

# What's New in [ 2013 - 2016 - 2019 ]

**ASME A17.1-2013/CSA B44-13**

(Revision of ASME A17.1-2010/CSA B44-10)

**ASME 17.1-2016/CSA B44-16**

(Revision of ASME 17.1-2013/CSA B44-13)

**ASME A17.1-2019/CSA B44:19**

(Revision of ASME A17.1-2016/CSA B44-16)

## **Safety Code for Elevators and Escalators**

**Includes Requirements for Elevators,  
Escalators, Dumbwaiters, Moving  
Walks, Material Lifts, and Dumbwaiters  
With Automatic Transfer Devices**

AN AMERICAN NATIONAL STANDARD



The American Society of  
Mechanical Engineers



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

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viii-xii	ASME Foreword	2013		This twentieth edition of the Code contains well over one hundred revisions... New requirements have been added to address new types of elevator equipment ... specifically wind turbine elevators and outside emergency elevators. In addition requirements have been added to address a new feature called Elevator Evacuation Operation (EEO)... Besides the above, several major changes include the following: (a) extensive update to the seismic requirements .. (b) Updated requirements related to the maintenance control program.. (c) .. accreditation of organizations which certify inspectors..discontinued by ASME	Forward Highlights: WTE added, removed in 2019 code. OEO elevator added New 8.6 structure (MCP) Extensive seismic change
xxi-xxii i	ASME Preface	2013	Revised		
xxiv	CSA Preface	2013	Revised		
viii-xii	ASME	2016	Foreword Revised	The twenty-first edition of the Code contains many revisions to existing requirements and the addition of some new requirements. Some areas of note, in which significant updates have been made, include, but are not limited to, seismic requirements for escalators; requirements for special purpose personnel elevators, rack-and-pinion elevators, residence elevators, and material lifts with obscured transfer devices; and the addition of elastomeric buffer requirements.	Forward Highlights: Seismic updates (Esc), elastomeric buffers
xxi-xxii i	ASME	2016	Preface Revised		
xxiv	CSA Preface	2016	Revised		
X	ASME Foreword	2019	Revised	This twenty-second edition of the Code includes many revisions, including additional updates for door requirements in private residence elevators, occupant evacuation elevators, and clarifications of seismic requirements for elevators and escalators. In addition, some key revisions of note are the updating of emergency communication requirements for an elevator to ensure communication with any trapped passengers, including those that are hearing impaired, and additional requirements modified for increased door protection on passenger elevators. The following is a complete list of editions and supplements to the Code that have been published...	Forward Highlights: seismic updates emergency communications door protection zones
xxiii	ASME Preface	2019	Revised		
xxvii	CSA Preface	2019	Revised		

Notes: This document is a summary of changes since the 2010 code and includes changes that occurred in the 2013, 2016 and 2019 code. The changes are grouped by PART and SECTION. Some SECTION changes are presented sequentially using the "requirement numbering" format, while in other SECTIONS the changes are sequenced by code edition (2013, 2016, 2019 respectively). Users should consult the specific code edition of interest to ensure they are using the correct code language for a given code edition.  
 (This summary does NOT include changes from TSSA ED-CAD 295/22)

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

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<b>PART 1 General</b>					
1	1.1.1	2013	<p><b>Equipment Covered by This Code</b> In subpara. (c), last sentence revised</p> <p>(c) hoisting and lowering mechanisms equipped with a car that serves two or more landings and is restricted to the carrying of material by its limited size or limited access to the car. This equipment includes, but is not limited to dumbwaiters and material lifts; <b>it does not include vertical reciprocating conveyors</b> (see Section 1.3).</p>	(c), last sentence revised, clarify A17.1 does not include vertical reciprocating conveyors	revised
2	1.1.4	2013	<p><b>Effective Date</b> <i>Revised</i> The requirements of this edition and subsequent addenda to the Code are effective as of the date noted on the Summary of Changes page of this document with the exception of 8.10.1.1.3 and 8.11.1.1 that shall be effective immediately.. The authority having jurisdiction will establish the effective date for their local regulations.</p>	added the exception of 8.10.1.1.3	revised
	1.2.2	2013	Title editorially revised	ASME A17.1/CSA B44	
2, 5, 6-8, 10, 13-18	Section 1.3	2013	<p><b>DEFINITIONS</b> (1) Added Definition of</p>		
	Section 1.3	2013	<p><i>accredited certifying organization ;</i></p>	to define	new
	Section 1.3	2013	<p><i>accrediting body ; an independent internationally or nationally recognized organization that accredits organizations concerned with personnel certification.</i></p>	to define	new
	Section 1.3	2013	<p><i>base,building ; the level at which the horizontal seismic ground motions are considered to be imparted to the structure.</i></p>	to define	new
	Section 1.3	2013	<p><i>control, mechanical-hydraulic; a motion control in which acceleration, speed, retardation, and stopping are governed by varying the fluid flow to/from the hydraulic jack by direct mechanical operation of the valves by shipper rope or operating lever device.</i></p>	add a definition to determine what a change to motion control means for a hydraulic elevator	new
	Section 1.3	2013	<p><i>conveyor, vertical reciprocating (VRC) ;</i></p>	to define VRC	new
	Section 1.3	2013	<p><i>driving machine, traction climbing ;</i></p>	To provide a differentiation and a definition of a new type of driving machine commonly used in wind turbine tower elevators	new
	Section 1.3	2013	<p><i>elevator, outside emergency;</i> <i>elevator, outside emergency: an elevator operating on the outside of a building having up to five compartments that is operated only by emergency personnel and used solely for emergency evacuation of building occupants and transportation of a limited number of emergency responders involved in the evacuation.</i></p>	define device included in A17.1	new, Note the 2022 Edition of code OEE has been renamed PRS, Platform Rescue System.

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

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	Section 1.3	2013	<i>elevator discharge level</i> ; the floor, served by elevators, that occupants will use to leave the building during an emergency evacuation.	to clarify where the elevators take building occupants during <b>OEO, Occupant Emergency Evacuation</b>	as determined the by building or fire authority
	Section 1.3	2013	<i>elevator, wind turbine tower</i> ;	To add the common name	new
	Section 1.3	2013	<i>guide rope fixes</i> ; wire guide rope attachment hardware securing the guiding system to the structure.	To provide a definition considering the common term of the art.	new
	Section 1.3	2013	<i>guiding means, ladder</i> ; the guide system where the tower ladder is used to guide the car within the travel path.	to define	new
	Section 1.3	2013	<b>hard, copy</b> ; a written record or log of all items specified in the maintenance records.		new
	Section 1.3	2013	<b>maintenance control Program (MCP)</b> ; a documented set of maintenance tasks, maintenance procedures, examinations, and tests to ensure that equipment is maintained in compliance with the requirements of 8.6.	to clarify terms in proposed revisions regarding the MCP, maintenance records, and related documentation as well as provide clarification for the proposed code revisions.	new
	Section 1.3	2013	<b>maintenance interval</b> ; the specified period between the occurrences of a specific maintenance task.		new
	Section 1.3	2013	<b>maintenance procedure</b> ; an instruction or sequence of instructions for performing a specific task(s).		new
	Section 1.3	2013	<b>maintenance task</b> ; a maintenance activity (work) that needs to be accomplished.		new
	Section 1.3	2013	<i>Occupant Evacuation Operation</i> ; the operation of an elevator system for occupant evacuation under emergency conditions.	to help readers of the code understand the purpose of this operation (OEO) is for occupant evacuation in emergencies	new
	Section 1.3	2013	<i>operation, automatic call</i> ;	To provide a definition of send operation typically found on Wind Turbine Elevators.	new
	Section 1.3	2013	<i>operation, automatic send</i> ;	To provide a definition of send operation typically found on Wind Turbine Elevators.	new
	Section 1.3	2013	<i>pallet band</i> ; the complete assembly formed by all of the pallets and their interconnecting means.	to add a definition for the terms "step band" and "pallet band" based on Inquiry 10-1815. The term pallet band appears in requirement 6.2.7.3.4 and is also undefined.	new
	Section 1.3	2013	<i>platform, landing</i> ;	To distinguish the usage of the term "platform" when referring to wind turbine towers from the elevator use of the term.	new
	Section 1.3	2013	<b>records, electronic</b> ; a viewable computer-generated record or log of all items specified in the maintenance records.	to clarify terms in proposed revisions regarding the MCP	new

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	Section 1.3	2013	<b>seal, adjustment;</b> a device or means to prevent adjustment of a component that must be broken to change the adjustment. Sealing includes a method to document the date and name of the person and/or firm applying the seal or other means to acquire this information.	To provide definition of "adjustment seal", used for determining when the adjustment means have been tampered with for components that are required to be sealed.	new Seals must be non reusable. Paint is not acceptable.
	Section 1.3	2013	SIL rated; listed/certified to a safety integrity level that is in accordance with the applicable requirements of IEC 61508-2 and IEC 61508-3		new
	Section 1.3	2013	step band;	to add a definition for the terms "step band" and "pallet band" based on Inquiry 10-1815. The term pallet band appears in requirement 6.2.7.3.4 and is also undefined.	new
	Section 1.3	2013	<b>sway control guide;</b> a device attached to the car or the counterweight used to limit the sway of suspension means, compensating means, traveling cables, etc., to prevent tangling or snagging on other hoistway components.	to define	new
	Section 1.3	2013	sway control guide suspension means; tensile components that support, raise, and lower sway control guides for electric traction elevators.	to define	new
	Section 1.3	2013	tail line;	To provide a definition considering the common term of the art.	new
	Section 1.3	2013	travel path	To provide a definition	new
		2013	(2) revised Definition of control, electrohydraulic;	to determine what a change to motion control means for a hydraulic elevator	revised
		2013	electrical/electronic/programmable electric system (E/E/PES);	clarify	revised
	Section 1.3	2013	<b>manual reset, escalator and moving walk; a means, not accessible to the general public,</b> requiring personal intervention by an authorized person or authorized personnel, requiring on-site intervention by elevator personnel prior to restarting the escalator or moving walk.	<b>onsite intervention required by contractor</b>	revised
		2013	material lift; an elevator designed or modified for the purpose of transporting materials that are manually or automatically loaded or unloaded and are not a vertical reciprocating conveyor (see 1.3). Material lifts without an automatic transfer device are Type A or Type B. On Type A material lifts no persons are permitted to ride. On Type B material lifts authorized personnel are permitted to ride.	To define a Material Lift and differentiate material lifts from vertical reciprocating conveyors as unique and distinct devices covered by different safety provisions by use of the term elevator	revised
		2013	operation, group automatic;	To recognize other possible devices and supervisory (dispatching) systems used in group automatic operation	revised
		2013	safety integral level (SIL);	See IEC 61508	revised
		2013	terminal stopping device, final;	remove requirements from the definition	revised
		2013	terminal stopping device, normal;	remove requirements from the definition	revised
		2013	unlocking zone;	clarify	revised

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

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2-17	Section 1.3	2016	(1) Definitions of <i>backup rollers</i> , <i>counterweight displacement detection device</i> , <i>elastomeric buffer</i> , <i>seismic detection device</i> , and <i>sound engineering practice</i> added		new
2-17	Section 1.3	2016	backup roller(s): a roller that limits the separation of a pinion from a rack.		new
2-17	Section 1.3	2016	<b>counterweight displacement detection device:</b> a device actuated by the displacement of the counterweight, at any point in the hoistway, to provide a signal that the counterweight has moved from its normal lane of travel or has left its guide rails.		new
2-17	Section 1.3	2016	<b>elastomeric buffer:</b> an energy-accumulation-type buffer with nonlinear characteristics (such as a polyurethane buffer) using resilient materials to cushion the impact force of the descending car or counterweight.		[E] [I] [OEM] elastomeric buffers are formally recognized in the code See section 2.22
2-17	Section 1.3	2016	<b>seismic detection device:</b> a device activated by ground movement to provide a signal that a potentially damaging earthquake is imminent.		new
2-17	Section 1.3	2016	sound engineering practice: the use of engineering or technical methods to design or evaluate a device or system by taking into account relevant factors that may influence its efficacy and operation. This practice also involves the use of applicable standards, specifications, codes, and regulatory and industry guidelines, as well as accepted engineering and design methods and installation and maintenance practices.		new
2-17	Section 1.3	2016	(2) Definitions of bumper, controller motor, traction machine, and unlocking zone revised  bumper: a device, other than an oil or spring or elastomeric buffer, designed to stop a descending car or counterweight beyond its normal limit of travel by absorbing the impact. controller, motor: the operative units of a motion control system comprising the starter devices and/or power conversion equipment required to drive an electric motor. traction machine: a direct driving machine in which the motion of a car is obtained through friction between the suspension ropes means and a traction sheave.	revised definitions of bumper, controller motor, traction machine, and unlocking zone	revised

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

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2-17	Section 1.3	2016	(2) Definitions of bumper, controller motor, traction machine, and unlocking zone revised unlocking zone: a zone extending from the landing floor level to point not less than 75 mm (3 in.) nor more than 175mm(7 in.), except not more than 450mm(18 in.) for freight elevators with vertically sliding doors a specified point above and below the landing.  fyi, removed language in 2019	revised definitions of bumper, controller motor, traction machine, and unlocking zone	revised  important dimensional change to unlocking zone,  dimensions removed in 2019 definition. Dimensions are in the requirement - not in the definition
2-17	Section 1.3	2016	(3) Definitions of displacement switch ; driving machine, traction climbing ; elevator, wind turbine tower ; guide rope fixes ; operation, automatic call ; operation, automatic send ; platform landing ; seismic switch ; tail line ; and travel path deleted	deleted definitions displacement switch; driving machine, traction climbing; elevator, wind turbine tower; guide rope fixes; operation, automatic call; operation, automatic send; platform landing;  tail line; and travel path	definitions primarily related to Wind Towers removed from A17.1/B44
1	1.1.3	2019	Revised		
2	Section 1.3	2019	Revised (1) Definitions of car door interlock , car door or gate electric contact , door or gate electric contact , elevator discharge level , hoistway door electric contact , hoistway door combination mechanical lock and closed detection means , hoistway door interlock , and mechanical lock		
3	Section 1.3	2019	Added (2) Definitions of; door locked detection means,	an electrical protective device, the function of which is to prevent operation of the driving machine by the normal operating device unless the door is locked in the closed position.	new
3	Section 1.3	2019	Added dynamic braking;	use of the motor and active motor control to effect the controlled deceleration of a load.	new
3	Section 1.3	2019	Added executable software;	a set of machine-readable instructions native to a computing device that performs specific tasks.	new
3	Section 1.3	2019	Added Fire Service Access Elevator (FSAE);	an elevator equipped for use by emergency personnel that is required by some building codes in high-rise buildings and has special requirements, including identification, specified by those building codes.	new term for FireFighters elevator in non-NBCC jurisdictions
3	Section 1.3	2019	Added manual reset; private residence elevator;	a means, not accessible to the occupants or authorized personnel, requiring on-site intervention by elevator personnel prior to restarting the elevator.	new
3	Section 1.3	2019	Added relocation, escalator or moving walk;	the movement of the escalator or moving walk from one wellway or pit to another wellway or pit, or the act of securing the escalator or moving walk to different bearing plates or supports.	new

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

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3	Section 1.3	2019	Added restrictor, car door;	a device, the function of which is to restrict the opening of passenger elevator car door(s) when the car is outside the unlocking zone.	new, restrictors are now subject to engineering cycle tests
3	Section 1.3	2019	Added software-based parameters and/or variables;	values that set application-specific data.	new
3	Section 1.3	2019	Added unique software identifier (USI);	descriptor that allows distinguishing among versions of executable software.	new
3	Section 1.3	2019	Added valve, manually (manual) operated	a type of mechanical or electromechanical valve requiring an action to be taken by a person to change the state (opened or closed) of the valve.	new - used to help determine changes to motion control
<b>PART 2</b>					
<b>2.2 Pits</b>					
21	2.2.2.5	2019	Revised 2.2.2.5 In elevators provided with Firefighters' Emergency Operation, a drain or sump pump shall be provided. The sump pump/drain shall be required to have the capacity to remove a minimum of 11.4 m <sup>3</sup> /h (3,000 gal/h) per elevator single hoistway or multiple hoistway	Rationale: The current requirement is excessive and unnecessary to increase the level of safety for firefighters using elevators during fire emergencies. The proposal to have 11.4 m <sup>3</sup> /h (3,000 gal/h) per hoistway is adequate to maintain a level of safety for firefighters.	[architect] Requirement is now 3000gal/h for grouped hoistways
23	2.2.6.2	2013	Stop Switch in Pits Sentence added to end of paragraph Where more than one switch is provided, they shall be wired in series.	Multiple pit stop switches to be wired in series.	[OEM][E][I] - verifiable on prints and onsite
	2.2.6.3	2013	Moved to 2.2.6.2	2.2.6.3 deleted and moved to 2.2.6.2	
<b>2.3 Location And Guarding of Counterweights</b>					
23	2.3.2.1	2013	Counterweight Guards Subparagraph (a) revised ..no space greater than 500 mm (20 in.) between any adjacent combination of compensation means, suspension means, counterweight rails and guard(s) that blocks the access to the counterweight runway.	Rationale: To recognize that suspension means as well as compensating ropes (chains) can alert personnel of the presence of the counterweight runway.	[I]-spacing can be verified in the field
<b>2.4 Vertical Clearances And Runbys For Cars And Counterweights</b>					
24	2.4.1.6	2013	Bottom Car Clearances Revised in its entirety	(a) conform to the requirements of ANSI Z535.4 or CAN/CSA-Z321 (see Part 9) (b) be made of durable material and shall be securely fastened	[I]- can be field verifiable signage details are provided
25	2.4.2.2	2016	Minimum Bottom Runby for Counterweighted Elevators Revised Where spring buffers, elastomeric buffers or solid bumpers are used, the bottom runby shall be not less than 150 mm (6in.), except for rheostatic and single-speed AC control, not less than shown in Table 2.4.2.2.		[E] [I] [OEM]



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

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25	Table 2.4.2.2	2016	<b>Minimum Bottom Runby for Counterweight Elevators With Spring Buffers, Elastomeric Buffers, or Solid Bumpers and Rheostatic Control or Single-Speed AC Control</b> Title revised	language added to address permission for elastomeric buffers added	[L] [I] [OLM] elastomeric buffers are formally recognized in the code
25	2.4.6.1.1	2016	<b>Maximum Upward Movement of the Car</b> Subparagraph (c)(2) revised (c)(2) the governor tripping speed where spring buffers or elastomeric buffers are used.		
26	2.4.7.2	2013	<b>Top of Car Clearances</b> Revised in its entirety	(a) conform to the requirements of ANSI Z535.4 or CAN/CSA-Z321 (see Part 9) (b) be made of durable material and shall be securely fastened	[I]- can be field verifiable signage details are provided
26	2.4.8	2016	<b>Top of Counterweight Clearances</b> Subparagraph (d)(2) revised (d)(2)the governor tripping speed where spring buffers or elastomeric buffers are used (see 8.2.5 for gravity stopping distances)	language added to address permission for elastomeric buffers added	
<b>2.5 Horizontal Car and Counterweight Clearances</b>					
27	2.5.1.5.3	2016	<b>Clearance Between Loading Side of Car Platforms and Hoistway Enclosures</b> Subparagraph (a) revised (a) a car door interlock conforming to 2.14.4.2 is provided to prevent a door from being opened unless the car is within the unlocking zone (see 2.12.1)	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
<b>2.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms</b>					
28	2.7.3.1.3	2013	<b>Access to Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms</b> Added: Access to other locations within the building or access to machinery and equipment not related to elevators through the machinery space, machine room, control spaces or control rooms shall not be permitted.	Rationale: To limit the access to machine rooms and related spaces by persons that do not need to access those rooms and spaces except when access is needed for equipment directly related to the elevator. This reduces the frequency of exposure to the hazards related to elevator equipment by other persons. These hazards could include rotating machinery and high voltage.	[I]-field verifiable Clarification to say what we always understood - no access to other spaces via the machine room.
	2.7.3.2.2	2013	<b>Passage Across Roofs</b> Revised	Passage over roof requires a railing conforming to 2.10.2 Rationale: To provide safe passage under all environmental conditions. To add strength requirements to the railing.	[I]- field assessable. Supporting documentation may be required where questionable
29	2.7.3.3.2	2019	<b>Means of Access</b> Revised	Rationale: Clarification that vertical ladders are not permitted for spaces containing either controllers or and motor generators.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

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30	2.7.5.1.2	2019	<p><b>Working Areas in the Car or on the CarTop</b> Subparagraph (e) Revised The means shall... (e) have a sign in conformance with the requirements of ANSI Z535.2 or CAN/CSA-Z321, whichever is applicable, that shall be prominently posted in the work area stating: "WARNING! Engage ' _____ '.</p> <p>Where there is no maintenance or inspection required that could cause unexpected car motion and where it is not necessary to engage the means, the words "brake, emergency brake, or" can be omitted from the sign.</p>	<p>Rationale: means to prevent unexpected vertical car movement is not required to be provided where there is no maintenance or inspection that could cause unexpected car motion. However, 2.7.5.1.2(e) assumes that this means is always provided. The proposed additional wording provides flexibility in the wording of the sign when it is not necessary to provide or engage the means.</p>	<p>Means to be provided only when unexpected movement is possible. [OEM] permission if app. [E]= electrical print w/unexpected car movement device 2.26.2.34 [I] - field observable where provided</p>
31	2.7.5.3	2019	<p><b>Working Platforms</b> Reference to 8.6.11.9 corrected by errata</p>		
32	2.7.5.3.1	2019	Reference to 8.6.11.9 corrected by errata		
32	2.7.5.3.2	2013	Editorially revised	typo fix	
32, 33	2.7.5.3.3	2016	<p>Revised A working platform shall be provided with a standard railing conforming to 2.10.2 on <del>the all</del> open or exposed sides where <b>a 300 mm (12 in.) ball can pass the perpendicular distance</b> between the edges of the platform and the adjacent hoistway enclosure <del>exceeds 300 mm (12 in.) horizontal clearance</del>, and the difference in level between the platform and the surrounding surface exceeds 400 mm (16 in.).</p>	<p>typo fix <b>Railing required where perpendicular distance from working platform to wall exceeds 300mm, is now revised to gap to resist 300mm diameter ball</b> Rationale: The intent of the requirement is to protect against fall hazards. Anthropometric data from A17.1/B44.7 Appendix C shows the body thickness to be 342 mm, so a 300mm circular space in all orientations as defined by a 300 mm (12 in.) sphere would be small enough to provide protection from the fall hazard.</p>	<p>[I]- field verifiable better clarification to help identify fall hazard</p>
32	2.7.5.3.5	2013	<p>Revised Where the access to a working platform that is in the line of movement of the car or counterweight is not through the elevator landing doors, but through an access panel or door in the hoistway, <b>the access panel or door shall meet the requirements of 2.11.1.2(b), (d), and (e) – (i).</b></p>	<p>Revision of the requirement to specify an electric contact in lieu of an electromechanical device. Clarification of intent to permit a lock and contact.</p>	<p>[E]- electrical print shows contact [I]-field verifiable re: presence of an electrical contact</p>
32, 33	2.7.5.4	2016	<p><b>Working Platforms in the Line of Movement of the Car or Counterweight</b> Subparagraph (a)(1) revised <b>...the car shall be stopped below the platform at least the distance required for top-of-car clearance (see 2.4.7)</b></p>	<p><b>"car top refuge space" terminology deleted and renamed to "top of car clearance"</b></p>	<p>fyi - revised terminology</p>
32, 33	2.7.6.3.2	2016	<p><b>Location of Equipment</b> Subparagraphs (e) and (f) added A motor controller shall be <b>permitted to be located outside the specified spaces, provided it is</b> (e) labeled/marked "AGP" in accordance with the requirements of CSA B44.1/ASME A17.5 (see 2.26.4.2). (f) provided with a sign... "DOOR TO BE CLOSED AND LOCKED WHEN ELEVATOR PERSONNEL ARE NOT PRESENT AT THIS CONTROLLER."</p>	<p>"AGP" to denote <b>Accessible to General Public.</b> Requirement to add safety signage. See 2.26.4.2 for a note about marking.</p>	<p>[OEM] to select proper enclosure can be field verifiable [I] - look for AGP signage</p>

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32, 33	2.7.6.4.1	2016	<b>Means Necessary for Tests</b> Subparagraph (b) revised (b) the reaching of a position within the door unlocking zone (see 2.12.1)	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
35	2.7.8	2019	<b>Remote Machine Rooms, Control Rooms, and Control Spaces</b> Revised 2.7.8 Remote Machine Rooms, <b>Control Rooms</b> and Control <b>Spaces</b> <del>Rooms</del>	To clarify that <b>stop switches, duplex receptacles light switches and lights that have been understood to apply to remote machine rooms, control rooms also apply to remote control spaces.</b> Rationale: <b>Communication</b> is equally important between the elevator car and <b>remote control spaces where there is a means to move the car within the control space.</b> Replace the “and or” with “or” as it adds no clarity to the requirement. Revise for clarity where all references are in the plural.	[I] = field verifiable requirements for Remote Spaces

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.8 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms</b>					
36	2.8.2.4	2019	<p><b>Electrical Equipment and Wiring</b> Added</p> <p>2.8.2.4 In jurisdictions enforcing the NBCC and in jurisdictions enforcing NFPA 72, the means for testing and <b>maintenance of fire alarm initiating devices without having to enter the hoistway shall be permitted.</b> When this means is provided, it shall comply with either (a) or (b):</p> <p>(a) The means provided for air sampling shall comply with 2.8.3.1.4.</p> <p>(b) The means provided by enclosing a fire alarm initiating device within a protective space shall comply with (1) through (7):</p>	<p>Rationale: Elevator hoistways can be extremely dangerous locations, and there are safety concerns when fire alarm technicians, who are not trained as elevator personnel, perform work installing, testing and maintaining fire alarm initiating devices located inside of the elevator hoistway.</p> <p>The small size of the access panels in combination with the protective guards (cages) will prevent injury to fire alarm technicians while performing work on fire alarm initiating devices located inside the elevator hoistway and will prevent injury to elevator personnel should they be in the hoistway while fire alarm technicians are accessing the FAIDs.</p>	<p>[I] - Allow FAID's in the H/W to be tested via access panels or allow air sampling methods in hoistways.</p> <p>[OEM]=if 2.8.2.4(b) identify locations on L/O dwgs</p>
36	2.8.3.1.4	2019	<p><b>Pipes, Ducts, Tanks, and Sprinklers</b> Added</p> <p>2.8.3.1.4 The means used for air sampling smoke detection systems shall be permitted to be installed in hoistways, machinery spaces, machine rooms, control spaces, and control rooms for the purpose of detecting smoke in accordance with 2.27.3.2 Phase I Emergency Recall Operation by Fire Alarm Initiating Devices and shall not encroach upon required clearances. Sensing elements penetrating the hoistway enclosure shall have a fire resistance rating conforming to the requirements of the building code.</p>	<p>Rationale: To add requirements for air sampling type FAIDs that will be permitted to be used on elevator installations. <b>Installed in elevator spaces</b></p>	
37	2.8.3.3.2	2019	Subparagraph (d) added	not applicable in NBCC jurisdictions	
36	2.8.3.3.4	2016	First paragraph revised	fix a reference: 8.4.10.1.2(d) to 8.4.10.1.2(e) not applicable in NBCC	
37	2.8.3.3.4	2019	Revised	not applicable in NBCC jurisdictions	
<b>2.10 Guarding of Equipment and Standard Railings</b>					
39	2.10.2.1	2013	<p><b>Standard Railing - Top Rail</b> Revised</p> <p>The top rail shall have a smooth surface, and the upper surface shall be located at a vertical height of <b>not less than 1070 mm (42 in.) and not more than 1095 mm (43 in)</b> from the working surface.</p>	<p>Rationale: <b>It has been reported that some AHJ's interpret the height of the Top Rail of the Standard Railing as an exact dimension.</b> Research of the current OSHA requirements as well as various building codes in the USA and Canada was conducted to determine a safe tolerance value which will satisfy the intent of the various requirements. The end result is a safe and adequate tolerance for the Top Rail of the Standard Railing.</p>	<p>[I]- field verifiable (reasonable tolerances should be allowed)</p> <p>[OEM] = awareness</p> <p>[Note: EIFESH recognizes +/- 3". Other factors / risks may be used to request heights other than 2.10.2.1]</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.11 Protection of Hoistway Openings</b>					
39	2.11.1.2	2013	<p><b>Emergency Doors in Blind Hoistways</b> Subparagraph (e) revised Regarding Emergency Doors in Blind Hoistways: Lock and contact requirement have been revised to read: 2.11.1.2 (e) It shall be provided with an <del>electromechanical device</del> <b>electric contact</b> that will prevent the operation of the driving machine unless the door is closed and locked (see 2.26.2.25). <b>- self closing and self locking are still applicable</b></p>	<p>Regarding <b>Emergency Doors in Blind Hoistways: Lock and contact requirement have been revised to electric contact</b></p>	<p>[I] field verifiable [OEM] design req't</p>
40	2.11.5	2013	<p><b>Projection of Entrances and Other Equipment Beyond the Landing Sills</b> Subparagraph (a) revised 2.11.5 Projection of Entrances and Other Equipment Beyond the Landing Sills Entrances and equipment shall not project into an elevator hoistway beyond the line of the landing sill, except for (a) equipment required for interlocking, indicator and signal devices, and door operating devices, <b>door guiding devices, and door retaining devices</b></p>	<p>Rationale: <b>To recognize that door guiding devices and retaining devices can project beyond the line of the landing sill.</b></p> <p><b>Eg TKE freedom sill</b></p>	<p>applicable to sill designs with no top sill grooves for guiding or retention. [OEM] permission</p>
40	2.11.6.1	2016	<p><b>Opening of Hoistway Doors</b> Revised When the car is within the unlocking zone (see 2.12.1), the hoistway doors shall be openable by hand from within the car without the use of tools.</p>	<p>Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.</p>	
40	2.11.6.3	2013	<p><b>Opening of Hoistway Doors</b> Revised in its entirety 2.11.6.3 Egress from the interior of the car to any elevator landing by means of the car and hoistway doors shall be unrestricted once the car and hoistway doors are open. <b>Additional doors or devices, which are not part of nor function with the elevator, but are provided in lieu of an enclosed elevator lobby in order to guard against the migration of smoke</b> in or out of the hoistway shall comply with the following: (a) The building code. (b) The additional door or device, in any position, shall not interfere with the function and operation of the elevator. (c) The additional door or device shall not interfere with the fire resistance rating and operation of the hoistway entrance. Direct or mechanical attachment (i.e. welding, holes, bolts or rivets) shall not be made to hoistway doors or frames, unless the additional door or device and the hoistway elevator entrance are listed as a complete assembly by a certifying organization.</p>	<p>Change relates to egress from the interior of the car, <b>and additional doors which may close in front of H/W doors during FEO scenarios.</b></p> <p>Rationale: To provide requirements, when permitted by the Building Code, for additional doors and similar devices mounted adjacent to the elevator hoistway opening, the purpose of which is to minimize the migration of smoke into or out of the elevator hoistway. These devices are currently being permitted by the Building Codes and may affect the operation of the elevator; it is important to address these potential safety and certification issues. To provide requirements which assure that firefighters' can safely use the elevator on Phase II as intended.</p>	<p>Trigger of <u>FAID releases smoke doors</u> Smoke doors should not lock closed (entrapment) if gap between doors &gt;125mm (5 in.) [Arch] permission</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
40	2.11.6.3	2013	<p><b>(d) Additional doors or devices when in the closed position shall not prevent firefighters from visually observing the elevator landing (lobby) when the elevator hoistway door is no more than one quarter open.</b></p> <p><b>(e) Additional doors or devices shall be permitted to be deployed only at those hoistway openings of elevators where fire alarm initiating devices used to initiate Phase I Emergency Recall Operation associated with that elevator have been activated.</b></p> <p>NOTE: It is recommended that all additional doors or devices deployed in front of hoistway doors shall be cleared (returned to open/ standby position) by authorized or emergency personnel prior to removing the elevator from Phase I Emergency Recall Operation and returning to normal operation. It is recommended in the case of an unintended deployment, authorized personnel should return doors to the open or standby position.</p>		<p>[Arch]</p> <p>[I] FF to be able to see into lobby with additional door closed.</p> <p>[I][OEM] Additional Doors only triggered at Lobby where FAID's have been activated</p>
42	2.11.10.1.4	2013	<p><b>Landing-Sill Guards</b> Added</p> <p><b>2.11.10.1 Landing Sill Guards</b></p> <p><b>2.11.10.1.4 A horizontal door guiding groove with a maximum width of 10 mm (0.375 in.) shall be permitted at the transition of the Landing Sill Guard and the Landing Sill, provided the following requirements are met,</b></p> <p>(a) door power pre-opening in accordance with requirement 2.13.2.2.2 shall not be permitted,</p> <p>(b) leveling/re-leveling shall be initiated before vertical exposure of the groove is revealed,</p> <p>(c) where exposure to the groove is revealed the car shall not re-level with open doors and</p> <p>(d) edges forming the groove shall be configured to prevent hazards</p>	<p><b>To recognize designs like TKE freedom sill.</b></p> <p>Rationale: 10 mm (3/8 in.) is the allowable gap between the door and the sill. (see 2.11.11.5.2(d)). Sight guards are allowed to be 12 mm above the sill which is a gap that exists today. Prohibiting pre-door opening and preventing re-leveling up before the car sill surface reaches the groove assures that the door guiding groove is not exposed to users in the car.</p>	[OEM] design permission
43	2.11.10.2	2019	<p><b>Illumination at Landing Sills</b> Revised</p> <p>Remove specific language related to "building corridor"</p>	<p>Rationale: To mitigate tripping and other hazards, the sills must be illuminated when the elevator is in service. The current edition does not address the situation where there is no building corridor.</p>	
42	2.11.11.1	2013	<p><b>Landing Sills</b> Subparagraph (d) added</p> <p>2.11.11.1 Landing Sills. Landing sills shall</p> <p>(d) be permitted to include the corresponding member of a bottom guiding means (see 2.11.11.5.7 and 2.11.11.6).</p>	<p>Rationale: <b>To clarify that a sill/sill structure is permitted as a guiding component. When a sill/sill structure is used as a guiding component then they must meet the strength requirement of 2.11.11.5.7</b></p>	[OEM] design permission

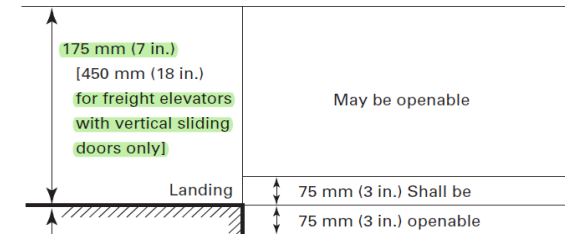
What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
44	2.11.11.5.7	2019	<b>Panels</b> Revised 2.11.11.5.7 The assembled panel(s), including the means for hanging and guiding the panel(s), shall be capable of withstanding a force of 2 500 N (560 lbf) with no permanent displacement or deformation. This force shall be applied in the direction of the hoistway at right angles to at the center of a panel over an area of approximately 100 mm x 100 mm (4 in. x 4 in.) at the center of the panel (see also 2.11.11.8). For multi-panel entrances, the force shall be applied individually to each panel of the assembly.	Rationale: Remove any ambiguity created by the use of the terms “approximately” and “appreciable”. Make it clear that each panel must meet the requirements, and that it is not required to apply the same force to all panels at the same time. Eliminate the implication that the code requires a test by removing the reference to test from the requirement thereby giving the option for structural analysis to demonstrate compliance.	
47	2.11.19.3	2013	<b>Gasketing of Hoistway Entrances</b> Revised 2.11.19.3 Each section of the gasketing material shall be labeled. Each label shall bear the name of the manufacturer, certifying agency and a statement indicating conformance with 2.11.19.1 and 2.11.19.2. The label shall be visible after installation	Rationale: To require certification of the basic types of entrances in 2.11.2 with gasketing material. To require certifying agency identification on the label.	OEM design requirement. Labelling to be visible in the field. Can be field verifiable.
47	2.11.19.3	2016	<b>Gasketing of Hoistway Entrances</b> Second sentence corrected by errata Each section of the gasketing material shall be labeled. Each label shall bear the names of the manufacturer and the certifying agency, and a statement indicating conformance with 2.11.19.1 and 2.11.19.2. The label shall be visible after installation.	editorial correction 2.11.19 Gasketing of Hoistway Entrances Where gasketing material is applied to entrances with a fire-protection rating, it shall conform to 2.11.19.1 through 2.11.19.4. This requirement was revised in to require that the certifying agency identification be included on the required label.	[OEM][I] = If gasketing provided, it needs to be labeled.

