until an inspector gives permission to do so. O. Reg. 252/08, s. 21.
- (8) No person shall return an elevating device referred to in subsection (1), (3), (4) or (5) to service until the cause of the incident or condition is identified, the safety of the device restored and an inspector gives permission to return the device to service. O. Reg. 252/08, s. 21.
- (9) An investigation under this section shall be conducted in such manner as the director considers necessary in the circumstances. O. Reg. 252/08, s. 21.



In case of death, serious injury or immediate hazard call:		Call 877-682-8772 <small>(menu option 1)</small>		Email: ski-incident@tssa.org <small>⊗ = Shut Down ☎ = Call 📄 = Report</small>		PASSENGER ROPEWAY Installation Number					
INJURY & Location on Lift	INJURY	Death	Category 1 Critical	Category 2 Non-critical	Category 3 Non-critical	Property Damage	36.(3) Fire, flood, lightning	36.(4)	36.(5) Hazardous Condition		
	LOCATION										
	Anywhere on the lift	<input type="checkbox"/> ☎! 📄 24h	<input type="checkbox"/> ☎! 📄 24h			<input type="checkbox"/> ☎ 24h 📄 7d	<input type="checkbox"/> ☎! 📄 24h	<input type="checkbox"/> ☎! 📄 7d	<input type="checkbox"/> ☎! 📄 7d	<input type="checkbox"/> ☎! 📄 7d	<input type="checkbox"/> ☎! 📄 7d
	In Load/Unload Zone			<input type="checkbox"/> ☎ 24h 📄 7d	<input type="checkbox"/> ☎ 24h 📄 7d						
Between Load / Unload Zone Fall or Unseated			<input type="checkbox"/> ☎! 📄 24h	<input type="checkbox"/> ☎! 📄 24h							
LOCATION DETAILS	Device Type <input type="checkbox"/> above surface lift <input type="checkbox"/> surface lift <input type="checkbox"/> conveyor <input type="checkbox"/> secondary carrier (tube tow) <input type="checkbox"/> Other, Specify:										
	Location / Address of the Ski Lift						Occurrence Date		Occurrence Time		
	Note: If the incident type is 36.(1), (3), (4) or (5), the device shall not to be returned to service until: <input type="checkbox"/> Cause identified, and <input type="checkbox"/> Safety of the device is restored, and <input type="checkbox"/> Inspector gave permission to return to service										
	Describe the incident in detail and cause if known: (in loading/unloading area, near tower #, struck, fall from height, etc.)										
INCIDENT DETAILS	What actions were taken to secure the scene and make the site safe by the owner or contractors (if any)?										
	Describe actions taken (if any) by the owner or contractor to prevent or reduce the chance of a reoccurrence.										
	Injured Person or N/A (use one form per each injured person) N/A <input type="checkbox"/>										
PERSONS	Name:		Address:				Telephone No:				
	Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female		Age:								
	Describe injuries and medical / hospital help received (use additional sheet if required)										
	Witness – if any witness to the incident										
	Name:		Address:				Telephone No:				
1.											
2.											
Reported by:		<input type="checkbox"/> Owner			<input type="checkbox"/> Contractor			<input type="checkbox"/> Other:			
Completed by:		Name				Date:					
Position:		Position			Email:			Telephone:			



INSTALLATION NUMBER IS MANDATORY

Table of Operational and Reporting Requirements based on Incident Type

For the purpose of administering the requirements of O.Reg 209/01 s.36 **Incidents** as they relate to passenger ropeways, the following table reflects the provisions of incident reporting guideline ED-214/09-r2.

Reg.	Incident / Injury	Location	Operation	Notification to Director	Written Report
36.(1)	Death	Anywhere on lift	Shut Down ☒!	Immediately by owner s.36.(1)(a) ☒!	Maintaining contractor within 24 hrs s.36.(1)(b) 📄24h
	Category 1 Injury (critical)				
36.(2) as 36.(1)	Category 2 Injury (non-critical)	Between the Zone	After site is safe* and/or injured person rescued. Do not disturb scene. Operation only by inspector permission, after issue identified and device safety restored s.36.(7) & s.36.(8)		
	Category 3 Injury[†] (†fall from chair, non-critical) or Unseated Patron Incident				
36.(1) as 36.(2)	Category 2 Injury (non-critical)	In the Zone	No shut down. Lift restart permitted	Owner and Maintaining contractor within 24 hours of being aware s.36.(2)(a) s.36.(3)(a) ☒24h	Owner and Maintaining contractor within 7 days of being aware s.36.(2)(b) s.36.(3)(b) 📄7d
36.(2)	Category 3 Injury (non-critical)				
	Property damage	Anywhere on lift			
36.(3)	Equipment exposure to harmful events impacting safe operation		Shut Down ☒!	Same as above	Same as above
36.(4)	Mechanic finds equipment in a condition that constitutes an immediate hazard		After site is safe*. Do not disturb scene. Operation only by inspector permission, after issue identified and device safety restored s.36.(7) & s.36.(8)	The mechanic must notify the Owner or Maintaining Contractor immediately ☒!	
36.(5)	Licence holder finds or becomes aware of equipment in a condition that constitutes an immediate hazard			Owner within 24 hours of being aware s.36.(5)(b) ☒24h	Owner within 7 days of being aware s.36.(5)(c) 📄7d

☒ = Shut Down ☒ = Call 📄 = Report ! = immediately, 24h = 24hour, 7d = 7days * = permits lift evacuation

Category 1, 2, and 3 Injury Summary Table

Injury Category	Critical or Non-Critical	Requires service of a medical practitioner
Category 1 Injury	Critical	Yes
	(a) places life in jeopardy	
	(b) produces unconsciousness	
	(c) results in a substantial loss of blood	
	(d) involves a fracture of an arm, leg, collar bone, hip or vertebrae	
(e) requires the use of a spinal back board for a head or vertebrae injury		
Category 2 Injury	Non-critical	Yes
Category 3 Injury	Non-critical	No

Note: At all times, license holders, operators and mechanics are expected to use their best judgment when deciding whether or not an injury should be deemed Category 1, 2 or 3. The standard imposed will be one of a "reasonable person" based on the information available at the time the report is made.



Elevating and Amusement Devices Safety Division	Ref. No.: 224 / 07	Rev. No.: 1
GUIDELINE	Date: June 25, 2007	Date: <u>November 20,</u> <u>2012</u>

IN THE MATTER OF:

**THE *TECHNICAL STANDARDS AND SAFETY ACT 2000*,
S.O. 2000, c. 16**

- and -

**ONTARIO REGULATION 209/01 (Elevating Devices) made under the
*Technical Standards and Safety Act, 2000***

- and -

**Section 5.20 of the Elevating Devices Code Adoption Document
dated June 1, 2001, as amended**

Subject: Periodic Engineering Review and Assessment of Above-surface Passenger Ropeways
(Aging Ski Lifts)

Sent to: **All Passenger Ropeway Contractors and Consultants**

1. DIRECTOR'S GUIDELINE

1.1 General

1.1.1 All persons operating above-surface passenger ropeways in Ontario shall comply with Section 5.20 of the Elevating Devices Code Adoption Document, adopted in the Elevating Devices Regulation, and in accordance with the requirements stated in this Guideline.

1.2 Frequency for Periodic Engineering Review and Assessment

1.2.1 All above-surface passenger ropeways shall be subject to periodic engineering assessment as follows:

a) first or initial engineering assessment:

- maximum 22,500 hours of operation,
- without exceeding 15 years from the initial start-up;
("initial start-up" means first permitted for use anywhere.)

b) second engineering assessment:

- maximum 37,500 hours of operation,
- without exceeding 25 years;

c) third engineering assessment:

- maximum 45,000 hours of operation,
- without exceeding 30 years;

d) subsequent periodic engineering assessments:

- at every interval of 7,500 hours of operation,
- without exceeding 5 years after the third engineering assessment.

Despite the frequency stated in 1.2.1, reporting due dates may deviate somewhat as permitted by the Director. Where such deviations occur the next reporting date noted on the registered copy of the Periodic Engineering Review and Assessment report will apply. For a current listing of device installation numbers and their next scheduled frequency for the Periodic Engineering Review and Assessment, contact TSSA or obtain a copy of the **Aging Ski-Lift Periodic Engineering Review and Assessment Schedule** from the web site. The latest edition of the “Aging Ski Lift Periodic Engineering Review and Assessment Schedule” is available from the TSSA web site.

1.3 **Periodic Engineering Review and Assessment of Above-surface Passenger Ropeways**

- 1.3.1 The Periodic Engineering Review and Assessment shall identify passenger ropeway parts that are affected by:
- a) **fatigue and vibration** of both **moving components** and **fixed structures** causing cracks and fractures of connections and parent metal; and
 - b) **environmental factors** like snow, ice, rain, temperature, humidity, and dust causing corrosion and deterioration of structural, mechanical and electrical components, and shall determine the extent of their deterioration, and evaluate their security at time intervals established in section 1.2 of this bulletin.
- 1.3.2 The following sources shall be used as guides to assess the security of the passenger ropeway parts:
- a) **The latest version of CSA Standard Z98**
The latest version of CSA Standard Z98 shall be used as a guide to establish criteria to assess safety of parts impacted by an aging ropeway. Those parts of passenger ropeway installation requiring alteration, replacement and/or repair shall meet the requirements of the latest adopted version of CSA Standard Z98, and
 - b) **The requirements by Manufacturer/Designer of the Passenger Ropeway**
The requirements by Manufacturer/Designer of the Passenger Ropeway shall be used as a guide for those parts of the passenger ropeway installation requiring alteration, replacement and/or repair shall meet the requirements established by the manufacturer/designer of the passenger ropeway. Where manufacturer or designer is no longer in business, an engineer shall establish requirements for alteration, replacement and/or repair, and
 - c) **Non-Destructive Testing (NDT) of Critical Components**
Non-Destructive Testing of Critical Components shall be undertaken for all above-surface passenger ropeway critical components. Any components to be tested that are not directly accessible shall be disassembled. The method of non-destructive, acceptance/rejection criteria, and other tolerances shall be in accordance with the specification specified by the manufacturer/ designer. Where manufacturer or designer is no longer in business, an engineer shall perform that action.

Critical components are those parts of ropeway, the failure of which would immediately jeopardize passenger safety. The list of critical components of an above-surface ropeway shall include, but not be limited to the following:

MOVING COMPONENTS:

- Carrier(s)¹, including grip, hanger, chair, or gondola;
- Drive and return sheaves including shafts;
- Line sheave assemblies and their attachments;
- Tension systems and their attachments; and
- Wire rope, including haul ropes, track ropes and counterweight ropes

¹Note: Refer to section 3.5 of this guideline for determination of NDT criteria for carriers

FIXED STRUCTURES

- Drive terminal structure;
- Return terminal structure;
- Towers and cross-arms; and
- Catwalks

Identification of every critical component of an above-surface passenger ropeway shall be based on its definition and requirements contained in the latest adopted version of CSA Standard Z98 – Passenger Ropeways. According to the CSA Standard Z98, critical component means “ a component or system of components, the failure of which would immediately jeopardize passenger safety”.

All critical components shall be tabulated with identification, including the type of non-destructive testing conducted, rejection/acceptance criteria, findings, and recommendations. The recommendations may contain establishing program of inspection/maintenance, steps to repair, replace, and/or alter the critical components.

1.4 **Reporting Engineering Review and Assessment Findings**

- 1.4.1 A professional engineer shall certify the engineering review/assessment report. The report shall address:
- a) guidelines established in Section 1.3; and
 - b) the requirements to correct all non-compliance related findings to achieve compliance with the requirements of Section 5.20 of the CAD under the Elevating Devices Regulation.
- 1.4.2 An owner shall attest that he/she will comply with the requirements of the certified engineering review and assessment report to achieve compliance with the requirements of Section 5.20 of the CAD under the Elevating Devices Regulation.

1.5 **Compliance**

- 1.5.1 The engineering review and assessment report prepared in accordance with the requirements of Section 1.4 of this Guideline shall be submitted to the Technical Standards and Safety Authority (TSSA) for its registration.
- 1.5.2 Prior to registering the report, TSSA shall evaluate an engineering and assessment report for its technical integrity and conformance to the requirements of this Guideline. The report shall be registered without conditions, registered with conditions or rejected with explanation.
- 1.5.3 An owner of an above-surface passenger ropeway shall not operate the ropeway prior to the registration of the certified engineering review and assessment report.
- 1.5.4 The requirements of Directors Order 169/02-r1 have been superseded with the release of this Guideline.
- 1.5.5 The requirements of 3.5(g) shall be incorporated into aging assessments prepared for the 2013/14 operating season and all aging assessments thereafter.

2. BACKGROUND

2.1 **General**

The Elevating Devices Regulation made under the *Technical Standards and Safety Act (TSS Act)* adopts the Elevating Devices Code Adoption Document (CAD). This Guideline is prepared in keeping with the Section 5.20 of the CAD that reads:

“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.”

Section 5.20 of the CAD is intended to deal with the impact on the safety of above-surface passenger ropeway as a result of its age. Even though a ropeway is maintained to keep up with its original or current design/manufacturing specification during its life, over the period of time the following elements will still weaken parts of the ropeway that can fail accidentally:

- Fatigue and vibration of both moving components and fixed structures causing cracks and fractures of connections and parent metal; and
- Environmental factors like snow, ice, rain, temperature, humidity, and dust causing corrosion and deterioration of structural, mechanical and electrical components.

Above-surface passenger ropeways include those ropeways on which passengers are transported in rope-supported carriers and are not in contact with the ground or snow surface. Chair lifts, gondola lifts, and reversible ropeways are above-surface passenger ropeways.

Periodic engineering review and assessment of every above-surface passenger ropeway will ensure continued compliance with the TSS Act, Elevating Devices Regulation, and CAD, which in turn is intended to ensure continued operational safety.

This Guideline expounds upon the following criteria to meet the intent of Section 5.20:

- frequency for periodic engineering review and assessments;
- guidelines for periodic engineering review and assessment of above-surface passenger ropeways;
- reporting engineering review and assessment findings; and
- compliance.

This Guideline has been developed in consultation with the TSSA Ski Industry Advisory Technical Committee.

3. INSTRUCTIONS

- 3.1 Those recommendations of the engineering review and assessment report requiring major and minor alterations of the above-surface passenger ropeway shall be dealt in accordance with the requirements of the Technical Standards and Safety Act, Elevating Devices Ontario Regulation, and Code Adoption Document. All alterations may be submitted as one design submission. The design submission for major alteration(s) must be registered and inspected prior to the operation of the ropeway.
- 3.2 The fee prescribed in the fee schedule for evaluation of engineering review and assessment report will be charged to the submitter of the report.

- 3.3 Submit one electronic copy to TSSA for registration. If package contains drawings exceed 11x17 forward one paper copy of the engineering review and assessment report to TSSA. Upon registration of the report, TSSA will return a registered electronic copy.
- 3.4 Where the latest adopted version of CSA Standard Z98 – Passenger Ropeways and this Guideline requires action by a designer or manufacturer who is no longer in business, that action shall be performed by a professional engineer as defined in the Elevating Devices Regulation.
- 3.5 This Guideline establishes in-depth inspection and compliance requirements to ensure security of critical components of an above-surface passenger ropeway. In order to expedite registration of “Reporting Engineering Review and Assessment Findings” in accordance with Section 1.4 of this Guideline, it is critical that consistent “methodology” is applied to confirm compliance with this Guideline:
- Compile “as built” specification of the ropeway necessary to assess security of critical components of an above-surface passenger ropeway.
 - Identify critical components of an above-surface passenger ropeway subjected to fatigue, vibration, and environmental exposure for their inspection.
 - Prepare list of critical components and non-destructive testing methods to be applied for their inspection.
 - Where critical components to be inspected are not directly accessible, any disassembling required must be performed where deemed necessary.
 - Evaluate the findings of the inspection with a view to confirm the security of critical components.
 - Determine action (repair, replacement and/or alteration) taken or to be taken to secure the integrity of critical components.
 - In addition to the assessment criteria listed in section 1.3 and Z98 requirement 12.8.3 (NDT a minimum 20% of carriers per year), aging assessments of carriers should examine prior NDT reports in conjunction with any replacement modification and repair records to determine if a greater number of carriers require yearly NDT, (see 1.5.5 for effective date).
- 3.6 Necessary non-destructive testing (NDT) may be spread (staggered) over a period not exceeding five years to assist planning for compliance with this Guideline in accordance with the “Frequency for Periodic Engineering Review and Assessment” established in Section 1.2.
- 3.7 The current “Periodic Engineering Review and Assessment” Report confirming compliance with this Guideline in keeping with the “Frequency for Periodic Engineering Review and Assessment” established in Section 1.2 shall be linked by reference to all previous “Periodic Engineering Review and Assessment” Report(s) for a specific passenger ropeway in order to justify and resolve the following conditions (where applicable):
- Next NDT cycle (other than Section 1.2 of this Director’s Order) for newly replaced parts identified in the previous “Periodic Engineering Review and Assessment” Report(s);
 - Compliance with all outstanding recommendations and conclusions identified in the previous “Periodic Engineering Review and Assessment” Report(s);
 - Compliance with “Notice of Registration of Design Submission with Conditions” attached to previous “Periodic Engineering Review and Assessment” Report(s) registered with the TSSA.
- 3.8 The current “Periodic Engineering Review and Assessment” Report shall be linked to previous (where applicable) “Periodic Engineering Review and Assessment” Reports for a specific passenger ropeway by

referencing the design submission (DS) number listed under “Notice of Registration of Design Submission with Conditions” attached with the previous “Engineering Review and Assessment” Report registered with the TSSA.

- 3.9 This Guideline is not intended to replace any requirements contained in the latest adopted version of CSA Standard Z98 – Passenger Ropeways and Ontario Regulation.
- 3.10 This is a reminder that “Operation and Maintenance” requirements under Section 32 of the O.Reg 209/01 must be adhered to at all times. When replacing parts of a ropeway, Section 32(5) of the O.Reg 209/01 applies. All work must be performed by qualified persons.

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01(Elevating Devices) appointed under the *Technical Standards and Safety Act, 2000*,

This Guideline has been developed in consultation with the Ski Lift Devices Advisory Council.



TYPE - LOCATION - SHUTDOWN	In case of death, serious injury or immediate hazard call:		877-682-8772		Email: ed-incident@tssa.org ☎ = Shut Down ☎ = Call		ELEVATING DEVICE Installation Number		
	Occurrence Type	<input type="checkbox"/> death s36.(1) ☎☎		<input type="checkbox"/> injury with medical attention s36.(1) ☎☎		<input type="checkbox"/> injury without medical attention			
		<input type="checkbox"/> equipment-property damage s36.(2)		<input type="checkbox"/> equipment in a hazardous condition s36.(4,5) ☎☎					
		<input type="checkbox"/> fire, flood, lightening strike s36.(3) ☎☎		<input type="checkbox"/> voluntary reporting of an instance of elevated exposure to risk (No Injury and not covered in s36.(1) through s36.(5))					
	Device Type	<input type="checkbox"/> elevator		<input type="checkbox"/> escalator / Moving Walk		<input type="checkbox"/> Physical Disabilities Lift		<input type="checkbox"/> Other, Specify:	
Location / Address of the Elevating Device					Occurrence Date		Occurrence Time		
Note: If the incident type is 36.(1), (3), (4) or (5), the device shall not to be returned to service until: <input type="checkbox"/> Cause identified, <u>AND</u> <input type="checkbox"/> Safety of the device is restored, <u>AND</u> <input type="checkbox"/> Inspector gave permission to return to service.									

INCIDENT DETAILS	Describe the incident or event:
	Describe cause of incident or event, if known:
	What actions were taken to secure the scene and make the site safe by the owner or contractors (if any)?
	Describe actions taken (if any) by the owner or contractor to prevent or reduce the chance of a reoccurrence.

PERSONS	Injured Person or N/A (use one form per each injured person) N/A <input type="checkbox"/>		
	Name:	Address:	Telephone No:
	Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female	Age:	
	Describe injuries and medical / hospital help received (use additional sheet if required)		
	Witness – if any witness to the incident		
	Name:	Address:	Telephone No:
	1.		
	2.		
Reported by:	<input type="checkbox"/> Owner	<input type="checkbox"/> Contractor	<input type="checkbox"/> Other:
Completed by:	Name	Date:	
	Position	Telephone:	
		Fax:	
		Email:	

INSTALLATION NUMBER IS MANDATORY

INSTALLATION NUMBER IS MANDATORY



INSTRUCTIONS TO THE ELEVATING DEVICE INCIDENT REPORTING FORM

The following instructions are provided for information only. For complete regulatory reporting requirements, refer to the *Technical Standards & Safety Act, 2000* and Ontario Regulation 209/01 (Elevating Devices) and Director's Guideline ED-230/09 available at

<http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=adob>

Reporting forms can be obtained at <http://www.tssa.org/report.asp>

TYPE – LOCATION - SHUTDOWN: Identify the device *Installation Number*, the *Occurrence Type* (see table below), the *device type*, *address*, occurrence *time* and *date*. Acknowledge the shutdown / return to service criteria.

INCIDENT DETAILS: Provide as much detail as possible to describe the incident / event and actions taken after the incident.

PERSONS: Provide details related to persons; injured, any witnesses to the event, and information about the person completing this report.

FAQ's:

- a) Is reporting of incidents mandatory? Yes, required by the *Technical Standards & Safety Act, 2000* and section 36 of the Ontario *Regulations 209/01*. Section 37(1) of the Act specifies fines for failure to report an incident.
- b) Is the use of this form mandatory? Yes.
- c) Are owners and contractors required to report? Yes. See table below.

Summary of Reporting Requirements				
Reg	Occurrence Type	Notification (or CALL)	Written Reports	Device Status
s36.(1)	Death	Owner holder must notify the Director immediately by telephone	The contractor shall submit a written report to the Director within 24 hours of becoming aware of the incident	Shut Down until 36.(8) fulfilled.
	Injury requiring services of a medical practitioner			
s36.(2)	Injury other than 36.(1) or property damage	Owner must notify the Director by telephone within 24 hours of becoming aware	The Owner and the Contractor shall submit a written reports to the Director within 7 days of becoming aware	Return to Service after contractor evaluation
s36.(3)	Equipment exposure to harmful events impacting safe operation			Shut Down until 36.(8) fulfilled.
s36.(4)	Mechanic finds equipment in a condition that constitutes an immediate hazard	The mechanic must notify the licence holder immediately	The licence holder shall submit a written report to the Director within 7 days of the finding	
s36.(5)	Licence holder finds or becomes aware of equipment in a condition that constitutes an immediate hazard	The Owner must notify the Director by telephone within 24 hours of the finding	The licence holder shall submit a written report to the Director within 7 days of the finding	

- d) **What is voluntary reporting of an instance of elevated exposure to risk?** If a device is in condition that does NOT constitute an immediate hazard, but the condition poses an **“elevated exposure to risk”** to the public, voluntary reporting provides additional data that can aid in better risk informed decision making by the Director, the elevating devices safety program and TSSA’s industry councils. Voluntary reporting is often associated with no injury events that are commonly attributed to user behaviour / error (eg trips and falls) where equipment issues are not present.



Elevating and Amusement Devices Safety Division	Ref. No.: 230 / 09	Rev. No.:
DIRECTOR'S GUIDELINE	Date: January 6, 2010	Date:

Subject: Guideline for the reporting of
1) incidents
2) equipment exposed to harmful events affecting safe operation and
3) equipment found in a hazardous state (by a mechanic or owner)

Applicable to: All Elevating Device Contractors, Consultants, Owners and Certificate Holders

1. Introduction

Ontario Regulation 209/01 (Elevating Devices) as amended by O.Reg 252/08, which came into effect on January 1, 2009, contains updated requirements related to the reporting of incidents.

2. Purpose of this Guideline

This guideline is intended to aid in compliance with section 36 of Ontario Regulation 209/01 (Elevating Devices) titled **Reporting of Incidents**. Section 36 requires that any incident involving an elevating device be reported to the Director. The specifics of this requirement vary depending on the nature of the incident.

The **Reporting of Incidents** section of the regulation addresses issues related to;

- types of incident(s),
- harmful events which may impact the safety of a device,
- devices found in a hazardous condition,
- who should report, method of reporting and reporting timelines,
- requirements related to preserving the scene,
- returning a device back into operation, and
- thorough investigation of incidents.

A copy of section 36 is attached as Appendix 'A'.

3. Intent

The intent of section 36 is to ensure that the Director is informed of all incidents related to elevating devices. Section 36 deals with not only actual incidents but also hazardous conditions where no injury or property damage has yet occurred. The reporting of incidents or hazardous conditions can be an effective trigger for safety enhancements and it is vital to 'risk-informed decisions making' in order to manage public safety related to elevating devices. Legislated requirements for incident reporting allow the Director to make use of information obtained beyond that which is gained only from inspection activities.

4. Effective Date

The amended incident reporting section came into effect on January 1, 2009.

5. Incident Notification and Reporting Q&A's:

a) What is an incident?

The regulation defines an incident as follows:

“Incident” means an occurrence involving an elevator system, an elevating device or a component of an elevating device resulting in an adverse consequence to persons or property.

Note:

- Subsections 36.(1) and 36.(2) of the regulation specifically deal with “incidents”.
- Subsections 36.(3) through 36.(5) do not deal with “incidents” but rather with “conditions”.

b) Are reporting requirements connected to the severity of the “incident”?

Yes.

Subsection 36.(1) details notification and reporting requirements for two categories of incident: “death”, or “injury to a person that requires the services of a medical practitioner”.

Subsection 36.(2) has notification and reporting requirements for other incidents which are not covered in ss. 36.(1). A minor incident would be a personal injury where no medical practitioner was required or where there was property damage. Remember that a consequence to person or property = an incident.

c) What is meant by “services of a medical practitioner”?

The regulation defines medical practitioner as follows:

“medical practitioner” means a physician, nurse, dentist, chiropractor or physiotherapist legally qualified to practice their profession in Ontario, and a paramedic as defined under the Ambulance Act.

If a medical practitioner provided services as a result of the personal injury, then the notification and reporting requirements as described in ss. 36.(1) apply.

Note: If, for example, a paramedic responds to a call and provides medical services in connection with an elevating device incident, the owner and contractor must both comply with the reporting requirements of ss. 36.(1) in relation to a death or serious injury.

If an incident occurs in connection with an elevating device where the services of a medical practitioner are not provided, the owner and contractor must both comply with the reporting requirements of ss. 36.(2) in relation to a minor injury.

d) Do I need to report a personal injury which did not require the services of a medical practitioner (i.e. a minor injury type)?

Yes.

Subsection 36.(2) of the regulation requires reporting incidents other than those described in ss. 36.(1). A personal injury that does not require the services of a medical practitioner would fall into this category.

e) Aside from the “incidents” described as

- i) death: in ss.36.(1),**
 - ii) injuries: serious injuries in ss36.(1) and minor injuries in s36.(2), or**
 - iii) property damage: in ss.36.(2)**
- are there any other reportable events?**

Yes.

Any time an elevating device is found to be in a condition where the safe operation of the equipment is affected [see ss. 36.(3)] or where there is an immediate hazard to the safety of persons or property [see ss. 36.(4) and ss. 36.(5)] the Director must be notified and a written report must be submitted.

f) When are the conditions of subsection 36.(3), that detail fire, flood or other significant water exposure, vandalism, impact or lightning strike, reportable?

Any time an elevating device has been negatively impacted to the extent that safe operation is questionable as a result of exposure to the conditions listed above, the owner and contractor must both notify the Director and submit a written report of the incident to the Director.

g) What’s the difference between subsections 36.(4) and 36.(5)?

Both of these provisions relate to the finding of the device in a condition which constitutes an immediate hazard. The difference depends on who finds or becomes aware of the hazard. Subsection 36.(4) applies if a mechanic finds the device in a hazardous state whereas subsection 36.(5) applies to licence holders.

h) What is meant by a “condition which constitutes an immediate hazard”?

A condition which constitutes an immediate hazard would be something that, if left unattended, would imminently cause death or serious injury to a person, also if the condition has the potential to cause property damage it likely also exhibits the potential for serious injury. If a device is in a condition that constitutes an immediate hazard, it must be immediately removed from service.

i) What if the immediate hazard is something that can be fixed quickly through general maintenance or repair. Do I still need to report?

Yes.

If there was a potential for harm to persons or property the Director must be notified of the event or condition and a written report must be submitted.

j) If I comply with my notification and reporting requirements, can the device be returned to service?

Not if the incident or condition is of a type referred to in ss. 36.(1), ss. 36.(3), ss. 36.(4) or ss. 36.(5). No person shall disturb the scene except for making the site safe or to facilitate rescue. Nothing is permitted to be done to the scene until an inspector gives permission to do so. No person is permitted to return the device to service until:

1. The cause of the incident or condition is identified;
2. The safety of the device is restored; and
3. The inspector has authorized the return to service.

k) If an incident [ss. 36.(1) or ss. 36.(2)] occurs or a condition as specified in 36.(3), (4) or (5) is identified, can the device operate?

NOTE: owner” includes the owner of the building in which an elevating device is located, the person who holds the licence for the device, and any agent or lessee acting for the building owner or licence holder, but does not include an attendant or operator of the device;

Requirements for Device Operation			
Reg ref.	Occurrence or Event	Operation of Equipment	Requirements before restoring operation
36.(1)	Death	Shut Down. Cannot interfere with anything connected with the elevating device except for purposes of making the site safe or rescue of injured persons until an inspector gives permission	Operation only after: 1. cause is identified & 2. device safety is restored & 3. inspector gives permission
	Injury requiring services of a medical practitioner		
36.(2)	Injury other than 36.(1) or property damage	No shut down requirements	Safety of the device is restored
36.(3)	Equipment exposure to harmful events impacting safe operation	Shut Down. Cannot interfere with anything connected with the elevating device except for purposes of making the site safe or rescue of injured persons until an inspector gives permission	Operation only after: 1. cause is identified & 2. device safety is restored & 3. inspector gives permission
36.(4)	Mechanic finds equipment in a condition that constitutes an immediate hazard		
36.(5)	Licence holder finds or becomes aware of equipment in a condition that constitutes an immediate hazard		

l) Who is responsible to report? What are the reporting timelines and documentation requirements?

Summary of Reporting Requirements			
Reg ref.	Occurrence or Event	Notification	Written Reports
36.(1)	Death	Owner must notify the Director immediately	The contractor shall submit a written report to the Director within 24 hours of becoming aware of the incident
	Injury requiring services of a medical practitioner		
36.(2)	Injury other than 36.(1) or property damage	Owner and Contractor must notify the Director within 24 hours of becoming aware	The Owner and the Contractor shall submit a written reports to the Director within 7 days of becoming aware
36.(3)	Equipment exposure to harmful events impacting safe operation		
36.(4)	Mechanic finds equipment in a condition that constitutes an immediate hazard	The mechanic must notify the Owner or Contractor immediately	The licence holder shall submit a written report to the Director within 7 days of the finding
36.(5)	Licence holder finds or becomes aware of equipment in a condition that constitutes an immediate hazard	The licence holder must notify the Director within 24 hours of the finding	The licence holder shall submit a written report to the Director within 7 days of the finding

m) What information must be included in the report to the Director?

TSSA has a reporting form available on the www.tssa.org web site which must be used to capture the necessary information when reporting an incident. The regulation requires that full particulars of the incident / event are provided.

Subsection 36.(6) provides as follows:

“The written report shall contain the results of an investigation carried out by the contractor following the incident or finding that the elevating device was in a condition that constituted an immediate hazard.”

A copy of the reporting form is attached to this guideline.

n) Is it a requirement to use TSSA’s reporting form?

Yes.

A written report must be submitted to the Director in the form provided by the Technical Standards and Safety Authority. A copy of this form is attached to this guideline.

o) Does the licence holder need to report the results of the investigation under ss. 36.(6)?

Yes.

It will be necessary for the licence holder to work with their maintenance contractor to complete the reporting form details. Subsection 36.(6) requires that contractors carry out an investigation following an incident or the finding of a hazardous condition. This information must be included in the licence holder’s report to the Director.

While gathering information for the incident report, licence holders and contractors must be aware that during the investigation process, subsection 36.(7) requires that no person shall disturb, destroy, carry away or alter anything at the scene of or connected with the incident until an inspector gives permission to do so.

p) What are some examples of a condition that constitutes an immediate hazard (imminent potential for death or serious injury) as outlined by ss. 36.(4) and ss. 36.(5)?

While there are many possible conditions that could constitute an immediate hazard it is difficult to provide an exhaustive list. An immediate hazard is a condition that could result in death or serious injury to persons if the elevating device is not immediately removed from service or rectified.

Here are a few examples of hazardous conditions*;

- A jumper is left on a safety circuit
- A safety related component is circumvented
- Missing or failed safety components
- A crack is discovered in an important weldment
- A single failure of a component which has created an immediate hazard condition
 - car running with open door
 - oil line or hydraulic cylinder failure
 - parted suspension rope
 - brake failure

* to be considered an immediate hazard, the natures of these conditions have a high probability to cause death or serious injury.

q) If a device is in a condition that does NOT constitute an immediate hazard [per Q&A (h) or (p)], but the condition poses an “elevated exposure to risk” to the public, can I voluntarily report the condition even though this is not covered by the regulation, and if so, how?

Yes. Voluntary reporting of conditions which pose an “elevated exposure to risk” to the public are welcomed and can aid in better risk informed decision making by the Director, the elevating devices safety program and TSSA’s industry councils. The regulation defines the minimum requirements for reporting. The incident reporting form includes checkboxes used to specify the “occurrence type”. To report a condition which poses an elevated exposure to risk select the occurrence type; “**voluntary reporting of an instance of elevated exposure to risk**”.

Examples of elevated risk might include:

- Elevators consistently off level by more than their normal tolerance for leveling accuracy
- Door reopening devices that are not functioning
- Doors closing at speeds and forces in excess of those permitted by code.

r) What should I do if I am uncertain about my notification and reporting obligations?

If you are in doubt as to whether reporting is required, you are encouraged to report the finding, or contact TSSA’s customer contact centre at 1 (877) 682-8772 for further clarification.

s) How do I Report?

An incident reporting form (specific to elevating devices) is available online at www.tssa.org
Incidents may be reported via:

- Telephone Notification - TSSA’s customer contact centre at 1 (877) 682-8772
- Written Notification - email to ed-incident@tssa.org

Where the regulation requires immediate reporting, see table “Summary of Reporting Requirements”, reporting must be done by telephone.

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01(Elevating Devices) appointed under the *Technical Standards and Safety Act, 2000*.

This Guideline has been developed in consultation with the Elevating Devices Advisory Council.

Appendix 'A'

From Ontario Regulation 209/01

INCIDENTS

Reporting of incidents

36. (1) Where an incident occurs in connection with an elevating device that results in the death of a person or injury to a person that requires the services of a medical practitioner,
- (a) the owner of the device shall notify the director by telephone immediately; and
 - (b) the contractor maintaining the device shall submit to the director, in the form provided by the designated administrative authority, a written report giving full particulars within 24 hours of first becoming aware of the incident. O. Reg. 252/08, s. 21.
- (2) Where an incident occurs in connection with an elevating device, other than an incident described in subsection (1), the owner and the contractor maintaining the device shall,
- (a) notify the director by telephone or other means within 24 hours of first becoming aware of the incident;
 - (b) each submit to the director in the form provided by the designated administrative authority a written report giving full particulars within seven days of first becoming aware of the incident. O. Reg. 252/08, s. 21.
- (3) Where there has been a fire, flood or other significant exposure to water, vandalism, impact or lightning strike that may adversely affect the safe operation of an elevating device, the owner and the contractor maintaining the device shall,
- (a) notify the director by telephone or other means within 24 hours of first becoming aware of the condition that may adversely affect the safe operation of the device;
 - (b) each submit to the director, in the form provided by the designated administrative authority, a written report giving full particulars within seven days of first becoming aware of the condition. O. Reg. 252/08, s. 21.
- (4) Where a mechanic finds that an elevating device is in a condition that constitutes an immediate hazard to the safety of a person or property, he or she shall immediately remove the device from service and notify the owner or contractor maintaining the device. O. Reg. 252/08, s. 21.
- (5) Where a licence holder for an elevating device finds or becomes aware that the device is in a condition that constitutes an immediate hazard to the safety of a person or property, the licence holder shall,
- (a) immediately remove the device from service;
 - (b) notify the director by telephone or other means within 24 hours of making the finding; and
 - (c) within seven days of making the finding, submit to the director in the form provided by the designated administrative authority a written report giving full particulars. O. Reg. 252/08, s. 21.
- (6) The written report shall contain the results of an investigation carried out by the contractor following the incident or finding that the elevating device was in a condition that constituted an immediate hazard. O. Reg. 252/08, s. 21.
- (7) Where an incident or condition of a type referred to in subsection (1), (3), (4) or (5) occurs, no person shall, except for the purpose of making the site safe or rescuing a person injured in the incident, interfere with, disturb, destroy, carry away or alter any wreckage, article or thing at the scene of or connected with the incident until an inspector gives permission to do so. O. Reg. 252/08, s. 21.
- (8) No person shall return an elevating device referred to in subsection (1), (3), (4) or (5) to service until the cause of the incident or condition is identified, the safety of the device restored and an inspector gives permission to return the device to service. O. Reg. 252/08, s. 21.
- (9) An investigation under this section shall be conducted in such manner as the director considers necessary in the circumstances. O. Reg. 252/08, s. 21.



Elevating and Amusement Devices Safety Division	Ref. No.:	Rev. No.:
	251 / 11	2
GUIDELINE	Date:	Date:
	February 13, 2012	September 15, 2013

Subject: Alterations Guideline and Alteration Checklist for
A17.1-2010 / CSA B44-10 Safety Code for Elevators and Escalators as amended by 261/13-r1

Sent to: All Elevator Contractors

1. Effective Date

1.1 This Directors Guideline – revision 2 becomes effective September 15, 2013 and is to be used in conjunction with alterations performed under the 2010 edition of A17.1/B44, as adopted in Code Adoption Document (CAD) Amendment 261/13-r1.

2. Introduction

2.1 The purpose of this Director's Guideline, in conjunction with Code Adoption Document (CAD) Amendment 261/13-r1, is to;

- (a) advise which types of upgrades are classified as alterations
- (b) indicate the format of the design submission required (see O.Reg 209/01 s.15), by categorizing the scope of work as “major”, “minor A” or “minor B”
- (c) provide instruction on the use and submittal of the alteration checklist,
- (d) provide a summarized list of requirements associated with a given alteration scope via a checklist
- (e) supplement the adoption of section 8.7 Alterations in A17.1/B44 as detailed in Section 3.4 of the CAD.

3. Alterations

3.1 Work performed on an elevating device other than worked performed as maintenance, repair, or replacement is an alteration. Part 8, Section 8.6 of B44-10 as amended in CAD 261/13-r1 deals with “Maintenance, Repairs, Replacements and Testing”, while Section 8.7 as amended in CAD 261/13-r1 deals with “Alterations”.

3.2 This guideline captures the Alteration requirements of Section 8.7 (as amended in CAD 261/13-r1) and displays these requirements in a checklist format (see figure 2).

3.3 Type of Alteration Work

Columns 3 to 6 of the Alteration Checklist (see figure 2 for sample) classify the type of work as one of the following types:

- (a) **Alteration: Modification / Change** (column 3)
means a change to the original design or characteristics of a component, assembly or the device as a whole, such as material, strength, size, dimension, rating, setting, function, operational mode, design parameters etc., whereby the change may be made on existing equipment or by substituting new modified equipment.
Note that a change of the component make or model, without any other change, may constitute an alteration under requirements of CAD 261/13-r1 (see item (d) below).
- (b) **Alteration: Addition** (column 4)
means addition of a new component or a design feature, not previously provided e.g. addition of top-of-car operating devices.
- (c) **Replacement with same** (column 5)

- means the substituted device, assembly or component is the same as the original, and either;
- (i) requirements within B44 Section 8.6.3 as amended by CAD 261/13-r1 classify the specific replacement as an alteration and require that the substituted component and/or the elevating device as a whole meet the specific requirements of the latest Code edition, or
 - (ii) sections 8.6 of B44 as amended by CAD 261/13-r1 recognizes the replacement of the noted item as an alteration, and requires an appropriate submission

(d) **Replacement with different make and model** (column 6)

means that the substituted device, assembly or component is the same as the original in its design, performance and safety characteristics, except that it is of a different make and/or model and the B44 code as amended by CAD 261/13-r1 recognizes the replacement of the noted item as an alteration, and requires an appropriate submission.

*Note: In addition to the work described in 3.3 and listed in the Alteration Checklist, any other work performed on an elevating device that results in a change to the inherent safety or operational characteristics **constitutes an alteration** per 2.6.2 of the CAD, even though there may be no change in the original design. The list of alterations in the attached Alteration Checklist is not all-inclusive.*

4. **Type of Design Submission**

4.1 Columns 3, 4, 5, and 6 of the alteration checklist contain information needed to determine the type of submission required.

4.2 By selecting the alteration scope (see column 1 of the Alteration checklist, see also B44 Section 8.7 as amended by CAD 261/13-r1), the submission type is identified in columns 3, 4, 5, & 6. These entries are may be listed as one of the following:

Major	-	means Major alteration
Minor A	-	means Minor alteration type A
Minor B	-	means Minor alteration type B
Blanks (columns 5&6)	-	work that would not constitute an alteration
mrr	-	this work may proceed as a maintenance repair and replacement activity, and no submission is required
n/a	-	means TSSA has permitted an exception to a compliance requirement (for the noted alteration scope) however, if another alteration activity requires compliance, the n/a exemption no longer applies
New	-	means, not an alteration but a new installation
†	-	means that no inspection is required following the alteration
variance	-	this activity can only be considered after approval of a variance

Note: The checklist also utilizes a star symbol (★). This symbol is used to identify TSSA designated alterations or to identify a supplemental TSSA requirement.

5. **Requirements for Design Submissions and Inspections**

5.1 A design submission or notification (in the case of a Minor B) must clearly specify, for each alteration covered, whether the type of the alteration work is a "modification", or "addition", or "replacement".

5.2 Where multiple alterations scopes are undertaken, the "highest ranking" submission shall define the submission type.

Example: An alteration combination of Minor B and Major will be designated as a Major alteration.

5.2.1 **Major Alteration:**

5.2.1.1 The design submission shall be registered before the major alteration commences, except as permitted in subsection 7(2) of O.Reg 209/01.

5.2.1.2 The alteration shall be inspected by TSSA prior to returning the device to service for public use.

5.2.2 Minor Alteration type A and B:

- 5.2.1.1 According to Section 19 of O.Reg 209/01, the design submission shall be submitted for registration not later than 30 days after returning the elevating device to service. Contractors are advised to submit alteration documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

Minor A and B alterations are permitted to be returned to service after work completion, however, the contractor who completed the alteration shall ensure that a “special inspection” has been requested within 60 days after returning the elevator to service. The contractor shall arrange and conduct any tests required by the inspector. A registered design submission or notification shall be available at the time of inspection.

5.3 Signatures

- 5.3.1 According to subsection 15.(6) of O.Reg 209/01, all individual documents composing the design submission for any Major or Minor A alteration shall bear the **signature and seal, or electronic equivalent, of the professional engineer** who prepared or approved the design submission.
- 5.3.2 In the case of Minor B alterations, per O.Reg 15.(9), the design submission documents (or Notification) may be signed by an officer or director of the company applying for registration if the officer or director is a mechanic or if the document is signed by a mechanic with an appropriate certificate who either performed or supervised the work to which the design submission relates.
- 5.3.3 Minor B’s that are electronically transmitted shall be deemed acceptable provided that the signature box of the Minor B Notification form contains the name, designation and mechanic license number of a registered and licensed mechanic who supervised and is competent to oversee the scope of the minor B alteration.
Example: Signature: John Smith, EDM-A, 00999999

5.4 Specification Forms

- 5.4.1 Alterations should be submitted on the appropriate Specification Sheets (depending on device type) and should itemize all entries that are **Directly** and **Indirectly** affected by the alteration scope.

Example: Cab Interior Modification resulting in an increase in cab weight

- Directly affected are interior finishes and flame ratings
- Indirectly affected are items such as: rope factor of safety (for electric & roped hydraulic elevators) or cylinder column strength (for hydraulic elevators)
- Sufficient details are to be provided to show compliance verification.

A list of altered components must also be summarized on the submission (typically box 4000).

- 5.4.2 Items which are not affected by the alterations should be noted with either:
- **N/C** or **No Change** or
 - The **Original Entry** followed by **Existing**. Example Car Wt.: **1812 kg - Existing**
- 5.4.3 Where a “major alteration” or “minor alteration” affects only a very few items, the abridged form may be used instead of the full specification form provided clarity of the submission is not compromised. The Abridged form should specify: box numbers, descriptions, and new entry values.
(Example: 1670. Maximum System Pressure: 3445 kPa)
- 5.4.4 Some predefined templates exist for Minor B type alterations and are available from the TSSA web site. These templates shall be utilized where appropriate to ensure all relevant entries are completed and included in the submission. Multiple Minor B notification templates may be utilized to fully cover the scope of work and only one Minor B fee shall apply.

5.5 Submitting an Alteration Checklist

- 5.5.1 The design submission for a Major or Minor A alteration must include an Alteration Checklist to assist in demonstrating compliance with Section 8.7 of the code as amended by CAD 261/13-r1 or any other items listed in Column 1 of the Checklist and must clearly specify the following:

- Column 2c is a text description of the referenced sub requirement. (e.g. General, Interlocks,...)

6.2.4 Column 3, 4, 5 and 6:

The headings of Columns 3 to 6 define the “Type of Alteration Work” as Modification Change, Addition, Replacement with Same, and Replacement with Different. See 3.3 of this guideline.

The contents of Columns 3 to 6 define the “Type of Design Submission” as, Major Alteration, Minor A Alteration, or Minor B – Notification. See 4 of this guideline.

0	1	2a	2b	2c	3	4	5	6	
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11			Type of Alteration Work				
		Scope of Alteration - B44 - 2010 as amended by CAD 250/11			Alteration		Replacement with		Different Make/Model
		Part, Section or Requirement			Modification Change	Addition	Same		
		Job Reference:			Type of Submission Required				
	8.7.2	Alterations to Electric Elevators						D	
	8.7.2.1	Hoistway Enclosures			Major	Major			
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices				See Below			
X	8.7.2.11.1	Interlocks	A		-	Major	mrr	Minor B	
X		2.12.1	General						
X		2.12.2	Interlocks						
X		2.12.4	Listing/Certification Locking Devices						
X		2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)						
X		2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)				n/a	C	
X		2.12.7	Hoistway Access Switches (n/a for column 5,6)				n/a		
X	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A			
X		8.7.2.10.1	Entrances & H/W Openings - General Req'mts						
X		8.7.2.10.2	Horizontal Slide-Type Entrances						
		8.7.2.10.3	Vertical Slide-Type Entrances						
X		8.7.2.10.4	Marking of Entrance Assemblies						
X		2.13.	F	Power Operation of Hoistway Doors and Car Doors					
X	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B	
X		2.13.	Power Operation of Hoistway Doors and Car Doors						
	8.7.2.15	Car Frames and Platforms				See Below			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-		Major	
X	8.7.2.15★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B			
X		8.7.2.15★1(a)	cars weighed prior to alteration						
X		8.7.2.15★1(b)	In/Out weights recorded or cars weighed after alteration						
X		8.7.2.15★1(c)	weight change recorded on auxilliary data tag						
X		8.7.2.15★1(e)	testing prior to operation to ensure security of interior finishes						

Fig 2 – Sample Alteration Checklist

Figure 2 Notes:

- A – indicates 8.7.2.11.1 Interlocks is part of the alteration scope
- B – indicates which sub-requirements have been included (note: 2.12.5 was excluded as permitted by exemption note C)
- C – n/a denotes that TSSA has made this requirement optional (note: contractor opted to include requirement 2.12.6 & 7)
- D – specifies the submission type
 - In the Interlock example a Minor B alteration is required to be submitted
 - In the Power Operation of H/W Doors example a Minor A is required (entire submission is a therefore a Minor A)
- E – this sub-requirement, related to vertical slide entrances, was not selected as it is not applicable to the installation
- F – compliance to 2.13 is a TSSA-designated supplemental requirement as denoted by the ★ symbol
- G – shows two TSSA-designated alterations, one denoted as 8.7.2.12★1, the other 8.7.2.15★1.

Roland Hadaller, P.Eng.

Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards & Safety Act, 2000*

This Director's Guideline has been developed in consultation with the TSSA Elevating Devices Advisory Council.

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0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.1.2	Alterations not specifically covered in 8.7						
		1.2	Level of safety shall not be diminished					
	8.7.1.4	Welding						
		8.8	Welding					
		8.7.1.5	Design / Weld Engineer					
	8.7.1.7	Repairs and Replacements						
		8.6.2	for repairs					
		8.6.3	for replacements					
	8.7.2	Alterations to Electric Elevators						
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
		2.1.1	Hoistway Enclosures					
		2.1.5	Windows and Skylights					
		2.1.6	Projections, Recesses, and Setbacks in H/W					
		2.5.	Horizontal Car and Counterweight Clearances					
		2.7.3.4.6	Access Doors and Openings					
		★ 2.7.3.4.7	Access Doors and Openings					
		2.8.	Equipment in Hoistways, Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms					
		8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)					
		2.11.1	Entrances and Emergency Doors Required (if blind H/W)					
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
		B44-2010	New Installation					
		2.5.	Horizontal Car and Counterweight Clearances					
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
		2.1.2.1	Construction at Top of the Hoistway					
		2.1.3	Floor Over Hoistways					
		8.7.2.4	Vertical Car & Cwt Clearances & Runbys					
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
		2.1.2.2	Construction at Bottom of the Hoistway					
		2.1.2.3	Strength of Pit Floor					
		2.2.	Pits					
		8.7.2.4	Vertical Car & Cwt Clearances & Runbys					
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
		2.1.4	Control of Smoke and Hot Gases					
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
		2.2.	Pits					
		2.1.2.3	Strength of Pit Floor					
		8.7.2.4	Vertical Car & Cwt Clearances & Runbys					
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
		2.2.2.	Pit Drains					
	8.7.2.2	Pit Guards			Minor B	Minor A		
		2.2.3	Guards Between Adjacent Pits					
	8.7.2.2	Pit Access			Minor B	Minor A		
		2.2.4	Pit Access					
	8.7.2.2	Pit Illumination			Minor B	Minor B		
		2.2.5	Illumination of Pits					
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
		2.2.6	Stop Switches					
	8.7.2.2	Pit Depth			Minor B	Minor A		
		2.2.7	Minimum Pit Depths Required					
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
		2.2.8	Access to Underside of Car					
	8.7.2.3	Location and Guarding of Counterweights			Major	Major		
		2.3.	Location and Guarding of Counterweights					
		2.5.1.2	Between Car & Cwt and Cwt Guard					
		2.6.	Protection of Space below H/W					

0	1	2a	2b	2c	3	4	5	6
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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
		2.4.	Vertical Clearances & Runbys for Cars & Cwts					
		8.7.2.17.1	Increase or Decrease in Rise					
		8.7.2.17.2	Increase in Rated Speed					
		8.7.2.25.2	Change in Location of Driving Machine					
	8.7.2.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
		2.5.	Horizontal Car and Counterweight Clearances					
		8.7.2.17.2	Increase in Rated Speed					
	8.7.2.6	Protection of Spaces Below Hoistways			Minor B	Major		
		2.6.	Protection of Space below H/W					
	8.7.2.7	Machinery Spaces, Machine Rooms Control Spaces and Control Rooms			↓ See Below ↓			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		OESC	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1	General Requirements					
		2.7.3.2	Access Across Roofs					
		2.7.3.3	Means of Access					
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B		mrr
		2.7.3.4	Access Doors and Openings					
		2.7.3.5	Stop Switch for Machinery Space or Control Spaces					
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4	Headroom in Machine Rooms/Spaces, Control Room/Spaces					
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1	Lighting					
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2	Temperature & Humidity					
	CAD 8.7.2.7 ★ 1	Addition of Elevator Equipment Guarding			Minor A (per m/c rm)		mrr	mrr
		(a) 2.7.2	Maintenance Path and Clearance					
		(b) 2.7.3.4.2	Size of doors and openings in cage style enclosures (750x2030)					
		(c) 2.10.1	Guarding of Equipment					
		(d)	openable/removable only with tools					
		(e)	operating/work instruction for accessing equipment					
		(f)	clearances in front of electrical control equipment (1000mm)					
			or clearance required at time of original control installation					
		(g)	access in front of / space to operate main disconnect (1000mm),					
			or (750mm) if permitted at time of original installation					
		(h)	Installation by registered contractor					
		(i)	designed to be handled by one person					
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's & M/C Rooms			Minor B	Minor B	mrr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts)			-	Minor B		
		also installation of Monitoring Equipment, HVAC						
		2.8.	Equipment in Hoistways and Machine Rooms					
			CSA Labeling (or equivalent)					
			OESC, CSA C22.1 as required					
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts...)			Minor B	-		
		2.8.	Equipment in Hoistways and Machine Rooms					
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
			adequacy of building structure verified by P.Eng.					
		Building reactions increased by more than 5%						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
			adequacy of building structure verified by P.Eng.					

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-	Major	Major
		2.11.	Protection of H/W Openings					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		Entire installation to meet:						
		2.11.6	Opening of Hoistway Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		Entire installation to meet:						
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(d)	General Requirements - Emergency Doors (added or altered)			Major	Major		
		2.11.1	Entrances and Emergency Doors Required					
		8.7.2.10.5	Marking of Entrance Assemblies					
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
		2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure					
		8.7.2.10.5	Marking of Entrance Assemblies					
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
		2.11.11	Entrances, Horizontal Slide Type					
		Installed New components to meet:						
	sills (a)	2.11.10.1	Landing-Sill Guards		Minor B		Minor B	
		2.11.11.1	Landing Sills					
		2.11.11.6	Bottom Guides					
	hanger /track (b)	2.11.11.2	Hanger Tracks, and Track Supports		Minor B		Minor B	
	frame (c)	2.11.11.3	Entrance Frames		Minor A		Minor A	
		2.11.11.5.1	Panel Overlap					
		2.11.11.5.2	Panel Gaps Clearances					
		2.11.11.5.3	Pockets in Strike Jamb					
		8.7.2.10.5	Marking of Entrance Assemblies					
	hangers (d)	2.11.11.4	Hangers		Minor B		Minor B	
	panels (e)	2.11.11.5(*)	Panels		Minor A		Minor A	
		2.11.11.6	Bottom Guides					
		2.11.11.7	Multipanel Entrances					
		8.7.2.10.5	Marking of Entrance Assemblies					
	retainers (f)	2.11.11.8	Hoistway Door Safety Retainers		Minor B		Minor B	

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		Job Reference:			Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1 Entrances & H/W Openings - General Req'mts					Major	
		2.11.12 Entrances, Vertical Slide Type						
		Installed New components to meet:						
	sills (a)	2.11.10.3	Hinged Hoistway Landing Sills		Minor B		Minor B	
		2.11.12.1	Landing Sills					
	frames (b)	2.11.12.2	Entrances Frames		Minor B		Minor B	
		8.7.2.10.5 Marking of Entrance Assemblies						
	rails (c)	2.11.12.3	Rails		mrr		mrr	
	panels (d)	2.11.12.3	Rails		Minor A		Minor A	
		2.11.12.4	Panels					
		2.11.12.5	Guides					
		2.11.12.6	Counterweighting or Counterbalancing					
		2.11.12.8	Pull Straps					
	guides (e)	8.7.2.10.5 Marking of Entrance Assemblies						
		2.11.12.5	Guides					
	sill guard (f)	2.11.12.7	Sill Guards		mrr		mrr	
	straps (g)	2.11.12.8	Pull Straps					
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1 Entrances & H/W Openings - General Req'mts					Major	
		2.11.13 Entrances, Swing Type						
		Installed New components to meet:						
	sills (a)	2.11.10.1	Landing-Sill Guards		Minor B		Minor B	
		2.11.10.3	Hinged Hoistway Landing Sills					
		2.11.13.1	Landing Sills					
	frames (b)	2.11.13.2	Entrance Frames		Minor B		Minor B	
		2.11.13.4	Hinges					
	panels (c)	8.7.2.10.5 Marking of Entrance Assemblies			Minor B		Minor B	
		2.11.13.3	Panels					
		2.11.13.4	Hinges					
		2.11.13.5	Marking					
	hinges (d)	8.7.2.10.5 Marking of Entrance Assemblies			mrr		mrr	
		2.11.13.4	Hinges					
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
		Fire Protection Rating not less than existing entrance						
		8.7.2.10.5(a) NBCC requirements						
	CAD 8.7.2.10★1	★ Removing Service To a Floor			Minor B			
		Bolt entrances shut						
		Remove Interlock From Safety String						
		Remove COP Floor Button						
		2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II					
		2.12.7	H/W Access Switches - if floor was previously the access location					
	CAD 8.7.2.10★2	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
		2.11.11.8	Hoistway Door Safety Retainers					
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			↓ See Below ↓			
	8.7.2.11.1	Interlocks			-	Major	mrr	Minor B
		2.12.1	General					
		2.12.2	Interlocks					
		2.12.4	Listing/Certification Locking Devices					
		2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)				n/a	
		2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)				n/a	
		2.12.7	Hoistway Access Switches (n/a for column 5,6)				n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
		2.12.1	General					
		2.12.3	H/W Door Combination Mechanical Locks & Contacts					
		2.12.4	Listing/Certification Locking Devices					
		2.12.6	Hoistway Door Unlocking Devices					
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
		8.7.2.11.3	requirements specified					

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.2.11.4	Access Switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices 2.12.6 Hoistway Door Unlocking Devices			-	Minor B	mrr	
	8.7.2.11.4 (b)	Addition of Access Switches 2.12.7 Hoistway Access Switches 2.26.1.4 Inspection Operation			-	Minor A	mrr	
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed) 2.12.5 Restricted Opening of H/W or Car Door			Minor B	Minor B	mrr	Minor B
	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
		8.7.2.10.1 Entrances & H/W Openings - General Req'mts 8.7.2.10.2 Horizontal Slide-Type Entrances 8.7.2.10.3 Vertical Slide-Type Entrances 8.7.2.10.5 Marking of Entrance Assemblies						
		★ 2.13. Power Operation of Hoistway Doors and Car Doors						
	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
		2.13. Power Operation of Hoistway Doors and Car Doors 8.7.2.15★1,★2						
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or replaced)			Minor B	Minor B	mrr	Minor B
		2.13.4 Closing Limitations for Power Operated HS Doors & Gates 2.13.5 Reopening Device for Power Operated Car Doors or Gates if FEO provided, door opening & closing to PHI & II at time of install 8.7.2.15★1,★2					see	8.6.3.8
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			↓ See Below ↓			
	8.7.2.14.1	Installation of New Car Enclosure 2.14. Car: Enclosure, Doors, Gates, Illumination 2.15. Car Frames & Platforms 2.17. Car and counterweight safeties 8.7.2.15.1 Alterations to Car Frames and Platforms			Major	-		
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures 2.14.1.2 Securing of Enclosures			Minor A	Minor A		
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added) 2.14.1.5 Top Emergency Exits			Minor B	Minor B		
	8.7.2.14.2(c)	Installation of Glass 2.14.1.8 Glass in Elevator Cars 2.14.1.8.1 Enclosures include glass 2.14.1.8.2 Lining of Walls or Ceilings include glass 2.14.1.8.3 Marking of each Glazing Panel			Minor B	Minor B	mrr	
	8.7.2.14.2(d)	Specific Equipment in Elevator Car 2.14.1.9 Equipment Inside Cars (a) Handrails (b) fastening devices for protective linings (c) ceiling mounted hooks/tracks (d) picture frames display boards, plaques <38mm protrusion secured to 2.14.1.2 material to 2.14.2.1 (e) conveyor tracks in freights (f) heating or cooling equipment 8.7.2.15★1,★2			Minor B	Minor B		
	CAD 8.7.2.14★1	★ Car operating station verify inspection operation 'if provided' verify stop sw verify switches operate as before (eg. FS, FEO, Access) 8.7.2.15★1,★2			Minor B	Minor B	mrr	Minor B
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors 2.8.2.1 electrical equipment & wiring 2.14.1.2.3 securing of enclosure equipment 2.14.2.4 Headroom in Elevator Cars 8.7.2.15★1,★2			Minor B	Minor B		

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	CAD 8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
		2.14.2.3	Ventilation					
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
		2.14.7	Illumination of Cars and Lighting Fixtures					
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
		2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area					
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
		2.14.4	Passenger and Freight Car Doors/Gates, General Requirements					
		2.14.5	Passenger Car Doors					
		2.14.6	Freight Elevator Car Doors and Gates					
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to Car Enclosure other than 8.7.2.14.2 - Enclosure Materials						
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
			enclosure material flame ratings shall not be diminished			Minor A		
			2.14.1.7 car top railing - see CAD 8.7.2.14★4			Minor B		
			2.14.7.1.3 auxiliary lighting			Minor B		
			2.14.7.1.4 car top light & outlet				Minor B	
		★	CAD 8.7.2.15★1			Minor B		Minor B
			or					
		★	CAD 8.7.2.15★2			Minor A		Minor A
	8.7.2.14.4	Alteration to Car Door or Car Gates other than 8.7.2.14.2			Minor A	Minor A		
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
			2.14.1.7 car top railing					
			2.14.7.1.3 auxiliary lighting					
			2.14.7.1.4 car top light & outlet					
	0.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD 8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)					
			or					
		CAD 8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)					
			car top run buttons not enabled until extended					
			normal operation not enabled until stowed					
			electrical limits to ensure car top clearance in overhead					
			minor A submission template					
		8.7.2.15★1,★2	car weighed prior to alteration					
			include testing procedure					
			include revised electrical schematics					
	8.7.2.15	Car Frames and Platforms			⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-		Major
		2.15.	Car Frames & Platforms					
	CAD 8.7.2.15★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		CAD 8.7.2.15★1(a)	cars weighed prior to alteration					
		CAD 8.7.2.15★1(b)	In/Out weights recorded or cars weighed after alteration					
		CAD 8.7.2.15★1(c)	weight change recorded on auxiliary data tag					
		CAD 8.7.2.15★1(e)	testing prior to operation to ensure security of interior finishes					
	CAD 8.7.2.15★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD 8.7.2.15★1	engineering assessment of related items affected by weight change					
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)			Major	-		
		2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		2.15.9	Platform Guards (Aprons)					
		2.16.	Capacity & Loading					
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.20.	Suspension Ropes & Connections					
		2.21.(*)	Counterweights					
		2.22.(*)	Buffers & Bumpers					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		2.24.(*)	Driving Machines & Sheaves					
		8.7.2.9	Machinery and Sheave Beams, Supports, Foundations					
	CAD 8.7.2.15★1(a) to (e)							

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement Job Reference:			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.16	Capacity, Loading, and Classification			Major	-		
	8.7.2.16.1	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.22 (*)	Buffers & Bumpers					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to CAD 8.7.2.14 ★4					
		2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		2.16.	Capacity & Loading					
		2.17.(*)	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		2.20.	Suspension Ropes & Connections					
		2.24.(*)	Driving Machines & Sheaves					
		2.25.	Terminal Stopping Devices					
		2.26.	Operating Devices and Control Equipment					
		2.27.	Emergency Operation & Signaling Devices					
			2.27.1	Car Emergency Signalling Devices				
			2.27.2	Emergency or Standby Power Systems				
			2.27.3	FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
			2.27.4	FEO: Non-Automatic Elevators				
			2.27.5	FEO: Automatic Elevators w/Attendant				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
			2.27.9	Elevator Corridor Call Station Pictograph if req'd by OBC				
	8.7.2.16.2	Change in Class of Loading: [from any class to any other class ie A, B, C1, C2, C3]			Major	-		
		2.16.2	Minimum Rated Load for Freight Elevators					
		8.7.2.16.4	Increase in Rated Load					
	8.7.2.16.3	Carrying of Passengers on Freight Elevators			Major	-		
		2.16.4	Carrying of Passengers on Freight Elevators					
		2.16.4.1	not accessible to general public					
		2.16.4.2	rated load not less than required by 2.16.1					
		2.16.4.3	conforms to 2.16.8 Passenger Overload in Down Direction					
		2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)					
		2.16.4.5	car doors to 2.14.5 Passenger Car Doors					
		2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings					
		2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door					
		2.16.4.8	Fs for suspension ropes to Table 2.20.3					
		2.16.4.9	Power Operated vertical doors to 2.13.3.4					
		★	apron guard to ED CAD or extent pit permits					
		★	2.16.5 Signs Required in Freight Elevator Cars					

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.2.16.4	Increase in Rated Load			Major	-		
		Car doors or gates shall be provided at all car entrances New Car doors and gates to: 2.14.4, 2.14.5, 2.14.6						
		2.14.4	Passenger & Frt Car Doors & Gates, General Req'mts					
		2.14.5	Passenger Car Doors					
		2.14.6	Freight Elevator Car Doors and Gates					
		2.15.(*)	Car Frames & Platforms- ★apron guard to ED CAD/as pit permits					
		2.16.	Capacity & Loading					
		2.17.	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		2.20.	Suspension Ropes & Connections					
		2.21.(*)	Counterweights					
		2.22.(*)	Buffers & Bumpers					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		2.24.	Driving Machines & Sheaves					
		2.26.1.4	Inspection Operation					
		2.26.1.5	Inspection Operation with Open Door Circuits					
		2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts					
		8.7.2.9	Machinery and Sheave Beams, Supports, Foundations					
	8.7.2.17	Change in Rise or Rated Speed			Major	-		
	8.7.2.17.1	Increase or Decrease in Rise			Major	-		
		2.25.	Terminal Stopping Devices retain drum m/c, travel increase < 4570mm					
		2.4.(*)	Vertical Clearances & Runbys for Cars & Cwts					
			If decrease in rise is at lowest end then;					
			2.2.4 Access to Pits					
			2.2.5 Illumination of Pits					
			2.2.6 Stop Switches					
	8.7.2.17.2	Increase in Rated Speed			Major	-		
	8.7.2.17.2(a)	Increase in Rated Speed on a Winding Drum machine			Major	-		
			Increase in Rated Speed of a winding drum m/c prohibited 8.7.2.17.2(c) except as permitted 8.7.2.17.2(c)					
	8.7.2.17.2(b)	Increase in Rated Speed except as per 8.7.2.17.2(c)			Major	-		
		2.4.2	Minimum Bottom Runby for Counterweighted Elevators					
		2.4.3	Minimum Bottom Runby for Uncounterweighted Elevators					
		2.4.4	Maximum Bottom Runby					
		2.4.5	Counterweight Runby Data Plate					
		2.4.6	Maximum Upward Movement of the Car					
		2.4.7	Top of Car Clearances					
		2.4.8	Top of Counterweight Clearances					
		2.4.9	Equipment on Top of Car Not Permitted to Strike O/H					
		2.5.	Horizontal Car and Counterweight Clearances					
			Car doors or gates shall be provided at all car entrances New doors/gates to: Car: Enclosure, Doors, Gates, Illumination					
		2.14.	Capacity & Loading					
		2.16.	Capacity & Loading					
		2.17.	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		2.20.	Suspension Ropes & Connections					
		2.21.4.2	Comp Rope Tie Down (if speed > 3.5 m/s)					
		2.22.(*)	Buffers & Bumpers					
		2.24.	Driving Machines & Sheaves					
		2.25.	Terminal Stopping Devices					
		2.26.(*)	Operating Devices and Control Equipment					
	8.7.2.17.2(c)	Increase in Rated Speed less than 10% & less than 0.20m/s			Major	-		
			new spd <.75 for type A safeties					
			new spd <1 w/spring buffer, 2.18.2.1&.2					
		2.18.2.1	Car speed governors					
		2.18.2.2	counterweight speed governors					
		8.7.2.27.3	Change in Power Supply					

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.2.17.3	Decrease in Rated Speed 2.4. Vertical Clearances & Runbys for Cars & Cwts 2.18.2 Tripping Speeds for Speed Governors 2.16. Capacity & Loading 2.16.3(*) Capacity and Data Plates 2.26.4.1 Electrical Equipment and Wiring 2.26.4.2 Drive Machine Controllers for Stopping/Starting/Controlling 2.26.4.3 Positively Opened Contacts			Major	-		
	8.7.2.18	Car and Counterweight Safeties			Major	Major	↓See Below ↓	
	8.7.2.18.1	New Car Safeties 2.17. Car & Cwt Safeties 2.18. Speed Governors 2.23. Car & Cwt Guides Rails, Guide Rail Support, Fastenings 8.7.2.19 Speed Governors and Governor Ropes			-	Major	mrr	Minor A
	8.7.2.18.2	New Cwt Safeties 2.17. Car & Cwt Safeties 2.18. Speed Governors 2.23. Car & Cwt Guides Rails, Guide Rail Support, Fastenings 8.7.2.19 Speed Governors and Governor Ropes			-	Major	mrr	Minor A
	8.7.2.18.3	Existing Car Safeties 2.17.(*) Car & Cwt Safeties 2.18. Speed Governors 2.23. Car & Cwt Guides Rails, Guide Rail Support, Fastenings 8.7.2.19 Speed Governors and Governor Ropes			Major	-	mrr	Minor A
	8.7.2.18.3	Existing Cwt Safeties 2.17. Car & Cwt Safeties 2.18. Speed Governors 2.23. Car & Cwt Guides Rails, Guide Rail Support, Fastenings 8.7.2.19 Speed Governors and Governor Ropes			Major	-	mrr	Minor A
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	↓See Below ↓	
	8.7.2.19	2.18. Speed Governors					mrr	Minor A
	8.7.2.19	2.17.15 Governor Rope Releasing Carriers					see 8.6.3.6 mrr	mrr
	8.7.2.19	Governor Ropes of different material or Construction to: 2.18.6 Design Gov'r Rope Retarding Means for Type B Safeties 2.18.7 Traction between Speed Governor Rope & Sheave & testing to 2.17.3 Function and Stopping Distances of Safeties					see 8.6.3.9 -	Minor B
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection (ACO & UCM)			Minor A	Major	mrr	Minor A
	CAD 8.7.2.20 ★1	★ 2.19. Ascending Car Overspd & Unintended Car Movement Protection If Elevators Controllers are pre-B44-00 & have ACO & UCM			Minor A	-	mrr	Minor A
	CAD 8.7.2.20 ★2	★ 2.19. ACO & UCM Protection, Except that; detection means to B44-M90 or the code at time of install 8.9. Code Data tag to reflect code at time of install If Elevators Controllers are pre-B44-00 & have ACO ONLY			Minor A	-	mrr	Minor A
	CAD 8.7.2.20 ★3	★ 2.19.1 ACO Protection Only, Except that; 2.19.3 Emergency Brake and detection means to B44-M90 or the code at time of install 2.19.4 Emergency Brake Supports 8.9. Code Data tag to reflect code at time of install Voluntary Addition of Both ACO and UCM where previously not provided				Minor A		
		2.19. ACO & UCM Protection Except that; detection means to B44-M90 code or later 2.7. Machinery Spaces, Machine Rooms Control Spaces & Control Rooms as applicable to the equipment installation 8.9. Code Data tag to reflect code edition used for the alteration						

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.2.21	Suspension Ropes and Their Connections			↓ See Below ↓			
	8.7.2.21.1	Change in Number of, or Diameter of Ropes 2.20. Suspension Ropes & Connections PEO to certify existing sheaves w/different ropes are satisfactory			Major	-	See 8.6.3.2	
	8.7.2.21.1	Change in Material / Grade of Ropes 2.20. Suspension Ropes & Connections PEO to certify existing sheaves w/different ropes are satisfactory			Minor A	-		
	8.7.2.21.2	Addition of Rope Equalizers			Minor B	Minor B		
		2.20.5 Suspension Rope Equalizers						
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices 2.20. Suspension Ropes & Connections			Major	Major		
	8.7.2.21.4 (a)	Change in Type of Suspension Means			Major	Major		
		2.20.8.1 Protection Against Traction Loss						
		2.20.8.2 Broken Suspension Member						
		2.20.8.3 Suspension-Member Residual Strength						
		2.20.11 Suspension-Member Test						
	8.7.2.21.4 (b)	Traction Loss Detection			Minor A	Minor A		
		2.20.8.1 Protection Against Traction Loss						
	8.7.2.21.4 (c)	Broken Suspension Means Detection			Minor A	Minor A		
		2.20.8.2 Broken Suspension Member						
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members 2.21. Counterweights						
		8.7.2.22.2 Rod Type Counterweights						
	8.7.2.22.2	Rod Type Cwt - can retain if: Minimum of 2 suspension and 2 tie rods Suspension rods:						
		2.21.2.1 Material - Cwt Frames & Rods						
		2.21.2.3 Factor of Safety						
		Tie Rods:						
		2.21.1.2 Retention of Weight Sections						
	8.7.2.22.3	Roller or similar guide shoes added safety jaws cannot touch rails if not activated			mrr		mrr	
	8.7.2.23	Car and Counterweight Buffers and Bumpers			Major	-	mrr	Minor B
		2.22.(*) Buffers & Bumpers						
	8.7.2.24	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		2.23. Car & Cwt Guides Rails, Guide Rail Support, Fastenings						
	8.7.2.25	Driving Machines and Sheaves			↓ See Below ↓			
	8.7.2.25.1	Alter / Replace Driving Machines & Sheaves			Major	Major	Major	
	8.7.2.25.1(a)	Driving Machine Installed as part of an alteration			Major	-		
		2.7.2 Maintenance Path and Clearance to extent existing installation permits						
		2.9. Machinery & Sheave Beams, Supports, Foundation						
		2.10.1 Guarding of Equipment						
		2.19. Ascending Car Overspeed & Unintended Car Movement Protection						
		8.7.2.20 ACO & UCM Protection						
	CAD	8.7.2.20★1 Pre B44-00 ACO & UCM Protection						
	CAD	8.7.2.20★2 Pre B44-00 ACO Only Protection						
	CAD	8.7.2.20★3 Addition ACO/UCM if not required by other alteration scope						
		2.20. Suspension Ropes & Connections						
		2.24. Driving Machines & Sheaves						
		2.26.8 Release and Application of Driving-Machine Brakes						

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.2.25.1(b)	Alter / Replace	Driving Machine Components - affected component complies w/	Major			mrr	Major
		2.24.2	Sheaves and Drums					
		2.24.3	Factor of Safety for Driving Machines and Sheaves					
		2.24.4	Fasteners Transmitting Load					
		2.24.5	Shafts Fillets and Keys					
		2.24.6	Cast-Iron Worms and Worm Gears					
		2.24.7	Friction Gearing and Clutches					
		2.24.8	Braking Systems & Driving Machine Brakes				mrr	Major
		2.24.9	Indirect-Driving Machines					
		2.26.8	Release and Application of Driving-Machine Brakes					
	8.7.2.25.1(c)	Change of	Driving Machine Sheave	Major	-		mrr	Major
		2.24.2	Sheaves and Drums					
		2.24.3	Factor of Safety for Driving Machines and Sheaves					
		2.24.4	Fasteners Transmitting Load					
		2.20.	Suspension Ropes & Connections					
	8.7.2.25.2	Change in Location of	Driving Machine	Major	-			
	8.7.2.25.2(a)	Change in Location of	Driving Machine w/ no change in Rise	Major	-			
		2.7.2	Maintenance Path and Clearance					
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		2.10.1	Guarding of Equipment					
		2.24.2.3	Traction					
	8.7.2.25.2(b)	Change in Location of	Driving Machine w/ change in Rise	Major	-			
		Part 2 (*)	Electric Elevators (entire installation to meet Part 2), except					
			2.5 Horizontal Car and Counterweight Clearances					
			2.11 Protection of Hoistway Openings					
			2.4 Vertical Clearances and Runbys for Cars & Cwts					
		8.7.2.5	see also					
		8.7.2.10	see also					
	CAD 8.7.2.25★1	★ Replacement of worm and/or gear (specify make)		-	-		mrr	Minor A
		2.24 specify compliance to the applicable requirements						
		Addition of Machine Guarding - see CAD 8.7.2.7★1						
	8.7.2.26	Terminal-Stopping Devices		Minor B	Minor B			
		2.25. Terminal Stopping Devices						
	8.7.2.27	Operating Devices and Control Equipment				↓ See Below ↓		
	8.7.2.27.1	Top-of-Car Operating Devices		Minor A	Minor A		mrr	Minor A
		2.26.1.4 Inspection Operation						
	CAD 8.7.2.27★1	Alteration / Addition of any type of inspection operation		Minor A	Minor A			
		2.26.1.4 Inspection Operation						
	CAD 8.7.2.27★2	★ Addition of Top-of-Car Operating Device (see CAD 3.8.3)		-	Minor A			
		2.26.1.4 Inspection Operation						
		8.7.2.15★1,★2						
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices		Minor A	Minor A			
		2.26.1.6 Operation in Leveling or Truck Zone						
	CAD 8.7.2.27★3	★ Door By-Pass Switches		Minor A	Minor A			
		2.26.1.5 System to Prevent Auto Operation w/faulty Door Contacts						
	CAD 8.7.2.27★4	★ Door Monitoring System		Minor A	Minor A			
		2.26.5 System to Prevent Auto Operation w/faulty Door Contacts						

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
		Job Reference:			Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.27.3	Change in Power Supply (a) voltage, frequency or # of phases or (b) AC to DC , DC to AC or (c) combination of DC & AC, then electrical to: 2.26.1.1 Types of Operation 2.26.1.2 For Car-Switch Operation Elevators 2.26.1.3 Add'l Operating Devices for Elevators carrying 1pc. load > than Rated 2.26.1.4 Inspection Operation 2.26.1.6 Operation in Leveling or Truck Zone 2.26.2 Electrical Protective Devices 2.26.6 Phase Protection of Motors 2.26.7 Installation of Capacitors/Devices Making EPD's Ineffective 2.26.9 Control & Operating Circuits 2.26.10 Absorption of Regenerated Power new / modified equipment and wiring to: 2.26.4.1 Electrical Equipment and Wiring 2.26.4.2 Drive Machine Controllers for Stopping/Starting/Controlling 2.26.4.3 Positively Opened Contacts brakes to: 2.24.8 Braking Systems & Driving Machine Brakes 2.26.8 Release and Application of Driving-Machine Brakes winding drum to: 2.25.3.5 Additional Req'mts for Winding Drum Machines see 8.7.2.17.2(b) Increase in Rated Speed			Major	-		
	8.7.2.27.4 8.7.2.27.4(a)	Install / Replace Motion or Operation Controller (no change in method) 2.25. Terminal Stopping Devices 2.26.1.4 Inspection Operation 2.26.1.5 Inspection Operation with Open Door Circuits 2.26.1.6 Operation in Leveling or Truck Zone 2.26.2 Electrical Protective Devices 2.26.3 Contactor and Relays for Use in Critical Operating Circuits 2.26.4 Electrical Equipment and Wiring 2.26.5 System to Monitor & Prevent Automatic Operation w/ Faulty Door Contacts 2.26.6 Phase Protection of Motors 2.26.7 Installation of Capacitors/Devices Making EPD's Ineffective 2.26.8 Release and Application of Driving-Machine Brakes 2.26.9 Control & Operating Circuits 2.26.11 Car Platform to Hoistway Door Sills Vertical Distance levelling accuracy to 13mm (0.5 in.) 2.29. Identification of Equipment and Floors ★ 2.7.9.2 Temperature and Humidity 2.27.2 Emergency or Standby Power systems If FEO previously present or required by OBC; 2.27.3 Firefighters' Emergency Operation - Automatic Elevators 2.27.3.1 Phase 1 Recall Operation 2.27.3.2 Phase 1 Recall Operation by FAID's CAD 2.27.3.2.2 2.27.3.3 Phase 2 Emergency In-Car Operation 2.27.3.4 Interruption of Power 2.27.3.5 Multicompartment Elevators see 8.7.1.2 safety levels shall not be diminished 2.27.4 FEO: Non Automatic Elevators 2.27.5 FEO: Automatic Elevators with Designated-Attendant Operation 2.27.6 FEO: Inspection Operation 2.27.7 FEO: Operating Procedures 2.27.8 Switch Keys 2.27.9 Elevator Corridor Call Station Pictograph If FEO NOT previously present or required by OBC; CAD 2.27.3.2.2 2.27.3.1 Provide Phase 1 Manual Recall Operation Only			Major	-		Major

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
		Job Reference:			Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.27 ★5	Relocation of	Elevator Controller (if control wiring disconnected - reconnected)		Major			
		2.8.2	Electrical Equipment and Wiring Electrical testing to verify functionality of rewired equipment					
	8.7.2.27.4(b)	Installation of	Door Controller		Minor A	-		Minor B
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
	8.7.2.27.4(c)	Installation of	Controller for Emergency or Standby Power		Minor A	Minor A		Minor B
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
	8.7.2.27.4(c)	Installation of	Controller for FEO Operation		Minor A	Minor A		Minor B
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
	8.7.2.27.5	Change in Type of Motion Control - AC, VVVF, DC, SCR			Major	-		
		2.11.1(*)	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6(*)	Opening of Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.11.9	Hoistway Door Locking Devices & Power Operation					
		2.11.11.8(*)	Hoistway Door Safety Retainers					
		2.11.12.8	Pull Straps					
		2.12.(*)	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.12.5	Restricted Opening of Hoistway or Car Doors					
		2.12.6	Hoistway Door Unlocking Devices					
		2.12.7	Hoistway Access Switches					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.14.(*)	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7	car top railing					
		2.16.8(*)	Capacity & Loading					
		2.17.(*)	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		8.7.2.20	ACO & UCM Protection					
	CAD	8.7.2.20★1	Pre B44-00 ACO & UCM Protection					
	CAD	8.7.2.20★2	Pre B44-00 ACO Only Protection					
	CAD	8.7.2.20★3	Addition ACO/UCM if not required by other alteration scope					
		2.25.	Terminal Stopping Devices					
		2.26.(*)	Operating Devices and Control Equipment					
		2.29.	Identification of Equipment and Floors					
		★ 2.7.9.2	Temperature and Humidity					
		If FEO previously present or required by OBC;						
		2.27.	Emergency Operation and Signalling Devices					
		2.27.1	Car Emergency Signalling Devices					
		2.27.2	Emergency or Standby Power Systems					
		2.27.3	Firefighters' Emergency Operation: Automatic Elevators					
		2.27.3.1	Phase 1 Recall Operation					
		2.27.3.2	Phase 1 Recall Operation by FAID's					
		CAD 2.27.3.2.2						
		2.27.3.3	Phase 2 Emergency In-Car Operation					
		2.27.3.4	Interruption of Power					
		2.27.3.5	Multicompartment Elevators					
			see 8.7.1.2 safety levels shall not be diminished					
		2.27.4	FEO: Non Automatic Elevators					
		2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation					
		2.27.6	FEO: Inspection Operation					
		2.27.7	FEO: Operating Procedures					
		2.27.8	Switch Keys					
		If FEO NOT previously present or required by OBC;						
		CAD 2.27.3.2.2						
		2.27.3.1	Provide Phase 1 Manual Recall Operation Only					

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.27.6	Change in Type of Operation Control - CPPB, AUTOMATIC			Major	-		
		2.11.1	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.11.9	Hoistway Door Locking Devices & Power Operation					
		2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks					
		2.11.11	Entrances, Horizontal Slide Type					
		2.11.12	Entrances, Vertical Slide Type					
		2.11.13	Entrances, Swing Type					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.14.(*)	Car: Enclosure, Doors, Gates, Illumination					
		2.16.	Capacity & Loading					
		2.17.	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.25.	Terminal Stopping Devices					
		2.26.(*)	Operating Devices and Control Equipment					
		2.29.	Identification of Equipment and Floors					
		★ 2.7.9.2	Temperature and Humidity					
		2.27.	Emergency Operation & Signaling Devices					
			2.27.1 Car Emergency Signalling Devices					
			2.27.2 Emergency or Standby Power Systems					
			2.27.3 FEO: Automatic Elevators					
			CAD 2.27.3.2.2					
			2.27.4 FEO: Non-Automatic Elevators					
			2.27.5 FEO: Automatic Elevators w/Attendant					
			2.27.6 FEO: Inspection Operation					
			2.27.7 FEO: Operating Procedures					
			2.27.8 Switch Keys					
			2.27.9 Elevator Corridor Call Station Pictograph if req'd by OBC					
	CAD 8.7.2.27 ★6	★	Addition of Wander Patient Feature - Change in Operation Control		Minor B	Minor B		
			2.13.5.3	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				
	CAD 8.7.2.27 ★7	★	Addition of Restricted Access - Security / Floor Lock Out		Minor B	Minor B		
			OBC-3.2.6.5(4) - shall not prevent floor access when on FEO					
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
	CAD 8.7.2.27 ★8	★	Addition of Destination Dispatch			Minor B		
			8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms				
				FEO operation to 8.7.2.28 or code at time of installation or alteration				
	8.7.2.27.7		Removal of emergency stop switch on passenger elevators		Minor B	-		
			remove all related markings / engravings & provide an in-car stop switch to:					
			2.26.2.21	In-car stop switch				
		★	2.26.4.3	Positively Opened Contacts				
		★	2.26.9.3	Single failure does not render In-Car Stop Sw ineffective				

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.27.8	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.2 (PES)			Major	Major	mrr	Major
		2.26.2 Electrical Protective Devices - for specified device						
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.1			-	Minor A	mrr	
		2.26.2 Electrical Protective Devices - for specified device						
	8.7.2.28	Emergency Operation and Signaling Devices			⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
		2.27.1 Car Emergency Signaling Devices						
	8.7.2.28	Emergency or Standby Power			Minor B	Minor A		
		2.27.2 Emergency Or Standby Power systems						
	8.7.2.28	Firefighter's Emergency Operation			Minor B	Minor A		
		2.27.3 FEO: Automatic Elevators						
		2.27.4 FEO: Non-Automatic Elevators						
		2.27.5 FEO: Automatic Elevators w/Attendant						
		2.27.6 FEO: Inspection Operation						
		2.27.7 FEO: Operating Procedures						
		2.27.8 Switch Keys						
	8.7.2.28	Addition of Elevator to a Group - all elevators to meet:			-	Minor A		
		2.27. Emergency Operation & Signaling Devices						
		2.27.1 Car Emergency Signalling Devices						
		2.27.2 Emergency or Standby Power Systems						
		2.27.3 FEO: Automatic Elevators						
		CAD 2.27.3.2.2						
		2.27.4 FEO: Non-Automatic Elevators						
		2.27.5 FEO: Automatic Elevators w/Attendant						
		2.27.6 FEO: Inspection Operation						
		2.27.7 FEO: Operating Procedures						
		2.27.8 Switch Keys						
		2.27.9 Elevator Corridor Call Station Pictograph if req'd by OBC						
	CAD 8.7.2.28 ★1	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of installation conformance to auto recall based on F.S. at time of install				Minor B		
	CAD 8.7.2.28 ★2	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order			Minor B	Minor A		
		2.27.3 FEO: Automatic Elevators						
		CAD 3.20 Fire Code Retrofits						
	8.7.3.★	Alteration - Hydraulic to Electric Elevator						
	8.7.3.★1	Where a hydraulic elevator operated in an existing hoistway and a new electric elevator will be installed in its place, the following conditions will apply:			New			
		★ Part 2 Electric Elevators, except:						
		★ Existing building conditions not in full conformance with current requirements may be retained. Identify each deviation in the submission (box 4000) ie.						
		- pit depth						
		- no pit drain						
		★ A New Installation Number will be issued						
		★ 2.15.9 Apron plate length per 2.15.9 or						
		- collapsible / telescopic / folding design utilized						

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3	Alterations to Hydraulic Elevators						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
		2.1.1	Hoistway Enclosures					
		2.1.5	Windows and Skylights					
		2.1.6	Projections, Recesses, and Setbacks in H/W					
		2.5.	Horizontal Car and Counterweight Clearances					
		2.7.3.4.6	Access Doors and Openings					
		★ 2.7.3.4.7	Access Doors and Openings					
		2.8.	Equipment in Hoistways, Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms					
		8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)					
		2.11.1	Entrances and Emergency Doors Required (if blind H/W)					
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
		B44-2010	New Installation					
		2.5.	Horizontal Car and Counterweight Clearances					
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
		2.1.2.1	Construction at Top of the Hoistway					
		2.1.3	Floor Over Hoistways					
		8.7.2.4	Vertical Car & Cwt Clearances & Runbys					
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
		2.1.2.2	Construction at Bottom of the Hoistway					
		2.1.2.3	Strength of Pit Floor					
		2.2.	Pits					
		8.7.2.4	Vertical Car & Cwt Clearances & Runbys					
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
		2.1.4	Control of Smoke and Hot Gases					
	8.7.3.2	Pits			see Electric Elevators			
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
		2.2.	Pits					
		2.1.2.3	Strength of Pit Floor					
		8.7.3.4	Vertical Car & Cwt Clearances & Runbys					
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
		2.2.2.	Pit Drains					
	8.7.2.2	Pit Guards			Minor B	Minor A		
		2.2.3	Guards Between Adjacent Pits					
	8.7.2.2	Pit Access			Minor B	Minor A		
		2.2.4	Pit Access					
	8.7.2.2	Pit Illumination			Minor B	Minor B		
		2.2.5	Illumination of Pits					
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
		2.2.6	Stop Switches					
	8.7.2.2	Pit Depth			Minor B	Minor A		
		2.2.7	Minimum Pit Depths Required					
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
		2.2.8	Access to Underside of Car					
	8.7.3.3	Location and Guarding of Counterweights			Major	Major		
		2.3.	Location and Guarding of Counterweights					
		2.5.1.2	Between Car & Cwt and Cwt Guard					
		3.5.	Horizontal car and Counterweight Clearances					
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		8.7.3.22.1	Increase or Decrease in Rise					
		8.7.3.22.2	Increase in Rated Speed					
		8.7.3.23.5	Change in Location of Hydraulic Jack					

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					Alteration		Replacement with		
					Modification Change	Addition	Same	Different Make/Model	
					Type of Submission Required				
	8.7.3.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-			
		2.5.	Horizontal Car and Counterweight Clearances						
		8.7.3.22.1	Increase or Decrease in Rise						
		8.7.3.22.2	Increase in Rated Speed						
		8.7.3.23.5	Change in Location of Hydraulic Jack						
	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major			
		3.6.	Protection of Spaces below Hoistway						
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7				
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩				
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7							
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major			
		2.7. (& 3.7.)	Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-			
		OESC (C22.1) Electrical Equipment Clearances			Minor B	-			
	8.7.2.7.2	Means of Access			Minor B	-			
		2.7.3.1	General Requirements						
		2.7.3.2	Access Across Roofs						
		2.7.3.3	Means of Access						
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B		mrr	
		2.7.3.4	Access Doors and Openings						
		2.7.3.5	Stop Switch in O/H M/C Space in the H/W						
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B			
		2.7.4	Headroom in M/C Rooms						
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B			
		2.1.5							
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A			
		2.7.9.1	Lighting						
	8.7.2.7.7	Ventilation			Minor B	Minor B			
		2.7.9.2	Temperature & Humidity						
	CAD 8.7.2.7★1	Addition of Elevator Equipment Guarding			Minor A (per m/c rm)		mrr	mrr	
		2.7.2	Maintenance Path and Clearance						
		2.7.3.4.2	Size of doors and openings in cage style enclosures (750x2030)						
		2.10.1	Guarding of Equipment openable/removable only with tools operating/work instruction for accessing equipment clearances in front of electrical control equipment (1000mm) access in front of / space to operate main disconnect (750mm) Installation by registered contractor						
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B	mrr	Minor B	
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B			
		2.8.	Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) OESC, CSA C22.1 as required						
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts...)			Minor B	-			
		2.8.	Equipment in Hoistways and Machine Rooms						
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major			
		New/Relocated Machinery & Sheave Beams, Supports, Foundation							
		2.9.	Machinery & Sheave Beams, Supports, Foundation						
		Building reactions increased by more than 5%							
		2.9.	Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.						

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			see 8.7.2.10			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-		
		2.11.	Protection of H/W Openings					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		Entire installation to meet:						
		2.11.6	Opening of Hoistway Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		Entire installation to meet:						
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(d)	General Requirements - Emergency Doors (added or altered)			Major	Major		
		2.11.1	Entrances and Emergency Doors Required					
		8.7.2.10.5	Marking of Entrance Assemblies					
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
		2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure					
		8.7.2.10.5	Marking of Entrance Assemblies					
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
		2.11.11	Entrances, Horizontal Slide Type					
	sills (a)	2.11.10.1	Landing-Sill Guards		Minor B		Minor B	
		2.11.11.1	Landing Sills					
		2.11.11.6	Bottom Guides					
	track (b)	2.11.11.2	Hanger Tracks, and Track Supports		Minor B		Minor B	
	frame (c)	2.11.11.3	Entrance Frames		Minor A		Minor A	
		2.11.11.5.1	Panel Overlap					
		2.11.11.5.2	Panel Gaps Clearances					
		2.11.11.5.3	Pockets in Strike Jamb					
		8.7.2.10.5	Marking of Entrance Assemblies					
	hangers (d)	2.11.11.4	Hangers		Minor B		Minor B	
	panels (e)	2.11.11.5(*)	Panels		Minor A		Minor A	
		2.11.11.6	Bottom Guides					
		2.11.11.7	Multipanel Entrances					
		8.7.2.10.5	Marking of Entrance Assemblies					
	retainers (f)	2.11.11.8	Hoistway Door Safety Retainers		Minor B		Minor B	

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
	sills (a)	2.11.12	Entrances, Vertical Slide Type					
		2.11.10.3	Hinged Hoistway Landing Sills		Minor B		Minor B	
	frames (b)	2.11.12.1	Landing Sills					
		2.11.12.2	Entrances Frames		Minor B		Minor B	
		8.7.2.10.5	Marking of Entrance Assemblies					
	rails (c)	2.11.12.3	Rails		mrr		mrr	
	panels (d)	2.11.12.4	Panels		Minor A		Minor A	
		2.11.12.3	Rails					
		2.11.12.5	Guides					
		2.11.12.6	Counterweighting or Counterbalancing					
		2.11.12.8	Pull Straps					
	guides (e)	8.7.2.10.5	Marking of Entrance Assemblies					
	sill guard (f)	2.11.12.5	Guides					
	straps (g)	2.11.12.7	Sill Guards		mrr		mrr	
		2.11.12.8	Pull Straps					
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
	sills (a)	2.11.13	Entrances, Swing Type					
		2.11.10.1	Landing-Sill Guards		Minor B		Minor B	
		2.11.10.3	Hinged Hoistway Landing Sills					
	frames (b)	2.11.13.1	Landing Sills					
		2.11.13.2	Entrance Frames		Minor B		Minor B	
		2.11.13.4	Hinges					
	panels (c)	8.7.2.10.5	Marking of Entrance Assemblies					
		2.11.13.3	Panels		Minor B		Minor B	
		2.11.13.4	Hinges					
		2.11.13.5	Marking					
	hinges (d)	8.7.2.10.5	Marking of Entrance Assemblies					
		2.11.13.4	Hinges		mrr		mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
			Fire Protection Rating not less than existing entrance					
		8.7.2.10.5(a)	NBCC requirements					
	CAD 8.7.2.10 ★1	★ Removing Service To a Floor			Minor B			
			Bolt entrances shut					
			Remove Interlock From Safety String					
			Remove COP Floor Button					
		2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II					
		2.12.7	H/W Access Switches - if floor was previously the access location					
	CAD 8.7.2.10 ★2	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
		2.11.11.8	Hoistway Door Safety Retainers					
	8.7.3.11	Hoistway Door-Locking Devices			See 8.7.2.11			
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			See Below			
	8.7.2.11.1	Interlocks			-	Major	mrr	Minor B
		2.12.1	General					
		2.12.2	Interlocks					
		2.12.4	Listing/Certification Locking Devices					
		2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)				n/a	
		2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)				n/a	
		2.12.7	Hoistway Access Switches (n/a for column 5,6)				n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
		2.12.1	General					
		2.12.3	H/W Door Combination Mechanical Locks & Contacts					
		2.12.4	Listing/Certification Locking Devices					
		2.12.6	Hoistway Door Unlocking Devices					
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
		8.7.2.11.3	requirements specified					

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.2.11.4	Access switches and Unlocking Devices			-	Minor B	mrr	
	8.7.2.11.4 (a)	Addition of Unlocking Devices 2.12.6 Hoistway Door Unlocking Devices						
	8.7.2.11.4 (b)	Addition of Access Switches 2.12.7 Hoistway Access Switches 2.24.8 Braking Systems & Driving Machine Brakes 2.26.1.4 Inspection Operation			-	Minor A	mrr	
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed) 2.12.5 Restricted Opening of H/W or Car Door			Minor B	Minor B	mrr	Minor B
	8.7.3.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
		8.7.2.10.1 Entrances & H/W Openings - General Req'mts						
		8.7.2.10.2 Horizontal Slide-Type Entrances						
		8.7.2.10.3 Vertical Slide-Type Entrances						
		8.7.2.10.5 Marking of Entrance Assemblies						
		8.7.3.10 Hoistway Entrances and Openings						
		★ 2.13. Power Operation of Hoistway Doors and Car Doors						
	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
		2.13. Power Operation of Hoistway Doors and Car Doors 8.7.2.15★1,★2						
	CAD 8.7.2.12★2	★ Replacement of Door Reopening Device			See 8.7.2.13			
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
		2.13.4 Closing Limitations for Power Operated HS Doors & Gates					see	
		2.13.5 Reopening Device for Power Operated Car Doors or Gates if FEO provided, door opening & closing to PHI & II at time of install					8.6.3.8	
		8.7.2.15★1,★2						
	8.7.3.13	Car Enclosures			See 8.7.2.14			
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			↓ See Below ↓			
	8.7.2.14.1	Installation of New Car Enclosure 2.14. Car: Enclosure, Doors, Gates, Illumination 2.15. Car Frames & Platforms 2.17. Car and counterweight safeties 8.7.2.15.1 Alterations to Car Frames and Platforms			Major	-		
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures 2.14.1.2 Securing of Enclosures			Minor A	Minor A		
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added) 2.14.1.5 Top Emergency Exits			Minor B	Minor B		
	8.7.2.14.2(c)	Installation of Glass 2.14.1.8 Glass in Elevator Cars 2.14.1.8.1 Enclosures include glass 2.14.1.8.2 Lining of Walls or Ceilings include glass 2.14.1.8.3 Marking of each Glazing Panel			Minor B	Minor B	mrr	
	8.7.2.14.2(d)	Specific Equipment in Elevator Car 2.14.1.9 Equipment Inside Cars (a) Handrails (b) fastening devices for protective linings (c) ceiling mounted hooks/tracks (d) picture frames display boards, plaques <38mm protrusion secured to 2.14.1.2 material to 2.14.2.1 (e) conveyor tracks in freights (f) heating or cooling equipment 8.7.2.15★1,★2			Minor B	Minor B		
	CAD 8.7.2.14★1	★ Car operating station verify inspection operation 'if provided' verify stop sw verify switches operate as before (eg. FS, FEO, Access) 8.7.2.15★1,★2			Minor B	Minor B	mrr	Minor B
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors 2.8.2.1 electrical equipment & wiring 2.14.1.2.3 securing of enclosure equipment 2.14.2.4 Headroom in Elevator Cars 8.7.2.15★1,★2			Minor B	Minor B		

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
		2.14.2.3	Ventilation					
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
		2.14.7	Illumination of Cars and Lighting Fixtures					
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
		2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area					
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
		2.14.4	Passenger and Freight Car Doors/Gates, General Requirements					
		2.14.5	Passenger Car Doors					
		2.14.6	Freight Elevator Car Doors and Gates					
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			↓ See Below ↓			
	8.7.2.14.4	Alteration to Car Enclosure other than 8.7.2.14.2 - Enclosure Materials						
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
			enclosure material flame ratings shall not be diminished			Minor A		
			2.14.1.7 car top railing - see CAD 8.7.2.14★4			Minor B		
			2.14.7.1.3 auxiliary lighting			Minor B		
			2.14.7.1.4 car top light & outlet				Minor B	
		★	CAD 8.7.2.15★1			Minor B		Minor B
			or					
		★	CAD 8.7.2.15★2			Minor A		Minor A
	8.7.2.14.4	Alteration to Car Door or Car Gates other than 8.7.2.14.2			Minor A	Minor A		
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
			2.14.1.7 car top railing					
			2.14.7.1.3 auxiliary lighting					
			2.14.7.1.4 car top light & outlet					
	0.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD 8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)					
			or					
		CAD 8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)					
			car top run buttons not enabled until extended					
			normal operation not enabled until stowed					
			electrical limits to ensure car top clearance in overhead					
			minor A submission template					
		8.7.2.15★1,★2	car weighed prior to alteration					
	8.7.3.14	Car Frames and Platforms			Major	-		Major
		3.15.	Car Frames & Platforms					
	8.7.3.15	Safeties	Car or Cwt (plunger gripper see 8.7.3.23.7)		↓ See Below ↓			
	8.7.3.15.1	Car Safeties			-	Major	mrr	Minor A
		3.17.1	Car Safeties					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.15.2	Counterweight Safeties			-	Major	mrr	Minor A
		3.17.2	Counterweight Safeties					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.15.3	Alteration to existing Car or Counterweight Safeties			Major	-	mrr	Minor A
		3.17(*)	Car and counterweight safeties and plunger gripper					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement Job Reference:			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.16	Governors and Governor Ropes			See 8.7.2.19			
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	↓ See Below ↓	
	8.7.2.19	2.18.	Speed Governors				mrr	Minor A
							see	
							8.6.3.6	
	8.7.2.19	2.17.15	Governor Rope Releasing Carriers				mrr	mrr
							see 8.6.3.9	
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B Minor B	
				2.18.6 Design of Gov'r Rope Retarding Means for Type B Safeties				
				2.18.7 Traction between Speed Governor Rope & Sheave				
				& testing to 2.17.3 Function and Stopping Distances of Safeties				
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1(*)	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.22.(*)	Buffers & Bumpers					
		3.22.2	Counterweight Buffers					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to 8.7.2.14 ★4					
		3.15.	Car Frames & Platforms					
		3.17.	Car and Counterweight Safeties					
		3.21.	Counterweights					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		2.18.(*)	Speed Governors					
		3.16.	Capacity & Loading					
		3.18.	Hydraulic Jacks					
		3.19.	Valves, Pressure Piping, and Fittings					
		3.20.	Ropes and Rope Connections					
		3.24.	Hydraulic Machines and Tanks					
		3.25.	Terminal-Stopping Devices					
		3.26.	Operating Devices and Control Equipment					
		3.27.	Emergency Operation and Signaling Devices					
			3.27.1 PHI Emergency Recall Operation After Device Actuation					
			(a) low oil protection					
			(b) plunger follower guide protection					
			(c) auxiliary power lowering					
			(d) oil tank temperature shutdown					
			2.27 Emergency Operation & Signaling Devices					
			2.27.1 Car Emergency Signalling Devices					
			2.27.2 Emergency or Standby Power Systems					
			2.27.3 FEO: Automatic Elevators					
			CAD 2.27.3.2.2					
			2.27.4 FEO: Non-Automatic Elevators					
			2.27.5 FEO: Automatic Elevators w/Attendant					
			2.27.6 FEO: Inspection Operation					
			2.27.7 FEO: Operating Procedures					
			2.27.8 Switch Keys					
			2.27.9 Elevator Corridor Call Station Pictograph if req'd by OBC					
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]			Major	-		
		2.16.2	Minimum Rated Load for Freight Elevators					
		3.16.	Capacity & Loading					

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-		
		3.16.4	2.16.4 except 2.16.4.3					
		2.16.4	Carrying of Passengers on Freight Elevators					
		2.16.4.1	not accessible to general public					
		2.16.4.2	rated load not less than required by 2.16.1					
		2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)					
		2.16.4.5	car doors to 2.14.5 Passenger Car Doors					
		2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings					
		2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door					
		2.16.4.8	Fs for suspension ropes to Table 2.20.3					
		2.16.4.9	Power Operated vertical doors to 2.16.4.9(a) to (e)					
		★	apron guard to ED CAD or extent pit permits					
		★	2.16.5 Signs Required in Freight Elevator Cars					
	8.7.3.20	Increase in Rated Load			Major	-		
		2.26.1.4	Inspection Operation					
		2.26.1.5	Inspection Operation with Open Door Circuits					
		2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to CAD 8.7.2.14 ★4					
		3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		3.16.	Capacity & Loading					
		3.17.	Car and Counterweight Safeties					
		3.20.	Ropes and Rope Connections					
		3.21.	Counterweights					
		3.22.	Buffers and Bumpers					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		8.7.3.23.4	Increase in Working Pressure					
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-		
		3.14.	Car: Enclosure, Doors, Gates, Illumination		n/a			
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to 8.7.2.14 ★4					
		3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		3.16.	Capacity & Loading					
		3.17.	Car and Counterweight Safeties					
		3.20.	Ropes and Rope Connections					
		3.21.	Counterweights					
		3.22.	Buffers and Bumpers					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.24.5	Counterweight Sheaves					
		8.7.3.23.4	Increase in Working Pressure					
		CAD 8.7.2.15 ★1						
	CAD 8.7.3.21 ★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		CAD 8.7.2.15 ★1						
	CAD 8.7.3.21 ★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD 8.7.2.15 ★2						

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.3.22	Change in Rise or Rated Speed			Major	-		
	8.7.3.22.1	Increase or Decrease in Rise			Major	-		
		3.25.	Terminal-Stopping Devices					
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		3.4.1	Bottom Car Clearance					
		3.4.2	Minimum Bottom and Top Car Runby					
		3.4.3	Car Top and Bottom Maximum Runby					
		3.18.2	Plungers					
			If decrease in rise is at lowest end then;					
		2.2.4	Access to Pits					
		2.2.5	Illumination of Pits					
		2.2.6	Stop Switches					
	8.7.3.22.2	Increase in Rated Speed			Major	-		
		2.5.	Horizontal Car and Counterweight Clearances					
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		3.21.	Counterweights					
		3.22.2(*)	Counterweight Buffers					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination					
		3.17.(*)	Car and Counterweight Safeties					
		3.16.	Capacity & Loading					
		3.25.	Terminal-Stopping Devices					
		3.26.1	Operating Devices and Control Equipment					
		3.26.2	Inspection Operation					
		3.26.3	Anti-Creep and Leveling Operation					
		3.26.4	Electrical Protective Devices					
		3.26.5	Phase-Reversal and Failure Protection					
		3.26.6	Control and Operating Circuits					
		3.20.	Ropes and Rope Connections					
	8.7.3.22.3	Decrease in Rated Speed			Major	-		
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		2.18.2	Tripping Speeds for Speed Governors					
		3.16.	Capacity & Loading					
		3.16.3(b)	Capacity & data plates					
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
	8.7.3.23	Hydraulic Equipment				See Below		
	8.7.3.23.1	Alter / Install / Replace Hydraulic Jacks			Major	-	Major	
		3.18.	Hydraulic Jacks				see 8.6.3.10.1	
	8.7.3.23.2	Alter / Install / Replace Plungers			Major	-	Minor A	
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	8.7.3.23.3	Alter / Install / Replace Cylinders			Major	-	Minor A	
		3.18.3	Cylinders				see 8.6.3.10.2	
		3.18.3	Cylinder is Altered					
		3.18.3	Cylinder is Sleeved		Minor A			
		3.18.4.1	Metal Stops and/or Other Means					
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-		
		3.18.(*)	Hydraulic Jacks					
		3.19.(*)	Valves, Pressure Piping, and Fittings					
		3.24.1	Marking Plates					
		3.24.2	Tanks					
		3.24.3	Atmosphere Storage and Discharge Tanks					
		3.24.4	Welding					
	8.7.3.23.5	Change in Location of Hydraulic Jack			Major	-		
		Part 3	Hydraulic Elevators					
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-		
		3.26.8	Pressure Switch					

0	1	2a	2b	2c	3	4	5	6
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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.3.23.7	Plunger Gripper			Minor A	Minor A		
		3.17.3	Plunger Gripper					
		3.1.1(b)	strength of pit floor					
		3.22.1	no strike when buffers compressed					
	CAD							
	8.7.3.23.7 ★1	Removal of Plunger Gripper			Minor A	-		
		3.18.3	Cylinders					
		3.19.4.7	Overspeed Valves					
		3.4.2.1	Bottom Car Runby					
	8.7.3.24 (a)	Alter / Replace	Control Valves		Minor A	-		Minor B see 8.6.3.11
		3.19.	Valves, Pressure Piping, and Fittings					
	8.7.3.24 (b)	Alter / Replace	Relief Valves		Minor A	Minor A		Minor B see 8.6.3.11
		3.19.	Valves, Pressure Piping, and Fittings					
	8.7.3.24 (b)	Alter / Replace	Check Valves		Minor A	Minor A		Minor B see 8.6.3.11
		3.19.	Valves, Pressure Piping, and Fittings					
	8.7.3.24 (b)	Alter / Replace	Pressure Piping or Fittings		Minor A	Minor A		Minor B see 8.6.3.11
		3.19.	Valves, Pressure Piping, and Fittings					
	8.7.3.25	Suspension Ropes and Their Connections			↓ See Below ↓			
	8.7.3.25.1	Change in Number of, or Diameter of Ropes			Major	-		
		3.20.	Ropes and Rope Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-		
		3.20.	Ropes and Rope Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B		
		2.20.5	Suspension Rope Equalizers					
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		3.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
		Minimum of 2 suspension and 2 tie rods						
		Suspension rods:						
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
		Tie Rods:						
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added				mrr		mrr
		safety jaws cannot touch rails if not activated						
	8.7.3.26	Counterweights - Addition of			-	Major		
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		3.6.	Protection of Spaces below Hoistway					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to CAD 8.7.2.14 ★4					
		3.15.	Car Frames & Platforms					
		3.17.2	Counterweight Safeties					
		3.18.	Hydraulic Jacks					
		3.20.	Ropes and Rope Connections					
		3.21.	Counterweights					
		8.7.3.3	Location and Guarding of Counterweights					
	8.7.3.27	Car Buffers and Bumpers			Major	-	mrr	Minor B
		3.21.	Counterweights					
		3.22.2(*)	Counterweight Buffers					

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.28	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.29	Alteration to	Tanks		Minor B	-	Minor B	
		3.24.	Hydraulic Machines and Tanks				see 8.6.3.10.4	
	CAD 8.7.3.29 ★1	★	Addition of Oil Cooler		Minor B		Minor B	
		8.7.3.8	Electrical Wiring, Pipes, and Ducts in H/W and M/C rooms					
		2.7.2	Maintenance Path and Clearance					
		3.10.	Guarding of Exposed Auxiliary Equipment					
	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B		
		3.25.	Terminal-Stopping Devices					
	8.7.3.31	Operating Devices and Control Equipment			↓ See Below ↓			
	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
		3.26.2	Inspection Operation					
	CAD 8.7.3.31 ★1	Alteration / Addition of any type of inspection operation			Minor A	Minor A		
		2.26.1.4	Inspection Operation					
	CAD 8.7.3.31 ★2	Addition of Top-of-Car Operating Device (see CAD 3.8.3)			-	Minor A		
		2.26.1.4	Inspection Operation					
		8.7.2.15 ★1, ★2						
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
		3.26.3.2	Operation in Leveling or Truck Zone					
	8.7.3.31.3	Alter / Replace	Anti-Creep Leveling Device		Minor B	-	Minor B	
		3.26.3.1	Anti-Creep Operation				see 8.6.3.10.5	
	CAD 8.7.3.31 ★3	★	Door By-Pass Switches		Minor A	Minor A		
		2.26.1.5	Inspection Operation with Open Door Circuits					
	CAD 8.7.3.31 ★4	★	Door Monitoring System		Minor A	Minor A		
		2.26.5	System to Prevent Auto Operation w/faulty Door Contacts					
	8.7.3.31.4	Change in Power Supply			Major	-		
		(a)	voltage, frequency or # of phases or					
		(b)	AC to DC , DC to AC or					
		(c)	combination of DC & AC, then					
		electrical to:						
		3.26.1	Operating Devices and Control Equipment					
		3.26.4	Electrical Protective Devices					
		3.26.5	Phase-Reversal and Failure Protection					
		3.26.6(*)	Control and Operating Circuits					
	CAD 8.7.3.31 ★5	★	Addition of Soft Start			Minor A		
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					
		3.26.5	Phase-Reversal and Failure Protection					
	CAD 8.7.3.31 ★6	★	Addition of Power Efficiency Increasing Device			Minor B		
		B44.1 certified						
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					

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		Job Reference:			Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.31.5	Controllers			Major	-		Major
	8.7.3.31.5(a)	Install / Replace	Elevator Controller					
		3.25.	Terminal-Stopping Devices					
		3.26.	Operating Devices and Control Equipment					
		3.26.1	Operating Devices and Control Equipment					
		3.26.2	Inspection Operation					
		3.26.3	Anti-Creep and Leveling Operation					
		3.26.4	Electrical Protective Devices					
		3.26.5	Phase-Reversal and Failure Protection					
		3.26.6	Control and Operating Circuits					
		3.26.7	Recycling Operation for Multiple or Telescopic Plungers					
		3.26.8	Pressure Switch					
		3.26.9	Low Oil Protection					
		3.26.10	Auxiliary Power Lowering Operation					
		★ 2.7.9.2	Temperature and Humidity					
		2.27.2	when E.P. Is provided					
		3.27.1	Phase 1 Emergency Recall Operation after Device Actuation					
		3.27.2	Phase 1 Emergency Recall Operation prior to Device Actuation					
		3.27.3	Device Actuation at Recall Level					
		3.27.4	Device Actuation with Phase II Emergency In-Car in Effect					
			If FEO previously present or required by OBC;					
		2.27.3	Firefighters' Emergency Operation - Automatic Elevators					
			2.27.3.1 Phase 1 Recall Operation					
			2.27.3.2 Phase 1 Recall Operation by FAID's					
			CAD 2.27.3.2.2					
			2.27.3.3 Phase 2 Emergency In-Car Operation					
			2.27.3.4 Interruption of Power					
			2.27.3.5 Multicompartment Elevators					
			see 8.7.1.2 safety levels shall not be diminished					
		2.27.4	FEO: Non Automatic Elevators					
		2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation					
		2.27.6	FEO: Inspection Operation					
		2.27.7	FEO: Operating Procedures					
		2.27.8	Switch Keys					
		2.27.9	Elevator Corridor Call Station Pictograph					
			If FEO NOT previously present or required by OBC;					
			CAD 2.27.3.2.2					
			2.27.3.1 Provide Phase 1 Manual Recall Operation Only					
	CAD 8.7.3.31 ★7	Relocation of	Elevator Controller (if control wiring disconnected - reconnected)		Major			
		2.8.2	Electrical Equipment and Wiring					
			Electrical testing as per the original design submission tests					
	8.7.3.31.5(b)	Install / Replace	Door Controller		Minor A	-		Minor B
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.31.6	Change in Type of Motion Control			Major	-		
		2.11.1(*) Entrances and Emergency Doors Required 2.11.2 Types of Entrances 2.11.3 Closing of Hoistway Doors 2.11.4 Location of Horizontally Sliding or Swinging H/W Doors 2.11.5 Projection of Entrances & Equip. Beyond Land'g Sills 2.11.6(*) Opening of Hoistway Doors 2.11.8 Weights for Closing or Balancing Doors 2.11.9 Hoistway Door Locking Devices & Power Operation 2.11.11.8(*) Hoistway Door Safety Retainers 2.11.12.8 Pull Straps 2.12.(*) H/W-Door Locking Devices, Elec. Contacts, H/W Access 2.12.5 Restricted Opening of Hoistway or Car Doors 2.12.6 Hoistway Door Unlocking Devices 2.12.7 Hoistway Access Switches 2.13. Power Operation of H/W Doors and Car Doors 2.14.(*) Car: Enclosure, Doors, Gates, Illumination 2.14.1.7 car top railing 8.7.2.27.5(d) Capacity & Loading 2.17.(*) Car & Cwt Safeties 2.18.(*) Speed Governors 3.25. Terminal Stopping Devices 3.26.(*) Operating Devices and Control Equipment 2.29. Identification of Equipment and Floors ★ 2.7.9.2 Temperature and Humidity						
		If FEO previously present or required by OBC; 2.27. Emergency Operation and Signalling Devices 2.27.1 Car Emergency Signalling Devices 2.27.2 Emergency or Standby Power Systems 2.27.3 Firefighters' Emergency Operation: Automatic Elevators 2.27.3.1 Phase 1 Recall Operation 2.27.3.2 Phase 1 Recall Operation by FAID's CAD 2.27.3.2.2 2.27.3.3 Phase 2 Emergency In-Car Operation 2.27.3.4 Interruption of Power 2.27.3.5 Multicompartment Elevators see 8.7.1.2 safety levels shall not be diminished 2.27.4 FEO: Non Automatic Elevators 2.27.5 FEO: Automatic Elevators with Designated-Attendant Operation 2.27.6 FEO: Inspection Operation 2.27.7 FEO: Operating Procedures 2.27.8 Switch Keys If FEO NOT previously present or required by OBC; CAD 2.27.3.2.2 2.27.3.1 Provide Phase 1 Manual Recall Operation Only						

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
		Job Reference:			Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.31.7	Change in Type of Operation Control - CPPB, Automatic			Major	-		
		2.11.1	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.11.9	Hoistway Door Locking Devices & Power Operation					
		2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks					
		2.11.11	Entrances, Horizontal Slide Type					
		2.11.12	Entrances, Vertical Slide Type					
		2.11.13	Entrances, Swing Type					
		3.11.1	Protection of Hoistway Landing Openings					
		3.12.1	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		3.13.	Power Operation of H/W Doors and Car Doors					
		3.14.(*)	Car: Enclosure, Doors, Gates, Illumination					
		3.16.	Capacity & Loading					
		3.25.	Terminal-Stopping Devices					
		3.26.(*)	Operating Devices and Control Equipment					
		★ 2.7.9.2	Temperature and Humidity					
		3.27.	Emergency Operation and Signaling Devices					
			3.27.1 PHI Emergency Recall Operation After Device Actuation					
			(a) low oil protection					
			(b) plunger follower guide protection					
			(c) auxiliary power lowering					
			(d) oil tank temperature shutdown					
			2.27 Emergency Operation & Signaling Devices					
			2.27.1 Car Emergency Signalling Devices					
			2.27.2 Emergency or Standby Power Systems					
			2.27.3 FEO: Automatic Elevators					
			CAD 2.27.3.2.2					
			2.27.4 FEO: Non-Automatic Elevators					
			2.27.5 FEO: Automatic Elevators w/Attendant					
			2.27.6 FEO: Inspection Operation					
			2.27.7 FEO: Operating Procedures					
			2.27.8 Switch Keys					
			2.27.9 Elevator Corridor Call Station Pictograph if req'd by OBC					
	CAD 8.7.3.31 ★8	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
		2.11.3.2	- doors closed when not in use					
		2.27.3.1.6(l)	- shall not prevent PHI					
	CAD 8.7.3.31 ★9	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
		OBC-3.2.6.5(4) - shall not prevent floor access When on FEO						
		D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use						
		2.27.3.1.6(l)	- shall not prevent PHI					
		2.27.3.3.1(i)	- permit travel to all landings when on PH II					
		2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II					
		DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys					
	8.7.3.31.8	Emergency Operation and Signaling Devices						
	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B		mrr
		2.27.1	Car Emergency Signaling Devices					
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A		
		2.27.2	Emergency Or Standby Power systems					

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A		
		3.27. Emergency Operation and Signaling Devices						
		3.27.1 PHI Emergency Recall Operation After Device Actuation						
		(a) low oil protection						
		(b) plunger follower guide protection						
		(c) auxiliary power lowering						
		(d) oil tank temperature shutdown						
		2.27 Emergency Operation & Signaling Devices						
		2.27.1 Car Emergency Signalling Devices						
		2.27.2 Emergency or Standby Power Systems						
		2.27.3 FEO: Automatic Elevators						
		CAD 2.27.3.2.2						
		2.27.4 FEO: Non-Automatic Elevators						
		2.27.5 FEO: Automatic Elevators w/Attendant						
		2.27.6 FEO: Inspection Operation						
		2.27.7 FEO: Operating Procedures						
		2.27.8 Switch Keys						
		2.27.9 Elevator Corridor Call Station Pictograph if req'd by OBC						
	CAD 8.7.3.31.8★10	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of install			Minor B			
		conformance to auto recall based on F.S. at time of install						
	CAD 8.7.3.31.8★11	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order			Minor B	Minor A		
		2.27.3 FEO: Automatic Elevators						
	8.7.3.31.9	Auxiliary Power Lowering Operation			Minor B	Minor B		
		3.26.10 Auxiliary Power Lowering Operation						
		include testing procedure						
	8.7.3.31.10	Removal of emergency stop switch on passenger elevators			Minor B	Minor B		
		remove all related markings / engravings & provide an in-car stop switch to:						
		2.26.2.21 In-car stop switch						
		2.26.4.3 Positively Opened Contacts						
		2.26.9.3.1(a) single failure does not render In-Car Stop Switch ineffective						
		3.26.4.2 deceleration rate <1g, anticreep must still function						
	8.7.3.31.11	Electrical Protective Devices			↓ See Below ↓			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			Major	Major	mrr	Major
		if device meets 2.26.4.3.2 (PES)						
		3.26.2 Electrical Protective Devices - for specified device						
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			-	Minor A	mrr	
		if device meets 2.26.4.3.1						
		3.26.2 Electrical Protective Devices - for specified device						

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines						
	8.7.4.1	Rack and Pinion Elevators			Major	-		
		4.1.	Rack and Pinion Elevators					
	8.7.4.2	Screw-Column Elevators			Major	-		
		4.2.	Screw-Column Elevators					
	8.7.4.3	Hand Elevators			Major	-		
	8.7.4.3.1	Hoistway Enclosures and Machinery Space			Major	-		
		4.3.1	Hoistways, H/W Enclosures, and Related Construction					
		4.3.4	Enclosures for Machines and Control Equipment					
	8.7.4.3.2	Top Car and Counterweight Clearances			Major	-		
		4.3.3	Top Clearances					
	8.7.4.3.3	Hoistway Entrances			Major	-		
		4.3.6	Hoistway Entrances					
		4.3.7	Hoistway Gates for Landing Openings					
		4.3.8	Hoistway-Door & Hoistway Gate Locking Devices					
	8.7.4.3.4	Car Enclosures			Major	-		
		4.3.9	Car Enclosures					
		4.3.11	Car Frames and Platforms					
	8.7.4.3.5	Car Frame and Platform			Major	-		
		4.3.11	Car Frames and Platforms					
		4.3.12	Car Compartments					
		4.3.13	Cars Counterbalancing One Another					
		4.3.16	Suspension Means					
	8.7.4.3.6	Capacity and Loading			Major	-		
		4.3.14.1	Minimum Rated Load					
		4.3.14.2	Capacity Plate					
		4.3.19.1	Drive Machine & Sheaves - Factors or Safety					
		4.3.19.2	Driving-Machines					
		4.3.16	Suspension Means					
	8.7.4.3.7	Increase in Rise			Major	-		
		4.3.3.1	Top Car Clearances					
		4.3.3.2	Top Counterweight Clearance					
		4.3.15	Car Safeties					
		4.3.16	Suspension Means					
	8.7.4.3.8	Guide Rails and Fastenings			Major	-		
		4.3.18.1	Guide Rails - Material and Finish					
		4.3.18.2	Strength of Rails and Fastenings					
		4.3.18.3	Extension of Guide Rails at Top & Bottom of H/W					
	8.7.4.3.9	Overhead Beams and Supports			Major	-		
		4.3.5.1	Overhead Beams and Supports					
		4.3.5.2	Access to Machines and Sheaves					
	8.7.4.3.10	Power Attachments			Major	-		

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.5	Alterations to Special Application Elevators						
	8.7.5.1	Inclined Elevators			Major	-		
		5.1.	Inclined Elevators compliance to specific 5.1 sections based on alteration scope			variance		
	8.7.5.2	Limited Use/Limited Application Elevators			See Electric or Hydraulic Elevator			
	CAD 8.7.5.2★1	★	8.7.2	Alterations to Electric Elevator & as modified in Section 5.2				
	CAD 8.7.5.2★2	★	8.7.3	Alterations to Hydraulic Elevator & as modified in Section 5.2				
	8.7.5.5	Power Sidewalk Elevators			Major	-		
	8.7.5.5.1	Changes in Electrical Wiring or Electrical Equipment			Major	-		
		5.5.1.8	Equipment in Hoistways & Machine Rooms					
	8.7.5.5.2	Sidewalk Door			Major	-		
		5.5.1.11.2	Horizontal Openings in Sidewalks and Exterior Areas					
		5.5.1.11.3	Hinged Type Swing Sidewalk Doors					
		5.5.1.11.4	Vertical Lifting Sidewalk Covers					
	8.7.5.5.3	Change in Car Enclosure, Car Doors, and Gates			Major	-		
		5.5.1.14	Car Enclosure, Car Doors and Gates, Illumination					
	8.7.5.5.4	Bow-Irons and Stanchions			Major	-		
		5.5.1.15.2	Bow-Irons and Stanchions					
	8.7.5.5.5	Increase in Rated Load			Major	-		
		5.5.1.16	Capacity and Loading					
		5.5.1.18	Speed Governors					
		5.5.1.21	Buffers and Bumpers					
		5.5.1.25.4	Maximum Rated Speed					
	8.7.5.5.6	Increase in Rated Speed			Major	-		
		5.5.1.15	Car Frames and Platforms					
		5.5.1.16	Capacity and Loading					
		5.5.1.19	Suspension Ropes					
		5.5.1.22	Guide Rails					
	8.7.5.5.7	Existing Driving Machine			Major	-		
		5.5.1.8	Equipment in Hoistways & Machine Rooms					
		5.5.1.9	Machinery and Sheave Beams, Supports, and Foundations					
		5.5.1.23	Driving Machines and Sheaves					
		5.5.1.25	Operating Devices and Control Equipment					
	8.7.5.5.8	Change in Type of Operating Devices and/or Control Equipment			Major	-		
		5.5.1.8	Equipment in Hoistways & Machine Rooms					
		5.5.1.25	Operating Devices and Control Equipment					
	8.7.5.6	Rooftop Elevators			Major	-		
		5.6.	Rooftop Elevators					
	8.7.5.7	Special Purpose Personnel Elevators			see CAN/CSA B311			

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.6.1	Alterations to Escalators						
	8.7.6.1.1	Change to component parts			mrr	-		mrr
		8.6.12.4.1.1 Replacement parts or components						
		8.6.12.4.1.2 Quality of Work						
	8.7.6.1.1	Addition of Components or Devices			see 8.7.6.1			-
		see applicable 8.7.6.1 requirements for that device						
	8.7.6.1.2 (a)	Relocation of Escalator			New	-		
		6.1. Escalators						
	8.7.6.1.2 (b)	Repositioning of Escalator			Major			
	CAD 3.18	★ Repositioning of Escalator (within the same building)						
		6.1.3.3.11 Guard at ceiling intersection						
		6.1.3.3.12 AntiSlide Devices						
		6.1.3.3.13 Deck Barricades						
		6.1.3.4.3 Guards						
		6.1.3.6.3 Adjacent Floor Surfaces						
		6.1.3.6.4 Safety Zone						
		6.1.3.12 Headroom						
		6.1.3.13 Welding						
		6.1.6.9 Signs						
		6.1.7.4.1 Electrical equipment						
		8.7.6.1.3 Protection of Floor Openings						
	8.7.6.1.3	Protection of Floor Openings			Minor A	-		
		6.1.1.1 Protection Required						
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
		6.1.2.1 Protection Required						
	8.7.6.1.5	Construction Requirements						
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination			Major	-		
	8.7.6.1.5(b)	Construction Requirements - Geometry			Major	-		
		6.1.3.2 Geometry						
	8.7.6.1.5(c)	Any Alteration to the Balustrades			Minor A	Minor A		
		6.1.3.3 Balustrades						
		6.1.3.3.1 Construction						
		6.1.3.3.2 Strength						
		6.1.3.3.3 Use of Glass or Plastic						
		6.1.3.3.4 Interior Low Deck						
		6.1.3.3.5 Loaded Gap between Skirt & Step						
		6.1.3.3.6 Skirt Panels						
		6.1.3.3.7 Dynamic Skirt Panels						
		6.1.3.3.8 Dynamic Skirt Panel Loaded Gap						
		6.1.3.3.9 Step/Skirt Performance Index						
		6.1.3.3.10 Skirt Deflector Devices						
		6.1.3.3.11 Guard at ceiling intersection						
		6.1.3.3.12 AntiSlide Devices						
		6.1.3.3.13 Deck Barricades						
	8.7.6.1.5(d)	Deflector Devices			Minor B			mrr
		6.1.3.3.10 Skirt Deflector Devices						
	8.7.6.1.6	Handrails or Handrail System			Minor A	-		
		6.1.3.2.2 Geometry - Handrail						
		6.1.3.4.1 Handrails - Type Required						
		6.1.3.4.2 Extension Beyond Combplate						
		6.1.3.4.3 Guards (hand or finger)						
		6.1.3.4.4 Handrails - Splicing						
		6.1.3.4.6 Handrail Clearance						
		6.1.6.3.12 Handrail Entry Device						
		6.1.6.4 Handrail Speed Monitoring Device						
	CAD 8.7.6.1 ★ 1	★ Addition of Handrail Advertising			mrr	variance		
		Variance to 6.1.6.9.2						