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
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**2.12 Hoistway Door Locking Devices and Closed Detection Means, and Hoistway Access Switches**

48	Section 2.12	2019	Title <b>Revised</b> HOISTWAY DOOR LOCKING DEVICES AND <del>ELECTRIC CONTACTS CLOSED</del> <b>DETECTION MEANS</b> , AND HOISTWAY ACCESS SWITCHES	Rationale: to use the <b>new term closed detection means</b> . Rationale: <b>to rename door or gate electric contact to door or gate closed detection means</b> in order to avoid confusion. And to clearly define the device as an electrical protective device in 2.26.2 which may have a traditional contact or be a SIL rated device according to 2.26.4.3.	fyi, new term introduced
47	2.12.1	2016	<b>Hoistway Door Locking Devices and Electric Contacts, and Hoistway Access Switches</b> First paragraph added <b>2.12.1 General</b> For passenger elevators, the unlocking zone from the landing floor level shall be not less than 75 mm (3 in.) nor more than 175 mm (7 in.). For freight elevators with vertically sliding doors, the unlocking zone from the landing floor level shall be not less than 75 mm (3 in.) nor more than 450 mm (18 in.).	<b>dimensions for the unlocking zone where previously included in the definition.</b>  <b>These dimensions have been removed from the definition and moved to the introduction of 2.12.1</b>	[OEM][I] = New important changes to size of unlocking zone  Shall not be openable May be openable 75 mm (3 in.) Shall be openable 75 mm (3 in.) openable
49	2.12.1.5	2019	<b>Revised</b> 2.12.1.5 Freight elevator hoistway doors shall be equipped with interlocks conforming to 2.12.2 or <b>hoistway door</b> combination mechanical locks and <b>closed detection means</b> conforming to, and where permitted by, 2.12.3.	Rationale: to use the new term closed detection means.  <b>Lock and contract revised to lock and closed door detection means</b>	new terminology
49	2.12.2.4	2019	<b>Interlocks - General Design Requirements</b> <b>Revised</b> in its entirety <b>2.12.2.4.1 To detect closed and locked position of the door(s), interlocks shall have:</b> (a) <b>contacts</b> meeting the requirements of 2.26.4.3.1; <b>or</b> (b) <b>SIL rated devices</b> meeting the requirements of 2.26.4.3.2.	Rationale: to add new rule to clarify the type of devices that can be used to detect the locked position and to clearly define the closed and locked position as well as the open and unlocked position of the door.	[OEM][I] Door closed detection means are permitted to be contacts <b>OR</b> SIL devices.
50	2.12.3	2019	<b>Hoistway Door Combination Mechanical Locks and Closed Detection Means</b> Title <b>Revised</b> 2.12.3 Hoistway Door Combination Mechanical Locks and <del>Electric Contacts</del> <b>Closed Detection Means</b>	Rationale: to use the new term closed detection means.	
50	2.12.3.1	2019	<b>Where Permitted</b> Introductory sentence <b>Revised</b>		
51	2.12.3.4	2019	<b>General Design Requirements</b> <b>Revised</b>		
51	2.12.3.4.1	2019	<b>Revised</b>		
51	2.12.3.4.2	2019	<b>Revised</b>		
51	2.12.3.4.4	2019	<b>Revised</b>		
51	2.12.3.5	2019	<b>Location</b> <b>Revised</b>		
51	2.12.4	2019	<b>Listing/Certification of Door Locking Devices and Door or Gate Closed Detection Means</b> <b>Revised</b> in its entirety 2.12.4 Listing/Certification Door Locking Devices and Door or Gate <b>Closed Detection Means</b>		[OEM] certification is required





What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
49	2.12.4.1	2013	<b>Listing/Certification Door Locking Devices and Door or Gate Electric Contacts</b> Subparagraph (b) editorially revised	Rationale: Cross reference corrected	
50	2.12.4.3	2013	Subparagraph (c) editorially revised	editorial	
50	2.12.5	2013	<del>2.12.5 Restricted Opening of Hoistway or Car Doors</del> Deleted; material revised and moved to 2.14.5.7 <del>2.12.5 2.14.5.7 Restricted Opening of Hoistway or Car Doors</del> Car doors of passenger elevators shall <b>be provided with a car door interlock conforming to 2.14.4.2 or shall</b> conform to 2.14.5.7.1 through 2.14.5.7.5.	Rationale: <b>Move requirements into the section pertaining to car doors since the revised requirements no longer pertain to hoistway doors.</b> Permitting the opening of car doors exposes passengers to hazards in the hoistway. A means to restrict the opening of car doors, or using a car door interlock, is the safest way to protect passengers from the hoistway hazards.	[OEM][I] Hoistway doors are no longer opening restricted. Only car doors can be restricted. See 2.14 for Car door restrictor
50-52	2.12.6.2.3	2016	<b>Hoistway Door Unlocking Devices</b> Revised 2.12.6.2.3 Where a hoistway <b>door</b> unlocking device consists of an arrangement whereby a releasing chain, permanently attached to a door locking mechanism, is kept under a locked panel adjacent to the landing door, such a panel shall be self-closing and self-locking and shall not have identifying markings on its face.		
50-52	2.12.6.2.5	2016	Revised The <b>hoistway door</b> unlocking device keyway and locked panel (see 2.12.6.2.3), if provided, shall be located at a height not greater than 2 100 mm (83 in.) above the landing.		
50-52	2.12.7.2	2016	<b>Hoistway Access Switches</b> Revised in its entirety Location and Design. Hoistway access switches shall conform to 2.12.7.2.1 through 2.12.7.2.3. 2.12.7.2.1 The switch shall be installed <b>a minimum of 1200 mm (48 in.) and a maximum of 1825 mm (72in.) above the floor measured to the centerline of the switch</b> , adjacent to <b>or part of</b> the hoistway entrance at the landing with which it is identified., <b>and in one of the following locations:</b> <b>(a) on the wall outside of the hoistway within 300 mm (12 in.) of the entrance frame</b> <b>(b) on the hoistway entrance frame or jamb</b> <b>(c) on the sight guard</b>	<b>Defines requirements for location of H/W access switches.</b> This assures that a hoistway access switch is located where it is readily visible to and safely accessible by elevator personnel when the door is open. This proposal limits locations for hoistway access switches, and therefore makes it safer for elevator personnel to access and egress the hoistway. This assures that in installations where a hoistway access switch is located on the sight guard, (1) support for the switch will be adequate, and (2) motion will not occur if a ground or short circuit occurs in the flexible wiring.	[OEM][I]-field verifiable Changes to location of hoistway access key switch  [E]- prints demonstrate protection against single failure

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50-52	2.12.7.2	2016	<p><b>Hoistway Access Switches</b>                      Revised in its entirety</p> <p><b>2.12.7.2.2 Where the switch is located on the sight guard, the sight guard shall accommodate and support the load of the switch and its wiring.</b></p> <p>2.12.7.2.2<del>3</del> The switch shall be of the continuous-pressure spring-return type, and shall be operated by a cylinder-type lock having not less than a five-pin or five-disk combination, with a key removable only when the switch is in the "OFF" position. The key shall be Group 1 Security (see 8.1).</p> <p>2.12.7.2.2<del>3</del><del>4</del> The electric contacts in the switch shall be positively opened mechanically; their openings shall not be solely dependent on springs.</p> <p>2.12.7.2.5 Where the signal from the switch is transmitted through wiring that moves due to door opening or closing, the design shall be such that any single ground or short circuit shall not render any hoistway door or car door interlock, or car door or gate electric contact, or hoistway door combination mechanical lock and electric contact ineffective or cause car movement.</p>		

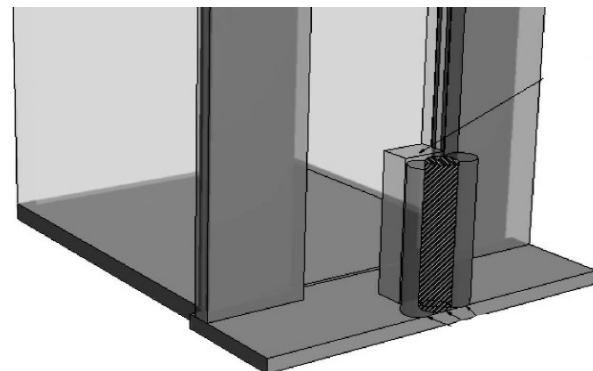
What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
50	2.12.7.2.1	2013	<p><b>Hoistway Access Switches - Location and Design</b> Revised in its entirety 2.12.7 Hoistway Access Switches ...</p> <p>The switch shall be labeled "ACCESS" and shall be a three-position switch, labeled "UP", "OFF", and "DOWN", (in that order), with the "OFF" position as the center position. The switch shall be rotated clockwise to go from the "UP", to "OFF" to "DOWN" positions.</p>	Clearly define requirements for switch labelling.	OEM design requirements. Can be field verifiable.
52	2.12.7.2.1	2019	<p>Revised The switch shall be labeled "ACCESS" and shall be a three-position switch, labeled "UP," "OFF," and "DOWN" (in that order), with the "OFF" position as the center position. The switch shall be rotated clockwise to go from the "UP" to "OFF" to "DOWN" positions.</p>	Rationale: To reinstate requirements from the 2013 edition of the code, which were inadvertently lost in the 2016 edition.	[OEM] design requirement. [I] Can be field verifiable.
50	2.12.7.2.3	2013	<p>2.12.7.2.3 The electric contacts in the switch shall be: a) use contacts that are positively opened mechanically; their openings shall not be solely dependent on springs or b) be SIL Rated with a SIL equal to or greater than the SIL indicated for the applicable device shown in Table 2.26.4.3.2.</p>	Include SIL language consistent with table 2.26.4.3.2	[OEM] design requirement
50	2.12.7.3	2013	<p><b>Hoistway Access Switches - Operating Requirements</b> Revised in its entirety</p>	Hoistway access control, operation and marking is clarified.	
50-52	2.12.7.3.3	2016	<p><b>Hoistway Access Operation</b> Subparagraphs (c) and (e) revised</p> <p>The movement of the car initiated and maintained by the access switch at the lowest landing, if this landing is the normal means of access to the pit, shall be limited in the up direction to the point where the bottom of the platform guard is even with hoistway entrance header. If the lowest landing is the normal means of access to the pit, the hoistway access switch shall enable the car to move in the up direction to a point between 2130 mm (84 in.) and 2450 mm (96 in.) from the floor level to the bottom of the platform guard, unless the travel of the car limits such movement.</p>	This clarifies the requirement that the hoistway access switch be able to raise the car high enough for elevator personnel to safely access and egress the pit unless the car is incapable of traveling to such an elevation	[OEM] [I] requirement for travel distance of car when hoistway access is used at the lowest landing

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

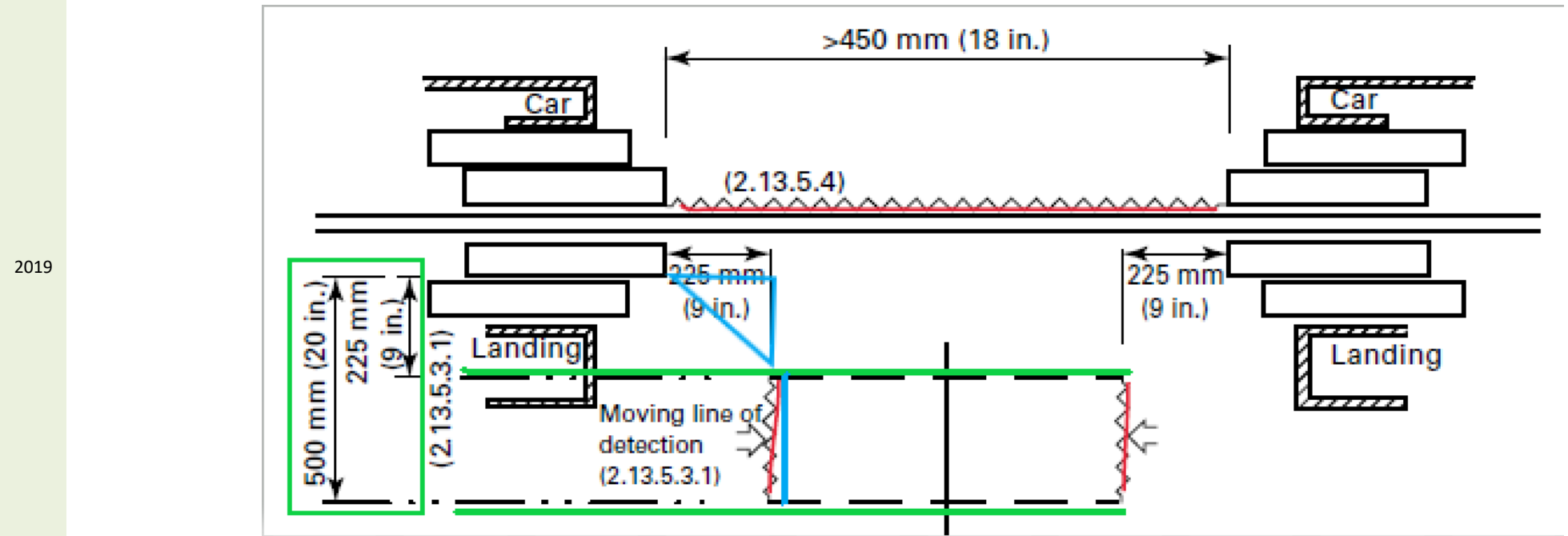
Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.13 Power Operation of Hoistway Doors And Car Doors</b>					
52	2.13.2.1.1	2013	<p><b>Power Opening of Car Doors or Gates</b> Revised Power opening shall occur only at the landing where the car is stopping, or is leveling, or at rest, and shall start only when the car is within the <del>landing</del> <b>unlocking</b> zone where an automatic car-leveling device is provided, except that on <b>freight</b> elevators with <b>vertically sliding doors</b> and static control, power shall not be applied to open car doors until the car is within 300 mm (12 in.) of the landing.</p>	<p>Rationale: Reconcile conflict between power opening and restricting opening, Appendix B.</p>	OEM design requirement
50-52	2.13.2.1.1	2016	<p>Revised Power opening shall occur only at the landing where the car is stopping, or is leveling, or at rest, and shall start only when the car is within the unlocking zone (see 2.12.1) ..</p>	<p>Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.</p>	<p>[OEM] [I] Pre-opening only when;  - car is stopped OR - in the NEW unlocking zone</p>
55	2.13.3.4.9	2013	<p><b>Power Closing of Vertical Sliding Hoistway Doors &amp; Vertical Sliding Car Doors or Gates</b> Revised After the door has reached its fully opened position and before door closing is initiated, the <b>device(s)</b> <del>detection means</del> used to comply with 2.13.3.4.5(a), (b) or (c), 2.13.3.4.6(c), (d), or (e), or 2.13.3.4.7(d), (e), (f), or (g), where applicable, shall be checked to assure that <del>it the device</del> is capable of sensing the defined objects and <b>sending</b> the appropriate signal <del>is sent</del> to the <del>operation</del> control <b>that initiates the starting, stopping, and direction of motion of the door(s)</b> (see 1.3). If the device(s) is incapable of sensing the defined object or sending the appropriate signal, power closing of the door(s) or gates(s) shall be rendered inoperative.</p>	<p>Rationale: Editorial clarifications: 1) Signal is to be sent to the control that initiates the starting, stopping, and direction of motion of the door(s). This control may or may not be included in the operation control portion of the control system. 2) The term "device(s)" agrees with language in referenced requirements. The term "detection means" does not. 3) Other grammatical corrections.</p>	editorial clarification of requirement
56	2.13.3.4.10	2016	<p>Subparagraphs (a) and (c) editorially revised (a) Continuous-pressure closing of the car door or gate and hoistway door <b>shall be</b> in compliance with 2.13.3.4.1. (c) Sequence operation <b>shall be</b> in compliance with 2.13.6.1.</p>		
57	2.13.3.4.10	2019	<p>Subparagraph (b) <b>Revised</b> A sign <b>complying with 8.13.2</b></p>	<p>Rationale: reference a new section <b>SECTION 8.13 SIGNS, PLATES, AND TAGS</b></p>	<p>[I] FYI [OEM] New section 8.13. To provide a location in code for reference to signage requirements</p>
58	2.13.4.2.4	2019	<p><b>Closing Mechanism - Data Plate</b> <b>Revised</b> 2.13.4.2.4 <del>Data</del> <b>Door Marking</b> Plate. A <b>marking</b> plate <b>complying with 8.13.3</b></p>	<p>Rationale: reference a new section 8.13. Door operator data plate now referred to as Door Marking Plate</p>	<p>[I] - fyi, Door operator data plate now referred to as Door Marking Plate</p>

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
58	2.13.5	2019	<p><b>Reopening Device(s) for Power-Operated Horizontally Sliding Doors and Gates</b>  <b>Revised</b> in its entirety</p> <p>2.13.5 Reopening Device(s) for Power-Operated Horizontally Sliding Doors and Gates</p> <p>Reopening device(s) for power-operated horizontally sliding doors or gates shall conform to the requirements of <b>2.13.5.1 through 2.13.5.6</b>. Where the term "door(s)" is used the requirement shall apply to "gate(s)" as well.</p> <p>2.13.5.1 <b>Where Required</b> and Function.</p> <p>2.13.5.2 <b>Rendering Inoperative</b></p> <p>2.13.5.3 <b>Detection of Approaching Objects.</b></p> <p>2.13.5.4 <b>Detection of Objects in the Door Path</b></p> <p>2.13.5.5 <b>Self-Monitoring of Detection Means</b></p> <p>2.13.5.6 <b>Maintenance and Onsite Testing of Detection Means</b></p>	<p>Rationale: The general language of 2.13.5 has been replaced by specific language that addresses all hazards.</p> <p>(a) <b>Detection means of approaching objects, generally is three-dimensional (3D) protection means, and</b></p> <p>(b) <b>detection means of objects in the door path generally is two-dimensional (2D) car door/gate mounted protection means.</b></p>	<p>[I] - New door protection via 3D approaching object detection.</p> <p>Approach door within defined times and observe that the door responds / reopens as required.</p> <p>Note: many specified requirements are design requirements - not inspection requirements.</p> <p>[OEM] req'mt to provide</p>
58	2.13.5	2019	<p><b>2.13.5.1 Where Required and Function.</b>  Where required by 2.13.4, ...</p> <p>(a) If an object has been detected in accordance with <b>2.13.5.3 &lt;Detection of Approaching Objects&gt;</b> or <b>2.13.5.4 &lt;Detection of Objects in the Door Path&gt;</b></p>	<p>from 2.13.4: the reopening device shall be designed and installed to conform to <b>2.13.5.</b></p>	<p>[I]: door reopening devices are now required to detect Approaching objects (3D type device) &amp; Objects in the door path (traditional)</p>
58	2.13.5	2019	<p><b>2.13.5.2 Rendering Inoperative</b></p>	<p>permitted when</p> <p>(A)(1) Kinetic Energy is reduced (both means can be turned off)</p> <p>(2) Approaching Object can turn off when</p> <p>(a) doors are 450mm (18") from close (Appx S-16)</p> <p><b>(b) after 20 s if not reset by the 2D detector (fyi-review code case)</b></p> <p>(3) 2D can turn off at 20mm from closed</p> <p>(B) detectors affected by smoke/flame, after 20s when PH 1 recall in effect</p> <p><b>TSSA will recognise Code Case 20-1017</b></p>	<p>Add CODE CASE information about revising 20s time out for (A)(2)(b)</p> <p><b>Code Case 20-1017</b></p> <p>It is the opinion of the committee that it is acceptable to render the approaching object detection means inoperative after 5 s without door path detection means being triggered.</p>
58	2.13.5	2019	<p><b>2.13.5.3 Detection of Approaching Objects.</b></p>	<p>3D requirement is to <b>detect a cylindrical target(s)</b> approaching the entrance opening of the landing-side doors as required by 2.13.5.3.1</p> <p><b>cylindrical target is 200 mm (8 in.) Dia., 1 000 mm (40in.) High. Flat black (absorb light) &amp; gloss white (reflect light)</b></p> <p>Moving point of detection is:</p> <ul style="list-style-type: none"> <li>- between 225 mm (9 in.) and 500 mm (20 in.) in front of the door and</li> <li>- 225 mm (9 in.) ahead of the leading edge [see appendix S-16]</li> </ul>	<p>[I]- refer to appendix S-16 for the area of detection.</p> <p>Note that the object detection is test requirement for the OEM to validate - it is not an expectation to validate this in the field by inspectors</p>



Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
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2019 **Green lines forms the two planes to define distance in front of doors where 3D detection should occur.**  
 Red line (2.13.5.4) is the 2D detector beam, Red line between the green planes is the moving line of object detection. The 3D detector must sense an object on the red line at some point on the red line - but not at all points on the red line.  
 The blue triangle establishes distance for how far in front of the doors, and how far in front of the leading edge the moving detection line must be.



58	2.13.5	2019	<b>2.13.5.4 Detection of Objects in the Door Path</b>	same as previous 2D requirements, but can be turned off 20mm from fully closed position	
58	2.13.5	2019	<b>2.13.5.5 Self-Monitoring of Detection Means</b>	<b>The system shall be designed to be self-monitoring.</b> After the door has reached its fully opened position and before door closing is initiated, the detection means shall be self-checked to verify the detection means is operational.	
58	2.13.5	2019	<b>2.13.5.6 Maintenance and Onsite Testing of Detection Means</b> The maintenance and method of on-site testing of the detection means shall be provided in the Maintenance Control Program on-site documentation (see 8.6.4.19.18).		[OEM] MCP Procedure  8.6.4.19.18 Door Reopening Device(s). The detection means of the door reopening device(s) shall be examined and tested to verify proper operation (Item 1.1.1).

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

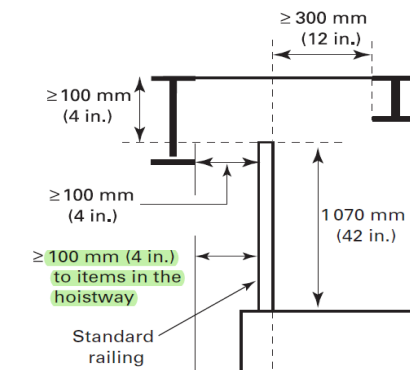
Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.14 Car Enclosures, Car Doors and Gates, and Car Illumination</b>					
60	2.14.2.1.2	2013	<b>Material for Car Enclosures, Enclosure Linings, and Floor Coverings</b> Subparagraphs (a) and (b) revised (2) smoke development <b>classification</b> of 0 to 450 (b) floor surfaces shall have a flame spread rating of 0 to 300, <b>with a smoke development classification of 0 to 450</b> , based on the test conducted in accordance with the requirements of CAN/ULC-S102.2	Rationale: Revised to coordinate with changes in the 2010 edition of NBCC.	Was adopted in CAD 2010. OEM design requirement. Confirmed on design submission.
60	2.14.2.1.2	2013	Subparagraph (c) deleted	Rationale: Revised to coordinate with changes in the 2010 edition of NBCC.	
64	2.14.5.7	2013	<b>Restricted Opening of Hoistway or Car Doors</b> Revised. Includes material from 2.12.5. <b>2.14.5.7 Restricted Opening of Car Doors.</b> <del>Hoistway and car</del> Car doors of passenger elevators shall <b>be provided with a car door interlock conforming to 2.14.4.2 or shall conform to 2.14.5.1 through 2.14.5.7.1</b> <del>2.12.5.3</del> <b>2.14.5.7.5.</b> <b>NOTE (2.14.5.7): See also 2.12.1 and Appendix B, Unlocking Zone.</b>	Rationale: Permitting the opening of car doors exposes passengers to hazards in the hoistway. A means to restrict the opening of car doors, or using a car door interlock, is the safest way to protect passengers from the hoistway hazards. Move requirements into the section pertaining to car doors since the revised requirements no longer pertain to hoistway doors. Note that the unlocking zone for passenger elevators has been reduced to 175mm (7") from previous 450mm (18")	New location in the code book for door restrictor requirement. (from 2.12 to 2.14)  Restricted opening is now only applicable for CAR DOORS. No longer applicable to the hoistway door.
64	2.14.5.7.1	2013	Revised from 2.15.5.1 When a car is outside the unlocking zone, the <del>hoistway doors or</del> car doors shall be so arranged that when <b>in the closed position they shall be restricted from opening</b> <del>hoistway doors or car doors</del> more than 100 mm (4 in.) from inside the car.	Rationale: Update and clarification to agree with requirements in 2.14.5.7.	[I] - restrictor and operation is field verifiable
64	2.14.5.7.2	2013	Revised from 2.12.5.2 <del>When the car doors are so arranged that they cannot be opened when the car is outside the unlocking zone, the</del> car doors shall be operable from outside the car without the use of a special tool(s).	Rationale: Update and clarification to agree with requirements in 2.14.5.7.	
64	2.14.5.7.3	2013	Revised from 2.12.5.3 <b>The doors shall be operable from within the car</b> (see 2.14.5.8 <del>7</del> ) when the car is within the unlocking zone, <b>except as specified in 2.14.5.7.4(b)(i).</b>	Rationale: Update to agree with requirements in 2.14.5.7.4(b) and re-numbered 2.14.5.8.	[I] Field confirmation that unlocking zone for passenger elevators is now 175mm (7") or less. Refer to Appendix B.

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
64	<u>2.14.5.7.4</u>	2013	<p><b>New - electrical power door restrictor</b>                      If the means used to restrict car door opening requires electrical power for its functioning, it shall comply with 2.14.5.7.4(a) through 2.14.5.7.4(d).                      (a) the means shall not use electrical power to maintain restricted opening of the car door in accordance with 2.14.5.7.1.                      (b) The means shall operate in accordance with 2.14.5.7.1 and 2.14.5.7.3 and the following:                      (i) an <b>alternate power</b> source shall be provided which shall permit the means to operate for <b>not less than one (1) hour</b> upon loss of normal power;                      (ii) the alternate power source shall be:                      (a) monitored and when it is detected that there is <b>insufficient capacity to operate</b> the means for not less than one(1) hour, <b>an audible signal</b> conforming to 2.14.5.7.4(d) shall operate, and;                      (b) provided with readily visible information that indicates the <b>expiration date of the alternate power source</b> in lettering not less than 5 mm (0.25 in.) high.                      (c) <b>on automatic operation, the portion of the means dependent on power shall be monitored</b> and when it is detected that it has <b>failed</b> to operate in accordance with 2.14.5.7.1, <b>an audible signal</b> conforming to 2.14.5.7.4(d) shall operate.                      (d) The audible signal required by 2.14.5.7.4(b)(ii)(a) or 2.14.5.7.4(c) shall be at least 10 dBA above ambient, not exceeding 80 dBA, measured inside the car.</p>	<p>Rationale:  <b>To add and clarify requirements for means to restrict door opening as a result of the use of new technology that requires electrical power.</b></p> <p>The portion of the means dependent on power would include the circuitry incorporated in the means, and a solenoid coil and plunger, where used, but not the mechanical portion of the means.</p> <p>The specification of one hour is sufficient time for the restricting means to initiate unrestricting in the unlocking zone. One hour is also sufficient in the case where power is required to initiate restriction, including when power is lost and the car is moving from inside the unlocking zone to outside the unlocking zone.</p> <p>The use of power to initiate but not maintain a function is permitted in the code. See 2.7.5.2.1(b)(6).</p>	<p>[OEM] [I] Electrical door restrictors permitted.</p> <p>allowance for electrical power operation of door restrictor.</p> <p>When present, confirm all requirements.</p> <p>- at normal power loss, electronic restrictor requires 1HOUR of power, and battery monitoring</p> <p>Failures to sound audible signal</p> <p>[Submitter] to provide testing procedure.</p>
64	<u>2.14.5.7.5</u>	2013	<p>The means to restrict door opening shall comply with 2.14.5.7.1 when subjected to a force of 1 000 N (225 lbf) applied in the opening direction of the door and at a location anywhere along the leading edge of the door.</p>	<p>Rationale:  <b>Require similar forces for means used to restrict car doors as those required for door interlocks in 8.3.3.4.8.</b></p>	<p>OEM design requirement for strength of door restrictor</p>
64	<u>2.14.5.8</u>	2013	<p><b>Manual Opening of Car Doors</b>                      2.14.5.7 renumber as 2.7.5.8 and revised:                      Car doors shall be so arranged that when the car is stopped within the unlocking zone (see <del>2.12.5.3</del> <b>2.14.5.7.3</b>) and power to the door operator is cut off, they and the mechanically related hoistway door, if any, shall be movable by hand from inside the car <b>except as specified in 2.14.5.7.4(b)(1)</b>. The force required at the edge of sliding doors to move them shall not exceed 330 N (75 lbf).</p>	<p>Rationale:                      Update to agree with requirements in 2.14.5.7.4(b).</p>	
64	<u>2.14.5.8</u>	2013	<p>Original 2.14.5.8 through 2.14.5.9.4 redesignated as 2.14.5.9 through 2.14.5.10.4, respectively</p>		



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58, 59	2.14.1.5.1	2016	<p><b>Top Emergency Exits</b> Subparagraphs (e) and (f) revised (e) Where elevators installed in enclosed hoistways are provided with special car top treatments such as domed or shrouded canopies, the exit shall be made accessible, including the car top refuge space as specified in 2.4.12 (f). <b>2.14.1.5.1(f)</b> (f) Immediately adjacent to the top emergency exit there shall be a space available for standing when the emergency exit cover is open. This space shall be permitted to include a portion of the refuge area (see 2.4.12). area required in 2.14.1.6.2.</p>	<p>car top refuge space term removed as no longer used for car tops</p> <p>Rationale: Refuge space is no longer specified in the code when on top of the car for new elevators. A space adjacent to emergency exit is required on car top treatments such as domed or shrouded canopies for two persons to stand.</p>	<p>fyi - revised terminology</p> <p>the term refuge space is no longer used for car tops</p> <p>(the term remains for pits)</p>
58, 59	2.14.1.7.1	2016	<p><b>Railing and Equipment on Car Enclosure Top</b> First sentence revised A standard railing conforming to 2.10.2 shall be provided on the outside perimeter of the car enclosure top, on all sides where <b>a 300 mm (12 in.) ball can pass</b> the perpendicular distance between the edges of the car enclosure top and the adjacent hoistway enclosure <del>exceeds 300 mm (12 in.) horizontal clearance</del> and on sides where there is no hoistway enclosure. If clearances require (see 2.14.1.7.2) the standard railing to be located more than 100 mm (4 in.) from the edge of the outside perimeter of the car enclosure top, the top of the car enclosure outside of the railing shall be clearly marked. The marking shall consist of alternating 100 mm (4 in.) diagonal red and white stripes. The forces specified in 2.10.2.4 shall not deflect the railing beyond the perimeter of the car top.</p>	<p>where perpendicular distance from working platform to wall exceeds 300mm, is now revised.</p> <p><b>Gap now to resist 300mm diameter ball</b></p> <p>Rationale: The current requirements would require a railing in a situation where there is a horizontal clearance of 12 in. (300 mm) between the working platform or car enclosure top and the hoistway enclosure which is only 1 in. wide or wide enough to fit a ruler, tape measure or laser. The intent of the requirement is to protect against fall hazards. Anthropometric data from A17.1/B44.7 Appendix C shows the body thickness to be 342 mm, so a 300mm circular space in all orientations as defined by a 300 mm (12 in.) sphere would be small enough to provide protection from the fall hazard.</p>	<p>[I] - inspector can better address hazards and whether guarding is required or not.</p> <p>Better clarification to help identify fall hazard.</p> <p>Repeated from working platforms in 2.7</p>
58, 59	2.14.1.7.2	2016	<p>Revised <del>When the car has reached its maximum upward movement (2.4.6.1), the following</del> minimum clearances shall be provided from the top rail <b>and intermediate rail</b> of the standard railing, <b>as specified in 2.10.2</b>, to the building structure or elevator equipment <b>in relative motion to the standard railing not attached to the car:</b> <b>(a) when the car has reached its maximum upward movement (2.4.6.1):</b> <b>(a) 100 mm (4 in.) vertically</b> <b>(2) 300 mm (12 in.) horizontally towards the centerline of the car enclosure top</b> <b>(b) throughout the hoistway, (b) 100 mm (4 in.) horizontally in the direction towards the hoistway enclosure,.</b> <del>(c) 300 mm (12 in.) horizontally towards the centerline of the car enclosure top.</del> NOTE: (2.14.1.7.2): See Nonmandatory Appendix G.</p>	<p><b>Top and Mid rail handrail running clearances shall be 100mm (4 in.) throughout the hoistway</b></p> <p>Rationale: Revised to ensure protection of elevator personnel against shearing hazards throughout the hoistway between the top rail and intermediate rail of the standard railing and fixed equipment passed or approached by the standard railing as the car moves throughout the hoistway</p>	<p>[I]- Running clearance dimension field verifiable at inspection</p> <p>Note, only top and intermediate rails are referenced.</p> <p>Posts and toe boards not referenced.</p>



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
62	2.14.4.2.4	2016	<p><b>Door and Gate Electric Contacts and Door Interlocks</b>                      Subparagraphs (a) and (b) revised                      Car door interlocks shall                      (a) prevent operation of the driving machine when the car door is not in the closed and locked position, except                      (1) when the car is within the unlocking zone (see 2.12.1), for that entrance                      (2) under the conditions specified in 2.14.4.2.3(a)                      (b) prevent opening of the car door from within the car, except when the car is in the unlocking zone (see 2.12.1), for that entrance</p>	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
64	2.14.5.7	2016	<p><b>Restricted Opening of Car Doors</b>                      Phrasing corrected by errata</p>		
64	2.14.5.7.1	2016	<p>Revised                      When a car is outside the unlocking zone (see 2.12.1), the car doors shall be so arranged that when in the closed position they shall be restricted from opening more than 100 mm (4 in.) from inside the car.</p>	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
64	2.14.5.7.3	2016	<p>Revised                      The doors shall be openable from within the car (see 2.14.5.8) when the car is within the unlocking zone (see 2.12.1), except as specified in 2.14.5.7.4(b)(1).</p>	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
64	2.14.5.7.4	2016	In subpara. (b)(2)(-a), "sufficient" corrected by errata to "insufficient"		
64	2.14.5.8	2016	<p><b>Manual Opening of Car Doors</b>                      First sentence revised                      Car doors shall be so arranged that when the car is stopped within the unlocking zone (see 2.12.1 and 2.14.5.7.3) and power to the door operator is cut off, they and the mechanically related hoistway door, if any, shall be movable by hand from inside the car except as specified in 2.14.5.7.4(b)(1).                      The force required at the edge of sliding doors to move them shall not exceed 330 N (75 lbf).</p>	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
65, 66	2.14.5.10	2016	<p><b>Folding Car Doors</b>                      Revised and redesignated as 2.14.6.4</p>	folding car doors moved to freight only section	folding car door requirements moved to the freight section only
65, 66	2.14.6.1.1	2016	<p><b>Freight Elevator Car Doors and Gates - Type of Gates</b>                      Revised                      For elevators designed for Class A loading (see 2.16.2.2), car gates shall be the vertically sliding type (see 2.14.6.2), the horizontally sliding collapsible type (see 2.14.6.3), or a car door of the folding type (see 2.14.5.9 2.14.6.4).</p>	folding car door reference corrected	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
65, 66	2.14.6.4	2016	<p><b>Folding Car Doors</b> Former 2.14.5.10 revised and redesignated as 2.14.6.4</p> <p><b>2.14.6.4</b> 2.14.6.4.1 Folding car doors shall conform to 2.14.4 except paras. 2.14.4.4, 2.14.4.7, and 2.14.4.9. They shall also conform to all of 2.14.5 except paras. 2.14.5.3, 2.14.5.6.2, 2.14.5.8, and 2.14.5.9. 2.14.6.4.2 The effort needed to prevent a folding car door from closing shall conform to 2.13.4.2.3. 2.14.6.4.3 Folding car doors shall not be power opened to a distance exceeding one-third of the clear opening, and in no case shall the distance be more than 250 mm (10 in.). 2.14.6.4.4 Handles of manually operated folding car doors nearest the car operating device on elevators operated from the car only shall be so located that the nearest handle is not more than 1 220 mm (48 in.) from the car operating device when the folding door is closed, and between 1 220 mm (48 in.) and 380 mm (15 in.) above the car floor.</p>	<p><b>folding car doors moved to freight only section</b> RATIONALE: <b>Folding doors are prohibited for passenger elevators (see 2.14.5.2.) for new installations. Folding car doors are permitted for freight elevators (see 2.14.6).</b> The original intent of adding folding car door requirements 2.14.5 was for the replacement of existing folding car doors. However, replacement criteria does not belong in Part 2, but belongs in 8.6. The proposed 8.6.3.15 is based on approved TN 06-431. The original intent was for the replacement of folding car doors. It has been renumbered because A17.1-2013 already has an 8.6.3.13. 2.14.4.6 (Strength of Doors, Gates, and Their Guides, Guide Shoes, Tracks, and Hangers) applies to both passenger elevators and freight elevators.</p>	<p>[I][E] - folding car doors are not permitted on passenger elevators. Folding car doors are permitted on freight elevators.</p>
61	2.14.1.5.1	2019	<p><b>Top Emergency Exits</b> Subparagraph (c) Revised ...The exit cover shall be openable from the top of the car, without the use of special tools, <b>and shall be permitted to be openable from within the car by means of a keyed spring-return cylinder-type lock having not less than a five-pin or five disk combination. This key shall be Group 1 Security (see Section 8.1).</b></p>	<p>Rationale: Under certain conditions the equipment may need to be accessed from the car-top but the car is unable to move below the top landing, therefore access could only be through the top emergency exit from inside the car. This proposal <b>allows the top emergency exit to be utilized from inside the car in conformance with the existing locking requirements in 8.4.4.1.</b></p>	<p>[OEM] Allowance for emergency exit to be openable from within the car via appropriate key and security grouping. REQ'D if Seismic.</p>
63	2.14.2.2	2019	<p><b>Openings Prohibited</b> Subparagraph (g)(4) Revised (g) equipment access panels for maintenance and inspection of equipment shall... (4) be provided with <del>electric contacts</del> <b>door or gate closed detection means</b> that conform to</p>	<p>Rationale: Include new wording for closed detection means</p>	
63	2.14.2.3.3	2019	<p><b>Ventilation</b> Subparagraph (b) and Note Revised</p>	<p>Rationale: Revise text to be consistent with the new definition for auxiliary power supply and emergency or standby power.</p>	
64	2.14.4.2	2019	<p><b>Car Door and Gate Closed Detection Means and Car Door Interlocks</b> (1) Title Revised 2.14.4.2 Car Door and Gate <b>Closed Detection Means</b> and Car Door Interlocks</p>	<p>Rationale: Include new wording for closed detection means and to be specific about car doors.</p>	
		2019	(2) Paragraph 2.14.4.2.1 Revised	<p>Allow requirements for the detection means that a) <b>use contacts</b> to detect the closed position, <b>or</b> b) using <b>SIL rated devices</b> to detect the closed position</p>	<p>[E][I] - Door or gate closed detection means are permitted to be SIL devices.</p>
		2019	(3) Paragraph 2.14.4.2.3 Revised		
		2019	(4) Paragraphs 2.14.4.2.4 and 2.14.4.2.5 added and following paragraphs redesignated		
		2019	2.14.4.2.5 Car door and gate closed detection means using SIL rated devices to detect the closed position of the car door or gate shall...		
2019	(5) Paragraph 2.14.4.2.6 (formerly 2.14.4.2.4) Revised				
2019	(6) Paragraph 2.14.4.2.7 (formerly 2.14.4.2.5) Revised				

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
66	2.14.4.11	2019	<b>Closed Position of Car Doors or Gates</b> Subparagraphs (a) and (c) <b>Revised</b>	Change the dimension when doors are considered closed, from 10mm between leading edges to 30mm. No increased risk as human forearm will not fit through 30mm.  Since passengers will be unable to defeat the lock at 30 mm of openability, reducing the openability to 10mm does not increase the safety.	[E] [I] - Dimension for 'closed' door is changed from 10mm to 30mm. Allow motion as interlocking mechanisms open or close.
67	2.14.5.7	2019	<b>Restricted Opening of Car Doors</b> <b>Revised</b>	Rationale: To clarify that the reference to 2.14.5.7 applies to car door restrictors, not car door interlocks.	
67	2.14.5.7.5	2019	<b>Revised</b> 2.14.5.7.5 Strength. The means to restrict door opening shall comply with 2.14.5.7.1 when subjected to <b>the following static forces:</b> <b>(a) a force of 1 000 N (225 lbf) 135 N (30 lbf)</b> applied in the opening direction of the door and at a location anywhere along the leading edge of the door. <b>(b) 1 000 N (225 lbf) force applied over a period of 300 s with the force increasing incrementally, applied in the opening direction of the door and at a location as near to the restricting means as possible, but not to exceed 300 mm (12 in.).</b>	Rationale: Require similar forces for means used to restrict car doors as those required for door interlocks in 8.3.3.4.8. It was considered necessary to have the restricting device provide equivalent protection to an interlock. However, this failed to consider that when this force is exerted at the bottom of the door panels, particularly tall doors (8 - 9 ft.), the door panels will pivot, allowing a gap greater than the required 4 in. The new requirement should have been the same as the existing requirements for not only interlocks in 8.3.3.4.8, but also hoistway landing doors.	[OEM] Door restrictors to meet strength requirements similar to interlocks
67	2.14.5.7.6	2019	<b>Added</b> 2.14.5.7.6 Each type and make of car door restrictor shall be tested as follows: <b>(a) Each type and make of car door restrictor shall conform to the engineering tests specified in 8.3.14.</b> <b>(b) The test shall be performed at either the manufacturer's facility or at a testing laboratory.</b>	Rationale: It has been reported that some restrictors malfunction and do not lock properly. Adding requirements for engineering tests and a static test of car door restrictors with moving parts is similar to applicable requirements for car and hoistway door interlocks and will increase their robustness and reliability. <b>see 8.3.14 Engineering Tests of Car Door Restrictors</b>	[OEM] Add factory test requirements for car door restrictors to ensure reliability. 960K cycles
69	2.14.7.1.3	2019	<b>Illumination and Outlets Required</b> Subparagraph (g) <b>Revised</b> change device to devices		

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.15 Car Frames and Platforms</b>					
66	2.15.2	2013	<p><b>Guiding Members Means</b>                      2.15.2.1 Car frames shall be guided on each guide rail by upper and lower guiding members attached to the frame. <del>Retention means shall be provided to prevent the car from being displaced by more than 13 mm (0.5 in.) from its normal running position should any part of the guiding means fail, excluding the guiding member base and its attachment to the frame. The retention means shall be permitted to be integral with the base.</del> Guiding means shall be designed to withstand the forces imposed during normal operation of the elevator, loading and unloading, emergency stopping, and the application of safeties.</p> <p>2.15.2.2 Means shall be provided to prevent the car from being displaced by more than 13 mm (0.5 in.) from its normal running position.                      This protection shall be provided by either:                      (a) a guiding means wherein no failure or wear of the guiding member shall allow the car to be displaced more than 13 mm (0.5 in.) from its normal running position; or                      (b) a retention means which shall be permitted to be integral with the guiding means.</p> <p>2.15.2.3 <b>All components of the means required to limit displacement in accordance with 2.15.2.2 shall have minimum factor of safety of 5.</b></p>	<p>Rationale:                      The proposed change improves the safety of the guiding means by requiring a minimum factor of safety while eliminating language that is overly prescriptive. To prevent displacements greater than 13 mm (0.5 in.) which could occur on sliding members when gibs are lost or on roller guides when a roller fails.</p>	<p>[I] - Requirement for Auxiliary retaining means rewritten.   <u>Auxiliary retainers no longer required</u> - however factor of safety of retention means not to be less than 5.</p>
68	2.15.9.2	2013	<p><b>Platform Guards (Aprons)</b>                      First paragraph and subpara. (b) revised:                       The guard plate shall have a straight vertical face, extending below the floor surface of the platform. <b>A horizontal door guiding groove is permitted below the floor surface for door operating devices, door guiding devices, and door retaining devices in accordance with 2.15.9.5.</b> The guard plate shall conform to one of the following:                       (b) where the elevator is not required to conform to 2.19.2.2(b) the depth of the leveling zone or truck zone, where provided, plus 75 mm (3 in.), but in no case less than 525 mm (21 in.) <del>from the floor surface.</del></p>	<p>Rationale:                      To have requirements for platform guards that are consistent with landing sill guards</p>	<p>[OEM] Permission.                      [I] fyi.                      Car apron may have groove to allow guiding means. (eg freedom sill)</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.15.9.5	2013	<p>Added:                      A horizontal door guiding groove with a maximum width of 10 mm (0.375 in.) shall be permitted at the transition of the Car Sill Guard and the Car Sill, in accordance with the following requirements,                      (a) door power pre-opening in accordance with requirement 2.13.2.2.2 shall not be permitted,                      (b) <b>leveling/re-leveling shall be initiated before vertical exposure of the groove is revealed, and</b>                      (c) where exposure to the gap is revealed the car shall not re-level with open doors and                      (d) edges forming the gap shall be configured to prevent hazards</p>	<p>Rationale:                      To have requirements for platform guards that are consistent with landing sill guards</p>	<p>[OEM] design permission for car sills without grooves                       no relevel permitted if groove is revealed.</p>
70	2.15.16.1	2013	<p><b>Hinged Platform Sills</b>                      Revised in its entirety:                      Hinged platform sills shall be provided with electric contacts conforming to <del>2.12.5</del> the following requirements that will prevent operation of the elevator by the normal operating device unless the hinged sill is within 50 mm (2 in.) of its fully retracted position, provided that when in this position, the sill does not reduce the clearance specified in 2.5.1.4. The electric contacts shall:                      (a) be positively opened by a lever or other device attached to and operated by the hinged platform sill.                      (b) be maintained in the open position by the action of gravity or by a restrained compression spring, or by both, or by positive mechanical means                      (c) be so designed or located that they shall not be accessible from within the car                      (d) not utilize mercury tube switches</p>	<p>Rationale:                      The present reference to 2.12.5 in requirement 2.15.16.1 is incorrect. While this proposal contains no technical change to electric contact requirements when a hinged platform sill is provided, the requirements are clearer when wholly contained in requirement 2.15.16.1. Previously, the rule created confusion by referencing electric contacts applicable to car doors or gates, or to the requirements for mechanical locks and contacts.</p>	<p>OEM design requirement</p>
68	2.15.6.3	2016	<p><b>Steels of Other Strength</b>                      Revised                      Requirements for Metals Other Than Steel.                      provided the metal used has the essential properties to meet all the requirements for the purpose in accordance with <del>good</del> sound engineering practice, and provided the stresses and deflections conform to 2.15.10 and 2.15.11, respectively.</p>	<p>revise good engineering practice to sound engineering</p>	
68	2.15.7.2	2016	<p><b>Connection Between Car Frame and Platform</b>                      Revised                      2.15.7.2 Connection Between Car Frame and Platform.                      The attachment of the platform to the car frame shall be done in accordance with <del>good</del> sound engineering practice and shall develop the required strength to transmit the forces safely from the platform to the car frame in accordance with 2.15.10. Bolts, nuts, and welding, where used, shall conform to 2.15.7.3.</p>	<p>revise good engineering practice to sound engineering</p>	