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.6.1.7	Step System - any alteration to the step system			Major	-	mrr	Minor B
		6.1.3.3.5 Loaded Gap Between Skirt & Step						
		6.1.3.5 (*) Steps						
		6.1.3.6 Entrance and Egress Ends						
		6.1.3.8 Step Wheel Tracks						
		6.1.3.9.4 Step						
		6.1.3.10.4 Factor of Safety - Steps						
		6.1.3.11 Chains						
		6.1.6.3.3 Broken Step-Chain Device						
		6.1.6.3.9 Step Upthrust Device						
		6.1.6.3.11 Step Level Device						
		6.1.6.3.14 Step Lateral Displacement Device						
		6.1.6.5 Missing Step Device						
	8.7.6.1.8	Combplates			Minor A	-		
		6.1.6.3.13 Comb-Step Impact Devices						
	8.7.6.1.9	Trusses and Girders			Major	-		
		8.7.1.4 Welding						
		6.1.3.7 Trusses of Girders						
		6.1.3.9.1 Structural Load						
		6.1.3.10.1 Factor of Safety - Trusses and Supporting Structures						
	8.7.6.1.9	New Escalator into Existing Trusses			New	-		
		6.1. Escalators						
	8.7.6.1.10	Step Wheel Tracks			Major	-		
		6.1.3.8 Step Wheel Tracks						
		6.1.3.9.4 Step						
		6.1.3.10.1 Factor of Safety - Trusses and Supporting Structures						
		8.7.1.4 Welding						
	8.7.6.1.11	Rated Load and Speed			Major	-		
		6.1. Escalators						
	8.7.6.1.12	Driving Machine, Motor, and Brake						
	8.7.6.1.12(a)	Driving Machine			Major	-		
		6.1.3.9.2 Machinery						
		6.1.3.10.3 Factor of Safety - Power Transmission Parts						
		6.1.4.1 Limits of Speed						
		6.1.5.1 Connection Between Driving Machine and Main Drive Shaft						
		6.1.5.2 Driving Motor						
		6.1.5.3.1 Escalator Driving-Machine Brake						
		6.1.5.3.2 Main Drive Shaft Brake						
		6.1.6.3.4 Broken Drive-Chain Device						
		6.1.6.3.8 reversal Stop Device						
	8.7.6.1.12(b)	Driving Motor			Major	-		
		6.1.3.9.2 Machinery						
		6.1.3.10.3 Factor of Safety - Power Transmission Parts						
		6.1.4.1 Limits of Speed						
		6.1.5.2 Driving Motor						
		6.1.5.3.1 Escalator Driving-Machine Brake						
		6.1.5.3.2 Main Drive Shaft Brake						
		6.1.6.3.2 Speed Governor						
		6.1.6.3.8 reversal Stop Device						
		6.1.6.3.10 Disconnected Motor Safety Device						
	8.7.6.1.12(c)	Machine Brake			Major	-		
		6.1.3.9.3 Brake						
		6.1.3.10.2 Factor of Safety - Driving Machine Parts						
		6.1.5.3.1 Escalator Driving-Machine Brake						

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.6.1.13	Operating and Safety Devices			Minor A	Minor A		
		6.1.6	Operating and Safety Devices (for that device)					
	CAD 8.7.6.1★2	★ Removal of step demarcation lights			Minor A	-		-
		6.1.3.3.5	Loaded Gap Between Skirt & Step					
		6.1.3.5.4	Clearance between Steps					
		6.1.3.5.5	Slotting of Steps and Treads					
		6.1.3.5.6	Step Demarcation					
		6.1.3.6.2	Distinction Between Comb and Step					
	8.7.6.1.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
		6.1.7	Lighting, Access, and Electrical Work					
	8.7.6.1.15	Entrance and Egress			Major	-		
		6.1.3.6.1	Combplates					
		6.1.3.6.2	Distinction Between Comb and Step					
		6.1.3.6.3	Adjacent Floor Surfaces					
		6.1.3.6.4	Safety Zone					
	8.7.6.1.16	Controller			Major	-		-
		6.1.6.10	Control and Operating Circuits					
		6.1.6.11	Electrically Power Safety Devices					
		6.1.6.12	Installation of Capacitors.. To Make EPD's Ineffective					
		6.1.6.13	Completion of Maintenance Circuits					
		6.1.6.14	Escalator Manual Reset					
		6.1.6.15	Contractors and Relays for Use in Critical Operating Circuits					
	CAD 8.7.6.1★3	★ Controller - Replacement of 8.7.6.1.16 Controller			-	-		Major
	CAD 8.7.6.1★4	Relocation of Controller (if control wiring disconnected - reconnected)			Major			
		2.8.2	Electrical Equipment and Wiring					
				Electrical testing as per the original design submission tests				
	CAD 8.7.6.1★5	★ Addition of Soft start for control systems built to B44-00 and later			-	Minor A		
		6.1.7.4	Electrical Equipment and Wiring					
		6.1.6.10.1	Occurrence of a single ground					
		6.1.6.10.2	Redundancy to be checked					
		6.1.6.10.3	Motors with Static control					
				for control systems built prior to B44-00				
		6.1.7.4	Electrical Equipment and Wiring					
	CAD 8.7.6.1★6	★ Addition of Power Efficiency Increasing Device			-	Minor B		
				B44.1 certified				
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.6.2	Alterations to Moving Walks						
	8.7.6.2.1	Change to component parts 8.6.12.4.1.1 Replacement parts or components 8.6.12.4.1.2 Quality of Work			mrr	-		mrr
	8.7.6.2.1	Addition of Components or Devices see applicable 8.7.6.2 requirements for that device			see 8.7.6.2			-
	8.7.6.2.2	Relocation of Moving Walk 6.2. Moving Walks			New	-		
	8.7.6.2.3	Protection of Floor Openings 6.2.1.1 Protection Required			Minor A	-		
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire 6.2.2.1 Protection of Supports - Protection Required			Minor A	-		
	8.7.6.2.5	Construction Requirements - Angle of Inclination 6.2. Moving Walks			Major	-		
	8.7.6.2.5	Construction Requirements - Geometry 6.2.3.2 Geometry			Major	-		
	8.7.6.2.5	Construction Requirements - Balustrades 6.2.3.3 Balustrades			Minor A	Minor A		
	8.7.6.2.6	Handrails 6.2.3.2.3 Geometry - Handrail 6.2.3.4 Handrails 6.2.6.3.10 Handrail Entry Device 6.2.6.4 Handrail Speed Monitoring Device			Minor A	-		
	8.7.6.2.7	Treadway System 6.2.3.2.3 Geometry - Handrail 6.2.3.3.5 Skirtless Balustrade 6.2.3.3.6 Skirt Panels 6.2.3.5 Pallet-Type Treadway 6.2.3.6(*) Belt-Type Treadway 6.2.3.8 Entrance and Egress Ends 6.2.3.9 Supporting Structure 6.2.3.10.4 Pallet 6.2.3.11.4 Pallet Factor of Safety 6.2.3.11.5 Belt Factor of Safety 6.2.3.12 Chains 6.2.6.3.3 Broken Treadway Device 6.2.6.5 Missing Pallet Device 6.2.6.3.9 Pallet Level Device			Major	-		
	8.7.6.2.8	Combplates 6.2.3.8 Entrance and Egress Ends 6.2.6.3.11 Comb-Pallet Impact Devices			Minor A	-		
	8.7.6.2.9	Trusses and Girders 8.7.1.4 Welding 6.2.3.9 Supporting Structure 6.2.3.10.1 Structural Load 6.2.3.12.1 Trusses & Supports based on max static load			Major	-		
	8.7.6.2.9	New Moving Walk into Existing Truss 6.2. Moving Walks			New	-		
	8.7.6.2.10	Track System 6.2.3.9 Supporting Structure 6.2.3.10 Rated Load 6.2.3.11.1 Trusses & Supports based on max static load 8.7.1.4 Welding			Major	-		
	8.7.6.2.11	Rated Load and Speed 6.2. Moving Walks			Major	-		

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.6.2.12	Driving Machine			Major	-		
		6.2.3.10.2	Machinery Load					
		6.2.3.11.2	Factor of Safety for Drive Machine Parts					
		6.2.3.11.3	Factor of Safety for Power Transmission members					
		6.2.3.14	V-Belt Drives					
		6.2.3.15	Headroom					
		6.2.4	Rated Speed					
		6.2.5.1	Connection Between Driving Machine and Main Drive Shaft					
		6.2.5.3.1	Moving Walk Driving-Machine Brakes					
		6.2.5.3.2	Main Drive Shaft Brake					
		6.2.6.3.4	Broken Drive-Chain Device					
		6.2.6.3.8	Disconnected Motor Safety Device					
	8.7.6.2.12	Drive Motor			Major	-		
		6.2.3.10.2	Machinery Load					
		6.2.3.11.2	Factor of Safety for Drive Machine Parts					
		6.2.3.11.3	Factor of Safety for Power Transmission members					
		6.2.4	Rated Speed					
		6.2.5.2	Driving Motor					
		6.2.5.3.1	Moving Walk Driving-Machine Brakes					
		6.2.6.3.2	Speed Governor					
		6.2.6.3.7	Reversal Stop Device					
		6.2.6.3.8	Disconnected Motor Safety Device					
	8.7.6.2.12	Machine Brake			Major	-		
		6.2.3.10.3	Brake					
		6.2.3.11.2	Factor of Safety for Drive Machine Parts					
		6.2.3.11.3	Factor of Safety for Power Transmission members					
		6.2.5.3.1	Moving Walk Driving-Machine Brakes					
		6.2.5.3.2	Main Drive Shaft Brake					
	8.7.6.2.13	Operating and Safety Devices			Minor A	Minor A		
		6.2.6	Operating and Safety Devices (for that device)					
	8.7.6.2.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
		6.2.7	Lighting, Access, and Electrical Work					
	8.7.6.2.15	Controller - Installed as part of an alteration			Major	-		-
		6.2.6.9	Control and Operating Circuits					
		6.2.6.10	Electrically Power Safety Devices					
		6.2.6.11	Installation of Capacitors.. To Make EPD's Ineffective					
		6.2.6.12	Completion of Maintenance Circuits					
		6.2.6.13	Moving Walk Manual Reset					
		6.2.6.14	Contractors and Relays for Use in Critical Operating Circuits					
	CAD 8.7.6.2★1	★ Controller - Replacement of			-	-		Major
		8.7.6.1.16	Controller					
	CAD 8.7.6.2★2	Relocation of	Controller (if control wiring disconnected - reconnected)		Major			
		2.8.2	Electrical Equipment and Wiring					
			Electrical testing as per the original design submission tests					
	CAD 8.7.6.2★3	★ Addition of Soft start			-	Minor A		
			for control systems built to B44-00 and later					
		6.1.7.4	Electrical Equipment and Wiring					
		6.1.6.10.1	Occurrence of a single ground					
		6.1.6.10.2	Redundancy to be checked					
		6.1.6.10.3	Motors with Static control					
			for control systems built prior to B44-00					
		6.1.7.4	Electrical Equipment and Wiring					
	CAD 8.7.6.2★4	★ Addition of Power Efficiency Increasing Device			-	Minor B		
		B44.1 certified						
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251/11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
Job Reference:					Type of Submission Required			
	8.7.7	Alterations to Dumbwaiters and Material Lifts						
	8.7.7.1	Dumbwaiters and Material Lifts Without Automatic Transfer Devices			Major	-		
		Alteration to a Power and Hand Dumbwaiters			Major	-		
		7.1.	Power and Hand Dumbwaiters					
		7.2.	Electric and Hand Dumbwaiters					
		7.3.	Hydraulic Dumbwaiters					
		Alteration to a Material Lifts			Major	-		
		7.4.	Material Lifts					
	CAD 3.9.2	Lock and Contact upgrade to Interlock			Minor A	Minor A		
		CAD 3.9.2 7.4.14* Hoistway Door Locking Devices						
	8.7.7.1.1	General Alterations other than 8.7.7.1.2 Part 7 Dumbwaiters and Material Lifts			Major	-		
	8.7.7.1.2	Increase in Rated Load			Major	-		
		7.2.(*)	Electric and Hand Dumbwaiters w/o Transfer Devices					
		7.3.(*)	Hydraulic Dumbwaiters w/o Transfer Devices					
		7.4.	Material Lifts					
		7.5.	Electric Material Lifts					
		7.6.	Hydraulic Material Lifts					
	8.7.7.2	Addition of Automatic Transfer Device			Major	-		
		Part 2	Electric Elevators					
		Part 3	Hydraulic Elevators					
	8.7.7.3.1	Material Lifts and Dumbwaiters With Automatic Transfer Devices exempt if requirements of CAD 2.3(j) are met			N/A	N/A		
	8.7.7.3.2	Material Lifts and Dumbwaiters - remove Transfer Device			New	-		
		7.1. to 7.3.	for Dumbwaiters					
		7.4. to 7.6	Material Lifts w/o Transfer Devices					
	8.7.7.3.3	Material Lifts altered to an Elevator			New	-		
		Part 2	Electric Elevators					
		Part 3	Hydraulic Elevators					
	8.7.7.3.4	Material Lift or Dumbwaiter w/ Transfer Device Altered to a D/W			New	-		
		7.1.	Power and Hand Dumbwaiters w/Auto Transfer Devices					
		7.2.	Electric and Hand Dumbwaiters w/o Transfer Devices					
		7.3.	Hydraulic Dumbwaiters w/o Transfer Devices					
		Alterations to Freight Platform Lifts						
	CAD 8.7.7★1	★ Alteration to a Type 'A' Freight Platform Lift			Major	-		
		7.4.	as applicable to Material Lifts Type 'B' +					
		7.5.	as applicable to Material Lifts Type 'B' +					
		7.6.	as applicable to Material Lifts Type 'B' + + excluding requirements related to in-car operating devices & Riders					
	CAD 3.9.2	Lock and Contact upgrade to Interlock			Minor A	Minor A		
		CAD 3.9.2 7.4.14* Hoistway Door Locking Devices						
	CAD 8.7.7★2	★ Alteration to a Type 'B' Freight Platform Lift			Major	-		
		7.4.	as applicable to Material Lifts Type 'B'					
		7.5.	as applicable to Material Lifts Type 'B'					
		7.6.	as applicable to Material Lifts Type 'B'					
	CAD 3.9.2	Lock and Contact upgrade to Interlock			Minor A	Minor A		
		CAD 3.9.2 7.4.14* Hoistway Door Locking Devices						



Elevating and Amusement Devices Safety Program	Ref. No.: 252/12-r2
ADVISORY	Date: November 15, 2019

Subject: Simplified Revision Form to Correct / Revise a Registered Design Submission
Distribution: Posted on TSSA website

1. INTRODUCTION

- 1.1. A registered design submission per Section 15 and 16 of the regulation forms the on-file record of compliance with the regulation and consequently the information within must be complete and accurate.
- 1.2. Where errors, omissions or changes to the “**as registered**” documents” require submission updating to reflect the “**as built**” conditions, these “**discrepancies**” shall be made as revisions. Depending on the nature of the discrepancies a simplified revision procedure outlined in section 3 may be used.
- 1.3. Submitters may become aware of required revisions prior to or after an inspection. If the inspection can proceed without the **discrepancies** impacting the evaluation and testing of the installation, the revision can wait until after the initial inspection. Any revision type issues found during the inspection can be added to the revision submission.
Note: Discrepancies can be corrected by either making the “as built” conditions meet the “as register” documentation or vice versa.

2. REQUIREMENTS

- 2.1. **Ontario Regulation 209/01 (Elevating Devices)** provides requirements for;
 - a design submission to be accurate and complete O.Reg. 209/01, s.15:
 - the design submissions to be in the form published by the designated administrative authority, and
 - payment of registration fees per the fee schedule O.Reg 209/01, s.16
- 2.2. Revisions submitted for registration must follow one of the procedures below in order to comply with the intent of Section 15 and 16 of the Regulation.

3. SIMPLIFIED PROCEDURE

One of the following procedures shall be followed, depending on the design submission specification items that are to be revised. All procedures require an email plus an attachment to be sent to eddesignsubmittal@tssa.org

3.1. Simplified Revision Form

A Simplified Revision form has been introduced by TSSA and can be found on the TSSA website.
<https://www.tssa.org/en/about-tssa/resources/Simplified-Revision-Form.pdf>
The form may be used by the submitting engineer or a mechanic.

3.2. Form Usage

The first three parts of the form (A, B and C) are for use by either the submitting engineer or the mechanic. If the revision only requires the use of parts A, B and C, the revision can be signed off by the mechanic as these items are currently accepted via a Minor B.

If the revision requires changes to other specification sheet data, Part D is provided for used by the submitting engineer only. If the form is emailed to TSSA directly from the submitting engineers email



Elevating and Amusement Devices Safety Division	Ref. No.:	Rev. No.:
	256 / 12	
GUIDELINE	Date:	Date:
	September 14, 2012	

Subject: Guideline for Maintenance Logs - Construction Hoists
 Applicable to: Construction Hoist Owners / Licensees, Contractors, and Consultants

1. Effective Date

1.1 This Directors Guideline becomes effective March 1, 2013 and is to be used in conjunction with the Elevating Devices Code Adoption Document (CAD) Amendment 255/12.

2. Applicability

2.1 This guideline is applicable to Owners or Licensees of Construction hoists as defined under section 6.1.1 of the Elevating Devices Code Adoption Document (CAD).

3. Minimum Requirements for Maintenance Logs – Construction Hoists

In addition to the maintenance log book requirements noted in the Code Adoption Document (section 6.11), maintenance logs shall document the required maintenance tasks, examinations, tests, and any safety related adjustments, repairs or replacements made to the device, and as a minimum shall include the following:

3.1 Monthly Tasks

3.1.1 General

- a) cleaning, lubricating, and adjusting applicable components at regular intervals and repairing or replacing all worn or defective components where necessary to maintain the installation in compliance with the Regulation,
- b) lubrication of parts as required (Car gate rails, landing gates rails, rack, pinion, gearbox, safety device bearings, pipe for mast, top pulley wheel, guide rollers, roof trap door hinges.)

Note: For stated monthly tasks, manufacturers may recommend alternative frequencies as permitted by O.Reg 209/01 s.32.

3.1.2 Mast, Rack, Foundation, Guying, Tie-in Brackets, and Fastening

a) tower mast sections	Inspect all tower sections for loose bolts or damaged towers
b) tie-ins	Check that all bolts, pins and screw joints in the mast ties are in place and secure
c) rack	Apply adequate lubricant to rack. Ensure fastenings are tight.
d) shoring	Check the basement shoring posts and fence are in place and secure
e) rack wear	Check wear on rack and pinion gears with caliper and engagement between gears

3.1.3 Hoistway Enclosure and Protection Around Hoist

a) ground enclosure	Inspect enclosure
b) landing platform and platform overhead protection	Inspect for missing, loose or damaged wood and steel

3.1.4 Hoistway Landing and Doors

a) landing gates and locks	Check for proper gate operation and electrical contacts operate and front gate mechanical lock operates
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3.1.5 Car / Cage / Platform

a) cage gates and locks	Check for proper gate operation and electrical contacts operate and front gate mechanical lock operates
b) rollers / roller guides	Lubricate and check for wear, loose or missing parts and proper adjustment
c) cage/ car enclosure and assemble	Inspect for loose or missing parts, damage and proper operation of all parts

3.1.6 Travelling Cable, Guides, Brackets, Supports and Fastenings

a) travelling cable	Check the cable is suspended properly and free of twists and cuts
b) travelling cable guidance system	Check all guidance members are in alignment and all rubber straps are in place, in good condition and the cable is within the guides

3.1.7 Counterweights

a) counterweight	Check counterweight compensator is centered and rope clips are secure
b) roller / roller guides	Lubricate and check for wear, loose or missing parts and proper adjustment

3.1.8 Clearances and Runbys for Car and Counterweight

a) car and counterweight clearance	Check the area in which the cage and counterweight travel are clear of obstructions
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3.1.9 Operation and Operating and Control Devices, Electrical Protective Devices, Terminal Stopping Devices

a) car emergency stop button	Check condition and test operation
b) up/down normal limits	Test up and down normal limit switches
c) up/down final limits	Test up and down final limit switches
d) top emergency exit switch	Test switch and its connection to the exit panel
e) slack rope switch	Check that the switch is secure and test its operation
f) cage top stop switch	Check condition and test operation
g) ground fault detector	Push the test button to trip the circuit breaker and reset it

3.1.10 Drive Machines, Brakes, Sheaves and Drums, Valves, Pipes and Fittings

a) brakes	Check each brake for proper adjustment
b) pinion wear	Check wear on rack and pinion gears and engagement between gears
c) gear box	Check oil level and condition
d) keepers / safety hooks	Check keepers / hooks can retain rack and pinion engagement

3.1.11 Hoisting and Counterweight Ropes and Connections

a) wire ropes	Check for any breaks, corrosion, deformation, wear, damage or defects. Check connection points
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3.1.12 Machinery Spaces and Overhead Beams

a) cathead	Inspect cathead for wear, secure mounting and loose or missing parts
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3.1.13 Communication and Signage

a) speakers	Test speakers and inspect cables and connections
b) signage	Check all required signage is in place and legible
c) evacuation instructions	Check procedure is in place if required

3.2 Quarterly Tasks (Interval not greater than 3 months)

3.2.1 The following task shall be conducted on a quarterly basis:

a) safety test	Full load safety test required every 3 months and when hoist fully extended
b) car and counterweight buffers	Check that the buffers are in the correct position, secured and in good operating condition

3.3 Annual Tasks (Interval not greater than 12 months)

3.3.1 The following task shall be conducted on a yearly basis:

a) brake torque and cleaning	Must be inspected yearly or as per manufacturer instructions
b) relief valve test	Test the relief valve is operating to a maximum of 120% of full load pressure (if applicable)

Roland Hadaller, P.Eng.

Director, Ontario Regulation 209/01 (Elevating Devices) appointed under the *Technical Standards and Safety Act*, 2000.

This Guideline has been developed in consultation with the Construction Hoist Industry.



Elevating and Amusement Devices Safety Division	Ref. No.: 257 / 12	Rev. No.:
	GUIDELINE	Date: September 14, 2012

Subject: Guideline for
Operator's Logs - Construction Hoists and
Operator Training Requirements – Constructions Hoists
Applicable to: Construction Hoist Owners, Licensees, Lessees, Contractors, and Consultants

1. Effective Date

1.1 This Directors Guideline becomes effective March 1, 2013 and is to be used in conjunction with Elevating Devices Code Adoption Document (CAD) Amendment requirement 255/12.

2. Applicability

2.1 This guideline is applicable to Owners, Licensees and/or Lessees of construction hoists as defined under section 6.1.1 of the Elevating Devices Code Adoption Document (CAD).

3. Minimum Requirements for Operator's Logs – Construction Hoists

Further to clause 6.16.2 of the CAD and section 42 of Ontario Regulation 209/01 (Elevating Devices) and in order for the Operator to be satisfied that the device is in safe operating condition, the Operator shall perform and record the following checks and inspections daily:

3.1 Daily Checks and Inspections – General

3.1.1 The following checks and inspections shall be performed daily and the following standards shall be met:

- a) General housekeeping of the car / cage and areas around the landings and loading areas shall be checked (no trip or fall hazards due to construction materials or debris, etc..)
- b) Device shall be operated within prescribed limits as related to:
 - i) temperature
 - ii) winds
 - iii) ice
 - iv) operating clearance envelop has not been compromised by building construction activities, and the following clearances are available:
 - a. 1.2m (4') minimum clearance to construction activities on non-guarded sides of hoist
 - b. 2 m (6.5') clearance from the mast to any disposal bin fed by an enclosed disposal chute or
 - c. 7m (25') clearance from the mast to any disposal bin fed by an un-enclosed disposal chute
- c) Assessment to verify no new unusual noises or vibrations that were not previously present, and
- d) all incidents and safety related issues need to be reported to supervisory personnel. (see Director's Guideline 230/09).

3.1.2 An Operator must perform a visual inspection of the check points as outlined in 3.2 (below), to determine whether the device is safe to operate. A visual inspection shall include:

- a) an assessment of the general condition of all related equipment;
- b) a check for the presence of and security of visible fasteners; and

- c) a check for any damaged or broken components.

3.2 **Daily Check - Specific Points**

The following checks and inspections shall be performed daily:

- 3.2.1 Mast, Rack, Foundation, Guying, Tie-in Brackets, and Fastening
 - a) tower mast sections (visual)
 - b) tie-ins, anchor bolts (visual)
 - c) basement shoring, posts and fence (visual)
- 3.2.2 Hoistway Enclosure and Protection Around Hoist
 - a) landing base / ground enclosure (visual)
 - b) loading ramp (visual)
 - c) landing platform and platform overhead protection (visual)
- 3.2.3 Hoistway Landing and Doors
 - a) landing gates
 - b) landing guard extensions on either side of gate
 - c) landing gate locks
- 3.2.4 Car / Cage / Platform
 - a) cage gates and locks
 - b) gate operation
 - c) rollers / roller guides (visual)
 - d) cage / car enclosure
 - e) trap door switch
- 3.2.5 Travelling Cable, Guides, Brackets, Supports and Fastenings
 - a) travelling cable / power cable (visual)
 - b) guidance system for the travelling cable / power cable (visual)
- 3.2.6 Counterweights
 - a) counterweight (visual)
 - b) roller / roller guides (visual)
- 3.2.7 Operation and Operating and Control Devices, Electrical Protective Devices, Terminal Stopping Devices
 - a) in-car emergency stop button
 - b) in-Car operating buttons
 - c) up / down normal limits (visual)
 - d) up / down final limits (visual)
 - e) top emergency exit switch
 - f) grounding cables (visual)
- 3.2.8 Hoisting and Counterweight Ropes and Connections
 - a) rope equalizer (visual)
- 3.2.9 Machinery Spaces and Overhead Beams
 - a) cathead (visual)
- 3.2.10 Communication and Signage
 - a) speakers
 - b) "only operators with proof of training" signage
 - c) evacuation procedure provided if applicable

4. Minimum Requirements for Operator Training – Construction Hoists

4.1 General

4.1.1 Further to 6.14 in the CAD and sections 40 and 42 Ontario Regulation 20/01 (Elevating Devices), the contents of the operator training program must include at a minimum:

- a) a review of the applicable sections of the manufacturer's maintenance and operator's manual;
- b) an understanding of the requirements related to daily general and daily specific checks (see 3.1 & 3.2);
- c) the Code Adoption Document requirement 6.15 Operator's Proof of Training;
- d) the Code Adoption Document requirement 6.16 Daily Operator's Logs;
- e) the Code Adoption Document requirement 6.17 Location of the Daily Operator's Log;
- f) the Code Adoption Document requirement 6.18 Signage;
- g) the Code Adoption Document requirement 6.19 Incident and Issue Reporting.

4.2 Special

- a) An operator who is required to perform visual daily inspections on top of the cage, must be adequately trained in the safe inspection of the device. The Operator must use a "lock out tag out" procedure before climbing on top of the construction hoist. Operators shall only access the roof of the cage at the bottom landing by using the inside hoist ladder.
- b) Operator's are not permitted in the pit area.
- c) Operator's are not permitted to open the construction hoist's electrical controller.
- d) No work including but not limited to the construct, installation, alteration, repair, replacement, and maintenance of a device shall be performed on the device unless performed by a mechanic or a mechanic in training under the supervision of a mechanic.

<original signed>

Roland Hadaller, P.Eng.

Director, Ontario Regulation 209/01 (Elevating Devices) appointed under the *Technical Standards and Safety Act*, 2000.

This Guideline has been developed in consultation with the Construction Hoist Industry.



Elevating and Amusement Devices Safety Division	Ref. No.:	Rev. No.:
	264 / 13	
ADVISORY	Date:	Date:
	August 22, 2013	

Subject: Independence of Normal Terminal Stopping Devices (NTSD) and Normal Stopping Means (NSM)
Applicable to: A17.1-2010 / B44-10 requirement 2.25.2 and Inquiry 11-2229

1. **Background**

1.1 With the adoption of the 2010 code effective for submissions received on or after May 1, 2012, TSSA began enforcement of requirement 2.25.2 through the design submission and engineering review process. Since that date, if controls were observed to have non-conformances or if compliance was not clearly conveyed in the design submission TSSA permitted conditional registrations if a commitment for conformance was received from the submitter.

In parallel with TSSA engineering enforcement of requirement 2.25.2, an interpretation was sought from A17.1 on the requirements related to independence of NTSD and NSM. The outcome of this inquiry resulted in the release of Interpretation Bulletin 258/12 that was first circulated amongst industry in Dec 2012 as further awareness to our 2010 Code enforcement activities.

The content of Bulletin 258/12 - posted to the TSSA web site on July 2, 2013 - is consistent with TSSA engineering enforcement activities which began 14 months prior, and aligns with those requirements that were communicated to control manufacturers during the design review process.

2. **Enforcement**

- 2.1 The current state of conformance to requirement 2.25.2 for **A17.1-2010 / B44-10** installations is varied, with a number of projects requesting conditional registrations to prevent project stoppages while upgrades were being developed or planned for retrofit.
- 2.2 To facilitate the transition to fully compliant controls designs (as interpreted in 258/12) TSSA is revising its enforcement dates as follows:
- All submissions received after **July 2, 2013** must be in full compliance to 2.25.2 at time of registration or must be retrofitted not later than **March 1, 2014**.
 - Submissions received prior to July 2, 2013, that carried a requirement to comply with 2.25.2 will be permitted to remain as installed, effectively implying that no upgrade actions for 2.25.2 independence will be required and existing engineering orders retracted if issued prior to this date.
- 2.3 TSSA continues to work with control manufacturers to review equipment conformance to 2.25.2. Where control designs have been submitted that demonstrate compliance through proposed upgrades TSSA will continue to conditionally register and release submissions.
- 2.4 Where manufacturers are still developing solutions, or where documentation has not been provided to adequately demonstrate compliance, TSSA will continue to permit conditional registrations (upon request) – but only until **January 1, 2014**. If conformance is not demonstrated by **January 1, 2014**, TSSA will not register the design.

Rob Kremer, P.Eng.
Manager of Engineering, Elevating and Amusement Devices safety Program



Elevating and Amusement Devices Safety Division	Ref. No.: 265/14	Rev. No.:
Enforcement Procedure Bulletin	Date: January 7, 2014	Date:

Subject: Construction Hoist Hoistway Door Interlocks, Z185 Clause 7.5

1.0 Hoistway Door Interlocks per Clause 7.5 of Z185

Per the requirements of clause 7.5 of Z185 "Safety Code for Personnel Hoists" (published in 1987 and reaffirmed in 2001), hoistway doors must be secured with interlocks meeting the following requirements;

7.5 Hoistway Door Interlocks

- 7.5.1 *Hoistway doors shall be provided with interlocks.*
- 7.5.2 *If the hoistway door at the lowest landing is locked automatically when closed with the car at the landing, it shall be provided with means to unlock it from the landing side to permit access to the car. The means provided shall be accessible only to authorized persons.*
- 7.5.3 *Interlock contacts shall be positively opened by the locking member or by a member connected to and mechanically operated by the locking member, and the contacts shall be maintained in the open position by the action of gravity or by a restrained compression spring, or by both, or by means of the opening member.*
- 7.5.4 *The interlock shall hold the door in the locked position by means of gravity or by a restrained compression spring, or by both, or by means of a positive linkage.*
- 7.5.5 *The interlock shall lock the door in the closed position before the drive machine can be operated. Devices that permit operation of the driving machine by the normal operating device when the door is closed, but before it is locked, are not permitted. **

**Such devices are known as "lock and contact" and are not true interlocks.*

2.0 Enforcement

Unlike interlocks used for elevating devices regulated under ASME A17.1/CSA B44, construction hoist interlocks per Z185 are not required to be evaluated, tested and marked by certifying organizations prior to being allowed for use on a construction hoist. Given the gap of not having a certification agency evaluate interlocks used on construction hoists, TSSA is looking to ensure that the locking devices being provided meet the intent of the requirements of clause 7.5 before registering design submissions for future construction hoist installations.

3.0 Action by Contractors

The construction hoist industry is advised to begin a review of the interlocks that they currently use on their construction hoist entrances, in order to determine if they are in compliance with the interlock requirements.

Effective immediately and prior to any new site specific installations being processed via a design submission, contractors will first need to demonstrate compliance of their interlock arrangement so that TSSA can independently gage compliance to the requirements of clause 7.5.

This documentation should include photo's, conformance write-ups, evaluation of strength, etc, to explain how compliance to clause 7.5 is achieved, and how this equipment is arranged to secure hoistway landing doors.

If the interlocks being provided are branded with a make / model and are compliant to requirements of clause 7.5, that make / model shall be included in all future submission where that interlock is being used.

If the locks are not branded, TSSA will issue a component filing number to compliant devices, and that component filing number shall be referenced on all future submissions.

4.0 Background

Despite design submissions indicating “interlock” in response to the submission entry for “door locking device type”, TSSA is observing installations where the devices used to secure hoistway landing doors are not in full compliance with the requirements of clause 7.5.

Rob Kremer, P.Eng
Engineering Manager
Elevating Devices Safety Program

Dave Parks
Supervisor, Region 4
Elevating Devices Safety Program

This Bulletin has been developed in consultation with the Construction Hoist Industry.



Elevating and Amusement Devices Safety Division	Ref. No.: 266/14
DIRECTOR'S ORDER	Date: June 1, 2014

IN THE MATTER OF:

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

- and -

Ontario Regulation 209/01 (Elevating Devices)

Re: GALaxy Elevator Controllers - Field Wiring Issue

Applicable to: All Owners of Elevators with GALaxy Controllers
All Elevator Contractors

Under the authority of s. 14 of the Technical Standards and Safety Act, 2000, the Director under O. Reg. 209/01 (Elevating Devices) hereby orders that:

1. ORDER to Owners of Elevators with GALaxy Controllers

Within 90 days of issuance of this order, you shall have a registered elevator contractor ensure that your device is in compliance to **G.A.L. Important Notice RE: GALaxy Elevator Control Field Wiring** dated April 29, 2014. Compliance with this requirement shall be entered in the log book.

2. Order to Contractors

Elevators with GALaxy controllers shall comply with **G.A.L. Important Notice RE: GALaxy Elevator Control Field Wiring** dated April 29, 2014. Compliance with this requirement shall be entered in the log book.

Attachment: G.A.L. Important Notice – Galaxy Elevator Control Field Wiring

Background

Elevators with GALaxy controllers, manufactured by GAL, may not have had field wiring installed properly. In some cases, field wires may not have been carefully inserted into their terminal blocks such that individual wire strands may be raised or exposed such that they are making contact with wiring from an adjacent terminal. This may cause an unsafe condition such as permitting elevators to run with open doors under certain circumstances, thereby putting mechanics or inspectors at risk to injury. Note: The affected devices have door lock monitoring in place to protect the public.

This order is effective immediately.

DATED this 1st day of June, 2014

Roland Hadaller P.Eng.
Director, O. Reg. 209/01

APPENDIX A:
G.A.L. Important Notice – Galaxy Elevator Control Field Wiring



G.A.L. Manufacturing Corporation
50 East 153rd Street, Bronx, N.Y. 10451
Phone (718) 292-9000 Fax (718) 292-2034



IMPORTANT NOTICE

RE: GALaxy Elevator Control Field Wiring

Date: April 29, 2014

To: All GALaxyCustomers:

Most of the field connections to GALaxy controls are made using stranded wire. When inserting this stranded wire into the terminals – especially those for EPD's (Electrical Protective Devices) – care must be taken to ensure that all the strands are properly inserted in to the terminals. Improper stripping and insertion may leave strands outside the terminals. Strands not in the terminals may make contact with the wires from an adjacent terminal.

The danger associated with an occurrence such as this has led us to recommend that, for all connections to Safety Devices - those listed in A17.1 – 2013, Requirements 2.26.2.1 thru 2.26.2.39 as applicable.

- Inspect all terminals used to connect safety devices. Ensure that the cage clamp is fully open before inserting a wire into the terminal block.
- Perform corrective action for wires with stray strands by one of the following methods:
 - o Reconnect the wire with all wire strands correctly installed into the terminal. Visually verify that **no wire** strands are outside of the terminal. **The conductor should be stripped and inserted completely into the terminal in such a manner that no more than two millimeters of bare wire is visible;** or
 - o Use an acceptable method such as tinning; or
 - o Attach a ferrule to the end of field wire for safety devices (as pictured below) and insert the ferrule into the terminal.
- After removal and replacement of any of these field wires, the actual safety device should also be checked for proper operation.



Crimp tool for Ferrule



Stranded Wire with Ferrule Attached



Elevating and Amusement Devices Safety Division	Ref. No.: 268-14
DIRECTOR'S ORDER (TEMPORARY AUTHORIZATION)	Date: December 5, 2014

IN THE MATTER OF:

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

- and -

Ontario Regulation 209/01 (Elevating Devices)

Re: Requirements for Transport Platforms

Under the authority of s. 36(3)(a) of the *Technical Standards and Safety Act, 2000*, the Director for the purposes of O. Reg. 209/01 (Elevating Devices) hereby orders that:

Transport platforms used in Ontario shall comply with the following requirements:

1.1 Standard for Transport Platforms

Transport platforms shall conform with the design requirements of ANSI A92.10 - 2009 Standard for Transport Platforms.

1.2 Additional Requirements

1.2.1 Definitions

"transport platform" means a temporarily installed elevating device equipped with a car or platform that moves vertically in guides, 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.

1.2.2 General

In addition to the design requirements in section 1.1, transport platforms and their operation shall also conform to the following CAD requirements:

- a) Requirements 6.2 to 6.4, 6.6 to 6.8.1 and 6.11 to 6.19 of CAD 261/13-r1 Note: A reference to construction hoist in section 6 of the CAD shall be replaced with transport platform
- b) Requirement 2.2 of CAD 261/13-r1 and all electrical equipment shall be CSA approved.
- c) Maximum speed shall be as per ANSI A92.10 requirement 1.1c), 0.2 m/s (40 fpm)
- d) The distance from the moving platform to the building or any structure, including loading ramps shall be as per ANSI A92.10 requirement 1.1d), 460mm (18 in.).
- e) Only persons authorized by the owner, licensee or lessee are permitted to operate and ride transport platforms
- f) The maximum number of authorized persons permitted on the platform shall be as per ANSI A92.10 1.1b)
- g) Platform signage shall be provided to display the platform capacity in kg, and the maximum number of authorized persons.
- h) Habitable space below the hoist and footings shall be provided with shoring. A Professional Engineer shall design all shoring and drawings of any shoring requirements and shall be submitted with the design submission.
- i) Landings and platform shall have a minimum 50 lx of light at floor level when in active use.

- j) The top rack section shall be either milled or a manufacturer recommended means shall be provided to prevent travelling beyond mast top.
- k) No operation shall be permitted when wind speeds exceed manufacturer recommendations.
- l) Landing communication devices are not required.
- m) The platform mast shall be electrically grounded.
- n) A ground fault interrupter shall be provided for electrical protection.
- o) The braking system shall hold and stop up to 125% load moving in the down direction.
- p) A full load safety test shall be performed during initial inspection, when fully extended, and after every 90 days. For transport platforms that do not have an overspeed safety device and use two or more independent and identical direct drive units fitted to each mast, each brake shall be tested separately at 110% load. With the platform running at full speed, each brake shall stop and hold the platform with 110% load.
- q) Electrical redundancy procedure of critical components is required on each Design Submission.
- r) Grounding of the safety circuit shall stop the device.
- s) Unenclosed disposal chutes shall not be located within 7m (25 ft.) of the hoist mast, and garbage containers shall not be located within 2m (6.5 ft.) of the hoist mast.
- t) Acoustic warning devices used during platform descent are not mandatory where fencing enclosures meet 1.2.3

1.2.3 Fencing Enclosures

- a) A fence a minimum of 2 m (6.5 ft.) high shall be around the hoist base.
- b) Fencing shall be located a minimum of 460 mm (18 in.) from any moving components.
- c) If openwork fencing is used, it shall reject a 25 mm (1 in.) ball.
- d) The fencing entrance to the platform shall be locked when platform is moving.
- e) Fence heights may be reduced to minimum 1070 mm (42 in.) in areas where materials are loaded from a loading platform.

1.2.4 Loading Platforms

- a) If a loading platform is used, overhead protection is required above the loading platform.
- b) The loading platform shall be located a minimum of 460 mm (18 in.) from any moving components and be surrounded by fencing a minimum 1070 mm (42 in.) high.
- c) If fencing is openwork, it shall reject a 25 mm (1 in.) ball.
- d) Stairs with handrails shall be provided to the loading platform. The entry to the stair shall be outside the fencing enclosure.
- e) If a loading platform is located inside the fencing enclosure, no workers shall be permitted to stand on the loading platform when the transport platform is moving.
- f) If the loading platform contains a minimum of 2 m (6.5 ft.) high solid fencing on the side adjacent to the transport platform, persons may remain on the loading platform provided that:
 - i) the fencing contains a landing gate a minimum 2 m (6.5 ft.) high to provide access for loading the transport platform that is mechanically locked and unlocked by the action of the car gate/ramp (where the ramp is not be retractable until the landing safety gate is in the closed position);
 - ii) the landing gate contains a mechanical lock operable from the Transport platform;
 - iii) if the landing gate is openwork, it rejects a 25 mm (1 in.) ball; and
 - iv) if a solid landing door is used, it is provided with a vision panel opening having a width not exceeding 150 mm (6 in.) and an area not exceeding 500 cm² (80 in²), and the vision panel is covered with wire mesh having openings that rejects a 25 mm (1 in.) ball, and made of steel wire at least 1.6 mm (No. 16 steel wire gauge).

1.2.5 Landing Safety Gates (Landing Doors)

Landing safety gates shall:

- a) Have a minimum height of 2 m (6.5 ft). The hoistway enclosure does not need to be enclosed above the landing gates.
- b) Not exceed the width of the car platform opening
- c) Be equipped with side guards extending 600 mm (24 in.) horizontally on both sides to a minimum height of 2m (6.5 ft.)
- d) Landing doors shall be so supported and braced that when they are subjected to a force of 450 N (100 lbf.) applied horizontally at any 50 x 50 mm (2 in. x 2 in.) area of the enclosure, the deflection will not exceed 2% of width of the enclosure.
- e) Landing doors, if of openwork, shall reject a 25 mm (1 in.) ball; and be made of steel wire of at least 1.6 mm diameter (No. 16 steel wire gauge).
- f) Solid doors, where used, shall be provided with a vision panel opening having a width not exceeding 150 mm (6 in.) and an area not exceeding 500 cm² (80 in²). The vision panel shall be covered with wire mesh having openings that reject a ball not greater than 25 mm (1 in.) diameter and made of steel wire of at least 1.6 mm diameter (No. 16 steel wire gauge).
- g) Be mechanically locked and unlocked by the action of the car gate/ramp. The ramp shall not be retractable until the landing safety gate is in the closed position.
- h) The mechanical landing door lock shall be accessible from the hoistway side only.
- i) Fold down ramps when in the lowered position shall address fall hazards with no horizontal gaps greater than 100 mm (4 in.).
- j) The fold down ramp must overlap building slab by not less than 100 mm (4 in.) or the manufacturer's recommended overlap, whichever is greater.
- k) The door shall open inward to building.
- l) No landing door electrical contact is required.
- m) Landing doors types shall be approved by TSSA before being registered.
- n) Standard construction hoist landing doors with interlocks with electrical contacts and meeting the requirements of CSA Z185-2001 "Safety Code for Personnel Hoists" shall be permitted.

1.2.6 Overhead Protection Requirements

- a) Overhead protection shall be provided above the transport platform.
- b) It shall be non-perforated and capable of supporting a load of at least 2.4 kilonewtons per square metre without exceeding the allowable unit stress for the material used.
- c) It shall have an unobstructed height of not less than 2 m (6.5 ft) above the platform.
- d) All operators and attendants shall remain under platform protective overhead structure during transport.
- e) If the overhead protection on the transport platform has an emergency exit, it shall be provided with an electrical protective device that will prevent operation of the transport platform if the exit is opened more than 50 mm (2 in.). It shall be positively opened and manually reset, after the cover is closed.

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

This order is effective December 5, 2014 and expires December 5, 2017, unless revoked or superseded earlier.

DATED this 5th day of December, 2014

John Marshall
Director, O. Reg. 209/01 (Elevating Devices)

Background

A. General

Transport platforms are currently not associated with a specific standard adopted within TSSA's Elevating Devices Code Adoption Document (ED-CAD). As permitted by section 36.(3)(a) of the *Technical Standards and Safety Act, 2000*, transport platforms that meet the definition of an elevating devices in Ontario Regulation 209/01 shall be subject to the requirements listed herein to ensure consistency of use and application.

B. Definitions

"elevating device" means a non-portable device for hoisting, lowering or otherwise moving persons or freight and includes any machine room, hoistway and hoistway enclosure, supporting structure, terminals and runway associated with the device.

"elevator" means an elevating device that is equipped with a car that moves vertically in guides and that serves two or more floors of a building or structure;

"transport platform" means a temporarily installed elevating device equipped with a car or platform that moves vertically in guides, 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.

"worker-positioning platform" means an elevating device that put workers and their equipment in position to work on the interior or exterior of buildings or other structures.

Note: this device is explicitly exempt from requirements of O.Reg 209/01.

C. Application of Use

"Elevating devices", as defined above, come under TSSA jurisdiction if they are non-portable and move persons or freight.

Non-Portable applies if an elevating device is permanently anchored or tied into a building or structure along its rise, however Ontario regulation 209/01 s.2.(3)(u) exempts worker positioning platforms. The exemption for worker positioning platforms applies whether these devices are tied into a building or not.

As per the definitions, worker positioning platforms put workers in a position to work on the interior or exterior of a building while remaining on the platform. If materials or persons are moved from the platform into the building, the application of use is no longer "worker/material positioning".

Once materials, persons, freight or tools are moved from the platform into the building the "application of use" changes from a worker positioning platform to an elevating devices that is regulated by TSSA.

Any Worker Positioning Platform that TSSA finds or that is operated as such shall be removed from service as it is an unlicensed elevating device.

D. Alternative to a Construction Hoist

Transport Platforms have become a recognized alternative to lower rise construction hoists. These devices however are not currently addressed by the requirements of the CSA Z185-2001 "Safety Code for Personnel Hoists".

At this time, there is no Canadian code for Transport Platforms, however the American National Standards Institute (ANSI) currently publish ANSI A92.10 Standard for Transport Platforms.

Distribution: Posted to TSSA website and distribution through EDAC, FAC and the Construction Hoist Industry working group.



Elevating and Amusement Devices Safety Division	Ref. No.: 269 / 17
DIRECTOR'S ORDER	Date: July 14, 2017

IN THE MATTER OF:

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

- and -

Ontario Regulation 209/01 (Elevating Devices)

Re: Requirement for Passenger Elevators with Single Speed Controls

Applicable to: All Owners of Electric Passenger Elevators with Single Speed Controls
All Elevator Contractors

Under the authority of s. 31 of the Technical Standards and Safety Act, 2000, the Director under O. Reg. 209/01 (Elevating Devices) hereby orders that:

1. Director's Order 267/14 "Retroactive Levelling Requirement for Passenger Elevators with Single Speed Controls" dated May 15, 2014 is hereby revoked and replaced with the following;

2. ORDER to Owners

- 2.1. All Electric Passenger Elevators with Single Speed Control systems that;
 - (a) have a single speed AC drive motor,
 - (b) use an open loop motion control system, and
 - (c) stop using the brake, whether the brake is modulated or continuously applied,

shall have the elevator driving machine brake subjected to the maintenance requirements of **A17.1/B44** section **8.6.4.6 Brakes** and **8.6.4.16 Stopping Accuracy**, performed at a frequency **not exceeding every 2 months**.

As per 8.6.4.6.1, the driving-machine brake shall be maintained to ensure proper operations, including, but not limited to the following:

- (a) residual pads (antimagnetic pads)
- (b) lining and running clearances
- (c) pins and levers
- (d) springs
- (e) sleeves and guide bushings
- (f) discs and drums
- (g) brake coil and plunger

- 2.2. Where the requirements of 2.1 and 2.3 through 2.8 impact the existing Maintenance Control Program, the maintenance control program must be revised as required by A17.1/B44 requirement 8.6.1.2.1(b) as adopted in CAD Amendment 261/13-r1.
- 2.3. When performing the maintenance requirements of 8.6.4.6.1, those components that are not fully visible for maintenance (during the 2 month frequency specified in 2.1), shall at a frequency

not exceeding 12 months, have these components **disassembled**, examined and maintained to ensure proper operation & function.

- 2.4. If per 8.6.4.6.2, any part of the driving-machine brake is changed or adjusted, that can affect the holding capacity or decelerating capacity of the brake, the brake performance shall be checked by a test conforming to:
 - (a) 8.6.4.20.4(a), testing at 125% rated load, or
 - (b) 8.6.4.20.4(b), performing an alternative test with no load, provided a performance benchmark has been established to correlate the no load results with previously acquired loaded and no load results, and
 - (c) any repairs or replacements shall be documented as required by 8.6.1.4.1
- 2.5. Where alternative testing is used (as described in 2.4(b)), the procedure shall be part of the Maintenance Control Program as required by 8.6.11.10.3.
- 2.6. All details necessary to perform the maintenance functions of 8.6.4.6 shall be documented in the maintenance control program.
- 2.7. Per 8.6.4.16, the elevator shall be maintained to provide a stopping accuracy at the landings that is appropriate for the type of control.
- 2.8. With the exception of the two-month cap on inspection frequency specified in 2.1, the requirements specified in 2.1 to 2.7 are already a mandatory part of the Maintenance Control Program as adopted in CAD Amendment 261/13-r1.
- 2.9. **The order is effective August 1, 2017.**

3. CHANGE IN MOTION CONTROL PROVISION FOR SINGLE SPEED ELEVATORS (Optional)

The previous provision of Directors Safety Order 267/14, allowing a limited scope alteration for upgrading single speed motion control is still an available option. Owners of the above noted devices may still choose to implement requirement 8.7.2.27.5★1 as an alternative to the requirements of B44 Code section 8.7.2.27.5 (Change in the Type of Motion Control):

8.7.2.27.5★1 Change in type of motion control for single speed passenger elevators

Where there is a change in the type of motion control of a single speed elevator, the installation shall conform to the following:

- (a) The terminal stopping devices shall conform to 2.25
- (b) New and altered operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
- (c) Car overspeed protection and unintended movement protection shall conform to 2.19 as required by 8.7.2.20 or permitted by 8.7.2.20★1.

Those who choose to do the limited scope alteration of 8.7.2.27.5★1 above, may do so in place of the requirements specified in 2 above.

4. NON-MANDATORY RECOMMENDED MITIGATION STRATEGIES

- 4.1. Single speed elevators use old technology solutions to arrive and stop level at a floor. Aside from updating the levelling control system to a more current and accurate form of levelling, single speed AC drive motion controls will always be susceptible to levelling inaccuracies. Despite having a good maintenance program, there are other mitigation strategies, which range in cost and effectiveness that owners may consider, however these are not mandated under this order. Some of these options are outlined below:

- (a) An elevator modernization with the primary focus on update to motion control. See 8.7.2.27.5
- (b) The elevator modernization scope is that which was originally proposed by Director's Safety Order 267/14 and is retained as 8.7.2.27.5★1, as reflected in section 3 above.
- (c) Adding a means to determine if the car is more 13mm (1/2 in.) off floor level and proactively warning riders via an audible annunciation that the car is not level and riders should mind their step when entering or existing the elevator.
- (d) Providing signage to tenants advising that this vintage of elevator control system has limitation for precise levelling and that riders should always mind their step when entering or existing the elevator.

Background

TSSA formed a Risk Reduction Group (RRG) in 2010 to review the risks associated with aging elevators. The RRG, called the "Elevator Overspeed and Unintended Movement RRG", was tasked with examining the risks associated with devices having no emergency brakes and devices with leveling accuracy problems, and to make recommendations on how these risks could be reduced. The group consisted of members representing TSSA, the elevator industry and elevating device owners.

In early 2014, the RRG data analysis indicated that the primary risk with aging elevators was with the leveling accuracy of single speed devices and incident data determined that the threshold of unacceptable public risk would grow over time. Consequently, Director's Order 267/14 proposed to manage these aging devices over a five-year period from 2018 to 2022.

Since the release of 267/14 in 2014, TSSA has continued to monitor and review incident, maintenance and inspection order data. The outcome is that the data trends do not support the mandatory upgrade of single speed elevator motion controls to the magnitude required in 267/14.

This order removes previous modernization obligations and aligns better with the current level of observed risk posed by single speed motion controls.

* * *

DATED this 14th day of July, 2017

Roger Neate
Director, O. Reg. 209/01



Elevating and Amusement Devices Safety Program	Ref. No.: 270 / 17
ADVISORY	Date: December 4, 2017

Subject: Construction Hoists in the Tunneling Sector
Distribution: TSSA website

TSSA is the delegated authority responsible for the enforcement of the Elevating Devices regulation (O. Reg 209/01) under the Technical Standards and Safety Act, 2000. The regulation applies to all new and existing elevating devices, including material hoists, and TSSA has been responsible for licensing and regulating these devices since the introduction of the regulation.

The Ministry of Labour (MOL) is responsible for the enforcement of requirements of the Construction Projects regulation (O. Reg. 213/91) under the Occupational Health and Safety Act, R.S.O. 1990. Therefore, while it is within MOL's purview to inspect construction project sites, the elevating devices used on construction projects must also be licensed and inspected by TSSA.

MOL and TSSA work collaboratively within the construction industry to fulfill our respective regulatory obligations and communicate concerns that may fall under the other organization's mandate.

With respect to construction hoists being used at inground excavations that provide access to tunnelling activities, TSSA is legally obligated to regulate these devices as they fall under O. Reg 209/01. It is our understanding that the majority of elevating devices used in the tunneling sector have been supplied and installed by the same elevating device contractors who provide hoists to the construction industry for use on building construction sites. Since these contractors are already licensed with TSSA and aware of the regulatory requirements, compliance, operation and licensing has not been identified as an issue.



Elevating and Amusement Devices Safety Division	Ref. No.: 271 / 18
DIRECTOR'S ORDER	Date: September 17, 2018

IN THE MATTER OF:

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

- and -

Ontario Regulation 209/01 (Elevating Devices)

Re: Requirements for B355 Vertical Platform Lifts that utilize Magnetic Reed Switches in Leveling and/or Anti-creep Circuits

Under the authority of s. 27 of the *Technical Standards and Safety Act, 2000*, the Director for the purposes of O. Reg. 209/01 (Elevating Devices) hereby orders that:

1. Application and Compliance Timeline

1.1 This order applies to:

- (a) Vertical Platform Lifts as defined in Part 3 (Definitions) of B355 Lifts for person with physical disabilities,
- (b) that were registered and installed using a CSA Standard prior to CSA-B355-00 Lifts for persons with physical disabilities Supplement No.1, September 2002 (Adopted June 1, 2004) (Installation number prior to 81653); and
- (c) that utilize magnetic reed switches in the levelling and/or anti-creep circuits.

1.2 All Owners and licensees shall ensure that their Vertical Platform Lifts for Persons with physical disabilities are compliant with this order not later than **September 15, 2020.**

1.3 Devices not in conformance after this date shall be removed from service until the necessary upgrades are performed.

2. Assessment of Affected Devices and Timeline

2.1 All Owners of lifts for person with physical disabilities to which this order applies as per section 1.1 above shall engage the services of a registered elevating devices contractor whose scope of work includes lifts for person with physical disabilities to determine if the vertical platform lift has the potential for unexpected and/or uncontrolled movement of the platform with the doors open as a result of a single failure in an anti-creep or levelling circuit on devices that utilize magnetic reed switches in levelling and/or anti-creep circuits.

2.2 The assessment of affected devices shall be conducted not later than **July 15, 2019.**

2.3 For devices having the potential for unexpected and/or uncontrolled movement as described in paragraph 2.1 above, the elevating devices contractor shall

- (a) place a note in the log book indicating "This device requires a modification to comply with Director's Order 271-18.";

(b) report to TSSA, the device which has been found to require modification, via a Notification to the Director within 7 days of the evaluation, identifying the elevating device installation number, address, control make and device model; and

(c) notify the owner that the device is required to be retrofitted, as required in part 3 of this order.

2.4 Devices that are assessed as compliant with this order shall be labeled as required in part 4.

2.5 Devices which have not been assessed after **July 15, 2019** may be subject to a TSSA shutdown.

3. Retrofitting

3.1 Where it is determined that a device has the potential to move as described in paragraph 2.1, the owner shall engage a registered elevating devices contractor whose scope of work includes lifts for person with physical disabilities, to alter the unit to prevent the situation described in 2.1 by modifying the anticreep/levelling function in one of the following ways:

(a) redundant devices (relays, contactors, and/or switches) shall be incorporated to prevent uncontrolled movement and

(1) all reed switches, relays, contactors and devices in the leveling and/or anti-creep circuit shall be inspected and tested at 6 month intervals to ensure proper operation;

(2) a written test procedure shall be developed for testing purposes and posted on the controller or at the location of the maintenance log; and

(3) a record of successful testing shall be completed every 6 months and retained with the maintenance log book, or

(b) the anticreep and/or levelling circuit shall be upgraded to meet requirements of CSA-B355-09.

Note:

Compliance with 3.1(a) offers a redundant design, but verification and integrity of redundancy is via onsite testing by the maintenance provider. Testing and sign off is required every 6 months.

Compliance to 3.1(b) provides for a redundant and checked system. Refer to CSA-B355-09 clause 6.6.6 (Levelling device, anticreep) or clause 8.2.4 (Automatic levelling) and clause 8.4.2 (Protection in the case of failure) .

4. Labelling of Compliant Devices

4.1 Once a vertical platform lift identified in paragraph 2.1 has been assessed and found to be compliant with this order or altered to be compliant with this order, a label shall be applied to the front of the controller, by the elevating devices contractor, stating:

(a) **“This Device Complies with Directors Order 271-18 and requires assessment of the redundant anticreep/leveling devices every 6 months. Refer to the Onsite Testing Procedure”**, if the vertical platform lift control meets 3.1(a), or

(b) **“This Device has anti-creep and/or leveling circuits meeting CSA- B355-09”**, if the vertical platform lift control meets 3.1(b).

4.2 Labelling shall:

(a) include the name of the registered contractor that performed the assessment;

(b) be made of a durable material; and

(c) be securely attached to the controller.

5 Alteration Scope and Design Submission

- 5.1 An alteration as referenced in 3.1(a) or 3.1(b) of this order that is limited to the addition/replacement of switches, contactors, relays, or other individual devices shall be considered a Minor Alteration (see O. Reg. 209/01, s. 19).
- 5.2 An alteration as referenced in 3.1(b) that involves a change of the controller shall be considered a Major Alteration.
- 5.3 A Contractor who undertakes an alteration to facilitate compliance with this order shall submit to TSSA, on the owner's behalf, a Design Submission complete with a revised electrical schematic and testing procedures.
- 5.4 All individual documents comprising a design submission shall bear the signature and seal, or the electronic equivalent, of the professional engineer who prepared or approved the design submission. (see O.Reg. 209/01 for complete requirements regarding Alterations).
- 5.5 A copy of the revised electrical schematic shall be available at the controller location.
- 5.6 The contractor who performed the alteration shall also request an inspection within the timelines defined in the regulation (O.Reg. 209/01).

Note: Copies of registered design submissions and electrical schematics should reside with the device and/or device owner.

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

This order is effective immediately.

DATED this 17th day of September 2018

Roger Neate
Director, O.Reg 209/01 (Elevating Devices)

BACKGROUND

- Vertical platform lifts with installation number 81653 and higher were submitted under CSA-B355-00 Lifts for persons with physical disabilities Supplement No.1, September 2002 (Adopted June 1, 2004) or later editions.
- There is an estimated 3700 Vertical Platform Lifts requiring assessment.
- There have been incidents where the failure of an anti-creep or levelling switch has caused a lift to move unexpectedly and uncontrolled from a landing
- One type of switch that has been identified as a problem is a glass reed switch SPDT (Single Pole, Double Throw) design. When the glass breaks, the reeds short together and because there is no redundant device, the lift moves unexpectedly and uncontrolled from the landing with or without the doors closed.
- Protection in the case of failure of magnetically operated switches, contactors, or relays was first introduced on July 1, 1980 and required that the failure to release in the intended manner was not permitted to prevent a lift from stopping in response to any electrical protective switch (allow the lift to move away from a landing with the door open).
- Specific requirements for the Anti-creep Device were introduced in March 1, 1987. The requirement for the anti-creep device in B355 has changed over time, first requiring positive mechanical separation and then redundant switches required regardless of the type of switch in the 1994 edition.
- Starting in the 1994 edition of B355, redundant switches were required to be checked for failures and the lift prevented from restarting when the first failure occurred in order to prevent cascading failures from occurring and allowing the lift to move away from the landing with the door open.
- In Supplement 1 of the 2002 edition of B355, the requirement for the Anti-Creep Device to have positive mechanical separation was removed, mainly because redundant switches were already required, and secondly because of the difficulty in designing a switch to function this way.
- This order has been created to ensure, that as a minimum, all glass reed type anti-creep or levelling switches have a redundant device that will prevent the movement of the device if one of the switches were to fail.

Effective in June 1, 2004 CSA-B355-00 Supplement No. 1, September 2002 was adopted including Maintenance of B355 devices per Appendix B. B355 Appendix B required:

B4.3 Other Tests

B4.3.1 Failure Protection

All circuits and/or parts relating to protection in the event of failure shall be tested to determine that they function in accordance with the requirements of Clause 8.4.2.

8.4.2 Protection in the Case of Failure

The design and installation of the control and operating circuits shall conform to the following:

(a) The occurrence of a single ground fault; the failure of any single magnetically operated switch, contactor, relay, or any static control device; or the failure of any levelling switch or any anti-creep switch shall not

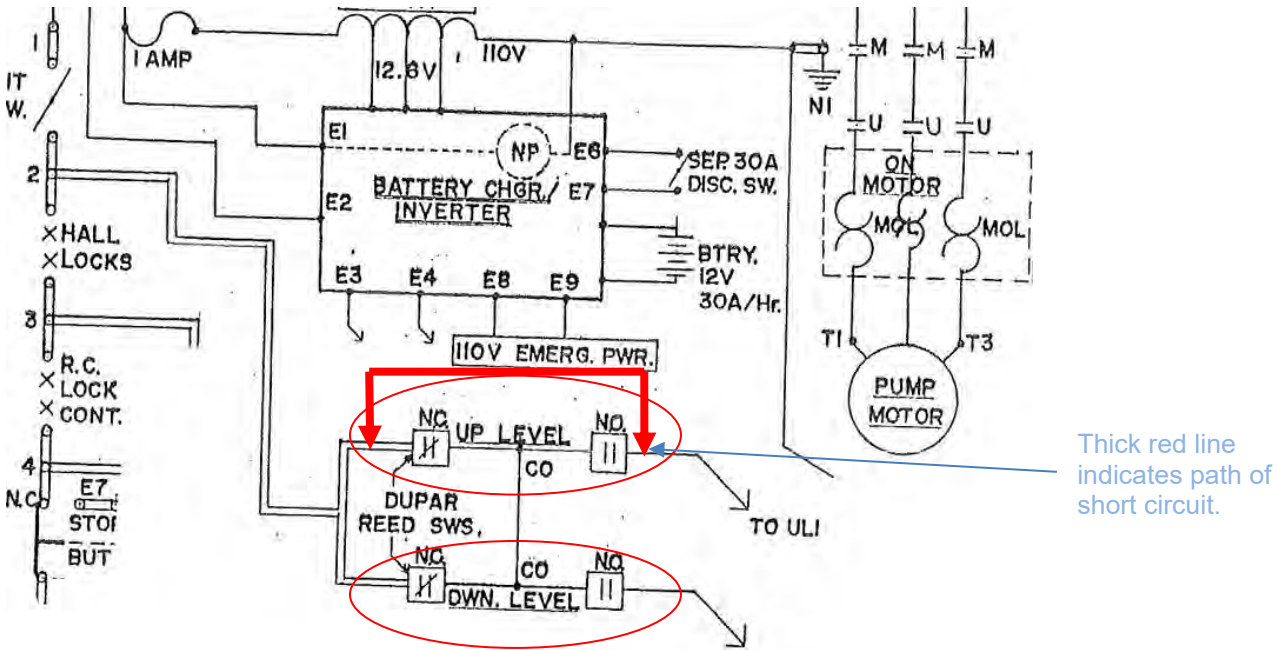
- (i) render any electrical protective device ineffective (see Clause 8.5); and
- (ii) permit the carriage to move beyond the automatic or anti-creep levelling zone, whichever applies.

(b) When a single ground failure as specified in Item (a) occurs, the carriage shall not be permitted to restart.

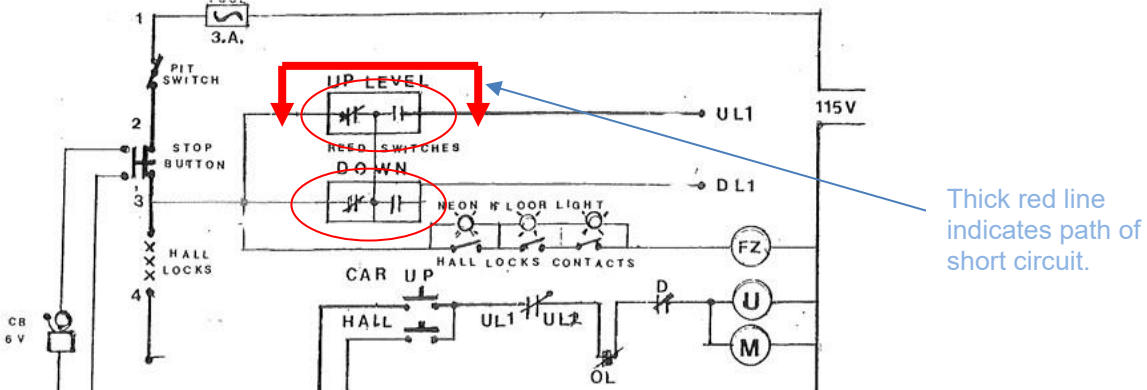
Compliance Note:

Contractors updating circuits per this order may discover other circuits not in compliance with single failure requirements per the code at the time of the original design and should take appropriate measures to address. Such deficiencies if found during a design review may prevent registration until relevant single failure issues are addressed.

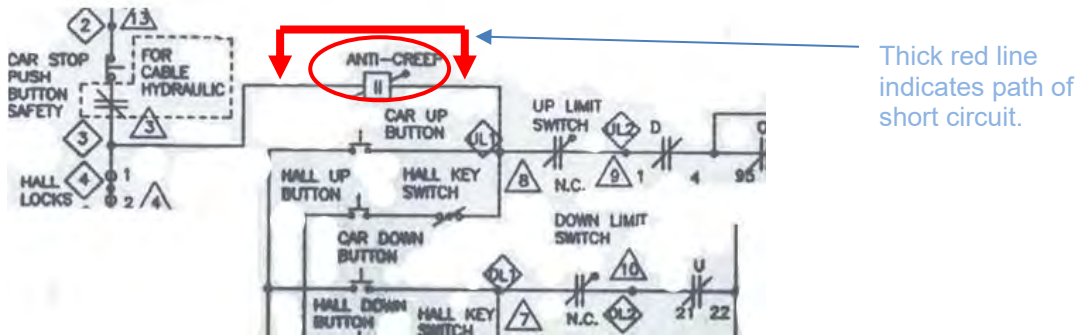
Drawing 1: SPDT Reed switch design: When glass reed breaks, short occurs across both sets of contacts and shorts out door lock circuit, moving the lift with the door open. This can occur in both the up or down levelling circuit.



Drawing 2: SPDT Reed switch design: When glass reed breaks, short occurs across both sets of contacts and shorts out door lock circuit, moving the lift with the door open. This can occur in both the up or down levelling circuit.



Drawing 3: Single reed anti-creep switch a. Failure allows lift to move with doors open.





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March 30, 2020

Notice to: Accredited Elevating Device Mechanic Continuing Education Providers, Elevating Device and Ski Lift Mechanics (under Ontario Regulation 222/01)

Be advised the Director of Elevating Devices in Ontario will permit Elevating and Ski Lift Mechanics whose certificates expire beginning March 16, 2020 to renew their certificates under Ontario Regulation 222/01 (Certification and Training of Elevating Device Mechanics) without having completed the continuous education requirements mandated by the *Elevating Device Mechanics Policies and Procedures* and *Director's Order ED-272-18*, so long as the certificate holders renew their certificates with TSSA prior to their date of expiry.

In addition, certificate holders who are permitted to renew their certificates under this exception will be required to complete their outstanding continuing education requirements, and submit proof of completion to the Director, within 120 days from the date that social distancing requirements and the State of Emergency is lifted by the Government of Ontario.

Therefore, please be advised that Elevating Device Mechanics and/or Ski Lift Mechanics who wish to continue to work must still renew their certificates before their date of expiry. This is mandated by Ontario Regulation 222/01:

Subsection 5(1): An application to renew a certificate shall be made to the director... and be accompanied by the fee set out by the designated administrative authority.

Subsection 5(4): If a mechanic fails to renew his or her certificate before it expires, the mechanics shall not work as a mechanic after the date of expiry of the certificate...

The suspension of the requirement to have to complete continuing education requirements shall remain in effect until further notice by the Director.

Background:

In response to the Novel Coronavirus (COVID-19) pandemic, the Technical Standards and Safety Authority ("TSSA"), is taking precautionary measures to protect our employees, partners and customers. Recertification training and continuous education may require certificate holders to attend in-class training sessions, which may not comply with the social distancing guidelines; therefore, the requirements have been suspended for a period of time.

Yours truly,

Dean McLellan
Director, Ontario Regulation 222/01 (Certification and Training of Elevating Device Mechanics) made under the *Technical Standards and Safety Act, 2000*



Elevating Devices	Ref. No.: ED-272-18
DIRECTOR'S ORDER	Date: May 16, 2018

IN THE MATTER OF:

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

- and -

*Ontario Regulation 222/01 made under the
Technical Standards and Safety Act 2000*

(Ontario Regulation 222/01, Certification of Elevating Device Mechanics)

Subject: Ski Lift Mechanic Continuing Education Requirements

Sent to: All Mechanic, Mechanics-In-Training, Registered Contractor's and Accredited Training Providers

Under the authority of section 32(1) of the Technical Standards and Safety Act (the Act), the Director for the purposes of Ontario Regulation 222/01 (Certification and Training of Elevating Device Mechanics) hereby establishes the qualifications, training and experience required for certificate holders specified as *Ski Lift Mechanic Continuing Education Requirements*.

1. All classes of Ski Lift Mechanics (SLMs) must successfully complete the continuing education requirement described in this Director's Order or in any subsequent TSSA policy issued by the Director pursuant to his authority under section 32(1) of the Technical Standards and Safety Act, 2000.
2. The continuing education requirement referred to in clause 1 of this order includes, subject to any published changes to policy as described in clause 1, a minimum of 4 hours of instruction on the following topics:
 - a. 2 hours on safe work practices and related topics that may include product-specific safety applications or procedures; the Technical Standards and Safety Act (the "Act") and its applicable regulations, Z98 Passenger ropeways and passenger conveyors safety code, director's orders/bulletins; and
 - b. 2 hours on technical training related to the passenger ropeways and conveyors industry, which may include cross-discipline training involving curriculum that may have an impact on the passenger ropeways and conveyors industry.
3. The continuing education training referred to in clause 1 of this order must be taught by an accredited training provider approved by the Director. Only training providers listed on the TSSA website are considered accredited trainers for the purposes of this continuing education requirement.
4. An application for renewal of any ski-lift mechanic certificate must include documented proof that the applicant has successfully completed the continuing education requirement referred to in clause 1 of this Order and must be submitted in the format set out by TSSA. Only certificates from accredited training providers will be accepted as proof of completion of the continuing education requirement. Training received from non-accredited training providers will not be accepted.

5. Documentary proof of completion of the continuing education requirement referred to in clause 1 and clause 4 of this order must be received by TSSA either prior to submitting a certificate renewal application or as an attachment to a certificate renewal application.

Background:

The Ski Lift Mechanic Advisory Council and Ski Lift Mechanic Training and Certification Advisory Board ("TCAB") have recommended to the Director, for the purposes of Ontario Regulation 222/01 (Certification and Training of Elevating Device Mechanics), that Ski Lift Mechanics complete continuing education training as a condition of their certificate renewal. These recommendations were made as a proactive measure to ensure that all Ski Lift Mechanics are continuously trained on aspects of the industry.

The recommendations were discussed by the TCAB, which formed a subcommittee to develop continuing education training requirements for ski lift mechanics. The subcommittee presented their proposal to TCAB and Ski Lift Advisory Council, which endorsed the requirement for 4 hours of continuing education.

This requirement is effective January 1, 2019.

DATED this 16th day of May, 2018

<original signed>

Roger Neate

Director, Ontario Regulation 222/01 (Certification and Training of Elevating Device Mechanics made under The Technical Standards and Safety Act, 2000)

Distribution: Posted to TSSA website and sent to all SLM Certificate Holders, Registered Contractors and Accredited Training Providers



Elevating and Amusement Devices Safety Program	Ref. No.: 273 / 18
ADVISORY	Date: September 12, 2018

Subject: Brake Marking Plates on Elevator Driving Machine
Distribution: TSSA website

New machine & brake technologies have created inconsistency around the brake setting and method of measurement requirements related to B44 requirement **2.24.8.5 Marking Plates for Brakes**.

The code has a requirement for a marking plate and it does not exclude requirement for marking if the brake is not field adjustable.

2.24.8.5 Marking Plates for Brakes

The brake setting and method of measurement shall be permanently and legibly marked on the driving machine.

This advisory is to inform that all brakes whether field adjustable or not, require brake marking plates.

Supporting information:

In support of this clarification, the following text has been forwarded to A17.1/B44 for consideration to amend the current marking plate requirements.

2.24.8.5 Marking Plates for Brakes.

For field adjustable brakes, the brake setting and method of measurement shall be permanently and legibly marked on the driving machine. For non-field adjustable brakes, a permanent marking plate shall be provided to indicate that the brake is non-field adjustable and that testing information is contained in the On-Site documentation (see 8.6.1.2.2(b)).



Elevating and Amusement Devices Safety Program	Ref. No.: 274 / 18
ADVISORY	Date: September 12, 2018

Subject: Deep Pit Access
Distribution: TSSA website

Access to deep pits poses a safety risk to elevator personnel and requires appropriate mitigation. Deep pit access mitigation typically involves utilization of a fall arrest system, and is required for pits deeper than 3m (9'-10").

Modification / Addition / Alteration

Where changes to accommodate a fall arrest system are made on existing installations, this change is considered an alteration. The existing alteration guideline for elevating devices provides information on the type of submission required.

0 Conforms to B44 Mark with 'X'	1	2a	2b	2c	3	4	5	6	
	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13r1 Part, Section or Requirement			Type of Alteration Work				
		Alteration		Replacement with		Modification Change		Addition	
	Job Reference:		Same		Different Make/Model		Type of Submission Required		
	8.7.2	Alterations to Electric Elevators							
8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-				
8.7.2.2	Pit Access		2.2.4 Pit Access		Minor B	Minor A			

- A) This advisory is to inform that a change to pit access that involves the installation of a fall arrest system shall be considered not less than;**
- a Minor B Alteration, where the design and installation of the fall arrest system utilize components of a pre-engineered solution, or
 - a Minor A Alteration, where the design and installation of the fall arrest system is site specific in its development and installation,
 - is an alteration that requires a design submission,.

New Installations

If a new elevator installation involves a deep pit (>3 m), the designer must make every effort to eliminate the hazard via appropriate design (e.g. access door) or if not practically feasible ensure a health and safety compliant fall arrest system is provided and documented in the design submission.

- B) This advisory is to inform that deep pit access on new installations needs to be detailed in the design submission.**

Note: It is not the intent of this advisory to cause retroactive requirements for engineering design submissions where deep pit access provisions were made prior to the issue of this advisory.



Elevating and Amusement Devices Safety Program	Ref. No.: 276 / 18r1
ADVISORY	Date: February 1, 2021

Subject: Category 1 Testing of Emergency Power (8.6.4.19.7)
Distribution: TSSA website

The **Category 1 testing requirement 8.6.4.19.7 of B44 Safety Code for Elevators** requires that the elevator be tested while operating under standby or emergency power (EP) conditions and not via simulation.

This advisory is to inform contractors and owners about options related to confirmation of **Category 1 testing of elevator EP for situations where EP is mandatory or voluntarily provided.**

Rationale for Category 1 Test 8.6.4.19.7

The intent of Category 1 testing of the elevator under Emergency Power operation is to ensure;

- (1) The keys necessary to operate the elevator under EP are present.
 - (2) EP is reaching the elevator motor and control system (from the emergency power generator through the transfer switch) and that the elevators can be recalled to the recall level.
 - (3) While on EP, the elevator is capable of operation to floors within the building at normal speed.
 - (4) The required functions and features as specified in B44 Section 2.27.2 are operational, and
 - (5) The elevator system satisfies the testing requirements in A17.2, item 1.17.2.1 or the testing script provided in the Maintenance Control Program.
- Items (1), (2) and (3) provide confirmation that EP from the generator system has reached the elevator(s), and that the elevator(s) have successfully returned to the recall level automatically or by selection.
 - Items (4) and (5) provide confirmation of the elevator's emergency power controller features

Options for Testing and confirmation of Category 1 test 8.6.4.19.7

Emergency power for elevators may be the result of;

- **mandatory** requirements from the Building Code / Fire Code, or
- **optionally / voluntarily** provided.

Contractors and Owners should refer to the table below for testing options for compliance with 8.6.4.19.7.

Emergency Power – Where Required

The requirement to provide Standby or Emergency Power originates in the **Building Code (OBC)**.

The Building Code requires EP for elevators;

- in high buildings (>36m) and
- for every elevator for firefighters. [O.Reg 332/12 s. 3.2.7.9].

The provision of a firefighter's elevator is addressed in OBC subsection 3.2.6.5 and is a subset of requirement **3.2.6 Additional Requirements for High Buildings**.

These elevators are also required to be identified with a **50mm red firefighters' hat** per B44 requirement 2.27.7.4.



Elevators meeting the criteria in OBC and required to be identified with the 50mm hat per B44 are those for which **the provision of emergency power is mandatory.**



In the table below, these elevators can be tested via **Option A** or **Option B** under the mandatory provisions of **COLUMN A**.


Where emergency power is provided **Optionally**, testing may conform to **Option A** or **Option B** as outlined in **COLUMN B**.

B44 8.6.4.19.7 Category 1 Testing Options

Testing OPTION	Responsibly Party & Task	Cat 1 Testing to 8.6.4.19.7		
		COLUMN A	COLUMN B	
		Emergency Power is Mandatory (as determined by OBC)	Emergency Power is Optional / Voluntary	
Option A	Responsible party places elevator on emergency power	required	optional (always use a responsible party & verify the elevator is not occupied)	
	Elevating Devices Contractor verifies Items (1), (2) and (3)	required	optional	
	Elevating Devices Contractor verifies Items (4) and (5)	required	required (EP test simulation permitted)	
	Elevating Devices Contractor acknowledges completion of Cat 1 - MCP requirement 8.6.4.19.7	required	required	
Option B	B1	Responsible party places elevator on emergency power	required	optional (always use a responsible party & verify the elevator is not occupied)
		Owner verifies Items (1), (2) and (3) and documents compliance via completion of the "Elevator Emergency Power Checklist for Owners"	required	optional
		Owner provides completed checklist to the Elevating Device Contractor	required	optional
	B2	Elevating Devices Contractor includes checklist completed by the Owner into MCP LOG BOOK	required	optional
		Elevating Devices Contractor verifies Items (4) and (5)	required (EP test simulation permitted)	required (EP test simulation permitted)
		Elevating Devices Contractor acknowledges completion of Cat 1 - MCP requirement 8.6.4.19.7	required	required

Denotes an elevating device contractor task

Denotes an elevating device owner task

	Technical Standards and Safety Authority	Per Advisory 276 / 18-r1
	Automatic Elevator Annual Test of the Emergency Power System Elevator Emergency Power Checklist for Owners	February 1, 2021

Elevator Installation Number(s): _____ Building Name: _____

Address: _____

Number of elevators that can be simultaneously operated under Emergency Power: _____

Checklist completion By: Owner or; Owner's Representative

Name of Firm: _____

Printed Name: _____ Date: _____ Signature: _____

Test & Record (Pass = meets requirement, Fail = does not meet, NA = not applicable)		Pass	Fail	NA
Have a responsible party transfer the building over to Emergency Power. (Ensure elevators are not occupied prior to testing)				
1	Keys to operate the emergency power switch are present and operate the switch(es) as designed.			
2	During the Emergency Power System test, confirm all elevators returned to the designated level.			
3	During the Emergency Power System test, confirm that the selected elevators can travel to floors within the building and the elevators appeared to operate at normal speed.			

Notes

1. Completion of this checklist will assist in demonstrating compliance with B44 Safety Code for Elevators Category 1 test requirement 8.6.4.19.7
2. This checklist is intended to be used in conjunction with emergency power testing Option B outlined in Advisory ED-276-18r1. See TSSA Advisory ED-276-18r1 for additional details related to the use of this form.
3. **The owners shall provide a copy of this report demonstrating successful emergency power testing to the elevating devices maintenance contractor and include a copy in the elevator logbook as part of maintenance control program (MCP) on-site records.**

B44 8.6.4.19.7 Category 1 Testing Options
(extract from testing Option B of Advisory 276/18-r1)

Testing OPTION	Responsibly Party & Task	Cat 1 Testing to 8.6.4.19.7		
		COLUMN A	COLUMN B	
		Emergency Power is Mandatory (as determined by OBC)	Emergency Power is Optional / Voluntary	
Option B	B1	Responsible party places elevator on emergency power	required	optional always use a responsible party & verify the elevator is not occupied
		Owner verifies Items (1), (2) and (3) and documents compliance via completion of the "Elevator Emergency Power Checklist for Owners"	required	optional
		Owner provides completed checklist to the Elevating Device Contractor	required	optional

OBC = Ontario Building Code



Elevating and Amusement Devices Safety Division	Ref. No.: 277-19
Elevating Devices Code Adoption Document Amendment	Date: May 3, 2019

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 thereby superseded:

1. The attached Elevating Devices Code Adoption Document - Amendment 277-19, dated May 3, 2019, is hereby adopted, effective as follows:
 - a. Parts 3, 6, and 7 (which are unchanged from the previous CAD amendment*) are effective immediately.
 - b. Parts 1, 2, 4 and 8 are effective immediately.
 - c. Part 5 is effective July 31, 2019.

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

Roger Neate
Director, O. Reg. 209/01 (Elevating Devices)

Distribution: Posted to TSSA website.

**Note: Part 3 contains updated references to the Ontario Building Code.*

Errata: correct 209/01 references on this page.



ELEVATING DEVICES CODE ADOPTION DOCUMENT AMENDMENT 277-19

May 3, 2019

**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 O. Reg. 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 O. Reg. 209/01 (Elevating Devices).

The CAD, in turn, adopts various codes. Since its adoption as part of O. Reg. 209/01, the CAD has been amended several times to adopt different versions of codes and to make modifications to those codes.

CAD amendment 261-13r1 replaced all previous CAD amendments.
CAD amendment 277-19 now replaces CAD amendment 261-13r1.

For the user’s convenience, this CAD amendment indicates previous amendments using the colour coding and reference symbols in the following table:

Colour Coding and Reference Symbols Used in CAD Amendment 277-19

7.5	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
as part of	is a reference to text from a published code that is not part of this code but is shown for reference only
Red Text	is used to identify changes from the previous CAD Amendment or TSSA-specific additions to a published code
★	is used to denote a TSSA-specific alteration
Blue greyed	denotes a maintenance permission that will expire on March 31, 2014
Peach highlight	-identifies new code amending text that: - was originally contained in CAD Amendment-261-13r1 or - is contained in CAD Amendment 277
Peach highlight	-identifies text from the A17.1/B44-2013 code introduced in amendment 261-13-r1

Note that definitions contained in O. Reg. 209/01 apply to the CAD and adopted codes.

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Elevating Devices Code Adoption Document Amendment 277-19

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.

(d) “certified” means equipment or materials accepted for inclusion in a publication by a certifying organization.

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 to identify a certified product. [CAD Amendment 277-19]

“certifying organization” 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]

(e) “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]

(f) “CSA” means the Canadian Standards Association.

(g) “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 72-2013. [CAD Amendment 261-13] [CAD Amendment 277-19]

(h) “fire authority” as used in A17.1 has the same meaning as Chief Fire Official in Ontario Regulation 213/07; [CAD Amendment 277-19]

- (i) “freight elevator-P” means a freight elevator upon which passengers are permitted to ride;
- (j) “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]
- (k) “minor alteration – type A” means a minor alteration per O. Reg. 209/01 which requires the signature and seal of a professional engineer per O. Reg. 209/01, s. 15.(6)
- (l) “minor alteration – type B” means a minor alteration per O. Reg. 209/01, s. 19.(1) which may be signed as per O. Reg. 209/01, s. 15.(9)
- (m) “Regulation” means Ontario Regulation 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*.
- (n) “software system failure” means a behaviour of the software, including its support (host) hardware, that is not in accordance with the intended function.
- (o) “solid-state device” means an element that can control current flow without moving parts.
- (p) “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 Electrical equipment shall be certified / listed to the requirements of:
 - (a) CAN/CSA B44.1/ASME A17.5, Elevator and Escalator Electrical Equipment; or
 - (b) CAN/CSA C22.2 No. 14, Industrial Control Equipment (applicable to elevating devices other than elevators, escalators, moving walks, dumbwaiters, material lifts, manlifts, and lifts for persons with physical disabilities).
- 2.2.3 Where 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 is required by this CAD or by the adopted codes, the certification body shall be,
 - (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]

2.3 Rope Clips

- 2.3.1 Where clips are permitted to fasten metal rope in an elevating device,
 - (a) the minimum number of clips to be used on each rope ends shall be,
 - (1) two clips for rope under nine millimetres in diameter,
 - (2) three clips for rope nine millimetres in diameter and over but under sixteen millimetres in diameter,

- (3) four clips for rope sixteen millimetres in diameter and over but under nineteen millimetres in diameter;
- (b) the rope end shall be bent over a heart-shaped thimble that has a groove of a radius equal to that of the rope or shall be provided with protection that a director considers equivalent;
- (c) the clips shall be spaced at a distance apart equal to six times the rope diameter from the short end of the rope;
- (d) U-type clips shall be placed so that the U bolts bear on the short or dead end of the rope and the bases bear on the load part of the rope; and
- (e) the nuts on the clips shall not be fully tightened until after the rope has been under load and all nuts shall be fully tightened while the rope is still loaded.

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 per cent 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 per cent;
- (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 Where a design submission is in paper format it shall;

- (a) be submitted as one copy unless the submission includes oversized drawings;
- (b) drawings that are not legible when printed on 11" x 17" paper are considered oversized and shall be submitted as four paper copies as well as in an electronic media form that contains the oversized drawings in unprotected PDF format;
- (c) pages larger than 11"x17" provided in hardcopy shall be folded and submitted without any binding.

2.8.2 Electronically submitted design submissions shall be as follows;

- (a) filled specification sheets shall be provided in excel format;
- (b) other supporting documentation shall be provided in unprotected PDF, excel or word format;
- (c) where electronic pages exceed 11"x17" paper size, the information shall be legible to the smallest detail when printed to 11"x17", otherwise they shall also be provided as four hardcopies;
- (d) pages larger than 11"x17" provided in hardcopy shall be folded and submitted without any binding;
- (e) documents received electronically, will be returned electronically at the conclusion of the design review.

2.9 Hydraulic Elevating Device Oil Loss Monitoring Program

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. [CAD Amendment-261-13] [CAD Amendment 277-19]

Note: This procedure is applicable to all devices under regulated under O. Reg. 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 [No Changes from 261-13r1]

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

3.1 Applied Codes and Standards [CAD Amendment 250-11] [CAD Amendment 261-13]

3.1.1 Every elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of:

(a) ASME A17.1-2010/CSA B44-10 Safety Code for Elevators and Escalators,

Note: Parts 1, 5.10, 8.1, 8.6, 8.7, 8.8, 8.9, 8.10 and 8.11 apply to both new and existing installations. For the purpose of these parts, existing installations means devices installed under the 2010 code and prior editions.

(b) ASME A17.6-2010 Standard for Elevator Suspension, Compensation, and Governor Systems.

(c) The requirements of **3.1(a)** 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 definition and throughout the Code shall be deemed to refer to the Ontario Regulation **332/12** ~~350/06~~ (**Building Code**) made under the Building Code Act 1992, as amended, commonly known as Ontario Building Code or OBC;
- (4) 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;
- (5) Any reference containing a star ★ notation (example **8.7.3.31★**) is a TSSA defined alteration or additional requirement;
- (6) Requirement **2.5.1.6** is revoked and the following substituted:

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 face of the apron and the pit fascia**, until the car is resting on its fully compressed buffer.

- (7) Requirement **2.7.3.2.2** is revoked and the following substituted:

2.7.3.2.2 Where the passage is over a roof having a slope exceeding 15 deg from the horizontal, or over a roof where there is no parapet or guardrail at least 1 070 mm (42 in.) high around the roof or passageway, a permanent, unobstructed and substantial walkway not less than 600 mm (24 in.) wide, equipped ~~on the side sloping away from the walk~~ with a railing conforming to 2.10.2.1, 2.10.2.2, and 2.10.2.3 **and 2.10.2.4 or 2.12.1(a)(2) of the CAD on all sides**, shall be provided from the building exit door at the roof level to the means of access.

- (8) Requirement 2.7.8.4 is revoked and the following substituted:

2.7.8.4 A permanent means of communication between the elevator car and a remote machine room, control space and or control room shall be provided.

- (9) Requirement 2.10.2 is revoked and the following substituted (see also 3.8.2): (245/10)

2.10.2 Standard Railing / Guard Rail

A standard railing / guard rail shall be substantially constructed of metal and shall consist of a top rail, intermediate rail or equivalent structural member or solid panel, and toe-board.

2.10.2.1 Top Rail

The top rail shall have a smooth surface, and the upper surface shall be located at a vertical height of 1 070 mm (42 in.) from the working surface. **For alterations only:** On elevator car tops of existing devices where a non collapsible guard rail is being added, this dimension is permitted to be reduced to a height between 910 mm (36 in.) and 1070 mm (42 in.).

2.10.2.2 Intermediate Rail, Member, or Panel

The intermediate rail or equivalent structural member or solid panel shall be located approximately centered between the top rail and the working surface.

2.10.2.3 Toe-Board

The toe-board shall be securely fastened and have a height not less than 125 mm (5 in.) above the working surface.

2.10.2.4 Strength of Standard Railing / Guard Rail

2.10.2.4.1 Strength

In jurisdictions enforcing NBCC, guards shall be fixed in position and designed to resist the following:

- (a) a horizontal load applied inward or outward, of 750N/m (52 lbf/ft) or a concentrated load of 1000N (225 lbf) applied at any point, whichever governs, at the top of every guard rail
- (b) elements within the guard, including solid panels and pickets, shall be designed for a load of 500 N (112 lbf) applied over an area of 100 mm by 100 mm (4 in. x 4 in.) located at any point in the element or elements so as to produce the most critical effect. These loads need not be considered to act simultaneously with the loads provided for in (a) and (c).
- (c) The minimum specified load applied vertically at the top of every required guard shall be 1500 N/m (103 lbf/ft) and need not be considered to act simultaneously with the horizontal load provided for in (a)

Note: The loads specified in 2.10.2.4.1 are extracted from O. Reg. 332/12 350/06 (Building Code) Article 4.1.5.14 4-1-5.15, as required by Reg. 851 (Regulations for Industrial Establishments) Section 14(2).

For Limit States Design a principal load factor of 1.5 applies per sentence 4.1.3.2(6) 4-1-3-2(5) of O. Reg. 332/12 350/06 (Building Code). For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

2.10.2.4.2 Deflection

A standard railing shall be capable of resisting anywhere along its length the following forces when applied separately, without deflecting more than 75 mm (3 in.) and without permanent deformation:

- (a) a force of at least 890 N (200 lbf) applied in any lateral or downward vertical direction, at any point along the top rail.
- (b) a force of at least 666 N (150 lbf) applied in any lateral or downward vertical direction at any point along the center of the intermediate rail, member, or panel. If the standard railing is a solid panel

extending from the top rail to the toe-board, the application of the force specified in 2.10.2.4(a) shall be considered to meet the requirements of 2.10.2.4(b).
(c) a force of 225 N (50 lbf) applied in a lateral direction to the toe-board.

- (10) Requirement 2.14.1.7 is amended and supplemented with the following (see also 3.8.2):
(245/10)

2.14.1.7.2 When the car has reached its maximum upward movement (2.4.6.1), The following minimum clearances shall be provided to mitigate shearing hazards caused by relative motion between from the top rail of the standard railing and the building structure or equipment not attached to the car:

(a) when the car has reached its maximum upward movement (2.4.6.1):

- (1) 100 mm (4 in.) vertically
- (2) 300 mm (12 in.) horizontally towards the centerline of the car enclosure top
- (3) 100 mm (4 in.) horizontally in the direction towards the hoistway enclosure

(b) throughout the hoistway 100 mm (4 in.) horizontally in the direction towards the hoistway enclosure for submissions received after November 1, 2013. [CAD Amendment 261-13r1]

2.14.1.7.5 Where a standard guardrail per 2.10.2 cannot be provided due to overhead clearance issues, a foldable, collapsible or other stowable design shall be acceptable provided that:

- (1) the car will not operate in “top-of-car inspection operation” unless the railing is in the fully extended position,
- (2) the car will not operate in “normal operation”, “hoistway access operation”, or any type of “inspection operation” other than “top-of-car inspection operation”, unless the railing is in the fully retracted position,
- (3) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly/positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),
- (4) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,
- (5) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly/positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),
- (6) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4 of A17.1-2007/B44-07,
- (7) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,
- (8) when in the fully extended position the handrail shall not be less than 1 070 mm (42 in.) in height and shall meet the requirements of 2.10.2, and
- (9) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per R.R.O. 1990, Reg. 851 (Industrial Establishments) made under the *Occupational Health and Safety Act*, s. 85) while engaging or lowering the alternative height guardrail provided for in 2.14.1.7.5

- (11) Requirement 2.14.2.1.2 is revoked and the following substituted:

2.14.2.1.2 In jurisdictions enforcing the NBCC

- (a) materials in their end-use configuration, other than those covered by 2.14.2.1.2(b), 2.14.2.1.3, and 2.14.2.1.4, shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723, or CAN/ULC-S102:
 - (1) flame spread rating of 0 to 75
 - (2) smoke development classification of 0 to 450
- (b) floor surfaces shall have a flame spread rating of 0 to 300 with smoke development classification of 0 to 450, based on the test conducted in accordance with the requirements of CAN/ULC-S102.2
- (c) not adopted

- (12) Requirement **2.27.3.2.2** is revoked and the following substituted:

2.27.3.2.2 In jurisdictions enforcing the NBCC, the requirements of (a) through (c) are applicable to new installations and the requirements of (a) through (h) are applicable for alterations as amended below:

- (a) 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
 - (1) at each floor served by the elevator
 - (2) in the associated elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room, and
 - (3) in elevator and dumbwaiter shafts per,
 - (i) ~~O. Reg. 350/06 Article 3.2.4.10.(e) if a fire alarm system is required by O. Reg. 350/06 Article 3.2.4.1, except as provided in O. Reg. 350/06 Article 3.2.4.15., or~~
 - (ii) ~~O. Reg. 332/12 Article 3.2.4.11.(e) if a fire alarm system is required by O. Reg. 332/12 Article 3.2.4.1, except as provided in O. Reg. 332/12 Article 3.2.4.16.~~
- (b) alternate floor recall required by 2.27.3.2.4 is not required if the floor area containing the recall level is sprinklered. ~~(ref O. Reg 350/06 article 3.2.4.14.(3) or O. Reg 332/12 article 3.2.4.15.(3)).~~
Note: If fire detectors are provided in the hoistway at or below the lowest landing of recall, an alternate (upper) recall shall be provided in accordance with 2.27.3.2.3(d).
- (c) where a building fire alarm system is not required by OBC or where an alteration is being performed and the existing building fire alarm system does not provide suitable signaling, the devices referred to in 2.27.3.2.2(a) 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) in a building with an existing fire alarm system, the building fire alarm system and the Dedicated Function Fire Alarm system shall be interconnected. [CAD Amendment-261-13]
 - (2) in a building without an existing fire alarm system, the Dedicated Function Fire Alarm control panel used to initiate elevator recall shall be permanently identified as "Elevator Recall Control and Supervisory Control Unit" in lettering not less than 6mm (0.25in.) in height.
 - (3) 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
 - (4) 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.

NOTE(S):

1. (2.27.3.2.2(a) (b) and (c)): 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. The installation or alteration of a fire alarm system, including dedicated function fire alarm systems require permits and installation by qualified personnel.
3. See 8.6.11.1 for notes related to DFFA testing.

(ALTERATIONS ONLY)

- (d) for alterations **8.7.2.16, 8.7.3.17 (change in type of service)** and **8.7.2.27.6, 8.7.3.31.7 (operation control)**, that require conformance to 2.27,
- (1) requirements 2.27.3.2.2(a)(1), 2.27.3.2.2(a)(2) and 2.27.3.2.2(c) do not apply within a floor area if the floor area is sprinklered and the sprinkler system is electrically supervised in conformance with O. Reg. ~~332/12 350/06~~ Sentence ~~3.2.4.10.(2)~~ ~~3-2-4-9.(2)~~. The activation of the electrically supervised system shall cause automatic recall.
 - (2) requirements 2.27.3.2.2(a)(3) does not apply.
- (e) for alterations **8.7.2.27.4 and 8.7.3.31.5 (controllers)**, if firefighters' emergency operation was required or provided at the time of the original installation, or required or provided by a subsequent alteration,
the requirements of (1) below apply, otherwise the requirements of (2) below apply:
- (1) requirements, 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c)
 - (2) the installation shall as a minimum conform to the requirements of 2.27.3.1 (manual recall), unless the introductory exemption in 2.27.3 applies.
- (f) for alterations **8.7.2.27.5 and 8.7.3.31.6 (motion control)**, emergency operation and signaling devices where required by NBCC at the time of the original installation, or required or provided by a subsequent alteration,
the requirements of (1) below apply, otherwise the requirements of (2) below apply:
- (1) requirements of 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c)
 - (2) the installation shall as a minimum conform to the requirements of 2.27.3.1 (manual recall), unless the introductory exemption in 2.27.3 applies.
- (g) for alterations under **8.7.2.28** or **8.7.3.31.8 (emergency operation and signaling devices)** or **8.7.2.28★2** or **8.7.3.31★9 (fire code retrofit)** that require conformance to all or part of 2.27 the requirements of 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c) apply.
- (h) In all cases the level of activation shall not be diminished per 8.7.1.2.
- (13) The opening requirement of **3.7** – Machinery Spaces, Machine Rooms, Control Spaces and Control Rooms, is revoked and the following substituted:
- 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")~~.
- (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 supplemented with the following:
- (n) where conformance to 2.14.1.7 is required, the provisions of 2.10.2.1 or 2.14.1.7.5 are permitted for new installations.

(16) Requirement 5.2.1.15.2 is revoked and the following substituted: (166/01)

5.2.1.15.2 Platform Guards.

(a) Requirement 2.15.9.2 applies to LU/LA elevators that utilize traction drives and that serve 3 or more floors.

(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 plus 75 mm (3 in.) but in no case less than the maximum distance from the landing that it takes to stop 165 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
- (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
- (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
 - (c) lowering and Rescue by trained personnel only.

(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:

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

b) 5.10.1.9.5(a) is not adopted,

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

5.10.1.9.5(b)

- (b) **regardless of car speed**, hoistway doors shall be provided with either of the following:
 - (1) interlocks conforming to 2.12.2
 - (2) combination mechanical locks and electric contacts conforming to 2.12.3

(24) Requirement 6.1.6.3.1(a) is supplemented with the following:

Additionally, escalator operation in accordance with Section 5.5.2 of NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail Systems (2010 Edition), shall be permitted for transit facilities.

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

(26) Requirement 7.4.2.2 is revoked and the following substituted: (48/87) (189/05)

7.4.2.2

Type B Material Lifts shall be permitted to carry one operator and be provided with in-car mounted operating devices, subject to the following limitations:

- (a) Access to and usage of Type B Material Lifts is restricted to authorized personnel.
- (b) The rated speed is not to exceed 0.15 m/s (30 ft/min).
- (c) **not adopted**
- (d) Travel does not exceed **7 600 mm (300 in.)**.
- (e) They are operated only by continuous-pressure control devices.
- (f) They shall not be accessible to the general public.
- (g) The upper limit of travel shall be
 - (1) level with the **top** penetrated floor; or
 - (2) level with the top landing where no floor is penetrated.
- (h) They are permitted to serve one or more intermediate landings, provided that these landings have doors as required in 7.4.14.

(27) Requirement 7.4.14.8 is added:

7.4.14.8

Requirement 2.12.3 applies only to Type A Material Lifts.

(28) Requirement 7.5.12.2.6 is revoked and the following substituted:

7.5.12.2.6

Requirement 2.26.2.5 does not apply. Each control station shall be provided with an emergency stop switch (switches) conforming to 2.26.2.5(a), (b), and (c), **except that the emergency stop switch located at each landing may be of a constant-pressure type**. And it shall cause the power to be removed from the driving machine when operated.

(29) Sections 7.8 to 7.11 – 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;

(30) The requirements of Section **8.6**, Maintenance, Repair, Replacement and Testing is adopted as modified and clarified in **3.3** of the Code Adoption Document;

(31) The requirements of Section **8.7** – Alterations, is adopted, as modified and clarified in **3.4** of the Code Adoption Document;

- (32) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;
- (33) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;
- (34) 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 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 O.Reg 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 O. Reg. 209/01, s.15.(4)(c) ,where a Maintenance Control Program has been implemented.
 - (a) For new installations for which a design submission is received on or after May 1, 2013 the Maintenance Control Program shall be available to the inspector at the time of the acceptance inspection, and a copy shall be forwarded to the elevating devices program prior to the inspection. Where appropriate, versions of MCP’s may be filed with the director.
 - (b) For existing or altered installations the Maintenance Control Program shall be fully implemented not later than March 31, 2014. [CAD Amendment-261-13r1]
- 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 revoked and the following substituted;

8.6 MAINTENANCE, REPAIR, REPLACEMENT, AND TESTING

Requirement 8.6 applies to maintenance, repairs, replacements, and testing.

Maintenance, repair and replacement shall be performed to provide compliance with the code applicable at the time of installation or alteration.

NOTES:

- (1) See 8.7 for alteration requirements.
- (2) See “General” in Preface for assignment of responsibilities.

8.6.1 General Requirements

8.6.1.1 Maintenance, Repair, and Replacement

8.6.1.1.1 Equipment covered within the scope of this Code shall be maintained in accordance with

- (a) 8.6. and an established Maintenance Control Program including any requirements specified in the Code Adoption Document, or
- (b) 8.6.1, 8.6.2, 8.6.3, 8.6.11 and the supplemental maintenance requirements and intervals specified in CSA standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, including any requirements specified in the Code Adoption Document.

Requirement (a) is applicable for

- (1) new installations submitted on or after May 1, 2013,
- (2) any existing devices where a Maintenance Control Program has been implemented, and
- (3) all devices maintained after March 31, 2014. [CAD Amendment-261-13]

Requirement (b) is applicable until March 31, 2014 for

- (1) existing installations, or
- (2) new installations submitted prior to May 1, 2013. [CAD Amendment-261-13r1]

8.6.1.1.2 Maintenance, repairs, replacements, and tests shall conform to 8.6 and the applicable

- (a) Code at the time of the installation; and
- (b) Code requirements at the time of any alteration; and
- (c) ASME A17.3 if adopted by the authority having jurisdiction

8.6.1.1.3 It is not the intent of 8.6 to require changes to the equipment to meet the design, equipment nameplate(s) or performance standard other than those specified in 8.6.1.1.2, unless specifically stated in 8.6. (see 8.6.3.2, 8.6.5.8, 8.6.8.3 and 8.6.8.4.3).

8.6.1.2 General Maintenance Requirements

8.6.1.2.1 A written Maintenance Control Program where implemented shall be in place to maintain the equipment in compliance with the requirements of 8.6 and the following, otherwise the requirements of 8.6.1.1.1(b) apply.

The MCP shall specify examinations, tests, cleaning, lubrication, and adjustments to applicable components at regular intervals (see definition for maintenance) and shall comply with the following:

- (a) A Maintenance Control Program for each unit (see 8.6.1.1.1) shall be provided by the person(s) and/or firm maintaining the equipment and shall be viewable on site by elevator personnel at all times from time of acceptance inspection and test or from the time of equipment installation or alteration (see 8.10.1.5).
- (b) The MCP shall include, but not be limited to, the code required maintenance tasks, maintenance procedures and examinations and tests listed with the associated requirement (see 8.6.4 to 8.6.11). Where maintenance tasks, maintenance procedures, or examinations or tests have been revised in 8.6 the MCP shall be updated.
- (c) The MCP shall reference On-Site Equipment Documentation (see 8.6.1.2.2) needed to fulfill 8.6.1.2.1(b) and On-Site Maintenance Records (see 8.6.1.4.1) that record the completion of all associated maintenance tasks specified in 8.6.1.4.1(a).
- (d) Where the MCP is maintained remotely from the machine room, machinery space, control room, or control space (see 8.11.1.8) instructions for on-site locating or viewing the MCP either in hard copy or in electronic format shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The instructions shall be permanently legible with characters a minimum of 3mm (0.125in) in height.
- (e) In addition to s. 32(1) of the Regulation, the specified scheduled maintenance intervals (see 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), and

- (7) the manufacturer's recommendations based on any A17.7/B44.7 approved components or functions.
- (f) Procedures for tests, periodic inspections, maintenance, replacements, adjustments, and repairs for traction-loss detection means, broken-suspension-member detection means, residual-strength detection means, and related circuits shall be incorporated into and made part of the Maintenance Control Program.
[See 2.20.8.1, 2.20.8.2, 2.20.8.3, 8.6.11.10, 8.10.2.2.2(cc)(3)(c)(2), 8.10.2.2.2(ss), and 8.6.4.19.12.]
- (g) The manufacturer's or installer's procedures for tests, periodic inspections, maintenance, replacements, adjustments, and alterations repairs, of SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b) shall be incorporated into the Maintenance Control Program. (ref TN 08-802)

8.6.1.2.2 On-Site Documentation

The following documents specified in 8.6.1.2.2 (a), (b), and (c) shall be written and permanently kept on-site in the machine room, machinery space, control room, control space, or in the means necessary for test (2.7.6.4) in hard copy for each unit for elevator personnel.

The documentation specified in 8.6.1.2.2(d) shall be on-site and available to the specified personnel.

- (a) Up-to-date wiring diagrams detailing circuits of all electrical protective devices (see 2.26.2) and critical operating circuits (see 2.26.3).
- (b) Procedures for inspections and tests not described in A17.2 and procedures or methods required for elevator personnel to perform maintenance, repairs, replacements and adjustments, as follows:
 - (1) all procedures specifically identified in the code as required to be written (e.g. 8.6.4.20.8 check out procedure for leveling, 8.6.5.16.5 check out procedure for over speed valve, and 8.6.8.15.7 check out procedure for reversal stop switch, etc),
 - (2) unique maintenance procedures or methods required for inspection, tests, and replacement of SIL rated E/E/PES electrical protective devices and circuits (see 2.26.4.3.2, 2.26.9.3.2(b), 2.26.9.5.1(b), and 2.26.9.6.1(b)),
 - (3) unique maintenance procedures or methods required for inspection, tests, and replacement of equipment applied under alternative arrangements (see 1.2.2.1) shall be provided by the manufacturer or installer, and
 - (4) unique maintenance procedures or unique methods required for inspection and test of equipment specified in an A17.7/B44.7 Code Compliance Document (CCD).
- (c) Written checkout procedures:
 - (1) to demonstrate E/E/PES function as intended (see 8.6.4.19.10),
 - (2) for elevator leveling speed with open doors (see 8.6.4.20.8),
 - (3) for hydraulic elevator over speed valve (see 8.6.5.16.5),
 - (4) for escalator reversal stopping device (see 8.6.8.15.7), and
 - (5) for escalator handrail retarding force (see 8.6.8.15.13).
- (d) Written procedures for the following:
 - (1) evacuation procedures for elevators by authorized persons and emergency personnel shall be available on site. (see 8.6.11.5.2 and A17.4)
 - (2) the procedure for cleaning of a car and hoistway transparent enclosures by authorized persons. (see 8.6.11.4.2)

8.6.1.2.3 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.

8.6.1.3 Maintenance Personnel.

Maintenance, repairs, replacements, and tests shall be performed only by elevator personnel (see 1.3).

8.6.1.4 Log Book of Maintenance Records

Maintenance records shall document compliance with 8.6. Instructions for locating the maintenance records of each unit, for viewing on site, shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. These records shall be retained for the most recent 5 years or from the date of installation or adoption of this code edition, whichever is less or as specified by the authority having jurisdiction. Existing maintenance records up to 5 years shall be retained.

8.6.1.4.1 On-Site Maintenance Records

8.6.1.4.1(a) Maintenance Control Program Records

- (1) A record that shall include the maintenance tasks listed with the associated requirements of 8.6 identified in the Maintenance Control Program (8.6.1.2.1), other tests (see 8.6.1.2.2), examinations and adjustments, and the specified scheduled intervals shall be maintained.
- (2) The specified scheduled maintenance intervals (see 1.3) shall, as applicable, be based on the criteria given in 8.6.1.2.1(e).
- (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)

Note [8.6.1.4.1(a)]: ~~Recommended format for documenting maintenance control program records can be found in non-mandatory Appendix Y. This is only an example format.~~ A specific maintenance control program that includes all maintenance needs is required for each unit.

8.6.1.4.1 (b) Repair and Replacement Records

The repairs and replacements listed in paragraphs (1) and (2) below shall be recorded and shall be kept on-site for viewing by elevator personnel in either hard copy or electronic format. Instructions for locating the records of each unit for immediate viewing shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. The record shall include an explanation of the repair or replacement, date, and name of person(s) and/or firm performing the task. The record of repairs and replacements shall be retained by the owner of the equipment for the most recent 5 years or from the date of installation or adoption of this code edition, whichever is less, or as specified by the authority having jurisdiction and shall be a permanent record for the installation. These records may be kept remotely from the site.

- (1) Repairs (8.6.2.1- 8.6.2.5) including repairs of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

- (2) Replacements (8.6.3.1 - 8.6.3.11 except 8.6.3.7 and 8.6.3.10) including replacements of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

8.6.1.4.1 (c) Other Records

The written records listed in paragraphs (1) to(4) below shall be kept on-site for each unit. Instructions for locating the records of each unit for immediate viewing shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. These records shall be retained for the most recent 5 years from of the date of installation or adoption of this code edition, whichever is less, or as specified by the authority having jurisdiction. The record shall include the date and name of person(s) and/or firm performing the task.

- (1) A record of oil usage (8.6.5.7).
- (2) A record of findings for firefighter’s service operation required by 8.6.11.1 with identification of the person(s) that performed the operation.
- (3) Periodic tests (see 8.6.1.7) shall be documented or recorded in accordance with 8.6.1.7.2.
- (4) Written record to document compliance with replacement criteria specified in ASME A17.6 requirement 1.10.1.1(c).

8.6.1.4.1 (d) Acceptance Tests

A permanent record of the results of all Acceptance tests as required by 8.10.1.1.4 and 8.10.1.1.5 shall be kept with the on-site records.

8.6.1.4.2 Call Backs (Trouble Calls)

A record of call backs shall be maintained and shall include the description of reported trouble, dates, time and corrective action(s) taken that are reported by any means to elevator personnel. These records shall be made available to elevator personnel when performing corrective action. For elevator personnel other than personnel performing the corrective action, records will be available upon request and shall be maintained for a minimum of one year. Instructions on how to report any need for corrective action (trouble calls) to the responsible party shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The instructions shall be permanently legible with characters a minimum of 3mm (0.125 in.) in height.

8.6.1.5 Code Data Plate

~~8.6.1.5.1 The Code data plate shall comply with 8.9.~~

8.6.1.6 General Maintenance Methods and Procedures

8.6.1.6.1 Making Safety Devices Inoperative or Ineffective.

No person shall at any time make inoperative or ineffective any device on which safety of users is dependent, including any electrical protective device, except where necessary during tests, inspections (see 8.10 and 8.11), maintenance, repair, and replacement, provided that the installation is first removed from normal operation. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7 and 8.6.1.6).

8.6.1.6.2 Lubrication.

All parts of the machinery and equipment requiring lubrication shall be lubricated with lubricants equivalent to the type and grade recommended by the manufacturer. Alternative lubricants shall be permitted when intended lubrication effects are achieved. All excess lubricant shall be cleaned from the equipment. Containers used to catch leakage shall not be allowed to overflow.

8.6.1.6.3 Controllers and Wiring

- (a) The interiors of controllers and their components shall be cleaned when necessary to minimize the accumulation of foreign matter that can interfere with the operation of the equipment.
- (b) Temporary wiring and insulators or blocks in the armatures or poles of magnetically operated switches, contactors, or relays on equipment in service are prohibited.

- (c) When jumpers are used during maintenance, repairs, or testing, all jumpers shall be removed and the equipment tested prior to returning it to service. Jumpers shall not be stored in machine rooms, control rooms, hoistways, machinery spaces, control spaces, escalator/moving walk wellways, or pits (see also 8.6.1.6.1).
NOTE [8.6.1.6.3(d)]: See “Elevator Industry Field Employees’ Safety Handbook” for recommended minimum jumper control procedures.
- (d) Control and operating circuits and devices shall be maintained in compliance with applicable Code requirements (see 8.6.1.1.2).
- (e) Substitution of any wire or current-carrying device for the correct fuse or circuit breaker in an elevator circuit shall not be permitted.

8.6.1.6.4 Painting.

Care shall be used in the painting of the equipment to make certain that it does not interfere with the proper functioning of any component. Painted components shall be tested for proper operation upon completion of painting.

8.6.1.6.5 Fire Extinguishers.

In jurisdictions not enforcing NBCC, Class “ABC” fire extinguishers shall be provided in elevator electrical machine rooms, control rooms, and control spaces outside the hoistway intended for full bodily entry, and walk in machinery and control rooms for escalators and moving walks; and they shall be located convenient to the access door.

8.6.1.6.6 Workmanship.

Care should be taken during operations such as torquing, drilling, cutting, and welding to ensure that no component of the assembly is damaged or weakened. Rotating parts shall be properly aligned.

8.6.1.6.7 Signs and Data Plates.

Required signs and data plates that are damaged or missing shall be repaired or replaced.

8.6.1.7 Periodic Tests.

The frequency of maintenance and tests shall conform to the following;

- (a) Where a Maintenance Control Program is in effect,
 - (1) the maintenance frequency shall be established as prescribed in 8.6, but in no case shall the interval between maintenance visits to an elevating device excluding wind tower elevators exceed three months, nor shall it exceed the manufacturer’s specified limit or other imposed limit which is less than three months (see CAD 2.9 for example of a one month limit), and
 - (2) testing shall be performed at intervals specified in Appendix N, such that;
 - (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.

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(b) Where the maintenance method follows B44.2-07

- (1) the maintenance frequency shall be established as prescribed in B44.2-07, but in no case shall the interval between maintenance visits extend beyond three months.
- (2) Where frequencies of maintenance, examinations or inspections identified in B44.2-07 are extended:
 - (a) the altered maintenance, examination and/or inspection frequencies must take into account the age and inherent quality of the equipment, the frequency and method of usage, and the recommendation(s) by either the original manufacturer, or manufacturer’s agent, or the maintaining contractor;
 - (b) the owner and maintenance contractor shall agree in writing to the altered maintenance, examination and/or inspection frequencies;

- (c) the log book shall either capture this agreement or make reference to another document where such an agreement is made;
- (d) a copy of the altered maintenance, examination and/or inspection frequency agreement shall be made available to TSSA upon request;
- (e) the interval between maintenance visits shall not exceed three (3) months;
- (f) the frequency of tests** identified in B44.2 shall not be altered; and
- (g) despite the allowance to adjust maintenance, examination or inspection frequencies as stated above, the frequency of activities listed in B44.2-07 section 5.2.1 shall not be altered.

**where the terms:

'operate'- (or equivalent thereof), such as "governors shall be operated by hand" or 'check'- (or equivalent thereof), such as "skirt switches shall be checked" are used, the frequency of these tests shall not be altered.

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

NOTE: Recommended intervals for periodic tests can be found in Non-mandatory Appendix N.

8.6.1.7.1 Not adopted

~~Periodic tests shall be witnessed by an inspector employed by the authority having jurisdiction or by a person authorized by the authority having jurisdiction. The inspector shall conform to the requirements in 8.11.1.1.~~

8.6.1.7.2 Periodic Test Records

A periodic test record for all periodic tests containing the applicable code requirement(s) and date(s) performed, and the name of the person or firm performing the test, shall be kept readily visible adjacent to or securely attached to the controller of each unit in the form of a **log book record** ~~metal tag~~ or other format designated by and acceptable to the authority having jurisdiction. If any of the alternative test methods contained in **8.6.4.20** were performed then the test **record tag** must indicate alternative testing was utilized for the applicable requirement.

8.6.1.7.3 No person shall at any time make any required safety device or electrical protective device ineffective, except where necessary during tests. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7).

8.6.1.7.4 All references to "Items" and "Parts" are to Items in A17.2.

8.6.2 Repairs

See 8.6.2.1 through 8.6.2.5 for general requirements for repairs.

8.6.2.1 Repair Parts. Repairs shall be made with parts of at least equivalent material, strength, and design (see 8.6.3.1).

8.6.2.2 Welding and Design.

Welding and design of welding shall conform to 8.7.1.4 and 8.7.1.5.

8.6.2.3 Repair of Speed Governors.

Where a repair is made to a speed governor that affects the tripping linkage or speed adjustment mechanism, the governor shall be checked in conformance with 8.6.4.19.2. Where a repair is made to the governor jaws or associated parts that affect the pull-through force, the governor pull-through force shall be checked in conformance with 8.6.4.19.2(b). A test tag shall be attached, indicating the date the pull-through test was performed.

8.6.2.4 Repair of Releasing Carrier.

When a repair is made to a releasing carrier, the governor rope pull-out and pull-through forces shall be verified in conformance with **8.6.4.20.2(b)** ~~8.11.2.3.2(b)~~.

8.6.2.5 Repair of Suspension and Compensating Means and Governor Ropes.

Suspension and compensating members and governor ropes shall not be lengthened or repaired by splicing (see 8.7.2.21).

8.6.2.6 Repairs involving SIL Rated Device(s)

SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b) shall:

- (a) not be repaired in the field
- (b) be permitted to be repaired in accordance with the provisions for repair where included in the listing/certification, and
- (c) shall not be affected by other repair(s) such that the listing/certification is invalidated.

8.6.3 Replacements

8.6.3.1 Replacement Parts.

Replacements shall be made with parts of at least equivalent material, strength, and design.

8.6.3.2 Replacement Suspension Means.

Suspension means, compensation means, and governor ropes shall be replaced when they no longer conform to the requirements of ASME A17.6. Replacement of suspension means, compensation means, and governor ropes shall conform to the requirements of ASME A17.6 as stated in 8.6.3.2.1 through 8.6.3.2.3.

8.6.3.2.1 For steel wire rope, ASME A17.6, Section 1.10 shall apply.

NOTE (8.6.3.2.1): See Non-mandatory Appendix T for inspection and replacement of steel wire ropes.

8.6.3.2.2 For aramid fiber ropes, ASME A17.6, Section 2.9 shall apply.

8.6.3.2.3 For noncircular elastomeric-coated steel suspension members, ASME A17.6, Section 3.7 shall apply.

8.6.3.3 Replacement of Suspension-Means Fastenings and Hitch Plates.

Replacement of suspension-means fastenings and hitch plates shall conform to the requirements in 8.6.3.3.1 through 8.6.3.3.5.

8.6.3.3.1 When the suspension-means fastenings are replaced with an alternate means that conforms to 2.20.9, load-carrying ropes shall be in line with the shackle rod.

8.6.3.3.2 Existing hitch plates that do not permit the load-carrying ropes to remain in line with the shackle rods shall have the replacement fastening staggered in the direction of travel of the elevator and counterweight, or the hitch plates shall be replaced.

8.6.3.3.3 Replacement hitch plates shall conform to 2.15.13 and shall provide proper alignment of load carrying ropes and shackle rods.

8.6.3.3.4 Replacement fastenings shall be permitted to be installed on the car only, the counterweight only, at either of the dead-end hitches, or at both attachment points.

8.6.3.3.5 Rope fastenings at the drum connection of winding-drum machines shall comply with 8.6.4.10.2.

8.6.3.4 Replacement of Governor or Safety Rope

8.6.3.4.1 Governor ropes shall be of the same size, material, and construction as the rope specified by the governor manufacturer, except that a rope of the same size but of different material or construction shall be permitted to be installed in conformance with 8.7.2.19.

8.6.3.4.2 The replaced governor ropes shall comply with 2.18.5.

8.6.3.4.3 After a governor rope is replaced, the governor pull-through force shall be checked as specified in 8.6.4.20.2(b). ~~8.11.2.3.2(b)~~.

8.6.3.4.4 ~~A test tag indicating the~~ The date when the pull-through test was performed shall be ~~attached~~ recorded in the log book.

8.6.3.4.5 The safety rope shall comply with 2.17.12.4 and 2.17.12.5.

8.6.3.4.6 A new rope data tag conforming to 2.18.5.3 shall be installed at each rope replacement, and the date of the rope replacement shall be recorded in the maintenance records (8.6.1.4.1(b)(2)).

8.6.3.5 Belts and Chains.

If one belt or chain of a set is worn or stretched beyond that specified in the manufacturer's recommendation, or is damaged so as to require replacement, the entire set shall be replaced.

Sprockets and toothed sheaves shall also be replaced if worn beyond that specified in the manufacturer's recommendations.

8.6.3.6 Replacement of Speed Governor.

When a speed governor is replaced with a governor of the same make and model (see also 8.7.2.19), it shall conform to 2.18. When a releasing carrier is provided, it shall conform to 2.17.15. The governor rope shall be of the type and size specified by the governor manufacturer. The governor shall be checked in conformance with 8.6.4.20.2. ~~8.11.2.3.2~~. Drum-operated safeties that require continuous tension in the governor rope to achieve full safety application shall be checked as specified in 8.6.4.20.1 ~~8.11.2.3.1~~ and 8.7.2.19.

8.6.3.7 Listed/Certified Devices

8.6.3.7.1 Where a listed/certified device is replaced, the replacement shall be subject to the applicable engineering or type test as specified in 8.3, or the requirements of CSA B44.1/ASME A17.5. Hoistway door interlocks, hoistway door combination mechanical lock and electric contact, and door or gate electric contact, shall conform to the type tests specified in 2.12.4.1. The device shall be labeled by the certifying organization (see 8.6.1.1). In jurisdictions not enforcing NBCC, door panels, frames, and entrances hardware shall be provided with the instructions required by 2.11.18.

8.6.3.7.2 Where a component in a listed/certified device is replaced, the replacement component shall be subject to the requirements of the applicable edition of CSA B44.1/ASME A17.5 and/or the engineering or type test in 8.3. Hoistway door interlocks, hoistway door combination mechanical lock and electric contact, and door or gate electric contact, shall conform to the type tests specified in 2.12.4.1. The component shall be included in the original manufacturer's listed/certified device documentation or as a listed/certified replacement component (see 8.6.1.1). Each replacement component shall be plainly marked for identification in accordance with the certifying organization's procedures. In jurisdictions not enforcing NBCC, door panels, frames, and entrances hardware shall be provided with the instructions required by 2.11.18.

NOTE (8.6.3.7): Devices that may fall under this requirement are included but not limited to hoistway door locking devices and electric contacts, car door contacts and interlocks, hydraulic control valves, escalator steps, fire doors, and electrical equipment.

8.6.3.8 Replacement of Door Reopening Device.

Where a reopening device for power-operated car doors or gates is replaced (see also 8.7.2.13), the following requirements shall apply:

(a) The door closing force shall comply with the Code in effect at the time of the installation or alteration.

- (b) The kinetic energy shall comply with the Code in effect at the time of the installation or alteration.
- (c) When firefighters' emergency operation is provided, door reopening devices and door closing on Phase I and Phase II shall comply with the requirements applicable at the time of installation of the firefighters' emergency operation.

8.6.3.9 Replacement of Releasing Carrier.

Where a replacement is made to a releasing carrier, the governor rope pull-out and pull-through forces shall be verified in conformance with 8.6.4.20.2(b) ~~8.11.2.3.2(b)~~.

8.6.3.10 Replacement of Hydraulic Jack, Plunger, Cylinder, Tanks, and Anticreep Leveling Device

8.6.3.10.1 A hydraulic jack replacement shall be classified as an alteration and shall comply with 8.7.3.23.1.

8.6.3.10.2 A plunger replacement shall be classified as an alteration and shall comply with 8.7.3.23.2.

8.6.3.10.3 A cylinder replacement shall be classified as an alteration and shall comply with 8.7.3.23.3.

8.6.3.10.4 A tank replacement shall be classified as an alteration and shall comply with 8.7.3.29.

8.6.3.10.5 An anticreep leveling device replacement shall be classified as an alteration and shall comply with 8.7.3.31.3.

8.6.3.11 Replacement of Valves and Piping.

- (a) Where any valves, piping, or fittings are replaced, replacements shall conform to 3.19. ~~with the exception of 3.19.4.6. Replacement control valves must conform to the Code under which it was installed.~~
- (b) Where any valve is replaced with a valve of the same make and model, the replacement shall conform to 3.19.
- (c) Where any control or overspeed valve is replaced with a valve of different make or model, the replacement shall be classified as an alteration and shall comply with 8.7.3.24.

8.6.3.12 Runby and Clearances After Reropeing or Shortening.

The minimum car and counterweight clearances specified in 2.4.6 and 2.4.9 shall be maintained when new suspension means are installed or when existing suspension means are shortened. The minimum clearances shall be maintained by any of the methods described in 8.6.3.12.1 through 8.6.3.12.3 (see 8.6.4.11). (see also CAD 2.4)

8.6.3.12.1 Limit the length that the suspension means are shortened.

8.6.3.12.2 Provide blocking at the car or counterweight strike plate. The blocking shall be of sufficient strength and secured in place to withstand the reactions of buffer engagement as specified in 8.2.3. If wood blocks are used to directly engage the buffer, a steel plate shall be fastened to the engaging surface or shall be located between that block and the next block to distribute the load upon buffer engagements.

8.6.3.12.3 Provide blocking under the car or counterweight buffer or both of sufficient strength and secured in place to withstand the reactions of buffer engagement as described in 8.2.3.

8.6.3.12.4 Provide the month and year the suspension means were first shortened. Appropriate data shall be recorded on the data tag (see 2.20.2.2.2).

8.6.3.13 Replacement of Demarcation Lights

Fluorescent lighting fixtures shall be permitted to be replaced by any type light source, except incandescent sources, and shall comply with all other applicable step demarcation lighting requirements under which the escalator was installed or altered.

8.6.3.14 Replacements involving SIL Rated Device(s) (See 1.3)

- (a) SIL Rated Device (see 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) shall not be affected by other replacement(s) such that the listing/certification is invalidated.

(b) Where a SIL Rated Device (see 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) is replaced, it shall be considered a replacement only when the replacement device is the original manufacturer's listed/certified SIL rated device or the original manufacturer's listed/certified SIL rated replacement device; otherwise it shall be considered an alteration (see 8.7.1.9(d)).

(c) Where a non-SIL Rated Device used to satisfy 2.26.4.3.1, 2.26.8.2, 2.26.9.4(a), 2.26.9.5.1(a), or 2.26.9.6.1(a) is replaced with SIL Rated Device, it shall be considered an alteration. (see 8.7.1.9(c)).

8.6.3.15 to 8.6.3.24 Reserved

8.6.3.25 Replacement of Driving Machine (226/07)

Where a driving machine is replaced it shall be considered an alteration and shall conform to the requirements of 8.7.2.25.1(a) except that:

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

- (1) ascending car overspeed and unintended car movement protection shall be retained
- (2) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
- (3) the means shall require manual reset

(b) if the elevator controllers are pre-B44-00 and the installation had only ascending car overspeed protection existing

- (1) ascending car overspeed protection shall be retained
- (2) the addition of unintended car movement protection is permitted
- (3) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
- (3) the means shall require manual reset

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

- (1) ascending car overspeed and unintended car movement protection shall be provided
- (2) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
- (3) the means shall require manual reset

8.6.3.26 Replacement of Controller (226/07)

Where an elevator controller is replaced it shall conform to the requirements specified in 8.7.2.27.4(a) or 8.7.3.31.5(a) whichever is applicable.