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.16 Capacity and Loading</b>					
70	2.16.1.1	2013	<p><b>Minimum Load Permitted</b> Editorially revised: Minimum Load Permitted. The rated load in kg (lb) for passenger elevators shall be based on the inside net platform area, and shall be not less than shown by Fig. 8.2.1.2 (see Nonmandatory Appendix D <del>and 2.26.11</del>).</p>	<p>Rationale: To delete an incorrect reference.</p>	
72	2.16.3.3	2013	<p>Revised in its entirety:</p> <p><b>Material and Marking of Plates.</b> <del>Plates shall be of such material and construction that the letters and figures stamped, etched, cast, or otherwise applied to the faces shall remain permanently and readily legible. The height of the letters and figures shall be not less than</del> <del>(a) 6 mm (0.25 in.) for passenger elevator capacity plates</del> <del>(b) 25 mm (1 in.) for freight elevator capacity plates</del> <del>(c) 3 mm (0.125 in.) for data plates</del> 2.16.3.3.1 Permanent data plates and marking plates shall be metal or durable plastic with 1.6 mm (0.063 in) minimum thickness. 2.16.3.3.2 The plates shall be securely fastened to prevent removal by hand when subjected to a force of 67 N (15 lb) in any direction. 2.16.3.3.3 All code required data shall be formed such that the characters remain permanently and readily legible and conform to the following: (a) The height of the letters and figures shall be not less than (i) 6 mm (0.25 in.) for passenger elevator capacity plates (ii) 25 mm (1 in.) for freight elevator capacity plates <del>(iii) 3 mm (0.125 in.) for data plates</del></p>	<p>Rationale: Revise wording to conform to the wording from the Ad Hoc Signage Committee</p> <p>&lt;--- NOTE: Completely revised in 2019 CODE</p>	<p>[OEM]</p> <p>Permanent Data Plates &amp; Marking Plates</p> <p>Affects - Data Plates (XHEAD Data Plate) - in car Capacity plates - counterweight runby plate - door operator data plate - governor &amp; hoist rope tags</p>
	2.16.4	2013	<p>Editorially revised: <b>Carrying of Passengers on Freight Elevators</b> Freight elevators conforming to 2.16.4.1 through 2.16.4.9<del>8</del> shall be permitted to carry passengers.</p>		
	2.16.4.7	2013	<p>Deleted, and original 2.16.4.8 and 2.16.4.9 redesignated as 2.16.4.7 and 2.16.4.8, respectively</p>	<p>With the re-numbering of 2.12.5 to 2.14.5.7, this requirement is covered by 2.16.4.5.</p>	
73	2.16.5.2	2013	<p><b>Material and Marking of Signs</b> Revised <del>Material and marking of signs shall conform to 2.16.3.3, The sign shall conform to the requirements of ANSI Z535.4 or CAN/CSA-Z321 (see Part 9), except that the letters shall be not less than 13mm (0.5 in.) high. The sign shall be made of a durable material and shall be securely fastened.</del></p>	<p>Revise wording to conform to the wording from the Ad Hoc Signage Committee</p>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
75	2.16.3.1	2019	<b>Plates Required and Locations</b> Revised	Rationale: Reference data plate, marking plate requirements that moved to 8.13.1	[OEM] [I] A new section has been created to group signs, plate and tag requirements, rather than each section of code explain what the sign should look like. SECTION 8.13 SIGNS, PLATES, AND TAGS
76	2.16.3.2.2	2019	<b>Information Required on Plates</b> Subparagraph (f) added 2.16.3.2.2 Data plates shall indicate <b>(f) the percent counterweight overbalance range (see 2.24.2.3.5)</b>	Add a requirement to provide a <b>data plate to indicate the designed percent counterweight overbalance range</b> that is used to satisfy the requirements of 2.24.2.3.	[OEM] [E] [I] important change to Data Plate  New requirement to display % cwt overbalance
76	2.16.3.3	2019	<b>Material and Marking of Permanent Plates</b> Revised in its entirety 2.16.3.3 Material and Marking of <b>Permanent</b> Plates. Plates shall <b>comply with 8.13.1.</b>	Rationale: Reference marking plate requirements that moved to 8.13.1	marking plate requirements moved to 8.13.1
76	2.16.5.1	2019	<b>Signs Required in Freight Elevator Cars - Signs Required</b> Revised Signs Required. Signs <b>complying with 8.13.2</b> , in addition to the capacity and data plates required by 2.16.3.1,...	Rationale: Sign requirements that moved to 8.13.	
76	2.16.5.2	2019	<b>Material and Marking of Signs</b> Revised Signs <b>shall conform to 8.13.2</b> , and the letters shall be not less than 13 mm (0.5 in.) high.		
77	2.16.7.5	2019	<b>Carrying of One-Piece Loads Exceeding the Rated Load</b> Revised A special capacity plate complying with 8.13.1 shall be provided inside the elevator car...	Rationale: Reference capacity plate requirements that moved to 8.13.1	



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.17 Car and Counterweight Safeties</b>					
79	Table 2.17.3	2019	<b>Function and Stopping Distance of Safeties</b> Title Revised Table 2.17.3 Maximum and Minimum Stopping Distances for Type B Car Safeties with Rated Load <b>at Maximum Car Governor Tripping speed and Type-B Counterweight Safeties</b>	Rationale: for change title of table 2.17.3: The counterweight governor is allowed to trip up to 10 percent higher than that car governor. Therefore this table is not correct for counterweight safeties.	[E][I] - Table 2.17.3 should not be referenced when assessing COUNTERWEIGHT Safety stopping distance, therefore title was revised
81	2.17.14	2019	<b>Marking Plates for Safeties</b> Introductory sentence Revised 2.17.14 Marking Plates for Safeties A marking plate complying with 8.13.3...	Rationale: Reference marking plate requirements that moved to 8.13.3	marking plate requirements moved to 8.13.1
81	2.17.16	2019	<b>Rail Lubricants and Lubrication Plate</b> Second paragraph Revised 2.17.16 Rail Lubricants and Lubrication Plate		
<b>2.18 Speed Governors</b>					
78	2.18.4.1.2	2013	<b>Speed Governor Overspeed Switch - Where Required and Function</b> Revised The switches required in 2.18.4.1.1 shall be <b>positively opened</b> and operated by the overspeed action of the governor, except that the counterweight governor switch shall be permitted to be operated upon activation of the counterweight governor-rope retarding means (see 2.18.6.1).	Rationale: Moving the requirement for this switch to be positively opened from 2.18.4.4, which is being eliminated in this proposal.	Requirement was relocated in the code. [OEM] [I] Overspeed switch is positively opened. Speed reducing switch does not need to be. Can be field verifiable.
	2.18.4.1.3	2013	Added The switches required in 2.18.4.1.1 shall remain in the open position <b>until manually reset.</b> <b>NOTE: Manual reset includes means such as a finger, hand or cable-actuated lever, cam, etc., or some form of electromechanical actuation from the location of elevator controllers located outside the hoistway or the enclosure as specified in 2.7.6.5.</b>	Rationale: Moving the requirement for this switch to be of the manual reset type from 2.18.4.4, which is being eliminated in this proposal.  Clarify manual reset.	[OEM] [I] Manual reset is required.  Clarify manual reset.
79	2.18.4.2.5	2013	<b>Setting of Car Speed Governor Overspeed Switches</b> Subparagraph (a) revised (a) A speed-reducing switch <del>of the manually reset type</del> <b>conforming to 2.18.4.1.3</b> is provided on the governor, that will reduce the speed of the elevator in case of overspeed, and that shall be set to open as specified in 2.18.4.2.1, 2.18.4.2.2, or 2.18.4.2.3.	Rationale: Referencing the new requirement for the switch to be of the manually reset type, which also contains the note explaining manual reset.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
80	2.18.4.4	2013	Deleted	<p>Rationale: The speed-governor speed-reducing switch is not an EPD, as it is not listed in 2.26.2. However, it is being treated like an EPD in 2.18.4.4 by requiring it to be a positively-opened switch, though there doesn't appear to be a valid reason for doing so. In today's controllers, this switch is likely to feed a simple software input that will cause the controller to reduce its speed and stop at the next available floor. If it fails to do so and the car reaches 100% of the governor trip speed, the positively opened speed-governor overspeed switch is still there to remove power from the driving-machine motor and brake.</p> <p>The requirement for the speed-governor overspeed switches to be of the manually reset type should be addressed in the area where general requirements for this switch are listed. The requirement for the speed-governor speed-reducing switch to be of the manually reset type is already addressed in 2.18.4.2.5(a), so there's no need to repeat it here.</p>	
79	Table 2.18.2.1	2016	Under "SI Units," first two entries in third column revised	SI values corrected	
80	2.18.5.3	2016	Last paragraph revised	update a cross reference from 2.16.3.3 to 2.16.3.3.3	
80	2.18.6.2	2016	<p><b>Design of Governor-Rope Retarding Means for Type B Safeties</b></p> <p>Last sentence revised</p> <p>2.18.6.2 The means shall be set to allow the governor rope to slip through the speed governor at a rope tension (the governor pull-through tension) higher than required to activate the safety or to trip the releasing carrier as specified in 2.17.15. <del>The maximum tension in the rope shall not exceed one-fifth of the rated ultimate strength of the rope.</del> <b>The factors of safety of the rope shall not be less than those required by 2.18.5.1.</b></p>	<p>update to governor rope factor of safety</p> <p>2.18.5.1 ... <b>The factor of safety of governor ropes shall be not less than 5. Where provided, ropes of a diameter less than 9.5 mm (0.375 in.) shall have a factor of safety of not less than 8...</b></p>	[OEM] [E] - change to governor rope Fs
83	2.18.5.3	2019	Paragraph following (h) Revised	Rationale: Reference tag / marking plate requirements that moved to 8.13.3	
85	2.18.9	2019	Introductory sentence Revised		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.19 Ascending Car Overspeed and Unintended Car Movement Protection</b>					
85	2.19.2.1	2019	<b>Unintended Car Movement Protection - Purpose</b> Introductory sentence and subpara. (a) <b>Revised</b> (a) electric driving-machine motor, brake, coupling, <b>gear</b> -shaft, or gearing	Clarify UCM required to address <b>gear shaft failure</b> .	clarification [OEM]
82	2.19.2.2	2013	<b>Unintended Car Movement Protection - Where Required and Function</b> Subparagraph (a)(1)(b) editorially revised (b) the occurrence of a single ground, or the failure of any mechanically operated switch that does not meet the requirements of 2.26.4.3.1, any single magnetically operated switch, contactor, or relay, or any single solid-state device, or <b>a failure of a software system failure not conforming to 2.26.4.3.2</b> , shall not render the detection means inoperative	Clarification of software system.	[E] - clarification of a failure mode OEM design requirement
82	2.19.3.1.3	2013	<b>Emergency Brake (See Nonmandatory Appendix F) - Where Required</b> Added: <b>When required by 2.25.4.1.1 to reduce the car and counterweight speed such that the rated buffer striking speed is not exceeded, an emergency brake (see 1.3) conforming to 2.19.3.2 shall be provided.</b>	The prohibition against the activation of the car safety by the emergency terminal speed limiting device was removed since if it is permissible to use a car or counterweight safety to provided ascending car overspeed protection or unintended movement protection then they should also be permitted to be used to prevent the car from striking a reduced stroke buffer above its rating. Also note the requirement for the retardation not in excess of 1g still applies.	[OEM] design requirement. Confirm emergency brake is provided when reduced stroke buffer is used. Confirm activation of ebrake, as required via a [Submitter] supplied testing procedure.
82	2.19.3.1.4	2013	Redesignated from former 2.19.3.1.3 and revised: A single device shall be permitted to meet the requirements of <del>both</del> 2.19.3.1.1, <del>and</del> 2.19.3.1.2, <b>and 2.19.3.1.3</b> or separate devices shall be provided.		OEM design requirement
82	2.19.3.2	2013	<b>Emergency Brake (See Nonmandatory Appendix F) - Requirements</b> Subparagraphs (b), (c), and (d) revised: (b) be <b>mechanically</b> independent of the driving-machine brake ( <b>see also 2.19.3.2(a)(5)</b> ). (c) not be used to provide, or assist in providing, the stopping of the car when on automatic operation, unless applied as required in 2.19.1, <del>and</del> 2.19.2, <b>and 2.25.4.1.1</b> or as permitted in 2.19.3.2(e) and (f) (d) be permitted to be applied only after the car is stopped when on automatic operation, except as required in 2.19.1, <del>and</del> 2.19.2 <b>and 2.25.4.1.1</b>	<b>Emergency brake to be mechanically independent</b>	[OEM] design requirement / permission

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
86	2.19.3.2	2019	Subparagraphs (a)(5), (i)(1), (i)(2), and (k) <b>Revised</b> (5) brake drum or braking surface of the driving-machine brake, provided that <b>one</b> or more of the following are met: (-a) the driving-machine brake surface is integral (cast or welded) with <b>the driving machine sheave.</b> (-b) <b>the driving-machine brake surface is</b> directly attached to the driving machine sheave. (-c) <b>the driving-machine brake acts directly on the driving machine sheave or sheave shaft and is fully constrained mechanically in the direction of application of the braking torque such that the braking torque is transmitted to the driving sheave.</b>	<b>Clarify on which surfaces e-brakes are permitted to apply on</b> - better define driving machine brake surface	[OEM] design requirement / permission
87	2.19.3.3	2019	<b>Marking Plate Requirements</b> <b>Revised</b>	Rationale: Reference <b>marking plate requirements that moved to 8.13.3</b>	[OEM]

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.20 Suspension Means and Their Connections</b>					
84	2.20.3	2013	<b>Factor of Safety</b> Nomenclature for N editorially revised		
85, 86	<u>2.20.8.1</u>	2013	<b>Protection Against Traction Loss</b> First paragraph: 8.6.1.2.1( <del>gf</del> )	Reference revised	
85, 86	<u>2.20.8.1</u>	2013	Subparagraph (d)(2): [see 8.6.1.2.1( <del>gf</del> ) and 8.6.11.1011]	References revised	
85, 86	<u>2.20.8.2</u>	2013	<b>Broken Suspension Member</b> Subparagraph (c): [see 8.6.1.2.1( <del>gf</del> )]	References revised	
85, 86	<u>2.20.8.3</u>	2013	<b>Suspension-Member Residual Strength</b> subparagraph (c): [see 8.6.1.2.1( <del>gf</del> )]	References revised	
88	2.20.9.6.2	2013	<b>Thermosetting Resin Composition</b> Subparagraph (c)(1)(m) editorially revised	Revised code book title	
84-86	2.20.2.2.1	2016	<b>Data Tag at Suspension Means Fastening</b> Subparagraph (d) revised	update a cross reference	
84-86	2.20.3	2016	<b>Factor of Safety</b> Second paragraph revised	revise good engineering practice to sound engineering	
84-86	<u>2.20.8.1</u>	2016	<b>Protection Against Traction Loss</b> First paragraph and subparas. (d)(2) and (f) revised <b>2.20.8.1 Protection Against Traction Loss.</b> All electric traction elevators shall be provided with a traction loss detection means to detect loss of traction between suspension members and the drive sheave [see <del>8.6.1.2.1(f)</del> <b>8.6.1.2.2(b)(5)</b> ]. This means shall .... (d) once actuated by traction loss, comply with the following: (1) The traction-loss detection means shall remain actuated until manually reset. (2) The car shall not start or run unless the traction loss detection means is manually reset [see <del>8.6.1.2.1(f)</del> <b>8.6.1.2.2(b)(5)</b> and 8.6.11.11]. .... (f) be included in the <del>Maintenance Control Program</del> <b>On-Site Documentation</b> [see <del>8.6.1.2.1(f)</del> <b>8.6.1.2.2(b)(5)</b> ] with sufficient detail to ensure that testing can be accomplished by elevator personnel	Rationale: Updated section name of referenced requirement and requirement number.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
84-86	2.20.8.2	2016	<p><b>Broken Suspension Member</b> Subparagraph (c) revised</p> <p><b>2.20.8.2 Broken Suspension Member.</b> All electric traction elevators, excluding those with steel wire ropes greater than or equal to 8 mm (0.315 in.), shall be provided with a broken-suspension-member detection means. The means shall ... (c) be arranged to be tested in accordance with the requirements in 8.10.2.2.2(ss)(1), and instructions for testing shall be included in the <del>Maintenance Control Program</del> <b>On-Site Documentation</b> [see <del>8.6.1.2.1(f)</del> <b>8.6.1.2.2(b)(5)</b> ] with sufficient detail to ensure that testing can be accomplished by elevator personnel</p>	Rationale: Updated section name of referenced requirement and requirement number.	
84-86	2.20.8.3	2016	<p><b>Suspension-Member Residual Strength</b> Subparagraph (c) revised</p> <p>Suspension-Member Residual Strength. All electric traction elevators, excluding those with steel wire ropes, shall be provided with residual-strength detection means. The means shall ... (c) be arranged to be tested in accordance with the requirements in 8.10.2.2.2(ss)(2), and instructions for testing shall be included in the <del>Maintenance Control Program</del> <b>On-Site Documentation</b> [see <del>8.6.1.2.1(f)</del> <b>8.6.1.2.2(b)(5)</b> ] with sufficient detail to ensure that testing can be accomplished by elevator personnel</p>	Rationale: Updated section name of referenced requirement and requirement number.	
87	2.20.2.1	2019	<p><b>On Crosshead Data Plate</b> Introductory sentence <b>Revised</b></p>	Rationale: Reference cross head data plate requirements that moved to 8.13.3	[OEM] [E] [I] - awareness that requirements for signs/ tags / plates moved to 8.13
87	2.20.2.2.1	2019	<p><b>Data Tag at Suspension Means Fastening</b> Introductory sentence and subpara. (d) <b>Revised</b></p>		
87	2.20.2.2.2	2019	<p>Introductory sentence <b>Revised</b></p>		
89	2.20.8.1	2019	<p><b>Protection Against Traction Loss</b> Subparagraph (d)(2) <b>Revised</b></p>	Rationale: correct a cross reference	
95	2.20.10.9	2019	<p><b>Auxiliary Rope Fastening Devices</b> <b>Revised</b></p>	Rationale: Reference tag requirements that moved to 8.13.3	

Page	Req't # (see update)	Yr	Change	CHANGE NOTES	Enforcement & Notes
				Comments in blue, new text in red, original code text in black green = summary highlight	
<b>2.21 Counterweights</b>					
92	2.21.1.3	2013	<p><b>Guiding Means</b> Title and paragraph revised in its entirety: 2.21.1.3 Guiding <del>Members</del> <b>Means</b> 2.21.1.3.1 Counterweight frames shall be guided on each guide rail by upper and lower guiding members attached to the frame. <del>Retention means shall be provided to prevent the counterweight from being displaced by more than 13 mm (0.5 in.) from its normal running position should any part of the guiding means fail, excluding the guiding member base and its attachment to the frame. The retention means shall be permitted to be integral with the base.</del> <b>Guiding members shall be designed to withstand the forces imposed during normal operation of the elevator, loading and unloading, emergency stopping, and the application of safeties.</b> 2.21.1.3.2 Means shall be provided to prevent the counterweight from being displaced by more than 13 mm (0.5 in.) from its normal running position. This protection shall be provided by either: (a) a guiding means wherein no failure or wear of the guiding member shall allow the counterweight to be displaced more than 13 mm (0.5 in.) from its normal running position; or (b) a retention means which shall be permitted to be integral with the guiding means. 2.21.1.3.3 All components of the means required to limit the displacement in accordance with 2.21.1.3.2 shall have <b>minimum factor of safety of 5.</b></p>	<p>Rationale: The proposed change improves the safety of the guiding means by requiring a minimum factor of safety while eliminating language that is overly prescriptive. To prevent displacements greater than 13 mm (0.5 in.) which could occur on sliding members when gibs are lost or on roller guides when a roller fails.</p>	<p>[I] - Inspector to recognize new permission for guiding means. Repeat for CWT: Auxiliary retention no longer required. Guiding means to meet a factor of safety instead (Fs&gt;=5)</p>

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.22 Buffers and Bumpers</b>					
94, 95	Table 2.22.4.1	2013	<b>Minimum Oil Buffer Strokes</b> Under Imperial Units, 115% of Rated Speed, ft/min; some values revised	Rationale: Prior to and during the harmonization process there were transcription errors and errors of conversion in the table which have been recently noticed. These are not material differences and no buffer strokes have been changed.	
	2.22.4.6	2013	<b>Means for Determining Oil Level</b> Revised: 2.22.4.6 Means for Determining Oil Level. Oil buffers shall be provided with means for determining that the oil level is within the maximum and minimum allowable limits. <b>Transparent sight gauges shall be permitted to be used provided they meet the requirements for the purpose in accordance with good engineering practice. They shall resist shock loading on the buffer or pressure rise as a result of impact, and not be stained by the presence of buffer oil or a means shall be provided to ensure that any staining does not affect the reading of the oil level.</b> <del>Glass sight gauges shall not be used.</del>	Rationale: Buffers of this design have been used in Europe for over 9 years with no reports of false positive oil levels or of any reports of shattering of the acrylic sight gauge upon buffer engagement; except for 0.125% of installed units related to manufacturing defects as a result of leakage around the sight gauge seal. This history includes over 5,400 buffers in use for over 9 years. All buffers are Type, acceptance and periodic tested which would demonstrate the suitability of materials used in the sight gauge.	[OEM] permission [I] - Re: Oil Buffers Sight glass to view buffer oil level is permissible
	2.22.4.7.3	2013	<b>Type Tests and Certification for Oil Buffers</b> Editorially revised	Revised code book title	
93	2.22.1.1	2016	<b>Type of Buffers</b> First paragraph revised, and 2.22.1.1.4 through 2.22.1.1.6 added  2.22.1.1 Type of Buffers. Buffers of the spring, oil, elastomeric or equivalent type shall be installed under the cars and counterweights of passenger and freight elevators subject to the requirements of 2.22.1.1.1 through 2.22.1.1.35. <b>Buffers shall be designed considering sound engineering practice.</b> .. <b>2.22.1.1.4 Elastomeric buffers shall be permitted to be used where the rated speed is not in excess of 1 m/s (200 ft/min).</b> 2.22.1.1.5 The use of elastomeric buffers shall comply with all conditions of use as specified by the buffer manufacturer. Such conditions may include but are not limited to temperature, humidity or other environmental and life-cycle conditions that may affect buffer performance. 2.22.1.1.6. Elastomeric buffers shall be securely fastened to their support structures.	add provisions for elastomeric buffers. -max speed -conditions of use and degradation -securely fastened	[E] [I] - Elastomeric buffers now recognized in the code.  [OEM] = permission and speed limitation



Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
93	2.22.2	2016	<p><b>Solid Bumpers</b> In first paragraph, last sentence added Solid bumpers are permitted on elevators having a rated speed of 0.25 m/s (50 ft/min) or less.</p>	<p>specify limits for solid bumpers on electric elevators (0.25 m/s) .....consistent with hydraulic elevators.</p>	<p>[E] [I] -add solid bumper speed limits to electric elevators [OEM] = permission and speed limitation</p>
94	2.22.4.5	2016	<p><b>Plunger Return Requirements</b> Revised Plunger Return Requirements 2.22.4.5.1 Plunger Return Requirements ... 2.22.4.5.2 Plunger Lateral Movement Requirements The clearance between the plunger and the cylinder in spring-return or gravity-return type oil buffers shall be limited and the materials and surface finishes so specified and controlled, so as to ensure that the plunger will not seize or stick in the cylinder during or after an impact of the fully loaded car on the buffer at 115% of rated speed. In addition, the clearance shall be limited so as to ensure that one half of the total lateral movement of the plunger relative to the cylinder shall not exceed 5 mm/m (0.06 in/ft) of buffer stroke. This corresponds to a maximum angle of inclination from the vertical of 0.005 radians (17.18 minutes of arc).</p>	<p>Inclusion of design requirements relating to lateral movement of the plunger (2.22.4.5.2). Move existing requirements to new section 2.22.4.5.1</p>	<p>[OEM] design requirement</p>
96	2.22.5	2016	<p><b>Elastomeric Buffers</b> Added Elastomeric Buffers 2.22.5.1 Retardation Buffers shall not develop (a) an average retardation in excess of 9.81 m/s<sup>2</sup> (32.2 ft/s<sup>2</sup>), and (b) a retardation greater than 24.5 m/s<sup>2</sup> (80.5 ft/s<sup>2</sup>), having a duration exceeding 0.04 s. with any load in the car, from rated load to a minimum load of 70 kg (154 lb), when the buffers are struck with an initial speed of not more than 115% of the rated speed, and (c) a maximum retardation not in excess 58.86 m/s<sup>2</sup> (193.2 ft/s<sup>2</sup>) as measured using a 100 Hz low pass filter. 2.22.5.2 Return Speed Upon activation (compression) of the buffer, the return speed of the car or counterweight shall not exceed 1 m/s (200 ft/min.). 2.22.5.3 Deformation There shall be no permanent deformation of the buffer after actuation and the buffer shall return back to its uncompressed state within 30 minutes. 2.22.5.4 Full Compression. For elastomeric buffers, “full compression” means a compression of 90 % of the installed buffer height without considering fixation elements of the buffer which might limit the compression to a lower value.</p>	<p>add requirements for elastomeric buffers</p>	<p>[OEM] design requirement  [I] fyi re: full compression 90% of installed buffer height</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
96	2.22.5	2016	<b>Type Tests and Certification for Elastomeric Buffers</b> 2.22.5.5 Type Tests and Certification for Elastomeric Buffers 2.22.5.5.1 Each type of elastomeric buffer shall be subjected to the type tests as specified in 8.3.13 and to the certification process as specified in 8.3.1.	add requirements for elastomeric buffers to be certified	[OEM] certification requirement  [I] fyi
96	2.22.5	2016	<b>Buffer Marking Plate</b> 2.22.5.6 Buffer Marking Plate. <b>Elastomeric buffers shall be provided with a marking plate. The buffer marking plate shall include the following data provided in a legible and permanent manner:</b> (a) the maximum and minimum loads and the maximum striking speeds for which the buffer has been rated for use in conformance with the requirements in 2.22 (b) the name, trademark, or file number by which the organization that manufactured the product can be identified (c) the certification marking in accordance with 8.3.13.7 (d) specific conditions of use (where applicable) for elastomeric buffers, see 2.22.1.1.5. (e) the maximum stroke (compression) of the buffer.	add marking plate requirements for elastomeric buffers	[OEM] [I] Buffer marking plate requirements are specific.  [OEM] Conditions of use important based on environment.  MCP to define checking methods to ensure buffer integrity.
97	2.22.3.1	2019	<b>Stroke</b> Revised	Rationale: add a reference for clarify	
98	2.22.3.3	2019	Revised	Rationale: Reference marking plate requirements that moved to 8.13.3	
99	2.22.4.10	2019	<b>Load Ratings of Oil Buffers</b> Revised	Rationale: add a reference for clarify	
100	2.22.4.11	2019	<b>Buffer Data Plate</b> Revised	Rationale: Reference data plate requirements that moved to 8.13.1	
100	2.22.5.1	2019	<b>Retardation</b> Subparagraph (c) deleted <del>(c) a maximum retardation in excess of 58.86 m/s<sup>2</sup> (193.2 ft/s<sup>2</sup>) as measured using a 100 Hz low pass filter</del>	Rationale: remove a requirement that is excessive for buffers	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.24 Driving Machines and Sheaves</b>					
106	2.24.4	2013	<p><b>Fasteners and Connections Transmitting Load</b> Title revised: 2.24.4 Fasteners <b>and Connections</b> Transmitting Load</p>	Rationale: Changed to reflect the requirements covered in 2.24.4.1 and 2.24.4.2.	
	2.24.4.1	2013	<p><b>Fasteners and Rigid Connections</b> Revised in its entirety: 2.24.4.1 Fasteners and Rigid Connections. <del>Set screws or threaded portions located in the shear plane of bolts and screws shall not be used to transmit load. Means shall be provided to ensure that there is no relative motion between rigidly joined components transmitting load.</del> <b>Fasteners and rigid connections shall comply with 2.24.4.1.1 through 2.24.4.1.4 in accordance with good engineering practice.</b> 2.24.4.1.1 When fasteners are used to transmit load, the shearing load shall not be applied to the threaded portion of fasteners. Where more than one fastener shares the shearing load, the clearance between the fasteners and holes shall be designed with tolerance fits that will provide even distribution of the shear loading across all of the fasteners. 2.24.4.1.2 Set screws shall not be permitted to transmit torque. 2.24.4.1.3 When the connection is designed to transmit the torque by the friction of the clamped surfaces resulting from the applied fastener torques, 2.24.4.1.1 shall not apply. 2.24.4.1.4 The factors of safety to be used in the design of fasteners transmitting load or clamped surfaces transmitting torque in driving machines and sheaves shall be not less than those specified in 2.24.3.</p>	Rationale: Revised to ensure that <b>when transmitting torque, all bolts share load or alternatively the connection is designed to have enough friction between the clamped surfaces</b> generated by the fasteners.	[OEM] design requirement
108, 109	2.24.8.6	2016	<p><b>Driving-Machine Brake Design</b> Revised The driving-machine brake design shall ensure contact of the friction material on the braking surface consistent with <del>good</del> <b>sound</b> engineering practice. Means shall be provided to protect the braking surfaces from contamination caused by any driving-machine fluid leak.</p>	revise good engineering practice to sound engineering	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
110	2.24.2.3.5	2019	<p><b>Percent Counterweight Overbalance Data</b> Added</p> <p>2.24.2.3.5 Percent Counterweight Overbalance Data Plate. The designed maximum and minimum percent counterweight overbalance range, that is required to meet the traction requirements of 2.24.2.3.1, 2.24.2.3.2 or 2.24.2.3.3, shall be provided on a data plate. This data plate shall be <b>integral with or adjacent to the data plate</b> required in 2.16.3. Where this data plate is adjacent to the data plate required by 2.16.3, the material and markings shall conform to 2.16.3.3.</p>	<p>Rationale: Correct counterweight overbalance has an impact on safe elevator operation. Require that the designed overbalance range be provided. <b>This information must be present at the time of acceptance.</b> <b>This information will also be useful to convey safe overbalance limits if the elevator weight is changed / altered at a future date.</b></p>	<p>[E] [I] [OEM] Important data information to ensure proper traction. This proposal also requires that this information is present at the time of acceptance. See 8.10.2.2.3 Top-of-car. [Submitter] [E] ideally provided with submission, but must be on the crosshead.</p>
112	2.24.8.5	2019	<p><b>Brake Information Plates</b> Revised</p>	<p>Rationale: Reference marking plate / data plate requirements that moved to 8.13.1 &amp; 3</p>	<p>[OEM]</p>
112	2.24.9.2.1	2019	<p><b>General Requirements - Indirect Driving Machines</b> Reference Revised</p>	<p>Update a cross reference</p>	

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.25 Terminal Stopping Devices</b>					
107, 108	2.25.2.1.1	2013	<p><b>Normal Terminal Stopping Devices - Where Required and Function</b> revised</p> <p>Normal terminal stopping devices shall be provided and arranged to <b>detect the position of the car and cause the car to</b> slow down and stop the car automatically, at or near the top and bottom terminal landings, with any load up to and including rated load in the car and from any speed attained in normal operation (see 2.16.8).</p>	<p>Prescriptive language added to specify that position must be detected, previously any method was permitted to be used to stop the car at or near the terminal landing.</p>	<p>OEM design requirement</p>
	2.25.2.1.2	2013	<p><del>Such devices</del> <b>The normal terminal stopping devices</b> shall function independently of the operation of the normal stopping means and of the final terminal stopping device, <b>such that the failure of the normal stopping means and/or the failure of the final terminal stopping devices shall not prevent the normal terminal stopping device from functioning as specified in 2.25.2.1.1, except that</b></p> <p>(a) a common position sensing actuating means (e.g., a cam, etc.) that is not physically part of the position sensing devices shall be permitted for the actuation of the position sensing device(s) of the normal terminal stopping devices and the position sensing device of</p> <p>(1) the normal stopping means, and/or</p> <p>(2) the final terminal stopping devices</p> <p><b>(b) a common member (e.g., tape, target, wire, etc.) that is sensed by both the normal terminal stopping devices and normal stopping means shall be permitted, provided that</b></p> <p><b>(1) the member is monitored such that when its presence is not detected, this shall cause the electric power to be removed from the elevator driving-machine motor and brake, and</b></p> <p>(2) the common member is securely mounted in such a manner that horizontal movement of the car shall not affect the operation of the sensors</p> <p>(c) a common mounting means shall be permitted for the position sensing devices of the normal terminal stopping devices and the position sensing device of</p> <p>(1) the normal stopping means, and/or</p> <p>(2) the final terminal stopping devices</p> <p>(d) on elevators with a rated speed of 0.75 m/s (150 ft/min) or less, the normal terminal stopping device shall be permitted to be used as the normal stopping means</p>	<p><b>Permission added to use a common cam, etc.</b> to actuate the position sensing device used for the normal terminal stopping device, the normal stopping means, and the final terminal stopping device.</p> <p>Permission added to allow a common tape, target, wire, etc. that is sensed by the NTSD and the normal stopping means with a new requirement to monitor of the tape, target, wire for it's presence.</p> <p>A common mounting means is permitted for the NTSD, normal stopping means, and final terminal stopping device.</p>	<p>[OEM] permission for design. Monitoring required.</p> <p>[I] to be aware of permission for common items (not redundant) tape / target / wire / mounting means</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
109-1 11	2.25.4.1.1	2013	<p><b>Emergency Terminal Speed-Limiting Device</b></p> <p><del>The emergency terminal speed-limiting device shall automatically reduce the car and counterweight speed by removing power from the driving-machine motor and brake, such that the rated buffer striking speed is not exceeded. If the normal terminal stopping device fails to slow down the car at the terminal as intended, the emergency terminal speed-limiting device shall reduce the car and counterweight speed such that the rated buffer striking speed is not exceeded.</del></p> <p>The emergency terminal speed-limiting device shall remove power from the driving-machine motor and brake and shall either</p> <p>(a) apply an emergency brake(s) conforming to 2.19.3 in combination with the removal of power from the driving-machine motor and brake (see also 2.25.4.1.3), or</p> <p>(b) apply an emergency brake(s) conforming to 2.19.3 if removal of power from the driving-machine motor and brake fails to reduce the car and counterweight speed as intended.</p>	<p><b>Emergency terminal speed-limiting device (when reduced stroke buffer used) is now also required to apply an emergency brake (rope, sheave, etc.) in addition to the main brake if application of the main brake fails to slow down the car (machine shaft broken, etc.).</b></p>	<p>[E] [I] [OEM] design requirement.</p> <p>[Submitter] Checking of ebrake application and assurance of deceleration to be provided in a design submission testing procedure.</p>
	2.25.4.1.2	2013	<p>The operation of the emergency terminal speed-limiting device shall be independent of the operation of the normal terminal stopping device such that the failure of the normal terminal stopping device shall not prevent the emergency terminal speed-limiting device from functioning as specified, except that</p> <p>(a) a common position sensing actuating means (e.g., a cam, etc.) not physically part of the position sensing devices shall be permitted for the actuation of both the position sensing device of the emergency terminal speed-limiting device and the position sensing device of the normal terminal stopping device</p> <p>(b) a common member (e.g., tape, target, wire, etc.) that is sensed by both the emergency terminal speed-limiting device and the normal terminal stopping means shall be permitted, provided that</p> <p>(1) the member is monitored such that when its presence is not detected, this shall cause the electric power to be removed from the elevator driving-machine motor and brake, and</p> <p>(2) the common member is securely mounted in such a manner that horizontal movement of the car shall not affect the operation of the sensors</p> <p>(c) a common mounting means shall be permitted for the position sensing devices of the emergency terminal speed-limiting device and the normal terminal stopping device</p>	<p>Common cam, etc. is permitted to actuate both the position sensing device of the emergency terminal speed-limiting device and the normal terminal stopping device.</p> <p>A common tape, target, etc. that is sensed by both the ETSL device and the normal terminal stopping device is permitted with a new requirement to monitor the tape, target, wire, etc. for its presence.</p> <p>A common mounting means is permitted for the position sensing devices of the ETSL device and the normal stopping means.</p>	<p>OEM design permission for common cams.</p> <p>Repeat the permission of NTSD</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES	Enforcement & Notes
				Comments in blue, new text in red, original code text in black green = summary highlight	
	2.25.4.1.3	2013	<p><del>The car speed-sensing device shall be independent of the normal speed control system.</del> The car speed-sensing device used for the emergency terminal speed-limiting device shall be permitted to be either <b>a separate car speed-sensing device from that of the normal speed control system or the same car speed-sensing device, provided that a separate means is used to continuously verify</b> the proper operation of this speed-sensing device.</p> <p>Where the same car speed-sensing device is used, the <b>detection of a failure of this car speed-sensing device shall</b> cause the power to be removed from the driving-machine motor and brake.</p> <p>The car speed-sensing device(s) and, where required, the verification means described above, shall conform to the following:</p>	<p><b>The car speed sensing device is permitted to be the same device for both the ETSL device and the normal speed control system.</b> New requirement for a separate means to continuously verify the proper operation of the speed sensing device.</p> <p>A common shaft, drum, etc. is permitted to actuate the speed sensing device and the separate means with a new requirement to monitor the connection if it is dependant on traction, friction, or a flexible coupling.</p> <p>A common tape, target, wire, etc. is permitted that is sensed by both speed sensing devices. New requirement to monitor the tape, target, wire for it's presence. A common mounting means is permitted.</p>	<p>[OEM] design permission</p> <p>[Submitter] Testing procedure</p>
	2.25.4.1.3	2013	<p>(a) <b>a common actuating means</b> (e.g., a driving-machine shaft, brake drum, etc.) shall be <b>permitted</b> provided that it is not dependent on the following connection types, unless the connection is <b>continuously monitored</b>:</p> <ul style="list-style-type: none"> <li>(1) traction (excluding the traction between the drive sheave and suspension means and the traction between the governor and governor rope)</li> <li>(2) friction (except for interference fits)</li> <li>(3) a flexible coupling where positive engagement is not assured between coupling halves Where monitoring is required, the monitoring shall detect a failure that prevents conformance with this requirement and shall cause the electric power to be removed from the elevator driving-machine motor and brake.</li> </ul> <p>(b) <b>a common member</b> (e.g., tape, target, wire, etc.) that is sensed by both speed-sensing devices shall be <b>permitted</b>, provided that</p> <ul style="list-style-type: none"> <li>(1) the <b>member is monitored</b> such that when its presence is not detected, this shall cause the electric power to be removed from the elevator driving-machine motor and brake</li> <li>(2) the <b>common member is securely mounted</b> in such a manner that horizontal movement of the car shall not affect the operation of the sensors</li> </ul> <p>(c) a common mounting means shall be permitted</p>		<p>[OEM] design permission</p>
	2.25.4.1.4	2013	<p>Redesignated from former 2.25.4.1.3 and revised; original 2.25.4.1.4 deleted</p>	<p>Emergency terminal speed limiting device no longer prohibited from applying the car safety.</p>	<p>OEM Permission</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.25.4.1.8	2013	<p>Where the operation of emergency terminal speed-limiting devices is dependent on car position relative to the terminal landings</p> <p>(a) <b>friction or traction drives shall not be used for the determination of the position of the car relative to the terminal landings, except where 2.25.4.1.8(a)(1) or 2.25.4.1.8(a)(2) is complied with</b></p> <p>(1) The position sensing device for the emergency terminal speed-limiting device is driven by the overspeed governor and the car position is corrected before the car approaches a terminal landing and also compensated for governor rope creep over the governor sheave.</p> <p>(2) An additional, separate emergency terminal speed-limiting position sensing device not relying on the same friction or traction drive is used to verify the emergency terminal speed-limiting device position sensing device. When the verification determines that the position sensing devices deviate to the extent that the emergency terminal speed-limiting device cannot stop the car as required, the power shall be removed from the driving-machine motor and brake.</p> <p>(b) if tape, chain, or rope is used ...</p>	<p>Friction or traction drive now permitted for the position sensing device for determination of the position of the car relative to the terminal landing.</p> <p>New requirement to either correct the car position before the car approaches a terminal landing when the position sensing device for ETSL device is driven by the overspeed governor or an additional separate ETSL position sensing device not relying on the same friction or traction drive is used to verify the ETSL device position sensing device when a friction or traction device is used.</p>	<p>[OEM] design permission.</p> <p>ETSL sensing devices cannot use friction or traction <b>UNLESS..</b> (new permission)</p> <p>[Submitter] test procedure</p>
	2.25.4.2	2013	<p><b>Emergency Terminal Stopping Device</b></p> <p>Emergency terminal stopping devices shall be installed on all elevators with static control and rated speeds over 1 m/s (200 ft/min) and shall conform to 2.25.4.2.1 and 2.25.4.2.2, except for elevators with static generator-field control that use the normal terminal stopping device to limit the generator-field current directly, or elevators that have an emergency terminal speed-limiting device that complies with 2.25.4.1.</p>	<p>Exception for static generator-field control moved from the end of the clause to the beginning of the clause.</p>	
	2.25.4.2.1	2013	<p><del>Elevators with static control and rated speeds over 1 m/s (200 ft/min) shall be provided with an</del> The emergency terminal stopping device that will <del>shall</del> cause power to be removed from the driving-machine motor and brake should the normal stopping means and the normal terminal stopping device fail to cause the car to slow down at the terminal as intended.</p>	<p>2.25.4.2 broken up into a title clause and two sub clauses.</p>	



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.25.4.2.2	2013	<p>The emergency terminal stopping device shall function independently of the normal terminal stopping device and the normal speed control system- <b>such that the failure of the normal terminal stopping device and/or the failure of the normal speed control system shall not prevent the emergency terminal stopping device from functioning as specified, except that</b></p> <p><b>(a) for both the position sensing device of the emergency terminal stopping device and the position sensing device of the normal terminal stopping device</b></p> <p><b>(1) a common actuating means (e.g., a cam, etc.) that is not physically part of the position sensing devices shall be permitted</b></p> <p><b>(2) a common member (e.g., tape, target, wire, etc.) that is sensed by both the emergency terminal stopping device and normal terminal stopping means shall be permitted, provided that</b></p> <p><b>(a) the member is monitored such that when its presence is not detected, this sha+D141ll cause the electric power to be removed from the elevator driving-machine motor and brake, and</b></p> <p><b>(b) the common member is securely mounted in such a manner that horizontal movement of the car shall not affect the operation of the sensors</b></p> <p><b>(3) a common mounting means shall be permitted for the position sensing devices of the emergency terminal stopping device and the normal terminal stopping device</b></p>	<p>Common cam, etc. is permitted to actuate both the position sensing device of the emergency terminal stopping device and the normal terminal stopping device.</p> <p>A common tape, target, wire, etc. that is sensed by both the ETS device and the normal terminal stopping means is permitted with a new requirement to monitor the tape, target, wire, etc. for it's presence.</p> <p>A common mounting means is permitted for the position sensing devices of the ETS device and the normal stopping device.</p>	<p>OEM design permission.</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.25.4.2.2	2013	<p>(b) The car speed-sensing device used for the emergency terminal stopping device shall be permitted to be either a separate car speed-sensing device from that of the normal speed control system or the same car speed-sensing device, provided that a separate means is used to continuously verify the proper operation of this speed-sensing device. Where the same car speed-sensing device is used, the detection of a failure of this car speed-sensing device shall cause the power to be removed from the driving-machine motor and brake. The car speed-sensing device(s) and, where required, the verification means described above, shall conform to the following:</p> <p>(1) a common actuating means (e.g., a driving-machine shaft, brake drum, etc.) shall be permitted provided that it is not dependent on the following connection types, unless the connection is continuously monitored:</p> <p>(a) traction (excluding the traction between the drive sheave and suspension means and the traction between the governor and governor rope)</p> <p>(b) friction (except for interference fits), or</p> <p>(c) a flexible coupling where positive engagement is not assured between coupling halves Where monitoring is required, the monitoring shall detect a failure that prevents conformance with this requirement and shall cause the electric power to be removed from the elevator driving-machine motor and brake.</p>	continued ..	OEM design permission.
	2.25.4.2.2	2013	<p><b>(b)</b></p> <p>(2) a common member (e.g., tape, target, wire, etc.) that is sensed by both speed-sensing devices shall be permitted, provided that</p> <p>(a) the member is monitored such that when its presence is not detected, this shall cause the electric power to be removed from the elevator driving-machine motor and brake</p> <p>(b) the common member is securely mounted in such a manner that horizontal movement of the car shall not affect the operation of the sensors</p> <p>(3) a common mounting means shall be permitted</p> <p><del>Elevators with static generator field control that use the normal terminal stopping device to limit the generator field current directly, or elevators that have an emergency terminal speed limiting device that complies with 2.25.4.1, are not required to have an emergency terminal stopping device.</del></p>	continued ..	OEM design permission.