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.

8.6.4 Maintenance and Testing of Electric Elevators

The maintenance and testing of electric elevators shall conform to 8.6.1 through 8.6.4.

8.6.4.1 Suspension and Compensating 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 and replaced per the replacement criterion specified in A17.6 or B44.2.

8.6.4.1.2 Steel wire ropes shall be lightly lubricated. Precautions shall be taken in lubricating suspension steel wire ropes to prevent the loss of traction. Lubrication shall be in accordance with instructions on the rope data tag [see 2.20.2.2.2(n)], if provided.

8.6.4.1.3 Equal tension shall be maintained between individual suspension members in each set. ~~Suspension members are considered to be equally tensioned when the smallest tension measured is within 10% of the highest tension measured.~~ When suspension-member tension is checked or adjusted, an antirotation device conforming to the requirements of 2.20.9.8 shall be permitted.

Note: Suspension members are considered to be equally tensioned when the smallest tension measured is within 10% of the highest tension measured.

8.6.4.2 Governor Wire Ropes

8.6.4.2.1 The ropes shall be kept clean.

8.6.4.2.2 Governor wire ropes shall not be lubricated after installation. If lubricants have been applied to governor ropes, they shall be replaced, or the lubricant removed, and the governor and safety shall be tested as specified in 8.6.4.19.2(b) and 8.6.4.18.2.

8.6.4.3 Lubrication of Guide Rails

8.6.4.3.1 The lubrication of guide rails shall be in accordance with the requirements on the crosshead data plate (see 2.17.16), where provided.

8.6.4.3.2 Where a data plate is not provided, the lubrication of guide rails shall conform to the following:

- (a) Guide rails, except those of elevators equipped with roller or other types of guiding members not requiring lubrication, shall be kept lubricated.
- (b) Where sliding-type safeties are used, the guiderail lubricants, or prelubricated or impregnated guideshoe gibs, where used, shall be of a type recommended by the manufacturer of the safety (see 8.6.1.6.2. and 2.17.16).

8.6.4.3.3 If lubricants other than those recommended by the manufacturer are used, a safety test conforming to 8.6.4.20.1 shall be made to demonstrate that the safety will function as required by 2.17.3.

8.6.4.3.4 Rails shall be kept clean and free of lint and dirt accumulation and excessive lubricant. Means shall be provided at the base of the rails to collect excess lubricant.

8.6.4.3.5 Rust-preventive compounds such as paint, mixtures of graphite and oil, and similar coatings shall not be applied to the guiding surfaces, unless recommended by the manufacturer of the safety. Once applied, the safety shall be checked as specified in 8.6.4.20.1.

8.6.4.4 Oil Buffers

8.6.4.4.1 The oil level shall be maintained at the level indicated by the manufacturer. The grade of oil to be used shall be as indicated on the buffer marking plate, where required (see 2.22.4.10 and 2.22.4.11).

8.6.4.4.2 Buffer plungers shall be kept clean and shall not be coated or painted with a substance that will interfere with their operation.

8.6.4.4.3 Buffer oil shall not be stored in the pit or hoistway or on top of the car.

8.6.4.5 Safety Mechanisms

8.6.4.5.1 Safety mechanisms shall be kept lubricated and free of rust, corrosion, and dirt that can interfere with the operation of the safety.

8.6.4.5.2 The required clearance between the safety jaws and the rail shall be maintained.

8.6.4.6 Brakes

8.6.4.6.1 The driving-machine brake shall be maintained to ensure proper operations, including, but not limited to the following:

- (a) residual pads (antimagnetic pads)
- (b) lining and running clearances
- (c) pins and levers
- (d) springs
- (e) sleeves and guide bushings
- (f) discs and drums
- (g) brake coil and plunger

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 shall be performed.

8.6.4.6.3 If any part of the emergency brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the emergency brake when required (see 2.19.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity.

8.6.4.7 Cleaning of Hoistways and Pits

8.6.4.7.1 Hoistways and pits shall be kept free of dirt and rubbish and shall not be used for storage purposes.

8.6.4.7.2 Landing blocks and pipe stands shall be permitted to be stored in the pit, provided that they do not interfere with the operation of the elevator and do not present a hazard for persons working in the pit.

8.6.4.7.3 Pit access doors shall be kept closed and locked.

8.6.4.7.4 Water and oil shall not be allowed to accumulate on pit floors.

8.6.4.8 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms

8.6.4.8.1 Floors and machinery and control spaces shall be kept free of water, dirt, rubbish, oil, and grease.

8.6.4.8.2 Articles or materials not necessary for the maintenance or operation of the elevator shall not be stored in machinery spaces, machine rooms, control spaces, and control rooms.

8.6.4.8.3 Flammable liquids having a flashpoint of less than 44°C (110°F) shall not be kept in such rooms or spaces.

8.6.4.8.4 Access doors shall be kept closed and locked.

8.6.4.8.5 Machinery spaces and control spaces located in the hoistway shall not be used for storage purposes (see also 8.6.4.7.1).

8.6.4.9 Cleaning of Top of Cars.

The tops of cars shall be kept free of oil, water, dirt, and rubbish, and shall not be used for storing lubricants, spare parts, tools, or other items.

8.6.4.10 Refastening or Resocketing of Car-Hoisting Ropes on Winding-Drum Machines

8.6.4.10.1 General.

The hoisting ropes of elevators having winding-drum driving-machines with 1:1 roping, if of the babbitted rope socket type, shall be resocketed, or for other type of fastenings, replaced or moved on the rope to a point above the existing fastening at the car ends at intervals no longer than

- (a) 1 year, for machines located over the hoistway.
- (b) 2 years, for machines located below or at the side of the hoistway.

- (c) where auxiliary rope-fastening devices conforming to 2.20.10 are installed, refastening at the periods specified is not required, provided that, where such devices are installed, all hoisting ropes shall be refastened on the failure or indication of failure of any rope fastening.
- (d) where the elevator is equipped with a drum counterweight, the fastenings shall be examined for fatigue or damage at the socket. Where fatigue or damage is detected, the ropes shall be refastened in conformance with 8.6.4.10.2.

8.6.4.10.2 Procedure.

- (a) In resocketing babbitted rope sockets or replacing other types of fastenings, a sufficient length shall be cut from the end of the rope to remove damaged or fatigued portions. The fastenings shall conform to 2.20.9. Where the drum ends of the ropes extend beyond their clamps or sockets, means shall be provided to prevent the rope ends from coming out of the inside of the drum and to prevent interference with other parts of the machine.
- (b) the suspension wire ropes shall conform to 2.20.7.

8.6.4.10.3 Tags. A legible metal tag shall be securely attached to one of the wire rope fastenings after each resocketing or changing to other types of fastenings and shall bear the following information:

- (a) the name of the person or firm who performed the resocketing or changing of other types of fastenings and
 - (b) the date on which the rope was resocketed or other types of fastening changed
- The material and marking of the tags shall conform to 2.16.3.3, except that the height of the letters and figures shall be not less than 1.5 mm (0.0625 in.).

8.6.4.11 Runby

8.6.4.11.1 The car and counterweight runby shall be permitted to be reduced (see 2.4.2), provided the car or counterweight does not strike the buffer, the top car clearances are not reduced below that required at the time of installation or alteration, and the final terminal stopping device is still operational (see also 8.6.3.3.3).

8.6.4.11.2 Where spring-return oil buffers are provided and compression was permitted with the car at the terminals (see 2.4.2 and 2.22.4.8), the buffer compression shall not exceed 25% of the buffer stroke.

8.6.4.12 Governors

8.6.4.12.1 Governors shall be examined to ensure that all seals are intact and manually operated to determine that all moving parts, including the rope-grip jaws and switches, operate freely.

8.6.4.12.2 Governors, governor ropes, and all sheaves shall be free from contaminants or obstructions, or both, that interfere with operation or function, including the accumulation of rope lubricant or materials, or both, in the grooves of governors or sheaves.

8.6.4.13 Door Systems

8.6.4.13.1 General. All landing and car-door or gate mechanical and electrical components shall be maintained to ensure safe and proper operation **at an interval not exceeding 6 months**, including but not limited to, the following:

- (a) hoistway door interlocks or mechanical locks and electric contacts
- (b) car door electric contacts or car door interlocks, where required
- (c) door reopening devices
- (d) vision panels and grilles, where required
- (e) hoistway door unlocking devices and escutcheons
- (f) hangers, tracks, door rollers, up-thrusts, and door safety retainers, where required
- (g) astragals and resilient members, door space guards, and sight guards, where required
- (h) sills and bottom guides, fastenings, condition, and engagement
- (i) clutches, engaging vanes, retiring cams, and engaging rollers
- (j) interconnecting means
- (k) door closers, where required
- (l) means to restrict hoistway or car door opening ~~and expiration date for the alternate power source~~, where required.

8.6.4.13.2 Kinetic Energy and Force Limitation for Automatic Closing, Horizontal Sliding Car and Hoistway Doors or Gates.

Where a power-operated horizontally sliding door is closed by momentary pressure or by automatic means, the closing kinetic energy and closing force shall be maintained to conform to 2.13.4 and 2.13.5.

8.6.4.14 Hoistway Access Switches.

Hoistway access switches, where provided, shall be maintained.

8.6.4.15 Car Emergency System.

Emergency operation of signaling devices (see 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(c) the owner shall ensure that testing of the "Elevator Recall Control and Supervisory Control Unit" is performed annually.**

8.6.4.16 Stopping Accuracy.

The elevator shall be maintained to provide a stopping accuracy at the landings during normal operation as appropriate for the type of control, in accordance with applicable Code requirements.

8.6.4.17 Ascending Car Overspeed and Unintended Car Movement Protection.

Devices for ascending car overspeed and unintended car movement protection shall be maintained (see 2.19).

8.6.4.18 Compensation Sheaves and Switches

8.6.4.18.1 Suspension and compensation means shall be maintained to prevent the compensation sheave from reaching the upper or lower limit of travel and to prevent unintended actuation of compensation sheave switch(es) during normal operation.

8.6.4.19 Periodic Test Requirements — Category 1

NOTE: For test frequency, see 8.11.1.3.

8.6.4.19.1 Oil Buffers. Car and counterweight buffers shall be tested to determine conformance with the applicable plunger return requirements (Item 5.9.2.1).

8.6.4.19.2 Safeties

(a) Examinations.

All working parts of car and counterweight safeties shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 8.7.2.14 through 8.7.2.28 (see 2.17.10 and 2.17.11). Check the level of the oil in the oil buffer and the operation of the buffer compression-switch on Type C safeties.

(b) Tests.

Safeties shall be subjected to the following tests with no load in the car:

- (1) Type A, B, or C governor-operated safeties shall be operated by manually tripping the governor with the car operating at the slowest operating speed in the down direction. In this test, the safety shall bring the car to rest promptly. In the case of Type B safeties, the stopping distance is not required to conform to 2.17.3. In the case of Type C safeties, full oil buffer compression is not required. In the case of Type A, B, or C safeties employing rollers or dogs for application of the safety, the rollers or dogs are not required to operate their full travel (Item 2.29.2.1).
- (2) Governor-operated wood guide-rail safeties shall be tested by manually tripping the governor 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.(d)).

- (3) Type A and wood guide-rail safeties without governors which are operated as a result of the breaking or slackening of the hoisting ropes shall be tested by obtaining the necessary slack rope to cause it to function (Item 2.29.2.1).

8.6.4.19.3 Governors.

Governors shall be operated manually to determine that all parts, including those which impart the governor pull-through tension to the governor rope, operate freely [Item 2.13.2.1(a)].

8.6.4.19.4 Slack-Rope Devices and Stop Motion Switch on Winding Drum Machines.

Slack-rope devices on winding drum machines shall be operated manually and tested to determine conformance with the applicable requirements. The final terminal stopping device and the machine final (stop motion switch) shall be examined and tested by disabling the normal stopping device, normal terminal stopping device and final terminal stopping device located in the hoistway and operating the unit to verify proper operation. (Item 2.20)

8.6.4.19.5 Normal and Final Terminal Stopping Devices.

Normal and final terminal stopping devices shall be examined and tested to determine conformance with the applicable requirements (2.25) (Items 2.20, 2.28.2.1, 3.5.2.1 and 3.6.2.1).

8.6.4.19.6 Firefighters' Emergency Operation.

Firefighters' emergency operation (Phase I and II) shall be tested **annually to the requirements of 8.6.11.1.** **Additional testing may be performed** to determine conformance with the applicable requirements. Phase I recall shall be tested by individually activating fire alarm initiating device inputs to the elevator control, the three position switch at the designated landing and where provided, the two position switch at the building fire control station. (see Part 6 of A17.2)

8.6.4.19.7 Standby or Emergency Power or Emergency Lowering Operation.

Operation of elevators equipped with standby or emergency power shall be tested to determine conformance with the applicable requirements (Item 1.17.2.1). Tests shall be performed with no load in the car. **Elevators equipped with auxiliary power lowering shall be tested to ensure that they comply with 3.26.10 of ASME A17.1/CSA B44. The main disconnect switch auxiliary contact shall be tested to ensure compliance with Section 38 of the Canadian Electrical Code, Part I.**

8.6.4.19.8 Power Operation of Door System.

The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.1). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate.

8.6.4.19.9 Broken Rope, Tape, or Chain Switch.

Where a rope, tape, or chain is used to connect the motion of the car to the machine room normal limit, the switch that senses failure of this connection shall be tested for compliance with 2.26.2.6 (Item 3.26.1.1).

8.6.4.19.10 Functional Safety of SIL Rated Devices.

Verify SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.3.2(b), 2.26.9.5.1(b), and 2.26.9.6.1(b) are as identified on wiring diagrams (8.6.1.6.3) with part identification, SIL, and certification identification information.

The person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate that SIL Rated Devices, Safety Functions (see table 2.26.4.3.2), and related circuits operate as intended.

8.6.4.19.11 Ascending Car Overspeed Protection and Unintended Car Movement Devices

(a) **Examinations.** All working parts of ascending car overspeed protection and unintended car movement devices shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 2.19.1.2(a) and 2.19.2.2(a).

- (b) **Tests.** Ascending car overspeed protection shall be subjected to tests to demonstrate compliance with 2.19.1 with no load in the car at the slowest operating speed (inspection speed) in the up direction.
- (c) **Tests.** Unintended car movement shall be subjected to tests with no load in the car. Testing shall confirm compliance with 2.19.2 due to an elevator rollaway caused by a brake and releveling failure. ~~at the slowest operating speed in the up direction.~~

8.6.4.19.12 Traction-Loss Detection Means.

Where provided, conformance with the traction-loss detection means specified in 2.20.8.1 shall be demonstrated by

- (a) causing relative motion between the drive sheave and the suspension means either by bottoming the car or counterweight [see 8.6.4.20.10(b)], or
- (b) an alternative test provided in the Maintenance Control Program [see 8.6.1.2.1(f)]

8.6.4.19.13 Broken-Suspension-Member and Residual-Strength Detection Means

Where provided, testing of broken-suspension and residual-strength detection means shall comply with the following:

- (a) The broken-suspension-member detection means shall be tested by simulating a slack suspension member or a loss of a suspension member as appropriate (see 2.20.8.2).
- (b) Suspension-member residual-strength detection means shall be tested to simulate a reduction of residual strength to 2.20.8.3.

8.6.4.19.14 Occupant Evacuation Operation.

Occupant Evacuation Operation shall be tested to determine conformance with the applicable requirements. Deficiencies shall be corrected. A record of findings shall be available to the building owner and the authority having jurisdiction.

8.6.4.19.15 Emergency Communications

Emergency Communications shall be tested to determine conformance with the applicable requirements (Item 1.6)

8.6.4.19.16 Means to Restrict Hoistway or Car Door Opening

Means to restrict hoistway or car door opening shall be tested to determine conformance with the applicable requirements (Item 1.18)

8.6.4.19.17 to 8.6.4.19.24 Reserved

8.6.4.19.25 Driving Machine Brakes

Testing shall be performed to ensure that the car decelerates from the rated speed when power is removed from the driving machine and brakes while empty and travelling upward at the rated speed. Any rate of deceleration shall be considered acceptable. A means other than the disconnect switch should be used to remove the power.

For new installations and where the annual testing per 8.6.4.19.25 occurs after the first five year load test conducted under 8.6.4.20.4 or 8.6.4.20.10, the following additional actions are required. [Note: Successful demonstration of 8.6.4.20.4 and 8.6.4.20.10 testing confirms proper adjustment of the driving machine brake.]

- (a) Marking plates for brakes (see 2.24.8.5) shall be checked and modified where necessary to reflect a brake setting method which specifies either;
 - (1) the required no load torque for both the clockwise and counter clockwise directions,
 - (2) the no load braking slide distance associated with the car travelling in the up direction or
 - (3) the requirements to test the driving machine brake annually with rated load, in which case a marking tag to indicate spring force shall be utilized / retained to provide an interim brake checking method.
- (b) Except as permitted in (a3), marking plates utilizing spring length or spring force shall be replaced.

- (c) Following the first five year load test, driving machine brakes shall be tested annually to ensure they are adjusted properly per the marking plate for brakes requirements.

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.

8.6.4.20.1 Car and Counterweight Safeties.

Types A, B, and C car and counterweight safeties shall be tested in accordance with **8.6.4.20.1(a)** or subject to approval by the authority having jurisdiction with **8.6.4.20.1(b)**.

(a) Rated Load and Rated Speed Test.

Car safeties, except those operating on wood guide rails, and their governors, shall be tested with rated load in the car. Counterweight safety tests shall be made with no load in the car. Tests shall be made by tripping the governor by hand at the rated speed. The following operational conditions shall be checked (Item 2.29.2.):

- (1) Type B safeties shall stop the car with the rated load within the required range of stopping distances for which the governor is tripped (Item 2.29.2.) and the level of the platform checked for conformance to 2.17.9.2.
- (2) For Type A safeties and Type A safety parts of Type C safeties, there shall be sufficient travel of the safety rollers or dogs remaining after the test to bring the car and its rated load to rest on safety application at governor tripping speed. The level of the platform shall be checked for conformance to 2.17.9.2.

(b) Alternative Test Method for Car Safeties.

The alternative test methods shall comply with requirement 8.6.11.10, and the following:

- (1) The testing of safeties with any load in the car, centered on each quarter of the platform symmetrically with relation to the centerlines of the platform from no load up to rated load, and at not less than rated speed shall be permitted provided that,
 - a) when the alternative test is performed, the test shall stop the car and verify that the safeties will be capable of stopping an overspeeding car in accordance with the requirements of Section 2.17 applicable to the specific classification of safeties, and
 - b) when applied the method shall verify that the safeties perform or are capable of performing in compliance with 8.6.4.20.1(a) and the platform shall not be out of level more than 30 mm/m (0.36 in/ft) in any direction.

- (2) A test **record tag** as required in 8.6.1.7.2 shall be provided.

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)

NOTE: To ensure that the safety will retard the car with the minimum assistance from the elevator driving machine and minimize the development of slack rope and fallback of the counterweight, the switch on the car operated by the car safety mechanism should, for the duration of the test, be temporarily adjusted to open as close as possible to the position at which the car safety mechanism is in the fully applied position.

8.6.4.20.2 Governors

- (a) The tripping speed of the governor and the speed at which the governor overspeed switch, where provided, operates shall be tested to determine conformance with the applicable requirements and the adjustable means shall be sealed (Item 2.13.2.1).

- (b) The governor rope pull-through and pull-out forces shall be tested to determine conformance with the applicable requirements, and the adjustment means shall be sealed (Item 2.13.2.1).
- (c) ~~not adopted~~ After these tests in jurisdictions enforcing NBCC, a metal tag indicating the date of the governor tests, together with the name of the person or firm that performed the tests, shall be attached to the governor in a permanent manner.

8.6.4.20.3 Oil Buffers

- (a) Car oil buffers shall be tested to determine conformance with the applicable requirements by running the car
 - (1) onto the buffer with rated load at rated speed, or
 - (2) subject to approval by the authority having jurisdiction, with
 - (a) any load, from no load up to rated load onto the buffer at rated speed when the requirements of 8.6.11.10 are complied with, provided that when applied the method verifies that the buffer performs or is capable of performing in compliance with 8.6.4.20.3(a), except as specified in **8.6.4.20.3(b)** and (c) (Item 5.9.2.1). or,
 - (b) onto the buffer with any load, from no load up to rated load, and at less than rated speed, when the requirements of 8.6.11.10 are complied with, provided that when applied the method verifies that the buffer performs or is capable of performing in compliance with 8.6.4.20.3(a),
- (b) For reduced stroke buffers, this test shall be made at the reduced striking speed permitted (Item 5.9.2.1).
- (c) This test is not required where a Type C safety is used (see 8.6.4.20.1).
- (d) In making these tests, the normal and emergency terminal stopping devices shall be made temporarily inoperative. The final terminal stopping devices shall remain operative and be temporarily relocated, if necessary, to permit compression of the buffer during the test.
- (e) After completion of the test, a metal tag, indicating the date of the test, together with the name of the person or firm who performed the test, shall be attached to the buffer [Item 5.3.2(b)].
- (f) Counterweight oil buffers shall be tested by running the counterweight onto its buffer at rated speed with no load in the car, except as specified in **8.6.4.20.3(b)** and (c) (Item 5.9.2.1), or at reduced speed if requirements of 8.6.11.10 are met.
- (g) A test ~~record~~ tag as required in 8.6.1.7.2 shall be provided.

8.6.4.20.4 Driving Machine Brake(s).

For passenger elevators and all freight elevators, the driving machine brake shall be tested for compliance with applicable requirements, in accordance with **8.6.4.20.4(a)** or subject to approval by the authority having jurisdiction with **8.6.4.20.4(b)**. For elevators installed under A17.1-2000/B44-00 and later editions, have the brake setting verified in accordance with the data on the brake marking plate.

Upon completion of the test, the means of adjusting the holding capacity shall be sealed to prevent changing the adjustment without breaking the seal. The seal shall bear or otherwise attach the identification of the person or firm that installed it. (See also 8.6.1.7.2 Periodic Test ~~Records~~ Tags).

- (a) Test with load per Table **8.6.4.20.4**.
Place the load as shown in Table **8.6.4.20.4** in the car. The driving machine brake, on its own, shall hold the car with this load. With no load in the car the driving machine brake shall hold the empty car at rest, and shall decelerate an empty car traveling in the up direction from governor tripping speed. The driving machine brake on freight elevators of class C-2 loading, when loaded to their maximum design load shall hold the elevator car at rest (Item 2.17.2.1).
- (b) Alternative Test Method for Driving Machine Brakes.
The alternative test methods shall comply with requirement 8.6.11.10, and the following:

- 1) Any method of verifying conformity of the driving-machine brake with the applicable Code requirements (see 2.24.8.3 and Table 8.6.4.20.4) shall be permitted, including the testing method of the brakes with or without any load in the car, provided that when applied the method verifies that the brake performs or is capable of performing in compliance with 8.6.4.20.4(a) and shall include,
- 2) A test record tag as required in 8.6.1.7.2 shall be provided.

Upon completion of the test, the means of adjusting the holding capacity shall be sealed to prevent changing the adjustment without breaking the seal. The seal shall bear or otherwise attach the identification of the person or firm that installed it. (See also 8.6.1.7.2 Periodic Test Record Tags)

Freight elevators of Class C2 loading shall sustain and level the elevator car with the maximum load shown on the freight elevator loading sign (Item 2.17.2.1). (Note: Aligns with 4.6.4 of B44.2-10) For elevators installed under A17.1-2000/B44-00 and later editions, have the brake setting verified in accordance with the data on the brake marking plate.

8.6.4.20.5 Reserved

8.6.4.20.5 Emergency and Standby Power Operation.

Not adopted. (see 8.6.4.19.5)

Operation of elevators equipped with emergency or standby power shall be examined and tested for conformance with the applicable requirements (Item 2.17.2.1 1.17.2.1).

8.6.4.20.6 Emergency Terminal Stopping and Speed-Limiting Devices.

Emergency terminal speed-limiting devices, where provided, shall be tested for conformance with applicable requirements (2.25.4; and Item 5.3.2.1). For static control elevators, emergency terminal stopping devices, when provided, shall be tested for conformance with applicable requirements (2.25.4) (Item 2.28.2.1).

8.6.4.20.7 Power Opening of Doors.

Determine that power opening of car and hoistway doors only occurs as permitted by the applicable requirements when the car is at rest at the landing, or in the landing zone, except, in the case of static control, check that power shall not be applied until the car is within 300 mm (12 in.) of the landing (Item 1.10.2).

Table 8.6.4.20.4 Brake Test Loads

Class of Service	Not Permitted to Carry Passengers	Permitted to Carry Passengers
Passenger	Not applicable	125% rated load
Freight	Rated load	125% rated load
One Piece Load by 2.16.7	Rated load or one piece load, whichever is greater	125% rated load or one piece load, whichever is greater

8.6.4.20.8 Leveling Zone and Leveling Speed.

Check that the leveling zone does not exceed the maximum allowable distance. Check that the leveling speed does not exceed 0.75 m/s (150 ft/min). For static control elevators, the person or firm installing or maintaining the equipment shall provide a written checkout procedure and demonstrate that the leveling speed with the doors open is limited to a maximum of 0.75 m/s (150 ft/min) and that the speed-limiting (or speed monitor) means is independent of the normal means of controlling this speed [Item 1.10.2(b)].

8.6.4.20.9 Inner Landing Zone.

For static control elevators, check that the zone in which the car can move with the doors open is not more than 75 mm (3 in.) above or below the landing (Item 1.10.2.1).

8.6.4.20.10 Braking System, Traction and Traction Limits.

Traction and traction limits on traction elevators shall be verified for compliance with 2.24.2.3 in accordance with 8.6.4.20.10(a) or subject to approval by the authority having jurisdiction, with 8.6.4.20.10(b).

(a) Dynamic Stopping Test.

Traction elevators shall be tested to ensure that:

- (1) during an emergency stop initiated by any of the electrical protective device(s) listed in 2.26.2 (except 2.26.2.13), (except buffer switches for oil buffers used with Type C car safeties) at the rated speed in the down direction, with passenger elevators and freight elevators permitted to carry passengers carrying 125% of their rated load, or with freight elevators carrying their rated load, cars shall safely stop and hold the load (see 2.24.2.3.1, 2.24.2.3.2 and 2.24.2.3.3); and
- (2) if either the car or the counterweight bottoms on its buffers or becomes otherwise immovable, one of the following shall occur (see 2.24.2.3.4):
 - (a) the suspension means shall lose traction with respect to the drive sheave and not allow the car or counterweight to be raised; or
 - (b) the driving system shall stall and not allow the car or counterweight to be raised.
- (3) with a load in the car in accordance with Table 8.6.4.20.4, the braking system and traction relation shall be tested to show the system can safely stop and hold the car, and where required by 2.16.2.2.4(c) shall relever the car.

(b) Alternative Test Method for Braking System, Traction and Traction Limits.

Alternative test methods shall comply with requirement 8.6.11.10 and the following;

- (1) Other methods for verifying traction for compliance with 2.24.2.3, and traction limits in compliance with 2.24.2.3.4 shall be permitted provided the test method complies with the following:
 - (a) When applied, the method shall verify that the elevator traction system performs, or is capable of performing, in compliance with the performance requirements of 8.6.4.20.10(a); and
 - (b) The braking system and traction relation shall be tested to show the system can safely stop and hold the car, and where required by 2.16.2.2.4(c) shall relever the car without load in the car.
- (2) A test record tag as required in 8.6.1.7.2 shall be provided.

8.6.4.20.11 Emergency Brake. (Note: Aligns with 4.29 of B44.2-10)

For passenger elevators and all freight elevators, the emergency brake shall be tested at rated speed in the up direction with no load in the car for compliance with 2.19.3.2.

8.6.4.21 Drive Sheaves With Nonmetallic Groove Surfaces and Steel Wire Ropes.

Where steel wire ropes have worn through a nonmetallic drive-sheave groove surface and have not damaged the supporting sheave surface beneath the nonmetallic sheave groove surface, the groove surfaces shall be replaced and the steel wire ropes shall be inspected for conformance to the criteria of ASME A17.6, Section 1.10, and replaced, if necessary. Where the sheave-supporting surfaces have been damaged, the drive sheave shall also be replaced or repaired and the groove surfaces shall be replaced.

8.6.4.22 Maintenance of Seismic Devices

8.6.4.22.1 A seismic switch, where provided, shall be maintained in accordance with the manufacturer's recommendations.

8.6.4.22.2 The counterweight displacement switch components, where provided, shall be:

- a) maintained in accordance with the manufacturer's recommendations, and
- b) properly aligned and tensioned and kept free of dirt, debris and other contaminants that may interfere with proper operation.

8.6.5 Maintenance and Testing of Hydraulic Elevators

The maintenance and testing of hydraulic elevators shall conform to 8.6.1 through 8.6.3, and the applicable requirements of 8.6.4 and 8.6.5.

8.6.5.1 Pressure Tanks

8.6.5.1.1 Cleaning.

Pressure tanks shall be thoroughly cleaned internally at least every 3 years and prior to the inspection and test required by 8.6.5.15.

8.6.5.1.2 Level.

The liquid level in pressure tanks should be maintained at about two-thirds of the capacity of the tank.

8.6.5.2 Piston Rods.

Piston rods of roped-hydraulic elevators shall be thoroughly cleaned prior to the test required by 8.6.5.15.

8.6.5.3 Water-Hydraulic Plungers.

Plungers of water-hydraulic elevators shall be thoroughly cleaned to remove any buildup of rust and scale prior to the test required by 8.6.5.15.

8.6.5.4 Tank Levels.

The level of oil in the oil tanks shall be checked and, where necessary, adjusted to comply with the prescribed minimum and maximum level.

8.6.5.5 Gland Packings and Seals

8.6.5.5.1 Examination and Maintenance.

Where pressure piping, valves, and cylinders use packing glands or seals, they shall be examined and maintained to prevent excessive loss of fluid. When a cylinder packing or seal or a pressure-piping seal is replaced, the integrity of the entire hydraulic system shall be verified by operating it at relief-valve pressure for not less than 15 sec.

8.6.5.5.2 Collection of Oil Leakage.

Oil leakage collected from each cylinder head seals or packing gland shall not exceed 19 L (5 gal) before removal. The container shall be covered and shall not be permitted to overflow.

8.6.5.6 Flexible Hoses and Fittings.

Flexible hose and fittings assemblies installed between the check valve or control valve and the cylinder, and that are not equipped with an overspeed valve conforming to 3.19.4.7, shall be replaced not more than 6 years beyond the installation date. Existing hose assemblies that do not indicate an installation or replacement date shall be replaced. Replacements shall conform to 3.19.3.3.1(a) through (e) and 3.19.3.3.2.

8.6.5.7 Record of Oil Usage.

(a) Oil monitoring shall conform to 2.9 of the Code Adoption Document.

For systems where the part of cylinder and/or piping is not exposed for visible examination, a written record shall be kept of the quantity of hydraulic fluid added to the system and emptied from leakage collection containers and pans. The written record shall be kept in the machine room.

(b) When the quantity of hydraulic fluid loss cannot be accounted for, the test specified in 8.6.5.14.1 and 8.6.5.14.2 shall be made.

8.6.5.8 Safety Bulkhead.

Not later than May 1, 2015, hydraulic cylinders installed below ground shall conform to 3.18.3.4, or the elevator shall conform to 8.6.5.8(a) or 8.6.5.8(b):

- (a) the elevator shall be provided with car safeties conforming to 3.17.1 and guide rails, guide-rail supports, and fastenings conforming to 3.23.1; or
- (b) the elevator shall be provided with a plunger gripper conforming to 3.17.3. The plunger gripper shall grip the plunger when the applicable maximum governor tripping speed in Table 2.18.2.1 is achieved.

8.6.5.9 Relief-Valve Setting.

The relief-valve adjustment shall be examined to ensure that the seal is intact. If the relief-valve seal is not intact, tests shall be conducted in accordance with 8.6.5.14.1.

8.6.5.10 Runby and Clearances After Reropeing or Shortening.

The minimum car and counterweight clearances and runby shall be maintained in compliance with the applicable code when replacement suspension ropes are installed or when existing suspension ropes are shortened.

8.6.5.11 Cylinder Corrosion Protection and Monitoring

8.6.5.11.1 Corrosion Protection Monitoring.

Where monitored cylinder corrosion protection is required, the monitoring means shall be examined and maintained.

8.6.5.11.2 Corrosion Protection Loss.

If the monitoring means detects that loss of corrosion protection has occurred, the means of corrosion protection shall be repaired or replaced.

8.6.5.12 Anticreep and Low Oil Protection.

The anticreep function and low oil protection shall be maintained to operate in compliance with the applicable code.

8.6.5.13 Overspeed Valve Setting.

Overspeed valves shall be calibrated and maintained in accordance with the manufacturer's recommendations including replacement of the valve seals or entire valves at intervals specified.

All elevators provided with field adjustable overspeed valves shall have the adjustment means examined to ensure the seal is intact. If the overspeed adjustment seal is not intact, compliance with 8.6.5.16.5 shall be verified and a new seal shall be installed.

8.6.5.14 Periodic Test Requirements — Category 1

NOTE: For test frequency, see 8.11.1.3.

8.6.5.14.1 Relief Valve Verification of Setting and System Pressure Test.

The relief valve setting shall be tested to determine that it will bypass the full output of the pump before the pressure exceeds 150% of the working pressure. Once this is established, test the entire system to ensure that it will withstand this pressure. It shall be sealed if the relief valve setting is altered or if the seal is broken (Item 2.31).

8.6.5.14.2 Hydraulic Cylinders and Pressure Piping.

This test shall be performed after the relief valve setting and system pressure test in 8.6.5.14.1:

- (a) Cylinders and pressure piping that are exposed shall be visually examined.
- (b) Cylinders and pressure piping that are not exposed shall be tested for leakage, which cannot be accounted for by the visual examination in 8.6.5.14.2(a) (Item 2.36.2). The duration of the test shall be for a minimum of 15 min (Item 2.36.2).

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 2.28)
- (b) Governors (8.6.4.19.3) (Item 2.13)
- (c) Safeties (8.6.4.19.2) (Item 2.9)
- (d) Oil Buffers (8.6.4.19.1) (Items 3.29 and 5.8)
- (e) Firefighters' Emergency Operation (8.6.4.19.6) (Items 6.3 and 6.4)
- (f) Standby or Emergency Power Operation (8.6.4.19.7) (Item 1.17)

NOTE: Absorption of regenerated power (2.26.10) does not apply to hydraulic elevators.

- (g) Power Operations of Door System (8.6.4.19.8) (Items 4.6 and 4.7)
- (h) 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)

8.6.5.14.4 Flexible Hose and Fitting Assemblies.

Flexible hose and fitting assemblies shall be tested at the relief valve setting pressure for a minimum of 30 s. Any signs of leakage, slippage of hose fittings, damage to outer hose covering sufficient to expose reinforcement, or bulging, or distortions of the hose body is cause for replacement.

CAUTION: If the motor protection or motor overloads trip during this test, DO NOT change the adjustment or jumper the overloads. Damage to the motor can result from running the motor without adequate overload protection.

8.6.5.14.5 Pressure Switch.

The pressure switch and its related circuits shall be tested for conformance with applicable requirements (3.26.8) (Item 2.37).

8.6.5.14.6 Power Operation of Door System.

The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.2). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate.

8.6.5.14.7 Slack-Rope Device.

The slack-rope device shall be tested on a roped hydraulic elevator by causing a slack-rope condition to occur and verify that it will remove power in compliance with 3.18.1.2.5 (Item 3.31.2).

8.6.5.14.8 Plunger Gripper

A plunger gripper, where provided, shall be examined and tested per 8.10.3.2.5(n), except testing is permitted to be performed without rated load.

8.6.5.15 Periodic Test Requirements — Category 3

NOTE: For test frequency, see 8.11.1.3.

8.6.5.15.1 Unexposed Portions of Pistons.

Piston rods of roped water-hydraulic elevators shall be exposed, thoroughly cleaned, and examined for wear or corrosion. The piston rods shall be replaced if at any place the diameter is less than the root diameter of the threads (Item 5.11).

8.6.5.15.2 Pressure Vessels.

Pressure vessels shall be checked to determine conformance with the applicable requirements, thoroughly cleaned, internally examined, and then subjected to a hydrostatic test at 150% of the working pressure for 1 min (3.24.4) (Item 2.33).

8.6.5.16 Periodic Test Requirements — Category 5

NOTE: For test frequency, see 8.11.1.3.

8.6.5.16.1 Governors, safeties, and oil buffers, where provided, shall be inspected and tested as specified in 8.6.4.20.1, 8.6.4.20.2, and 8.6.4.20.3 at intervals specified by the authority having jurisdiction. Where activation is allowed or required both by overspeed and slack rope, the safety shall have both means of activation tested.

8.6.5.16.2 Coated ropes shall be required to have a magnetic flux test capable of detecting broken wires, in addition to a visual examination.

8.6.5.16.3 Wire rope fastenings shall be examined in accordance with Item 3.23 of A17.2. Fastenings on roped-hydraulic elevators utilizing pistons that are hidden by cylinder head seals shall also be examined, even if it is temporarily necessary to support the car by other means and disassemble the cylinder head.

8.6.5.16.4 Not adopted (see 8.6.5.14.8). ~~A plunger gripper, where provided, shall be examined and tested per 8.10.3.2.5(n).~~

8.6.5.16.5 Overspeed valves, where provided, shall be inspected and tested to verify that they will stop the car, traveling down with rated load, within the specified limits of 3.19.4.7.5(a) using a written procedure supplied by the valve manufacturer or the person or firm maintaining the equipment. If the seal has been altered or broken, the overspeed valve shall be resealed after successful test (Item 5.15.2).

8.6.5.16.6 Freight elevators of Class C2 loading shall sustain and level the elevator car with the maximum load shown on the freight elevator loading sign (Item 2.17.2.2).

8.6.5.17 Plunger Gripper. Plunger grippers, where provided, shall be maintained in accordance with the manufacturer's recommendations.

8.6.6 Maintenance and Testing of Elevators With Other Types of Driving Machines

8.6.6.1 Rack-and-Pinion Elevators.

The maintenance of rack-and-pinion elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6. Where the car and/or counterweight safeties are sealed to prevent field adjustment and examination, they shall be returned to the manufacturer for replacement of components and calibration at the interval recommended by the manufacturer. A data plate shall be installed to show the date that the next maintenance/calibration is due.

8.6.6.1.1 Rack-and-Pinion Elevator Periodic Test.

Rack-and-pinion elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20. The test requirements shall apply to the corresponding requirements of 4.1. Any additional requirements for this equipment shall also be checked during these tests.

8.6.6.2 Screw-Column Elevators.

The maintenance of screw-column elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.6.2.1 Screw-Column Elevator Periodic Test.

Screw-column elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 4.2. Any additional requirements for this equipment shall also be checked during these tests.

8.6.6.3 Hand Elevators.

The maintenance of hand elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.6.3.1 Hand Elevator Periodic Test.

Hand elevators shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.4.20. The test requirements shall apply to the corresponding requirements in 4.3. Any additional requirements for this equipment shall also be checked during these tests. The driving-machine brake required by 4.3.19.2 shall be tested with both empty car and rated load in the car.

8.6.7 Maintenance and Testing of Special Application Elevators

8.6.7.1 Inclined Elevators.

The maintenance of inclined elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.1.1 Periodic Test.

Inclined elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.1. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.2 Limited-Use/Limited-Application Elevators.

The maintenance of limited-use/limited-application elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.2.1 Periodic Test.

Limited-use/limited applications elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.2. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.3 Private Residence Elevators.

The maintenance of private residence elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.3.1 Periodic Test.

Private residence elevators and lifts should be subject to the periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.3. Any additional requirements for this equipment should also be checked during these tests.

8.6.7.4 Private Residence Inclined Elevators.

The maintenance of private residence inclined elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.4.1 Periodic Test.

Private residence inclined elevators and lifts should be subject to the periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.4. Any additional requirements for this equipment should also be checked during these tests.

8.6.7.5 Power Sidewalk Elevators.

The maintenance of power sidewalk elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.5.1 Periodic Test.

Sidewalk elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.5. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.6 Rooftop Elevators.

The maintenance of rooftop elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.6.1 Periodic Test.

Rooftop elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.6. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.7 Special Purpose Personnel Elevators.

Except in jurisdictions enforcing NBCC, maintenance of special purpose personnel elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6 (see Section 5.7).

8.6.7.7.1 Periodic Test.

Special purpose personnel elevators shall be subject to the applicable tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.7. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.8 Shipboard Elevators.

The maintenance of shipboard elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.8.1 Periodic Test.

Shipboard elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.8. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.9 Mine Elevators.

Except in jurisdictions enforcing NBCC, maintenance of mine elevators shall conform to 8.6.7.9.1 through 8.6.7.9.5. ~~8.6.7.9.1~~ Rails on mine elevators shall be kept free of rust and scale, that will prevent proper operation of the car (or counterweight) safety device.

~~8.6.7.9.2~~ Oil buffers that are installed on elevators where water can accumulate in the pit shall be checked every 60 days for accumulation of water.

~~8.6.7.9.3~~ The mine elevator hoistway shall be maintained to minimize the entry of water and formation of ice, that would interfere with the operation of the elevator.

8.6.7.9.4 Suspension, Compensating, and Governor Ropes.

When elevator suspension, compensating, or governor ropes show deterioration caused by corrosion, the replacement wire ropes shall be constructed of electrogalvanized or other types of corrosion resistant material suitable for the environment and application. The installation shall conform to 8.7.2.21 for suspension ropes and 8.7.2.19 for governor ropes. Where emergency replacement of wire ropes is required, noncorrosion resistant wire ropes shall be permitted to be installed for temporary use. These emergency replacement noncorrosion resistant wire ropes shall be replaced by corrosion resistant wire ropes within one year of installation.

~~8.6.7.9.5 Periodic Test.~~

~~Mine elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.9. Any additional requirements for this equipment shall also be checked during these tests.~~

8.6.7.10 Elevators Used for Construction.

The maintenance of elevators used for construction shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.10.1 Periodic Test Requirements — Category 1.

For electric elevators, test as specified in 8.6.4.19.1 through 8.6.4.19.5. For hydraulic elevators, test as specified in 8.6.5.14.1, 8.6.5.14.2, 8.6.5.14.3(a) through (d), and 8.6.5.14.4. Where permanent doors have been installed, test as specified in 8.6.4.19.8.

8.6.7.10.2 Periodic Test Requirements — Category 3.

For hydraulic elevators, test as specified in 8.6.5.15.

8.6.7.10.3 Periodic Test Requirements — Category 5.

For electric elevators, test as specified in 8.6.4.20.1 through 8.6.4.20.4, and 8.6.4.20.6. For hydraulic elevators, test as specified in 8.6.5.16.

8.6.7.11 Wind Turbine Tower Elevator

The maintenance of wind turbine tower elevators shall conform to the applicable requirements of 8.6.7.11.1 through 8.6.7.11.3.

8.6.7.11.1 Periodic Test Requirements – Category 1

Wire rope gripping safeties with slack rope actuation, or wire rope gripping safeties with an internal centrifugal governor shall be tested with rated load in the car. Governor operated safeties shall be tested by manually tripping the governor at the rated speed. The overspeed switch on the governor shall be made ineffective during the test.

8.6.7.11.2 Wind Turbine Tower Elevators.

The maintenance of wind turbine tower elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.11.3 Car and Counterweight Safeties.

Types A, B, and C car safeties except those operating on wood guide rails, and their governors, wire rope gripping safeties with slack rope actuation, or wire rope gripping safeties with an internal centrifugal governor, shall be tested with rated load in the car. Counterweight safety tests shall be made with no load in the car. Tests for governor operated safeties shall be made by manually tripping the governor at the rated speed. The overspeed switch on the governor shall be made ineffective during the test. Type A safeties and wire rope gripping safeties without governors that are operated as a result of the breaking or slackening of the hoisting ropes shall be tested by obtaining the necessary slack rope to cause it to function (Item 2.29.2.1) and hold the car with rated load. The following operational conditions shall be checked (Item 2.29.2.1):

8.6.7.12 Outside Emergency Elevators.

The maintenance, repair, and replacement of outside emergency elevators shall conform to 8.6.1 through 8.6.3 and A17.7/B44.7 requirement 2.12.2.

8.6.7.12.1 Periodic Test Requirements -- Category 1.

Outside emergency elevators shall be subject to applicable periodic tests specified in 8.6.4.19.1 through 8.6.4.19.5, 8.6.4.19.7, 8.6.4.19.8, 8.6.4.19.10, and A17.7/B44.7 requirement 2.12.3. Outside emergency elevators are not required to be powered by electric driving machine motors.

8.6.7.12.2 Periodic Test Requirements -- Category 5.

Outside emergency elevators shall be subject to applicable periodic tests specified in 8.6.4.20.1 through 8.6.4.20.11 and A17.7/B44.7 requirement 2.12.3. Outside emergency elevators are not required to be powered by electric driving machine motors.

8.6.8 Maintenance and Testing of Escalators and Moving Walks

- (a) The maintenance of escalators submitted and registered to A17.1-2004/B44-04 and later (effective January 1, 2006) shall conform to 8.6.1 through 8.6.3 and 8.6.8.
- (b) Not later than May 1, 2015 all escalators shall be brought into conformance with the requirements of 8.6.8.2 (Step-to-Skirt Clearance) and 8.6.8.3 (Step/Skirt Performance Index).
- (c) Escalators installed to CSA B44-75s3 (1982) or earlier, and for escalators where the skirt panels are not made of low-friction material or have not been permanently treated with a friction-reducing material, a friction-reducing agent shall be applied monthly by authorized personnel until those escalators are brought into conformance with 8.6.8.2 and 8.6.8.3.3 after which the application of friction-reducing agents will no longer be permitted, and the requirements of 8.6.8(a) apply. [241/10]

8.6.8.1 Handrails.

Handrails shall operate at the speed specified in the applicable codes. The handrail speed monitoring device, when provided, shall cause electric power to be removed from the driving-machine motor and brake when the speed of either handrail deviates from the step speed by 15% or more and continuously within a 2 s to 6 s range. Cracked or damaged handrails that present a pinching effect shall be repaired or replaced. Splicing of handrails shall be done in such a manner that the joint is free of pinching effect.

8.6.8.2 Step-to-Skirt Clearance.

Clearances shall be maintained in compliance with the applicable codes. Alternatively, the clearance on either side of the steps and between the steps and the adjacent skirt guard shall not exceed 4 mm (0.16 in.) and the sum of the clearances on both sides shall not exceed 7 mm (0.28 in.).

NOTE: The allowable clearances are applicable as follows:

- (a) ASME A17.1-1955 through A17.1d-1970; not more than 4.8 mm (0.1875 in.) with a total of both sides not more than 6.4 mm (0.25 in.), except where skirt obstruction devices are installed at the lower entrance for escalators installed under the ASME A17.1-1965 through A17.1d-1970.
- (b) ASME A17.1-1971 through A17.1-1979 editions; not more than 9.5 mm (0.375 in.) on each side.
- (c) ASME A17.1-1980 through A17.1c-1999 and ASME A17.3; not more than 4.8 mm (0.1875 in.) on each side.
- (d) For equipment installed under ASME A17.1d-2000 and later editions, the clearance (loaded gap) not more than 5 mm (0.2 in.) when 110 N (25 lbf) force is laterally applied from the step to the adjacent skirt panel. See 6.1.3.3.5.

NOTE (on CSA B44 Requirements): The allowable clearances are applicable as follows:

- (a) B44-1960 through B44S3-1982 — not more than 4.8 mm (0.1875 in.) on each side. Sum of both sides not more than 6.4 mm (0.25 in.).
- (b) B44-1985 through B44S2-1998 — Not more than 5 mm (0.197 in.) on each side. Sum of both sides not more than 6 mm (0.236 in.).
- (c) For equipment installed under CSA B44-00—not more than 4 mm (0.157 in.) on each side. Sum of both sides not more than 7 mm (0.28 in.)
- (d) For equipment installed under CSA B44-00 Update 1 and later editions — clearance (loaded gap) shall be not more than 5 mm (0.2 in.) when 110 N (25 lbf) force is laterally applied from the step to the adjacent skirt panel. See 6.1.3.3.5.

8.6.8.3 Step/Skirt Performance Index

8.6.8.3.1 The step/skirt performance index, when the escalator is subjected to the test specified in 8.6.8.15.19, shall be the maximum value of the recorded instantaneous step/skirt index $e^y/(e^y + 1)$, where

(SI Units)

$$e = 2.7183$$

$$y = -3.77 + 2.37(u) + 0.37(Lg)$$

u = the sliding coefficient of friction of a polycarbonate test specimen on the skirt panel at the measurement point calculated when subjected to a 110 N normal load. The coefficient of friction shall be measured without addition of any field-applied lubricant.

Lg = the clearance between the step and the adjacent skirt panel when 110 N is applied from the step to skirt panel, mm

The applied load shall not deviate from 110 N by more than ± 11 N. The load shall be distributed over a round or square area not less than 1 940 mm² and not more than 3 870 mm².

(Imperial Units)

$$e = 2.7183$$

$$y = -3.77 + 2.37(u) + 9.3(Lg)$$

u = the sliding coefficient of friction of a polycarbonate test specimen on the skirt panel at the measurement point calculated when subjected to a 25 lbf normal load. The coefficient of friction shall be measured without addition of any field-applied lubricant.

Lg = the clearance between the step and the adjacent skirt panel when 25 lbf is applied from the step to skirt panel, in.

The applied load shall not deviate from 25 lbf by more than ± 2.5 lbf. The load shall be distributed over a round or square area not less than 3 in.² and not more than 6 in.²

8.6.8.3.2 The step/skirt performance index polycarbonate test specimen shall conform to the following specifications:

- (a) Material: Polycarbonate without fillers
- (b) Color: Natural, no pigments
- (c) Finish: Glossy (roughness less than 0.8 μm (32 $\mu\text{in.}$)
- (d) Area in contact with skirt panel: $2\,900 \pm 325$ mm² (4.5 ± 0.5 in.²) and at least 0.8 mm (0.03 in.) thick
- (e) Specification: GE Lexan 100 series or equivalent polycarbonate

8.6.8.3.3 The escalator step/skirt performance index shall be one of the following, whichever is applicable:

- (a) ≤ 0.15
- (b) ≤ 0.25 for escalators installed under ASME A17.1a-2002/CSA B44-00 Update 1 and later editions and when a skirt deflector device complying with the requirements of 6.1.3.3.7 is provided
- (c) ≤ 0.4 for escalators installed under ASME A17.1-2000/CSA B44-00 and earlier editions and a skirt deflector device is provided

8.6.8.4 Combplates

8.6.8.4.1 Combs with any broken teeth shall be repaired or replaced. Where two adjacent teeth are missing, the escalator shall be removed from operation.

8.6.8.4.2 Combs shall be adjusted and maintained in mesh with the slots in the step surface so that the points of the teeth are always below the upper surface of the treads.

8.6.8.4.3 For units installed under A17.1b-1992 and later editions of the Code, comb-step impact devices shall be adjusted to operate in compliance with the forces specified in 6.1.6.3.13.

8.6.8.5 Escalator Skirt Panels and Skirt Obstruction Devices

(a) Damaged skirt or dynamic skirt panels shall be replaced or repaired and the installation shall conform to 8.6.8.2 and 8.6.8.3.3.

(b) The skirt obstruction devices shall be checked for proper adjustment and operation.

8.6.8.6 Steps

8.6.8.6.1 Steps with broken treads shall be repaired or replaced.

8.6.8.6.2 Steps with dented or damaged risers shall be repaired or replaced.

8.6.8.6.3 Steps that are worn or damaged and that do not provide proper engagement with the combplates shall be repaired or replaced.

8.6.8.6.4 The width or depth of the slots in the tread surface of steps that do not meet the applicable Code requirements shall be repaired or replaced.

8.6.8.7 Rollers, Tracks, and Chains. Rollers, tracks, and chains shall be examined, repaired, or replaced when necessary to ensure required clearances.

8.6.8.8 Signs. Caution signs shall be provided in compliance with 6.1.6.9. Damaged or missing signs shall be replaced. Additional signs, if provided, shall comply with 6.1.6.9.

8.6.8.9 Guards at Ceiling Intersections.

Damaged or missing guards shall be repaired or replaced in compliance with 6.1.3.3.11.

8.6.8.10 Antislid e Devices.

Damaged or missing antislid e devices shall be repaired or replaced.

8.6.8.11 Handrail Guards.

Damaged or missing hand or finger guards shall be repaired or replaced.

8.6.8.12 Brakes.

Brakes shall be maintained in compliance with the applicable requirements of 8.6.4.6, and adjusted to the torque shown on the data plate, where provided.

8.6.8.13 Cleaning.

The interiors of escalators and their components shall be cleaned to prevent an accumulation of oil, grease, lint, dirt, and refuse. The frequency of the cleaning will depend on service and conditions, but an examination to determine if cleaning is necessary shall be required at least once a year.

8.6.8.14 Entrance and Egress Ends.

Escalator landing plates shall be properly secured in place. Landing plates shall be kept free of tripping hazards and maintained to provide a secure foothold. All required entrance and exit safety zones shall be kept free from obstructions.

8.6.8.15 Periodic Test Requirements — Category 1

NOTE: For test frequency, see 8.11.1.3.

8.6.8.15.1 Machine Space.

The machine space access, lighting, receptacles, operation, and conditions shall be examined (Items 8.1 and 10.1). All escalator components shall be cleaned and examined. These components shall include, but not be limited to

- (a) oil drip pans
- (b) upper and lower stations
- (c) steps and rollers
- (d) step frames, risers, and treads
- (e) tracks
- (f) truss components

8.6.8.15.2 Stop Switch.

The machine space stop switches shall be tested (Items 8.2 and 10.2).

8.6.8.15.3 Controller and Wiring.

Controller and wiring shall be examined (Items 8.3 and 10.3).

8.6.8.15.4 Drive Machine and Brake.

The drive machine and brakes shall be examined and tested, including test of the brake torque (Items 8.4 and 10.4).

8.6.8.15.5 Speed Governor.

The mechanical speed governor, if required, shall be tested by manually operating the trip mechanism (Items 8.5 and 10.5).

8.6.8.15.6 Broken Drive-Chain Device.

Operation of the broken drive-chain device, on the drive chain, shall be tested by manually operating the actuating mechanism (Items 8.6 and 10.6).

8.6.8.15.7 Reversal Stop Switch.

The reversal stop switch (to prevent reversal when operating in the ascending direction) shall be tested by manually operating it to determine that it functions properly (Items 8.7 and 10.7). If the device cannot be manually operated, the person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate the device complies with the requirements of the Code.

8.6.8.15.8 Broken Step-Chain or Treadway Device.

The broken or slack step-chain or treadway device shall be tested by manual operation (Items 8.8 and 10.8).

8.6.8.15.9 Step Upthrust Device.

The operation of the step upthrust device shall be tested by manually displacing the step, causing the device to operate (Items 7.9 and 8.9).

8.6.8.15.10 Missing Step or Pallet Device.

The missing step or pallet device shall be tested by removing a step or pallet and verifying that the device will properly function (Items 8.10 and 10.10).

8.6.8.15.11 Step or Pallet Level Device.

The step, or pallet level device shall be tested by simulating an out of level step or pallet and verifying that the device functions properly (Items 8.11 and 10.11).

8.6.8.15.12 Steps, Pallet, Step or Pallet Chain, and Trusses.

The steps, pallet, step or pallet chain, and trusses shall be visually examined for structural defects, mechanical condition, and buildup of combustible materials (Items 8.12 and 10.12).

8.6.8.15.13 Handrail Safety Systems.

The handrail operating system shall be visually examined for condition. The handrail entry device, and the stopped handrail or handrail speed monitoring device, shall be tested by disconnecting of handrail motion sensor (Items 8.13 and 10.13). The person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate that the handrail speed does not change when a retarding force, up to the maximum required by code, is applied opposite to the direction of travel (Items 7.3 and 9.3).

8.6.8.15.14 For outdoor escalators and moving walks that require heaters, test the heaters for condition and operation (Items 8.3 and 10.3).

8.6.8.15.15 Permissible Stretch in Escalator Chains.

Escalators shall have periodic examination of the clearance between successive steps to detect wear or stretch of the step chains. The clearance shall not exceed 6 mm (0.25 in.) (Item 7.9).

8.6.8.15.16 Disconnected Motor Safety Device.

Operation of the device shall be tested and verified (see 6.1.6.3.10 or 6.2.6.3.8) (Item 8.6 or 10.6).

8.6.8.15.17 Response to Smoke Detectors (6.1.6.8 or 6.2.6.7) (Items 8.15 and 10.15)

8.6.8.15.18 Comb-Step or Comb-Pallet Impact Device.

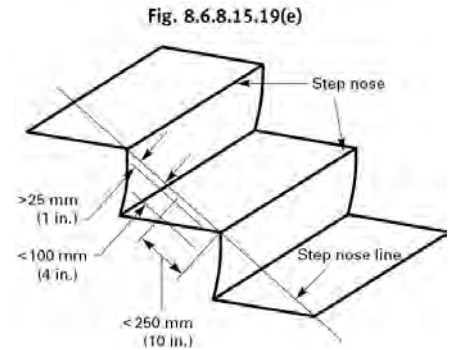
For escalator or moving walks required to comply with Rules 805.1u, 805.3n, 905.1r, or 905.3k in A17.1d-2000 or earlier editions, or requirements 6.1.6.3.13 or 6.2.6.3.11, the comb-step/pallet-impact devices shall be tested in both the vertical and horizontal directions by placing a vertical and horizontal force on the combplate to cause operation of the device. The vertical and horizontal tests shall be independent of each other. The horizontal force shall be applied at the front edge center and both sides; the force shall be applied in the direction of travel into the combplate. The vertical force shall be applied at

the front edge center. Both the vertical and horizontal forces required to operate the device shall be recorded (6.1.6.3.13 and 6.2.6.3.11; Items 7.7.2 and 9.7.2). See 8.6.9.2.3 for horizontal forces required.

8.6.8.15.19 Step/Skirt Performance Index

- (a) The escalator skirt shall not be cleaned, lubricated, or otherwise modified in preparation for testing. The escalator instantaneous step/skirt index measurements [6.1.3.3.9(a)] shall be recorded at intervals no larger than 150 mm (6 in.) from each side of two distinct steps along the inclined portion of the escalator, where the steps are fully extended. Test steps shall be separated by a minimum of 8 steps.
- (b) A load of 110 N (25 lbf) shall be laterally applied from the step to the adjacent skirt panel. The applied load shall not deviate from 110 N (25 lbf) by more than ± 11 N (2.5 lbf). The load shall be distributed over a round or square area not less than 1 940 mm² (3 in.2) and not more than 3 870 mm² (6 in.2).
- (c) No vertical load exceeding 220 N (50 lbf) shall be applied to the test step and adjacent steps.
- (d) The coefficient of friction shall be measured with the test specimen conforming to the requirements of 8.6.8.3.2 sliding in the direction of the step motion under a 110 N (25 lbf) normal force at the operating speed of the escalator and shall be measured with devices having sensitivity better than ± 2.2 N (0.5 lbf). The direction of step motion shall be the direction of normal operation. If the escalator is operated in both directions, the down direction shall be used for the test.

- (e) For both the coefficient of friction measurement and the loaded gap measurements, the center of the applied load shall be between 25 mm (1 in.) and 100 mm (4 in.) below the nose line of the steps. The center of the applied load shall be not more than 250 mm (10 in.) from the nose of the step. See Fig. 8.6.8.15.19(e).
- (f) The step/skirt performance index shall conform to the requirements in 8.6.8.3 or A17.3, Requirement 5.1.11 (Item 7.17).



8.6.8.15.20 Clearance Between Step and Skirt (Loaded Gap).

Escalators installed under ASME A17.1d–2000 shall be tested as follows (Item 7.17):

- (a) Loaded gap measurements shall be taken at intervals not exceeding 300 mm (12 in.) in transition region (6.1.3.6.5) and before the steps are fully extended. These measurements shall be made independently on each side of the escalator.
- (b) The applied load shall not deviate from 110 N (25 lbf) by more than ± 11 N (2.5 lbf) (6.1.3.3.5). The load shall be distributed over a round or square area no less than 1 940 mm² (3 in.2) and no more than 3 870 mm² (6 in.2).
- (c) For the loaded gap measurements, the center of the applied load shall be between 25 mm (1 in.) and 100 mm (4 in.) below the nose line of the steps. The center of the applied load shall be not more than 250mm (10 in.) from the nose of the step. See Fig. 8.6.8.15.19(e).

8.6.8.15.21 Inspection control devices shall be tested and inspected to determine conformance with the requirements of 6.1.6.2.2 for escalators and 6.2.6.2.2 for moving walks.

8.6.8.15.22 Step Lateral Displacement Device (6.1.6.3.14).

For curved escalators, manually test the device.

8.6.8.15.23 Seismic Risk Zones 2 or Greater.

Verify that operation of the seismic switch complies with requirements of 8.5.4 (Items 7.20.2 and 9.20.2).

8.6.8.15.24 Maintenance of Seismic Devices.

A seismic switch, where provided, shall be maintained in accordance with the manufacturer's recommendations.

8.6.9 Maintenance of Moving Walks

The maintenance of moving walks shall conform to 8.6.1 through 8.6.3 and 8.6.9.

8.6.9.1 Handrails.

Handrails shall operate at the speed specified in applicable codes. The handrail speed monitoring device, when provided, shall cause electric power to be removed from the driving-machine motor and brake when the speed of either handrail deviates from the treadway by 15% or more and continuously within a 2 s to 6 s range. Cracked or damaged handrails that present a pinching effect shall be repaired or replaced. Splicing of handrails shall be done in such a manner that the joint is free of pinching effect.

8.6.9.2 Combplates

8.6.9.2.1 Combs with any broken teeth shall be repaired or replaced.

8.6.9.2.2 Combs shall be adjusted and maintained in mesh with the slots in the treadway surface so that the points of the teeth are always below the upper surface of the treads.

8.6.9.2.3 For units installed under A17.1b–1992 and later editions of the Code, comb-pallet impact devices shall be adjusted to operate in compliance with the forces specified in 6.2.6.3.11.

8.6.9.3 Pallets

8.6.9.3.1 Pallets with broken treads shall be repaired or replaced.

8.6.9.3.2 Intermeshing moving walk pallets that are damaged at the mesh shall be repaired or replaced.

8.6.9.3.3 Pallets that are worn or damaged and that do not provide proper engagement with the combplates shall be repaired or replaced.

8.6.9.3.4 The width or depth of the slots in the tread surface of pallets that do not meet the applicable Code requirements shall be repaired or replaced.

8.6.9.4 Rollers, Tracks, and Chains.

Rollers, tracks, and chains shall be examined, repaired, or replaced when necessary to ensure required clearances.

8.6.9.5 Belt-Type Treadway.

Belt-type treadways that are damaged or worn in such a manner that the treadway does not provide a continuous unbroken treadway surface or proper engagement with the combplates shall be repaired or replaced.

8.6.9.6 Signs.

Caution signs shall be provided in compliance with 6.2.6.8. Damaged or missing signs shall be replaced. Additional signs, if provided, shall comply with 6.2.6.8.

8.6.9.7 Guards at Ceiling Intersections.

Damaged or missing guards shall be repaired or replaced in compliance with 6.2.3.3.7.

8.6.9.8 Antislid e Devices.

Damaged or missing antislid e devices shall be repaired or replaced.

8.6.9.9 Handrail Guards.

Damaged or missing hand or finger guards shall be repaired or replaced.

8.6.9.10 Brakes.

Brakes shall be maintained in compliance with the applicable requirements of 8.6.4.6, and adjusted to the torque shown on the data plate, where provided.

8.6.9.11 Cleaning.

The interiors of moving walks, and their components shall be cleaned to prevent an accumulation of oil, grease, lint, dirt, and refuse. The frequency of the cleaning will depend on service and conditions, but an examination to determine if cleaning is necessary shall be required at least once a year.

8.6.9.12 Entrance and Egress Ends.

Moving walk landing plates shall be properly secured in place. Landing plates shall be kept free of tripping hazards and maintained to provide a secure foothold. All required entrance and exit safety zones shall be kept free from obstructions.

8.6.9.13 Clearances.

The clearance between each side of the treadway and the adjacent skirt panels, when provided, shall be maintained in compliance with 6.2.3.3.6. The clearance between the top surface of the treadway and the underside of the balustrade shall be maintained in compliance with 6.2.3.3.5 for skirtless balustrades.

8.6.10 Maintenance and Testing of Dumbwaiters and Material Lifts

8.6.10.1 Material Lifts and Dumbwaiters Without Automatic Transfer Devices.

The maintenance of material lifts and dumbwaiters without automatic transfer devices shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6. **Not later May 1, 2014 than all type 'B' material lifts, and all type 'A' and type 'B' freight platform lifts shall be retrofitted as required by CAD requirement 3.9.2.**

8.6.10.1.1 Periodic Test.

Dumbwaiters shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.5.14. The test requirements shall apply to the corresponding requirements in Part 7. Any additional requirements for this equipment shall also be checked during these tests. On winding drum machines, the slack-rope devices required by 2.26.2.1 shall be permitted to be tested as specified in Item 2.18. The driving-machine brake shall be tested to determine conformance with 7.2.10 (Item 2.18).

8.6.10.2 Material Lifts and Dumbwaiters With Automatic Transfer Devices.

The maintenance of material lifts and dumbwaiters with automatic transfer devices shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.10.2.1 Periodic Test.

Material lifts and dumbwaiters with automatic transfer devices shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.5.14. The test requirements shall apply to the corresponding requirements in Part 7. Any additional requirements for this equipment shall also be checked during these tests.

8.6.11 Special Provisions

8.6.11.1 Firefighters' Emergency Operation. (239/10)

- (a) **Elevators that incorporate any form of Firefighters' Emergency Operation are required to have this operating mode tested on an annual basis to verify that the firefighters' feature is operational and ready for use by firefighters or emergency personnel if required during a fire or other emergency.**
- (b) **The minimum required inspection checks shall be those listed on the form "Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks"**
- (c) **The owner or the owner's authorized agent may perform the necessary annual testing provided they are trained and instructed in the use of Firefighters' Emergency Operation and the testing requirements.**

- (d) The owner or the owner's authorized agent shall record the results of the test on the form provided by the designated administrative authority or on a form containing not less than the tests prescribed on this form, and shall leave a copy at the location of the log book.
- (e) A record of findings shall be recorded and shall be available to elevator personnel and to the authority having jurisdiction.
- (f) Any deficiencies found during the testing shall be recorded and rectified.
- (g) Despite, (d) and (e) where the owner's authorized agent is a registered elevating devices contractor employing an appropriately qualified EDM mechanic capable of rectifying deficiencies', a single log book entry shall be permitted to indicate a successful test of Firefighters' Emergency Operation.

Note:

- 1) It is the responsibility of the elevating devices owner to ensure firefighters' emergency operation testing is performed annually.
- 2) Section 7.2 of the Ontario Fire Code requires testing at three month intervals in high buildings.
- 3) Where a dedicated function fire alarm system has been added to comply with CAD requirement 2.27.3.2.2(c) 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.

~~All elevators provided with firefighters' emergency operation shall be subjected monthly, by authorized personnel, to Phase I recall by use of the key switch, and a minimum of one floor operation on Phase II, except in jurisdictions enforcing the NBCC. Deficiencies shall be corrected. A record of findings shall be available to elevator personnel and the authority having jurisdiction.~~

8.6.11.2 Two-Way Communications Means. The two-way communications means shall be checked annually by authorized personnel in accordance with the following:

- (a) Two-way communications means shall be checked to verify that two-way communications is established; or
- (b) All elevators installed under ASME A17.1a-2002/ CSA B44-00 Update 1 and later editions shall have the two-way communications means checked by pressing the "HELP" button in the car to verify that the visual indicator [2.27.1.1.3(c)] is functional and that the answering authorized personnel can receive the building location and elevator number [2.27.1.1.3(d)]; and
- (c) Where communications from the building into the elevator is provided, check the two-way communications means to each car.

8.6.11.3 Access Keys.

Keys required for access, operation, inspection, maintenance, repair, and emergency access shall be made available only to personnel in the assigned security level, in accordance with 8.1.

8.6.11.4 Cleaning of a Car and Hoistway Transparent Enclosure

8.6.11.4.1 The cleaning of the exterior of transparent car enclosures or transparent hoistway enclosures from inside the hoistway shall be performed only by authorized personnel (see 1.3) trained in compliance with the procedures specified in 8.6.11.4.2 and 8.6.11.4.3.

8.6.11.4.2 A written cleaning procedure shall be made and kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

8.6.11.4.3 The procedure shall identify the hazards and detail the safety precautions to be utilized.

8.6.11.4.4 All personnel assigned to cleaning shall be given a copy of these procedures and all necessary training to assure that they understand and comply with the procedures.

8.6.11.4.5 A record of authorized personnel trained as specified in 8.6.11.4.4 shall be kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

8.6.11.5 Emergency Evacuation Procedures for Elevators

8.6.11.5.1 The evacuation of passengers from stalled elevators shall be performed only by authorized, elevator and emergency personnel (see 1.3) in compliance with the procedures specified in 8.6.11.5.2 through 8.6.11.5.6.

8.6.11.5.2 A written emergency evacuation procedure shall be made and kept on the premises where an elevator is located.

8.6.11.5.3 The procedure shall identify the hazards. The procedure shall also detail the safety precautions utilized in evacuating passengers from a stalled elevator.

8.6.11.5.4 All authorized personnel who are assigned to assist in evacuating passengers from a stalled elevator, and all persons who use special purpose personnel elevators and wind turbine tower elevators, shall be given a copy of these procedures and all necessary training to assure that they understand and comply with the procedures.

8.6.11.5.5 These procedures shall be available to authorized elevator and emergency personnel.

8.6.11.5.6 A record of authorized personnel trained, and all persons who use special purpose personnel elevators, as specified in 8.6.11.5.4, shall be kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

NOTE (8.6.11.5): See ASME A17.4, Guide for Emergency Personnel.

8.6.11.6 Escalators and Moving Walks Startup and Procedures

8.6.11.6.1

(a) Escalators and moving walks shall be started only by authorized personnel (see 1.3) trained in compliance with the procedures specified in 8.6.11.6.2 through 8.6.11.6.5.

(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.**

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).
- (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 these conditions is unsatisfactory in 8.6.11.6.2(a) through (l), the unit shall be placed out of service. Barricade the landing areas and notify the responsible party of the problem.

8.6.11.6.3 Escalators and moving walks subject to 24-h operation shall be checked daily by authorized personnel.

8.6.11.6.4 A record of authorized personnel trained as specified in 8.6.11.6.2 shall be kept on the premises where the escalator(s) or moving walk(s) or both is located and shall be available to the authority having jurisdiction.

8.6.11.7 Operating Instructions for Means Specified in 2.7.5.1.1 or 2.7.5.2.1.

A written procedure for operating the means shall be posted in a permanent manner in plain view at an appropriate location on or adjacent to the means (see 2.7.5.1.1 or 2.7.5.2.1). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.8 Egress and Reentry Procedure From Working Areas in 2.7.5.1.3 or 2.7.5.2.3.

A written procedure to outline the method for egress and reentry shall be posted in a permanent manner in plain view at an appropriate location at the egress/reentry point (see 2.7.5.1.3 or 2.7.5.2.3). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.9 Operating Instructions for Retractable Platforms.

A written procedure to outline the method for the use of retractable platforms shall be posted in a permanent manner in plain view at an appropriate location on or adjacent to the retractable platform (see 2.7.5.3.1). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.10 Category 5 tests without Load via Alternative Test Methodologies

8.6.11.10.1 Where Permitted

Alternative test methods without load are permitted for category 5 testing subject to approval by the Authority Having Jurisdiction of;

- (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**, and
- (d) braking system, traction and traction limits per **8.6.4.20.10**

Note: See 8.10 note 2.

8.6.11.10.2 Alternative Test Method and Tools

- (a) An alternative test method shall be:
 - i) based on sound engineering principles,
 - ii) validated and documented via engineering tests,

- (b) The method, measuring devices and tools shall be capable of producing reliable and consistent measurements, suitable for the intended measurement. The monitoring and calibration of the measuring devices or tools shall be in accordance with the providers guidelines.

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;
 - i) defines the permissible equipment range and limitations regarding use,
 - ii) establishes monitoring and calibration criteria for tools or measuring devices as appropriate,
 - iii) defines the test set-up procedure,
 - iv) 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,
- (d) be included in the maintenance control program (see 8.6.1.2.1(a)),
- (e) include the information required by 8.6.1.2.1(f) where applicable, and
- (f) require a report conforming to 8.6.11.10.4

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 of the company performing the tests, names of personnel conducting and witnessing the tests, and testing dates,
- (c) contain all required print outs or record of tests required to demonstrate compliance to 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,
- (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 test method,
- (f) contain all subsequent category 5 results with pass-fail conclusions regarding code compliance, and
- (g) remain on site or shall be available to elevator personnel and the authority having jurisdiction.

8.6.11.11 Examination After Shutdown Due to Traction Loss.

Where the traction-loss detection means has been actuated [see 2.20.8.1 and 8.6.1.2.1(g)], the elevator shall not be returned to service until a physical examination of the drive sheave and suspension means has been conducted. The elevator shall not be moved until all passengers are out of the elevator and the elevator is posted out-of-service. In addition to the suspension-means evaluation criteria in 8.11.2.1.3(cc), any suspension-means or drive-sheave condition that would adversely affect the traction capability of the system (see 2.24.2.3) shall be corrected before returning the elevator to service.

NOTE: See lockout/tagout procedures in Elevator Industry Field Employees' Safety Handbook for procedure for removing the elevator from service.

8.6.11.12 Examination After Safety Application.

After any safety application on a traction elevator has occurred, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary.

8.6.11.13 Occupant Evacuation Operation.

All elevators provided with Occupant Evacuation Operation shall be subjected, by authorized personnel, to a check of the operation in conjunction with the fire alarm system testing in accordance with the requirements of NFPA 72. Deficiencies shall be corrected. A record of findings shall be available to elevator personnel and the authority having jurisdiction.

8.6.11.14 Examination After Shutdown Due to Broken-Suspension-Member Detection Means.

After any application of the broken-suspension-member detection means, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary. Where a single suspension member has been damaged or broken, the entire suspension means shall be replaced in accordance with 8.6.3.2.

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 Director's Guideline on alterations and shall be accompanied by a completed alterations checklist.
- 3.4.5 Section 8.7 **Alterations** is revoked and the following substituted;

SECTION 8.7

ALTERATIONS

Requirement 8.7 applies to alterations.

NOTES:

- (1) See Nonmandatory Appendix L for an index of the requirements for alterations.
- (2) See 8.6 for maintenance, repair, and replacement requirements.

8.7.1 General Requirements

8.7.1.1 Applicability of Alteration Requirements.

When any alteration is performed, regardless of any other requirements of 8.7, the installation, as a minimum, shall conform to the following applicable Code requirements:

- (a) the Code at the time of installation
- (b) the Code requirements for the alteration at the time of any alteration
- (c) ASME A17.3 if adopted by the authority having jurisdiction

8.7.1.2 Items Not Covered in 8.7.

Where an alteration not specifically covered in 8.7 is made, it shall not diminish the level of safety below that which existed prior to the alteration. See also 1.2.

8.7.1.3 Testing.

Where alterations are made, acceptance inspections and tests shall be conducted as required by 8.10.2.3 for electric elevators, 8.10.3.3 for hydraulic elevators, or 8.10.4.2 for escalators and moving walks.

8.7.1.4 Welding.

Welding of parts on which the support of the car, counterweight, escalator, or moving walk depends, including driving machines, escalator, or moving walks, trusses, girders, and tracks, shall conform to 8.8 and 8.7.1.5.

8.7.1.5 Design.

Design shall be verified by a licensed professional engineer for welding, repair, cutting, or splicing of members upon which the support of the car, counterweight, escalator, or moving walks, trusses, girders, and tracks depends.

8.7.1.6 Temporary Wiring.

During alterations, temporary wiring shall be permitted. The electrical protective devices of cars in normal operation shall not be rendered inoperative or ineffective.

8.7.1.7 Repairs and Replacements.

Repairs and replacements shall conform to 8.6.2 and 8.6.3.

8.7.1.8 Code Data Plate.

In jurisdictions enforcing NBCC, the data plate required by 8.9.1 shall include the code and edition in effect at the time of alteration and the requirements in 8.7 that were applicable to the alteration.

8.7.1.9 Alterations involving SIL Rated Device(s) (See 1.3)

(a) A SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) shall not be:

- (1) modified such that the modification invalidates the listing/certification; or
- (2) affected by other alteration(s) such that the listing/certification is invalidated,

(b) Where a SIL Rated Device (See 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) is replaced with a non SIL Rated Device, the replacement shall meet the applicable requirements of 2.26.4.3.1, 2.26.8.2, 2.26.9.4(a), 2.26.9.5.1(a), and 2.26.9.6.1(a).

(c) Where a non-SIL Rated Device used to satisfy 2.26.4.3.1, 2.26.8.2, 2.26.9.4(a), 2.26.9.5.1(a), or 2.26.9.6.1(a) is replaced with a SIL Rated Device, the replacement shall meet the applicable requirements of 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b).

(d) Where a SIL rated device used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) is replaced with a SIL Rated Device that is not the original manufacturer's listed/certified SIL rated device or the original manufacturer's listed/certified SIL rated replacement device the replacement shall meet the applicable requirements of 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b).

(e) An up-to-date Maintenance Control Program (8.6.1.2.1) and wiring diagrams (8.6.1.6.3) shall be provided where they are affected by an alteration involving a SIL Rated Device (see 1.3).

8.7.2 Alterations to Electric Elevators

8.7.2.1 Hoistway Enclosures

8.7.2.1.1 Hoistway Enclosure Walls.

Where alterations are made to any portion of a hoistway enclosure wall, that portion which is altered shall conform to the following:

- (a) Requirement 2.1.1.
- (b) Requirement 2.1.5.
- (c) Requirement 2.1.6.
- (d) Requirement 2.5.
- (e) Requirement 2.7.3.4.6. and 2.7.3.4.7,
- (f) Requirement 2.8.

- (g) Requirement 8.7.2.10, where the portion of the wall that is altered includes an entrance assembly.
- (h) Where a hoistway is altered so as to create a single blind hoistway, entrances and emergency doors shall be provided as required by 2.11.1.

8.7.2.1.2 Addition of Elevator to Existing Hoistway.

Where an elevator is added to an existing hoistway, the number of elevators in that multiple hoistway shall be in accordance with the requirements of the building code. The horizontal clearances for the added elevator and the clearances between the added car and adjacent cars shall conform to 2.5.

8.7.2.1.3 Construction at Top of Hoistway.

Any alteration to the construction at the top of the hoistway shall conform to 2.1.2.1 and 2.1.3. See also 8.7.2.4.

8.7.2.1.4 Construction at Bottom of Hoistway.

Any alteration to the construction at the bottom of the hoistway shall conform to 2.1.2.2, 2.1.2.3, and 2.2. See also 8.7.2.4.

8.7.2.1.5 Control of Smoke and Hot Gases.

Alterations to a hoistway that affect the means used to prevent the accumulation of smoke and hot gases in case of fire shall conform to 2.1.4.

8.7.2.2 Pits.

Alterations made to the pit shall conform to 2.2 and 2.1.2.3. See also 8.7.2.4.

8.7.2.3 Location and Guarding of Counterweights.

Where new counterweights are installed or where counterweights are relocated, their location, guarding, and clearances shall conform to 2.3 and 2.5.1.2. The installation shall also conform to 2.6.

8.7.2.4 Vertical Car and Counterweight Clearances and Runbys.

No alteration shall reduce any clearance or runby below that required by 2.4. Existing clearances shall be permitted to be maintained, except as required by 8.7.2.17.1, 8.7.2.17.2, and 8.7.2.25.2.

8.7.2.5 Horizontal Car and Counterweight Clearances.

No alteration shall reduce any clearance below that required by 2.5. Existing clearances shall be permitted to be maintained, except as required by 8.7.2.17.2.

8.7.2.6 Protection of Spaces Below Hoistways.

Where alterations are made to an elevator or the building such that any space below the hoistway is not permanently secured against access, the affected installation shall conform to 2.6.

8.7.2.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms

8.7.2.7.1 Enclosures.

Where an alteration consists of the construction of new machinery spaces, machine rooms, control spaces, or control rooms, it shall conform to 2.7. Electrical equipment clearances shall conform to NFPA 70 or CSA-C22.1, whichever is applicable. Where alterations are made to any portion of machinery spaces, machine rooms, control spaces, or control rooms, that portion which is altered shall conform to 2.7.

8.7.2.7.2 Means of Access.

Any alteration that affects the safe and convenient means of access to a machine room, machinery space, control space or control room shall conform to 2.7.3.1, 2.7.3.2, and 2.7.3.3 to the extent existing conditions permit.

8.7.2.7.3 Access Doors and Openings.

Where an alteration is made to any access door or opening, it shall conform to 2.7.3.4. Where an alteration is made to an access door in an overhead machinery space, a stop switch shall be provided conforming to 2.7.3.5.

8.7.2.7.4 Headroom.

No alteration shall reduce the headroom below that required by 2.7.4, or the existing headroom, whichever is less.

8.7.2.7.5 Windows and Skylights.

Alterations made to windows and skylights shall conform to 2.1.5.

8.7.2.7.6 Lighting.

No alteration shall be made that diminishes the lighting of a machine room or machinery space below that required by 2.7.9.1.

8.7.2.7.7 Ventilation.

No alteration shall be made that diminishes the ventilation of a machine room or machinery space below that required by 2.7.9.2.

8.7.2.7★1 Elevator Equipment Guarding

The installation of elevator equipment guarding shall conform to the following;

- (a) 2.7.2 maintenance path and clearance
- (b) 2.7.3.4.2 access doors or openings in cage style guarding where full bodily entry is expected shall provide a minimum width of 750 mm (29.5 in.) and a minimum clear height of 2030 mm (80 in.)
- (c) 2.10.1 as a minimum
- (d) guarding shall be openable or removable only by use of common tools
- (e) operating procedures or work instructions shall be provided and available in the location of the guarding, to inform users on how to safely access the equipment for inspection, testing or maintenance
- (f) working clearances in front of electrical control equipment shall not be less than 1000 mm (39 in.) as per CAD requirements 2.2.1 (per Ontario Electrical Safety Code 38-005 2(c)) or the permissible clearance required at the time of the original installation.
- (g) access for the operation of the disconnecting means shall be
 - (1) 1000 mm for installations installed under the Ontario Electrical Safety Code 2000 edition or later, or
 - (2) 750mm (29.5 in.) for installations installed under Ontario Electrical Safety Code 1998 edition or prior, or
 - (3) if less than 750 mm, the existing clearances shall not be further reduced
- (h) installation by a registered contractor (O.Reg 209/01 s.24)
- (i) large or heavy sections of guards that may need to be removed or opened for maintenance access shall be designed to be removed or easily handled by one person.

8.7.2.8 Electrical Equipment, Wiring, Pipes, and Ducts in Hoistways and Machine Rooms.

The installation of any new, or the alteration of existing, electrical equipment, wiring, raceways, cables, pipes, or ducts shall conform to the applicable requirements of 2.8.

8.7.2.9 Machinery and Sheave Beams, Supports, and Foundations.

Where new machinery and sheave beams, supports, foundations, or supporting floors are installed, relocated, or where alterations increase the original building design reactions by more than 5%, they shall conform to 2.9, and the adequacy of the affected building structure to support the loads shall be verified by a licensed professional engineer.

8.7.2.10 Entrances and Hoistway Openings

8.7.2.10.1 General Requirements

- (a) Where all new hoistway entrances are installed, they shall conform to 2.11, 2.12, 2.13, and 2.29.2.
- (b) Where one or more, but not all, new hoistway entrances are installed, they shall conform to 2.11.2 through 2.11.8 and 8.7.2.10.5. The entire installation shall also conform to 2.11.6, 2.12, 2.13, and 2.29.2.

- (c) Where an alteration is made to any hoistway entrance, it shall conform to 2.11.3, 2.11.5, 2.11.7, 2.11.8, and 8.7.2.10.5. The entire installation shall also conform to 2.12, 2.13, and 2.29.2.
- (d) Where an emergency door is added or altered, it shall conform to 2.11.1 and 8.7.2.10.5.
- (e) Where access openings for cleaning are installed, they shall conform to 2.11.1.4 and 8.7.2.10.5.

8.7.2.10.2 Horizontal Slide-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new horizontal slide-type entrance is installed, it shall conform to 2.11.11.

New components that are installed as part of an alteration to an entrance shall conform as follows:

- (a) Landing sills shall conform to 2.11.10.1, 2.11.11.1, and 2.11.11.6.
- (b) Hanger tracks and track supports shall conform to 2.11.11.2.
- (c) Entrance frames shall conform to 2.11.11.3. An applied frame shall be permitted to be fastened to an existing frame, provided that the combination of the new and existing frames conforms to 2.11.11.3, 2.11.11.5.1, 2.11.11.5.2, and 2.11.11.5.3.
- (d) Hangers shall conform to 2.11.11.4.
- (e) Panels shall comply with 2.11.11.5, 2.11.11.6, and 2.11.11.7, except that the overlap required by 2.11.11.5.1 shall be not less than 13 mm (0.5 in.).
- (f) Door safety retainers shall conform to 2.11.11.8.

8.7.2.10.3 Vertical Slide-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new vertical slide-type entrance is installed, it shall conform to 2.11.12.

New components that are installed as part of an alteration to an entrance shall conform as follows:

- (a) Landing sills shall conform to 2.11.10.3 and 2.11.12.1.
- (b) Entrance frames shall conform to 2.11.12.2.
- (c) Rails shall conform to 2.11.12.3.
- (d) Panels shall conform to 2.11.12.3 through 2.11.12.6, and 2.11.12.8.
- (e) Guides shall conform to 2.11.12.5.
- (f) Sill guards shall conform to 2.11.12.7.
- (g) Pull straps shall conform to 2.11.12.8.

8.7.2.10.4 Swing-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new swing type entrance is installed, it shall conform to 2.11.13.

New components that are installed as part of alteration to an entrance shall conform as follows:

- (a) Landing sills shall conform to 2.11.10.1, 2.11.10.3, and 2.11.13.1.
- (b) Entrance frames shall conform to 2.11.13.2 and 2.11.13.4.
- (c) Panels shall conform to 2.11.13.3, 2.11.13.4, and 2.11.13.5.
- (d) Hinges shall conform to 2.11.13.4.

8.7.2.10.5 Marking of Entrance Assemblies

- (a) In jurisdictions enforcing the NBCC the following shall apply:
 - (1) When an entrance or door panel is altered, it shall have the fire protection rating not less than that of the existing entrance assembly
 - (2) it shall be labeled in accordance with NBCC

8.7.2.10★1 Removing Service to a Floor

Where service to a floors area is being discontinued, the following requirements shall apply:

- (a) entrances shall be bolted shut
- (b) the related interlock shall be removed from the safety string
- (c) the rated floor buttons shall be removed from the car operating station
- (d) 2.11.6.2

- (e) 2.12.7 if the locked out floor contained the hoistway access switch

8.7.2.10★2 Addition of Hoistway Door Safety Retainers

The addition of hoistway door safety retainers shall comply with the requirements of 2.11.11.8.

8.7.2.11 Hoistway Door Locking Devices, Access Switches, and Parking Devices

8.7.2.11.1 Interlocks.

- (a) Where the alteration consists of the installation of hoistway door interlocks, the installation shall conform to 2.12.1, 2.12.2, and 2.12.4 through 2.12.7, ~~and 2.24.8.3.~~
- (b) Despite the requirements in (a), conformance to 2.12.5, 2.12.6 and 2.12.7 is optional provided conformance to 2.12.5, 2.12.6 and 2.12.7 is not required by another alteration scope.

8.7.2.11.2 Mechanical Locks and Electric Contacts.

Where the alteration consists of the installation of hoistway-door combination mechanical locks and electric contacts, the installation shall conform to 2.12.1, 2.12.3, 2.12.4, and 2.12.6, ~~and 2.24.8.~~

8.7.2.11.3 Parking Devices.

Where an alternation is performed to an elevator operated from within the car only, an elevator parking device shall be provided conforming to the following requirements:

- (a) At every elevator landing that is equipped with an unlocking device, if
 - (1) the doors are not automatically unlocked when the car is within the unlocking zone
 - (2) the doors are not operable from the landing by a door open button or floor button
- (b) Parking devices shall be permitted to be provided at other landings.
- (c) Parking devices shall be located at a height not greater than 2 108 mm (83 in.) above the floor.
- (d) Parking devices shall conform to the following requirements:
 - (1) they shall be mechanically or electrically operated
 - (2) they shall be designed and installed so that friction or sticking or the breaking of any spring used in the device will not permit opening or unlocking a door when the car is outside the landing zone of that floor
 - (3) springs, where used, shall be of the restrained compression type, which will prevent separation of the parts in case the spring breaks

8.7.2.11.4 Access Switches and Unlocking Devices.

Where the alteration consists of the installation of hoistway access switches and/or hoistway-door unlocking devices, the installation shall conform to

- (a) requirements 2.12.6 ~~and 2.24.8.3~~ for unlocking devices
- (b) requirements 2.12.7, ~~2.24.8,~~ and 2.26.1.4 for access switches.

8.7.2.11.5 Restricted Opening of Hoistway Doors or Car Doors of Passenger Elevators.

Where a device that restricts the opening of hoistway doors or car doors is altered or installed, the device shall conform to 2.14.5.7.

8.7.2.12 Power Operation of Hoistway Doors.

Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 2.13, 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, and 8.7.2.10.5.

8.7.2.12★1 Replacement of Door Operator

Where a door operator is replaced the replacement shall conform to the applicable requirements of 2.13 and 8.7.2.15★1, or 8.7.2.15★2.

8.7.2.13 Door Reopening Device.

Where a reopening device for power-operated car doors or gates is altered or added **or replaced**, the following requirements shall apply:

- (a) requirement 2.13.4
- (b) requirement 2.13.5
- (c) when firefighters' emergency operation is provided, door reopening devices and door closing on Phase I and Phase II shall comply with the requirements applicable at the time of installation of the firefighters' emergency operation
- (d) requirements 8.7.2.15★1 or 8.7.2.15★2.

8.7.2.14 Car Enclosures, Car Doors and Gates, and Car Illumination

8.7.2.14.1 Where an alteration consists of the installation of a new car, the installation shall conform to 2.14, 2.15, and 2.17 (see also 8.7.2.15.1).

8.7.2.14★1 Installation / Replacement of Car Operating Panel (COP)

The disconnect and reconnect of COP wiring shall be confirmed to verify functionality of COP features and operating devices. Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.14★2 Installation of Video/Security Cameras and Monitors

Wiring methods shall conform to 2.8.2.1. Equipment shall be securely fastened and shall not create headroom issues per 2.14.1.2.3 and 2.14.2.4. Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.14★3 Installation of Other Equipment

The installation of other equipment is not permitted per 2.14.1.9 unless otherwise permitted under by a variance request.

8.7.2.14.2 The following requirements shall be conformed to where alterations are made to existing cars:

- (a) Car enclosures shall conform to 2.14.1.2.
- (b) Where an alteration is made to a top emergency exit, or where a new one is installed, it shall conform to 2.14.1.5.
- (c) Where an alteration consists of the installation of glass in an elevator car, it shall conform to 2.14.1.8.
- (d) Any equipment added to an elevator car shall conform to 2.14.1.9. **and 8.7.2.15★1 or 8.7.2.15★2 as applicable.**
- (e) All side emergency exits shall be permanently fixed in the closed position. The corresponding side emergency exit on an adjacent car shall also be fixed in the closed position.
- (f) Any alteration to passenger car ventilation shall conform to 2.14.2.3.
- (g) Any alteration to car illumination or lighting fixtures shall conform to 2.14.7.
- (h) Where partitions are installed in elevator cars for the purpose of reducing the inside net platform areas for passenger use, they shall conform to 2.16.1.2. Where conditions do not permit symmetrical loading, guide rails, car frames, and platforms shall be capable of sustaining the resulting stresses and deflections.
- (i) Where an alteration consists of the installation of a car door or gate on an existing elevator car, the installation shall conform to 2.14.4, 2.14.5, and 2.14.6.

8.7.2.14.3 N/A - In jurisdictions not enforcing the NBCC

8.7.2.14.4 In jurisdictions enforcing the NBCC, where any alteration is made to the car enclosure, car doors, or car gates, other than as specified in 8.7.2.14.2, the installation shall conform to 2.14, except that existing car enclosure materials exposed to the hoistway are not required to conform to the flame spread ratings. The existing flame spread rating shall not be diminished.

8.7.2.14★4 Installation of Car Top Guardrail (245/10)

- (a) A standard car top guardrails shall:
 - (1) have a top rail not less than 1070 mm (42 in.) above the working surface, or as amended by 2.10.2.1;
 - (2) have a mid rail (or equivalent structural member);
 - (3) have a toe-board to a height of 125 mm (5 in.) above the working surface;

- (4) be fixed in position and designed to resist the loads^{1,2} specified in O. Reg. 332/12 ~~350/06~~ (Building Code) Article ~~4.1.5.14~~ ~~4.1.5.15~~, as required by Reg. 851 (Regulations for Industrial Establishments) Section 14(2). See table in 5.2 for reference; and
- (5) not deflect beyond the perimeter of the car top [A17.1/B44 2.14.1.7.1], and in no case shall the deflection exceed 75 mm (3 in.) when the forces of A17.1/B44 2.10.2.4 are applied.

¹ For Limit States Design a principal load factor of 1.5 applies per sentence ~~4.1.3.2(6)~~ ~~4.1.3.2(5)~~ of O. Reg. ~~332/12~~ ~~350/06~~ (Building Code).

² For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

- (b) Where a car top railing is installed, the installation shall conform to 2.14.1.7. Where conformance with 8.7.2.14★4(a)(1) is not possible due to existing overhead conditions, a foldable, collapsible or other stow able design shall be acceptable provided that:
 - (1) the car will not operate in “top-of-car inspection operation” unless the railing is in the fully extended position,
 - (2) the car will not operate in “normal operation”, “hoistway access operation”, or any type of “inspection operation” other than “top-of-car inspection operation”, unless the railing is in the fully retracted position,
 - (3) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly and positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),
 - (4) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,
 - (5) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly and positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),
 - (6) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4,
 - (7) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,
 - (8) when in the fully extended position the handrail shall meet the height requirements of 2.14.1.7.
 - (9) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per Section 85 of Reg. 851, Regulations for Industrial Establishments) while engaging or lowering the alternative height guardrail where provided.
- (c) Where a car top railing is installed the requirements of 8.7.2.15★1 or 8.7.2.15★2 apply.

8.7.2.15 Car Frames and Platforms

8.7.2.15.1 Alterations to Car Frames and Platforms.

Where alterations are made to a car frame or platform, the frame and platform shall conform to 2.15. Where roller or similar-type guide shoes are installed, that allow a definite limited movement of the car with respect to the guide rails, the clearance between the safety jaws and rails of the car shall be such that the safety jaws cannot touch the rails when the car frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.2.15★1 (171/02)

Where an alteration results in a cumulative decrease in the deadweight of the car by less than 5% of car and capacity as originally installed, or causes a cumulative increase to the deadweight of the car by 115kg (255 Lbs.) including all weight changes since the car was originally installed the following requirements shall apply, except (a) does not apply if the cumulative increase is 11kg (25 Lbs.) or less;

- (a) cars and counterweights shall be weighed prior to the alteration to establish starting weights
- (b) materials added or removed during the alteration shall be weighed in or out, or the car shall be weighed after the alteration to establish final weight changes
- (c) add on weight (or decreased weight) shall be recorded on an auxiliary data tag and posted on the crosshead or for cars without crossheads in a conspicuous location on the car top or adjacent to the original data
- (d) an auxiliary data tag shall as a minimum contain;

- (1) the date of the alteration,
- (2) the weight added or removed from the car
- (3) the weight added or removed from the counterweight
- (4) the name of the alteration contractor
- (5) the measured car weight prior to the alteration

- (e) where glass, mirror, or overhead finishes are added to the car interior, a no load governor tripping speed safety tests or a no load rated speed buffer test shall be performed to ensure the security of finishes prior to the devices return to service (Minor A and Minor B alterations ONLY). For hydraulic elevators and emergency stop from rated speed in the up direction shall be performed.

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Where an alteration results in an increase in the deadweight of the car by more than 115 kg (255 Lbs.) but less than 5% of car and capacity as originally installed including all weight changes since the car was originally installed the following requirements shall apply;

- (a) requirements 8.7.2.15★1(a) through 8.7.2.15★1(e)
- (b) an engineering assessment shall confirm compliance of any components affected by the weight change, including but not limited to;
 - (1) machines
 - (2) car and counterweight frames
 - (3) buffers
 - (4) traction and overbalance
 - (5) ropes
 - (6) plungers & working pressures
 - (7) safeties

8.7.2.15.2 Increase or Decrease in Deadweight of Car.

Where an alteration results in an increase or decrease in the deadweight of the car that is sufficient to increase or decrease the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to the following requirements:

- (a) requirement 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone plus 75 mm (3 in.)
- (b) requirement 2.16
- (c) requirement 2.17
- (d) requirement 2.18
- (e) requirement 2.20
- (f) requirement 2.21, except as covered by 8.7.2.22.2
- (g) requirement 2.22, except for 2.22.4.7, provided that conformance with
 - (1) requirement 2.22.4.10 is established otherwise
 - (2) requirement 2.22.4.5(b) can be established by other means such as adding a buffer switch conforming to 2.26.2.22
- (h) requirement 2.23
- (i) requirement 2.24, except 2.24.1
- (j) requirement 8.7.2.9
- (k) requirement 8.7.2.15★1(a) through 8.7.2.15★1(e)

8.7.2.16 Capacity, Loading, and Classification 8.7.2.16.1 Change in Type of Service.

Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to:

- (a) requirements 2.11.1 through 2.11.3, and 2.11.5 through 2.11.8
- (b) requirements 2.12 and 2.13
- (c) requirement 2.22, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11
- (d) requirements 2.14 and as amended by 8.7.2.14★4 and 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone, plus 75 mm (3 in.)
- (e) requirement 2.17, except that where gradual wedge-clamp and drum-operated flexible guide-clamp safeties are reused, the stopping distances shall conform to the requirements of the Code at the time of installation [see ASME A17.2, Table 2.29.2(c)]
- (f) requirement 2.18, except that the pitch diameters of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7
- (g) requirements 2.16, 2.20, 2.24 through 2.27, except 2.24.1
- (h) requirement 2.19

8.7.2.16.2 Change in Class of Loading. Where the class of loading of a freight elevator is changed, it shall conform to 2.16.2 (see also 8.7.2.16.4).

8.7.2.16.3 Carrying of Passengers on Freight Elevators.

Where the alteration consists of a change in type of service from a freight elevator to a freight elevator permitted to carry passengers, the elevator shall conform to:

- (a) 2.16.4
- (b) CAD 3.12 or extent pit permits
- (c) signage requirements in 2.16.5.

8.7.2.16.4 Increase in Rated Load.

Where an alteration involves an increase in the rated load, the installation shall conform to the following:

- (a) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to 2.14.4, 2.14.5, and 2.14.6.
- (b) Requirement 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone, plus 75 mm (3 in.).
- (c) Requirement 2.16.
- (d) Requirement 2.17.
- (e) Requirement 2.18, except that the pitch diameters of existing governor sheaves are not required to conform to 2.18.7.
- (f) Requirement 2.19.
- (g) Requirement 2.20.
- (h) Requirement 2.21, except as covered by 8.7.2.22.2.
- (i) Requirement 2.22, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
- (j) Requirement 2.23.
- (k) Requirement 2.24.
- (l) Requirements 2.26.1.4 and 2.26.1.5.
- (m) Requirement 2.26.5.
- (n) Requirement 8.7.2.9.

8.7.2.17 Change in Rise or Rated Speed

8.7.2.17.1 Increase or Decrease in Rise.

Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, the following requirements shall be conformed to:

- (a) The terminal stopping devices shall be relocated to conform to 2.25.
- (b) Where the increase in rise is less than 4 570 mm (180 in.), an existing winding-drum machine shall be permitted to be retained, provided the drum is of sufficient dimensions to serve the increased rise with not less than one full turn of wire rope remaining on the winding drum when the car or counterweight has reached its extreme limits of travel.
- (c) The bottom and top clearances and runbys for cars and counterweights shall conform to 2.4, except as follows:
 - (1) Where the increase in rise is at the upper end of the hoistway, the existing bottom car clearance and car and counterweight runby are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.
 - (2) Where the increase in rise is at the lower end of the hoistway, the existing overhead car and counterweight clearances are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.
 - (3) Where the decrease in rise is at the lowest end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

8.7.2.17.2 Increase in Rated Speed

- (a) Increase in the rated speed of a winding-drum machine is prohibited, except as permitted in 8.7.2.17.2(c).
- (b) Where the alteration involves an increase in the rated speed, except as specified in 8.7.2.17.2(c), the following requirements shall be conformed to:
 - (1) The bottom runbys and the top clearances for cars and counterweights shall conform to 2.4.2 through 2.4.11.
 - (2) Horizontal clearances shall conform to 2.5.
 - (3) The car and counterweight buffers shall conform to 2.22, except that existing buffers, where retained, are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
 - (4) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to 2.14.
 - (5) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that the pitch diameters of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7. Where the new rated speed is greater than 3.5 m/s (700 ft/min), compensating rope tie-down shall be provided in compliance with 2.21.4.2.
 - (6) The capacity and loading shall conform to 2.16.
 - (7) The driving machine and sheaves shall conform to 2.24.
 - (8) The terminal stopping devices shall conform to 2.25.
 - (9) The operating devices and control equipment shall conform to 2.26, except that 2.26.4.1 through 2.26.4.3 shall apply only to the electrical wiring and equipment altered. Requirement 2.26.4.4 does not apply.
 - (10) Suspension ropes and rope connection shall conform to 2.20.
 - (11) Car overspeed protection and unintended car movement protection shall conform to 2.19.
- (c) Where the increase in rated speed does not exceed 10% and does not exceed 0.20 m/s (40 ft/min), and is a result of a power supply change, and the new motor speed cannot match the existing motor speed, the installation is not required to conform to 8.7.2.17.2(b), except that the new rated speed shall not
 - (1) exceed 0.75 m/s (150 ft/min) for Type A safeties
 - (2) exceed 1 m/s (200 ft/min) when spring buffers are provided Governors shall be adjusted to conform to 2.18.2.1 and 2.18.2.2 (see also 8.7.2.27.3).

8.7.2.17.3 Decrease in Rated Speed.

Conformance with the following requirements shall be required when the alteration involves a decrease in the rated speed.

- (a) Where the bottom runbys and the top clearances for cars and counterweights are less than as required by 2.4, they shall not be decreased by the speed reduction.
- (b) The tripping speed of the car speed governor and the counterweight speed governor, where provided, shall be adjusted to conform to 2.18.2 for the new rated car speed.
- (c) The capacity and loading shall conform to 2.16.
- (d) Capacity and data plates shall conform to 2.16.3, except the information required by 2.16.3.2.2(d) shall include the name of the company doing the alteration and the year of the alteration.

(e) New electrical equipment and wiring shall conform to 2.26.4.1, 2.26.4.2, and 2.26.4.3.

8.7.2.18 Car and Counterweight Safeties

8.7.2.18.1 Where the alteration consists of the installation of new car safeties, the car safeties, car speed governor, and car guide rails shall conform to 2.17, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.2 Where the alteration consists of the installation of new counterweight safeties, the counterweight safeties, counterweight speed governor, and counterweight guide rails shall conform to 2.17, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.3 Where any alterations are made to existing car or counterweight safeties, the affected safeties, governors, and guide rails shall conform to 2.17.1 through 2.17.9, 2.17.15, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.4 Where existing rail reactions are not increased by the installation of new safeties, the existing hoistway construction for bracket support need not be modified.

8.7.2.19 Speed Governors and Governor Ropes.

Where any alteration is made to a speed governor, or where a new governor is installed, it shall conform to 2.18. Where there is a releasing carrier, it shall conform to 2.17.15. Governor ropes of a different material, or construction than originally specified by the governor manufacturer shall be permitted, provided that

- (a) there is conformance with 2.18.6 and 2.18.7, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7
- (b) a test is made of the car or counterweight safety and speed governor with the new rope to demonstrate that the safety will function as required by 2.17.3

8.7.2.20 Ascending Car Overspeed and Unintended Car Movement Protection.

The requirements of 2.19 shall be conformed to where a device for protection against ascending car overspeed and unintended car movement is altered or installed.

8.7.2.20★1

If elevator controllers are pre-B44-00 and the installation is already equipped with Ascending Car Overspeed (ACO) and Unintended Car Movement (UCM) protection, the installation shall conform to 2.19 except the detection means is permitted to meet B44-M90 or the code at the time of the alteration. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO and UCM detection was provided.

8.7.2.20★2

If elevator controllers are pre-B44-00 and the installation is equipped with only ACO protection, the installation shall conform to 2.19.1, 2.19.3, and 2.19.4, except the detection means is permitted to meet B44-M90 or the code at the time of the alteration. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO detection was provided.

8.7.2.20★3

Where the alteration includes the voluntary addition of ACO and UCM protection, the installation shall conform to; 2.19 except the detection means is permitted to meet B44-M90 or the code at the time of the alteration and 2.7 as applicable to the installation of the equipment. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO and UCM detection was provided.

8.7.2.21 Suspension Means and Their Connections

8.7.2.21.1 Change in Suspension Members.

Where the material, grade, number, or size of suspension members is changed, the new suspension members and their fastenings shall conform to 2.20. When existing sheaves are retained using suspension members different from those

originally specified, the original elevator manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.

8.7.2.21.2 Addition of Suspension-Member Equalizers.

Where suspension-member equalizers are installed, they shall conform to 2.20.5.

8.7.2.21.3 Addition of Auxiliary Suspension-Member-Fastening Devices.

Where auxiliary suspension-member-fastening devices are installed, they shall conform to 2.20.

8.7.2.21.4 Exception for Suspension-Means Monitoring and Protection.

- (a) Where there is a change to the type of suspension means the installation shall conform to 2.20.8 and 2.20.11.
- (b) If a traction-loss detection means is provided, it shall comply with 2.20.8.1.
- (c) If a broken suspension-means detection means is provided, it shall comply with 2.20.8.2.

Note: Elevators installed to editions prior to A17.1-2007, including A17.1a-2008, are exempt from all of the requirements of 2.20.8 and 2.20.11 provided that there is no change to the type of suspension means and that there is no alteration to the means themselves.

8.7.2.22 Counterweights

8.7.2.22.1 Where alterations are made to any part of a counterweight assembly, except guiding members, the installation shall conform to 2.21, except as specified by 8.7.2.22.2. See also 8.7.2.3.

8.7.2.22.2 Rod-type counterweights shall be permitted to be retained, provided they are equipped with a minimum of two suspension rods and two tie rods. The two suspension rods shall conform to 2.21.2.1 and 2.21.2.3 and shall be provided with locknuts and cotter pins at each end. The tie rods shall conform to 2.21.1.2. Means shall be provided on each side of the counterweight to maintain the distance between the top and bottom guide weights in the event the counterweight lands on the buffer.

8.7.2.22.3 Where roller or similar-type guide shoes are installed, that allow a definite limited movement of the counterweight with respect to the guide rails, the clearance between the safety jaws and rails of the counterweight shall be such that the safety jaws cannot touch the rails when the counterweight frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.2.23 Car and Counterweight Buffers and Bumpers.

Where alterations are made to car and counterweight buffers or bumpers, they shall conform to 2.22. The buffers are not required to conform to 2.22.4.7 if

- (a) the buffer's load rating and properties defining method of absorbing and dissipating energy has not been altered
- (b) the load rating of the buffer can be established by other means such as using original design data, original type testing data, marking plate, etc.
- (c) the conformance with 2.22.4.5(b) can be established by other means such as adding a buffer switch conforming to 2.26.2.22

8.7.2.24 Guide Rails, Supports, and Fastenings.

Where alterations are made to car and counterweight guide rails, guide-rail supports, or guide-rail fastenings, or where the stresses have been increased by more than 5%, the installation shall conform to 2.23. Guide rails, supports, fastenings, and joints of different design and construction than those provided for in 2.23 shall be permitted to be retained provided they are in accordance with sound engineering practice and will adequately maintain the accuracy of the rail alignment.

8.7.2.25 Driving Machines and Sheaves

8.7.2.25.1 Alterations to Driving Machines and Sheaves

- (a) Where a driving machine is **replaced, or** installed as part of an alteration, the installation shall conform to 2.7.2, 2.9, 2.10.1, 2.19 **as required by 8.7.2.20 and 8.7.2.20★1 through 8.7.2.20★3**, 2.20, 2.24, and 2.26.8. Requirement 2.7.2 applies to the extent existing installations permit.
- (b) Where alterations are made to driving machine components, the affected components shall conform to 2.24.2 through 2.24.9 and 2.26.8.
- (c) Where an alteration consists of a change in the driving-machine sheave, the suspension ropes and their connections shall conform to 2.20. The sheave shall conform to 2.24.2, 2.24.3, and 2.24.4.

8.7.2.25★1

Where the driving machine worm or gear is replaced, the replaced components shall conform to the applicable requirements of 2.24.

Note: Refer to 8.7.2.7★1 for the addition of machine guarding.

8.7.2.25.2 Change in Location of Driving Machine

- (a) Where the location of the driving machine is changed with no increase or decrease in rise, the installation shall conform to 2.7.2, 2.9, 2.10.1, and 2.24.2.3.
- (b) Where the location of the driving machine is changed with an increase or decrease in rise, the entire installation shall conform to Part 2, except for the following:
 - (1) requirement 2.5 (see also 8.7.2.5).
 - (2) requirement 2.11 (see also 8.7.2.10).
 - (3) where the increase in rise is at the upper end of the hoistway, the existing bottom car clearance and car and counterweight runby are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.

8.7.2.26 Terminal Stopping Devices.

Where an alteration is made to any terminal stopping device, the installation shall conform to 2.25.

8.7.2.27 Operating Devices and Control Equipment / Inspection Operation and Inspection Operation with Open Door Circuits

8.7.2.27.1 Top-of-Car Operating Devices.

Where there is an alteration to or addition of top-of-car inspection operation, it shall conform to 2.26.1.4.

8.7.2.27★1

Where there is an alteration to or addition of any type of inspection operation (see 2.26.1.4.1(a)), the alteration shall conform to the applicable requirements in 2.26.1.4.

8.7.2.27★2

Where there is an addition of a top-of-car operating device, the requirements of 2.26.1.4 apply. See CAD **3.8.3**. Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.27.2 Car Leveling or Truck Zoning Devices.

Where there is an alteration to or addition of a car leveling device, or a truck zoning device, it shall conform to 2.26.1.6.

8.7.2.27★3

Where there is an alteration to or addition of car door bypass or hoistway door bypass switches, the alteration shall conform to 2.26.1.5.

8.7.2.27★4

Where there is an alteration to or addition of a system to monitor and prevent automatic operation of the elevator with faulty door contact circuits on power-operated car doors that are mechanically coupled with the landing doors while the car is in the landing zone, the alteration shall conform to the requirements in 2.26.5.

8.7.2.27.3 Change in Power Supply.

Where an alteration consists of a change in power supply at the mainline terminals of the elevator motion controller or motor controller, involving one of the following, whichever is applicable:

- (a) change in voltage, frequency, or number of phases
- (b) change from direct to alternating current or vice versa
- (c) change to a combination of direct and alternating current Electrical equipment shall conform to 2.26.1.1, 2.26.1.2, 2.26.1.3, 2.26.1.4, 2.26.1.6, 2.26.2, 2.26.6, 2.26.7, 2.26.9, and 2.26.10. All new and modified equipment and wiring shall conform to 2.26.4.1, 2.26.4.2, and 2.26.4.3. Brakes shall conform to 2.24.8 and 2.26.8. Winding-drum machines shall be provided with final terminal stopping devices conforming to 2.25.3.5 [see also 8.7.2.17.2(b)].

8.7.2.27.4 Controllers

- (a) Where a motion controller or operation controller is installed without any change in the type of operation control or motion control, it shall conform to the following:
 - (1) Terminal stopping devices shall conform to 2.25.
 - (2) The operating devices and control equipment shall conform to 2.26.1.4, 2.26.1.5, 2.26.1.6, 2.26.2 through 2.26.9, and 2.26.11.
 - (3) Requirement 2.27.2 applies when emergency power is provided.
 - ~~(4) In jurisdictions not enforcing NBCC, 2.27.3 through 2.27.9 apply~~
 - ~~(a) when travel is 8 m (25 ft) or more above or below the designated landing; or~~
 - ~~(b) on installations when firefighters' emergency operation was required or provided at the time of installation.~~
 - (5) In jurisdictions enforcing NBCC, 2.27.3 through 2.27.9 apply ~~only if firefighters' emergency operation was required or provided at the time of installation.~~
 - (6) requirement 2.7.9.2
- (b) Where a controller for the operation of hoistway doors, car doors, or car gates is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
- (c) Where a controller for the elevator operation on emergency or standby power systems or firefighters' emergency operation is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
- (d) Equipment and floors shall be identified as required by 2.29.

8.7.2.27★5

Where an elevator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.2.27.5 Change in Type of Motion Control.

Where there is a change in the type of motion control, the installation shall conform to the following:

- (a) The protection of the hoistway landing openings shall conform to
 - (1) 2.11.1 except;
 - (a) existing entrance openings less than 2030 mm in height or 800 mm in width are permitted to be retained
 - (b) requirement 2.11.1.4
 - (2) 2.11.2 through 2.11.6, except 2.11.6.3
 - (3) 2.11.8, 2.11.9
 - (4) 2.11.11.8 for horizontally sliding center opening and single speed entrances
 - (5) 2.11.12.8
 - ~~through 2.11.13, except 2.11.11.9,~~

- (6) 2.12, except
 - (a) requirement 2.12.2.4.3 to allow a minimum engagement of 6 mm
 - (b) 2.12.4, and
 - (7) 2.13.
- (b) Car enclosures and car doors or gates shall conform to 2.14, the loading requirements specified by 2.14.1.6, and the requirements of 2.14.1.7 including the provisions of 2.14.1.7.5 for non standard guardrails, as specified in the CAD, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
 - (1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8, 2.14.1.9 and 2.14.1.10
 - (2) requirements 2.14.2.1, 2.14.2.3 through 2.14.2.6, and 2.14.2.4
 - (3) requirement 2.14.3
 - (4) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
 - (5) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
 - (6) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4
 - (c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that:
 - (1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
 - (2) the pitch diameter of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7.
 - (d) The capacity and loading shall conform to 2.16.8 (e), (f), (g) and (h).
 - (e) The terminal stopping devices shall conform to 2.25.
 - (f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
 - ~~(g) In jurisdictions not enforcing NBCC, emergency operation and signaling devices shall be provided and shall conform to 2.27.~~
 In jurisdictions enforcing NBCC, emergency operation and signaling devices where required by NBCC shall be provided and where required by NBCC shall be provided and shall conform to 2.27
 - (h) Car overspeed protection and unintended movement protection shall conform to 2.19 as required by 8.7.2.20 and 8.7.2.20★1 through 8.7.2.20★3.
 - (i) Equipment and floors shall be identified as required by 2.29.
 - (j) requirement 2.7.9.2

8.7.2.27.6 Change in Type of Operation Control.

Where there is a change in the type of operation control, the installation shall conform to the following:

- (a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13, 2.12, and 2.13.
- (b) Car enclosures and car doors or gates shall conform to 2.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
 - (1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8
 - (2) requirements 2.14.2.1, 2.14.2.3, and 2.14.2.4
 - (3) requirement 2.14.3
 - (4) requirement 2.14.4.3 and 2.14.4.6
- (c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that the pitch diameter of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7.
- (d) The capacity and loading shall conform to 2.16.
- (e) The terminal stopping devices shall conform to 2.25.
- (f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
- (g) Emergency operation and signaling devices shall be provided and shall conform to 2.27.

- (h) Equipment and floors shall be identified as required by 2.29.
- (i) requirement 2.7.9.2

8.7.2.27.★6

Where a Patient Wandering feature is added, doors shall close per 2.13.5.3 and the activation of phase 1 recall shall not be prevented per 2.27.3.1.6(l).

8.7.2.27.★7

Where security / floor lockout systems are added the following shall apply:

- (a) egress floor shall not be restricted when on FEO,
- (b) door open buttons shall remain operative,
- (c) requirement 2.11.6.2, and
- (d) travel to all serviced landing shall be possible per 2.27.3.3.1(i).

8.7.2.27.★8

Where destination dispatch is added to an automatic operation control the following shall apply:

- (a) 8.7.2.8
- (b) changes to FEO shall apply to either 8.7.2.28 or to the code applicable at the time of the original installation or subsequent FEO related alteration.

8.7.2.27.7 On passenger elevators equipped with nonperforated car enclosures, the emergency stop switch, including all markings, shall be permitted to be removed if an in-car stop switch conforming to 2.26.2.21 is provided.

The stop switch shall conform to 2.26.4.3, and a single failure shall not render the In-Car stop switch ineffective per 2.26.9.3.

8.7.2.27.8 Electrical Protective Devices.

Where there is an alteration to or addition of an electrical protective device, it shall conform to 2.26.2 for that device.

8.7.2.28 Emergency Operations and Signaling Devices

- (a) Where an alteration is made to car emergency signaling devices, the alteration shall conform to 2.27.1.
- (b) Where an alteration is made to, or consists of the addition of, an emergency or standby power system, the installation shall conform to the requirements of 2.27.2.
- (c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, the installation shall conform to 2.27.3 through 2.27.8.
- (d) Where the alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to 2.27.

8.7.2.28★1 (175/02)

Where the method of recall is being upgraded from manual to automatic recall, FEO features are permitted to operate as required at the time of the original FEO installation. Where the main recall level is not sprinklered, alternate floor recall shall be provided.

8.7.2.28★2 (60/88) (105/93) (219/07)

Where a firecode retrofit was required but not provided, and conformance to provide FEO is now being sought, the FEO features shall be as required by CAD 3.20.

8.7.3.★ Alteration Hydraulic to Electric Elevator [CAD Amendment-261-13-r1]

Where a hydraulic elevator that operated in an existing hoistway is being replaced with an electric elevator, the installation shall conform to Part 2, Electric Elevators, except for the following:

- (a) Existing building conditions not in conformance to the latest code maybe permitted to be retained
- (b) Apron plates must conform to 2.15.9 or where a 1220 mm (48 in.) apron is not possible due to existing pit depth, an engineered solution providing 1220 mm (48 in.) of guarding shall be permitted.

Note: Existing building conditions may include items such as pit depth or no pit drains. Items not in conformance with Part 2 shall be noted in the design submission.

8.7.3 Alterations to Hydraulic Elevators

8.7.3.1 Hoistway Enclosures.

Alterations to hoistway enclosures shall conform to 8.7.2.1.

8.7.3.2 Pits. Alterations made to the pit shall conform to 2.1.2.3 and 2.2. See also 8.7.3.4.

8.7.3.3 Location and Guarding of Counterweights.

Where new counterweights are installed, they shall conform to 2.3 and 2.5.1.2. The installation shall also conform to 3.5.

8.7.3.4 Vertical Car and Counterweight Clearances and Runbys.

No alteration shall reduce any clearance or runby below that required by 3.4. Existing clearances shall be permitted to be maintained, except as required by 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.23.5.

8.7.3.5 Horizontal Car and Counterweight Clearances.

No alteration shall reduce any clearance below that required by 2.5. Existing clearances shall be permitted to be maintained, except as required by 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.23.5.

8.7.3.6 Protection of Spaces Below Hoistways.

Where alterations are made to an elevator or the building, such that any space below the hoistway is not permanently secured against access, the affected installation shall conform to 3.6.

8.7.3.7 Machine Rooms and Machinery Spaces.

Alterations to machine rooms and machinery spaces shall conform to 8.7.2.7.2 through 8.7.2.7.7. Where an alteration consists of the construction of a new machine room or machinery space enclosure, it shall conform to 2.7 and 3.7. Electrical equipment clearances shall conform to the requirements of NFPA 70 or CSA-C22.1, whichever is applicable (see Part 9). Where alterations are made to any portion of a machinery room or machinery space, the portion that is altered shall conform to 2.7 and 3.7.

8.7.3.8 Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms.

The installation of any new, or the alteration of existing, electrical equipment, wiring, raceways, cables, pipes, or ducts shall conform to the applicable requirements of 2.8.

8.7.3.9 Machinery and Sheave Beams, Supports and Foundations.

Where new machinery and sheave beams, supports, foundations, or supporting floors are installed, or where alterations increase the original building design reactions by more than 5%, they shall conform to 2.9, and the adequacy of the affected building structure to support the loads shall be verified by a licensed professional engineer.

8.7.3.10 Hoistway Entrances and Openings.

Alterations to hoistway entrances shall conform to 8.7.2.10, except that emergency doors meeting the requirements of 2.11.1 are only required to be installed in the blind portion of the hoistway where required by 8.7.2.10 and

- (a) for all elevators where car or counterweight safeties are used
- (b) for elevators where safeties are not used, emergency doors are not required on elevators where a manually operated valve is provided that will permit lowering the car at a reduced speed in case of power failure or similar emergency

8.7.3.11 Hoistway Door Locking Devices.

Alterations to hoistway door locking devices, access switches, parking devices, and unlocking devices shall conform to 8.7.2.11, except that conformance with 2.24.8 is not required.

8.7.3.12 Power Operation of Hoistway Doors.

Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 2.13, 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, 8.7.2.10.5, 8.7.2.12★1, 8.7.2.12★2 and 8.7.3.10.

8.7.3.13 Car Enclosures. Where alterations are made to car enclosures, they shall conform to 8.7.2.14.

8.7.3.14 Car Frames and Platforms.

Where alterations are made to a car frame or platform, the frame and platform shall conform to 3.15. If safeties are used and if roller or similar-type guide shoes are installed, that allow a definite limited movement of the car with respect to the guide rails, the clearance between the safety jaws and rails of the car shall be such that the safety jaws cannot touch the rails when the car frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.3.15 Safeties

8.7.3.15.1 Where the alteration consists of the installation of car safeties, the car safeties and car guide rails shall conform to 3.17.1, 3.23, and 3.28.

8.7.3.15.2 Where the alteration consists of the installation of counterweight safeties, the counterweight safeties and counterweight guide rails shall conform to 3.17.2, 3.23, and 3.28.

8.7.3.15.3 Where any alterations are made to existing car or counterweight safeties, the affected safeties and guide rails shall conform to 3.17, 3.23, and 3.28, except for cross-referenced 2.17.10 through 2.17.14, 2.17.16, and 2.21.4.2.

8.7.3.16 Governors and Governor Ropes.

Where alterations are made to governors or where they are added, they shall conform to 8.7.2.19.

8.7.3.17 Change in Type of Service.

Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to

- (a) requirements 2.11.1, 2.11.2, 2.11.3, and 2.11.5 through 2.11.8, except that emergency doors meeting the requirements of 2.11.1 are only required to be installed in the blind portion of the hoistway
 - (1) for all elevators where car or counterweight safeties are used
 - (2) for elevators where safeties are not used, emergency doors are not required on elevators where a manually operated valve is provided that will permit lowering the car at a reduced speed in case of power failure or similar emergency
- (b) requirements 2.12 and 2.13
- (c) requirements 2.22 and 3.22.2, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11
- (d) requirements 3.14, 3.15, 3.17, 3.21, and 3.23
- (e) requirement 2.18, where governors are provided, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7
- (f) requirements 3.16, 3.18, 3.19, 3.20, 3.24, 3.25, 3.26, and 3.27.

8.7.3.18 Change in Class of Loading.

Where the class of loading of a freight elevator is changed, it shall conform to 2.16.2 as modified by 3.16.

8.7.3.19 Carrying of Passengers on Freight Elevators.

Where the alteration consists of a change in type of service from a freight elevator to a freight elevator permitted to carry passengers, the elevator shall conform to 3.16.4.

8.7.3.20 Increase in Rated Load.

Where an alteration involves an increase in the rated load, the installation shall conform to 2.26.1.4, 2.26.1.5, 2.26.5, 3.14 through 3.17, 3.20, and 3.21 through 3.23 (see also 8.7.3.23.4).

8.7.3.21 Increase in Deadweight of Car.

Where an alteration results in an increase in the deadweight of the car that is sufficient to increase the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to 3.14 through 3.17, 3.20, and 3.21 through 3.23 (see also 8.7.3.23.4).

8.7.3.21★1 (171/02)

Where an alteration results in a cumulative decrease in the deadweight of the car by less than 5% of car and capacity as originally installed, or causes a cumulative increases to the deadweight of the car by 115 kg (255 lbs.) or less including all weight changes since the car was originally installed the requirements of shall 8.7.2.15★1 apply.

8.7.3.21★2 (171/02)

Where an alteration results in a cumulative increase in the deadweight of the car by more than 115 kg (255 lbs.) but less than 5% of car and capacity as originally installed including all weight changes since the car was originally installed the requirements of 8.7.2.15★2 shall apply.

8.7.3.22 Change in Rise or Rated Speed

8.7.3.22.1 Increase or Decrease in Rise.

Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, it shall conform to the following:

- (a) The terminal stopping devices shall be relocated to conform to 3.25.
- (b) Where the increase in rise is at the lower end of the hoistway, bottom car and counterweight clearances and runbys shall conform to 3.4.1, 3.4.2, and 3.4.3, and existing top car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
- (c) Where the increase in rise is at the upper end of the hoistway, top car and counterweight clearances, runbys, and refuge spaces shall conform to 3.4, and existing bottom car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
- (d) The plunger shall conform to 3.18.2.
- (e) Where the decrease is at the lower end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

8.7.3.22.2 Increase in Rated Speed.

Where an alteration increases the rated speed, the installation shall conform to the following:

- (a) Requirement 2.5.
- (b) Requirement 3.4.
- (c) Requirements 3.21 and 3.22.2, except that existing buffers, where retained, are not required to conform to referenced 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
- (d) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to the applicable requirements of 3.14.
- (e) Car and counterweight safeties and governors, where provided, shall conform to 3.17, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7.
- (f) Requirement 3.16.
- (g) Requirement 3.25.
- (h) Requirements 3.26.1 through 3.26.6.
- (i) Requirement 3.20.

8.7.3.22.3 Decrease in Rated Speed.

When the alteration involves a decrease in the rated speed, it shall conform to the following:

- (a) If the bottom runbys and the top clearances for cars and counterweights are less than as required by 3.4, they shall not be decreased by the speed reduction.
- (b) The tripping speed of the car speed governor and the counterweight speed governor, where provided, shall be adjusted to conform to 2.18.2 for the new rated car speed.
- (c) The capacity and loading shall conform to 3.16.

- (d) Capacity and data plates shall conform to 3.16.3(b), except the information required by 2.16.3.2.2(d) shall include the name of the company doing the alteration and the year of the alteration.
- (e) New electrical equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

8.7.3.23 Hydraulic Equipment

8.7.3.23.1 Hydraulic Jack.

Where a hydraulic jack is installed, altered, or replaced, it shall conform to 3.18.

8.7.3.23.2 Plungers.

Where a new plunger is installed or an existing plunger is altered, it shall conform to 3.18.1.2 and 3.18.2.

8.7.3.23.3 Cylinders.

Where a cylinder is installed, replaced, altered, or sleeved, it shall conform to 3.18.3. If the plunger is not equipped with a stop ring conforming to 3.18.4.1, the installation shall also conform to 3.18.1.2 and 3.18.2.

8.7.3.23.4 Increase in Working Pressure.

Where an alteration increases the working pressure by more than 5%, the installation shall conform to 3.18, 3.19, and 3.24.1 through 3.24.4. Requirements 3.18.3.8 and 3.19.4.6 do not apply to existing equipment.

8.7.3.23.5 Change in Location of Hydraulic Jack.

Where location of the hydraulic jack is changed, the installation shall conform to Part 3.

8.7.3.23.6 Relocation of Hydraulic Machine (Power Unit).

Where the hydraulic machine is relocated so that the top of the cylinder is above the top of the storage tank, the installation shall conform to 3.26.8.

8.7.3.23.7 Plunger Gripper.

Where the alteration consists of the addition of a plunger gripper, the following conditions must be met:

- (a) the plunger gripper must comply with 3.17.3
- (b) requirement 3.1.1(b) shall apply
- (c) when buffers are compressed solid or to a fixed stop in accordance with 3.22.1, the plunger gripper shall not strike the car structure.

8.7.3.23.7★1 Plunger Gripper.