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
108, 109	2.25.2.1.2	2016	<b>Normal Terminal Stopping Devices - Where Required and Function</b> First paragraph revised The normal terminal stopping devices (i.e., those devices used for sensing relative changes in car position)	To clarify the intent of the term "devices" as used in requirement 2.25.2.1.2.	
108, 109	2.25.3.2	2016	<b>Final Terminal Stopping Devices - Where Required and Function</b> Third paragraph revised (Where spring buffers or elastomeric buffers are provided, the device shall function before the buffer is engaged.)	add reference to elastomeric buffers	
111	2.25.4.1.8	2016	<b>Emergency Terminal Speed-Limiting Device</b> Subparagraph (a) revised from "except where 2.25.4.1.9(a)(1) or 2.25.4.1.9(a)(2) is complied with" to (except where 2.25.4.1.8(a)(1) or 2.25.4.1.8(a)(2) is complied with)	update a cross reference > to point to correct exception.	

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.26 Operating Devices and Control Equipment</b>					
111	2.26.1.4.1 (b)(4)(b)	2013	<p><b>Inspection Operation</b></p> <p>(b) A switch for transferring control of the elevator to the operating devices for inspection operation shall be provided, that shall</p> <p>(4) when in the "INSPECTION" position</p> <p>(b) except as provided, in 2.26.1.4.2(f), cause the movement of the car to be solely under the control of the inspection operating devices <del>through a contact</del> that shall be</p> <p>(1) through a contact that is positively opened mechanically and whose; their opening shall not depend solely on springs, or</p> <p>(2) SIL rated with a SIL equal to or greater than the SIL indicated for the applicable device shown in Table 2.26.4.3.2</p>	<p><b>Option added to permit a SIL rated transfer switch.</b></p>	<p>[OEM] design permission. [!] SIL label</p>
	2.26.1.4.1(d)(1)	2013	<p>(d) Inspection operation shall conform to the following:</p> <p>(1) the speed of the car shall not exceed 0.75 m/s (150 ft/min)</p> <p>For elevators with static control, <del>an independent</del> a means <b>independent from the normal means to control the speed</b> shall be provided to limit the inspection speed to a maximum of 0.75 m/s (150 ft/min), should the normal means to control this speed (mechanical, electrical, or solid-state devices) fail to do so.</p> <p>The car speed-sensing device used for the means to limit the speed of the car while on inspection operation shall be permitted to be either a separate car speed-sensing device from that of the normal speed control system or the same car speed-sensing device, provided that a separate means is used to continuously verify the proper operation of this speed-sensing device. Where the same car speed-sensing device is used, the detection of a failure of this car speed-sensing device while on inspection operation shall cause the power to be removed from the driving-machine motor and brake.</p>	<p><b>Rationale:</b> The changes clarify that the independence is limited to the speed limiting means as compared to the normal speed control. The provisions and requirements listed in a) and b) reflect acceptable industry practices with appropriate monitoring.</p>	<p>OEM design permission.</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.26.1.4.1(d)(1)	2013	<p>The car speed-sensing device(s) and, where required, the verification means described above, shall conform to the following:</p> <p>(a) a common actuating means (e.g., a driving-machine shaft, brake drum, etc.) shall be permitted provided that it is not dependent on the following connection types, unless the connection is continuously monitored:</p> <p>(1) traction (excluding the traction between the drive sheave and suspension means and the traction between the governor and governor rope)</p> <p>(2) friction (except for interference fits), or</p> <p>(3) a flexible coupling where positive engagement is not assured between coupling halves Where monitoring is required, the monitoring shall detect a failure that prevents conformance with this requirement while on inspection operation and shall cause the electric power to be removed from the elevator driving-machine motor and brake.</p> <p>(b) a common member (e.g., tape, target, wire, etc.) that is sensed by both speed-sensing devices shall be permitted, provided that</p> <p>(1) the member is monitored such that when its presence is not detected while on inspection operation, this shall cause the electric power to be removed from the elevator driving-machine motor and brake</p> <p>(2) the common member is securely mounted in such a manner that horizontal movement of the car shall not affect the operation of the sensors</p> <p>(c) a common mounting means shall be permitted</p>	continued ..	
113	2.26.1.4.3(d)	2013	<p><b>In-Car Inspection Operation</b></p> <p>When in-car inspection operation is provided, it shall conform to 2.26.1.4.1, and the transfer switch</p> <p>(d) when in the "INSPECTION" position, shall not enable hoistway access switch(es). A third switch position labeled "ACCESS ENABLE" shall be permitted to enable the hoistway access switches (see 2.12.7.3.1 <del>2.12.7.3.3(a)</del>).</p>	Switch in the car now clearly labelled "ACCESS ENABLE".	[I] - field verifiable
	2.26.1.5.1	2013	<p><b>Inspection Operation With Open Door Circuits.</b></p> <p>When switching to either "BYPASS" or "OFF" position, they shall</p> <p>(a) have contacts that are positively opened mechanically; <del>when switching to either "BYPASS" or "OFF" positions, and</del> their opening shall not be solely dependent on springs, or</p> <p>(b) be SIL rated with a SIL equal to or greater than the SIL indicated for the applicable device shown in Table 2.26.4.3.2</p>	Option added to allow a SIL rated Bypass Switch.	[OEM] design permission [I] SIL label

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.26.1.6.6	2013	<p><b>Operation in Leveling or Truck Zone</b>                      A leveling or truck-zoning device shall not move the car at a speed exceeding 0.75 m/s (150 ft/min).                      For elevators with static control, <del>an independent</del> a means <b>independent from the normal means to control the speed</b> shall be provided to limit the leveling speed to a maximum of 0.75 m/s (150 ft/min) with the doors open, should the normal means to control this speed (mechanical, electrical, or solid-state devices) fail to do so.</p> <p>The car speed-sensing device used for the means to limit the speed of the car while leveling with open doors shall be permitted to be either a separate car speed-sensing device from that of the normal speed control system or the same car speed-sensing device, provided that a separate means is used to continuously verify the proper operation of this speed-sensing device.                      Where the same car speed-sensing device is used, the detection of a failure of this car speed-sensing device while leveling with open doors shall cause the power to be removed from the driving-machine motor and brake.</p>	<p>Rationale:                      The above changes clarify that the independence is limited to the speed limiting means as compared to the normal speed control. The provisions and requirements listed in a) and b) reflect acceptable industry practices with appropriate monitoring.</p>	OEM design permission
114	2.26.1.6.6	2013	<p>The car speed-sensing device(s) and, where required, the verification means described above, shall conform to the following:</p> <p>(a) a common actuating means (e.g., a driving-machine shaft, brake drum, etc.) shall be permitted provided that it is not dependent on the following connection types, unless the connection is continuously monitored:</p> <ul style="list-style-type: none"> <li>(1) traction (excluding the traction between the drive sheave and suspension means and the traction between the governor and governor rope)</li> <li>(2) friction (except for interference fits), or</li> <li>(3) a flexible coupling where positive engagement is not assured between coupling halves</li> </ul> <p>Where monitoring is required, the monitoring shall detect a failure that prevents conformance with this requirement while leveling with open doors and shall cause the electric power to be removed from the elevator driving-machine motor and brake.</p> <p>(b) a common member (e.g., tape, target, wire, etc.) that is sensed by both speed-sensing devices shall be permitted, provided that</p> <ul style="list-style-type: none"> <li>(1) the member is monitored such that when its presence is not detected, this shall cause the electric power to be removed from the elevator driving-machine motor and brake</li> <li>(2) the common member is securely mounted in such a manner that horizontal movement of the car shall not affect the operation of the sensors</li> </ul> <p>(c) a common mounting means shall be permitted</p>	continued ..	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.26.2	2013	<p><b>Electrical Protective Devices</b> When an electrical protective device is activated (operated, opened), it shall cause the electric power to be removed from the elevator driving-machine motor and brake. [See also 2.26.3, 2.26.4.3, 2.26.4.4, 2.26.7, 2.26.8.3(c), 2.26.9.3, and 2.26.9.4.] Electrical protective devices shall be provided as specified in 2.26.2.1 through 2.26.2.37 <del>37</del> <b>39</b>.</p>	Reference to new EPDs added (retractable ladder and Sway control guide slack suspension detection means).	more EPD's identified  retractable ladder switch is an EPD
115	2.26.2.4	2013	<p><b>Motor Field Sensing Means</b> Motor Field Sensing Means. Where direct current is supplied to an armature and shunt field of an elevator driving-machine motor, a motor field current sensing means shall be provided, that shall cause the electric power to be removed from the driving-machine motor armature, and brake unless current is flowing in the shunt field of the motor, except for static control elevators provided with a device to detect an overspeed condition prior to, and independent of, the operation of the governor overspeed switch, <b>except that</b>                      (a) a common actuating means (e.g., a governor shaft or sheave, etc.) that is not physically part of the speed-sensing devices shall be permitted for the actuation of both the speed-sensing device of the overspeed detection device and the governor overspeed switch                      (b) a common mounting means shall be permitted for the speed-sensing device of the overspeed detection device and the governor overspeed switch                      This device shall cause power to be removed from the elevator driving-machine motor armature and machine brake.</p>	Where a Motor Field current Sensing Means is not provided an option was added to permit a common governor shaft or sheave, etc. to actuate both the speed sensing device of the independent overspeed detection device and the governor overspeed switch. A common mounting means is also permitted.	OEM design permission
	2.26.2.6	2013	<p><b>Broken Rope, Tape, or Chain Switches</b> 2.26.2.6 Broken Rope, Tape, or Chain Switches. The switch or switches that shall be opened by a failure of a rope, tape, or chain, shall be provided when required by 2.25.2.3.2 or 2.25.4.1.8 <del>7</del> (b).</p>	Renumbering.	
	2.26.2.10	2013	<p><b>Speed-Governor Overspeed Switch</b> A speed-governor overspeed switch shall be provided when required by 2.18.4.1 and shall conform to 2.18.4.1.2, <b>2.18.4.1.3</b>, 2.18.4.2, and 2.18.4.3.</p>	Added additional reference for Speed-Governor Overspeed switch to be of the manually reset type (renumbering).	
116	2.26.2.25	2013	<p><b>Blind Hoistway Emergency Door Electric Contact</b> Blind Hoistway Emergency Door <del>Locking Device</del> <b>Electric Contact</b>. An electric <del>locking device</del> <b>contact</b> conforming to 2.11.1.2(e) shall be provided on every emergency door in a blind hoistway.</p>	Changed from locking device contact to electric contact, permits lock and contact instead of interlock for blind hoistway emergency door. <i>Rationale: Interlocks are not being provided today, this is not a reduction in safety.</i>	[E] [I] permission for an electric contact

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.26.2.39	2013	<p><b>Sway Control Guide Slack Suspension Detection Means</b>                      An electrical device conforming to the following shall be provided where required by 2.30.2(d):                      (a) It shall operate whenever any of the suspension members of the sway control guide become slack.                      (b) It shall be of the manually reset type.</p>	<p>Device to detect whenever any of the suspension members of the sway control guide become slack. Manually reset type. Contacts require positive mechanical opening or SIL rating.</p>	[I] field verifiable
117	2.26.4.3.1	2013	<p><b>Electrical Equipment and Wiring</b>                      They shall have contacts that are positively opened mechanically; their opening shall not be solely dependent on springs. Exceptions are devices described by 2.26.2.4, 2.26.2.19, 2.26.2.29, and 2.26.2.30; and 2.26.2.12 and 2.26.2.16 where magnetically operated, optical, or <del>static type switches</del> <b>solid-state devices</b> are used.</p>	<p>Terminology updated from "static type switches" to "solid-state devices".</p>	
	2.26.4.3.2	2013	<p>They shall be listed/certified and <del>labeled/marked</del> to a SIL rating in accordance with the applicable requirements of IEC 61508-2 and IEC 61508-3 with a SIL rating equal to or greater than the SIL indicated for the applicable device shown in Table 2.26.4.3.2. <b>They shall be labeled/ marked with part identification. Wiring diagrams (see 8.6.1.6.3) shall include part identification, SIL, and certification information that shall be in accordance with the certifying organization's requirements. Assemblies containing SIL rated devices shall be labeled or tagged with the statement: "Assembly contains SIL rated devices. Refer to Maintenance Control Program and wiring diagrams prior to performing work."</b>                      The detection of a dangerous fault (e.g., with diagnostic tests, proof-tests, or by any other means) in SIL <del>E/E/PES</del> <b>rated devices</b> that can tolerate a single fault shall cause the elevator to revert to a known fail-safe condition. Where necessary, to maintain the integrity of the SIL <del>E/E/PES</del> <b>rated devices</b> and maintain the fail-safe condition prior to a second fault that could lead to a dangerous condition, a manual reset shall be required to remove the SIL <del>E/E/PES</del> <b>rated devices</b> from the fail-safe condition.</p>	<p><b>New labelling requirements for SIL Rated devices</b> (devices to have part identification, Schematics to have part identification, SIL, and certification identification information).  <b>Assemblies containing SIL Rated Devices shall be labeled or tagged with the statement: "Assembly contains SIL Rated Devices. Refer to MCP and wiring diagrams prior to performing work."</b></p>	<p>[E] submission verified                      [I] field verifiable                      [Submitter] schematics / wiring diagram identify SIL devices</p>
	2.26.4.4	2013	<p>Control equipment shall be tested in accordance with the testing requirements of <del>ISO 22200:2009</del> <b>ISO 22200:2009</b>. <del>Control equipment tested in accordance with the testing requirements of EN 12016:1998 prior to one year after the effective date of the 2013 Edition of this Code need not be retested in accordance with the testing requirements of ISO 22200:2009.</del>  <b>The control equipment shall be exposed</b> <del>by exposing it</del> to interference levels at the test values specified for "safety circuits." The interference shall not cause any of the conditions described in 2.26.9.3.1(a) through (e) or render the traction- loss detection means ineffective, and shall not cause the car to move while on inspection operation.</p>	<p>Rationale: To reference an ISO Standard in lieu of a European Standard. The revisions are not due to any known deficiencies with current products or the previous EN Standard. Products tested to date have an excellent safety record and should remain acceptable.</p>	[E] submission verified



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.26.4.4.1	2013	The test for voltage dips in Table 6 of EN 12016:1998 shall be permitted to be conducted by either using the times specified in Table 6, or using a voltage reduction of 30% of the nominal input voltage for 0.5 cycles at 60 Hz and a voltage reduction of 60% of nominal input voltage for 5 cycles at 60 Hz.	Date reference added for EN 12016:1998.	
118, 119	Table 2.26.4.3.2	2013	(1) Requirement 2.12.7.2.3 revised	Clause reference changed from the in-car enable for Hoistway Access to the Hall Key Switches for Hoistway Access. Other requirements are unchanged.	
118, 119	Table 2.26.4.3.2	2013	(2) Requirement 2.26.1.4.1(b) revised	Device name revised from "Inspection switch" to "Inspection transfer switch"	
118, 119	Table 2.26.4.3.2	2013	(3) Requirement 2.26.2.25 revised	Blind hoistway emergency door revised from interlock requirement to lock and contact.	
118, 119	Table 2.26.4.3.2	2013	(4) Requirement 2.26.2.39 added	Sway Control Guide Slack Suspension Detection Means Added. SIL 2	
118, 119	Table 2.26.4.3.2	2013	(5) General Note (c) editorially revised	Clause reference updated because of changes in section 8.6 for MCP.	
120	2.26.8.2	2013	<p><b>Release and Application of Driving-Machine Brakes</b></p> <p>Two means shall be provided to independently remove power from the brake. The electrical protective devices required by 2.26.2 shall control both means, except that leveling shall be permitted to take place with power opening of doors and gates in conformance with 2.13.2.1.1 and 2.13.2.2.1.</p> <p>One of the means shall be either a contactor, or <b>SIL rated device(s)</b> <del>an E/E/PES</del> with a SIL of not less than the highest SIL of the function for the electrical protective devices involved with removing power from the brake and shall be listed/certified <del>and labeled/</del> <b>marked in accordance for compliance</b> with the applicable requirements of IEC 61508-2 and IEC 61508-3. <b>SIL rated devices shall be identifiable on wiring diagrams (see 8.6.1.6.3) with part identification, SIL, and certification identification information that shall be in accordance with the certifying organization's requirements.</b> This means is not required to remove power from the driving-machine motor. If the brake circuit is ungrounded, power shall be interrupted at all power feed lines to the brake.</p> <p><b>Assemblies containing SIL rated devices shall be labeled or tagged with the statement: "Assembly contains SIL rated devices. Refer to the Maintenance Control Program and wiring diagrams prior to performing work."</b></p>	<p><b>New labelling requirements for SIL Rated devices</b> (devices to have part identification, Schematics to have part identification, SIL, and certification identification information). Assemblies containing SIL Rated Devices shall be labeled or tagged with the statement: "Assembly contains SIL Rated Devices. Refer to MCP and wiring diagrams prior to performing work."</p>	<p>[E] submission verified</p> <p>[I] field verifiable</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	2.26.9.3.1(c)	2013	<p><b>Protection Against Failures</b> The occurrence of a single ground or the failure of any single magnetically operated switch, contactor, or relay, or any single device that limits the leveling or truck zone, or any single solid-state device not a part of a software system; or a failure of a software system in circuits not in conformance with 2.26.9.3.2(b) shall not (c) permit speeds in excess of those specified in 2.12.7.3.23(b), 2.26.1.4.1(d)(1), and 2.26.1.6.6</p>	Clause reference for Hoistway Access operation corrected.	
	2.26.9.3.2(b)	2013	<p>Methods used to satisfy 2.26.9.3.1 using software systems are permitted, provided that (b) the software system and related circuits are listed/certified and labeled/marked to a SIL rating that is in accordance for compliance with the applicable requirements of IEC 61508-2 and IEC 61508-3. This software system and its related circuits shall have a SIL of not less than the highest SIL value of the safety function(s) in Table 2.26.4.3.2 used in the circuit. The software system and related circuits shall be identifiable on wiring diagrams (see 8.6.1.6.3) with part identification, SIL, and certification identification information that shall be in accordance with the certifying organization's requirements. Assemblies containing SIL rated devices shall be labeled or tagged with the statement: "Assembly contains SIL rated devices. Refer to Maintenance Control Program and wiring diagrams prior to performing work."</p>	New labelling requirements for SIL Rated devices (devices to have part identification, Schematics to have part identification, SIL, and certification identification information). Assemblies containing SIL Rated Devices shall be labeled or tagged with the statement: "Assembly contains SIL Rated Devices. Refer to MCP and wiring diagrams prior to performing work."	[E] submission verified [I] field verifiable
121	2.26.9.5.1	2013	Subparagraph (b) revised similar to 2.26.9.3.2(b)		
	2.26.9.6.1	2013	Subparagraph (b) revised similar to 2.26.9.3.2(b)		
116	2.26.2.5	2016	<p><b>Emergency Stop Switch</b> Subparagraph (b) revised (b) have red operating handles or buttons of the push-to-stop configuration</p>	Emergency stops are required to be "push-to-stop". Toggle or rocker type switches are not permitted	[I] field verifiable [OEM] push to stop clearly stated
118	2.26.4.2	2016	<p><b>Electrical Equipment and Wiring</b> Note added NOTE: Enclosures for motor controllers installed outside the specified spaces listed in 2.7.6.3.2 will require the additional marking "AGP" (Accessible to General Public) to indicate that the equipment enclosure is suitable for this application.</p>	Enclosures for motor controllers installed outside the hoistway, not in a machine room, control room or control space need the additional marking AGP. B44.1 includes additional requirements for certification in order to allow the AGP marking	[OEM] [I] field verifiable

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
118	2.26.4.3.1	2016	Note added NOTE: Positive opening is achieved when all the contact-breaking elements are brought to their open position and when for a significant part of the travel there are no resilient members (e.g., springs) between the moving contacts and the part of the actuator to which the actuating force is applied. An example of this is a contact complying with the requirements of IEC 60947-5-1:2004, Annex K.	To clarify the concept of contacts that are positively opened mechanically Rationale: To clarify “positively opened” for the users of the Code. This also substantially harmonizes with EN 81.	
121, 122	2.26.7	2016	<b>Installation of Capacitors or Other Devices to Make Electrical Protective Devices Ineffective</b> Revised The installation of capacitors or other devices, the operation or failure of which will cause an unsafe operation of the elevator, is prohibited. No permanent device that will make the traction-loss detection means or any required electrical protective device ineffective shall be installed except as provided in 2.7.6.5.2(h), 2.12.7.1, 2.26.1.4.2(g), 2.26.1.5, and 2.26.1.6, and <del>2.27.3.1.6(c)</del> (see 8.6.1.6.1).	The permission to render ineffective the in-car stop switch and in-car emergency stop switch (2.27.3.1.6(c)) was removed; the in-car stop switch and in-car emergency stop switch must remain operative all the time including during Phase I recall	[E] submission verified [I] field verifiable
121, 122	2.26.8.2	2016	<b>Release and Application of Driving-Machine Brakes</b> Second paragraph revised One of the means shall be either a contactor, or SIL rated device(s) with a SIL of not less than the highest SIL of the function for the electrical protective devices involved with removing power from the brake and shall be listed/certified in accordance with the applicable requirements of IEC 61508-2 and IEC 61508-3. SIL rated devices shall be identifiable on wiring diagrams ( <del>see 8.6.1.6.3</del> ) [see 8.6.1.2.2(a)] with part identification, SIL, and certification identification information that shall be in accordance with the certifying organization’s requirements. This means is not required to remove power from the driving-machine motor.	Reference to the applicable clause in 8.6 updated	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
121, 122	2.26.9.3.2	2016	<p><b>Protection Against Failures</b> Subparagraph (b) revised (b) the software system and related circuits are listed/certified to a SIL rating that is in accordance with the applicable requirements of IEC 61508-2 and IEC 61508-3. This software system and its related circuits shall have a SIL of not less than the highest SIL value of the safety function(s) in Table 2.26.4.3.2 used in the circuit. The software system and related circuits shall be identifiable on wiring diagrams <del>(see 8.6.1.6.3)</del> [see 8.6.1.2.2(a)] with part identification, SIL, and certification identification information that shall be in accordance with the certifying organization's requirements. Assemblies containing SIL rated devices shall be labeled or tagged with the statement: "Assembly contains SIL rated devices. Refer to Maintenance Control Program and wiring diagrams prior to performing work."</p>	Reference to the applicable clause in 8.6 updated	
118	2.26.1.5	2019	<p><b>Inspection Operation With Open Door Circuits</b> Last paragraph Revised</p>	Rationale: To include SIL rated devices in the requirements.	
119	2.26.1.5.5	2019	Revised	Rationale: Include new wording for closed detection means.	
119	2.26.1.5.6	2019	Revised	Rationale: Include new wording for door locked detection means.	
119	2.26.1.5.7	2019	Revised	Rationale: To include SIL rated devices in the requirements.	
119	2.26.1.5.8	2019	Revised	Rationale: To include SIL rated devices in the requirements.	
120	2.26.1.7	2019	<p><b>Executable Software</b> Added 2.26.1.7 Executable Software 2.26.1.7.1 Executable software used in performing one or more of the functions listed below shall have a USI for each software version. <b>Changes in executable software for any of the following functions</b> shall require a new USI: (a) working areas in the pit (2.7.5.2) (b) hoistway access switches (2.12.7) (c) power operation of hoistway doors and car doors (Section 2.13) (d) protection against traction loss (2.20.8.1) (e) broken suspension member (2.20.8.2) (f) suspension-member residual strength (2.20.8.3) (g) normal terminal stopping devices (2.25.2) (h) emergency terminal stopping means (2.25.4) (i) operating devices and control equipment (Section 2.26) (j) emergency communications (2.27.1.1) (k) emergency or standby power system (2.27.2) (l) Firefighters' Emergency Operation: automatic elevators (2.27.3 to .6) (m) Occupant Evacuation Operation (2.27.11) (n) emergency operation and signal devices (8.4.10)</p>	<p>Rationale: To provide requirements for documenting for the installation software related to A17.1 safety functions in a similar manner as current code provides with field wiring diagrams (see proposed 8.6.1.2.2(a)).</p> <p>Rationale: To provide means for inspectors and mechanics to identify the installed software USI.</p> <p>USI = unique software identifier</p>	[OEM] [I] A unique software identifier will be visible to convey the current software version.

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
		2019	<b>Executable Software</b> Added  2.26.1.7.3 The Control system shall include a means to view the USI(s) on-site. Examples of viewing means include, but are not limited to, one or more of the following: (a) electronic viewing that is part of the elevator or group of elevators, (b) labeling of device, (c) labeling or tags on the control or assembly.		[OEM] [I] A unique software identifier will be visible to convey the current software version.
121	2.26.2.14	2019	<b>Hoistway Door Interlocks and Hoistway Door Closed Detection Means</b> Revised	Rationale: to include the new wording for detection means.	
121	2.26.2.15	2019	<b>Car Door and Gate Closed Detection Means</b> Revised		
122	2.26.2.36	2019	<b>Working Platform Electrical Device</b> Revised	Rationale: Editorial renumbering of the referenced requirements.	
122	2.26.2.37	2019	<b>Retractable Stop Electrical Device</b> Revised		
123	Table 2.26.4.3.2	2019	Eighteenth and nineteenth rows Revised	Rationale: to clarify the function of each of the two devices listed in 2.26.2.14.	
124	2.26.4.4	2019	<b>Electrical Equipment and Wiring</b> Second paragraph Revised Testing shall be performed at a minimum of two frequencies in each of the ranges specified for safety circuits in table 1 through table 7 of ISO 22200:2009. One frequency shall be within 5% of the low value of each range, the second frequency shall be within 5% of the top value of each range.	Rationale: Provide testing requirements at discrete frequencies throughout the ranges specified in ISO 22200:2009. The year is provided with the reference in section 9.	used for EMI certification
125	2.26.5	2019	<b>System to Monitor and Prevent Automatic Operation of the Elevator With Faulty Door Circuits</b> Revised in its entirety	Rationale: To include new wording for car door or gate closed detection means.	
126	2.26.9.3.1	2019	<b>Protection Against Failures</b> Revised	Rationale: Include new wording for closed detection means and to include car door interlocks in the requirement.	
127	2.26.11	2019	<b>Car Platform to Hoistway Door Sills Vertical Distance</b> Introductory sentence Revised	Add a reference code	
127	2.26.12	2019	<b>Symbols</b> Note Revised		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.27 Emergency Operating and Signaling Devices</b>					
122, 124	<u>2.27.1.1.3</u>	2013	<b>Emergency Communications</b> (1) Subparagraph (a) editorially revised	Revised code book title	2019 Code revised 2.27.1.1 in its entirety
122, 124	<u>2.27.1.1.3</u>	2013	(2) Subparagraph (f) revised: 2.27.1.1.3 (f) The two-way communications, once established, shall be disconnected only when authorized personnel outside the car terminate the call <b>or a timed termination occurs. A timed termination by the two-way communication means in the elevator, with the ability to extend the call by authorized personnel, is permitted if voice notification is sent a minimum of 3 minutes after communication has been established. Upon notification, authorized personnel shall have the ability to extend the call; automatic disconnection shall be permitted if the means to extend are not enacted within 20 seconds of the voice notification.</b>	Rationale: A timer feature is required to ensure elevator phones hang up upon completion of the call in those cases where the telephone network (public or building) does not provide disconnect signals. If not properly disconnected, it will not be possible to place another call from inside the car or cars served by the phone line. Using voice notification enables any authorized personnel to properly respond to calls from any manufacturer's equipment.	see 2019 code
122, 124	<u>2.27.1.1.4</u>	2013	Subparagraph (b) revised: 1.1.4 (b) Two-way voice communications, once established, shall be disconnected only when emergency personnel outside the car terminates the call <b>or a timed termination occurs. A timed termination by the two-way communication means in the elevator, with the ability to extend the call by authorized personnel, is permitted if voice notification is sent a minimum of 3 minutes after communication has been established. Upon notification, emergency personnel shall have the ability to extend the call; automatic disconnection shall be permitted if the means to extend are not enacted within 20 seconds of the voice notification.</b>		
122, 124	<u>2.27.1.1.6</u>	2013	(1) Subparagraph (a) revised in its entirety: 2.27.1.1.6 (a) The two-way communications means within the car shall include a means to verify operability of the telephone line- <b>where;</b> <b>1) v</b> erification of the telephone line operability shall be automatically performed; <b>2) verification may be continuous or periodic;</b> <b>3) periodic verification shall be</b> at least on a daily basis; <b>4) verification and</b> shall not require activation of the two-way communications link(s). If means other than a telephone line (e.g., VOIP, network, intercom, etc.) is used for the two-way communications, similar verification of this equivalent means shall be performed.	Rationale: To clarify the original intent of the committee that silencing the signal shall provide a meaningful period of quiet even if the two-way communication means is checked continuously.	see 2019 code
122, 124	<u>2.27.1.1.6</u>	2013	(2) Subparagraph (b)(3) revised: <b>A</b> the means to silence the audible signal shall be <b>provided and shall be</b> accessible only to authorized personnel. The signal when silenced shall remain silent <b>for a period of no less than 12 hours or</b> <del>unless</del> <b>until</b> activated by the next <b>failed</b> periodic verification [see 2.27.1.1.6(a)(3)].		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
122, 124	<u>2.27.1.1.6</u>	2013	<p>(3) Subparagraph (d)(4) added:  <b>2.27.1.1.6(b)(4)</b>                      The verification means in 2.27.1.1.6(a) shall continue to monitor the operability of the telephone line or equivalent means while the telephone line or equivalent means is not functional on a continuous basis or periodically with intervals of not more than 5 minutes.                      When the verification determines that the operability of the telephone line or equivalent means has been restored after being non-functional, the audible signal shall be silenced unless the signal has already been silenced in accordance with 2.27.1.1.6 (b) (3) and the illuminated visual signal shall be extinguished.</p>	<p>Rationale: The alarm signals shall be silenced, extinguished and reset as soon as practical after the phone line operability has been restored. 5 minutes is a reasonable time to verify that reinstatement of the line has occurred. Reorganize for clarity, coordination with TN 10-1162, and to ensure there is no misunderstanding that the signal needs to reactivate every 5 minutes.</p>	see 2019 code
125	2.27.2.3	2013	<p><b>Emergency or Standby Power System</b>                      Revised:                      2.27.2.3 An illuminated signal(s) marked "ELEVATOR EMERGENCY POWER" shall be provided in the elevator lobby at the designated level for <b>each group of elevators or for any single elevator not in a group. The signal(s) shall</b> to indicate that the normal power has failed and the emergency or standby power is in effect for one or more of the cars in <del>this group operation</del> <b>that group of elevators or that single elevator.</b></p>	<p>Rationale: To clarify the intent of the requirement. Buildings with multiple groups may include one or more single elevators. These single elevators should also be provided with the illuminated emergency power signal. Previous requirement did not clearly mandate that an illuminated emergency power signal was required for single elevators.</p>	
125	<u>2.27.2.4.4</u>	2013	<p>Subparagraph (a) revised:                      2.27.2.4.4 An automatic means shall be provided to select each elevator one or more at a time as follows:                      (a) When selected, an elevator that is not on designated attendant operation, inspection operation, or Firefighters' Emergency Operation shall return to the designated level where <b>the power-operated doors at the landing where the illuminated signal (see 2.27.2.3) is located shall open and remain open. Where more than one entrance is provided at the designated level, the other doors are permitted to open.</b> The selection shall then be automatically transferred to another elevator until all elevators have been selected.</p>	<p>Rationale: To clarify operation of elevator with alternate doors.</p>	field verifiable/permission

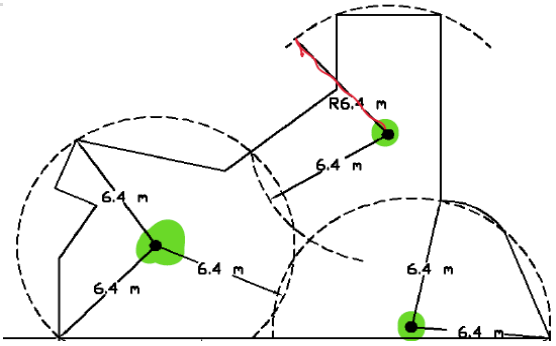
Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
126	2.27.2.4.4	2016	<p><b>Emergency or Standby Power System</b> Revised in its entirety</p> <p>2.27.2.4.4 An automatic means shall be provided to select each elevator one or more at a time.</p> <p>The selection shall be transferred to another elevator until all the elevators have been selected. After all elevators have been selected, the process shall repeat for any cars that failed to move to give them a second opportunity.</p> <p>The operation, when selected, shall be as follows:</p> <p>(a) An elevator that is not on designated attendant operation, hoistway access operation, inspection operation, Firefighters' Phase I Emergency Recall Operation, or Firefighters' Phase II In-Car Emergency Operation shall return to the designated level where the power-operated doors at the landing where the illuminated signal (see 2.27.2.3) is located shall open and remain open. Where more than one entrance is provided at the designated level, the other doors are permitted to open. <b>Once the selected car has returned to the designated level or fails to move within 30 seconds, the selection shall be automatically transferred to another elevator.</b></p>	<p>Language added about transfer of power to stopped cars and time intervals before switching power to another car.</p> <p>While 20-30 seconds seems perfectly adequate for cars on normal, automatic operation, when a car is on any non-automatic or designated-attendant mode of operation, more time may be needed for the in-car operator or elevator personnel to respond appropriately once power is transferred to that car.</p> <p>Dedicated one paragraph to Fire Phase I operation to address the unique requirements for the car to return to the "recall level," rather than to the "designated level."</p>	<p>[I]field verifiable</p> <p>Added requirement; [OEM] [I] Once the selected car has returned to the designated level or fails to move within 30 seconds, the selection shall be automatically transferred to another elevator.</p>
126	2.27.2.4.4	2016	<p>(b) An elevator on designated attendant operation, hoistway access operation, inspection operation, or Firefighters' Phase II In-Car Emergency Operation shall operate in accordance with those requirements and shall remain selected until the car is stopped for a period of not less than 2 minutes, and not more than 3 minutes, before the selection shall be automatically transferred to another elevator.</p> <p>For cars on Firefighters' Phase II In-Car Emergency Operation, the in-car visual signal [2.27.3.1.6(h) and 2.27.3.3.8] shall activate only while the car is selected.</p> <p>(c) An elevator that is on Firefighters' Phase I Emergency Recall Operation shall return to the recall level in accordance with 2.27.3.1 or 2.27.3.2. Once recall is complete, or the selected car fails to move within 30 seconds, the selection shall be automatically transferred to another elevator.</p> <p><del>(c) If any selected car does not move for more than 20 s to 30 s, the selection shall be transferred to another car, until all elevators have been selected.</del></p> <p><del>(d) After all elevators have been selected, the process shall repeat for any cars that failed to move to give them a second opportunity.</del></p>	<p>Hoistway access operation was inadvertently omitted from the list of operations that must be excluded when selecting the cars that will be automatically returned on emergency/standby power operation to the recall level in accordance with 2.27.2.4.4(a).</p> <p>Provided the performance requirement of a minimum of 2 minutes for the in-car operator to move the car and eliminated the prescriptive requirements.</p>	
126	2.27.3.1.1	2013	<p><b>Phase I Emergency Recall Operation</b> Subparagraph (b) revised:</p> <p>(b) labeled "FIRE RECALL" and its positions marked "RESET," "OFF," and "ON" (in that order), with the "OFF" position as the center position. The "FIRE RECALL" letters shall be a minimum of 5 mm (0.25 in.) high in red or a color contrasting with a red background. <b>Text shall be either red on a background which contrasts with red, or a color which contrasts with red on a red background.</b></p>	<p>Rationale: The current requirement does not forbid red text on a red background if the text color contrasts with the background.</p>	<p>field verifiable</p> <p>Red text or Red background permitted</p> <p>Colours must contrast</p>