Where the alteration consists of the removal of a plunger gripper, the following conditions must be met:

- (a) the cylinder must conform to 3.18.3
- (b) an overspeed valve shall be installed in conformance with the requirements of 3.19.4.7
- (c) bottom car runby shall conform to 3.4.2.1

8.7.3.24 Valves, Pressure Piping, and Fittings.

- (a) Where an existing control valve is replaced with a valve of a different type, **make or model**, it shall conform to 3.19.
- (b) Where relief or check valves or the supply piping or fittings are replaced **as part of an alteration**, the components replaced shall conform to the applicable requirements of 3.19.
- (c) Where electrically operated control valves are installed in place of existing mechanically operated control valves, for rated speeds of more than 0.5 m/s (100 ft/min), existing terminal stopping devices consisting of an automatic stop valve independent of the normal control valve and operated by the movement of the car as it approaches the terminals, where provided, shall be permitted to be retained.

8.7.3.25 Suspension Ropes and Their Connections

8.7.3.25.1 Change in Ropes.

Where the material, grade, number, or diameter of ropes is changed, the new ropes and their fastenings shall conform to 3.20. When existing sheaves are retained using ropes different from those originally specified, the original elevator

manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.

8.7.3.25.2 Addition of Rope Equalizers.

Where rope equalizers are installed, they shall conform to 2.20.5.

8.7.3.26 Counterweights.

Where alterations are made to counterweights, they shall conform to 8.7.2.22 and 3.21. Where counterweights are added to a previously uncounterweighted elevator, it shall conform to 3.4, 3.6, 3.14, 3.15, 3.17.2, 3.18, 3.20, and 3.21. See also 8.7.3.3.

8.7.3.27 Car Buffers and Bumpers.

Where alterations are made to car buffers or bumpers, the installation shall conform to ~~3.21~~ 3.22.1 and 3.22.2. Existing buffers are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.

8.7.3.28 Guide Rails, Supports, and Fastenings.

Where alterations are made to car and counterweight guide rails, guide-rail supports, or guide-rail fastenings, or where the stresses have been increased by more than 5%, the installation shall conform to 3.23 and 3.28.

8.7.3.29 Tanks.

Where a new tank is installed ~~as part of an alteration~~ or altered, the tank shall conform to 3.24.

8.7.3.29★1 Addition of Oil Cooler

Where an oil cooler is installed or altered, the following requirements apply:

- (a) 8.7.3.8
- (b) 2.7.2 for the installed equipment
- (c) 3.10 for the installed equipment

8.7.3.30 Terminal Stopping Devices.

Where an alteration is made to any terminal stopping device, the installation shall conform to 3.25.

8.7.3.31 Operating Devices and Control Equipment

8.7.3.31.1 Top-of-Car Operating Devices.

Where there is an alteration to, or addition of, a top-of-car operating device, it shall conform to 3.26.2.

8.7.3.31★1

Where there is an alteration to or addition of any type of inspection operation (see 2.26.1.4.1(a)), the alteration shall conform to the applicable requirements in 2.26.1.4.

8.7.3.31★2

Where there is an addition of a top-of-car operating device, the requirements of 2.26.1.4 apply. See CAD 3.8.3. Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.3.31.2 Car Leveling or Truck Zoning Devices.

Where there is an alteration to, or addition of, a car leveling device or a truck zoning device, it shall conform to 3.26.3.2.

8.7.3.31★3

Where there is an alteration to or addition of car door bypass or hoistway door bypass switches, the alteration shall conform to 2.26.1.5.

8.7.3.31★4

Where there is an alteration to or addition of a system to monitor and prevent automatic operation of the elevator with faulty door contact circuits on power-operated car doors that are mechanically coupled with the landing doors while the car is in the landing zone, the alteration shall conform to the requirements in 2.26.5.

8.7.3.31.3 Anticreep Leveling Device.

Where there is an alteration or replacement of an anticreep leveling device, it shall conform to 3.26.3.1.

8.7.3.31.4 Change in Power Supply.

Where an alteration consists of a change in power supply at the mainline terminals of the elevator motion controller or motor controller involving

- (a) change in voltage, frequency, or number of phases;
- (b) change from direct current to alternating current, or vice versa; or
- (c) change to a combination of direct or alternating current.

Electrical equipment shall conform to 3.26.1, 3.26.4, 3.26.5, and 3.26.6 (not including 2.26.4.4).

8.7.3.31★5 Addition of Soft Start

Where there is an addition of a soft start feature the follow shall apply;

- (a) 2.26.4.1 and 2.26.4.2 for the new equipment,
- (b) 3.26.5

8.7.3.31★6 Addition of Power Efficiency Devices

Where there is an addition of power efficiency increasing devices the follow shall apply;

- (a) 2.26.4.1 and 2.26.4.2 for the new equipment,
- (b) B44.1 certification for the new equipment.

8.7.3.31.5 Controllers

- (a) Where a motion controller or operation controller is installed without any change in the type of operation control or motion control, it shall conform to the following:
 - (1) Terminal stopping devices shall conform to 3.25.
 - (2) The operating devices and control equipment shall conform to 3.26. Requirements of 2.26.1.1, 2.26.1.3, and 2.26.12 do not apply.
 - (3) Requirement 2.27.2 applies when emergency power is provided.
 - ~~(4) In jurisdictions not enforcing NBCC, 3.27.1 through 3.27.4 and 2.27.3 through 2.27.9 apply~~
 - ~~(a) when travel is 8 m (25 ft) or more above or below the designated landing; or~~
 - ~~(b) on installations when firefighters' emergency operation was required or provided at the time of the installation.~~
 - (5) In jurisdictions enforcing NBCC, 3.27.1 through 3.27.4 and 2.27.3 through 2.27.9 ~~apply only if firefighters' emergency operation was required or provided at the time of installation.~~
- (b) Where a controller for the operation of hoistway doors, car doors, or car gates is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
- (c) Where a controller for the elevator operation on emergency or standby power systems or firefighters' emergency operation is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
- (d) Equipment and floors shall be identified as required by 2.29.

8.7.3.31★7

Where an elevator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.3.31.6 Change in Type of Motion Control.

Where there is a change in the type of motion control, the installation shall conform to the following:

- (a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13 except 2.11.11.9,
 - (1) 2.11.1 **except:**

- (a) existing entrance openings less than 2030 mm in height or 800 mm in width are permitted to be retained
- (b) requirement 2.11.1.4
- (2) 2.11.2 through 2.11.6, except 2.11.6.3
- (3) 2.11.8, 2.11.9
- (4) 2.11.11.8 for horizontally sliding center opening and single speed entrances
- (5) 2.11.12.8
through 2.11.13, except 2.11.11.9, as modified by 3.11.1,
- (6) and conform to 3.12.1 except
 - (a) requirement 2.12.2.4.3 to allow a minimum engagement of 6 mm
 - (b) 2.12.4, and
- (7) 3.13.
- (b) Car enclosures and car doors or gates shall conform to 3.14, the loading requirements specified by 2.14.1.6, and the requirements of 2.14.1.7 including the provisions of 2.14.1.7.5 for non standard guardrails, as specified in the CAD, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
 - (1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8, 2.14.1.9 and 2.14.1.10
 - (2) requirements 2.14.2.1, 2.14.2.3 through 2.14.2.6, and 2.14.2.4
 - (3) requirement 2.14.3
 - (4) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
 - (5) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
 - (6) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4
- (c) The car safety (where provided) and the counterweight safety (where provided) shall conform to 3.17, and the governor (where provided) shall conform to 2.18, except that:
 - (1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
 - (2) the pitch diameter of speed-governor sheaves and governor tension sheaves are not required to conform to 2.18.7.
- (d) The capacity and loading shall conform to 8.7.2.27.5(d) ~~3.16~~.
- (e) The terminal stopping devices shall conform to 3.25.
- (f) The operating devices and control equipment shall conform to 3.26. Requirements of 2.26.4.2 and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
- (g) ~~In jurisdictions not enforcing NBCC, emergency operation and signaling devices shall conform to 3.27.~~
In jurisdictions enforcing NBCC, emergency operation and signaling devices where required by NBCC shall be provided and shall conform to 2.27.
- (h) Equipment and floors shall be identified as required by 2.29.

8.7.3.31.7 Change in Type of Operation Control.

Where there is a change in the type of operation control, the installation shall conform to the following:

- (a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13 as modified by 3.11.1, and conform to 3.12.1 and 3.13.
- (b) Car enclosures and car doors or gates shall conform to 3.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
 - (1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8
 - (2) requirements 2.14.2.1, 2.14.2.3, and 2.14.2.4
 - (3) requirement 2.14.3
 - (4) requirements 2.14.4.3 and 2.14.4.6
- (c) The capacity and loading shall conform to 3.16.
- (d) The terminal stopping devices shall conform to 3.25.
- (e) The operating devices and control equipment shall conform to 3.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
- (f) Emergency operation and signaling devices shall be provided and shall conform to 3.27.
- (g) Equipment and floors shall be identified as required by 2.29.

(h) requirement 2.7.9.2

8.7.3.31★8

Where a Patient Wandering feature is added, doors shall close per 2.13.5.3 and the activation of phase 1 recall shall not be prevented per 2.27.3.1.6(l).

8.7.3.31.★9

Where security / floor lockout systems are added the follow shall apply:

- (a) egress floor shall not be restricted when on FEO,
- (b) door open buttons shall remain operative,
- (c) requirement 2.11.6.2
- (d) travel to all serviced landing shall be possible per 2.27.3.3.1(i).

8.7.3.31.8 Emergency Operation and Signaling Devices

- (a) Where an alteration is made to car emergency signaling devices, the installation shall conform to 2.27.1.
- (b) Where an alteration is made to, or consists of the addition of, an emergency or standby power system, the installation shall conform to the requirements of 2.27.2.
- (c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, the installation shall conform to 3.27.

8.7.3.31★10 (175/02)

Where the method of recall is being upgraded from manual to automatic recall, FEO features are permitted to operate as required at the time of the original FEO installation. Where the main recall level is not sprinklered, alternate floor recall shall be provided.

8.7.3.31★11 (60/88) (105/93) (219/07)

Where a firecode retrofit was required but not provided, and conformance to provide FEO is now being sought, the FEO features shall be as required by CAD **3.20**.

8.7.3.31.9 Auxiliary Power Lowering Operation.

Where auxiliary power lowering operation is installed or altered, it shall conform to 3.26.10.

8.7.3.31.10 In-Car Stop Switch.

On passenger elevators equipped with nonperforated car enclosures, the emergency stop switch, including all markings, shall be permitted to be removed if an in-car stop switch conforming to 2.26.2.21, 2.26.4.3, 2.26.9.3.1(a), and 3.26.4.2 is provided.

8.7.3.31.11 Electrical Protective Devices.

Where there is an alteration to or addition of an electrical protection device, it shall conform to 3.26.4 for that device.

8.7.4 Alterations to Elevators With Other Types of Driving Machines

8.7.4.1 Rack and Pinion Elevators.

Where any alteration is made to a rack-and-pinion elevator, the entire installation shall comply with 4.1.

8.7.4.2 Screw-Column Elevators.

Where any alteration is made to a screw-column elevator, the entire installation shall comply with 4.2.

8.7.4.3 Hand Elevators

8.7.4.3.1 Hoistway Enclosures and Machinery Space.

Where an alteration is made to any portion of a hoistway enclosure or machinery space, the altered portion shall conform to 4.3.1 and 4.3.4.

8.7.4.3.2 Top Car and Counterweight Clearances.

No alteration shall reduce any clearances or runby below that required by 4.3.3 or below the minimum clearances as originally installed.

8.7.4.3.3 Hoistway Entrances.

Where new entrances are installed, the new entrances shall conform to 4.3.6, 4.3.7, and 4.3.8.

8.7.4.3.4 Car Enclosures.

Where an alteration is made to a car enclosure, it shall conform to 4.3.9 and 4.3.11.

8.7.4.3.5 Car Frame and Platform.

Where an alteration is made to a car frame or platform, the frame or platform shall conform to 4.3.11, 4.3.12, 4.3.13, and 4.3.16.

8.7.4.3.6 Capacity and Loading.

No alteration shall reduce the rated load below that required by 4.3.14.1 and 4.3.14.2. Where the alteration involves an increase in rated load, the driving machine sheave shall comply with 4.3.19.1, 4.3.19.2, and 4.3.16.

8.7.4.3.7 Increase in Rise.

Where the alteration involves an increase in the total rise to exceed 4 600 mm (15 ft), it shall conform to 4.3.3.1, 4.3.3.2, 4.3.15, and 4.3.16.

8.7.4.3.8 Guide Rails and Fastenings.

Where an alteration involves the installation of guide rails, the guide rails and fastenings shall comply with 4.3.18.1, 4.3.18.2, and 4.3.18.3.

8.7.4.3.9 Overhead Beams and Supports.

Where the alteration involves a change in the arrangement of or load on the overhead beams and sheaves, the new arrangement shall conform to 4.3.5.1 and 4.3.5.2, except that wood shall be permitted to be retained if it is structurally sound.

8.7.4.3.10 Power Attachments.

No alteration shall implement the use of a power other than hand power.

8.7.5 Alterations to Special Application Elevators

8.7.5.1 Inclined Elevators.

Where any alteration is made to an inclined elevator, the entire installation shall comply with 5.1.

8.7.5.2 Limited-Use/Limited-Application Elevators.

Reserved.

8.7.5.2.★1 Alterations to Electric Limited-Use/Limited-Application Elevators

Alterations to Limited-Use/Limited-Application Elevators, shall conform to 8.7.2 and the requirements of Part 2 except as modified in section 5.2.

8.7.5.2.★2 Alterations to Hydraulic Limited-Use/Limited-Application Elevators

Alterations to Limited-Use/Limited-Application Elevators, shall conform to the 8.7.3 and the requirements of Part 3 except as modified in section 5.2.

8.7.5.3 Private Residence Elevators

8.7.5.3.1 When a building code occupancy classification of a private residence is changed in which a private residence elevator is located, the elevator shall comply with the applicable requirements in Parts 2, 3, 4, or Section 5.2.

8.7.5.4 Private Residence Inclined Elevators

8.7.5.4.1 When a building code occupancy classification of a private residence is changed in which a private residence inclined elevator is located, the elevator shall comply with the applicable requirements in Parts 2, 3, 4, or Section 5.1.

8.7.5.5 Power Sidewalk Elevators

8.7.5.5.1 Changes in Electrical Wiring or Electrical Equipment.

Where electrical wiring or equipment is installed as part of an alteration, it shall conform to 5.5.1.8.

8.7.5.5.2 Sidewalk Door.

Where a sidewalk door is installed as part of an alteration, it shall conform to 5.5.1.11.2, 5.5.1.11.3, and 5.5.1.11.4.

8.7.5.5.3 Change in Car Enclosure, Car Doors, and Gates.

Where the car enclosure, car door, or car gate is installed as part of an alteration, it shall conform to 5.5.1.14.

8.7.5.5.4 Bow Irons and Stanchions. Where the bow iron and stanchion is installed as part of an alteration, it shall conform to 5.5.1.15.2.

8.7.5.5.5 Increase in Rated Load.

Where the alteration consists of an increase in rated load, the bottom and top clearances and runbys shall conform to 5.5.1.16, 5.5.1.18, 5.5.1.21, and 5.5.1.25.4.

8.7.5.5.6 Increase in Rated Speed.

Where the alteration consists of an increase in rated speed, the capacity and loading shall conform to 5.5.1.15, 5.5.1.16, 5.5.1.19, and 5.5.1.22.

8.7.5.5.7 Existing Driving Machine.

Where the driving machine is installed as part of an alteration, it shall conform to 5.5.1.8, 5.5.1.9, 5.5.1.23, and 5.5.1.25.

8.7.5.5.8 Change in Type of Operating Devices and/ or Control Equipment.

Where the alteration consists of a change in the existing type of operation or control equipment, or both, the new operating devices and control equipment shall conform to 5.5.1.8 and 5.5.1.25.

8.7.5.6 Rooftop Elevators.

Where any alteration is made to a rooftop elevator, the entire installation shall comply with 5.6.

8.7.5.7 Special Purpose Personnel Elevators.

Where any alteration is made to a special purpose personnel elevator, the entire installation shall comply with 5.7.

8.7.5.8 Shipboard Elevators.

Where any alteration is made to a shipboard elevator, the entire installation shall comply with 5.8.

8.7.5.9 Mine Elevators

8.7.5.9.1 General Requirements.

Where any alteration is made to a mine elevator, the alteration shall conform to the requirements of 8.7.1 and 8.7.2, except as modified by 5.9.

8.7.5.9.2 Ascending Car Overspeed and Unintended Car Movement Protection.

Ascending car overspeed and unintended car movement protection shall be provided and shall conform to 2.19.

8.7.5.9.3 Car Top Protection. The car top access panel size requirements in 5.9.14.1(b) do not apply where the existing car top is retained. The dimensions of the existing car top access panel shall not be reduced by the alteration.

8.7.6 Alterations to Escalators and Moving Walks

8.7.6.1 Escalators

8.7.6.1.1 General Requirements.

A change in component parts that are interchangeable in form, fit, and function is not considered an alteration and need not comply with the requirements in this Section. See 8.6.3.1. The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.1 for that device or component. When multiple driving machines per escalator are utilized, operating and safety devices required by 8.7.6.1 shall simultaneously control all driving machines. The requirements of 6.1.3.6.5 do not apply to existing escalators that were not required to comply with this requirement at the time of the original installation.

8.7.6.1.2 Relocation of Escalator.

- (a) Where an escalator is relocated, it shall comply with 6.1. The requirements of 6.1.7.4.2 do not apply to electrical equipment unchanged by the relocation. The requirements of 6.1.3.6.5 do not apply to existing escalators that were not required to comply with this requirement at the time of the original installation.

- (b) Where an escalator is repositioned within the same building, CAD requirement 3.18 applies and the installation shall conform to the following;
 - (1) requirement 6.1.3.3.11, 6.1.3.3.12, 6.1.3.3.13
 - (2) requirement 6.1.3.4.3
 - (3) requirement 6.1.3.6.3, 6.1.3.6.4
 - (4) requirement 6.1.3.12
 - (5) requirement 6.1.3.13
 - (6) requirement 6.1.6.9
 - (7) requirement 6.1.7.4.1 and
 - (8) requirement 8.7.6.1.3

8.7.6.1.3 Protection of Floor Openings.

Any alteration to the floor openings in escalators shall comply with 6.1.1.1.

8.7.6.1.4 Protection of Trusses and Machinery Spaces Against Fire

Any alteration to the sides and/ or undersides of escalator trusses and machinery spaces shall conform to 6.1.2.1.

8.7.6.1.5 Construction Requirements

- (a) Angle of Inclination. No alteration of an escalator shall change the angle of inclination, as originally designed, by more than 1 deg.
- (b) Geometry. Any alteration to the geometry of the escalator components shall conform to 6.1.3.2.
- (c) Balustrades. Any alteration to the balustrades shall conform to 6.1.3.3 for the altered components.
- (d) Skirt Deflector Devices. Any alteration or addition of skirt deflector devices shall conform to 6.1.3.3.10

NOTE [8.7.6.1.5(c)]: The balustrade does not include the handrail.

NOTE [8.7.6.1.5(d)]: The vertical dimensions on existing skirt panels may not allow full compliance. See 1.2.

8.7.6.1.6 Handrails. Any alteration to the handrails or handrail system shall require conformance with 6.1.3.2.2, 6.1.3.4.1 through 6.1.3.4.4, 6.1.3.4.6, 6.1.6.3.12, and 6.1.6.4.

8.7.6.1.★1 Addition of Handrail Advertizing

The addition of handrail advertizing is not permitted per 6.1.6.9.2, unless otherwise permitted by a variance request.

8.7.6.1.7 Step System

- (a) Any alteration to the step system shall require conformance with 6.1.3.3.5, 6.1.3.5 [except as specified in 8.7.6.1.7(b)], 6.1.3.6, 6.1.3.8, 6.1.3.9.4, 6.1.3.10.4, 6.1.3.11, 6.1.6.3.3, 6.1.6.3.9, 6.1.6.3.11, 6.1.6.3.14, and 6.1.6.5.
- (b) Steps having a width less than 560 mm (22 in.) shall not be reduced in width by the alteration.

8.7.6.1.8 Combplates.

Any alteration of the combplates shall require conformance with 6.1.6.3.13.

8.7.6.1.9 Trusses and Girders.

Any alterations or welding, cutting, and splicing of the truss or girder shall conform to 8.7.1.4. Alterations shall result in the escalator's conforming to 6.1.3.7, 6.1.3.9.1, and 6.1.3.10.1. The installation of a new escalator into an existing truss shall conform to all of the requirements of 6.1.

8.7.6.1.10 Step Wheel Tracks.

Any alteration to the tracks shall result in the escalator's conforming with 6.1.3.8, 6.1.3.9.4, 6.1.3.10.1, and 8.7.1.4.

8.7.6.1.11 Rated Load and Speed.

Any alteration that increases the rated load or rated speed or both shall result in the escalator's conforming with 6.1.

8.7.6.1.12 Driving Machine, Motor, and Brake

- (a) Driving Machine. An alteration to the driving machine shall result in the escalator's conforming to 6.1.3.9.2, 6.1.3.10.3, 6.1.4.1, 6.1.5.1, 6.1.5.2, 6.1.5.3.1, 6.1.5.3.2, 6.1.6.3.4, and 6.1.6.3.8.
- (b) Driving Motor. An alteration to the drive motor shall result in the escalator's conforming to 6.1.3.9.2, 6.1.3.10.3, 6.1.4.1, 6.1.5.2, 6.1.5.3.1, 6.1.5.3.2, 6.1.6.3.2, 6.1.6.3.8, and 6.1.6.3.10.
- (c) Machine Brake. An alteration to the machine brake shall result in the escalator's conforming to 6.1.3.9.3, 6.1.3.10.2, and 6.1.5.3.1.

8.7.6.1.13 Operating and Safety Devices.

Any alteration to or addition of operating and or safety devices shall conform to 6.1.6 for that device.

8.7.6.1.★2 Removal of Step Demarcation Lights (226/07)

The removal of step demarcation lights, shall be permitted if the device complies with the following:

- (a) requirement 6.1.3.3.5,
- (b) requirements 6.1.3.5.4, 6.1.3.5.5, 6.1.3.5.6, and
- (c) requirement 6.1.3.6.2.

8.7.6.1.14 Lighting, Access, and Electrical Work.

An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.1.7 for that change.

8.7.6.1.15 Entrance and Egress.

Any alteration to the entrance or egress end shall comply with 6.1.3.6.1 through 6.1.3.6.4.

8.7.6.1.16 Controller.

Where a controller is installed as part of an alteration, it shall conform to 6.1.6.10 through 6.1.6.15, and 6.1.7.4.

8.7.6.1.★3 Controller Replaced (226/07)

Where a controller is replaced it shall conform to 8.7.6.1.16.

8.7.6.1.★4 Relocation of Controller (226/07)

Where an escalator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.6.1. ★5 Addition of Soft Start (226/07)

Where there is an addition of a soft start feature the follow shall apply;

- (a) for control systems built to B44-00 and later, 6.1.7.4, 6.1.6.10.1, 6.1.6.10.2, 6.1.6.10.3
- (b) for control systems built prior to B44-00 6.1.7.4.

8.7.6.1. ★6 Power Efficiency Devices

Where there is an addition of power efficiency increasing devices the follow shall apply;

- (a) 2.26.4.1 and 2.26.4.2 for the new equipment,
- (b) B44.1 certification for the new equipment.

8.7.6.2 Moving Walks

8.7.6.2.1 General Requirements.

A change in component parts that are interchangeable in form, fit, and function is not considered an alteration and need not comply with the requirements in this Section. See 8.6.3.1.

The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.2 for that device or component. When multiple driving machines per moving walk are utilized, operating and safety devices required by 8.7.6.2 shall simultaneously control all driving machines.

8.7.6.2.2 Relocation of Moving Walk.

Where a moving walk is relocated, it shall comply with 6.2.

8.7.6.2.3 Protection of Floor Openings. Any alteration to the floor openings for moving walks shall comply with 6.2.1.1.

8.7.6.2.4 Protection of Trusses and Machinery Spaces Against Fire.

Any alteration to the sides or undersides, or both, of movingwalk trusses and machinery spaces shall conform to 6.2.2.1.

8.7.6.2.5 Construction Requirements

- (a) Angle of Inclination. Alteration of a moving walk that increases the angle of inclination shall require conformance with 6.2.
- (b) Geometry. Any alteration to the geometry of the moving walk components shall require conformance with 6.2.3.2.
- (c) Balustrades. Any alteration to the balustrades shall require conformance with 6.2.3.3.

NOTE [8.7.6.2.5(c)]: The balustrade does not include the handrail.

8.7.6.2.6 Handrails.

An alteration to the handrails or handrail system shall require conformance with 6.2.3.2.3, 6.2.3.4, 6.2.6.3.10, and 6.2.6.4.

8.7.6.2.7 Treadway System

- (a) An alteration to the treadway system shall require conformance with 6.2.3.2.3, 6.2.3.3.5, 6.2.3.3.6, 6.2.3.5, 6.2.3.6 [except as specified in 8.7.6.2.7(b)], 6.2.3.8, 6.2.3.9, 6.2.3.10.4, 6.2.3.11.4, 6.2.3.11.5, 6.2.3.12, 6.2.6.3.3, 6.2.6.5, and 6.2.6.3.9.
- (b) The minimum width of the moving walk shall be permitted to be less than that required by 6.2.3.7. The existing width, if less than required by 6.2.3.7, shall not be decreased by the alteration.

8.7.6.2.8 Combplates.

An alteration of the combplates shall require conformance with 6.2.3.8 and 6.2.6.3.11.

8.7.6.2.9 Trusses and Girders.

Any alterations or welding, cutting, and splicing of the truss or girder shall conform to 8.7.1.4. Alterations shall result in the moving walk's conforming to 6.2.3.9, 6.2.3.10.1, and 6.2.3.11.1. The installation of a new moving walk into an existing truss shall conform to all of the requirements of 6.2.

8.7.6.2.10 Track System.

Any alteration to the tracks shall result in the moving walk's conforming to 6.2.3.9, 6.2.3.10, 6.2.3.11.1, and 8.7.1.4.

8.7.6.2.11 Rated Load and Speed.

Any alteration that increases the rated load or rated speed or both shall result in the moving walk's conforming to 6.2.

8.7.6.2.12 Driving Machine, Motor, and Brake

- (a) Driving Machine. An alteration to the driving machine shall result in the moving walk's conforming to 6.2.3.10.2, 6.2.3.11.2, 6.2.3.11.3, 6.2.3.14, 6.2.3.15, 6.2.4, 6.2.5.1, 6.2.5.3.1, 6.2.5.3.2, 6.2.6.3.4, and 6.2.6.3.8.
- (b) Drive Motor. An alteration to the drive motor shall result in the moving walk's conforming to 6.2.3.10.2, 6.2.3.11.2, 6.2.3.11.3, 6.2.4, 6.2.5.2, 6.2.5.3.1, 6.2.6.3.2, 6.2.6.3.7, and 6.2.6.3.8.
- (c) Machine Brake. An alteration to the machine brake shall result in the moving walk's conforming to 6.2.3.10.3, 6.2.3.11.2, 6.2.3.11.3, ~~6.2.3.12.3~~, 6.2.5.3.1, and 6.2.5.3.2.

8.7.6.2.13 Operating and Safety Devices.

An alteration to or addition of operating and/or safety devices shall conform with the specific requirements within 6.2.6 for that device.

8.7.6.2.14 Lighting, Access, and Electrical Work.

An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.2.7 for that change.

8.7.6.2.15 Controller.

Where a controller is installed as part of an alteration, it shall conform to 6.2.6.9 through 6.2.6.14, and 6.2.7.4.

8.7.6.2.★1 Controller Replaced (226/07)

Where a controller is replaced it shall conform to 8.7.6.1.16.

8.7.6.2.★2 Relocation of Controller (226/07)

Where an escalator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.6.2.★3 Addition of Soft Start (226/07)

Where there is an addition of a soft start feature the following shall apply:

- (a) for control systems built to B44-00 and later, 6.1.7.4, 6.1.6.10.1, 6.1.6.10.2, 6.1.6.10.3
- (b) for control systems built prior to B44-00 6.1.7.4.

8.7.6.2.★4 Power Efficiency Devices

Where there is an addition of power efficiency increasing devices the following shall apply:

- (a) 2.26.4.1 and 2.26.4.2 for the new equipment,
- (b) B44.1 certification for the new equipment.

8.7.7 Alterations to Dumbwaiters and Material Lifts

8.7.7.1 Dumbwaiters and Material Lifts Without Automatic Transfer Devices

8.7.7.1.1 General. When any alteration is made to a dumbwaiter or material lift, all work performed as part of the alteration shall comply with 7.1 through 7.6.

8.7.7.1.2 Increase in Rated Load.

Where an alteration involves an increase in the rated load, the installation shall conform to either of the following:

- (a) requirement 7.2, except 7.2.1 for hand and electric dumbwaiters
- (b) requirement 7.3, except 7.3.4.1 for hydraulic dumbwaiters
- (c) requirement 7.4
- (d) requirement 7.5
- (e) requirement 7.6.

8.7.7.★1 Alteration to Freight Platform Lifts Type A

Where an alteration is made to a Type A freight platform lift, the alteration shall conform to the applicable requirements of 7.4, 7.5 and 7.6 for Type B material lifts, except any reference to in-car operating devices and riders shall not apply.

8.7.7.★2 Alteration to Freight Platform Lift Type B

Where an alteration is made to a Type B freight platform lift, the alteration shall conform to the applicable requirements of 7.4, 7.5 and 7.6 for Type B material lifts.

8.7.7.2 Addition of Automatic Transfer Device.

Where an automatic transfer device is installed on an existing elevator or dumbwaiter, the resultant combination of material lift or dumbwaiter with automatic transfer device shall conform to Part 7.

8.7.7.3 Material Lifts and Dumbwaiters With Automatic Transfer Devices

8.7.7.3.1 Where any alteration is made to a material lift or dumbwaiter with an automatic transfer device, the entire installation shall comply with 7.7 through 7.10.

8.7.7.3.2 Where an automatic transfer device is removed from a dumbwaiter or material lift and is not replaced, the installation shall conform to 7.1 to 7.3 for dumbwaiters and 7.4 to 7.6 for Materials Lift Without Transfer Device.

8.7.7.3.3 Where a material lift is altered to be an elevator, it shall comply with Part 2 or Part 3.

8.7.7.3.4 Where a material lift or dumbwaiter with an automatic transfer device is altered to a dumbwaiter, it shall comply with 7.1 through 7.3.

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 Not later than **May 1**, 2014, 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 modified by 2.14.1.7 of the code adopted in **3.1** [CAD Amendment 250-11]
- 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.

3.10 Platform Apron Requirements (166/01)

- 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 millimetres 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 millimetres, 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; 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 millimetres from the top without deflecting more than six millimetres, or
 - (2) at 1,150 millimetres from the top without deflecting more than 50 millimetres,
- 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 twenty-five millimetres clearance between the bottom edge of the apron and the pit floor when the car is on fully compressed buffers.

3.10.3 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
- (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 Between Hoistways Required

3.13.1 No elevator shall be operated where it is located adjacent to a hoistway of another elevating device in which installation or alteration work is being performed and where the operation of the elevator may be hazardous to the persons performing the work or persons inside the elevator, unless the hoistways are separated by a structure supported and braced so as to not deflect into the code required running clearance of the adjacent operating car or its counterweight [CAD Amendment-261-13].

3.13.2 Where the separating structure referred to in subsection **3.13.1** is made of perforated material, it shall reject a ball 25 millimetres in diameter. [CAD Amendment-261-13].

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 clause **8.10** of CSA B44-94; Safety Code for Elevators, as amended by Supplements B44S1-97 and B44S2-98. [CAD Amendment 246-11]

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 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 **if required by the Ontario Building Code at time of installation.**
- (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.
- (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 2.27.3.2.2(a) through (c) as revised in this CAD.

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 shall have a “Daily Stopping Distance Check” sign posted at each end of the escalator near the stop button or start switch.
- 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]

Summary of Pending Compliance Due Dates

Subject	Reference	Due Date
MCP for all existing devices (B44.2 no longer applicable)	CAD 3.3.2(b)	March 31, 2014
Single bottom cylinders	CAD 3.3.4 see 8.6.5.9	May 1, 2015
Escalators to meet Step/Skirt Performance Index	CAD 3.3.4 see 8.6.8(b)	May 1, 2015
Car top railing requirements	CAD 3.8.2	May 1, 2014
Material lifts/Freight platform lifts require interlocks	CAD 3.9.2	May 1, 2014

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]

4.2 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.

4.4 Authorized Persons

- 4.4.1 No person shall use a manlift except those persons designated by the owner of the manlift as being properly trained in its operation and use.

4.5 Maintenance Log Book

- 4.5.1 The log book shall, as a minimum, contain the following information :
 - (a) Building name and/or address,
 - (b) TSSA or MCCR installation number,
 - (c) Contractor's and Owner's name,

- (d) Year and month when a specific task is performed,
- (e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,
- (f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 246-11]

4.5.2 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 defect is adjusted repaired or replaced. [CAD Amendment 246-11]

4.6 Location of the Log Book

4.6.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 246-11]

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-Z98-14, Passenger ropeways and passenger conveyors, and any additional applicable requirements set out in this document.
- 5.1.2 Annexes “A, B, C, D, E, F, G, H, I, J and K” referenced in the CSA-Z98-14 standard are also adopted.
- 5.1.3 Existing installations shall conform to CSA-Z98-14 clause 1.4, Annexes A through K as applicable, any requirements applicable at the time of the original installation or subsequent alteration and any applicable requirements set out in this document .

5.2 General Technical Requirements for Passenger Ropeways and Passenger Conveyors

- 5.2.1 The general technical requirements in Part 2 of the Code Adoption Document do not apply to passenger ropeways and passenger conveyors.
- 5.2.2 Passenger Ropeways and Passenger Conveyors shall conform to the following general technical requirements,
 - (a) Electrical equipment shall conform to the Ontario Electrical Safety Code as amended from time to time;
 - (b) In addition to CSA-Z98-14 requirements, welding on a passenger ropeway or passenger conveyor shall conform to the requirements of CSA W59 Welded Steel Construction (Metal Arc Welding);
 - (c) Where a passenger ropeway or passenger conveyor is relocated it shall meet the requirements of 5.1.

5.3 Definitions

- 5.3.1 In Part 5 of this document,
 - (a) “safety circuits” means 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.
 - (b) “electrical/electronic/programmable electronic system” or “(E/E/PES)” means a system for control, protection, or monitoring based on one or more electrical/electronic/programmable electronic (E/E/PE) devices, including all elements of the system such as power supplies, sensors and other input devices, data highways and other communication paths, and actuators and other output devices.
 - (c) “electrical/electronic/programmable electronic” or “(E/E/PE)” means that based on electrical (E), and/or electronic (E), and/or programmable electronic (PE) technology.

“programmable electronic” or “(PE)” means that based on computer technology which may be comprised of hardware, software, and of input and/or output units

5.4 Amendments to Z98-14

5.4.1 The requirements of 4.23.2.5 are supplemented as follows;

4.23.2.5 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%.

5.4.2 The requirements of 4.23.3.2(c) are amended as follows;

4.23.3.2(c) 10% to 15% overspeed, as detected from the speed of the drive sheave or haul rope; and

5.4.3 The requirements of 4.29.1.10 are amended as follows;

4.29.1.10 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.

5.4.4 The requirements of 4.29.8.3 are supplemented as follows;

4.29.8.3 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 5.9 and 5.10 of this CAD.

5.5 Z98 clauses 4.29.1.7 “Safety levels” and 4.29.1.8 “Safety Considerations” (General Applicability)

5.5.1 The general applicability of clauses 4.29.1.7 “Safety levels” and 4.29.1.8 “Safety Considerations” shall not apply if all applicable prescriptive requirements of the code are met.

5.5.2 Any variance to or deviation from the prescriptive requirements related to the design of safety circuits (see definitions) shall comply with clauses 4.29.1.7 “Safety levels” and 4.29.1.8 “Safety Considerations”.

5.5.3 New configurations or novel designs which cannot be precisely classified in CSA Z98-14, shall ensure that their safety circuit designs comply with 4.29.1.7 “Safety levels” and 4.29.1.8 “Safety Considerations”.

5.5.4 Where feature(s) of safety circuits for a passenger ropeway or conveyor is not specified in CSA Z98-14, safety circuits shall comply with 4.29.1.7 “Safety levels” and 4.29.1.8 “Safety Considerations”.

5.6 Z98 clauses 4.29.1.7 “Safety levels” and 4.29.1.8 “Safety Considerations” (Compliance to)

5.6.1 Where conformance to clauses 4.29.1.7 “Safety levels” and 4.29.1.8 “Safety Considerations” is required as specified in 5.5, compliance shall be demonstrated as required in 5.6.2 or 5.6.3.

5.6.2 Safety circuits function shall 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) or

5.6.3 *Safety circuits* function shall conform to:

- (a) EN 12929:2015 (Safety requirements for cableway installations designed to carry persons. General requirements. Requirements for all installations);
- (b) EN 13243:2015 (Safety requirements for cableway installations designed to carry persons. Electrical equipment other than for drive systems); and
- (c) EN 13223:2015 (Safety requirements for cableway installations designed to carry persons. Drive systems and other mechanical equipment); or
- (d) Equivalent requirements as acceptable to the director.

5.7 Single Failure Protection

- 5.7.1 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.
- 5.7.2 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.
- 5.7.3 The devices used to satisfy the requirements of 5.7.2 shall be checked prior to starting of the passenger ropeway, as a minimum, once per day.
- 5.7.4 Where a single ground is detected as set out in clause 5.7.2(a) or an event referred to in 5.7.2(b) to 5.7.2(d) is detected, the passenger ropeway shall not restart.
- 5.7.5 Implementation of redundancy in a passenger ropeway by a software system is permitted provided that there is diversification to avoid common mode failure.

5.8 Log Books

- 5.8.1 In addition to data specified in section 34 of the Regulation, the log book of a passenger ropeway or passenger conveyor shall contain,
 - (a) all data required in the code adopted in section 5.1 of this document;

- (b) all data on any increases or decreases to the mass of the carriers;
- (c) a record of all pre-season inspections carried out in accordance with section 5.9 of this document;
- (d) a record of all major and minor alterations; and
- (e) a record of all five-year periodic tests referred to in 12.17 and Annex H.

5.8.2 In addition to the requirements of subsection 34.(2) of the Regulation,

- (a) 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) major and minor alteration records shall be kept until the passenger ropeway or passenger conveyor is dismantled.
- (c) 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.

5.9 Preseason Inspection (168/02)

- 5.9.1 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.
- 5.9.2 The results of the inspection shall be recorded in a form acceptable to the director.

5.10 Aging Ski Lift Assessment

- 5.10.1 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 Director's guideline 224/07.

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

- 5.11.1 The word "tube(s)" has the same meaning as "secondary carrier(s)" used in Z98.
- 5.11.2 Tube tows shall comply with the requirements of 5.11.3 through 5.11.7
- 5.11.3 The designer shall specify the method to verify the haul rope tension.
- 5.11.4 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.

5.11.5 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.

5.11.6 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/manufacture 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/manufacture 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.

5.11.7 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.

5.12 Alterations

5.12.1 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](#).

5.12.2 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

(f) a replacement of the controller,

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

5.12.3 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.

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

5.13 Manufacturers/Designers Bulletins

5.13.1 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.

5.13.2 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.

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

Part 6 [No Changes from 261-13r1]

6 CONSTRUCTION HOISTS

6.1 Applied Code [CAD Amendment 216-07]

6.1.1 Every construction hoist shall conform to the following:

- (a) workers' rail guided construction hoists shall conform to CAN/CSA Standard Z185-M87(R2001), Safety Code for Personnel Hoists; [CAD Amendment 216-07]
- (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; and [CAD Amendment 216-07]
- (c) material construction hoist, CSA Standard Z 256-M87(R2006), Safety Code for Material Hoists, [CAD Amendment 216-07]

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

6.2 Rated Load

6.2.1 For the purpose of this Document and subsection 31.(3) of the Regulation, "rated load" or "rated loading" in the codes referred to in section 6.1 means "maximum capacity".

6.3 Continuously Controlled by Power

6.3.1 Every construction hoist shall be so designed that the car movement in both the up and down direction is continuously controlled by power.

6.4 Broken Rope Safety

6.4.1 A material construction hoist that is equipped with a broken rope type safety shall not be registered unless a type test indicates that the safety is capable of stopping the car when it is free falling with its rated load.

6.5 Limitation on Speed

6.5.1 Where the load-carrying unit of a workers' rope-guided construction hoist passes through a restricted area at a platform or floor, a control device that positively and automatically lowers the speed of the load-carrying unit to that specified in the related design submission while the load-carrying unit passes through the restricted area shall be installed on the hoist, except where the design submission indicates that no speed limitation is required.

6.5.2 In lieu of the control device referred to in subsection 6.5.1, an operator utilizing a system of signals may be used to manually control the speed of the hoist.

6.6 Attendant Operation

- 6.6.1 Every workers' rail-guided construction hoist, shall while in operation, be attended by an attendant who shall be stationed in the load-carrying unit, and who shall operate the construction hoist and also supervise the loading, passage and unloading of persons and freight.
- 6.6.2 Every material construction hoist shall while in operation be,
- (a) attended by one or more attendants stationed at each location where freight is being loaded or unloaded; and
 - (b) operated by,
 - (1) an attendant stationed at the location of the operating devices, provided that the operating devices can be automatically rendered inoperative should an unsafe condition for operation of the construction hoist exist, or
 - (2) an operator stationed at the driving unit where the driving unit and its operating devices cannot automatically be rendered inoperative should an unsafe condition for operation of the construction hoist exist.
- 6.6.3 Subsections 6.6.1 and 6.6.2 apply with necessary modifications to the providing of attendants and operators for workers' rope-guided construction hoists.

6.7 Up Overspeed Protection

- 6.7.1 Every workman's construction hoist that is equipped with a counterweight having a mass greater than the mass of the empty car shall be provided with a means for protecting against uncontrolled car speed in the up direction and such means shall conform to the following:
- (a) It shall detect any uncontrolled movement of the car prior to or at least when the car reaches a predetermined overspeed and shall cause the car to stop prior to the time when the counterweight strikes its buffers, or at least reduce car speed to the speed for which the buffers are designed.
 - (b) It shall be capable of performing as required in paragraph (a) without assistance from any hoist component which solely without built in redundancy, controls the speed, or deceleration, or stops the car during normal operation.
 - (c) It shall not develop an average retardation of the car in excess of 9.81 m/sec² during the stopping phase.
 - (d) It shall prevent uncontrolled movement of the car through control of the speed of, and acting upon the,
 - (1) car;
 - (2) counterweight;
 - (3) suspension or compensating rope system; and
 - (4) drive sheave, provided that the traction between the suspension ropes and the drive sheave are continuously monitored and the construction hoist is automatically removed from service when the rope slippage exceeds a predetermined amount.

- (e) When it is activated or during the stopping phase, it or another hoist component shall cause the power supply of the driving machine to be interrupted.
- (f) It shall be capable of performing at least ten operations without any adjustments.
- (g) All components that require periodic examination and maintenance for the purpose of maintaining their operational reliability, shall be readily accessible.
- (h) Its performance shall be checked during the initial and periodic inspections unless its performance reliability is substantiated otherwise.
- (i) It shall be provided with a making plate indicating maximum capacity for which it may be used and the speed at which it is set to operate.

6.8 Additional Requirements for Workers' Rail Guided Construction Hoists [CAD Amendment 216-07]

6.8.1 In addition to the requirements of **6.1.1(a)**, workers' rail-guided construction hoists shall conform to the following:

(a) Clause **14.4.2** of CAN/CSA-Z185-M87 (R2001) shall be replaced with the following;

(1) The occurrence of a single ground or a software system failure or the failure of

- a) a switch which does not have contacts that are positively separated;
- b) a contactor;
- c) a relay; or
- d) a solid state device;

shall not render any electrical protective device ineffective.

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

(c) Clause **18.1.1(c)** of CAN/CSA-Z185-M87 (R2001) shall be replaced with:

Control equipment incorporating solid state devices 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 render any electrical protective device ineffective and shall not cause the car 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.

(d) 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.

(e) Workers' construction hoists 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]

6.9 Additional Requirements for Workers' Rope-Guided Construction Hoists [CAD Amendment 216-07]

6.9.1 In addition to the requirements of **6.1.1(b)**, workers' rope-guided construction hoists shall conform to the following:

(a) The occurrence of a single ground or a software system failure or the failure of

- (1) a switch which does not have contacts that are positively separated;
- (2) a contactor;
- (3) a relay; or
- (4) a solid state device;

shall not render the, deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake ineffective.

Note: Requirements only apply to the circuits in which the deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake are used and not to the devices themselves.

- (b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.
- (c) Control equipment incorporating solid state devices 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 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.
- (d) All references to NFPA 70 (Clause **2.1**, Clause **3.24**, and Clause **4.13** of ANSI A10.22-2007) shall be replaced with Ontario Electrical Safety Code as referenced in **2.2.1(b)** of this document. [CAD Amendment 216-07], [CAD Amendment 246-11]

6.10 Additional Requirements for Material Construction Hoist [CAD Amendment 216-07]

6.10.1 In addition to the requirements of **6.1.1(c)**, material construction hoists shall conform to the following:

(a) Clause **15.3.2** of CAN/CSA-Z256-M87 (R2006) shall be replaced with the following;

- (1) The occurrence of a single ground or a software system failure or the failure of
 - a) a switch which does not have contacts that are positively separated;
 - b) a contactor;
 - c) a relay; or
 - d) a solid state device;

shall not render any electrical protective device ineffective.

(b) Redundant software systems used to satisfy the requirements of (a) shall have a level of diversification sufficient to avoid common mode failures.

(c) Clause 19.1.3 of CAN/CSA-Z256-M87 (R2006) shall be replaced with:

Control equipment incorporating solid state devices 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 render any electrical protective device ineffective and shall not cause the car 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.

(d) 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.

(e) Material construction hoists 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]

6.11 Maintenance Log Book [CAD Amendment 255-12]

6.11.1 Each elevating device of a type listed in 6.1.1 shall be provided with a maintenance log book as required by O. Reg. 209/01, s. 34 Log books.

6.11.2 Maintenance records in the form of a log book shall document compliance with related construction hoist codes, Code Adoption Document (CAD) requirements and any manufacturer recommended tasks extracted from the manufacturers maintenance and operation manuals, and shall include records on the following activities:

(a) description and dates of maintenance task performed;

(b) description and dates of examinations, tests;

(c) description and dates of adjustments, repairs, and replacements;

(d) description and dates of any tasked noted in the Guideline for Maintenance Logs – Construction Hoists (Guideline 256/12); and

(e) description and dates of all call backs (trouble calls) or reports that are reported to elevator personnel by any means, including corrective action taken.

(f) log records to document compliance with the maintenance, examinations and test activities listed in (a) through (d) shall also include:

(1) Building name and/or address;

(2) TSSA installation number;

(3) Contractor's (owners) name;

(4) Contractor's Registration Number;

(5) the code section, reference, requirement or clause number associated with a task;

(6) a description of the task performed;

(7) the prescribed maintenance frequency of the task;

(8) the date the task was performed; and

(9) upon completion of the task, the printed name, signature, and TSSA certificate number of the person who completed the maintenance, examination or tests.

6.11.3 Where a part of an elevating device which directly affects the safe operation of the device is found to be defective, the record of the relevant maintenance task shall not be signed off by the party performing the task until the defective part is adjusted, repaired or replaced, and the safety of the device restored.

6.12 Location of the Maintenance Log Book [CAD Amendment 255-12]

6.12.1 The maintenance log book shall be kept in the machine room or on the device or near the device location or, in the alternative if it is kept at another location on the site, a notice shall be posted in the machine room or device location indicating the alternate location.

6.12.2 Log book data shall be readily available as required by O. Reg. 209/01, s .34.(3)

6.13 Manufacturers Maintenance and Operation Manual [CAD Amendment 255-12]

6.13.1 For each construction hoist the manufacturers maintenance and operations manual shall be retained.

6.13.2 The manufacturers maintenance and operation manual shall be kept in the machine room or on the device or near the device location or in the alternative, if it is kept at another location on the site, a notice shall be posted in the machine room or device location indicating the alternate location.

6.13.3 The manufacturers maintenance and operation manual shall be readily available and immediately provided to an inspector upon request.

6.14 Operator Training [CAD Amendment 255-12]

6.14.1 Every operator must have the required knowledge and experience to operate an elevating device and owners, licensees and/or lessees, must ensure operators are trained to safely operate such devices and must be satisfied that the operator is aware of potential hazardous situation connected therewith as required by O.Reg 209/01 s.40.

6.14.2 Owners, licensees, lessees providing training or other trainers providers shall develop and maintain written operator training programs and written policies and procedures to ensure compliance with the regulation and **6.14.1**.

6.14.3 Written training programs shall include applicable portions of the manufacturers maintenance and operation manual to address the requirements of the regulation and **6.14.1** and shall include the minimum requirements for operator training as outlined in the Guide for Operator's Logs and Operator Training Requirements – Construction Hoists (Guideline 257/12).

6.14.4 Copies of the documentation required under **6.14.2** shall be kept on site, shall contain current and complete information and shall be readily available and immediately provided to an inspector upon request.

6.14.5 Training records shall be maintained by the training provider ("trainer") and shall include the following information:

- (a) the name of the person(s) who received the operator training;
- (b) the TSSA installation number of the device on which they were trained or the device/ device type(s) on which they were trained and the address associated with the device location;
- (c) the date of training;
- (d) the signature of the trained operator; and,

(e) the signature of the trainer.

- 6.14.6 A copy of the training records identified in **6.14.5** shall be maintained on site and readily available and immediately provided to an inspector upon request.
- 6.14.7 Individuals who are trained as operators, and have achieved sufficient competence to operate the device safely shall be issued by the trainer an “Operator’s Proof of Training” document which must certify that the operator is competent to operate the device safely and must specify the following information:
- (a) the operators name;
 - (b) the TSSA installation number of the device on which they were trained or the device/ device type(s) on which they were trained and the address associated with the device location;
 - (c) the date the training was received; and
 - (d) the signature of the trainer.
- 6.14.8 The trainer shall issue an “Operator’s Proof of Training” document in the form of a letter or wallet card or equivalent as per **6.14.7**.

6.15 Operator’s Proof of Training [CAD Amendment 255-12]

- 6.15.1 Operators are required to carry their “Operator’s Proof of Training” document whenever they operate an elevating device.
- 6.15.2 “Operator’s Proof of Training” shall be readily available and immediately provided to an inspector upon request.
- 6.15.3 An “Operator’s Proof of Training” may be immediately revoked by an Inspector, owner, licensee, lessee or trainer where there is reason to believe that the operator lacks the competence to safely operate the elevating device and the operator may no longer operate the device.

6.16 Daily Operator’s Log [CAD Amendment 255-12]

- 6.16.1 Each elevating device type listed in **6.1.1** shall have a corresponding “Daily Operator’s Log” in which a current and accurate record of all required start up checks as required by the device manufacturer, owner, licensee, lessee or device operator shall be kept and shall include the minimum requirements for operator’s logs as outlined in the Guideline for Operator’s Logs – Construction Hoists (Guideline 257/12).
- 6.16.2 Operator’s of a device must satisfy themselves, at the start of each shift, that the device is safe to operate as required by O.Reg 209/01 s.42 by conducting a series of start up checks as outlined in the Guideline for Operator’s Log – Construction Hoists and shall record and sign off these checks in the “Daily Operator’s Log”.
- 6.16.3 The “Daily Operator’s Log” must contain the following information:
- (a) the Building name and/or address;
 - (b) the TSSA device installation number;
 - (c) a list of the daily checks as required by **6.16.1**;
 - (d) the Operator’s printed name and signature acknowledging completion of all daily checks after the device is found to be in safe working order and the date of such checks.

6.16.4 Where a part of the elevating device which directly affects the safe operation of the device is found to be defective, the log shall not be signed off and the device shall not be put into operation until the defect is adjusted, repaired or replaced, by a registered mechanic.

6.17 Location of the Daily Operator's Log [CAD Amendment 255-12]

6.17.1 The "Daily Operator's Log" shall be kept in the machine room, on the device, or near the device location, or in the alternative, if it is kept at another location on the site, a notice will be posted in the machine room or device location indicating the alternate location.

6.18 Signage [CAD Amendment 255-12]

6.18.1 Every car, cage or platform 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.).`

6.19 Incident and Issue Reporting [CAD Amendment 255-12]

6.19.1 Incidents shall be reported as required by O.Reg 209/01 s.36. See also Director's Guideline 230/09.

6.19.2 Device operators shall report device incidents and any safety related issues to supervisory personnel who are responsible for taking the appropriate action or following the incident report requirements required by the regulation.

Part 7 [No Changes from 261-13r1]

7 ELEVATING DEVICES FOR PERSONS WITH PHYSICAL DISABILITIES

7.1 Applied Code [CAD Amendment 238-09]

7.1.1 Each newly installed elevating device for persons with physical disabilities shall conform to the requirements of CSA Standard B355-09, Lifts for persons with physical disabilities including and any applicable changes set out in the CAD. [CAD Amendment 238-09]

7.2 Maintenance [CAD Amendment 238-09]

7.2.1 All lifts for persons with physical disabilities shall conform to the maintenance requirements of CSA-B355-09 Lifts for persons with physical disabilities including Annex B and any applicable changes set out in the CAD. [CAD Amendment 238-09]

7.3 Maintenance Log Book [CAD Amendment 238-09]

7.3.1 The log book shall, as a minimum, contain the following information:

- (a) Building name and/or address,
- (b) TSSA or MCCR installation number,
- (c) Contractor's and Owner's name,
- (d) Year and month when a specific task is performed,
- (e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,
- (f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 238-09]

7.3.2 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 defect is adjusted repaired or replaced. [CAD Amendment 238-09]

7.4 Location of the Log Book [CAD Amendment 238-09]

7.4.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 238-09]

7.5 Access to Lift

7.5.1 Every owner of an unenclosed vertical platform lift and every owner of an unenclosed stair platform lift or stairchair lift shall ensure that the public does not have access to the area where the lift is installed while the lift is in operation.

- 7.5.2 Subsection 7.5.1 does not apply in the case of an unenclosed stair platform lift or stairchair lift where,
- (a) the owner of the lift is able to control and identify persons who will be using the lift or the area where the lift is installed and the owner familiarizes those persons in advance of using the area or lift with the safety rules and procedures concerning the use of the area and the lift; and
 - (b) and the lift meets the requirements of subsection 7.6.

7.6 Lift Operation with Persons Nearby

- 7.6.1 Where an unenclosed stair platform lift or stairchair lift is being operated at the same time that other persons are using the area in which the lift is installed,
- (a) audio-visual signals shall be emitted that warn persons using the lift and persons in the area where the lift is installed at all times when the platform is unfolded and until the lift is parked in a safe position at a terminal; and
 - (b) every leading edge or surface of that portion of the lift and its carriage that carries the passengers in both directions of travel shall be equipped with sensitive devices that meet the requirements of clause 7.2.4. and 8.5.4. of the standard adopted in section 7.1 of this Document and that are operational whenever the carriage is in motion.

7.7 Usage of Device

- 7.7.1 The owner of a lift for persons with physical disabilities shall ensure that,
- (a) the device is used primarily for the transportation of persons with physical disabilities;
 - (b) detailed operating instructions are posted at every operating station;
 - (c) the operation of the device is restricted to attendants designated by the owner or those persons who in the opinion of the owner are able to use the device without an attendant; and
 - (d) the persons using the device receive instruction and training that emphasizes the hazards associated with improper use of the device.

7.8 Requirements for Restricted Operation

- 7.8.1 The operation of a lift for persons with physical disabilities shall be restricted by means of a key-control for the operating device as set out in subsection 7.8.2 and 7.8.3 or by a method acceptable to the director that provides the same degree of safety.
- 7.8.2 A key-control for an operating device may be by means of an on/off lockable switch located near and controlling one or more operating devices or each operating device may be directly key-controlled.
- 7.8.3 The key for a key-control for an operating device shall be removable only when the switch is in an "off" position.
- 7.8.4 Folding down of a platform on a stair platform lift shall be restricted to persons authorized to use the lift, by the following means:

- (a) in the case of a platform that is folded down by power – by means of a key-controlled switch or by a method acceptable to the director; and
- (b) in the case of a platform that is folded down manually – by means of a keyed lock or by a method acceptable to the director.

7.8.5 Lowering of a barrier arm, if provided, shall be restricted to persons authorized to use the lift by means of a keyed switch or lock or by a method acceptable to the director.

7.9 Instructions for Use and Owner Requirements

7.9.1 Every owner of an elevating device for persons with physical disabilities shall,

- (a) ensure that the instructions for the device are posted at the location of each operating device that will inform a person with physical disabilities of the established procedure to gain access to and to use the device and, in the case of unenclosed devices, that such instructions include, but are not limited to, cautioning the user to observe the lift runway for possible obstructions;
- (b) ensure that an attendant is available to operate the device when a person with physical disabilities requires assistance;
- (c) where an attendant is required and is not permanently stationed at the location of the operating device ensure that a notice is posted at the entrance to the elevating device that indicates the procedure to be followed to obtain assistance; and
- (d) provide instruction that an unoccupied platform of an unenclosed stair platform lift should not be called or sent from a landing station unless it is in the raised and folded position. [CAD Amendment 238-09]

7.9.2 A person shall only operate an unenclosed vertical platform lift, an unenclosed stair platform lift or a stairchair lift, if the person is satisfied that only persons using the lift have access to the area where the lift is installed.

7.9.3 Subsection 7.9.2 does not apply to a person operating an unenclosed stair platform lift or a stairchair lift while other persons are using the area in which the lift is installed where,

- (a) the conditions set out in subsection 7.5.2 exist;
- (b) the person operating the lift is an attendant and has, while operating the lift in the folded down position, a clear view of the lift runway in the direction of its movement by walking along with the carriage while it is in motion or has by being stationed at a point, a clear view of the runway;
- (c) the person using the lift has, while using the lift, a clear view of the lift runway in the direction of travel; and
- (d) the audio-visual signals required under subsection 7.6.1(a) are operational.

7.10 Notice Required Regarding Restricted Use

7.10.1 A notice that the use of a lift for persons with physical disabilities is restricted to persons with physical disabilities shall be posted at each location of a device, at landing or runway entrances of the device and at the load-carrying unit of the device.

7.11 Supplementary Owners Report

- 7.11.1 In addition to those requirements set out in sections 15 and 16 of the Regulation, the design submission for a lift for persons with physical disabilities shall include a detailed report, completed on a form provided by the director, from the owner of the elevating device, in which the proposed methods of compliance with sections 7.5 to 7.8 and 7.9.1 of this Document shall be described.

7.12 Change of Ownership & Supplementary Owners Report

- 7.12.1 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, a detailed report on a form provided by the director in which the proposed methods of compliance with sections 7.5 to 7.8 and 7.9.1 of this Document shall be described.

7.13 Pressure Sensor Requirement for Vertical Platform Lifts (248/11)

- 7.13.1 All vertical platforms, where any part of the hydraulic cylinder is above the top of the hydraulic oil storage tank, shall be equipped with a pressure sensor that when activated shall prevent the operation of the lowering valve or valves in conformance with clause 6.6.8 of CSA B355-09 Lifts for Persons with Physical Disabilities [CAD Amendment-261-13]

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.

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

- 8.2.1 The requirements of 2.20.2.10 c) are amended as follows;

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.~~

8.3 Maintenance

- 8.3.1 Existing wind tower turbine elevators shall conform to the maintenance requirements of ASME A17.8-2016 / CSA B44.8-16, Standard for wind turbine tower elevators including and any applicable changes set out in the CAD.



Elevating and Amusement Devices Safety Program	Ref. No.: 278-19
ADVISORY	Date: May 15, 2019

Subject: Otis Brake Lever for 130, 131, 139 and 156 series Gearless Machines
Distribution: Posted on TSSA website

1. **Incident Investigation**

- 1.1 The Technical Standard and Safety Authority completed an investigation of an **elevator unintended motion incident** where an elevator moved in the up direction and away from the floor with both the elevator “car doors” and “landing doors” open. The elevator finally stopped when it reached the top of the hoistway.
- 1.2 Investigation determined that wear in the **brake lever arm** may prevent the brake arm from fully lifting the brake shoes, which could result in brake lining wear and ultimately compromise the brake’s holding efficiency.
- 1.3 This installation also had brake monitoring switches, however it appears that wear in the **brake lever arm** prevented proper functioning of the brake switches and the incident investigation found the brake switches were by-passed.
- 1.4 The root cause of the brake failure was improper or lack of brake maintenance by the elevator contractor.

2. **Advisory**

- 2.1 This advisory intends to share awareness related to:
- the incident investigation findings
 - the need for brake examination & maintenance check points
 - a critical brake maintenance check point on these specific Machine models
 - an Otis Legacy Product Advice document complete with ‘tips’ and part numbers. (extracts of this document are attached)

Gearless Machine Brake Lever

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Otis has determined that the ductile iron brake lever used on 130, 131, 139 and 156 series gearless machines is subject to wear, typically over a period of years, at the point it contacts the hardened lift pion. The wear may compound in arrangements using an O-ring isolated lift pin. This wear is a maintenance issue that will be evident to the mechanic conducting the required inspections and maintenance. The wear may be more pronounced on units installed to comply with B44/CEN where each brake shoe is required to hold 125% of the duty load.

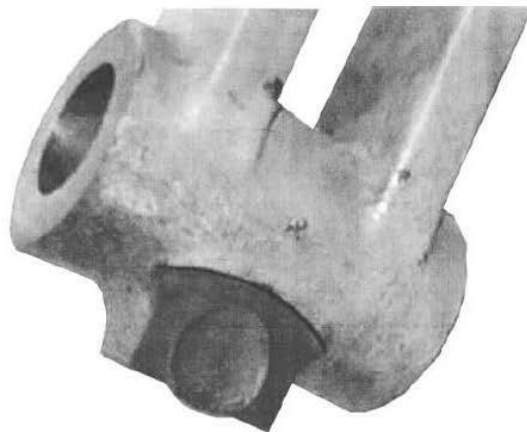


Figure 1: Brake Lever with Wear

Regular maintenance as required by A17.1/B44 8.6.4.6 should include examination of bearing surfaces for accumulated wear. Excessive wear at this point may prevent the brake arm from fully lifting the shoe with the potential to compromise the brake's holding efficiency.

If the wear exceeds 1/16th inch (1.6 mm) in depth, the brake lever should be replaced. Replacement ductile iron brake levers available from Unitec Parts have been redesigned and are now furnished with a hardened steel bearing button at the point of impact. Brake levers should be replaced in pairs.

Gearless Machine Brake Lever

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Figure 2: Brake Lever (AAA288AAG2) with Hardened Bearing Button

Due to the additional height of the hardened bearing button, the brake lift will need to be re-adjusted at bolt "3" in the image below

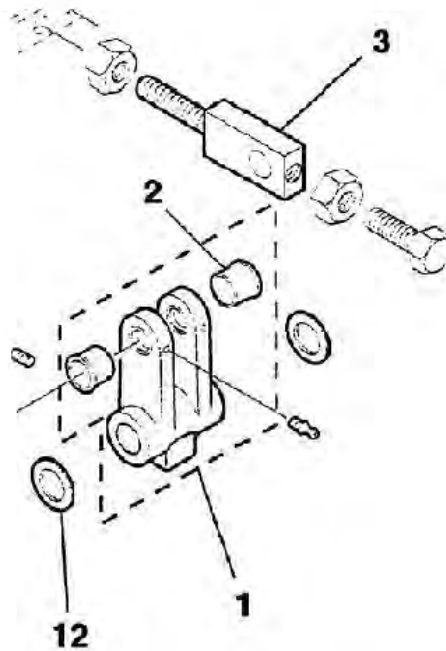


Figure 3: Brake Lift Geometry Bushed Lift Pin

Gearless Machine Brake Lever

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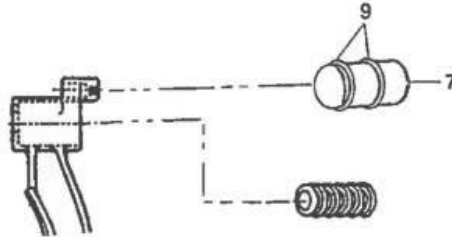


Figure 4: O-Ring Isolated Contact Pin

NOTE 1: Otis Gearless Machine Series 130, 131, 139 and 156 are visually very similar and share many components but are not identical. Be sure to have the information from the machine vintage tag (Figure 5) available when ordering brake parts.