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
126	2.27.3.1.2	2013	(1) Revised: 2.27.3.1.2 An additional key-operated "FIRE RECALL" switch, with two positions that will not change position without a deliberate action by the user, marked "OFF" and "ON" (in that order), shall be permitted only at the <del>building fire control station</del> <b>fire command center</b> .	Clarifies location of additional fire recall switch.  Revised terminology	
126	2.27.3.1.2	2013	(2) Note added: <b>Note (2.27.3.1.2): In jurisdictions enforcing NBCC, the Fire Command Center (FCC) is known as the Central Alarm and Control Facility (CACF).</b>		
126	2.27.3.1.6	2013	(1) Subparagraph (a) revised: 2.27.3.1.6 When a "FIRE RECALL" switch is in the "ON" position all cars controlled by the switch shall operate as follows: (a) A car traveling towards the designated level shall continue nonstop to the designated level and power operated doors shall open and remain open. On cars with <del>two more than one entrances</del> <b>entrance</b> , if <del>both the doors for another entrances</del> <b>entrance</b> can be opened at the designated level, only the doors serving the lobby where the "FIRE RECALL" switch is located shall <b>automatically</b> open and remain open. <b>Once at the designated level, all in-car door open button(s) shall be operative. Once the doors at an entrance other than the entrance serving the lobby where the "FIRE RECALL" switch is located, are opened by means of an in-car door open button, they shall initiate reclosing within 15 seconds of reaching the normal open position.</b>	Rationale: <b>2.27.3.1.6(a) – To clarify that any door (side, rear, etc.) that does not have an associated "FIRE RECALL" switch is not to be automatically opened when the car returns to the designated level.</b>  Because the existing language only addresses when the door open button(s) are to be rendered inoperative, additional language is needed to clarify that the door open button(s) for doors that do not have an associated "FIRE RECALL" switch are required to be operative when the car is at the designated level. Provide a maximum time that a door can be held open by a door open button associated with an entrance other than the door serving the lobby at the designated level. A 15 sec. maximum is a consensus value chosen by the committee as a door stand open time, and it is consistent with similar situations for hydraulic elevators [see Requirement 3.27.1(d)] and for traction elevators with alternate source of power [see 2.27.3.1.6(n)(3)].	field verifiable  Not all car doors must open when a car is recalled to the designated level.  If they are opened.... by < > button, they shall close after 15 s
126	2.27.3.1.6	2013	(2) Subparagraph (d)(2) editorially revised: 2.27.3.1.6(d)(2) Elevators having power-operated vertically sliding doors provided with automatic or momentary pressure closing operation shall have the closing sequence initiated without delay in accordance with <del>2.13.2.4</del> <b>2.13.3.4</b> and the car shall proceed to the designated level.	Rationale: To correct a reference, 2.13.2.4 does not exist.	
126	2.27.3.1.6	2013	(3) Subparagraph (f)(2) revised: 2.27.3.1.6 (f) (f) All car and corridor call buttons shall be rendered inoperative. All call-registered lights and directional lanterns shall be extinguished and remain inoperative. Car position indicators, where provided, shall remain operative. Where provided, landing position indicators shall be extinguished and remain inoperative, except at the designated level and the <del>building fire control station</del> <b>fire command center</b> , where they shall remain operative.		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
127	2.27.3.1.6	2016	Subparagraphs (c) revised 2.27.3.1.6(c) <b>When provided, the in-car stop switch (see 2.26.2.21) or the emergency stop switch in the car (see 2.26.2.5) shall not be made ineffective.</b>	<b>Previously in-car stop switches or emergency stop switches where rendered in operative.</b> Now the requirement keeps them active. The rationale is they are now required to be group 1 and only available to elevator personnel, who would have cause or reason to actuate these switches.	field verifiable [OEM] design requirement
127	2.27.3.1.6	2016	Subparagraphs (d) revised 2.27.3.1.6(d) A car standing at a landing other than the designated level, with <del>the doors open and</del> the in car stop switch and the emergency stop switch in the car, when provided, in the run position, shall <b>proceed to the designated level if the doors are closed, or shall</b> conform to the following <b>if the doors are not closed:</b>	<b>Requirement only explained Phase 1 Emergency Recall when the doors are in the open position, this modification is to include Phase 1 Emergency Recall requirements when initiated with the doors in the closed position. (ie proceed to the designated level)</b>	field verifiable
127-1 29	2.27.3.2.1 NON-NBCC	2013	<b>Phase I Emergency Recall Operation by Fire Alarm Initiating Devices</b> (1) First paragraph revised: 2.27.3.2.1 In jurisdictions not enforcing the NBCC, <b>smoke detectors or other automatic fire detectors in environments not suitable for smoke detectors</b> (fire alarm initiating devices), used to initiate Phase I Emergency Recall Operation shall be installed in conformance with the requirements of NFPA 72, and shall be located	NON NBCC jurisdictions	
127-1 29	2.27.3.2.1	2013	(2) Subparagraphs (a) and (b) editorially revised: (a) at <b>each elevator lobby</b> <del>each floor</del> served by the elevator (b) in the associated elevator machine room, machinery space containing a motor controller or <del>electric</del> driving machine, control space, or control room	Rationale: To clarify that only FAIDs located in/at the elevator lobbies shall cause recall of the associated elevator(s).	At each floor, changed to each lobby  (S524 provides effective radius of detection for FAID's)
129-1 31	2.27.3.2.1	2016	Note added	NON NBCC jurisdictions	
127-1 29	2.27.3.2.2	2013	(1) Subparagraphs (a) and (b) revised: (a) at <b>each elevator lobby</b> <del>each floor</del> served by the elevator (b) in the associated elevator machine room, machinery space containing a motor controller or <del>electric</del> driving machine, control space, or control room	Rationale: To clarify that only FAIDs located in/at the elevator lobbies shall cause recall of the associated elevator(s).	 [I] At each floor, changed to each lobby  (CAN/ULC-S524 Installation of Fire Alarm Systems provides effective radius of detection for FAID's not more than 6.4m)
127-1 29	2.27.3.2.2	2013	(2) Subparagraph (c) added: <b>(c) in the elevator hoistway, when sprinklers are located in those hoistways.</b>	Rationale: To harmonize with 2.27.3.2.1 and to ensure that detectors are located in the hoistway when there are sprinklers in the hoistway.	field verifiable

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
129-1 31	2.27.3.2.2	2016	Note (2) added (2) 2.27.3.2.2(b): A machinery space containing a motor controller or driving machine located in the elevator hoistway, or a control space located in the elevator hoistway requires a fire alarm initiating device regardless of the presence of sprinklers.	Clarify that FAID's in machinery spaces includes these forms of machinery spaces as well.	
127-1 29	2.27.3.2.3	2013	Subparagraph (b) editorially revised: (b) The activation of a fire alarm initiating device specified in 2.27.3.2.1(b) or 2.27.3.2.2(b) shall cause all elevators having any equipment located in that machine room or space, and any associated elevators of a group automatic operation, to be returned nonstop to the designated level. If the machine room is located at the designated level, the elevator(s) shall be returned nonstop to the alternate level.		
129-1 31	2.27.3.2.4	2016	Subparagraph (c) revised	remove a reference to in-car stop switches due to changes related to in-car stop switches	
127-1 29	2.27.3.2.6	2013	Revised in its entirety: 2.27.3.2.6 When a fire alarm initiating device in the machine room, control space, control room, or hoistway initiates Phase I Emergency Recall Operation is initiated by a fire alarm initiating device for any location listed in 2.27.3.2.6(a) through (e), as required by 2.27.3.2.3 or 2.27.3.2.4, the visual signal [see 2.27.3.1.6(h) and Fig. 2.27.3.1.6(h)] shall illuminate intermittently only in a car(s) with equipment in that location. machine room, control space, control room, or hoistway. a) Machine room b) Machinery space containing a motor controller or driving machine c) Control room d) Control space e) Hoistway	Rationale: Improve readability of the code.	
127-1 29	2.27.3.2.7 NON-NBCC	2013	Added: 2.27.3.2.7 In jurisdictions not enforcing the NBCC, listed relay(s) or other listed appliance(s) as specified and defined in NFPA 72 for connection to the fire alarm system shall be provided, and shall be; (a) installed in conformance with the requirements of NFPA 72 (b) used to initiate Phase I Emergency Recall Operation; and (c) located outside of any room or space requiring Group 1 Security (see 8.1).	Rationale: This requirement would specify that a listed relay or listed appliance that complies with NFPA 72 (Requirement 6.16.2.2) interface with fire alarm systems in jurisdictions not enforcing the NBCC and does not require the fire alarm company employees to enter dangerous areas. This is essentially a correlation, acknowledging these devices are to be installed per the NFPA code. This requirement will clarify the interface device should not be located in Group 1 security areas (Pit and Hoistway) but should be located in Group 2 security areas (such as machine room, control room)	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
127-1 29	2.27.3.3	2013	<p>First paragraph revised:                      2.27.3.3 Phase II Emergency In-Car Operation. A three-position (“OFF,” “HOLD,” and “ON,” in that order) key-operated switch that will not change position without a deliberate action by the user, shall be labeled “FIRE OPERATION”; provided in an operating panel in each car; and shall be readily accessible. The label “FIRE OPERATION” lettering shall be a minimum of 5 mm (0.25 in.) high in red or a color contrasting with a red background. <b>Text shall be either red on a background which contrasts with red, or a color which contrasts with red on a red background.</b> It shall become effective only when Phase I Emergency Recall Operation is in effect and the car has been returned to the recall level. The switch shall be rotated clockwise to go from “OFF” to “HOLD” to “ON.”</p>	<p>Rationale: The current requirement does not forbid red text on a red background if the text color contrasts with the background.</p>	field verifiable
127-1 29	2.27.3.3.1	2013	<p>Subparagraphs (b)(2), (d), (e), and (n) revised:                      (b)(2) at the <del>building fire control station</del> <b>fire command center</b>,                      (d) The opening of power-operated doors shall be controlled only by a continuous-pressure door open button.                      If the button is released prior to the doors reaching the normal open position, the doors shall automatically reclose. Requirements 2.13.3.3, 2.13.3.4, 2.13.4.2.1(b)(2), and 2.13.4.2.1(c) do not apply. All door open button(s) in the car shall be operational.  <del>On cars with multiple entrances, if more than one entrance can be opened at the same floor, separate door open buttons shall be provided for each entrance in conformance with 2.27.3.3.7.</del>                      (e) Open power-operated doors shall be closed only by continuous pressure on the door close button. If the button is released prior to the doors reaching the fully closed position, horizontally sliding doors shall automatically reopen, and vertically sliding doors shall automatically stop or stop and reopen. Where provided, additional door close button(s) in the car shall be operational.  <del>On cars with multiple entrances, if more than one entrance can be opened at the same floor, a separate door close button shall be provided for each entrance in conformance with 2.27.3.3.7.</del></p>	<p>Rationale:                      (d) &amp; (e) These requirements are redundant with the requirements of 2.27.3.3.7</p>	
129-1 31	2.27.3.3.1	2016	<p>Subparagraph (c) revised</p>	<p>Add a reference to see 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.</p>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
127-1 29	2.27.3.3.1(n)	2013	Subparagraph (n) revised: 2.27.3.3.1(n) If the normal power supply, emergency power supply, and standby power supply are not available and the elevator is equipped with an alternate source of power that can move the car to a floor, but is insufficient to move the car to all landings, the following requirements of 2.27.3.1.6(n)(1) through (5) shall apply: (1) The visual signal [2.27.3.1.6(h)] shall illuminate intermittently. (2) A car that is not at a landing shall not start until a car call is entered. After a car call is entered, the car shall move to the closest landing it is capable of reaching. (3) A car stopped at a landing shall not move until normal power, emergency power, or standby power becomes available.	Rationale: 1. Power supplies (auxiliary power supplies) are currently being installed which offer limited operating capability when electric elevators lose mainline power. 2. This addressed the requirements for firefighters Phase II emergency in-car operation on electric elevators equipped with an auxiliary power supply. 3. While the FIRE OPERATION" switch in the car is in the "ON" position, door operation at a landing must still remain in the control of the firefighter in the car, in order to protect the firefighter from the possibility to exposure of extreme heat and/or smoke from the landing side. 4. Illuminating the visual signal [2.27.3.1.6(h)] intermittently, informs the firefighter that the car will soon be unavailable for Phase II operation. This requirement is also consistent with 3.27.4 for Hydraulic elevators. 5. Door operation with respect to the FIRE OPERATION" switch in the car in the "OFF", "HOLD" and "ON" positions, should be consistent with the requirements of 2.27.3.4(b) through (d) following an interruption of power.	[I] field verifiable - see FEO checklist [OEM] design req't if aux. power provided
130, 131	2.27.3.3.2	2013	Last paragraph added: If the normal power supply, emergency power supply, and standby power supply are not available and the elevator is equipped with an alternate source of power and the "FIRE OPERATION" switch in the car is in the "HOLD" position, the visual signal [2.27.3.1.6(h)] shall illuminate intermittently.		
130, 131	2.27.3.3.4	2013	Last Paragraph added: If the normal power supply, emergency power supply, and standby power supply are not available and the elevator is equipped with an alternate source of power that can move the car to a floor, and the "FIRE OPERATION" switch in the car is in the "OFF" position, the following requirements shall apply: (1) The visual signal [2.27.3.1.6(h)] shall illuminate intermittently. (2) The requirements of 2.27.3.1.6(n)(2) through (5) shall apply.		
132	2.27.3.3.7	2016	Second paragraph revised When required as part of the fire department communication system, a phone jack shall be permitted to be installed in the firefighters' operation panel below the level of the "FIRE OPERATION" switch. No other equipment shall be permitted in the firefighters' operation panel.	Rationale: To specify the location of the phone jack when it is provided as part of the fire department communication system.	
133	2.27.3.3.8	2016	Revised	relates to 2.27.3.3.8: Additional visual signal specify that an additional visual signal shall activate and deactivate the same as the signal required in 2.27.3.1.6(h)	
132	2.27.4.1	2013	<b>Firefighters' Emergency Operation: Nonautomatic Elevators - Phase I Emergency Recall Operation</b> Second paragraph editorially revised: order), shall be permitted only at the building fire control station fire command center.	Rationale: to provide consistency with NFPA 72	

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
133	2.27.4.2	2013	<p><b>Phase I Emergency Recall Operation by Fire Alarm Initiating Devices</b> Revised in its entirety: 2.27.4.2 Phase I Emergency Recall Operation by Fire Alarm Initiating Devices. (a) Fire alarm initiating devices shall be installed <del>at each floor served by the elevator, and in the associated machine room, control space, or control room, and elevator hoistway,</del> <b>in the locations listed in 2.27.4.2 (a)(1) - (3),</b> in compliance with the requirements in NFPA 72 or NBCC, whichever is applicable (see Part 9). <del>In jurisdictions enforcing the NBCC, compliance with 2.27.4.2 is not required where the NBCC specifies manual Emergency Recall operations only.</del> (1) <b>at each floor served by the elevator</b> (2) <b>in the associated elevator machine room, machinery space containing a motor controller or driving machine, control space, or control room</b> (3) <b>in the elevator hoistway, when sprinklers are located in those hoistways</b> (b) Phase I Emergency Recall Operation, conforming to 2.27.4.1, shall be initiated when any Phase I Emergency Recall Operation fire alarm initiating device <del>at the elevator lobbies, machine room, control space, control room, or hoistway</del> <b>specified in 2.27.4.2(a) is activated.</b> (c) Phase I Emergency Recall Operation, when initiated by a Phase I Emergency Recall Operation fire alarm initiating device, shall be maintained until canceled by moving the "FIRE RECALL" switch to the "RESET", then "OFF" position. (d) When a fire alarm initiating device in <b>a location specified by 2.27.4.2(a)(2) or (3)</b> <del>the machine room, control space, control room, or hoistway</del> initiates Phase I Emergency Recall Operation as required by 2.27.3.2.3 or 2.27.3.2.4, the visual signal [see 2.27.3.1.6(h) and Fig. 2.27.3.1.6(h)] shall illuminate intermittently only in a car(s) with equipment in that <del>location machine room, control space, control room, or hoistway.</del></p>	<p>Rationale: 1) To clarify that only FAIDs located in/at the elevator lobbies shall cause recall of the associated elevator(s). 2) Improve readability of the code. 3) Motor controllers and machines are supplied with sufficient power to start a fire. We should monitor for smoke in these areas. If the fire initiates in one of these devices, the firefighters should be warned not to use the affected elevator. 4) To harmonize 2.27.4.2 and delete the Canadian exceptions. The requirements for all elevators to have automatic recall have now been harmonized and will be reflected in the next edition of the code. During the process this area of the code was overlooked unintentionally and needs to be brought in line with the requirements for automatic elevators in order to provide an increased level of safety. 5) The detector does not need to be located inside the space, but needs to be able to detect when there is smoke in the space. As an example, an appropriately designed smoke detector placed in an exhaust air duct leading from the control or machinery space could be used to detect fire in the space.</p>	
133	2.27.5.1	2013	<p><b>Firefighters' Emergency Operation: Automatic Elevators With Designated-Attendant Operation</b> Revised: 2.27.5.1 When designated-attendant operation is not in effect, elevators shall conform to 2.27.3 <b>and when Occupant Evacuation Operation is provided shall also conform to 2.27.11.6.</b></p>	<p>Added references to OEO</p>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
133	2.27.5.2	2013	Subparagraphs (a) and (b) revised: 2.27.5.2 When operated by a designated attendant in the car, except hospital service: (a) elevators parked at the recall level shall conform to 2.27.3 and when Occupant Evacuation Operation is provided shall also conform to 2.27.11.6 without delay; elevators parked at a floor other than the recall level shall conform to 2.27.3.1.6(h). At the completion of a time delay of not less than 10 s and not more than 30 s, elevators parked at a floor away from the recall level shall conform to 2.27.3 and when Occupant Evacuation Operation is provided shall also conform to 2.27.11.6. (b) A moving car shall conform to 2.27.3 and when Occupant Evacuation Operation is provided shall also conform to 2.27.11.6.		
133	<u>2.27.5.3</u>	2013	Editorially revised	Added references to OEO	
133	<u>2.27.6</u>	2013	<b>Firefighters' Emergency Operation, Occupant Evacuation Operation: Inspection Operation</b> Editorially revised	Added references to OEO	
135	Fig. 2.27.8	2013	<b>Switch Keys</b> Added	FEO key drawing updated	
135	2.27.8	2013	Revised	Added references to OEO	
135	<u>2.27.10</u>	2013	<b>Reserved for future use</b>		
135	<u>2.27.11</u>	2013	<b>Occupant Evacuation Operation</b> Added	Occupant Evacuation Operation Added	
136	2.27.11.1.5	2016	Subparagraph (a) editorially revised	editorial only , no change to requirements.	
127	Section 2.27	2019	<b>EMERGENCY OPERATION AND SIGNALING DEVICES</b> Note Revised	Rationale: To provide a reference to the building code for additional requirements for FSAE and OEO.	
129	2.27.1.1	2019	Revised in its entirety		
129	2.27.1.1	2019	2.27.1 Car Emergency Signaling Devices 2.27.1.1 Emergency Communications The two-way communications shall conform to 2.27.1.1.1 through 2.27.1.1.6.	<b>Rationale: New requirements for emergency communications to include remote video and abilities to communicate with non-verbal or non-hearing passengers</b>	Revised to include video requirement
129	2.27.1.1.1	2019	2.27.1.1.1 A <del>two-way</del> communications means between the car and a location staffed by authorized personnel who can take appropriate action, shall be provided.	clarify staff as personnel who can take appropriate action	
129	2.27.1.1.2	2019	2.27.1.1.2 <del>(a) Two-way communications shall be directed to a location(s) staffed by authorized personnel who can take appropriate action. (b)</del> If the call is not acknowledged [2.27.1.1.3(c)] within 45 s, the call shall be automatically directed to an alternate on- or off-site location.	define the time before transfer to the next location	still 45s

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
129	2.27.1.1.3	2019	The <del>two-way</del> communications means within the car shall comply with the following requirements: (a) In jurisdictions enforcing NBCC, Nonmandatory Appendix E of ASME A17.1/CSA B44, or in jurisdictions not enforcing NBCC, ICC/ANSI A117.1. (b) A push button to actuate the two-way communications means shall be provided in or adjacent to a car operating panel. The push button shall be visible and permanently identified with the "PHONE" phone symbol (see 2.26.12.1). The identification shall be on or adjacent to the "PHONE" phone push button. <del>When the push button is actuated, the emergency two-way communications means shall initiate a call for help and establish two-way communications.</del> <b>The communications means shall be initiated when the push button is actuated.</b>	2 way communication activated when the phone button is pushed	no change to initiation
129	2.27.1.1.3	2019	(c) <del>A visual indication on</del> <b>On</b> the same panel as the "PHONE" phone push button, <del>a message shall be displayed shall be provided,</del> that is activated by authorized personnel, to acknowledge that <del>two-way communications link has been is</del> established. <del>The visual indication message shall be permitted to be extinguished where necessary to display a new message [see 2.27.1.1.3(d) and 2.27.1.1.3(e)] or when the two-way communications link is are</del> terminated.	communication has been established' message shall be permitted to be extinguished to display a new message	[OEM] ability to have a changeable message sign
129	2.27.1.1.3	2019	<b>(d) On the same panel as the phone push button, messages shall be displayed which permit authorized personnel to communicate with and obtain responses from a trapped passenger(s) including a passenger(s) who cannot verbally communicate or cannot hear.</b>	requirement to <b>communicate with and obtain responses from</b> passengers who cannot verbally communicate or cannot hear. Passenger needs to interact w/Authorized personnel - for example press buttons	requirement for non-verbal / deaf persons to interact with Auth. Personnel
129	2.27.1.1.3	2019	<b>(e) On the same panel as the phone push button a message shall be displayed, that is activated by authorized personnel, to indicate when help is on the way. The message shall continue to be displayed until a new message is displayed [see 2.27.1.1.4(c)] or the communication is terminated.</b>	requirement to communicate with passengers who cannot verbally communicate or cannot hear.	requirement for non-verbal / deaf persons
129	2.27.1.1.3	2019	<b>(f) through (j) updates</b>	primarily editorial type corrections	
129	2.27.1.1.3	2019	<b>(k) A means to display video to observe passengers at any location on the car floor, to authorized personnel for entrapment assessment shall be provided.</b>	<b>requirement to provide a video connection between the car and the authorized person</b>	requirement for Video
129	2.27.1.1.4	2019	Where the elevator rise is 18 m (60 ft) or more... (c) <del>Once the two-way voice communications have has been established, the visual indication [see 2.27.1.1.3(c)]</del> <b>a message shall be displayed on the same panel as the phone push button, that is activated by emergency personnel, to indicate that help is on site within the car shall illuminate. The visual indication message shall be permitted to be extinguished where necessary to display a new message [see 2.27.1.1.4(e)] or when the two-way communications are is</b> terminated.		high building requirement same as non high building



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
129	2.27.1.1.4	2019	(e) On the same panel as the phone push button, messages shall be displayed which permit emergency personnel to communicate with and obtain responses from a trapped passenger including a passenger who cannot verbally communicate or cannot hear. (f) A means to display video to observe passengers at any location on the car floor, to emergency personnel for entrapment assessment shall be provided.		high building requirement same as non high building
130	2.27.2.4.1	2019	<b>Emergency or Standby Power System</b> Revised	Change 'selection switches' to 'selection means'.	
131	2.27.2.4.2	2019	Revised		
131	2.27.2.4.5	2019	Revised		
131	2.27.2.4.6	2019	Revised		
132	2.27.3.1.2	2019	<b>Phase I Emergency Recall Operation</b> Revised	Rationale: Clarify Fire Recall switch labelling requirements.	
132	2.27.3.1.6	2019	(1) Introductory paragraph and subparas. (a), (h), (j), (k), and (k)(1) Revised	update language	
		2019	(2) Note added after subpara. (n)(5)		
134	2.27.3.2.3	2019	<b>Phase I Emergency Recall Operation by Fire Alarm Initiating Devices</b> Subparagraph (a) Revised	change reference 'floor' to 'lobby'	
134	2.27.3.2.4	2019	Revised	update cross references	
134	2.27.3.2.5	2019	Revised	Rationale: Editorial revision where "FIRE RECALL" is changed to "fire recall"	
137	2.27.3.3.7	2019	<b>Phase II Emergency In-Car Operation</b> Revised		
138	2.27.3.5.1	2019	Revised		
138	2.27.4.1	2019	<b>Firefighters' Emergency Operation: Nonautomatic Elevators - Phase I Emergency Recall Operation</b> Revised		
139	2.27.4.2	2019	Subparagraph (c) Revised		
139	2.27.5.3	2019	<b>Firefighters' Emergency Operation: Automatic Elevators With Designated-Attendant Operation</b> Revised		
139	2.27.6	2019	<b>Firefighters' Emergency Operation or Occupant Evacuation Operation: Inspection Operation</b> Revised		
139	2.27.7	2019	<b>Firefighters' Emergency Operation: Operating Procedures</b> (1) Paragraph 2.27.7.1 Revised		
		2019	(2) Paragraph 2.27.7.4 deleted	Moved to 2.27.10.2	
141	2.27.10	2019	<b>Elevator(s) for Use by Firefighters</b> Revised in its entirety 2.27.10.1 Fire Service Access Elevators..... 2.27.10.2 Firefighters' Elevator...	Updated for relevance in non-NBCC jurisdictions Introduce a similar required for US and call those elevators FSAE	NBCC Fire Fighter's Elevator requirements where moved from 2.27.7.4 to 2.27.10.
141	2.27.11	2019	<b>Occupant Evacuation Operation</b> Revised in its entirety	Update requirements for OEO elevators	
142	Figure 2.27.9	2019	<b>Elevator Corridor Call Station Pictograph</b> Revised	update of In case of fire pictograph	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>2.28 Layout Drawings</b>					
145	2.28.1	2019	<p><b>LAYOUT DRAWINGS - Information Required on Layout Drawings</b></p> <p>Subparagraph (k) added</p> <p>2.28.1(k) locations of access panels and protective guards when provided in compliance with 2.8.2.4(b).</p>	<p>Rationale: The location of the access panels and protective guards affects the elevator installer, elevator personnel, the fire alarm system designer and fire alarm technicians. Indicating the location of these on the layout drawings ensures that the information required by all parties can be found in one place. This information is also useful to the AHJs who inspected both the elevator and the fire alarm system.</p>	<p>[E] - Layout drawings need to reflect this additional requirement</p> <p>[Submitter] Show access to in-hoistway FAID's and protective guard 0.25" dia ball on L/O dwgs</p>
<b>2.29 Identification</b>					
140, 141	2.29.1.1	2016	<p><b>Identification of Equipment</b></p> <p>Revised</p> <p>In buildings with more than one elevator, each elevator in the building shall be assigned a unique alphabetic, numeric, or alphanumeric identification.</p> <p>Where destination-oriented control for operation is provided, the same unique identifier for each elevator shall be used for both the destination-oriented designation and the designation.</p>	<p>revised</p> <p>add alphanumeric identification</p> <p>add identification requirements if using destination-oriented control</p>	field verifiable
140, 141	2.29.1.2	2016	<p>Revised in its entirety</p> <p>The identification assigned in 2.29.1.1 shall be a minimum of 50 mm (2 in.) in height unless otherwise specified, and of contrasting color to its background. The identification shall be painted on, engraved on, or securely attached to or adjacent to the following equipment associated with each elevator or the enclosures housing the following equipment associated with each elevator:</p> <p>(a) the driving machine</p> <p>(b) motor-generator set</p> <p>(c) operation controller, motion controller, and motor controller</p> <p>(d) selector</p> <p>(e) governor</p> <p>(f) disconnecting means (see NFPA 70, Article 620, or CSA C22.1, Section 38)</p> <p>(g) the crosshead, or where there is no crosshead, the car frame, such that it is visible from the hoistway landing</p> <p>(h) the car operating panel, a minimum of 13 mm (0.5 in.) in height</p>	<p>Revised in its entirety</p> <p>clarifications for requirements (c) and (g)</p> <p>New requirements added, see (i) to (n)</p>	field verifiable

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
140, 141	2.29.1.2	2016	<p><b>Identification of Equipment</b> continued..</p> <p>(i) on both doorjams of every elevator entrance at the <u>designated level, alternate level, level where means necessary for tests is provided</u> (see 2.7.6.4), and <u>level where an inspection and test panel is provided</u> (see 2.7.6.5); this identification shall be a minimum of 50 mm (2 in.) in height and shall be located immediately below the floor designation, where provided (see Nonmandatory Appendix E, Clause E-17)</p> <p><b>(j) separately enclosed control components</b> (e.g., motor circuit transformers, dynamic braking resistors, line rectifiers, or chokes)</p> <p><b>(k) means to trip and/or reset the governor from outside the hoistway</b> as permitted by 2.7.6.3.4</p> <p><b>(l) means necessary for tests</b> (see 2.7.6.4)</p> <p><b>(m) inspection and test panel</b> (see 2.7.6.5)</p> <p><b>(n) buffers or pit channel in the pit, visible from the pit access door landing</b></p>	<p>Revised in its entirety</p> <p>clarifications for requirements (c) and (g)</p> <p><b>New requirements added, see (i) to (n)</b></p>	<p>[I] field verifiable new locations where equipment identification is required</p>
140, 141	<u>2.29.1.3</u>	2016	<p>Subparagraph (i) revised (i) the earthquake reset button or switch as required by <del>8.4.10.1.1(a)(2)(b)</del> <b>8.4.10.1.1(d)</b></p>	<p>revised clause</p>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
139	2.29.1	2013	<p>Revised in its entirety:</p> <p><b>2.29.1.3 Where any of the following devices for more than one elevator are located in the same enclosure</b>, such devices or a grouping of devices for one elevator with demarcation to establish that all devices within the demarcation belong to that identified elevator shall be identified with the unique alphabetical or numerical identification letter(s) or number(s) of its associated elevator as assigned in 2.29.1.1:</p> <p>(a) <b>means to trip the governor</b> and/or means to reset the governor from outside the hoistway as permitted by 2.7.6.3.4</p> <p>(b) <b>display devices</b> or their equivalent as required by 2.7.6.4.1</p> <p>(c) <b>means to move the car</b> from outside the hoistway as required by 2.7.6.4.3</p> <p>(d) <b>stop switches</b> as required by 2.7.6.5.2</p> <p>(e) landing <b>inspection operation transfer switches</b> and operating devices as required by 2.7.6.5.2 (see also 2.26.1.4.4)</p> <p>(f) <b>“CAR DOOR BYPASS”</b> and <b>“HOISTWAY DOOR BYPASS”</b> switches as required by 2.26.1.5</p> <p>(g) means to manually reset the ascending car over speed detection means as required by 2.19.1.2(a)(4)</p> <p>(h) means to manually reset the unintended motion detection means as required by 2.19.2.2(a)(4)</p> <p>(i) the earthquake reset button or switch as required by 8.4.10.1.1(a)(2)(b)</p>	<p>Split into three parts to clarify which items need marking of a particular size.</p> <p>2.29.3 added to include identification requirements for items that could cause mal-operation of other elevators. When the items listed in 2.29.1.3 are grouped together in the same enclosure they must be clearly identified with a unique alpha or numerical identification.</p>	<p>[I] New requirement - When the items listed in 2.29.1.3 are grouped together in the same enclosure they must be clearly identified</p>
<b>2.30 Sway Control Guides</b>					
140	Section 2.30	2013	<p><b>SWAY CONTROL GUIDES</b></p> <p>Added</p> <p><b>SECTION 2.30</b></p> <p><b>SWAY CONTROL GUIDES</b></p> <p><b>2.30.1 General Requirements</b></p> <p><b>2.30.2 Suspension Means</b></p> <p><b>2.30.3 Abrasion Protection</b></p> <p><b>2.30.4 Guiding Members</b></p>	<p>New requirements when sway control devices are utilized. This section is not intended to mandate the use of sway control guides or establish specific criteria which would trigger the use of these devices.</p>	<p>[I] field verifiable if provided</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>PART 3</b>					
<b>3.4 Bottom and Top Clearances and Runbys for Cars and Counterweights</b>					
142	3.4.1.6	2013	Revised: a sign with the words "DANGER LOW CLEARANCE" in a minimum 50mm(2 in.) high letters shall be prominently posted on the hoistway enclosure and shall be visible from within the pit and at the entrance to the pit. The sign shall conform to ANSI Z535.2 and ANSI Z535.4, or CAN/CSA-Z321, whichever is applicable (see Part 9). The sign shall be made of a durable material and shall be securely fastened. The letters and figures shall remain permanently and readily legible.	Signage requirement for pit area outside the refuge space updated to include additional performance requirements.	field verifiable
<b>3.6 Protection of Spaces Below Hoistway</b>					
144	3.6.3	2016	Subparagraph (c) added: (c) elastomeric buffers of a design that will not be fully compressed when struck by a car with rated load at the operating speed in the down direction (see 3.22.1)	New requirement for elastomeric buffers	OEM design requirement
<b>3.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms</b>					
150	3.7.1	2019	Title added 3.7.1 Requirements		
<b>3.12 Hoistway Door Locking Devices, Electric Contacts, and Hoistway Access Switches</b>					
145	Section 3.12	2013	Title revised <b>HOISTWAY DOOR LOCKING DEVICES, ELECTRIC CONTACTS, AND HOISTWAY ACCESS SWITCHES</b>	Title made more inclusive.	
145	3.12.1	2013	Title and paragraph revised: The requirements of Section 2.12 shall apply.	Section revised to indicate all of 2.12 applies to hydraulic elevators.	OEM design requirement
151	Section 3.12	2019	Title Revised HOISTWAY DOOR LOCKING DEVICES AND ELECTRIC CONTACTS <b>CLOSED DETECTION MEANS</b> , AND HOISTWAY ACCESS SWITCHES	Rationale: to use the new term closed detection means.	
151	3.12.2	2019	Revised		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>3.17 Car Safeties, Counterweight Safeties, Plunger Gripper, and Governors</b>					
145	3.17.1.1	2013	Second sentence editorially revised	Reference changed due to renumbering elsewhere.	
146	3.17.3.2	2013	Revised: 3.17.3.2 Means of Application. A plunger gripper shall mechanically grip the plunger when a loss of hydraulic pressure or fluid causes uncontrolled downward motion to occur. The plunger gripper shall be actuated by either a hydraulic means or an electrical means.	Provides clearer language covering the required actuation means.	OEM design requirement
146	3.17.3.2.1	2013	(1) Deleted, and original 3.17.3.2.2 revised and redesignated 3.17.3.2.1: 3.17.3.2.1 <del>Electrical Actuation Means. When electrical means are used to actuate the gripper, the following shall apply.</del> Where an electrical actuation means is provided, it shall comply with the following:	Restated as a requirement when electrical actuation means are used.	
146	3.17.3.2.1	2013	(2) New 3.17.3.2.2 added: 3.17.3.2.2 Inspection and Test Means. Hydraulic or electrical means other than those required in 3.17.3.2 are permitted to actuate the plunger gripper for inspection and test purposes. Electrical inspection and test means are not required to comply with 3.17.3.2.1.	Added requirements for inspection and test means.	[OEM] design permission. Added requirements for inspection and test means of the plunger gripper.  [Submitter] to include testing procedure
146	3.17.3.4	2013	Redesignated 3.17.3.4.1, and new 3.17.3.4 added: 3.17.3.4 Normally Retracted Position Clearance. In the normally retracted position the following shall apply:	Revised to include two requirements	
146	3.17.3.4.2	2013	Added: 3.17.3.4.2 Hydraulic Holding Means. Hydraulic means are permitted to maintain the plunger gripper in the normally retracted position.	This requirement was previously in 3.17.3.2.1 and has been relocated.	
147	3.17.3.8	2013	First paragraph revised: A permanent marking plate shall be securely attached to each plunger gripper. The plate shall be of such material and construction that it is permanent and readily legible. The letters and symbols shall be stamped, etched, cast, or otherwise applied with depressed or raised letters and symbols not less than 3 mm (0.125 in.) <del>6 mm (0.25 in.)</del> in height, indicating	Allows stamped characters which are depressed. Such characters would require a metal punching tool and a simple rubber ink stamp could not be used.	Sharpies not permitted.  See 2019 Section 8.13

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>3.18 Hydraulic Jacks</b>					
147	3.18.1.2	2013	(1) 3.18.1.2.1 revised:	The term "wire ropes" replaced by "suspension members"	
147	3.18.1.2	2013	(2) Original 3.18.1.2.2 and 3.18.1.2.3 deleted, and original 3.18.1.2.4 through 3.18.1.2.8 redesignated as 3.18.1.2.2 through 3.18.1.2.6, respectively	Removed exception permitting one rope per jack. Removed permission to apply clear plastic coating to ropes as it does not correspond with the new suspension means requirements.	field verifiable
149	3.18.3.8.3	2013	Revised: Cylinders buried in the ground shall be provided with protection from corrosion by one or more of the following methods: <del>The following are the specified methods:</del>	Editorially clarified with language similar to requirement 3.19.5.	
149	3.18.6	2013	First paragraph revised: The <del>exposed portion of each</del> hydraulic jack after installation shall be permanently and legibly <del>plainly</del> marked. <del>The marking shall be visible after installation. in a permanent manner</del> The letters and symbols shall be stamped, etched, cast, or otherwise applied with depressed or raised letters and symbols not less than 3 mm (0.125 in.) in height with the following information:	Rationale: This is not a data plate. It was felt that a data tag is not required and drilling holes on the cylinder to attach tag not recommended. It would be preferred to apply the markings directly to the cylinder. The proposed requirements allow stamped characters which are depressed. Such characters would require a metal punching tool and a simple rubber ink stamp could not be used.	Sharpies not permitted

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>3.19 Valves, Pressure Piping, and Fittings</b>					
150	3.19.2.5	2013	(1) Redesignated 3.19.2.6, and original 3.19.4.5 redesignated 3.18.2.5: 3.19.2.5 <del>3.19.4.5</del> Pressure Gauge Fittings. A pressure gauge fitting with shutoff valve shall be provided on jack side of the check valve or immediately adjacent to the hydraulic control valve. <b>When a pressure gauge is permanently installed a shutoff means shall be provided to protect the gauge.</b>	<b>Distinguishes between a shutoff valve (3.19.4.1) versus a small valve solely to protect a pressure gauge.</b>	[I] can be verified in the field. [OEM] design req'mt
150	<u>3.19.2.5</u>	2013	(2) Original 3.19.2.6 redesignated 3.19.2.7		
150	3.19.2.8	2013	(3) New 3.19.2.8 added: <b>3.19.2.7 Where the pressure piping is outside the machine room, machinery space or hoistway, the pressure piping shall be protected from external damage. Where the pressure piping is buried underground or extends beyond the building containing the hydraulic machine or machine room, the elevator shall be fitted with at least one of the following:</b> (a) <b>a car safety</b> conforming to 3.17.2; (b) an <b>overspeed valve(s)</b> conforming to 3.19.4.7, or (c) a <b>plunger gripper(s)</b> conforming to 3.17.3.	Damage to piping can occur as a result of excavating over buried pipe. A hazard assessment indicates that this occurrence is remote, however it is deemed prudent to protect against this occurrence. The proposed wording will mitigate possible damage as a result of excavation.	[E][I][OEM] Additional protection req'd. Can be field verifiable where buried pipe is used. Test scripts shall be provided to address rapid oil loss if one of the additional means is provided.
151	3.19.4.5	2013	(1) Redesignated 3.19.2.5		
151	3.19.4.5	2013	(2) 3.19.4.5 to be reserved for future use		
151	3.19.4.6.2	2013	(1) Subparagraph (c) editorially revised	Revised code book title	
151	3.19.4.6.2	2013	(2) Subparagraph (f) deleted	Moved to 3.19.4.6.3	
151	3.19.4.6.3	2013	Added: <del>(f) The electrical coil data shall be marked on each individual electrical coil data</del>	Rationale: The valve coil is interchangeable based on the voltage, frequency and whether AC/DC is used in the system, therefore should not be on valve body itself but on the coil.	can be field verifiable
157	3.19.2.5	2019	Revised in its entirety <del>3.19.2.5 Jack Side Pressure Measurement Means-Pressure Gauge Fittings.</del> <b>b) A pressure measurement means, accessible from outside the hoistway, only by elevator personnel (see 8.1), shall be provided by one of the following methods:...</b>	Rationale: 1. Revise language to be more performance based language. 2. Allow measurement of system pressure by a pressure sensing means with associated pressure display. Providing access for system pressure readings without having to connect a pressure gauge provides equivalent or better safety for elevator personnel when measuring system pressure.	Jack Side Pressure  pressure measurement means, accessible from outside the hoistway,
158	3.19.4.1	2019	Revised in its entirety <b>3.19.4.1.1 When the hydraulic machine is located outside the hoistway,...</b> <b>3.19.4.1.2 When the hydraulic machine is located inside the hoistway, the operation of the shutoff valve shall be located so that it is accessible from outside the hoistway, only by elevator personnel (see 8.1).</b>	Rationale: Rules re-written in light of the new definition for manually operated valve and defined security levels for valves inside and outside the hoistway. The shutoff valve is not required in normal operation of the elevator.	[I] When the hydraulic machine is located inside the hoistway, shutoff valve accessible from outside the hoistway shall be provided
158	3.19.4.4	2019	Revised <b>...or a means to manually operate the valve..</b>	Rationale: Revise language to be more performance based language. Allow manual lowering either by direct or by access from outside the hoistway.	



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>3.22 Buffers and Bumpers</b>					
154	3.22.1.2.1	2016	Added: Elastomeric buffers shall be capable of withstanding the loading per 8.2.3.1, without being compressed 90% of the installed buffer height (see 2.22.5.4).	Revised to provide clarity of compression differences of spring and elastomeric buffers. New requirements for elastomeric buffers.	new requirements for elastomeric buffers OEM design requirement
154	3.22.1.2.2	2016	Revised: Spring buffers shall be compressed...	To clarify the requirement is for spring buffers	
<b>3.24 Hydraulic Machines and Tanks</b>					
153, 154	3.24.1.1	2013	Revised: The <b>working pressure</b> that is developed in the system shall be measured at the <b>acceptance inspection</b> and test. This pressure shall be <del>legibly and permanently</del> labeled/marked on a <del>data</del> -marking plate. <del>The marking plate that</del> shall be mounted permanently on the hydraulic machine. The <b>marking plate</b> shall be of such material and construction that it is permanent and readily legible. The letters and symbols shall be <b>stamped, etched, cast</b> , or otherwise applied with a height not less than 3 mm (0.125 in.).	Updated requirements for marking plates on hydraulic machines.  <--- Note: Requirement in 2019 is same. (no update to reference to 8.13)	Define marking plate requirements

Page	Req't # (see update)	Yr	Change	CHANGE NOTES	Enforcement & Notes
			Comments in blue, new text in red, original code text in black green = summary highlight		
<b>3.25 Terminal Stopping Devices</b>					
153, 154	3.25.1.1	2013	<p>Revised: Upper and lower normal terminal stopping devices shall be provided and arranged to <b>detect the position of the car and cause the car to</b> slow down and stop automatically, at or near the top and bottom terminal landings, with any load up to and including rated load in the car from any speed attained in normal operation. <b>The normal terminal stopping device</b> shall function independently of the operation of the normal stopping means and the terminal speed-reducing device, where provided, <b>such that the failure of the normal stopping means and/or the failure of the terminal speed-reducing device, where provided, shall not prevent the normal terminal stopping device from functioning as specified except</b></p> <p>(a) a common actuating means (e.g., a cam, etc.) that is not physically part of the position sensing devices shall be permitted for the actuation of the position sensing device of the normal terminal stopping device and the position sensing device of</p> <p>(1) the normal stopping means, and/or (2) the terminal speed-reducing device</p> <p>(b) a common mounting means shall be permitted for the position sensing device of the normal terminal stopping device and the position sensing device of</p> <p>(1) the normal stopping means, and/or (2) the terminal speed-reducing device</p> <p>The device shall be so designed and installed that it will continue to function until the car reaches its extreme limits of travel. The device shall be permitted to be rendered inoperative during recycling operation (see 3.26.7).</p>	<p>changes clarify the intent and scope of the term “function independently” based on past interpretations and accepted practice, without changing the scope of the existing requirements. 3.25.2 Terminal</p>	OEM design requirement
	3.25.2.2.1	2013	<p>Revised: They shall operate by mechanical, hydraulic, or electrical means independently of the normal terminal stopping device and function to reduce the speed of the car if the normal terminal stopping device fails to cause the car to slow down at the top terminal as intended <b>such that the failure of the normal terminal stopping device shall not prevent the terminal speed-reducing device from functioning as specified except</b></p> <p>(a) a common actuating means (e.g., a cam, etc.) that is not physically part of the position sensing devices shall be permitted for the actuation of both the position sensing device of the terminal speed-reducing device and the position sensing device of the normal terminal stopping device</p> <p>(b) a common mounting means shall be permitted for the position sensing devices of the terminal speed-reducing device and the normal terminal stopping device</p>	<p>changes help clarify the intent and scope of the term “operate independently” based on past accepted practice, without changing the scope of the existing requirements</p>	OEM design requirement

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>3.26 Operating Devices and Control Equipment</b>					
157-1 59	3.26.8	2016	Revised: ...when the car is within the unlocking zone (see 2.12.1).	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
162	3.26.1	2019	Subparagraph (i) added		
163	3.26.4.2	2019	Subparagraphs (c) and (d) Revised		
164	3.26.8	2019	Revised	Same as changes recorded above for electric elevators (2.26.1.7.1)	
165	3.26.11	2019	<p>Added</p> <p>3.26.11 Executable Software</p> <p>3.26.11.1 Executable software used in performing one or more of the functions listed below shall have a USI for each software version. Changes in executable software for any of the following functions shall require a new USI:</p> <p><b>(additional Hyd items)</b></p> <p>(a) 2.26.1.7.1 (a) through (c), (e), and (i) through (n)</p> <p>(b) Power operation of hoistway doors and car doors (3.13)</p> <p>(c) Electrical activation means (<b>Plunger Gripper</b>) (3.17.3.2.1).</p> <p>(d) Normal Terminal Stopping Device (3.25.1)</p> <p>(e) Terminal Speed-Reducing Device (3.25.2)</p> <p>(f) <b>Phase Reversal</b> and Failure Protection (3.26.5)</p> <p>(g) Control and Operating Circuits (3.26.6)</p> <p>(h) <b>Recycling Operation</b> for Multiple or Telescopic Plungers (3.26.7)</p> <p>(i) <b>Pressure Switch</b> (3.26.8)</p> <p>(j) <b>Low Oil</b> Protection (3.26.9)</p> <p>(k) <b>Auxiliary Power</b> Lowering Operation (3.26.10)</p> <p>(l) Emergency Operation and Signaling Devices (3.27)</p>	<p><b>Add additional safety functions for HYDRAULIC ELEVATOR</b></p> <p>(a) working areas in the pit (2.7.5.2)</p> <p>(b) hoistway access switches (2.12.7)</p> <p>(c) power operation of hoistway doors and car doors (Section 2.13)</p> <p><del>(d) protection against traction loss (2.20.8.1)</del></p> <p>(e) broken suspension member (2.20.8.2)</p> <p><del>(f) suspension member residual strength (2.20.8.3)</del></p> <p><del>(g) normal terminal stopping devices (2.25.2)</del></p> <p><del>(h) emergency terminal stopping means (2.25.4)</del></p> <p>(i) operating devices and control equipment (Section 2.26)</p> <p>(j) emergency communications (2.27.1.1)</p> <p>(k) emergency or standby power system (2.27.2)</p> <p>(l) Firefighters' Emergency Operation: automatic elevators (2.27.3 to .6)</p> <p>(m) Occupant Evacuation Operation (2.27.11)</p> <p>(n) emergency operation and signal devices (8.4.10)</p>	[I] fyi, Executable software USI for the functions listed in 3.26.11

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>3.27 Emergency Operation and Signalling Devices</b>					
157-1 59	3.27.2	2016	Revised: (a) If any of the devices specified in 3.27.1(a), (b), (c), or (d) is activated, while Phase I Emergency Recall Operation is in effect but before the car reaches the recall level, the car shall do one of the following: (1) If the car is above the recall level, it shall complete Phase I Emergency Recall Operation. (2) If the car is below the recall level, it shall descend to an available floor. (b) Upon arrival, automatic power-operated doors shall open, and then reclose within 15 s. The door open button(s) shall remain operative. The visual signal [see Fig. 2.27.3.1.6(h)] shall extinguish.	Editorial, re-lettered subclauses and rearranged text.	
157-1 59	3.27.4	2016	Revised: If any of the devices specified in 3.27.1(a), (b), (c), or (d) activate while the elevator is on Phase II Emergency In-Car Operation, <b>an upward</b> traveling car shall stop <b>and a downward-traveling car shall stop at or before the next available floor.</b>	Additional requirements for when the car is moving <b>upwards</b> or <b>downwards</b> .	OEM design requirements.

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>PART 4</b>					
<b>4.1 Rack-and-Pinion Elevators</b>					
160-1 67	Section 4.1	2016	Revised in its entirety		References in 4.1 are tied back to Section 2 requirements
<b>4.2 Screw Column Elevators</b>					
160-1 67	4.2.2.3	2016	Revised		
160-1 67	4.2.2.4	2016	Revised		
176	4.2.12	2019	Paragraphs <b>deleted</b> and designator reserved for future use		
<b>PART 5</b>					
<b>Scope</b>					
169	Part 5 Scope	2013	Subparagraphs (k) and (l) added: <b>(k) Requirement 5.11 applies to elevators used in wind turbine towers.</b> <b>(l) Requirement 5.12 applies to outside emergency elevators.</b>		Design and inspection as per written requirements.
<b>5.1 Inclined Elevators</b>					
176	5.1.11.4	2016	Revised	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
170	5.1.9	2013	(1) Revised and redesignated 5.1.11.4: 5.1.11.4 Restricted Opening of Hoistway or Car Doors Inclined elevators shall conform to 2.12.52.14.5.7, except that the unlocking zone shall not exceed 152 mm (6 in.) beyond the landing measured in the direction of travel.	References change to new car door restrictor requirement.	
		2013	(2) 5.1.9 to be reserved for future use		
	5.1.10.3.1	2013	Editorially revised	References for hoistway access operation revised	
	5.1.10.3.2	2013	Editorially revised		
	5.1.10.3.3	2013	Editorially revised		
171	<u>5.1.11.4</u>	2013	Redesignated 5.1.11.5, and new 5.1.11.4 added	See 5.1.9	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>5.2 Limited-Use/Limited-Application Elevators</b>					
176, 177	5.2.1.2	2013	<b>Pits</b> Revised: 5.2.1.2 Pits. Pits shall conform to 2.2, <b>except as modified by 5.2.1.2.1.</b>	Clarifies that sump pumps are not required since Phase II FEO is prohibited.	[I] - Lula's do not require sump pumps
176, 177	5.2.1.2.1	2013	Added: <b>5.2.1.2.1. Requirement 2.2.2.5 does not apply.</b>		
176, 177	<u>5.2.1.4.4</u>	2013	<b>Alternative to Top Car Clearance Requirements</b> Subparagraphs (b) and (b)(1) revised: (b) Nonremovable means, <b>independent of the brake</b> , shall be provided to mechanically and electrically prevent upward movement of the car to provide an area above the car for maintenance and inspection, conforming to the following: (1) The means shall prevent upward movement of the car to provide a refuge space <del>conforming to 2.4.12</del> <b>complying with 5.2.1.4.5.</b>	<b>Clarifies that the brake is not a mechanical means to prevent movement.</b> References new 5.2.1.4.5 that adds language that was previously lost in section 2.	
176, 177	<u>5.2.1.4.5</u>	2013	<b>Refuge Space on Top of Car Enclosure</b> Added: <b>5.2.1.4.5 Refuge Space on Top of Car Enclosure</b> <b>5.2.1.4.5(a) An unobstructed horizontal area of not less than 0.5 m<sup>2</sup> (5.4 ft<sup>2</sup>) shall be provided on top of the car enclosure for refuge space. It shall measure not less than 600 mm (24 in.) on any side. This area shall be permitted to include the space utilized for the top emergency exit [see 2.14.1.5.1(f)]. The minimum vertical distance in the refuge area between the top of the car enclosure and the overhead structure or other obstruction shall be not less than 1 100 mm (43 in.) when the car has reached its maximum upward movement.</b> <b>5.2.1.4.5(b) In any area outside the refuge space where the vertical clearance between the top of the car enclosure and the overhead structure or other obstructions is less than specified in 5.2.1.4.5(a), the top of the car enclosure shall be clearly marked. The marking shall consist of alternating 100 mm (4 in.) diagonal red and white stripes. In addition, a sign with the words "DANGER LOW CLEARANCE" shall be prominently posted on the crosshead and be visible from the entrance. The sign shall conform to ANSI Z535.2 or CAN/CSA-Z321, whichever is applicable (see Part 9). The sign shall be of such material and construction that the letters and figures stamped, etched, cast, or otherwise applied to the face shall remain permanently and readily legible.</b>	<b>Adds refuges space requirements that were lost due to changes in section 2.</b>	[I] - Lula's rewrote their own top of car space requirements
176, 177	5.2.1.12	2013	<b>Hoistway Door Locking Devices and Electric Contacts, and Hoistway Access Switches</b> (1) Subparagraph (d) editorially revised	Revised reference for operating speed on Access. No change to speed.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
176, 177	5.2.1.12	2013	(2) Subparagraph (e) deleted	Moved to 5.2.1.14 due to changes in Part 2	
176, 177	5.2.1.14	2013	<b>Car Enclosures, Car Doors, and Car Illumination</b> Subparagraph (m) added from 5.2.1.12(e) and existing (m) deleted <b>(m) Requirement 2.14.5.7. The dimension for the unlocking zone shall be not more than the straight vertical face of the platform guard minus 75 mm (3 in.).</b>	Updated for consistency with Part 2	
180	5.2.2.1	2013	<b>Hydraulic LULA - Bottom and Top Clearances and Runbys</b> Subparagraph (c) revised: (c) The top car clearances shall conform to <del>3.4.4</del> or 5.2.1.4.4 or <b>5.2.2.1.1.</b>	Revised reference to recover language lost in previous revision to Part 3	
180	5.2.2.1.1	2013	Added: <b>5.2.2.1.1 Top Car Clearance</b> <b>The top car clearance shall be not less than the sum of the following two items (see Nonmandatory Appendix G):</b> <b>(a) the top car runby</b> <b>(b) the height of the refuge space on top of the car (see 3.4.7) or the clearance required for equipment projecting above the car top or crosshead (see 3.4.5), whichever is greater</b>	Adds language lost in previous revision to Part 3	
180	5.2.2.6	2013	<b>Hydraulic Jacks and Sheaves</b> Revised:	Reference to 3.18.1.2.2 deleted. There is no longer any exceptions to two ropes per jack.	
182, 183	5.2.1.13	2016	<b>Power Operation of Hoistway Doors and Car Doors</b> Revised: Power Operation of Hoistway Doors and Car Doors. <del>When provided, power operation, power opening, and power closing of hoistway doors and car doors shall conform to 2.13, except as modified by 5.2.1.13. (a) Requirement 2.13.1 does not apply. Both car and hoistway doors shall be of the horizontally sliding type or a power operated swinging hoistway door with a power operated horizontally sliding car door shall be permitted. Power operation of <del>accordion or bifold type car doors</del> shall be permitted.</del> <del>(b) Vertically sliding doors shall not be permitted.</del> <b>Power Operation of Hoistway Doors and Car Doors. Power operation of hoistway doors and car doors shall conform to Section 2.13 except that vertically sliding doors shall not be permitted.</b>	Remove the Hoistway doors and Car Doors types (Swing) that fall under horizontally sliding doors to match section 2.13.  <b>Remove the permission to have power operation for accordion and bifolding door due to the increasing number of incidents where these door types have been installed.</b>	[OEM] Requirements modified to eliminate folding car doors on LULA applications
182, 183	5.2.1.14	2016	<b>Car Enclosures, Car Doors, and Car Illumination</b> (1) Former subpara. (f) deleted, and remaining subparagraphs redesignated <del>(f) Requirement 2.14.4.3 does not apply. Doors shall be of the horizontally sliding, <del>accordion, or bifold type</del> and so arranged to reduce the possibility of pinching. Material shall conform to 2.14.2.1.</del>	<b>Accordion door and bifold door types are not permitted</b>	Requirements modified to eliminate folding car doors on LULA applications

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
182, 183	5.2.1.14	2016	(2) Subparagraphs (k) and (l) [formerly subparas. (l) and (m), respectively] revised (l) Requirements 2.14.5.2 and 2.14.5.3 do not apply. (k) Requirement 2.14.5.3 does not apply.	Folding doors are not permitted as 2.14.5.3 is required	Design and inspection as per written requirements.
182, 183	5.2.1.14	2016	(3) Subparagraph (m) added (m) Requirement 2.14.6.4 does not apply. Folding doors are not permitted.		
182, 183	5.2.1.15.2	2016	<b>Platform Guards</b> Revised ...the depth of the unlocking zone (see 2.12.1)..	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
182, 183	5.2.1.22	2016	<b>Buffers and Bumpers</b> Revised 5.2.1.22 Buffers and Bumpers. Buffers and bumpers shall conform to 2.22, except as modified by 5.2.1.22.1. <del>5.2.1.22.1 Bumpers. Elastomeric bumpers capable of absorbing the energy of a fully loaded car shall be permitted to be used. The average deceleration shall be less than 9.81 m/s<sup>2</sup> (32.2 ft/s<sup>2</sup>) with any load between 61 kg (135 lb) and rated load.</del>	Rationale: This exception is no longer required since elastomeric buffers are now included in 2.22.	
185	5.2.2.5	2016	<b>Car Safeties, Counterweight Safeties, Plunger Gripper, and Governors</b> Revised 5.2.2.5 <b>CAR SAFETIES, COUNTERWEIGHT SAFETIES, PLUNGER GRIPPER, AND GOVERNORS</b> <b>Alternative to Speed Governor for Roped-Hydraulic Elevators.</b> Car and counterweight safeties and plunger gripper shall conform to 3.17, except as modified by 5.2.2.5.1 and 5.2.2.5.2. NOTE: See also 5.2.1.18. 5.2.2.5.1 The safeties on roped-hydraulic elevators shall be operated by a speed governor or where an overspeed valve conforming to 3.19.4.7 is provided, the safeties shall be permitted to be operated by inertia where an overspeed valve conforming to 3.19.4.7 is provided. <del>5.2.2.5.2</del> Upon the parting of the suspension ropes, the safeties shall apply without appreciable delay and their application shall be independent of the location of the break in the ropes and shall be permitted to be accomplished by the use of restrained compression springs or by the action of gravity, or by both, or by positive mechanical means.	Rationale: Title was updated to clarify the requirements covered by this section to include all types of hydraulic LULA elevators.  Changes were also included to clarify that safeties operated by inertia are an alternative to speed governors on roped-hydraulic LULA elevators that have an overspeed valve conforming to 3.19.4.7.	[E] [I] safeties operated by inertia are an alternative to speed governors on roped-hydraulic LULA elevators that have an overspeed valve
188	5.2.1.4.3	2019	<b>Top-of-Car Clearances</b> Revised	Update top of car clearance to either be - those used in elevator or - follow specific permissions referenced in sections 5.2.1.4.4 & .5	
188	5.2.1.4.4	2019	<b>Alternative to Top-of-Car Clearances</b> Revised		
189	5.2.1.4.5	2019	<b>Space on Top-of-Car Enclosure</b> Revised		
190	5.2.1.16.2	2019	<b>Capacity and Data Plates</b> Subparagraph (b) Revised	Require capacity and data plates to be similar to those in electric elevators.	



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>5.3 Private Residence Elevators</b>					
	Section 5.3	2013	Revised		
181	5.3.1.1	2013	Last sentence added		
	5.3.1.2.3	2013	Added		
183	5.3.1.11.1	2013	Revised		
	5.3.1.11.2	2013	First sentence editorially revised		
184	5.3.1.11.7	2013	Redesignated 5.3.1.11.8, and new 5.3.1.11.7 added		
185	5.3.1.14.1	2013	Revised in its entirety		
187	5.3.1.18.2.1	2013	(1) Subparagraph (a) editorially revised		
		2013	(2) Subparagraph (c) deleted		
		2013	(3) Subparagraph (d) revised and redesignated subpara. (c)		
		2013	(4) Subparagrath (e) redesignated subpara. (d)		
188	5.3.2.4.6	2013	Subparagraph (b) editorially revised		
186	5.3.1.7.1	2016	Revised		
187, 188	5.3.1.7.2	2016	Revised		
187, 188	5.3.1.8.2	2016	Subparagraph (d) added		
187, 188	5.3.1.8.3	2016	New 5.3.1.8.3 added, and former 5.3.1.8.3 redesignated as 5.3.1.8.4	Part 5.3 not adopted in Ontario.	
190	5.3.1.14.1	2016	Revised		
193	5.3.1.19	2016	Revised in its entirety		
193	5.3.1.3	2019	Revised in its entirety		
193	5.3.1.5	2019	Revised		
194	5.3.1.6	2019	Added and following paragraphs redesignated		
195	5.3.1.7	2019	Formerly 5.3.1.6, title Revised		
195	5.3.1.7.3	2019	Added		
195	5.3.1.8.1	2019	Formerly 5.3.1.7.1, Revised		
196	5.3.1.9.1	2019	Formerly 5.3.1.8.1, subpara. (f) added		
196	5.3.1.9.2	2019	Formerly 5.3.1.8.2, subpara. (a) Revised		
199	5.3.1.17.2	2019	Formerly 5.3.1.16.2, subparas. (a)(8), (b)(1), (b)(3), (j)(2), and (j)(4) Revised		
201	5.3.1.19.9	2019	Added		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>5.4 Private Residence Inclined Elevators</b>					
188	Section 5.4	2013	Last sentence in first paragraph added		
189	5.4.2.4	2013	Revised		
	5.4.3.1	2013	Revised		
	5.4.3.2	2013	Revised and redesignated from former		
	5.4.3.3;	2013	original 5.4.3.2 deleted		
	5.4.3.3	2013	Revised and redesignated from former 5.4.3.4		
	5.4.3.4	2013	Deleted		
	5.4.4.1.2	2013	Revised		
	5.4.4.2.1	2013	Revised		
	5.4.4.3	2013	Title revised		
	5.4.4.3.1	2013	(1) First paragraph revised		
		2013	(2) Subparagraph (b) revised		
	5.4.4.3.2	2013	Revised		
	5.4.4.3.3	2013	Title and paragraph revised		
190	5.4.6.2	2013	Last sentence added		
	5.4.7.6	2013	Revised		
	5.4.7.7	2013	Revised in its entirety		
	5.4.7.9	2013	Title and paragraph revised		
	5.4.8 (1)	2013	Paragraph added		
		2013	(2) 5.4.8.1 revised in its entirety		
		2013	(3) 5.4.8.2 title and paragraph revised	Part 5.4 not adopted in Ontario.	
		2013	(4) 5.4.8.3 title and paragraph revised		
		2013	(5) 5.4.8.4 through 5.4.8.9 deleted		
	5.4.9	2013	(1) Paragraph added		
		2013	(2) 5.4.9.1 and 5.4.9.2 deleted		
191	5.4.11	2013	(1) Paragraph added		
		2013	(2) 5.4.11.1 revised in its entirety		
		2013	(3) 5.4.11.2 and 5.4.11.3 deleted		
	5.4.12	2013	Deleted, and former 5.4.13 redesignated as 5.4.12		
	5.4.12.1	2013	Added		
	5.4.12.2	2013	Redesignated from former 5.4.13.8		
	5.4.12.3	2013	Redesignated from former 5.4.13.10		
	5.4.13	2013	(1) Redesignated as 5.4.12		
		2013	(2) Original 5.4.13.1 through 5.4.13.7, and 5.4.13.9 deleted		
		2013	(3) New 5.4.13.1 redesignated and revised from original 5.4.14.1		
		2013	(4) Original 5.4.14.2 and 5.4.14.3 deleted		
	5.4.14	2013	(1) Redesignated as 5.4.13		
		2013	(2) Original 5.4.15 through 5.4.15.5.3 redesignated as 5.4.14 through 5.4.14.5.3		
		2013	(3) Newly redesignated 5.4.14.2 revised from former 5.4.15.2		
	5.4.15	2013	Redesignated from former 5.4.16		
<b>5.6 Rooftop Elevators</b>					
201	5.6.1.4	2016	Revised		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>5.7 Special Purpose Personnel Elevators</b>					
203	5.7.17.2	2013	First sentence editorially revised		
205	5.7.1.2	2016	Revised		
205	5.7.2	2016	Revised in its entirety		
205	5.7.3.2	2016	Revised		
205	5.7.4.2	2016	Revised		
205	5.7.4.3	2016	Added		
207	5.7.10.4.1	2016	Revised		
207	5.7.13.1	2016	Revised		
207	5.7.13.2	2016	(1) First paragraph revised		
207	5.7.13.2	2016	(2) Former 5.7.13.2.2 deleted, and former 5.7.13.2.3 redesignated as 5.7.13.2.2		
208	5.7.16	2016	Revised in its entirety		
208	5.7.17	2016	Revised		
208	5.7.18.1.2	2016	Revised		
209, 210	5.7.18.1.3	2016	Added		
209, 210	5.7.18.1.4	2016	Added		
209, 210	5.7.18.3	2016	Revised		
209, 210	5.7.19	2016	Revised in its entirety		
211	5.7.22	2016	Revised		
<b>5.9 Mine Elevators</b>					
214	5.9.14.3	2016	Subparagraph (d) revised		
215	5.9.26	2016	Revised in its entirety		
215	5.9.27	2016	Revised		
221	Section 5.9	2019	Revised		

Part 5.7 not adopted in Ontario

Part 5.9 not adopted in Ontario

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>5.11 Wind Turbine Tower Elevators</b>					
213	Section 5.11	2013	Added	New Part 5.11 Added 5.11.1 to 5.11.29 follow Section 2.1 to 2.28 layout for electric elevator Additional Sections for "welding" (5.11.29), Type Tests (5.11.30), MRR & tests (5.11.31), acceptance and periodic testing (5.11.32 & 5.11.33)	wind turbine tower elevators standard developed and added in 5.11 of A17.1/B44 2013
220	Section 5.11	2016	Revised	Elevators Used for wind turbine tower elevators shall conform to ASME A17.8 A17.8 as a stand-alone document has migrated previous requirements to new numbered sections 2.1 to 2.28 as for electric elevators. A new Part 1 added to accommodate scope and definitions. Additional Sections for "welding" (2.29), Type Tests (2.30), MRR & tests (2.31), acceptance and periodic testing (2.32 & 2.33)	wind turbine tower elevators standard developed, removed from A17.1/B44-2016 and moved to a stand alone publication A17.8/B44.8
230	Section 5.11	2019	Revised Elevators used in wind turbine towers shall conform to ASME A17.8/CSA B44.8.	Update the reference to reflect the Bi-national standard	Refer to ASME A17.8/CSA B44.8. for wind turbine tower elevators
<b>5.12 Outside Emergency Elevators</b>					
229	Section 5.12	2013	Added	New Part 5.12 Added - Intended to assist in evacuation of high buildings - Elevator lobbies are separated & have smoke barrier from other floor areas - Lobbies hold 25% of floor population, have direct access to exit stairwell - Lobbies are pressurized and contain two way voice communication means - Remove "In Case if Fire Do Not Use Elevator" signage  - Trigger of "Other Building FAID's" initiate OEO - OEO cars facilitate evacuation of fire floor and 2 floors above & below - Variable elevator lobby messaging required (example): Elevator and stairs available for Evacuation. Next Car in 2 minutes. Elevators dedicated to other floor evacuation. Use Stairs to Evacuate.  - Activation of a required PH1 FAID, ends OEO operation and triggers PH1 recall - Inclusion of OEO in a High Building would be initiated by Building Code Req'mt.	provide as FYI: NBCC does not currently recognize OEE.  Testing would be to code requirements if OEO operation where to be provided.  The building infrastructure needs to be designed to accommodate OEO, therefore must be first driven by the BUILDING CODE req'mts.  NEW: The 2022 Edition of A17.1/B44 code will rename OEE elevator to PRS, Platform Rescue System.

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>PART 6</b>					
<b>6.1 Escalators</b>					
230	6.1.1.1	2013	<b>Protection of Floor Openings</b> Revised: 6.1.1.1 Protection Required. Floor openings for escalators shall be protected against falls, the passage of flame, heat, and/or smoke in accordance with the provisions of the applicable building code (see Part 9). <del>Floor openings adjacent to the entire length of the escalator wellway shall be provided with protection in accordance with the applicable building code (see Part 9).</del>	Editorially revised due to duplicate language remaining from previous change.	
231	6.1.3.3.9	2013	<b>Step/Skirt Performance Index</b> In subpara. (a), second sentence editorially revised	Reference to testing requirement corrected. Was 8.11.4.2.19 changed to 8.6.8.15.19.	
233	6.1.3.4.5	2013	<b>Vertical Height - Handrails</b> Second sentence editorially revised	Reference corrected. Was 6.1.3.6.6, changed to 6.1.1.1.	
235	6.1.3.15	2013	<b>Water Accumulation</b> Title and paragraph revised: 6.1.3.15 <del>Pit Drains</del> <b>Water Accumulation</b> . Permanent provisions shall be made to prevent accumulation of ground water in the pit. Drains and sump pumps, where provided, shall comply with <del>2.2.2.4</del> <b>the applicable plumbing code</b> .	<b>Clarifies GROUND WATER that is to be prevented from accumulation.</b>	[I] Esc pit drain is needed only for ground water
238	6.1.6.3.6	2013	<b>Escalator Skirt Obstruction Device</b> Revised; additional text added: The device shall be of the manual reset type or it shall be permitted to automatically reset not more than one time within 24 hours of operation and thereafter require a manual reset before the next restart. Interruption of power during operation should not cause the device to lose the status of the timer nor the count of events.	Provides provision for an automatic reset once per 24hrs of the skirt obstruction device.	[OEM] design permission [I] One automatic reset permitted in a 24 hour period. Can be field verifiable. [Submitter] procedure
238	6.1.6.3.9	2013	<b>Step Upthrust Device</b> Revised; additional text added: The device shall be of the manual reset type or it shall be permitted to automatically reset not more than one time within 24 hours of operation and thereafter require a manual reset before the next restart. Interruption of power during operation should not cause the device to lose the status of the timer nor the count of events.	Provides provision for an automatic reset once per 24hrs of the step upthrust device.	[OEM] design permission [I] One automatic reset permitted in a 24 hour period. Can be field verifiable. [Submitter] procedure
239	6.1.6.3.12	2013	<b>Handrail Entry Device</b> (1) In first paragraph, second sentence revised: A handrail entry device shall be provided at each newel. It shall be operative in the newels in which the handrail enters the balustrade. It shall <b>cause the escalator</b> <del>be of the manually reset type and shall cause the escalator</del> to stop by removing power from the driving-machine motor and brake.	Manual reset removed and moved later in requirement.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
239	6.1.6.3.12	2013	<p><b>Handrail Entry Device</b> (2) Last paragraph revised: The device shall be of the manual reset type or it shall be permitted to automatically reset not more than one time within 24 hours of operation and thereafter require a manual reset before the next restart. Interruption of power during operation should not cause the device to lose the status of the timer nor the count of events.</p>	<p>Provides provision for manual reset or automatic reset once per 24hrs of the handrail entry device.</p>	<p>[OEM] design permission [I] One automatic reset permitted in a 24 hour period. Can be field verifiable. [Submitter] procedure</p>
239	6.1.6.4	2013	<p><b>Handrail Speed Monitoring Device</b> Revised: <del>The device shall be of the manual reset type.</del> The device shall be of the manual reset type or it shall be permitted to automatically reset not more than one time within 24 hours of operation and thereafter require a manual reset before the next restart. Interruption of power during operation should not cause the device to lose the status of the timer nor the count of events.</p>	<p>Provides provision for manual reset or automatic reset once per 24hrs of the handrail speed monitoring device.</p>	<p>[OEM] design permission [I] One automatic reset permitted in a 24 hour period. Can be field verifiable. [Submitter] procedure</p>
240	6.1.6.9.2	2013	<p><b>Signs or Graphics Relating to Safety</b> Title and paragraph revised: <del>6.1.6.9.2 Additional Signs or Graphics Relating to Safety. Signs in addition to those required by 6.1.6.9.1 relating to cautions or warnings applying to escalator passengers, when provided, shall be in a readily visible location, and limited to conveying any additional cautions and/or warnings. The additional signs shall be prohibited in the area starting from 3 000 mm (118 in.) horizontally outward from the end of the newel and to the point where the steps start to move vertically. Its location shall not impede or otherwise cause persons about to board the escalator to suddenly pause or stop. The sign shall comply with ANSI Z535.2 or CAN/CSA Z321, whichever is applicable (see Part 9).</del> Signs or graphics relating to safety shall not be permitted on the escalator in such a manner nor adjacent to the escalator in such a manner that obstructs boarding passenger view of the signs required in 6.1.6.9.1, physically obstructs passenger flow at the landings as specified in the safety zone (see 6.1.3.6.4), nor obstructs or reduces passenger access to the handrails. They shall be legible and shall not be distracting, create passenger flow hazards, or impair function of safety devices.</p>	<p><b>Simpler language</b> for additional safety graphics of signs. <b>cannot</b> - obstructs boarding passenger view of the signs - physically obstructs passenger flow at the landings - obstructs or reduces passenger access to the handrails</p>	<p>[OEM] Requirements for safety signs</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
240	6.1.6.9.3	2013	<p><b>Additional Signs or Graphics</b> Added: 6.1.6.9.3 Additional Signs or Graphics. Signs or graphics other than those specified in 6.1.6.9.1 and 6.1.6.9.2 shall not be permitted adjacent to the escalator in such a manner that obstructs boarding passenger view of the signs required in 6.1.6.9.1, obstructs or reduces passenger access to the handrails, within the safety zone (see 6.1.3.6.4), nor on the escalator</p> <p>except for signs, graphics, or markings required by this Code, manufacturer's identification, owner's identification, step riser signs or graphics, &lt;Note, these are permitted&gt; and handrail signs or graphics &lt;Note, these are permitted&gt; which are permitted on the escalator.</p> <p>They shall not be distracting, create passenger flow hazards, or impair function of safety devices.</p>	<p>New language for other signage at escalators</p> <p>&lt;-- balloting is being circulated (2022 code) to revise signage again, which could potentially dis-allow current signage permissions.</p>	<p>[OEM] Permission for OTHER signs, including: step riser signs or graphics, handrail signs or graphics</p>
243	6.1.8.2.2	2013	<p><b>Outdoor Escalators - Precipitation</b> Revised: 6.1.8.2.2 Drains suitable for all weather conditions shall be provided to prevent the accumulation of water where ground water and runoff can collect within the equipment.</p>	<p>Clarify the type of water that is to be prevent from accumulating in an outdoor escalator pit.</p>	<p>Pit drain only required to prevent GROUND Water, not spills or sprinklers</p>
227	6.1.3.10.1	2016	<p><b>Skirt Deflector Devices</b> Revised: 6.1.3.10.1 Trusses and all supporting structures, including tracks, shall conform to the AISC Specifications for Design, Fabrication, and Erection of Structural Steel for Buildings, ANSI/AISC 360-05 Specification for Structural Steel Buildings or the CSA Standard CAN/CSA-S16.1-09 Limit States Design of Steel Structures, whichever is applicable (see Part 9), based on the maximum static load calculated per 6.1.3.9.1.</p>	<p>Section 9.1 currently lists an old 1978 edition of AISC Book No S326 and the 1994 edition of CAN/CSAS16.1 and is referenced in multiple places in the A17.1 code for both elevators and escalators. Recent rewrites to the code (Seismic sections) have been updated to specify more recent AISC and CAN/CSA editions. The escalator and walk code is updated to specify these more recent editions with specific call out in the requirements</p>	
227	6.1.3.10.2	2016	Editorially revised		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
228	6.1.5.3.2	2016	<p><b>Main Drive Shaft Braking</b> Revised: 6.1.5.3.2 Main Drive Shaft Braking. If the escalator driving-machine brake is separated from the main drive shaft by a chain used to connect the driving machine to the main drive shaft, <b>either</b></p> <p><b>a) a mechanically or magnetically permanent magnet applied brake capable of stopping and holding a down-running escalator with brake rated load (see 6.1.3.9.3) shall be provided on the main drive shaft. If the brake is magnetically applied, a ceramic permanent magnet shall be used.</b></p> <p><b>or</b></p> <p><b>b) multiple and separate chains, each with an individual drive-chain device in accordance with 6.1.6.3.4 and each with connection to the Escalator Driving-Machine Brake(s) and/or other brake(s) with capacity capable of stopping and holding a down-running escalator with brake rated load (see 6.1.3.9.3) shall be provided.</b></p>	<p>Duplication of a system, component, or part with monitoring of the function of each is a fundamental and long accepted practice to ensure reliability and safety. It is reasonable to allow this approach to ensure the level of safety in escalator drive systems that utilize power transmission chain between the main shaft and the driving machine and brake. In addition to ensuring the braking function in case of disengagement of a drive chain, potential improvements in emergency braking can be realized with this rule revision if the function of the machine brake is maintained in lieu of a main shaft brake. This includes possible utilization of the machine brake that is type tested, which would be checked and monitored on a periodic basis, and that is operated/exercised on a regular basis demonstrating proper function. 6.1.5.3.2 and 6.1.6.3.4 are revised to reflect the Inquiry answer to permit duplicate and monitored power transmission chains in lieu of a main shaft brake to ensure brake function.</p>	<p>[OEM] design option</p> <p>[E] [I] Multiple monitored power transmission chains in lieu of a main shaft brake to ensure brake function.</p>
230	6.1.6.3.4	2016	<p><b>Drive-Chain Device</b> Revised: 6.1.6.3.4 Drive-Chain Device. When the driving machine is connected to the main drive shaft by a chain, a device shall be provided that will cause the application of the brake on the main drive shaft, <b>if so equipped (see 6.1.5.3.2 a)</b>, and will also cause the electric power to be removed from the driving machine motor and brake if <del>the</del> <b>any</b> drive chain between the machine and the main drive shaft becomes is engaged from the sprockets. The device shall be of the manual reset type.</p>	<p>See above.</p>	
232	6.1.6.7	2016	<p><b>Escalator Braking-Distance Monitor</b> Revised: 6.1.6.7 Escalator Braking Distance Monitor. A device shall be provided to monitor the performance of the driving machine brake(s). Whenever the driving machine brake is applied, the device shall detect when the maximum stopping distance as determined by 6.1.5.3.1(d)(5) or the minimum stopping distance based on the average stopping rate in 6.1.5.3.1(c) is not achieved and prevent the escalator from restarting. The device shall be of manual reset type (6.1.6.14).</p>	<p><b>The device is intended to monitor the stopping distance every time the escalator/moving walk is stopped to ensure correct brake operation.</b></p> <p>The min./max. stopping distance requirements are already defined described within the code.</p>	<p>[E] [I] [OEM]</p> <p>Note for Ontario CAD: Escalators to 2016 code or later do not require stopping distance check sign.</p>



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
234	6.1.7.4.3	2016	<p><b>Electrical Equipment and Wiring</b> Revised: 6.1.7.4.3 Control equipment shall be tested in accordance with the testing requirements of <del>EN 12016</del> <b>ISO 22200:2009</b>. <b>Control equipment tested in accordance with the testing requirements of EN 12016:1998 prior to one year after the effective date of this code need not be retested in accordance with the testing requirements of ISO 22200:2009.</b> <b>The control equipment shall be exposed by exposing</b> it to interference levels at the test values specified for "safety circuits." The interference shall not cause any of the conditions described in 6.1.6.10.1(a) through (f). 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.</p>	<p>To change electromagnetic interference test requirements for escalator and moving walk control circuits to an ISO standard in lieu of a European Standard. The revisions are not due to any known deficiencies with the current products or the previous EN Standard and have been previously made to elevator controls (see 2.26.4.4).</p>	
232	6.1.3.3.6	2019	<p><b>Skirt Panels</b> (1) Subparagraph (b) <b>Revised</b> (2) Subparagraph (d) <b>added</b> (d) <b>Skirt Deflection Test and Marking/Labeling</b>. Each skirt panel design shall be tested for deflection with load per 6.1.3.3.6(b) as described in 8.3.15. <b>This panel shall be marked with the part number or identifying mark and be marked/labeled with the following: "Replacement shall meet OEM and A17.1/B44 Code requirements"</b>.</p>	<p>Rationale: Limiting skirt deflection is one of the important components in preventing entrapments between steps and skirt panels. Verification of the deflection requirements is required in 8.10.4.1.1(p)(3) but no methods are currently codified. Requirements were added for engineering test verification of skirt panel designs for deflection for new, altered, replaced and repaired skirt panels and to assist field verification for escalators and moving walks.</p>	<p>Escalator skirt panels to be tested and marked for future validation of replacement panels.</p>
235	6.1.3.9.1	2019	<p><b>Rated Load</b> <b>Revised</b></p>	<p>Revisions are also made to applicable escalator and moving walk requirements to correct and clarify that required factors of safety are minimum values and the loads from which the factors of safety are calculated are fixed values.</p>	
235	6.1.3.9.2	2019	<p><b>Revised</b></p>		
236	6.1.3.9.3	2019	<p><b>Revised</b></p>		
236	6.1.3.10	2019	<p><b>Design Factors of Safety</b> <b>Revised</b></p>		
236	6.1.3.10.2	2019	<p><b>Revised</b></p>		
236	6.1.3.10.3	2019	<p><b>Revised</b></p>		
236	6.1.3.10.4	2019	<p><b>Revised</b></p>		
236	6.1.3.12	2019	<p><b>Headroom</b> <b>Revised</b></p>	<p>Clarify the width of the headroom area in the safety zone.</p>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
237	6.1.5.3.1	2019	<b>Escalator Driving-Machine Brake</b> Subparagraph (a) Revised	<p><b>Rationale: Advances in electric motor control technology provides for improvement to braking/stopping performance of escalators.</b></p> <p>Possible improvements from dynamic braking with variable frequency control of the motor could include constant and precisely controlled deceleration rates regardless of load, optimizing the stopping process to include a jerk rate in addition to a deceleration rate, and enabling up direction stopping performance equal to down direction stopping performance regardless of escalator load.</p> <p><b>Brake rules in the code prohibit these possible improvements and the code is therefore being revised.</b></p>	[OEM] Permission to allow for controlled dynamic braking methods to be detailed in the submission and testing methods
238	6.1.5.3.3	2019	Revised		
238	6.1.5.3.4	2019	Added		
239	6.1.6.3.1	2019	<b>Operating and Safety Devices</b> Subparagraphs (a) and (c) Revised		
239	6.1.6.3.3	2019	Subparagraph (a) Revised		
240	6.1.6.3.6	2019	Revised		
240	6.1.6.3.7	2019	Revised		
240	6.1.6.3.9	2019	Revised		
240	6.1.6.3.11	2019	Revised		
240	6.1.6.3.12	2019	Revised		
241	6.1.6.3.14	2019	Revised		
241	6.1.6.3.16	2019	Revised		
241	6.1.6.4	2019	Revised		
241	6.1.6.5	2019	Revised		
241	6.1.6.6	2019	Revised		
241	6.1.6.8	2019	Revised		
243	6.1.6.10.4	2019	<b>Control and Operating Circuits</b> Subparagraph (c) Revised (c) The electrical protective devices required by 6.1.6.3 shall control the solid-state device and both contactors, <b>or the dynamic braking (see 6.1.5.3.4) as permitted.</b>	<p>Rationale: In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails.</p>	
243	6.1.6.11	2019	<b>Electrically Powered Safety Devices</b> Revised 6.1.6.11 Electrically Powered Safety Devices. If the handrail speed monitoring device required by 6.1.6.4, the missing step or missing skirt device, required by 6.1.6.5, <b>the stopping performance monitoring required by 6.1.5.3.4(d)</b> , or any electrical protective device required by 6.1.6.3, requires electrical power for its functioning...	<p>Rationale: Stopping performance monitoring is as critical as the handrail speed monitor or missing step in preventing the electrical protective devices that are permitted to use dynamic braking from being ineffective.</p> <p><b>stopping performance monitoring is added to the requirement</b></p>	
243	6.1.6.13	2019	<b>Completion or Maintenance of a Circuit</b> Revised 6.1.6.13 Completion or Maintenance of Circuit. The completion or maintenance of an electric circuit shall not be used to stop the escalator when the emergency stop switch is opened or when any of the electrical protective devices operate. These requirements do not apply to speed control switches (see 6.1.6.3.2, 6.1.6.3.8, and 6.1.6.4) <b>or to dynamic braking (6.1.5.3.4).</b>		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>6.2 Moving Walks</b>					
	6.2	2019			Escalator changes are generally applicable to moving walks
250	6.2.6.3.10	2013	(1) In first paragraph, third sentence revised: It shall <del>cause the moving walk to be of the manual reset type and shall cause the moving walk to stop by removing power from the driving-machine motor and brake.</del>	Manual reset removed and moved later in requirement.	
250	6.2.6.3.10	2013	(2) Last paragraph revised: <del>The device shall be of the manual reset type or it shall be permitted to automatically reset not more than one time within 24 hours of operation and thereafter require a manual reset before the next restart. Interruption of power during operation should not cause the device to lose the status of the timer nor the count of events.</del>	Provision for manual reset or automatic reset once per 24hrs of the handrail entry device.	OEM Design Permission Can be field verifiable via test script by OEM or submitter.
251	6.2.6.4	2013	Revised: <del>The device shall be of the manual reset type.</del> The device shall be of the manual reset type or it shall be permitted to automatically reset not more than one time within 24 hours of operation and thereafter require a manual reset before the next restart. Interruption of power during operation should not cause the device to lose the status of the timer nor the count of events.	Provision for manual reset or automatic reset once per 24hrs of the handrail speed monitoring device.	OEM Design Permission Can be field verifiable via test script by OEM or submitter.
251	6.2.6.8.2	2013	Title and paragraph revised: <del>6.2.6.8.2 Additional Signs or Graphics Relating to Safety. Signs in addition to those required by 6.2.3.8.1 relating to cautions or warnings applying to moving walk passengers, when provided, shall be in a readily visible location, and limited to conveying any additional cautions and/or warnings. The additional signs shall be prohibited in the area starting from 3 000 mm (118 in.) horizontally outward from the end of the newel along the path of travel and to a point 900 mm (36 in.) from the tread comb intersection along the treadway. Its location shall not impede or otherwise cause persons about to board the moving walk to suddenly pause or stop. The sign shall comply with ANSI Z535.2 or CAN/CSA Z321, whichever is applicable (see Part 9).</del> Signs or graphics relating to safety shall not be permitted on the moving walk in such a manner nor adjacent to a moving walk in such a manner that obstructs boarding passenger view of the signs required in 6.2.6.8.1, physically obstructs passenger flow at the landings as specified in the safety zone (see 6.2.3.8.4) nor obstructs or reduces passenger access to the handrails. They shall be legible and shall not be distracting, create passenger flow hazards, or impair function of safety devices.	Simpler language for additional safety graphics of signs.	can be field verifiable