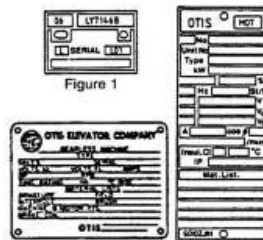


Figure 5: Typical Machine Data Plate

NOTE 2: Brake lever B288GG1 used on the 130HT arrangement is cast steel and will not include the bearing button.

Gearless Machine Brake Lever

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Appendix A: Related Part Numbers

The following table lists all part numbers this document mentions.

Table 1: Related Part Numbers

Description	Part Number
Brake Lever (1) with Bearing	B288GG1
Bearing (2)	209A6
Brake Lever	JXA288HX1 use AAA288AAG4
Brake Lever (1) with Bearing	AAA288AAG2
Brake Lever (1) with Bearing	AAA288AAG4
Brake Lever	B288HX4 use AAA288AAG2
Brake Lever	JXB288HX2 use AAA288AAG2
O-Ring (9)	172JK1
Contact Pin (7)	81BN2 (with O-Rings)
Bronze Washer (12)	128AL2



Elevating and Amusement Devices Safety Program	Ref. No.: 279-19
ADVISORY	Date: May 15, 2019

Subject: Construction Hoist & Transport Platform Brake Testing Frequency
Distribution: Posted on TSSA website and sent to Construction Hoist Working Group

1. **Background**

The current TSSA practice for testing construction hoist brakes are at the initial inspection, on every mast extension, when the mast is fully extended, and at every six-month intervals when the hoist is in service (during the TSSA periodic inspection). The test is completed with 125% load at rated speed in down direction.

This amount of testing was imposed to address brake failures that were observed several years ago.

TSSA has reviewed the number of directions written against brakes over the last few years, and surveyed inspectors and the hoist industry on any known failures. As a result, TSSA has concluded that the 125% brake tests on every extension is unwarranted and adds unnecessary expense, and burden to the industry.

This advisory is to inform industry and inspectors of changes to the practice of testing brakes and introduces a new test requirement to be performed and recorded by contractors.

2. **Advisory**

- 2.1 TSSA will implement this new brake testing practice effective June 1, 2019.
- 2.2 Construction hoist & transport platform brake tests are to be performed at 125% load at rated speed in the down direction, by operation of the emergency stop switch. It is prohibited to permit personnel in the hoist during the completion of these brake tests.
- 2.3 The testing of construction hoist & transport platform brakes with 125% load will be witnessed by TSSA inspectors; during the initial inspection, when the mast is fully extended, and at every six-month interval while the hoist is in service (during the TSSA periodic inspection). *periodic frequency is typically every 6 months
- 2.4 The 125% brake tests are also to be completed every three months by the contractor as part of their maintenance, and the results of the test recorded in the maintenance log book. If the manufacturer suggests more frequent checks then the testing frequency shall be increased accordingly.
- 2.5 A manufacturer specific brake adjustment procedure should be available, if requested by the inspector. Any required manufacturer brake maintenance tests such as brake pad clearances, brake torques, no load stops, etc. shall be performed at manufacturer suggested frequency and recorded in the maintenance log book.
- 2.6 For existing devices, where initial inspections are done before June 1, 2019, the brake tests can be performed at less than rated speed if controllers are not updated yet.

Hoist Brake Tests: Performed with 125% LOAD at Rated Speed in the Down Direction					
	On Initial	After every Extension	Every 3 Months	Every 6 Months / At every Periodic*	On Full Extension
Current	By contractor TSSA witnessed	By contractor TSSA witnessed	-	By contractor TSSA witnessed	By contractor TSSA witnessed
After Jun1/19	By contractor TSSA witnessed	-	By contractor Pass recorded in LOG BOOK	By contractor TSSA witnessed	By contractor TSSA witnessed



Elevating and Amusement Devices Safety Program	Ref. No.: 280-19
ADVISORY	Date: August 30, 2019

Subject: Fatal Incident involving a Worker on a Freight Elevator
Distribution: Posted on TSSA website

1. **Advisory**

1.1 This advisory intends to bring awareness related to:

- Elevator components shall be repaired or replaced by components of equivalent material, strength and design as intended by the original equipment manufacturer
- No work (repairs) shall be performed on an elevating device by a person other than a mechanic
- The need to keep elevator components in a good state of repair and to replace worn out or defective components as soon as possible
- Makeshift repairs, even if seemingly innocuous could pose serious risks

2. **Background**

2.1 The Technical Standard and Safety Authority has completed an investigation of a fatal incident involving a worker in connection with an elevating device type known as a **freight elevator**.

2.2 Ontario Regulation 209/01 defines freight elevator.

“freight elevator” means an elevator that is designed and constructed to carry freight and on which an attendant and freight handlers are permitted ride;

2.3 Freight elevators are not passenger elevators, and typically are provided with doors such as;
On the landing side

- vertically sliding bi-parting doors (unlike horizontally sliding doors found on passenger elevators)

Inside the freight elevator

- vertically sliding car gates (unlike horizontally sliding car doors found on passenger elevators)

The elevator code generally defines these types of doors as;

vertically sliding, biparting door: a counterweighted or counterbalanced door consisting of two or more panels, so arranged that the panels move vertically away from each other to open or vertically toward each other to close.

vertically sliding car gate: a counterweighted or counterbalanced assembly, consisting of one or more sections that move vertically to open or close.

When these door types are not “power operated”, they are provided with PULL STRAPS, that allow freight handlers to “manually” pull on the straps to open and close the doors.

3. **Summary of Incident**

- 3.1 The fatal scenario resulted when the upward travelling freight elevator caught the upper panel of the vertically sliding bi-parting landing door. The upward motion of the elevator then pulled the door panel away from its closed and locked position and away from the stationary lower panel. This resulted in the elevator shaft being exposed before the elevator came to a stop. A nearby worker on the floor where the door panel was pulled open observed the unusual situation, and while looking into the hoistway to assess the scene was fatally injured when the upper panel suddenly dropped resulting in the fatality.

4. **Incident Investigation**

- 4.1 The investigation proposed a failure scenario where;

- A broken car gate pull strap was replaced by an unapproved cord (rope) that was likely tied into a loop to make it easier to pull down
- As the freight elevator ascended to the third floor, the cord or loop from the car gate was dangling outside the moving elevator
- As the moving freight elevator passed the second floor, the dangling car gate cord became entangled around the strap and fastener of the top panel of vertically sliding bi-parting door
- The force created by the cord (that was attached to the ascending elevators car gate and now snagged around the upper landing door panel) pulled the upper door panel through the mechanical lock of the landing door, which in turn caused the landing door to be wrenched open.
- A worker saw the upper panel of the vertically sliding bi-parting door open unexpectedly and stuck his head into the hoistway to investigate. Unfortunately, at the same time, the cord snapped, and the door dropped, causing a fatal injury.

- 4.2 The investigation revealed that;

- The pull strap on the car gate had broken at least 15 days prior to the accident.
- The pull strap had been replaced by a piece of telephone wire by an employee who was not an elevator mechanic. T
- The employee told the building maintenance manager that the strap was broken and that he had made a repair.
- The night before, or the morning of the incident, the telephone wire was replaced by the cord involved in the incident by an unknown person.

5. **Ontario Regulation 209/01, and the Elevating Devices Code Adoption Document**

- 5.1 All owners shall ensure that no person shall be involved in a task that is necessarily ancillary or incidental to the installation or maintenance of an elevating device unless he or she is supervised by a mechanic. Although the onus is on owners to make sure that unlicensed persons do not repair elevators, if a mechanic notes a repair has been made that does not appear to have been made by a licensed mechanic (such as a replacement of a strap made with a telephone cord) the mechanic should advise the owner so that the owner can caution his/her employees against making repairs to an elevating device.

- 5.2 Any repairs or replacements shall be made with parts of at least equivalent material, strength, and design. Mechanics are reminded that if they note that straps are missing or have been replaced with cords or wires that are not equivalent to the OEM cord, replacement straps that are the OEM equivalent should be ordered and replaced. In addition, mechanic should be aware of any unsafe conditions that could be created by makeshift repairs, in particular the danger posed by excessive cord length or the “looping” of the end of the cord.

6. **A17.1 / B44 Code Requirements for Pull Straps**

- 6.1 Manually operated vertically sliding bi-parting car and landing doors shall be provided with pull straps on the inside and outside of the door. The bottom of the strap shall be not more than 2 000 mm (79 in.) above the landing when the panel is in the fully opened position, and the length of the strap shall not be extended by means of ropes or other materials.

7. **Maintenance Requirements**

- 7.1 Elevator maintenance contractors and their technicians are reminded that section 8.6.4.13.1 of the A17.1 / CSA B44 code requires that door systems and their associated components are maintained to ensure safe and proper operation at an interval not exceeding 6 months. This shall include, but not limited to door closers, or in this case pull straps.



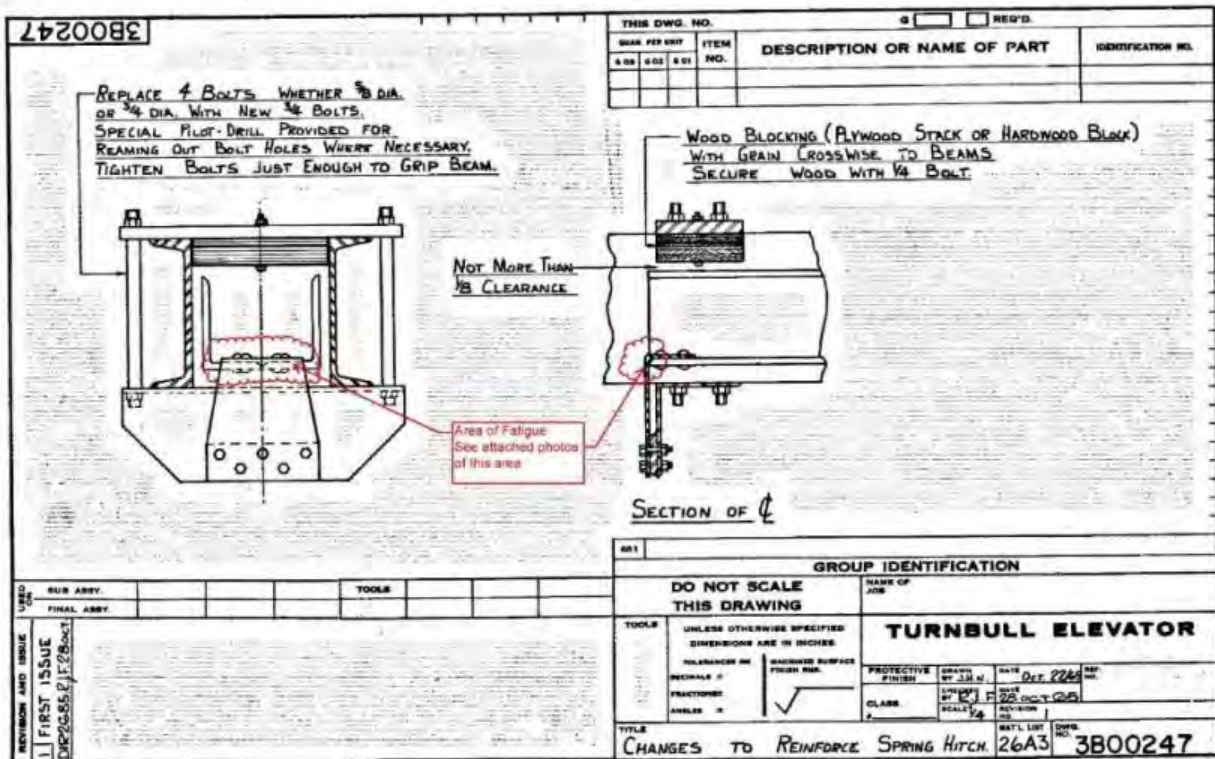
Elevating and Amusement Devices Safety Program	Ref. No.: 281 / 19
ADVISORY	Date: September 5, 2019

Subject: Turnbull Spring Hitch
Distribution: TSSA website

This advisory is intended to bring awareness to a method of connecting hoist ropes to the crosshead of an elevator, in the form of a “Turnbull Elevator Spring Hitch” arrangement.

An area of fatigue is identified in the drawing below, and its integrity should be routinely assessed.

This failure was recently observed during a period inspection, and contractors and mechanics should be aware of this issue.



In a 1965 Turnbull letter to the then Department of Labour, Turnbull advised about replacing bolts and adding wood blocking as shown in drawing 3B00247 above.

Photo 1
Showing
intact spring hitch [A] and
wood blocking [B]

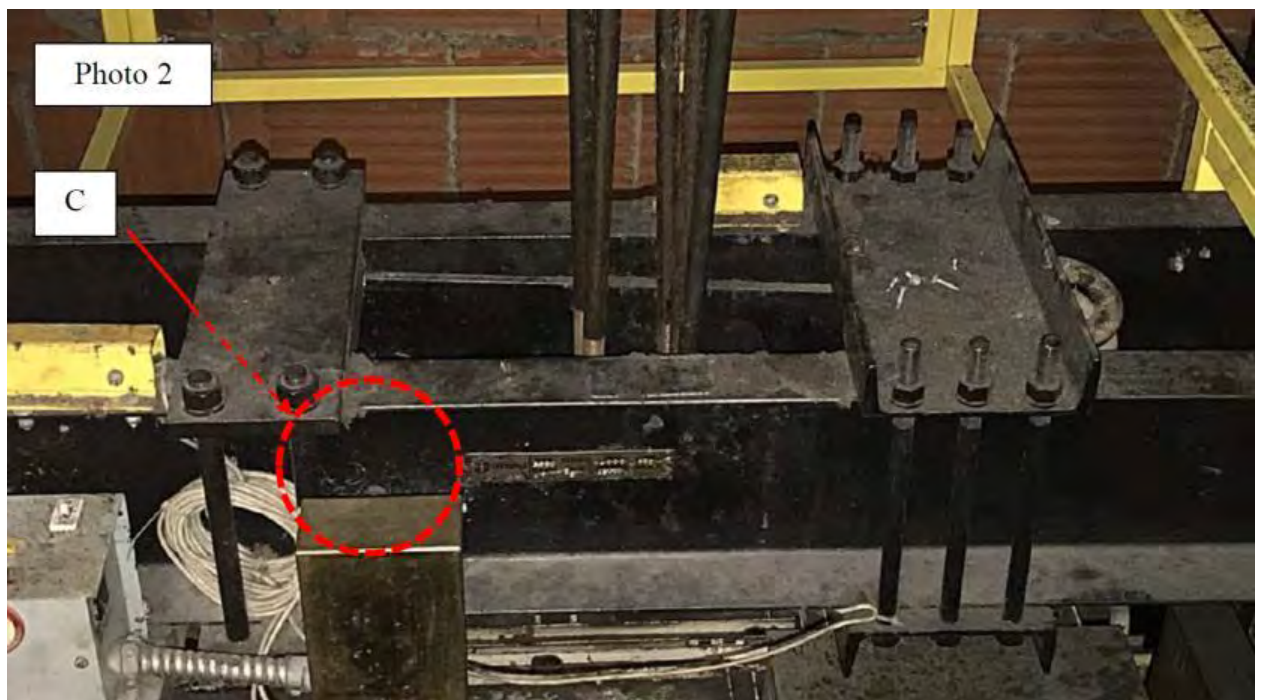
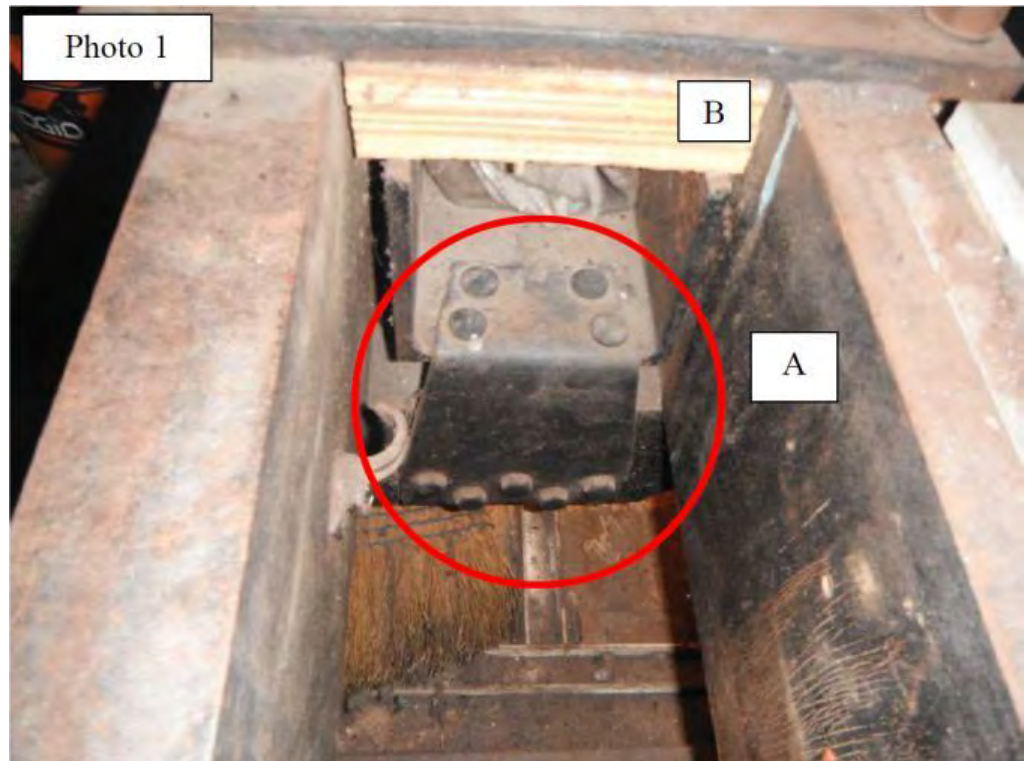


Photo 2
Overview of spring hitch arrangement

[C] Area where spring hitch is located - between crosshead members (not visible in photo)

Photo 3

[D] Showing failed spring hitch

[E] Inverted 'C' Channel has embedded itself in the wood blocking (added per Turnbull drawing 3B00247)





Elevating and Amusement Devices Safety Program	Ref. No.: 282 / 19
ADVISORY	Date: December 5, 2019

Subject: R&O Mufflers
Distribution: TSSA website

This advisory is to inform that R&O Mufflers, if still present on an existing hydraulic elevator installation should be replaced.

Two incident reports received during 2019 confirm the degradation and failure of the rubber contained with the muffler body. This has resulted in degraded rubber and internal springs travelling to unwanted areas in the hydraulic system and causing elevator equipment damage, levelling issues and an entrapment.

R&O mufflers appear to have been offered by ITI Hydraulik on installations prior to 2005.





Elevating and Amusement Devices Safety Program	Ref. No.: 283 / 19
ADVISORY	Date: December 9, 2019

Subject: Installation Code Edition – Maintenance and the Code at time of Installation
Distribution: TSSA website

This advisory is high a level summary of the B44 code edition that was in effect at the time of the original elevator installation and may serves as a guide when maintaining equipment to the code of installation or alteration.

Per the requirements of B44 section 8.6.1.1.2;

8.6.1.1.2 Maintenance, repairs, replacements, and tests shall conform to Section 8.6 and the applicable

(a) Code at the time of the installation; and

(b) Code requirements at the time of any alteration;

While maintenance requirements specified in the currently adopted edition of B44 are retroactive and apply to all existing installations,

8.6.1.1.3 It is not the intent of Section 8.6 to require changes to the equipment to meet the design, equipment nameplate(s), or performance standard other than those specified in 8.6.1.1.2.

consequently, it may be helpful to know the code edition of the original installation and/or the code edition of an alteration in order to properly maintain a device or component(s) to the relevant code requirements.

Code Edition vs Installation Number

B44 Code Edition	Approximate Installation Number Range		
1951	0	to	900
1960	900	to	13900
1966	13900	to	19400
1971	19400	to	29000
1975	29000	to	39000
1985	39000	to	66400
1990	66400	to	75000
2000	75000	to	78000
2004	78000	to	81000
2007	81000	to	64533000
2010	64533000	to	current

Note: This table is a guide only. It does not confirm the onsite applied code edition.

B44 Code Editions and their Effective Dates

Code/Year	Supplement	From	To	Director Order or CAD # used to inform	Notes
B44-1951		17-Jun-54	01-Jan-62		
B44-1960		01-Jan-62	01-Sep-67		
B44-1966		01-Sep-67	01-Jul-72		
B44-1971		01-Jul-72	01-Jul-76		
B44-1975		01-Jul-76	01-Aug-78		
	s1-77	01-Aug-78	01-Jan-81		
	s2-80	01-Jan-81	01-Jan-83		
	s3-82	01-Jan-83	01-Apr-86		
B44-1985	M85	01-Apr-86	01-Apr-88	31/86	
	s1-87	01-Apr-88	01-Apr-91	57/87	
B44-1990		01-Apr-91	01-Apr-93	78/90	
	s1-92	01-Apr-93	23-Mar-95	94/92	
B44-1994		23-Mar-95	01-Aug-97	115/94	
	s1-97	01-Aug-97	01-Feb-99	129/97	
	s2-98	01-Feb-99	23-Mar-02	141/98	
B44-2000		23-Mar-02	01-Jan-04	161/01	New only
		01-Jun-02	01-Jan-04	161/01	Alteration only
	U1-02	01-Jan-04	01-Jan-06	181/03	
B44-2004		01-Jan-06	01-Jan-08	198/05	
A17.1-2005	S	20-Jan-06	01-Jan-08	204/06	MRL's Only
B44-2007		01-Jan-08	01-May-12	225/07	
B44-2010		01-May-12	30-Apr-13	250/11	
		01-May-13	14-Sep-13	261/13	
		15-Sep-13	02-May-19	261/13r1	
		03-May-19	current	277/19	
B44-2013	Section 8.6 only	01-May-13	14-Sep-13	261/13	Section 8.6 Maintenance only
		15-Sep-13	02-May-19	261/13r1	
		03-May-19	current	277/19	



Examination of a Construction Hoist

Under Ontario's **Technical Standards and Safety Act**
 & Elevating Devices Regulation (O.Reg. 209/01)

<p>25. (1) A contractor who installs or alters an elevating device shall, after the contractor has carried out a preliminary examination and is satisfied that all work is completed in accordance with the registered design submission and that the installation or alteration complies with the requirements of this Regulation, notify the director in the form provided by the director that such is the case and arrange for an initial inspection of the elevating device. O.Reg. 209/01, s. 25 (1) and O.Reg. 252/08.</p> <p>To verify conformance, the mechanic performing this examination must refer to the copy of the registered design submission, including drawings, the requirements of the code under which the device was installed / altered and his/her knowledge as a "mechanic" of Ontario's Technical Standards and Safety Act, Elevating Devices Regulation (O.Reg. 209/01) and relevant standards.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Installation Number(s)</td> <td></td> </tr> <tr> <td>Building Address</td> <td></td> </tr> <tr> <td>Contractor</td> <td></td> </tr> <tr> <td>Date of Examination <i>(dd-mmm-yyyy)</i></td> <td></td> </tr> <tr> <td>Mechanic's Name & Certificate Number <i>(print)</i></td> <td></td> </tr> </table>	Installation Number(s)		Building Address		Contractor		Date of Examination <i>(dd-mmm-yyyy)</i>		Mechanic's Name & Certificate Number <i>(print)</i>	
Installation Number(s)											
Building Address											
Contractor											
Date of Examination <i>(dd-mmm-yyyy)</i>											
Mechanic's Name & Certificate Number <i>(print)</i>											
<p>The mechanic shall check [√] that the following items are complete and compliant.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Overhead protection at ground floor is completed. <input type="checkbox"/> Bottom loading dock is completed with handrails. <input type="checkbox"/> Lighting & communications at hoist and landings are operational. <input type="checkbox"/> Landings & Guarding are completed. <input type="checkbox"/> Shoring below hoist is completed. (If required) <input type="checkbox"/> Hoist mast is properly grounded. <input type="checkbox"/> Landing gates are numbered. <input type="checkbox"/> Hoist is installed as per the design submission. <input type="checkbox"/> Hoistway door interlocks comply with DO 265/14 	<p>Signature of EDM-B Mechanic Mechanic in training shall not sign</p> <hr/> <p>Inspection: Contractors shall make all reasonable efforts to schedule the inspection with advance notice. The advance notice will vary depending on the geographic location and the nature of the inspection. (Recommend 3 to 5 days notice for local areas, 1 week + for remote areas) At that time, verbal assurance of the conformance and completion are required. (Exception - see Deficiencies.) This form shall be completed and sent to the inspector by the end of the business day before the initial / major alteration/ extension inspection date, else the inspection will be deemed cancelled.</p> <p>Deficiencies (list below): An inspection may, in exceptional circumstances, proceed with the deficiencies listed below at the discretion of the inspector. Deficiencies not noted or communicated to the inspector prior to the inspection may result in the inspection being cancelled with the inspection fees being charged. The rescheduled inspection, at the next available date of an inspector, will be charged subsequent inspection fees as per the current fee schedule.</p>										
<p>Limitations: The mechanic performing this inspection and completing this form is not required to pass judgement on engineering design aspects of the job that are covered by the engineer's statement on the design submission. The evaluation is limited to visible, physical components, features and performance of the elevating device, including parts and features of the structure covered by the standard.</p>	<p>Deficiencies:</p>										



Elevating and Amusement Devices Safety Program	Ref. No.: 284 / 20
ADVISORY	Date: February 14, 2020

Subject: Examination of a Construction Hoist (Elevating Device) Form
Distribution: TSSA website

This advisory is intended to inform contractors installing Construction Hoists on the requirements to complete an Examination of a Construction Hoist Form prior to requesting an inspection.

The elevating devices regulation has long had a requirement for a contractor to complete a preliminary examination of an elevating device to ensure compliance with the design submission and regulation prior to requesting an inspection.

25. (1) A contractor who installs or alters an elevating device shall, after the contractor has carried out a preliminary examination and is satisfied that all work is completed in accordance with the registered design submission and that the installation or alteration complies with the requirements of this Regulation, notify the director in the form provided by the director that such is the case and arrange for an inspection of the elevating device. O. Reg. 209/01, s. 25 (1); O. Reg. 252/08, s. 16 (2).

This preliminary examination has been an effective means to ensure inspection readiness on other elevating devices and will come into force for initial and alteration (ie. extensions) inspections on construction hoists occurring after March 1st, 2020.

The form may be obtained from the TSSA website at the following link and searching under the **Common Forms** and/or **Construction Hoists** area.

<https://www.tssa.org/en/elevating-devices/applications-forms-and-fees.aspx>



Elevating and Amusement Devices Safety Program	Ref. No.: 285-20
ADVISORY	Date: April 23, 2020

Subject: Elevating Device Owner Responsibilities Removing Devices from Service during COVID-19 Pandemic

Distribution: Posted on TSSA website and sent to Owners and Elevator Contractors

1. Introduction

The Technical Standards and Safety Authority (TSSA) recognizes the challenges all parties are experiencing due to the Novel Coronavirus (COVID-19) pandemic. TSSA, owners and industry stakeholders are working together to find solutions, but still must maintain the level of safety Ontarians deserve and have come to expect. Please refer to TSSA's website to learn how TSSA is working with regulated parties to accommodate COVID-19 restrictions. If regulated parties are unable to meet TSSA regulatory requirements due to COVID-19 restrictions, please contact TSSA.

All elevating device owners or licensees (including owners' agents or property managers acting on behalf of the owner) must be aware that the elevating devices which they own or operate must conform to specific regulatory requirements. It is the responsibility of owners and/or licensees to ensure that these requirements are properly adhered to during the COVID-19 pandemic state of emergency declared by the Ontario Government.

Where devices cannot be maintained in safe operating condition or where non-compliances may pose a safety risk to the general public, elevating devices must be removed from service until such time as they are in compliance with the regulatory requirements.

2. Owner-Initiated Voluntary Shutdown of Elevating Devices

If an owner or licensee suspends or cancels its maintenance of an elevating device because the device is not being used, the owner or licensee must voluntarily remove the elevating device from service, as per section 32(1) of Ontario Regulation 209/01. The owner shall make arrangements with their elevator contractor to safely lock and tag the elevating device(s) in a safe position and notify TSSA of its revised status. If an owner or licensee is required to suspend its maintenance due to COVID-19 restrictions imposed by another regulatory authority, please contact TSSA to discuss your options.

An alternative to having an elevator contractor remove the device from service is hiring a licensed electrician to remove the elevator from service, provided the elevating device is cleared of all occupants, the car and landing doors are closed, and the elevating device is safely positioned at the bottom landing for hydraulic-type elevators, or the top landing for traction-type elevators. A lock and identifying tag must be placed on the main disconnect component for each device taken out of service.

Any elevating device that is voluntarily shutdown shall not be used under any circumstances, unless the necessary maintenance and inspections are completed, and the device is permitted to operate in accordance with regulations.

Prior to returning an elevating device to service, the owner is required to ensure that any outstanding maintenance tasks or inspections are completed by their elevator contractor. In addition, the status change must be communicated to TSSA.

The following information shall be sent to eddesignsubmittal@tssa.org, when taking a device voluntarily out of service, or returning a device back to service from a voluntary shut down:

Location of the device:

Owner of device:

TSSA installation number of device(s) being voluntarily removed from service:

Means of removing the device from service:

Date of removal:

Prior to operation you should notify us of same:

Location of the device:

Owner of device:

TSSA installation number of device(s) being returned to service:

Contractor performing return to service:

Date of re-instatement:

3. Governing Documents

All owners should be aware of the regulatory documents impacting elevator ownership and safe operation including:

- Ontario Regulation 209/01 Elevating Devices
- Ontario Regulation 222/01 Certification and Training of Elevating Device Mechanics
 - available from www.e-laws.gov.on.ca or www.tssa.org/regulated/elevating/elevatingSafety.asp
- The latest elevating devices Code Adoption Document (CAD) amendment, CAD-277-19
 - available from www.tssa.org/regulated/elevating/elevatingSafety.asp
- Ontario Regulation 82/20 Closure of Places of Non-Essential Businesses
 - available from www.ontario.ca/laws/regulation/200082

4. Work or Maintenance by Licensed Contractors

All work on elevating devices must be undertaken by licensed contractors utilizing the services of certified and properly trained mechanics who have experience in the tasks being assigned. These requirements are contained in the Elevating Device Regulation, O. Reg 209/01, and in the Certification and Training of Elevating Device Mechanics Regulation, O. Reg 222/01.

5. Worker Qualifications

Individuals who are assigned work on an elevating device must be TSSA certified for that class of device or be a TSSA-registered elevating device mechanic-in-training (EDM-T) under the appropriate supervision of an elevating device mechanic.

6. Incident Reporting

Owners (and contractors) are reminded that incidents must be reported in accordance with the requirements of O. Reg 209/01 section 36.

To obtain additional clarification of these requirements, view a copy of the incident reporting guideline 230/09 posted on the TSSA website. This guideline provides several frequently asked questions and

includes quick reference tables to identify “incident type” and the corresponding reporting requirements and reporting timelines.

7. Maintenance of Elevating Devices and Maintenance Frequency

All elevating devices in the province must be maintained by licensed contractors as per the requirements of the Elevating Devices CAD 277/19.

For high buildings (per the Ontario Building Code), the Fire Code requires elevator testing at three-month intervals. See section 7.2 of the Fire Code.

It is the responsibility of the owner/licensee to ensure that logbooks are updated, and the required maintenance is completed. Failure to comply may pose significant safety risks and require a device to be removed from service.

Contractors and mechanics also have a responsibility to ensure the work they perform is recorded in the logbook. 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.

8. Entrapments

Should a passenger entrapment occur, the owner should contact their maintenance company for rescue assistance. Owners should ensure that no attempts at self-rescue, or rescue by unauthorized persons, are performed. If the maintaining contractor is unavailable, owners may contact other elevating device contractors to see if they are in a position to assist with a rescue. If this possibility exists, it is unlikely this contractor would be in a position to return the elevating device back to service following the rescue. In emergencies, owners may need to utilize the services of emergency personnel (fire department) to perform a rescue.

9. Firefighter Elevators

For high buildings, the building code typically requires one elevator to be designated as the firefighter elevator. The firefighter elevator is generally the elevator which services the greatest number of floors. In some instances, multiple elevators in a bank can perform this function – yet, one is typically selected as the Firefighter Car.

If you are experiencing problems with the identified firefighter elevator, you may wish to determine if another car can serve that function in the event of an emergency situation. You may also wish to notify the local fire department of your situation so that alternate plans can be developed in advance of a life safety issue.

10. Inspection Orders

Any inspection orders issued as a result of an inspection shall be completed within the time period allotted by the inspector. If the owner/licensee wishes to request an extension, they can contact the inspector directly and make their request in writing, accompanied by an explanation for the extension.

Otherwise, the owner/licensee can mitigate the risk by removing the device from service as a voluntary shutdown as fore mentioned.



Elevating and Amusement Devices Safety Program	Ref. No.: 286 / 20
ADVISORY	Date: June 12, 2020

Subject: Escalator / Moving Walk Handrail Sterilization Products
Distribution: TSSA website

This advisory is intended to inform owners, consultants, and contractors on TSSA’s perspective regarding escalator / moving walk handrail sterilization products that are appearing in the market in response to COVID-19 prevention and mitigation.

TSSA is currently aware of two product styles that expose the handrail to UV-C light.

One product style mounts externally at the newel of the escalator, while another style mounts internally inside the escalator truss.

Externally mounted devices are not permitted as there are several hazards created by these externally mounted designs.

Internally mounted devices would be permissible and would need to satisfy the following;

- Device(s) when mounted are fully internal to the truss and not accessible to public
- Device(s) satisfies electrical safety requirements and are listed/certified and labelled/marked as appropriate
- Installed by elevating device contractors utilizing elevating device mechanics
- Where UV exposure impacts handrail integrity, this shall be included in the maintenance control program with appropriate checkout procedures included in the On-Site documentation. (8.6.1.2.2(b))
- Submitted as a Minor B alteration

8.7.6 Alterations to Escalators and Moving Walks	
8.7.6.1 Escalators 8.7.6.1.1 General Requirements. ... The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.1 for that device or component.	8.7.6.2 Moving Walks 8.7.6.2.1 General Requirements. The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.2 for that device or component.
8.7.6.1.14 Lighting, Access, and Electrical Work. An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.1.7 for that change.	8.7.6.2.14 Lighting, Access, and Electrical Work. An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.2.7 for that change.

Note: The registration of any design submission for this type of device is in no way an endorsement by TSSA of the device or its ability to provide any safety function. TSSA registration acknowledges the device’s installation and its compliance with local elevator and electrical safety codes only.

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Elevating and Amusement Devices Safety Program	Ref. No.: 287 / 20
ADVISORY	Date: June 12, 2020

Subject: Foot Operated Elevator Operating Buttons
Distribution: TSSA website

This advisory is intended to inform owners, consultants, and contractors on TSSA’s perspective regarding Foot Operated Elevator Operating Buttons that are appearing in the market in response to COVID-19 prevention and mitigation.

TSSA is currently aware of new products that permit foot activation of **Elevator Operating Buttons** for the purpose of initiating an elevator:

- Hall call, or
- In car floor selection



While floor mounted or near the floor mounted operating devices are not fully addressed in the A17.1/B44 code, such devices would be permissible but would need to satisfy the following:

- These devices would be considered secondary “operating devices” by the code and would need to meet the requirements of the operating device that they are paralleling
- Enabled or disabled under various elevator operating modes as required by the code
- Require B44.1 certification and labelling
- Installation in accordance with A17.1/B44 and OESC as applicable
- Operation and Maintenance of these devices same as required for the primary devices they are paralleling. (MCP should acknowledge extra checks of floor/near floor mounted devices)
- Installed by elevator contractors / elevating device mechanics
- Positioned to avoid nuisance activation or creation of trip hazard
- Submitted as a Minor B alteration and inspection by TSSA
- Incident reporting requirements related to vandalism as these hold the potential for significant abuse

Note: The registration of any design submission for this type of device is in no way an endorsement by TSSA of the device or its ability to provide any safety function. TSSA registration acknowledges the device’s installation and its compliance with local elevator and electrical safety codes only.



Elevating and Amusement Devices Safety Program	Ref. No.: 288 - 20
ADVISORY	Date: June 15, 2020

Subject: Anniversary Dates for Category Tests
Distribution: TSSA website

This advisory is intended to inform Owners, Contractors and Consultants on the requirements for determining Anniversary Dates for Category tests that are to be established based on previous testing dates. This advisory also addresses the requirements for controlling creep of anniversary dates. (See also Fig. 1: Representation of Original Test Dates and Resulting Anniversary Dates)

Scheduled Intervals and Anniversary Dates

Anniversary Dates – Anniversary dates are based on the date that the device underwent the acceptance tests and passed as per section 8.10 for new or altered devices, or when components requiring maintenance or tests were replaced.

The prescribed intervals for CAT 1, 3, and 5 shall be established as per Appendix “N” of the adopted edition of the ASME A17.1 / CSA B44 Safety Code for Elevators and Escalators.

For anniversary dates that cannot be established, because the device is too old, or there are no records to be found on the initial date of the acceptance tests completed, the contractor shall use the pre-existing B44.2 completion dates found in the logbook for the CAT 1, and CAT 3, and establish the CAT 5 test by using the date of the last pull-through of the governor, or for type A safeties, the spin test of the governor.

If there are several different anniversary dates for the CAT testing, the contractor may re-establish the anniversary date, provided the newly scheduled interval does not exceed the CAT interval.

During the initial phase of introducing the requirements of the MCP for existing devices, TSSA permitted the first CAT 5 tests of the device to be completed within the anniversary calendar year. However, the next CAT 5 tests shall be completed on the established month of the previous test for the pull-through of the governor, or for type A safeties, the spin test of the governor.

This permission to complete the first CAT 5 tests during the calendar year is not permitted on those devices that the anniversary date for CAT 5 test has exceeded the calendar year.

Effectively this permission shall expire on January 1st, 2020, because all devices in Ontario should have had their first CAT 5 testing completed by that date.

Creep – Creep is the number of months that the maintenance frequency for inspections and CAT tests required under section 8.6 have been extended beyond the established anniversary date, or scheduled interval.

Scheduled Interval – The prescribed interval as established by the original equipment manufacturer for scheduled maintenance, or if not available, the intervals shall be mutually agreed upon by both the owner/licensee and maintenance contractor and which has been detailed within the MCP for the specific installation.

Re-establishing Scheduled Intervals and Anniversary Dates

Scheduled intervals for multiple units at a site may be different because of staggered acceptance testing from the construction, or modernization phase of the devices. Also, the owner or the maintenance contractor may wish to re-establish the scheduled intervals, because of convenience (seasonal constraints), or to accommodate the additional workload for new contracts. Re-establishing scheduled intervals is permitted, provided the new established date of the CAT tests do not exceed the previous anniversary date of the scheduled interval. The rationale shall be noted in the logbook for the changed dates.

For devices that have undergone a modernization of those components listed in the CAT tests, a new scheduled interval shall be established upon the completion of the acceptance test. However, for those components that were not covered in the scope of the alteration, the old scheduled interval shall remain.

If the contractor wishes to re-establish the scheduled date(s) for those components not affected by the alteration, they can do so, provided the new established date of the CAT tests does not exceed the scheduled interval based on the previous anniversary date. The rationale shall be noted in the logbook for the changed dates.

For missed maintenance tasks and CAT tests that have exceeded the scheduled interval, the contractor is not permitted to re-establish the new interval as the date completed, as this is considered creep. It rewards those individuals that continually miss scheduled intervals, and over time the device is tested less frequently for compliance.

Voluntary Shutdown and Return to Service

For elevating devices voluntarily taken out of service by the owner for lengthy periods of time, and they wish to return the device to service, the instructions to the contractor shall be that all applicable maintenance tasks and category tests shall be completed in accordance to the previously determined anniversary dates. The exception to the rule, would be that the new established anniversary dates would be accepted, provided the owner can demonstrate that the date the device was removed from service are noted in the logbook, or with a TSSA inspection report. A request for inspection may be required.

Background

Effective May 1st, 2012, Elevating Devices Code Adoption Document (CAD) as amendment 250-11, required that every new or altered elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lifts shall conform to the requirements of the ASME A17.1 / CSA B44 – 2010 Safety Code for Elevators and Escalators. This included the requirements of a Maintenance Control Program (MCP) as per section 8.6 to be submitted with every new or altered installation.

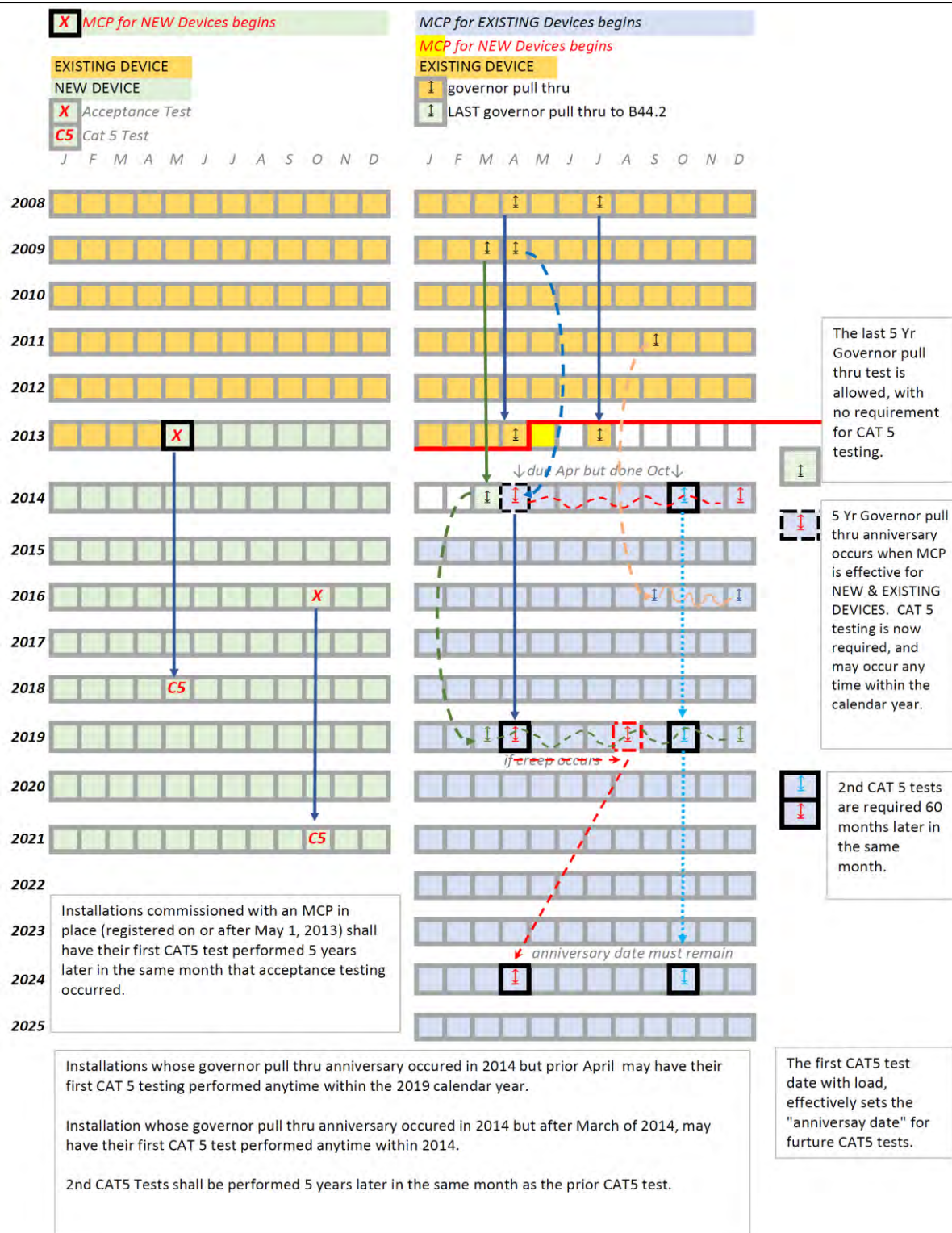
On September 15th, 2013 the publication and adoption of the CAD as amended 261-13 rev.1 was made available to industry stakeholders.

With the adoption of this latest CAD, existing installations were to conform to section 8.6, requiring an MCP to be implemented on or before March 31, 2014. There were provisions in the CAD for existing devices to continue to use the requirements of the CSA B44.2-2007 for maintenance up to the March 31st deadline.

The CAD also adopted Appendix "N" with the recommended maintenance frequency described in section 8.6, but in no case, shall the interval between maintenance visits to an elevating device exceed three months, nor shall it exceed the manufacturer's specified limit or other imposed limit which is less than three months. In addition, the interval for 8.6.4.13.1 Door Systems shall not exceed six months.

As outlined in Appendix "N", there are tests that shall be performed at intervals of 12 months for Category (CAT) 1, thirty-six months for CAT 3, and sixty months for CAT 5, and under no circumstances shall completed tests exceed the prescribed intervals.

Fig. 1: Representation of Original Test Dates and Resulting Anniversary Dates





Elevating and Amusement Devices Safety Program	Ref. No.: 289 / 20
ADVISORY	Date: September 18, 2020

Subject: Monitoring of Cylinder Corrosion Protection
Distribution: TSSA website

This advisory clarifies TSSA's enforcement strategy around the design and maintenance requirements of cylinder corrosion protection (as specified by B44 requirements 3.18.3.8 and 8.6.5.11)

Requirements:

All forms of cylinder corrosion protection (specified in B44-10 requirement 3.18.3.8.1) require a means for ongoing checking per 3.18.3.8.2.

3.18.3.8 Cylinders Buried in the Ground

3.18.3.8.1 Cylinders buried in the ground shall be protected from corrosion ...

3.18.3.8.2 The methods specified in 3.18.3.8.3* shall be considered as acceptable, provided that they;

- a) are designed and installed with means for monitoring and maintaining them in accordance with accepted industry practices applicable to the methods
- b) are effective for specific conditions where the cylinder is installed
- c) provide means for checking ongoing compliance with 3.18.3.8.1

Under B44-13 requirement 8.6.5.11 (Maintenance) these monitoring means need to be examined and maintained to ensure they remain effective and are repaired or replaced if defective (8.6.5.11.2).

8.6.5.11.1 Corrosion Protection Monitoring.

Where monitored cylinder corrosion protection is required, the monitoring means shall be examined and maintained.

8.6.5.11.2 Corrosion Protection Loss.

If the monitoring means detects that loss of corrosion protection has occurred, the means of corrosion protection shall be repaired or replaced.

A17.1 Standards Committee approval of Inquiry 18-834 in May 2019 re-affirms the requirements to maintain and monitor all forms of cylinder corrosion protection identified in requirement 3.18.3.8.

As a component of Maintenance Control Program (MCP), requirement **8.6.5.11 Cylinder Corrosion Protection and Monitoring** would apply as a maintenance check item for installations with buried hydraulic cylinders, regardless of date of installation of the buried cylinder.

Additionally, for Ontario, any elevating device incorporating buried cylinders or buried piping shall have an Oil-Loss-Monitoring Program (OLM) as specified by requirement 2.9 of the elevating devices code adoption document (ED-CAD 277/19).

Issues:

1. Corrosion protection requirements were first introduced in B44 under the B44-M90s1-1992 edition, effective April 1, 1993. While Ontario has effectively dealt with buried **single bottom cylinders**, there is a vintage of elevating device that utilizes **double bottom construction (safety-bulkhead) cylinders**, but these cylinders may not be encased in a protective plastic casing (prior to April 1, 1993). As such, these installations pre-date code protection requirements and therefore, there is no protection nor any means to verify the integrity of the cylinder.
2. Despite the original code requirement (April 1, 1993): "the protective plastic casing shall be sealed and provided with means of inspection" many installations were not provided with effective means to inspect, so compliance with ongoing checking is not possible.
3. Per the requirements 8.6.5.11.2 (unchanged in A17.1-2000 through A17.1-2019) and adopted in Ontario as part of the harmonization of maintenance requirements as published in B44-2013 (effective May 1, 2013), failed corrosion protection systems "shall be repaired or replaced". In many cases the cost to remedy a failed corrosion protection system can be prohibitive, and current industry evidence suggests that no **double bottom (safety-**

bulkhead) cylinder has failed in a catastrophic manner. Corrosion failures have generally been identified via an Oil Loss Monitoring Program as required by the CAD.

4. While corrosion protection monitoring is intended as a pre-emptive means to identifying failed corrosion protection and avoid cylinder failure/oil loss stemming from corrosion, there are many existing installations for which corrosion protection monitoring cannot be accomplished without extreme retrofit costs. Under these circumstances, the accepted mitigation strategy for such installations is a diligent OLM program.
5. Despite the CAD requirement to provide a diligent OLM program, there are still B44 code requirements to;
 - a. provide protective corrosion protection and monitoring means in the design of new installations (3.18.3.8),
 - b. examine and maintain the corrosion protection means (8.6.5.11).

Enforcement:

This table summarizes TSSA enforcement of hydraulic elevating device installations with buried cylinders and/or buried piping, as it relates to TSSA’s “acceptance inspections” and “periodic inspection” activities.

Installations pre-dating corrosion protection requirements	Installations after April 1, 1993 & before October 1, 2020	Installations after October 1, 2020
Maintenance and/or Periodic Inspection of OLM <ol style="list-style-type: none"> 1. A CAD required, contractor maintained, Oil Loss Monitoring (OLM) Program for elevating device installations with buried cylinders or buried piping applies 2. TSSA inspectors will verify OLM program and logs during periodic inspections 3. Installations which incorporated a single bottom cylinder were addressed by CAD 8.6.5.8 Safety Bulkhead which required the replacement of the cylinder, or addition of car safeties or a plunger gripper. 		
	Maintenance and/or Periodic Inspection of 8.6.5.11 Code requirement 8.6.5.11 addresses protection monitoring and maintenance requirements <ol style="list-style-type: none"> 4. Application of this 8.6.5.11 is the responsibility of the owner / maintaining contractor 5. Failed PVC or other failed monitoring systems shall be reported to the owner and record in the logbook 6. TSSA inspectors will not assess MCP logbooks entries of 8.6.5.11 	
		Corrosion Protection Design and Testing Code requirement 3.18.3.8 for design of protective means, and requirement 8.6.5.11 for means to examine <ol style="list-style-type: none"> 7. Contractor to provide a written checkout procedure in the MCP 8. During an Initial or relevant alteration (acceptance inspection*), TSSA will witness the testing of the protective means, per the procedure provided in the MCP.



Elevating and Amusement Devices Safety Program	Ref. No.: 290-20
ADVISORY	Date: September 18, 2020

**Subject: Elevator Phones – Acceptability of Communication Technologies
(POTS, VoIP, Cellular / Wireless, other)**

Distribution: Posted on TSSA website

This advisory is intended to provide guidance regarding acceptability of telephone technologies as related to the requirements of the CSA **B44 - Safety Code for Elevators**.

Phones in elevators are required to comply with requirement **2.27.1.1 Emergency Communications** of the CSA **B44 - Safety Code for Elevators**.

The B44 requirements for emergency communications are performance based, and do not mandate nor exclude any one telephone technology over another. Technologies such as;

- POTS (plain old telephone service)
- VoIP (voice over internet protocol)
- Cellular or Wireless

are acceptable, PROVIDED these communication means are configured in a manner to satisfy the following communication* requirements (B44-2010);

- Calls must be directed to a staffed location where authorized personnel can take appropriate action
- Call must be re-directed to an alternate location if not acknowledged in 45 seconds
 - Transfer to an automated answering system is prohibited
- A visual signal must activate in the elevator when two-way communication is established
 - The visual signal shall extinguish when the communication link is terminated
 - Only authorized personnel may terminate the call (not occupants of the elevator)
- The two-way communication system must provide building information and elevator number (on demand) to authorized personnel
- Communication means in the elevator shall not use a handset
- In car communication means must be backed up by an alternate power source (in the event of normal building power failure)
 - The alternate power source must be capable of providing 4 hours of two-way communication
- A means must be provided to verify the operability of the communication means
 - End to end verification. A check from elevator phone to the authorized location answering the call
 - Verification shall occur at least once daily
 - If the verification test determines communication means are not functional an audible and visual "Elevator Communications Failure" signal shall be initiated

*other requirements for labeling, instructions, dBA levels apply. Refer to B44 2.27.1.1 for full details.

Note: An elevator phone that was once connected to a POTS system and capable of meeting the above requirements, may not be capable of meeting these requirements if switched to a VoIP service. The existing elevator telephone may only be capable of confirming a connection to a modem and not capable of determining a functioning internet connection is present beyond the modem.

It is recommended you consult with an elevator contractor and an experienced communication specialist when selecting and or changing telephone communication systems.

For alterations involving changes to emergency communications refer to B44 alteration requirement 8.7.2.28.



Elevating and Amusement Devices Safety Program	Ref. No.: 291 / 20
ADVISORY	Date: September 18, 2020

Subject: Elevator Car Lighting Branch Circuit
Distribution: TSSA website

This advisory is intended to inform owners, consultants, and contractors on TSSA's perspective regarding the use of the elevator car light branch circuit to power accessories in or on the elevator car.

The Ontario Electrical Safety Code (OESC) contains the requirement in section 38-022 to provide a branch circuit for the elevator car lights.

38-022 Branch circuits for car lighting, receptacles, ventilation, accessories, heating, and air conditioning

- (1) At least one branch circuit shall be provided solely for the car lights, receptacles, auxiliary lighting power source, accessories, and ventilation on each car.*
- (2) Where air-conditioning and heating units are installed on the car, they shall be supplied by separate branch circuits.*
- (3) The overcurrent device protecting each branch circuit shall be located in the machine room or control room/machinery space or control space.*

TSSA interprets accessories to mean an accessory for one of the items identified in 38-022(1). I.e. An accessory for the car lights, receptacle, auxiliary lighting or ventilation. An accessory could be an item such as a device that automatically turns off the car lights when the elevator is not occupied or an air purification device that is part of the ventilation system.

Video monitors are not considered an accessory by TSSA and require their own branch circuit. The OESC section 38-025 provides the requirements for this branch circuit.

38-025 Branch circuits for other utilization equipment

- (1) Separate branch circuits shall supply other utilization equipment not identified in Rules 38-022, 38-023, and 38-024, but used in conjunction with equipment identified in Rule 38-001.*
- (2) The overcurrent devices protecting the branch circuits shall be located in the machinery room or control room/machinery space or control space.*

This circuit is not required to utilize 14-gauge wire or be a 15-amp circuit. Therefore, smaller sized conductors with an appropriately rated disconnect could be used for the branch circuit for video monitors.

Rationale

1. The equipment identified in 38-022(1) [*car lights, receptacles, auxiliary lighting, and ventilation*] are all items that are required by the elevator code. Excluding items other than accessories of these items from the branch circuit ensures that other non-code required items will not result in an overload or short of this circuit rendering these items unavailable.
2. A change is anticipated in 38-022 to follow changes being proposed in the NFPA. This change will remove the generic term accessory and replace it with specific equipment that is permitted to be supplied by the car light branch circuit. The specific equipment is: receptacles, alarm devices, Emergency Responder Radio Coverage (EERC) equipment, cab environmental purification systems, auxiliary lighting power sources, car emergency signaling and communication devices, monitoring devices not part of the control system (i.e. video cameras) and ventilation.

Application

Existing video monitors (or other non-elevator accessories such as protectors, security systems, patient wandering systems, ornamental exterior car lighting) that are connected to the elevator car lighting circuit will be permitted to remain connected to this circuit until the next 'related' major alteration to the elevator. Any new installation of video monitors must be wired to a separate branch circuit as identified in OESC 38-025. Video monitors are expected to be permanently wired using one of the wiring methods identified in OESC 38-021. Video monitors and any other permanent equipment are not to be plugged into the receptacles provided on the car.



Elevating and Amusement Devices Safety Program	Ref. No.: 292 / 20
ADVISORY	Date: December 1, 2020

Subject: Construction Hoist and Transport Platform Hoistway Wiring
Distribution: TSSA website

This advisory is intended to remind contractors that hoistway door wiring is to be installed in workmanlike and code compliant manner and will be verified during TSSA inspections.

1. Advisory

As of **January 1, 2021**, TSSA inspectors will enforce the following wiring rules on initial and new landing door inspections, of all Construction Hoists and Transport Platforms.

All existing landing door lock and hoistway wiring will be given until **July 1, 2021** to meet all requirements of this advisory.

- a. Flexible cables and cords used in the landing door interlock circuits shall be certified, suitable for the environment and shall have the proper ratings (e.g. size, voltage and temperature). The type and ratings of the flexible cables and cords, as per Ontario Electrical Safety Code (OESC – 2018) section 12-402 shall be selected from Table 11. The cables shall be suitable for wet, hard or extra hard usage locations. (e.g. SJOW).
- b. Using approved fasteners, cables shall be securely supported to the hoistway to prevent damage to the cable insulation, as per OESC section 12-120.
- c. All connections shall be made using appropriately approved junction boxes. Approved cable glands rated for wet locations shall be used where cables enter or exit an enclosure in wet locations.

Note: For insulated conductors or cables without a low temperature marking, the minimum recommended handling and installation temperature is -10 °C. Where marked -25 °C or -40 °C, the minimum recommended handling and installation temperature is equivalent to the low temperature marking.

2. Background

During construction hoist installations, some contractors have not followed the general rules of the Ontario Electrical Safety Code (OESC – 2018). This Advisory is to ensure that the general rules are followed when installing construction hoist wiring in hoistways. The most frequent issues identified during inspections are related to:

- improper wiring materials (flexible cables and cords) not suitable for the environment (during installation and/or during the life of the device).
- connections of flexible cables and cords without using certified junction boxes. (wire connectors are left hanging in the hoistway, rather than being enclosed in junction boxes.)
- improper securing of cables to the hoistway structure. (e.g. Bent nails)



Elevating and Amusement Devices Safety Program	Ref. No.: 293 / 21
ADVISORY	Date: January 25, 2021

Subject: Grounding of Transformers
Distribution: TSSA website

This advisory is intended to provide awareness to inspectors and contractors with respect to grounding of power transformers (that are located on the load side of the elevator system disconnect switch) as derived from section 10 of CSA 22.1 2018, Electrical Safety Code. This is further supplemented by Appendix B Section 10.

TSSA inspectors have noted installation deficiencies where some contractors installing a new elevator system have neglected to follow grounding requirements.

Power transformers grounding

Section 10-106 CSA 22.1 2018 states:

10-206 AC systems required to be solidly grounded

- 1) AC systems exceeding extra-low voltage shall be solidly grounded if
 - a) by doing so, their maximum voltage-to-ground does not exceed 150 V; or
 - b) the system incorporates a neutral conductor.
- 2) AC systems exceeding the value prescribed by Subrule 1) a) shall be permitted to be ungrounded or impedance grounded, provided that they meet the requirements for
 - a) ungrounded systems; or
 - b) impedance grounded systems

10-400 Ungrounded systems (see Appendix B)

- 1) DC or AC systems shall be permitted to be ungrounded, provided that the system is
 - a) equipped with suitable ground fault detection; and
 - b) maintained by qualified persons.
- 2) On the occurrence of a ground fault, the ground fault detection shall activate a visual or audible alarm to indicate the presence of the ground fault.
- 3) The alarm required by Subrule 2), and any extra (i.e., redundant) alarms if installed, shall
 - a) be clearly labelled as to their purpose.
 - b) clearly announce the status of the system to persons monitoring it; and
 - c) continue signalling until the condition has been corrected.
- 4) Extra-low-voltage dc or ac systems shall be permitted to be ungrounded without having to comply with the ground fault detection requirements specified in Subrules 1) to 3).

This advisory serves as a reminder regarding transformer grounding and compliance with OESC requirements.



Elevating and Amusement Devices Safety Program	Ref. No.: 294-21
ADVISORY	Date: January 25, 2021

Subject: TSSA regulatory jurisdiction as related to elevating devices when associated with federal or other non-regulatory activities or functions.

Distribution: Posted on TSSA website

This advisory is intended to provide guidance to elevating devices stakeholders regarding TSSA's regulatory jurisdiction as it relates to:

- the submittal of design applications for new or altered elevating devices, and obtaining inspections of those devices, or
- obtaining periodic inspection services

when these devices are considered by TSSA to fall within the jurisdiction of federal or other non-regulatory activities or services.

1. TSSA's Regulatory Jurisdiction

TSSA's regulatory jurisdiction is limited to the province of Ontario. The scope of TSSA's permitted activities are generally set forth in the *Technical Standards and Safety Act, 2000* (TSS Act). In addition, the *Elevating Devices Regulation* (Ontario Regulation 209/01) sections 1 and 2 provide for the types of devices that TSSA regulates in Ontario.

TSSA's jurisdiction does not include matters under Federal jurisdiction or Indigenous lands. Provincial jurisdiction is not assumed by TSSA:

- if regulation by TSSA would interfere with a federally regulated activity or function;
- if the federal government has occupied the regulatory field and administers a regulatory regime for that activity (see item 2 below); or
- If the activity occurs on Indigenous land or territory.

Therefore, elevating devices that are considered federal are not regulated by TSSA. This means these devices are not required to be licensed or inspected by TSSA.

2. Federal Jurisdiction

Federal jurisdiction includes federally owned or administered lands and certain federally regulated entities or activities. Federal jurisdiction examples include:

- Airports and aviation;
- Nuclear facilities;
- Federal ports and harbours;
- Interprovincial railways;
- Federal undertakings such as Canada Post, Via Rail; and
- Military installations including bases, airfields, hangars, armouries, etc.

3. TSSA's Non-Regulatory Business Activities

Section 3.6 of the *TSS Act* sets out the TSSA's corporate objects. These are the activities TSSA is permitted or required to undertake in order to fulfill its mandate. Included in these objects is the provision of non-regulatory services as an "additional activity" in accordance with the Memorandum of Understanding (MOU) between TSSA and the Ontario Ministry of Government and Consumer Services (MGCS).

Under the MOU provisions, TSSA may provide safety related services that are related or similar to those matters assigned to the Corporation under the *TSS Act*:

- a. To the federal government or any of its agencies, boards, commissions, or its other entities, where all aspects of the work occurs within Ontario;
- b. To a municipality within Ontario even if that municipality is subject to the *Technical Standards and Safety Act 2000*;
- c. To a First Nation, with that First Nation's consent, for work occurring on a reserve within the meaning of the *Indian Act* (Canada), provided that the reserve is located within Ontario;
- d. To a person or entity for the purposes of that person or entity complying with Canadian federal or provincial law, and provided that, for work occurring after December 31, 2013, all aspects of the work occurs within Ontario.

This provision allows TSSA to provide non-regulatory services to federal agencies or on Indigenous lands where these parties request TSSA's services.

4. Agreements required for permissible Non-Regulatory Services by TSSA

In order for TSSA to provide inspection services for new installations or alterations (engineering design review & inspection) for devices on federal lands or associated with federal undertakings, TSSA requires contractual agreements be signed between the TSSA and the responsible party. For:

1. A non-regulatory services contract for the design review and initial inspections, TSSA and the contracting party (usually the Elevating Device Contractor) will enter into a one-time agreement for these services;
2. A non-regulatory services contract for periodically inspecting these devices (which must include every device in that location), TSSA will enter into a 3-year term contract with the owner or managing company on behalf of the owner.

TSSA will not provide design review or any initial/alteration inspection services for the elevating device contractor unless there is a long term non-regulatory periodic services inspection agreement in place with the owner or property manager of the device.

Examples where TSSA will require a non-regulatory agreement to be signed may include:

- Elevator periodic inspections in federal buildings occupied by Ontario for Public Works Canada
- Elevator modernizations (involving TSSA engineering services) and subsequent initial inspections in
 - Federal buildings occupied by Public Works Canada
 - Federal facilities such as a military bases
- Engineering and/or Inspection services for
 - Elevators or moving walks at Greater Toronto Airport Authority
 - Automated people mover at the Greater Toronto Airport Authority
 - Elevators / Escalators directly associated with / impacting operations of activities relevant to

- Canada Post
- Passport Canada office
- Parliament Buildings
- Airports
- Military bases

Contractors who are performing installations or alterations at locations they believe may be non-regulatory must advise TSSA in advance of scheduling inspection services in order to ensure that all necessary non-regulatory agreements are in place. This will greatly assist TSSA and contractors to reduce inspection and scheduling delays.

Please note:

- TSSA is not actively pursuing non-regulatory business arrangements/contracts. TSSA will maintain existing contracts at the client's request and only enter into new arrangements at the request of non-regulatory customers, but only if those relationships promote and enhance public safety and only if entering into such arrangements does not negatively impact the TSSA's statutory mandate; and

TSSA will not provide a licence to a federal device unless the customer has entered into a contractual arrangement with TSSA for periodic inspection services.