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
251	6.2.6.8.3	2013	Added: 6.2.6.8.3 Additional Signs or Graphics. Signs or graphics other than those specified in 6.2.6.8.1 and 6.2.6.8.2 shall not be permitted adjacent to the walk in such a manner that obstructs boarding passenger view of the signs required in 6.2.6.9.1, obstructs or reduces passenger access to the handrails, within the safety zone, nor on the moving walk except for signs, graphics, or markings required by this Code, manufacturer's identification, owner's identification, and handrail signs or graphics which are permitted on the moving walk. They shall not be distracting, create passenger flow hazards, or impair function of safety devices.	Rewritten in performance language with the clear and enforceable objective of prohibiting any additional signage or graphics that obstructs passenger access to and from an escalator/moving walk steps/pallets, handrails, or obstructs view of the required boarding safety signs.	can be field verifiable
253	6.2.8.2.2	2013	Revised: 6.2.8.2.2 Drains suitable for all weather conditions shall be provided to prevent the accumulation of water where ground water and runoff can collect within the equipment.	Clarify the type of water that is to be prevent from accumulating in an outdoor escalator pit.	
239	6.2.3.11.1	2016	Revised: Trusses and all supporting structures, including tracks, shall conform to <u>ANSI/AISC 360-05</u> or CAN/CSA-S16.1-09, whichever is applicable (see Part 9), based on the maximum static load calculated per 6.2.3.10.1.	Specified which ANSI/AISC including year of standard is to be used.	
239	6.2.3.11.2	2016	Editorially revised: For driving-machine parts, the factors of safety shall be as follows, based on loads not less than those calculated per 6.2.3.10.2: (a) 8 where parts are made of steel or bronze (b) 10 where parts are made of cast iron or other materials	Clarify that this section is about factors of safety. There is no change in the requirement	None
240	6.2.5.3.1	2016	Subparagraph (d)(5) added: (5) the maximum stopping distance with rated load that corresponds to the minimum distance between the comb and the pallet when the pallet is positioned to activate any of the safety devices required in 6.2.6.3.9 and 6.2.6.5	Added requirement for what to include in the data plate for moving walk brakes	can be field verifiable
243, 244	6.2.6.8	2016	New 6.2.6.8 added, and subsequent paragraphs redesignated: Moving Walk Braking-Distance Monitor. A device shall be provided to monitor the performance of the driving-machine brake(s). Whenever the driving machine brake is applied, the device shall detect when the maximum stopping distance as determined by 6.2.5.3.1(d)(5) or the minimum stopping distance based on the average stopping rate in 6.2.5.3.1(c) is not achieved and prevent the moving walk from restarting. The device shall be of the manual-reset type (see 6.2.6.14).	Added requirement to have a device to monitor the driving-machine brake performance based on the min and max stopping distances on the data plate. What used to be 6.2.6.8 Signs is renumbered to 6.2.6.9 and content remains unchanged.	OEM to provide test method

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
245	6.2.7.4.3	2016	Revised: Control equipment shall be tested in accordance with the testing requirements of ISO 22200:2009. Control equipment tested in accordance with the testing requirements of EN 12016:1998 prior to 1 yr. after the effective date of ASME A17.1-2016/ CSA B44-16 need not be retested in accordance with the testing requirements of ISO 22200:2009. The control equipment shall be exposed to interference levels at the test values specified for "safety circuits." The interference shall not cause any of the conditions described in 6.2.6.10.1(a) through (e). 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.	Revised the required standard to be used for testing control equipment and included specific version of the standard. Permission is also provided to not have to retest the control equipment to the newly referenced ISO standard if the equipment was tested to the previously referenced EN 12016 standard based on the timeline provided. Referenced clauses within the standard was renumbered but content remains unchanged.	
245	6.2.3.3.6	2019	Revised	Same as see 6.1.3.3.6 for escalator	
248	6.2.3.10.1	2019	Revised	Revisions are also made to applicable escalator and moving walk requirements to correct and clarify that required factors of safety are minimum values and the loads from which the factors of safety are calculated are fixed values.	
248	6.2.3.10.2	2019	Revised		
248	6.2.3.10.3	2019	Revised		
249	6.2.3.11	2019	Revised in its entirety		
249	6.2.3.15	2019	Revised	Clarify the width of the headroom area in the safety zone.	
250	6.2.5.3.1	2019	Subparagraph (a) Revised	See above escalator 6.1.5.3 notes	
250	6.2.5.3.3	2019	Added		
252	6.2.6.3.1	2019	Subparagraphs (a) and (c) Revised		
252	6.2.6.3.3	2019	Revised		
252	6.2.6.3.6	2019	Revised		
252	6.2.6.3.8	2019	Revised		
252	6.2.6.3.9	2019	Revised		
253	6.2.6.3.10	2019	Revised		
253	6.2.6.4	2019	Revised		
253	6.2.6.5	2019	Revised		
253	6.2.6.6	2019	Revised		
253	6.2.6.7	2019	Revised		
254	6.2.6.10.4	2019	Subparagraph (c) Revised (c) The electrical protective devices required by 6.2.6.3 shall control the solid-state device and both contactors, or the dynamic braking (see 6.2.5.3.3) as permitted.	Rationale: In order to permit dynamic braking to bypass the normal methods to remove power from the motor and driving-machine brake for those electrical protective devices that are permitted to use dynamic braking. This is only permitted based on the stopping performance monitoring of dynamic braking, which will remove the bypass when dynamic braking fails.	
254	6.2.6.11	2019	Revised in its entirety	see escalator note 6.1.6.11	
255	6.2.6.13	2019	Revised	see escalator note 6.1.6.13	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>PART 7</b>					
257	Scope, Part 7	2019	Revised	Hand dumbwaiters have been removed from the code due to lack of safety requirements	Hand power dumbwaiters no longer permitted. Removed from the code.
<b>7.1 POWER DUMBWAITERS WITHOUT AUTOMATIC TRANSFER DEVICES</b>					
256	7.1.11.4	2013	Revised	Portion of text moved to 7.1.11.4.1	
	7.1.11.4.1	2013	Text from 7.1.11.4: The bottom of the hoistway-door opening shall be not less than 600 mm (24 in.) above the floor, except for power dumbwaiters applications conforming to 7.1.12.1.2 or 7.1.12.1.3.	Text from 7.1.11.4 above maintaining existing requirement.	
	7.1.11.4.2	2013	Added: Horizontally sliding or swinging doors shall be so located that the distance from the hoistway face of the doors to the edge of the hoistway landing sill, measured from the face of the door section nearest to the car, shall not be more than 75 mm (3 in.) for horizontally sliding or single-section swinging doors.	New requirement to establish a clearance for between the car side of hoistway doors and the hoistway landing sill edge.	[OEM] [I] Clearance between car and hoistway door limited to 75mm (3")
258	7.1.12.4	2013	Subparagraph (b) revised: Hoistway access switches shall be permitted at the top and bottom landing. Requirement 2.12.7 does not apply. Where hoistway access switches are provided, they shall conform to the following requirements: (b) Requirement 2.12.7.3 applies, except 2.12.7.3.2(b) does not apply.	Clause reference changed due to renumber of requirements for Hoistway Access Operation. Redundant key requirements removed.	
246	7.1.4.3.1	2016	Editorially revised		
247	7.1.4.3.2	2016	Editorially revised		
247	7.1.7.10	2016	Revised: 7.1.7.10 Requirement 2.7.6 does not apply except as follows: Controllers located outside the hoistway and not in machine rooms, control rooms, machine spaces or control spaces shall be enclosed in a locked cabinet. The locked cabinet shall comply with requirements 2.7.6.3.2.	Add requirement for Dumbwaiter controllers not located in machine rooms, machinery spaces, control rooms or control spaces	[OEM] [I] [E] Permission for controller outside of elevator spaces

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES	Enforcement & Notes
				Comments in blue, new text in red, original code text in black green = summary highlight	
249, 250	7.1.12.1.1	2016	Revised: 7.1.12.1.1 Hoistway door interlocks in conformance with 7.1.12.1.3 are required at all landings, except that hoistway door combination mechanical locks and electric contacts conforming to 7.1.12.1.2 shall be permitted to be used at the following landings: (a) at landings where the bottom of the door opening is 600 mm (24 in.) or more above the floor <del>(b) the top terminal landing and the landing located not more than 1 220 mm (48 in.) below the top terminal landing, provided that the dumbwaiter rise does not exceed 4 570 mm (180 in.)</del> <del>(c) any landing whose sill is within 1 525 mm (60 in.) of the pit floor, regardless of the dumbwaiter rise.</del>	Remove the permission for lock and contacts at floors with other than counter height loading.	OEM permission [E] [I] Verify at design review and in field
249, 250	7.1.12.1.3 (a)	2016	Revised: 7.1.12.1.3 Hoistway door interlocks, where provided, shall conform to the following: (a) where the rated speed of the dumbwaiter is greater than 0.5 m/s (100 fpm) (1a) requirement 2.12.2.2 (2b) requirement 2.12.2.3 (3e) requirement 2.12.2.4, except (a) requirement 2.12.2.4.1 does not apply. (b) requirement 2.12.2.4.6 applies but the force used shall be 225 N (50 lbs) (4d) requirement 2.12.2.5 (5e) requirement 2.12.2.6 (6f) requirement 2.12.4	No change for dumbwaiters with speeds greater than 0.5 m/s	
249, 250	7.1.12.1.3(b)	2016	Revised: 7.1.12.1.3 Hoistway door interlocks, where provided, shall conform to the following: (b) where the rated speed of the dumbwaiter is less than or equal to 0.5 m/s (100fpm) (1) requirement 2.12.2.2 (2) The operation of a dumbwaiter driving machine when a hoistway door is not in the closed position (see 2.12.2.2) shall be permitted by a car levelling device (see 7.2.12.6), a hoistway access switch (see 7.1.12.4) or by an anticreep device (see 7.3.11.3). The operation of a dumbwaiter driving machine when hoistway door is unlocked, but in the closed position, shall be permitted by a car levelling device, a hoistway access switch, an anticreep device, or by the normal operating device when the car is within 75 mm (3 in.) above or below the landing.	Added permission for dumbwaiters with speeds less than or equal to 0.5 m/s to use redundant and checked bypass switches for the lock contact of the interlock within +/- 75 mm of the landing. (Matches the permissions for material lifts)  See also 7.2.12.31	[OEM] [E] [I] Design review and field verifiable.  Car can move 75mm (3") from the landing with doors closed but NOT LOCKED

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	7.1.12.1.3(b)	2016	<p>Hoistway door close contacts (see 7.2.12.31) shall be provided when the driving machine is operated with the hoistway door or gate unlocked, but in the closed position. The hoistway door close contacts shall be positively opened by the opening action of the door or gate. They shall be maintained in the open position by the action of gravity or by a restrained compression spring, or by both, or by a positive mechanical means.</p> <p>(3) requirement 2.12.2.4, except                      (a) requirement 2.12.2.4.1 does not apply.                      (b) requirement 2.12.2.4.3 does not apply. The interlock shall lock the door in the closed position with a minimum engagement of 7 mm (0.28 in) of the locking members before the interlock contacts are closed and before the driving machine can be operated except as permitted by 7.1.12.1.3(b)(2)                      (c) requirement 2.12.2.4.6 applies but the force used shall be 225 N (50 lbs)                      (4) requirement 2.12.2.5                      (5) requirement 2.12.2.6                      (6) requirement 2.12.4</p>		
257	Section 7.1	2019	Title and introductory paragraph Revised	Rationale: Hand Dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power Dumbwaiters and their requirements should be removed from the code.	
259	7.1.10	2019	Revised		
259	7.1.11	2019	Paragraphs 7.1.11.1.2, 7.1.11.2.2, 7.1.11.3.2, and 7.1.11.12.9 deleted		
260	7.1.12	2019	Paragraph 7.1.12.2 deleted and designator reserved for future use		



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>7.2 Electric Dumbwaiters without Automatic Transfer Devices</b>					
263	7.2.12	2013	Second sentence editorially revised. Clause reference changed.	Revised due to elimination of side emergency exit in previous code edition (B44-2000 U1-2002).	
264	7.2.12.16– 7.2.12.39	2013	Original 7.2.12.16 deleted, and 7.2.12.17 through 7.2.12.39 redesignated as 7.2.12.16 through 7.2.12.38, respectively.		
252	7.2.3.2	2016	Revised: 7.2.3.2 Capacity Plate. A <del>metal</del> capacity plate shall be fastened in a conspicuous place in the car and shall indicate the rated load in letters and numerals not less than 6 mm (0.25 in.) high, stamped, etched, or raised on the surface of the plate. <b>Plates shall be of such material and construction that the letters and figures stamped, etched, cast, or otherwise applied to the faces shall remain permanently and readily legible. It shall indicate the rated load in letters and numerals not less than 6 mm (0.25 in.) high.</b>	Dumbwaiter capacity plates updated to be consistent with elevator capacity plates	field verifiable
253	7.2.6.3.1	2016	Subparagraph (d) revised: <del>rated breaking strength</del> <b>Minimum Ultimate Tensile Strength (MUTS)</b>	Change language for chain strength in four (4) places to be consistent with the ASME B29 code for Chain which only publishes the MUTS (minimum ultimate tensile Strength)	Field verify labeling on data plates. Design reviews verification of data.
253	7.2.6.3.2	2016	Subparagraph (c) revised: See above		
254	7.2.6.5	2016	Subparagraph (b) revised: See above		
254	7.2.6.8.1	2016	Subparagraph (b) revised: See above		
256	7.2.12.31	2016	New 7.2.12.31 added, and former 7.2.12.31 through 7.2.12.38 redesignated as 7.2.12.32 through 7.2.12.39, respectively: <b>7.2.12.31 Hoistway Door Close Contacts</b> <b>Hoistway door close contacts, conforming to 7.1.12.1.3(b)(2) shall be provided for all dumbwaiters that can be operated with hoistway doors closed but not locked within 75 mm (3 in.) above or below a landing and are provided with interlocks. These contacts are electrical protective devices.</b>	Added in conjunction with 7.1.12.1.3(b) to <b>provide a clear indication that door close contacts must be provided when operation with the door closed but not locked is permitted</b> by clause 7.1.12.1.3(b)(2). Confirm that the door close contacts are EPDs and must meet all EPD requirements such as the requirements of 2.26.9.3 as applicable.	Design requirement
256	7.2.12.40	2016	Added: <b>7.2.12.40 Requirement 2.27 does not apply.</b>	<b>Clarifies that fire service is not required for dumbwaiters.</b>	
262	Section 7.2	2019 2019	(1) Title and introductory paragraph <b>Revised</b> (2) Paragraph 7.2.4.3 <b>deleted</b> and designator reserved for future use (3) Paragraphs 7.2.6.1.2 and 7.2.10.2 <b>deleted</b>	Rationale: Hand Dumbwaiters as currently permitted do not provide the equivalent minimum safety requirements of power Dumbwaiters and their requirements should be removed from the code.	
<b>7.3 Hydraulic Dumbwaiters w/o Automatic Transfer Devices</b>					
265	7.3.11.4.1	2013	Subparagraph (c) editorially revised. Clause reference revised.	Clause reference revised due to changes in 3.18.	
258	7.3.11.10	2016	Added: <b>7.3.11.10 Requirement 7.2.12.40 applies.</b>	Clarifies that fire service is not required for dumbwaiters. See 7.2.12.40 above.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>7.4 Material Lifts w/o Automatic Transfer Devices</b>					
269, 270	7.4.14.2	2013	In fourth sentence, reference in parentheses editorially revised	Revised due to elimination of side emergency exit in previous code edition (B44-2000 U1-2002).	
	7.4.14.4	2013	Deleted, and original 7.4.14.5 through 7.4.14.7 redesignated as 7.4.14.4 through 7.4.14.6, respectively	Moved to 7.4.15.7 to align with changes made in Part 2 for door restrictors.	
	7.4.15.7	2013	Added		
258	7.4.2.2	2016	Former subpara. (c) deleted, and subsequent subparagraphs redesignated: 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). <del>(c) There is penetration of only one floor.</del> ( <del>c</del> ) Travel does not exceed <del>5 000 mm (200 in.)</del> <b>7.6 m (25ft.)</b> . ( <del>d</del> ) They are operated only by continuous-pressure control devices. ( <del>e</del> ) They shall not be accessible to the general public. ( <del>f</del> ) The upper limit of travel shall be (1) level with the <b>top</b> penetrated floor; or (2) level with the top landing where no floor is penetrated. ( <del>g</del> ) They are permitted to serve one or more intermediate landings, provided that these landings have doors as required in 7.4.14.	<b>Permits Type B material lifts to travel 7.6m and penetrate more than one (1) floor.</b>	Design permission.  Already permitted in Ontario by CAD.
260	7.4.6.1.4	2016	Revised: <del>7.4.6.1.4 The minimum vertical distance for the refuge space on top of the car enclosure shall be not less than 1 070 mm (42 in.) between the top of the car enclosure and the overhead structure or other obstruction when the car has reached its maximum upward movement. The top of car clearance shall comply with 2.4.7. If a 1 070 mm (42 in.)</del> <b>1 100 mm (43 in.)</b> vertical distance is not available when the car has reached its maximum upward movement, a stopping device shall be provided and shall be functional when the car is under the control of the top-of-car operating device and shall be so located in the hoistway as to maintain the minimum vertical distance of <del>1 070 mm (42 in.)</del> <b>1 100 mm (43 in.)</b> .	Dimensions revised to reflect requirements in 2.4.7. Refuge space is no longer specified in the code when on top of the car.	Design Requirement.
261	7.4.13.2.5	2016	Revised	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
262	7.4.14	2016	(1) Requirement 7.4.14.6 revised: 7.4.14.6 For Type B Material Lifts, the interlock <del>or mechanical lock and electric contact</del> shall not be readily accessible from inside the platform.	<b>Limit the Type B material lifts require interlocks - lock and contact no longer permitted</b>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
262	7.4.14	2016	(2) Requirement 7.4.14.7 and Note added: 7.4.14.8 Requirement 2.12.3 applies only to Type A Material Lifts. Combination mechanical lock and contacts are not permitted for Type B Material Lifts. NOTE [7.4.14]: Type B Material Lifts must have full interlocks.	Lock and contacts will only be permitted for Type A Material Lifts.	
269	7.4.3	2019	Introductory paragraphs Revised	Glass not permitted in hoistway enclosures	
270	7.4.4	2019	Revised	Clarify language for Pits	
272	7.4.13.2	2019	Paragraphs 7.4.13.2.4 through 7.4.13.2.11 redesignated as 7.4.13.2.3 through 7.4.13.2.10		
<b>7.5 Electric Material Lifts w/o Automatic Transfer Devices</b>					
273	7.5.12.1	2013	Editorially revised. Clause reference changed.	Revised due to elimination of side emergency exit in previous code edition (B44-2000 U1-2002).	
274	7.5.12.1.12-7.5.12.1.24	2013	(1) Original 7.5.12.1.12 deleted, and 7.5.12.1.13 through 7.5.12.1.24 redesignated as 7.5.12.1.12 through 7.5.12.1.23, respectively		
274	7.5.12.1.12-7.5.12.1.24	2013	(2) In newly redesignated 7.5.12.1.15, subpara. (g) editorially revised. Clause reference changed.		
274	7.5.12.2	2013	Editorially revised. Clause reference changed.		
275	7.5.12.2.15-7.5.12.2.34	2013	Original 7.5.12.2.15 deleted, and 7.5.12.2.16 through 7.5.12.2.34 redesignated as 7.5.12.2.15 through 7.5.12.2.33, respectively		
262	7.5.1.1.1	2016	Revised: 7.5.1.1.1 Requirement 2.14.1 applies, except (a) for Type A Material Lifts, <del>the enclosure width shall not exceed 1 220mm (48 in.).</del> The height of the enclosure walls shall not exceed 2280 mm (90 in.). <b>(b) for Type A Material Lifts, the width of the enclosure shall not exceed 1 220mm (48 in.) unless the height of the enclosure is 1525 mm (60 in.) or less.</b> (c) for Type B Material Lifts, the platform enclosure on non-access sides shall be 2030 mm (80in.) high, shall be permitted to be of openwork construction, and shall be in compliance with 7.4.3(b), (c), and (d).	<b>Allow type A material lifts wider than 1200mm (48 in.) if... the enclosure height is restricted to 1525mm (60").</b> if height is <= 1525mm (60") width restriction is removed.	[E] [I] if height is <= 1525mm (60") width restriction is removed.
264	7.5.4.3	2016	Revised: 7.5.4.3 Requirement 2.17.8 applies, except that Type A safeties shall be permitted to be used <del>regardless of the</del> for rated speeds of 1.0 m/s (200 ft/min) or less. Safeties actuated by broken or slack suspension ropes are permitted only for material lifts having a rated speed of <del>0.5 1.0 m/s (100 200 ft/min)</del> or less <b>where the space below the material lift is not accessible.</b>	<b>Require safety type to match that of freight elevators but permit slack rope activation up to 1.0 m/s where there is no habitable space below the material lift.</b>	Type 'A' safety now limited to 1.0 m/s

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
266, 267	7.5.12.1.3	2016	New 7.5.12.1.3 added, and former 7.5.12.1.3 through 7.5.12.1.23 redesignated as 7.5.12.1.4 through 7.5.12.1.24, respectively: <b>7.5.12.1.3 Requirement 2.26.1.4.1(a)(1)(a) does not apply for car sizes where the platform is less than 1.4 m2 (15 ft2) in area.</b>	Removes the requirement for a car top station where it is not possible to provide adequate refuge space.	No car top station if area less than 1.4m2 (15 ft2)
266, 267	7.5.12.1.25	2016	Added: <b>7.5.12.1.25 Requirement 7.2.12.40 applies.</b>	Clarifies that fire service is not required.	
266, 267	7.5.12.2.6	2016	Revised: 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) <del>and it</del> which shall cause the power to be removed from the driving machine when operated. <b>Requirement 2.26.2.5(a) does not apply to the emergency stop switch located at each landing. When a constant-pressure type emergency stop switch at a landing is released the car shall not move, except for anticreep operation, until all operating devices in the car and at the landings have been returned to their non-actuated state. The car shall continue to remain stationary, except for levelling, until an operating device in the car or at the landing is actuated.</b>	New design requirements for stop buttons at the landing. The control system is to latch the stop signal and not allow movement until all continuous pressure operating devices are release.  Rationale: Provide permission to use a non-latching emergency stop switch at the landings for Type B Material Lifts. <b>This is intended to prevent operator entrapment which can occur if someone activates a latching landing emergency stop switch while the device is in use.</b> Requiring release of all operating devices at the landing and in the car before allowing operation of the car ensures that an operator in the car can regain control of the car by releasing and actuating an operating device.	[I] permission to use a non-latching emergency stop switch at the landings for Type B Material Lifts.
268	7.5.12.2.34	2016	Added: <b>7.5.12.2.34 Requirement 7.2.12.40 applies.</b>	Clarifies that fire service is not required.	
274	7.5.1.1.7	2019	<b>Revised</b> in its entirety	<b>Car top railing is required when a car top is provided.</b>	
276	7.5.10	2019	<b>Revised</b>	<b>Rationale: Allow the driving machine to be located above the platform when a car top is provided.</b>	
<b>7.6 Hydraulic Material Lifts w/o Automatic Transfer Devices</b>					
276	7.6.8.1	2013	Subparagraphs (a) and (b) editorially revised	Revised due to elimination of side emergency exit in previous code edition (B44-2000 U1-2002).	
	7.6.8.3	2013	Subparagraph (e) editorially revised		
280	7.6.7	2019	<b>Revised</b> in its entirety	Clarify terminal stopping requirements for Type A and B material lifts	
280	7.6.8.1	2019	<b>Revised</b>		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>7.9 Electric Material lifts with Automatic Transfer Devices</b>					
271, 272	7.9.2.4	2016	New 7.9.2.4 added, and former 7.9.2.4 through 7.9.2.20 redesignated as 7.9.2.5 through 7.9.2.21, respectively: <b>7.9.2.4 Transfer devices located in the car shall not be deliberately obscured. Transfer devices in the car that are obscured shall be marked. The marking shall consist of alternating 100 mm (4 in.) diagonal yellow and black stripes.</b>	Transfer devices in the car must be visible so that people will not mistake a material lift with automatic transfer devices as being a passenger or freight elevator. Adding a requirement to mark obscured transfer devices ensures they remain visible	
271, 272	7.9.2.7	2016	Revised: 7.9.2.67 Requirement 2.16.4. Material lifts with transfer devices <del>located in non-restrictive areas that are not obscured (see 7.11)</del> shall carry materials only and shall not carry persons. Signs conforming to 2.16.5 and reading "NO PERSONS PERMITTED" or an equivalent warning shall be provided within the car enclosure and on the landing side of each entrance door.	Expand the restriction prohibiting persons to ride all material lifts with automatic transfer devices whether located in restricted areas or not. Material lifts with automatic transfer devices could result in injury to a passenger should the automatic device actuate while a person is in the car.	
271, 272	7.9.2.8	2016	Revised: Renumbers references due to new requirements above.		
<b>7.11 Hydraulic Material lifts with Automatic Transfer Devices</b>					
271, 272	Section 7.11	2016	Deleted entire section	Delete dual use system for new installations to improve safety. This ensures that persons using an elevator will not encounter automatic loading or unloading by an obscured transfer device. Such automatic operation could result in injury. Existing sections 7.9 and 7.10 would apply to devices with obscured transfer devices. Additional requirements have been added to section 7.9 to reduce the likelihood that a transfer device is obscured.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>PART 8</b>					
<b>8.1 Security</b>					
280	8.1.2	2013	Subparagraph (n) editorially revised	Revised reference; was 2.12.7.3.1 change to 2.12.7.3.3 (hoistway access switch)	
273, 274	8.1.2	2016	In Note, new subparas. (q) and (r) added, and existing subparagraphs redesignated <b>Group 1: Restricted</b> (q) Requirement 4.1.7.3 (b) 4, machinery spaces and control spaces on the car top. (r) Requirement 4.1.7.6 (b) 5, machinery spaces and control spaces in the car	Added to NOTES, bring into Section 8 rack and pinion requirements	new items added to Security groups
284	8.1.2	2019	(1) Subparagraph (p) of Note Revised	Correct a cross reference	
	8.1.2	2019	(2) Subparagraph (z) of Note added (z) Requirements 2.14.1.5.1(c) and 8.4.4.1, top emergency exit cover.	Added to NOTES Rationale: To add reference for Group 1 Security key for the top emergency exit cover,	
273, 274	8.1.3	2016	In Note, new subparas. (g) and (h) added, and subsequent subparagraphs redesignated <b>Group 2: Authorized Personnel</b> (g) Requirement 4.1.7.2 (i), control rooms (h) Requirement 4.1.7.4 (b) 5 control spaces exterior to the hoistway	Added to NOTES, bring into Section 8 rack and pinion requirements	
284	8.1.3	2019	Subparagraphs (n) and (o) of Note added (5.3 is Private Residence) (n) Requirement 5.3.1.6.2, controller cabinet door or panel. (o) Requirement 5.3.1.6.6, access doors and openings.	add reference to items for Private Residence Elevator; - add a reference to controller cabinet door or panel access, - add a reference to access door and openings	
273, 274	8.1.4	2016	In Note, subpara. (e) added <b>Group 3: Emergency Operation</b> (e) Requirement 8.4.10.1.3(d), earthquake hoistway scan.	Added to NOTES, bring into Section 8 "Earthquake Hoistway Scan" key switch requirements	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>8.2 Design Data and Formulas</b>					
284	8.2.2.5.1	2013	In subparas. (a) through (c), all equations containing variable E editorially revised to variable B	Dimension used to calculate stress in car frame stiles.	
285	Fig. 8.2.2.5.1	2013	In all instances, variable E editorially revised to variable B		
277	8.2.2.4	2016	Revised Car Frame Plank (Buffer Engagement). In calculating the stress resulting from oil-buffer <b>or elastomeric</b> buffer engagement, one-half the sum of the weight of the car and its rated load shall be considered as being concentrated at each end of the plank with the buffer force applied at the middle. The buffer force shall be considered to be that required to produce gravity retardation with rated load in the car. The following formula shall be used to determine the stress resulting from buffer engagement:  Where more than one <del>oil</del> buffer is used, the formula shall be modified to suit the location of the buffers. NOTE (see 8.2.2.4): Symbols used in the preceding formula are defined in 8.2.2.1.1.8.2.3 Impact on Buffer Supports	Rationale for 8.2.2.4 and 8.2.3.1: To add the buffer reaction and impact to buffer supports for elastomeric buffers. The performance of these buffers is similar to that of oil buffers with regards to buffer reaction and impact loading into supports.	
278	8.2.3.1	2016	Revised 8.2.3.1 Buffer Reaction and Impact for Oil Buffer <b>and Elastomeric Buffer</b> Supports. The following formulas give the buffer reaction and the impact on the car and counterweight <del>oil</del> buffer supports resulting from buffer engagement [see 2.1.2.3(a) or 3.22.1.2.1]:		
<b>8.3 Engineering Tests, Type Tests, and Certification</b>					
300	8.3.1.3.1	2013	Subparagraph (h) editorially revised	Revised code book title	
	8.3.1.3.2	2013	Editorially revised	Revised code book title	
293	Section 8.3	2016	Subparagraph (a)(7) added Subparagraphs (a) and (b) revised		
297, 298	8.3.3.4.2	2016	(a) AC rated locking devices shall have their electrical parts connected to an inductive a test circuit <b>comprised of a choke (inductor) and resistor in series having ...</b> (b) DC rated locking devices shall have their electrical parts connected to <del>an</del> inductive a test circuit <b>comprised of a choke (inductor) and resistor in series ...</b>	Rationale: To clarify the requirements for the test circuit used for the current interruption test in both AC and DC rated devices. Adding the composition of the test circuit clearly indicates the test conditions to be established. For DC rated devices removing the word "maximum" and replacing it with a tolerance will insure that neither too little nor too much inductance is used in the test.	
301	8.3.11.3	2016	Revised 8.3.11.3 The steps <b>or pallets</b> shall be subjected to a load varying from 450 N (100 lbf) to 3 000 N(650 lbf) at a frequency of 10 Hz ± 5 for 5 000 000 cycles. An undisturbed harmonic force flow shall be achieved.	<b>applies to pallets as well as steps</b>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
301	8.3.11.4	2016	Revised 8.3.11.4 The load shall be applied normal to the tread surface to a plate 25 mm (1 in.) thick, 200mm (8 in.) wide, and 300 mm (12 in.) long, located at the center of the step or pallet, with the 300mm (12 in.) dimension in the direction of step or pallet travel.	applies to pallets as well as steps	
302, 303	8.3.13	2016	Added 8.3.13 Type Tests of Elastomeric Buffers 8.3.13.1 Application for Certification 8.3.13.2 Test Sample. 8.3.13.3 Testing Equipment. 8.3.13.4 Installation of Buffer and Preparations for Tests 8.3.13.5 Test Procedure. 8.3.13.6 Test Results 8.3.13.7 Certification	Rationale for Section 8.3. Proposed changes provide information regarding engineering tests, type tests and certification of elastomeric buffers.	Requirements for certification of elastomeric buffers.
302, 303	8.3.13.5	2016	Editorially revised	certification of elastomeric buffers.	
302, 303	8.3.13.7.3	2016	Editorially revised		
304	Section 8.3	2019	(1) Subparagraph (a)(6) Revised (6) escalator machine brakes as required in 6.1.5.3 (see 8.3.1 and 8.3.6) and escalator dynamic braking systems (6.1.5.3.4), if utilized	Add language for type testing and certification requirements for dynamic braking systems	
		2019	(2) Subparagraph (b)(7) added	add language for engineering tests for Escalator/Mwalk skirt panel design	
307	8.3.3.1	2019	Revised	Rationale: Include new wording for closed detection means and specify requirements for tests if means are SIL	
307	8.3.3.3.1	2019	Revised in its entirety		
308	8.3.3.3.2	2019	Revised		
308	8.3.3.4	2019	Revised		
308	8.3.3.4.2	2019	Revised		
308	8.3.3.4.3	2019	Revised		
309	8.3.3.4.6	2019	Revised		
309	8.3.3.4.10	2019	Revised		
309	8.3.3.4.11	2019	Revised		
310	8.3.6	2019	Title Revised 8.3.6 Escalator Brake and Braking System Type Tests	Add requirement for type tests related to dynamic braking	
310	8.3.6.1	2019	Revised		
314	8.3.14	2019	Added 8.3.14 Engineering Tests of Car Door Restrictors	Add requirements for engineering tests of car door restrictors	fyi - restrictor testing is required
315	8.3.15	2019	Added 8.3.15 Skirt Deflection Test	Requirements were added for engineering test verification of skirt panel designs for deflection for new, altered, replaced and repaired skirt panels and to assist field verification for escalators and moving walks.	fyi - skirt panel testing is required



Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>8.4 Elevator Seismic Requirements</b>					
308, 309	Section 8.4	2013	(1) Title revised" <b>SECTION 8.4</b> <b>ELEVATOR SAFETY SEISMIC REQUIREMENTS FOR SEISMIC RISK ZONE 2 OR GREATER</b>	<b>Building codes no longer use seismic risk zones.</b>  <b>8.4(a), (b) and (c) have been added/ revised to ensure full coverage of all applicable enforced building codes.</b>  <b>Changes affect design calculations only and do not add any new features for inspection.</b>	Section 8.4 Introductory Rationale: All requirements in Section 8.4 have been revised to include seismic force levels as specified in the latest building codes in the US (IBC) and Canada (NBCC).
		2013	(2) Paragraph revised in its entirety	<b>8.4(a)(3) now includes requirements for post-disaster buildings.</b> <b>From OBC:</b> <b>Post-disaster building means a building that is essential to the provision of services in the event of a disaster, and includes,</b> <b>(a) hospitals, emergency treatment facilities and blood banks,</b> <b>(b) telephone exchanges,</b> <b>(c) power generating stations and electrical substations,</b> <b>(d) control centres for land transportation,</b> <b>(e) public water treatment and storage facilities,</b> <b>(f) water and sewage pumping stations,</b> <b>(g) emergency response facilities,</b> <b>(h) fire, rescue and police stations,</b> <b>(i) storage facilities for vehicles or boats used for fire, rescue and police purposes, and</b> <b>(j) communications facilities, including radio and television stations.</b>	Existing force levels related to seismic zones and Av/Zv levels also remain to ensure full coverage of all applicable enforced building codes. Direction is provided as to which levels apply for a given elevator design application. [Submitter] to advise when seismic requirements apply - new and alterations
	8.4.2.1	2013	Title and paragraph revised		
	8.4.2.2	2013	Title and paragraph revised		
	8.4.2.3	2013	Title revised		
	8.4.2.3.1	2013	Revised		
	8.4.2.3.2	2013	Revised		
	8.4.2.3.3	2013	Revised		
	8.4.2.3.4	2013	Added For areas not utilizing Seismic Zones, the Non-structural Component Anchorage, as defined by IBC/ASCE-7, shall be in conformance with the requirements of the governing building code.		
310	8.4.5.2.1	2013	Revised		
311	8.4.6	2013	Revised in its entirety		
	8.4.7.1.1	2013	Revised		
	8.4.7.1.3	2013	Deleted, and original 8.4.7.1.4 redesignated as 8.4.7.1.3		
	8.4.7.2.2	2013	Revised		
	8.4.8.1.1	2013	Added 8.4.8.1.1 Elevator Guide Rail Load Distribution: The load distribution to the guide rails due to the inertial effects of the car and counterweight on their respective guide rails shall be determined as follows: ...		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.4.8.2.1	2013	Revised in its entirety		
	8.4.8.2.2	2013	Definitions of nomenclatures W and Wa editorially revised		
312	Fig. 8.4.8.2-1	2013	Revised		
313	Fig. 8.4.8.2-2	2013	Revised		
314	Fig. 8.4.8.2-3	2013	Revised		
315	Fig. 8.4.8.2-4	2013	Revised		
316	Fig. 8.4.8.2-5	2013	Revised		
317	Fig. 8.4.8.2-6	2013	Revised		
318	Fig. 8.4.8.2-7	2013	Revised		
320	8.4.8.2.6	2013	Added 8.4.8.2.6 Rail Forces (a) The horizontal seismic forces used to determine guide rail stresses and deflections are: (1) For jurisdictions enforcing Seismic Zones (a) 1/2 Wp (zone 3 or greater); or (b) 1/4 Wp (zone 2). (2) For jurisdictions enforcing IBC/NBCC (a) Fp when calculating deflection (b) 0.7Fp when calculating stress...		
	8.4.8.3	2013	Revised in its entirety		
	8.4.8.4	2013	Revised in its entirety		
321-324	8.4.8.7	2013	Revised in its entirety		
	8.4.8.8	2013	Second paragraph editorially revised		
	8.4.8.9	2013	First sentence editorially revised		
	8.4.8.9.1	2013	Subparagraphs (a) and (b) revised in their entirety		
	8.4.8.9.2	2013	Subparagraphs (a) and (b) revised in their entirety		
	8.4.9.1	2013	Revised		
	8.4.10.1	2013	Revised		
	8.4.10.1.1	2013	Subparagraphs (a)(1) and (a)(2) revised		
	Table 8.4.8.7	2013	Revised in its entirety		
325	Fig. 8.4.10.1.1	2013	Revised		
327	8.4.11.2.1	2013	Title and paragraph revised		
	8.4.11.3.1	2013	Editorially revised		
	8.4.11.5.2	2013	Revised		
	8.4.11.9	2013	Revised		
	8.4.11.12	2013	Revised		
328	8.4.11.15	2013	Second sentence editorially revised		
	8.4.11.15.1	2013	(1) First paragraph revised		
		2013	(2) Subparagraphs (a) and (b) revised in their entirety		
	8.4.11.15.2	2013	(1) First paragraph revised		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
		2013	(2) Subparagraphs (a) and (b) revised in their entirety		
329-3 31	8.4.12.1.1	2013	Revised in its entirety		
	8.4.12.1.2	2013	Revised in its entirety		
	8.4.12.2.1	2013	Subparagraphs (a) and (b) revised in their entirety		
	8.4.12.2.2	2013	Subparagraphs (a) and (b) revised in their entirety		
	8.4.13	2013	(1) Title revised		
		2013	(2) Paragraph added		
	8.4.13.1	2013	Revised in its entirety		
332, 333	8.4.13.2	2013	Revised in its entirety		
	8.4.14	2013	Added 8.4.14 Elevator Seismic Design Force 8.4.14.1 Component Seismic Force Level (Strength Design). The seismic force shall be computed per requirements of IBC/ASCE7, or NBCC 2005 or later editions, in accordance with the applicable building code. ...		[Arch][Submitter] to advise on applicability of seismic design
	8.4.15	2013	Added 8.4.15 Component Operating Weight (Wp) The component operating weight Wp shall be one of the following:...		
304	Section 8.4	2016	(1) Subparagraphs (a)(1), (a)(3), and (b) revised (2) Subparagraph (d) added		[E][I] not required on LULA
304	Section 8.4	2016	(d) Section 8.4 shall not apply to the elevators required to conform to Sections 5.2, 5.3, and 5.4.		
305, 306	8.4.2.3.3	2016	Revised		
305, 306	8.4.2.3.4	2016	Revised		
305, 306	8.4.3.1.5	2016	Added A means of detecting displacement of suspension members from their normal operating position, or the suspension members' retainer shall be provided at the machine. The detection means shall be of the manually reset type and shall conform to 2.26.4.3. Subsequent to the first stop of the car following the actuation of the detection means, the car shall remain inoperative until the detection means is manually reset.	Rationale: To prevent restarting of the car from the next stop of the car after the suspension displacement detection means has actuated due to the suspension means being replaced from the normal operating position, or the retainer being dislodged.	[OEM] Suspension member displacement - detection is required. [submitter][I]
305, 306	8.4.4.1	2016	Requirement 8.4.4.1.2 deleted	Removed the reference to the emergency exit switch. This is required in other sections of the Code as an EPD.	
310	Fig. 8.4.8.2-3	2016	"One intermediate tie bracket" callout arrow revised	Revise Figure 8.4.8.2-3 to have the "One intermediate tie bracket" point to the middle line.	
314	Fig. 8.4.8.2-7	2016	"One intermediate tie bracket" callout arrow revised		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
315	Fig. 8.4.8.2-8	2016	Under "(Imperial Units)," unit of measure for $W_a$ 1 revised $W_a$ 1= 1.35 (8,000) = 10 800 kg <b>lb</b>	corrected by errata	
316	8.4.8.6.1	2016	Subparagraph (h) deleted  Design and Construction Rail Joints <del>(h) The threaded portion of the bolts shall not occur in the shear plane of the guide rail fishplate assembly.</del>	Rationale: The rationale for permitting threads to be in the shear plane for structural design: *Computing the shear stresses across threads in a shear plane is an acceptable structural design practice provided the root area is accounted for. *AISC 360 and other structural building codes permit fastener threads to be in the shear plane. *Fatigue limits will not be reached in the structural connection due to the low occurrence of earthquake events. Fatigue limits are inherent in the design requirements specified in section 2.	
317, 318	Table 8.4.8.7	2016	Nomenclature and Notes editorially revised		
319-3 24	8.4.9.1	2016	First sentence revised		
319-3 24	8.4.10	2016	Revised in its entirety		
329-3 33	8.4.14.1	2016	First line and Note (2) of subpara. (a), and Note (2) of subpara. (b) revised		
329-3 33	8.4.14.1.1	2016	Subparagraph (a) and Note (2) revised		
329-3 33	8.4.14.1.2	2016	Second paragraph revised		
315	Section 8.4	2019	Subparagraph (a)(3) <b>Revised</b> Subparagraph (c) <b>Revised</b>	add clarification on seismic application as defined in NBCC	
335	8.4.10.1.4	2019	.. while the <del>seismic detection</del> <b>counterweight displacement detection</b> device is actuated..	Rationale: Requirement 8.4.10.1.4 deals with the counterweight displacement detection device actuation	
334	Figure 8.4.10.1.3	2019	<b>Revised</b>	update earthquake flow chart	
<b>8.5 Escalator and Moving Walk Seismic Requirements</b>					
329-3 33	Section 8.5	2016	Revised in its entirety		
342	Section 8.5	2019	Subparagraph (a)(3) <b>Revised</b>	add clarification on seismic application as defined in NBCC	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>8.6 Maintenance Repair Replacement and Tests</b>					
	8.6.	2013	<p>On May 1, 2013 Ontario adopted the requirements of A17.1/B44 2010 code, At the same time adopted the requirements of Section 8.6 from the (then unpublished / soon to print) 2013 edition of code. <b>The requirements shown as new in 2013 where in effect in ONTARIO as of May 1, 2013.</b></p>		
334	Section 8.6	2013	<p>Paragraph revised: Requirement 8.6 applies to maintenance, repairs, replacements, and testing. <b>Maintenance, repair and replacement shall be performed to provide compliance with the code applicable at the time of installation or alteration.</b></p>	Clarifies scope of 8.6	None
335-3 37	8.6.1.1.3	2013	Revised	Language change to state equipment plates, additional sections to see added	None
	8.6.1.2.1	2013	Revised in its entirety	<p>Greater detail in what is expected from MCP MCP provided by the person(s) and/ or firm maintaining the equipment be viewable on-site by elevator personnel at all times maintained remotely from the machine room, machinery space....MCP either in hard copy or in electronic format shall be posted on the controller</p>	Ensure MCP is on site if electronic means to access on site
	8.6.1.2.2	2013	<p>Revised in its entirety Greater detail on unique procedures On-Site Documentation The following documents for a), b), and c) shall be written and permanently kept on-site in the machine room, machinery space... or in the means necessary for test in hard copy for each unit for elevator personnel. The documentation for (d) be on-site and available to the specified personnel. (a) Up-to-date wiring diagrams detailing circuits of all electrical protective devices and critical operating circuits. (b) Procedures for inspections and tests not described in ASME 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     (2) unique maintenance procedures or methods required for inspection, tests, and replacement of SIL rated E/E/PES electrical protective devices and circuits.     (3) unique maintenance procedures or methods required for inspection, tests, and replacement of equipment applied under alternative arrangements shall be provided by the manufacturer or installer     (4) unique maintenance procedures or unique methods required for inspection and test of equipment specified in an ASME A17.7/CSA B44.7, Code Compliance Document</p>		<p>Ensure (a) up to date wiring diagrams, (b) inspection procedures and (c) check out procedures are written and permanently on site (d) on site and available to appropriate persons</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.1.2.2	2013	<p>(c) Written checkout procedures</p> <ul style="list-style-type: none"> <li>(1) to demonstrate E/E/PES function as intended</li> <li>(2) for elevator leveling speed with open doors</li> <li>(3) for hydraulic elevator overspeed valve</li> <li>(4) for escalator reversal stopping device</li> <li>(5) for escalator handrail retarding force</li> </ul> <p>(d) Written procedures for the following:</p> <ul style="list-style-type: none"> <li>(1) evacuation procedures for elevators by authorized persons and emergency personnel shall be available on-site</li> <li>(2) the procedure for cleaning of a car and hoistway transparent enclosures by authorized persons</li> </ul>		
	8.6.1.4	2013	<p>Revised in its entirety Maintenance Records.</p> <p>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 yr. 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 yr. shall be retained.</p>		Ensure on site and posted on controller minimum 3 mm height characters. Kept for 5 years or adoption of this code whichever is less
	8.6.1.6.3	2013	<p>Revised in its entirety Wiring requirements 8.6.1.6.3 Controllers and Wiring</p> <p>(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.</p> <p>(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.</p> <p>(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).</p> <p>NOTE [8.6.1.6.3(c)]: See "Elevator Industry Field Employees' Safety Handbook" for recommended minimum jumper control procedures.</p> <p>(d) Control and operating circuits and devices shall be maintained in compliance with applicable Code requirements (see 8.6.1.1.2).</p> <p>(e) Substitution of any wire or current-carrying device for the correct fuse or circuit breaker in an elevator circuit shall not be permitted.</p>		Controller needs to be cleaned when necessary, jumpers only used for maintenance and testing, not wire for fuses.
	8.6.1.7.2	2013	<p>Title and paragraph revised</p>	<p>8.6.1.7.2 Periodic Test Record.</p> <p>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 installed to be readily visible and adjacent to or securely attached to the controller of each unit in the form of a 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 tag must indicate alternative testing was utilized for the applicable requirement.</p>	See results of Log Book

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
338	8.6.2.6	2013	Added	Repairs Involving SIL Rated Device(s). SIL rated device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.3.2(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 (c) not be affected by other repair(s) such that the listing/certification is invalidated	See repairs noted in Log Book  May be more of an investigation requirement during incident when getting call back logs
	8.6.3.4.6	2013	Editorially revised	Revised reference clause	No action required
	8.6.3.5	2013	Second paragraph editorially revised	editorial	No action required
340	8.6.3.13	2013	Added	Fluorescent demarcation lights can be replaced with an type of lights except incandescent	Verify during inspection both periodic and initial
	8.6.3.14	2013	Added	8.6.3.14 Replacements Involving SIL Rated Device(s) (see 1.3) (a) A SIL rated device (see 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.3.2(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, 2.26.9.3.2(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, 2.26.9.32(a), 2.26.9.5.1(a), or 2.26.9.6.1(a) is replaced with a SIL rated device, it shall be considered an alteration [see 8.7.1.9(c)].	If non-SIL device replaced with SIL device it is considered alteration
	8.6.4.1.3	2013	Revised	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 anti-rotation device conforming to the requirements of 2.20.9.8 shall be permitted.	Inspector verify equal tension in the field  Contractor verify equal tension in the field
	8.6.4.3.2	2013	Subparagraph (b) editorially revised	Reference clause added	No action required
	8.6.4.3.3	2013	Editorially revised	Reference clause changed	No action required
	8.6.4.3.5	2013	Second sentence editorially revised	Reference clause changed	No action required

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
341	8.6.4.6.2	2013	Last sentence added A test complying with 8.6.4.20.4 shall be performed was added.	Load test or alternative test completed if the brake is adjusted or a part is changed	Inspector would check log book to ensure it is updated this would be accepted as new anniversary date because it is not related to creep
	8.6.4.10.2	2013	Revised in its entirety (b) The suspension wire ropes shall conform to 2.20.7 was added.  2.20.7 Rope Turns on Winding Drums Suspension wire ropes of winding-drum machines shall have not less than one full turn of the rope on the drum when the car is resting on the fully compressed buffers. Winding-drum machines shall not have multiple layers of suspension wire ropes.	Procedure to resocket or move rope fastenings on winding drum	Verify completion in Log Book, inspect device for compliance of more than one lay when car is at top/bottom landing
342	8.6.4.13.1	2013	Subparagraph (I) revised  door restrictors, where required  (I) means to restrict hoistway or car door opening and expiration date for the alternate power source, where required was added	Maintenance of Door systems car and landing, means to restrict hoistway or car door opening and expiration date for the alternate power source, where required added	Inspector to verify expiration date of the alternate power source
	8.6.4.19.2	2013	Subparagraph (b)(2) editorially revised	Revised reference to proper Item number	No action required
343-3 46	8.6.4.19.4	2013	Title and paragraph revised	Slack-Rope Devices and Stop Motion Switch on Winding Drum Machines.	No additional action required
	8.6.4.19.5	2013	Editorially revised	(Items 2.20, 2.28.2.1, 3.5.2.1, and 3.6.2.1). 2.28.2.1 reference added	No action required
	8.6.4.19.6	2013	Revised 8.6.4.19.6 Firefighters' Emergency Operation. Firefighters' Emergency Operation (Phase I and II) shall be tested 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 key switch at the designated landing and, where provided, the two-position switch at the building fire control station (Part 6).		Clarifies test can be completed by initiating inputs to the controller (not simulation - refer to Part 6)  Inspector to verify that it is signed off in log book
	8.6.4.19.10	2013	Revised in its entirety 8.6.4.19.10 Functional Safety of SIL Rated Device(s). 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 installing 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.		Engineering shall verify SIL rated components are verified at design stage on electrical drawings  Inspector to verify drawing are on site



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.4.19.11	2013	<p>8.6.4.19.11 Ascending Car Overspeed Protection and Unintended Car Movement Devices</p> <p>(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).</p> <p><b>(b) Tests. Ascending car overspeed protection shall be subjected to tests with no load in the car at the slowest operating speed in the up direction.</b></p> <p><b>(c) Tests. Unintended car movement shall be subjected to tests with no load in the car at the slowest operating speed in the up direction.</b></p>	(b) and (c) added to clarify speed and load	<p>Inspector to verify log book completion if required</p> <p>Contractor complete or to mark as N/A if not present</p>
	8.6.4.19.12	2013	Subparagraph (b) editorially revised	<p>revised tp correct Item number</p> <p>(b) an alternative test provided in the Maintenance Control Program [see 8.6.1.2.1(f)]</p>	No action required
	8.6.4.19.14	2013	<p>Added</p> <p><b>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.</b></p>	OEO Cat 1 testing requirements added	<p>Currently not referenced in OBC, if provided Inspector to verify log book completion</p> <p>Contractor complete or to mark as N/A if not present</p>
	8.6.4.19.15	2013	<p>Added</p> <p><b>8.6.4.19.15 Emergency Communications. Emergency communications shall be tested to determine conformance with the applicable requirements (Item 1.6).</b></p>	Emergency communications Cat 1 testing added	<p>Inspector to verify log book completion if required</p> <p>Contractor complete or to mark as N/A if not present</p>
	8.6.4.19.16	2013	<p>Added</p> <p><b>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).</b></p>	Means to Restrict Hoistway or Car Door Opening Cat 1 testing added	<p>Inspector to verify log book completion if required</p> <p>Contractor to mark as N/A if not present</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.4.20.1	2013	<p>Revised in its entirety</p> <p>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).</p> <p>(a) <b>Rated Load and Rated Speed Test. Car safeties</b>, 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):</p> <p>(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.</p> <p>(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.</p>	<p>This section was rewritten however biggest change is the addition to allow alternative testing 8.6.4.20.1(b)(1)</p>	<p>Inspector to verify log book completion if required</p> <p>Contractor to mark as N/A if not present ensure test tag is present and complete</p>
	8.6.4.20.1	2013	<p>(b) <b>Alternative Test Method for Car Safeties. The alternative test methods shall comply with 8.6.11.10 and the following:</b></p> <p>(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</p> <p>(a) when the alternative test is performed, the test shall stop the car and verify that the safeties will be capable of stopping an over speeding car in accordance with the requirements of Section 2.17 applicable to the specific classification of safeties, and</p> <p>(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.</p> <p>(2) A test tag as required in 8.6.1.7.2 shall be provided.</p>	<p>This section was rewritten however biggest change is the addition to allow alternative testing 8.6.4.20.1(b)(1)</p>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.4.20.3	2013	<p>(1) Subparagraph (a) revised in its entirety Reworded to allow the AHJ to accept that any load from no load to rated load can be used</p> <p>8.6.4.20.3 Oil Buffers (a) Car oil buffers shall be tested to determine conformance with the applicable requirements by (1) running the car onto the buffer with rated load at rated speed, or (2) subject to approval by the authority having jurisdiction (a) running the car with 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). 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 (b) running the car 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 the requirements of 8.6.11.10 are met. (g) A test tag as required in 8.6.1.7.2 shall be provided.</p>		Inspector to verify log book completion if required, Contractor to mark as N/A if not present ensure test tag is present and complete
	8.6.4.20.4	2013	<p>(1) Title revised Title changed from "Braking System" to Driving-Machine Brake(s)" also updated to allow for alternative testing</p> <p>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 ASME A17.1-2000/CSA B44-00 and later editions, have the brake setting verified in accordance with the data on the brake marking plate. or firm that installed it. (See also 8.6.1.7.2, Periodic Test 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).</p>		Inspector to verify log book completion

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.4.20.4	2013	<p>(b) Alternative Test Method for Driving-Machine Brakes. The alternative test methods shall comply with 8.6.11.10 and the following:</p> <p>(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).</p> <p>(2) A test tag as required in 8.6.1.7.2 shall be provided.</p> <p>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 Tags.)</p> <p>(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).</p>		Inspector to verify log book completion
	8.6.4.20.5	2013	Text deleted; reserved for future use	Empty for future usage	None
	8.6.4.20.7	2013	Revised	Following verbiage was deleted now states to as per item 1.10.2 of A17.2 "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)."	Inspector to verify log book completion
	8.6.4.20.10	2013	<p>Retitled and Revised in its entirety</p> <p>Revised for Braking System, traction, and Traction Limits was called Emergency stopping distance. Biggest change is allowing alternative test method</p> <p>8.6.4.20.10 Braking System, Traction, and Traction Limits.</p> <p>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).</p> <p>(a) Dynamic Stopping Test. Traction elevators shall be tested to ensure that</p> <p>(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</p> <p>(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):</p> <p>(a) the suspension means shall lose traction with respect to the drive sheave and not allow the car or counterweight to be raised; or</p> <p>(b) the driving system shall stall and not allow the car or counterweight to be raised.</p>		<p>Inspector to verify log book completion</p> <p>Contractor to update logbook to include new requirement, ensure test tag is present and complete</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.4.20.10	2013	<p>(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 re-level the car.</p> <p>(b) Alternative Test Method for Braking System, Traction, and Traction Limits. Alternative test methods shall comply with 8.6.11.10 and the following:</p> <p>(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:</p> <p>(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).</p> <p>(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 re-level the car without load in the car.</p> <p>(2) A test tag as required in 8.6.1.7.2 shall be provided.</p>		<p>Inspector to verify log book completion</p> <p>Contractor to update logbook to include new requirement, ensure test tag is present and complete</p>
	8.6.4.22	2013	<p>Added</p> <p>8.6.4.22 Maintenance of Seismic Devices</p> <p>8.6.4.22.1 A seismic switch, where provided, shall be maintained in accordance with the manufacturer's recommendations.</p> <p>8.6.4.22.2 The counterweight displacement switch components, where provided, shall be</p> <p>(a) maintained in accordance with the manufacturer's recommendations</p> <p>(b) properly aligned and tensioned and kept free of dirt, debris, and other contaminants that may interfere with proper operation</p>	<p>Maintenance of Seismic Devices</p> <p>added to address the maintenance of seismic devices.</p> <p>b) Grounding wire tension, ring misalignment, dirt, debris and contaminates on the stationary wire can interfere with proper operation of the counterweight derailment device. The stationary wire should be kept clean.</p>	<p>Inspector to verify log book completion if required</p> <p>Contractor to add new section to log book mark as N/A if not present</p>
	8.6.5.9	2013	<p>Editorially revised</p>	<p>section referral was updated 8.6.5.14.1.</p>	<p>None</p>
347	8.6.5.13	2013	<p>First sentence added</p>	<p>Editorial added new sentence stating maintained in accordance to manufacturers recommendations</p> <p>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.</p>	<p>None</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.5.14.1	2013	Title and paragraph revised  8.6.5.14.1 Relief Valve <b>Verification of</b> 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. <b>Once this is established, test the entire system to ensure that it will withstand this pressure.</b> It shall be <b>resealed</b> if the relief valve setting is altered or if the seal is broken (Item 2.31).	Added the once set at 150% over pressure the entire system shall be tested to this pressure	Inspector to verify log book completion, Contractor to train staff on new requirement
	8.6.5.14.7	2013	Editorially revised	Section referral was updated 3.18.1.2.5	None
348	8.6.5.17	2013	Added  <b>8.6.5.17 Plunger Gripper. Plunger grippers, where provided, shall be maintained in accordance with the manufacturer's recommendations.</b>	Requirement added to maintain plunger grippers	Inspector to verify log book completion if required  Contractor to update logbook to include new requirement or mark N/A if not present
	8.6.6.1.1	2013	First sentence revised	First sentence revised to remove 8.6.5.14 through 8.6.5.16 cat testing for hydraulics	None
349	8.6.7.9	2013	Editorially revised	Editorial revised to include to new sections 8.6.7.9.1 through 8.6.7.9.5	None
350	8.6.7.11	2013	Added	New maintenance section for wind turbine added	Inspector to verify log book for completion
	8.6.7.12	2013	Added	New maintenance section for outside emergency elevators added  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 (clearances and SSPI) and ASME A17.7/CSA 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 ASME A17.7/CSA 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 ASME A17.7/CSA B44.7, requirement 2.12.3. Outside emergency elevators are not required to be powered by electric driving-machine motors.	None

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
351	8.6.8.5	2013	Subparagraph (a) revised  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.	Check to ensure no Damaged to skirt or dynamic skirt panels if replaced or repaired the installation shall conform to 8.6.8.2 and 8.6.8.3.3. The skirt obstruction devices shall be checked for proper adjustment and operation.	Inspection if panels are replaced ensure 8.6.8.2 to 8.6.8.3 is updated and new SSPI is present in log book  Contractors may require additional training to staff
353	8.6.8.15.24	2013	Added 8.6.8.15.24 Maintenance of Seismic Devices. A seismic switch, where provided, shall be maintained in accordance with the manufacturer's recommendations.	If escalator has seismic device provide maintenance	Inspector to verify log book completion if required  Contractor to update logbook to include new requirement or mark N/A if not present
355-3 57	8.6.11.5.4	2013	Revised	"All authorized personnel who are assigned to assist in evacuating passengers...wind turbine "wind turbine was added to this sentence	None
	8.6.11.6	2013	Title revised	The word "Procedure" was added to the title	None
	8.6.11.6.1	2013	Revised in its entirety  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 8.6.11.5.2 through 8.6.11.5.5. (b) Stopped escalators shall not be used as a means of access or egress by non-authorized personnel and shall be properly barricaded if accessible to the general public to prevent such use.	Start Up Procedures updated to say stopped escalators shall not be used as means of access  CAD: (b) Stopped escalators should not be used as a means of access or egress...  NOTE: Proper barricades are described in the Elevator Industry Field Employee Safety Handbook — Escalator/Moving Walk Barricades.	Each jurisdiction should ensure they are following their Regulatory requirement for access  TSSA CAD revises this requirement. Stopped escalators "should" not be used

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.11.10.1-8.6.11.10.4	2013	<p>(1) Original 8.6.11.10.1 to 8.6.11.10.4 added causing renumbering for sections below 8.6.11.11, 12, 13 Allows alternative testing clarifies when permitted, procedures as well as the report requirements 8.6.11.10 Category 5 Tests Without Load Via Alternative Test Methodologies</p> <p>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</p> <p>(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 (1) based on sound engineering principles (2) 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 provider's guidelines.</p>		<p>Inspector to ensure alternative test report is in log book and in compliance</p> <ul style="list-style-type: none"> <li>-make model of test tool used</li> <li>-company and persons doing test</li> <li>-record of test to show compliance</li> <li>-Identify a baseline to be used for future tests</li> <li>-car/cwt masses</li> <li>-all Cat 5 tests pass or fail</li> </ul>
	8.6.11.10.1-8.6.11.10.4	2013	<p>8.6.11.10.3 Alternative Test Method Procedure. The alternative test method shall</p> <p>(a) include requirements to obtain and verify car and counterweight masses if necessary for the test (b) have a procedure document that</p> <ul style="list-style-type: none"> <li>(1) defines the permissible equipment range and limitations regarding use</li> <li>(2) establishes monitoring and calibration criteria for tools or measuring devices as appropriate</li> <li>(3) defines the test set-up procedure</li> <li>(4) provides instructions on how to interpret results and correlate the results to pass-fail criteria</li> </ul> <p>(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</p>		<p>Contractor ensure proper approved report left on site</p>
	8.6.11.10.1-8.6.11.10.4	2013	<p>8.6.11.10.4 Alternative Test Method Report. The alternative test method report shall</p> <p>(a) identify the alternative test tool (make/model) used to perform the test (b) identify the company performing the tests, names of personnel conducting and witnessing the tests, and testing dates (c) contain all required printouts or record of tests required to demonstrate compliance 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 (g) remain on site or shall be available to elevator personnel and the authority having jurisdiction</p>		
		2013	(2) Original 8.6.11.11 redesignated as 8.6.11.12	Examination After Safety Application procedure added	None
		2013	(3) Original 8.6.11.12 redesignated as 8.6.11.14, and new 8.6.11.13 added 8.7.1.7 Second sentence deleted	Examination After Shutdown Due to Broken-Suspension-Member Detection Means procedure added	None



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.	2016	2016		
334	8.6.1.2.1	2016	Subparagraph (f) deleted	(f) was moved to 8.6.1.2.2	None
			(1) Subparagraph (b)(5) added	See above references updates	None
334	8.6.1.2.2	2016		(5) 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 [See 2.20.8.1, 2.20.8.2, 2.20.8.3, 8.6.4.19.12, 8.6.11.11, 8.10.2.2.2(cc)(3)(-c)(-2), and 8.10.2.2(ss).]	
			(2) New subparas. (c)(1) and (c)(3) added, and existing subparagraphs redesignated	Written Checkout Procedure added for elastomeric buffers and two way communication	Inspector to verify that procedures are on site, Contractor to ensure procedures are on site
334	8.6.1.2.2	2016		(c) Written checkout procedures (1) for elastomeric buffers (see 8.6.4.4.2) (2) to demonstrate E/E/PES function as intended (see 8.6.4.19.10) (3) for two-way communication means (see 8.6.4.19.15) (4) for elevator leveling speed with open doors (see 8.6.4.20.8) (5) for hydraulic elevator overspeed valve (see 8.6.5.16.5) (6) for escalator reversal stopping device (see 8.6.8.15.7) (7) for escalator handrail retarding force (see 8.6.8.15.13)	
336, 337	8.6.1.7.5	2016	Added 8.6.1.7.5 Devices Not Covered in 8.6. When any device on which the safety of users is dependent is installed that is not specifically covered in 8.6 it shall be inspected and tested in accordance with the requirements of the manufacturer's or the altering company's procedures (see 8.6.1.6.1, 8.7.1.2). Documentation that contains the testing procedures of these devices shall remain with the equipment and be available in the on-site documentation (8.6.1.2.2). The removal or disabling of such devices shall be considered an alteration and shall comply with 8.7.1.2.	New requirement that states if you have device in which the safety of the user is dependent and it is not part of 8.6 then the manufacturer or altering company shall provide procedure if device is removed considered an alteration	Inspector if present verify that documentation is on site  Contractor to ensure if these devices exist that documentation remained on site.
336, 337	8.6.2.4	2016	Revised	Revised to say compliant to section 8.6.4.20.2(b) and not 8.11.2.3.2(b).	None
336, 337	8.6.3.2.1	2016	Note deleted	Note deleted	None
336, 337	8.6.3.4.3	2016	Revised	Revised to say compliant to section 8.6.4.20.2(b) and not 8.11.2.3.2(b).	None

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
338	8.6.3.6	2016	<p>Revised in its entirety</p> <p>8.6.3.6 Replacement of Speed Governor</p> <p>8.6.3.6.1 <i>Where</i> a speed governor is replaced, <b>the replacement shall be considered an alteration</b> and shall conform to 8.7.2.19 <b>except when the replacement equipment has been authorized by the original equipment manufacturer as being equivalent</b> to the original make and model <b>or has been verified by a professional engineer as meeting the original design criteria</b> of the elevator system. The governor rope shall be of the type and size specified by the governor manufacturer. The governor shall be <b>tested in accordance with the applicable requirements specified in 8.10.2.3.2(f)</b>. <i>Where</i> a Type A Safety is used, the inertia application shall be tested as specified in 8.10.2.2.2 (ii)(2)(-a).</p> <p>8.6.3.6.2 <i>When</i> a releasing carrier is provided, it shall conform to 2.17.15 <b>except for replacements with equipment of the same make, model, and manufacturer as that being replaced, which shall conform to the Code under which the releasing carrier was originally installed.</b></p>	<p>Speed governor is replaced, replacement shall be considered an alteration except when the replacement equipment has been authorized by the original equipment manufacturer as being equivalent to the original make and model or has been verified by a professional engineer as meeting the original design criteria of the elevator system.</p>	<p>Engineering/Inspection/ Contractor parties work together when this takes place to ensure compliance</p>
338	8.6.3.8	2016	<p>Subparagraph (b) revised</p> <p>8.6.3.8 Replacement of Door Reopening Device.</p> <p>Where a reopening device for power-operated car doors or gates is replaced, the following requirements shall apply:</p> <p>(a) The door closing force shall comply with the Code in effect at the time of the installation or alteration.</p> <p>(b) The kinetic energy shall comply with the Code in effect at the time of the installation or alteration. <b>Where a data plate conforming to 2.13.4.2.4 is not required, see Nonmandatory Appendix Z.</b></p> <p>(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, <b>except door reopening devices for power-operated doors that are sensitive to smoke or flame shall also conform to 2.27.3.1.6(e).</b></p>	<p>Kinetic energy of door reopening device , added if data plate was not required</p> <p>Maintenance requires that the kinetic energy, typically demonstrated through door closing times, must be in compliance with the code.</p> <p><b>The absence of door closing times on data tags would prevent this assessment.</b></p> <p>Appendix J3 was developed via a consolidation of information from several elevator manufacturers. <b>Table J3, now displayed as Non- Mandatory Appendix XX provides guidance / best estimates of permissible door times</b> which can be used to establish closing times in the absence of data tags</p> <p>B44 prior to 1981 did not require door edges to be rendered inoperative – as mechanical safety edges where typically not affected by smoke of hot gases. If electronic edges are applied to an older control system, for which the code was silent on rendering them ineffective, this replacement requirement needs to ensure the edges are rendered ineffective in order for the doors to close and FEO to recall the elevator, hence the requirement to meet 2.27.3.1.6(e).</p>	<p>Inspectors would confirm times per data plate if no data plate required confirm operation.</p> <p>Appendix Z may needed to be used during investigation.</p> <p>Contractors educate mechanics if no data plate mechanics may want to install times in log book for future usage so that it does not have to be looked up every time...</p>
338	8.6.3.9	2016	<p>Revised</p>	<p>Revised to say compliant to section 8.6.4.20.2(b) and not 8.11.2.3.2(b).</p>	<p>None</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
339	8.6.3.15	2016	Added	<p>New requirements of when replacing car doors what sections have to be complied with</p> <p>8.6.3.15 Replacement of Car Doors and Gates. Where a car door or gate is replaced, the replacement shall conform as follows: (a) On Passenger Elevators(1) The requirements of 2.14.4 apply, except 2.14.4.10. The door closing force shall comply with the Code in effect at the time of the installation or alteration. <b>(2) The requirements of 2.14.5 apply, except existing folding car doors shall be permitted to be replaced with folding car doors.</b> (3) The following apply to the replacement of existing folding car doors: (-a) Requirement 8.6.3.15(a)(1). (-b) Requirement 8.6.3.15(a)(2), except 2.14.5.3, 2.14.5.6.2, 2.14.5.8, and 2.14.5.9 do not apply. (-c) The effort needed to prevent a folding car door from closing shall conform to 2.13.4.2.3. (-d) Folding car doors shall not be power opened to a distance exceeding one-third of the clear opening, and in no case shall the distance be more than 250 mm (10 in.). (-e) Handles of manually operated folding car doors nearest the car operating device on elevators operated from the car only shall be so located that the nearest handle is not more than 1 220 mm (48 in.) from the car operating device when the folding door is closed, and is between 1 220 mm (48 in.) and 380 mm (15 in.) above the car floor. (b) On Freight Elevators (1) The requirements of 2.14.4 apply, except 2.14.4.10. The door closing force shall comply with the Code in effect at the time of the installation or alteration. (2) The requirements of 2.14.6 apply.</p>	<p>Engineering/Inspection work through submission</p> <p>permission to replace folding doors with new folding doors</p>
340	8.6.4.4	2016	Revised to eliminate 8.6.4.4.2 and 8.6.4.4.3	<p>8.6.4.4.2 is now 8.6.4.4.1(b) and 8.6.4.4.3 is 8.6.4.4.1(c)</p>	None
340		2016	New Section Added for Elastomeric Buffers not highlighted as a 2016 change	<p>8.6.4.4.2 Elastomeric Buffers. The elastomeric buffer shall be verified for any life-cycle conditions that may affect buffer performance, as specified by the manufacturer.</p>	Inspector/Mechanic to check device for conditions that may cause replacement.

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
341	8.6.4.13.2	2016	<p>Last sentence added</p> <p>8.6.4.13.2 Kinetic Energy and Force Limitation for Automatic Closing, Horizontal Sliding Car and Hoistway Doors or Gates.</p> <p>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. <b>Where a data plate conforming to 2.13.4.2.4 is not required, see Nonmandatory Appendix Z.</b></p>	<p>Maintenance requires that the kinetic energy, typically demonstrated through door closing times, must be in compliance with the code. The absence of door closing times on data tags would prevent this assessment. Appendix J3 was developed via a consolidation of information from several elevator manufacturers. Table J3, now displayed as Non-Mandatory Appendix Z provides guidance / best estimates of permissible door times which can be used to establish closing times in the absence of data tags.</p>	<p>Inspectors would confirm times per data plate if no data plate required confirm operation.</p> <p>Appendix Z may needed to be used during investigation.</p> <p>Contractors educate mechanics if no data plate mechanics may want to install times in log book for future usage so that it does not have to be looked up every time...</p>
342	8.6.4.19.2	2016	<p>Subparagraph (a) revised</p>	<p>Editorial incorrect reference</p>	<p>None</p>
342	8.6.4.19.8	2016	<p>Last sentence added</p> <p><b>Where a data plate conforming to 2.13.4.2.4 is not required, see Nonmandatory Appendix Z.</b></p>	<p>see note in 8.6.4.13.2 above</p>	<p>see note in 8.6.4.13.2 above</p>
343	8.6.4.19.11	2016	<p>Revised</p> <p>8.6.4.19.11 Ascending Car Overspeed Protection and Unintended Car Movement Devices, <b>and Emergency Brake</b></p> <p>(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).</p> <p>(b) Tests. Ascending car overspeed protection shall be subjected to tests with no load in the car at the slowest operating (<b>inspection</b>) speed in the up direction.</p> <p>(c) Tests. Unintended car movement shall be subjected to tests with no load in the car at the slowest operating (<b>inspection</b>) speed in the up direction.</p>	<p>Rationale:</p> <ol style="list-style-type: none"> <li>8.6.4.19.11 requires that the test be performed at the lowest operating speed in the up direction. Therefore, it is not justified verifying the ascending overspeed protection setting on a Category 1 Test. Also, the overspeed detection means is typically the governor overspeed switch, whose setting is only required to be verified on a Category 5 Test.</li> <li>Editorial corrections.</li> <li>Clarifications.</li> </ol>	<p>Inspector to verify log book completion if required</p> <p>Contractor to update MCP procedures and train personnel</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
343	8.6.4.19.12	2016	Subparagraph (b) revised	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 on-site documentation [see 8.6.1.2.2(b)(5)]	Inspector to ensure logbook is signed off if alternative test was completed documentation is on site  Contractor to ensure to train staff to leave document on site
343	8.6.4.19.15	2016	Last sentence added <b>8.6.4.19.15 Emergency Communications.</b> Emergency communications shall be tested to determine conformance with the applicable requirements (Item 1.6). A written checkout procedure shall be provided by the manufacturer of the communications means or the person or firm maintaining the equipment.	Rationale: to provide a checkout procedure for testing specific equipment used for the two-way communication means validating the automatic verification of line operability. There are numerous systems in the marketplace and the checkout procedure must be available and not developed by the inspectorate.	Inspector to verify that procedures are on site  Contractor to ensure procedures are on site
343	8.6.4.19.17	2016	Added <b>8.6.4.19.17 Earthquake Operation.</b> Earthquake 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.	Provide means to test the earth quake operation	Inspector to verify log book completion if required  Contractor to update logbook to include new requirement or mark N/A if not present
345	8.6.4.20.11	2016	Revised 8.6.4.20.11 Emergency Brake (a) <b>Emergency Brake and Ascending Car Overspeed Protection.</b> For passenger elevators and all freight elevators, the emergency brake shall be tested for compliance with 2.19.3.2. Verify the setting of the ascending car overspeed detection means. (b) <b>Emergency Brake and Unintended Car Movement Protection.</b> Test the unintended car movement protection and the emergency brake in the down direction with 125% of rated load at the landing above the bottom landing.	<b>Following was added (b) Emergency Brake and Unintended Car Movement Protection.</b>  Test the unintended car movement protection and the emergency brake in the down direction with 125% of rated load at the landing above the bottom landing.	Inspector to ensure logbook is signed off if required  Contractor to ensure to train staff on new requirements
346	8.6.4.22.1	2016	First sentence revised	Code used to say seismic switch verbiage change to say seismic device shall be maintained according to manufacturer	None
346	8.6.4.22.2	2016	First sentence revised	Code used to say the counterweight displacement detection device switch components, verbiage change to remove word switch	None
347	8.6.5.14.3	2016	Subparagraphs (d) and (e) revised	references corrected	None

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
347	8.6.5.14.6	2016	<p>Last sentence added</p> <p>8.6.5.14.6 Power Operation of Door System.</p> <p>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. <b>Where a data plate conforming to 2.13.4.2.4 is not required, see Nonmandatory Appendix Z</b></p>	<p>General Maintenance requires that the kinetic energy, typically demonstrated through door closing times, must be in compliance with the code. Often the continued absence of door closing times prevents this assessment. Appendix Z was developed via a consolidation of information from several elevator manufacturers and provides guidance / best estimates of permissible door times which can be used to establish closing times in the absence of data tags.</p> <p>Contractors educate mechanics if no data plate mechanics may want to install times in log book for future usage so that it does not have to be looked up every time...</p>	<p>Inspectors would confirm times per data plate if no data plate required confirm operation.</p> <p>Appendix Z may needed to be used during investigation.</p>
347	8.6.5.14.8	2016	<p>Added</p> <p><b>Earthquake 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.</b></p>	<p>Provide means to test the earth quake operation</p>	<p>Inspector to verify log book completion if required</p> <p>Contractor to update logbook to include new requirement or mark N/A if not present</p>
347	8.6.5.16.1	2016	<p>Last sentence revised</p>	<p>Updated with Item reference to clarify that overspeed testing is not required for hydraulic elevators on a Category 5 Test, which is not required for electric elevators.</p> <p>(Items 2.13, 2.29, and 5.12).</p>	<p>None</p>
347	8.6.5.16.2	2016	<p>Revised</p>	<p>Item 3.23 added for reference to A17.2</p>	<p>None</p>
348	8.6.5.16.3	2016	<p>First sentence revised</p>	<p>ASME added to A17.2</p>	<p>None</p>
348	8.6.6.1	2016	<p>Revised</p>	<p>Section 8.6.6.1.1 reference added</p>	<p>None</p>
348	8.6.6.1.1	2016	<p>First sentence revised</p> <p>8.6.6.1 Rack-and-Pinion Elevators.</p> <p>The maintenance of rack-and-pinion elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of Section 8.6. Where the car and/or counterweight safeties are sealed to prevent field adjustment and examination, or where the manufacturer has established replacement criteria, the safeties shall be returned to the manufacturer for replacement of components and calibration at the interval recommended by the manufacturer. The date of expiration is the data that indicates when the next manufacturer's maintenance-calibration is due. <b>The date of expiration shall be shown on the safety device data plate required in 4.1.17.3(c). Field testing of rack and-pinion safeties in accordance with 8.6.6.1.1 shall be required prior to placing the elevator in service after the manufacturer replaces components or calibrates car or counterweight safeties.</b></p>	<p>Rack-and Pinion Elevator; Field testing is required to assure that the safeties work properly after they are overhauled and reinstalled and before the elevator is placed back in service.</p>	<p>Inspector to ensure data plate has expiration date on safety device, Contractor to ensure tag is present before inspection</p>
349	8.6.7.9	2016	<p>Revised</p>	<p>For mine elevators</p>	<p>N/A</p>
349	8.6.7.9.5	2016	<p>First sentence revised</p>	<p>For mine elevators</p>	<p>N/A</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
352	8.6.8.15.1	2016	Revised 8.6.8.15.1 Machine Room and Truss Interior. The condition of and access to machine rooms, the truss interior, and all escalator components contained therein shall be examined <b>and, if required, cleaned to perform the required inspections and tests</b> of 8.6.8.15. The operation and adequacy of lighting and receptacles shall be checked (Items 8.1 and 10.1).	Rationale: Clarification of the requirements.	Inspector verify signed off in log book  Contractor Update MCP Procedure, train personnel and Log book section title
353	8.6.8.15.23	2016	Revised	"Seismic switch" removed "seismic detection device" added	None
353	8.6.8.15.24	2016	Revised	"Seismic switch" removed "seismic detection device" added	None
355	8.6.11.6.1	2016	Subparagraph (a) revised	New reference section added	None
356, 357	8.6.11.10.3	2016	Subparagraph (e) revised	Code reference change 8.6.1.2(f) to 8.6.1.2.2(b)(5)	None
356, 357	8.6.11.11	2016	First sentence revised	Requirement was incorrect for A17.1-2013 and updated to correct referenced requirement number	None
356, 357	8.6.11.15	2016	New section added <b>8.6.11.15 Presence of Elevator Personnel When Motor Controllers Are Located in Public Spaces.</b> Elevator personnel are to maintain a closed and locked motor controller door when they are not present at the controller cabinet (see 2.7.6.3.2).	To prevent unauthorized personnel from access to motor controller when elevator personnel are not present at the controller.	Contractor to update MCP Procedure and train personnel

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.6.	2019	2019		
345	8.6.1.1.2	2019	Notes added	Rationale: Section 8.6 now includes the requirements for Periodic Tests. When these requirements were moved to 8.6 from 8.11, the use of references to A17.2 Items were maintained, but not explained in 8.6. This Note is to clarify the usage of the term.	Explanation
345	8.6.1.1.4	2019	Added 8.6.1.1.4 Safety devices required by ASME A17.1/CSA B44 in 2.26.2, Table 2.26.4.3.2, 6.1.6, 6.2.6 and 8.3 at the time of installation, or devices provided to meet the certification requirements of A17.7 at the time of installation, and/or devices required by A17.3 and installed as an alteration, shall be maintained.	It is a common occurrence for the latest Code to require safety devices and other items on new equipment that are not required by the Code adopted by the Authority Having Jurisdiction (AHJ). Manufacturers comply with the latest Code when manufacturing new equipment and provide all required safety devices. It has sometimes been unclear whether these safety devices were required to function and be tested during acceptance and periodic tests. In addition, the proper method of testing these devices is sometimes unknown or unclear. The addition of this requirement allows the Code to address these issues.	Clarify that these safety devices are to operative at time of inspection.
346	8.6.1.2.2	2019	Subparagraphs (e) and (f) added 8.6.1.2.2 On-Site Documentation (e) USI(s) of the executable software associated with the relevant functions in 2.26.1.7.1 and 3.26.11.1 (see also 2.26.1.7.3). (f) The documentation for the engineering test of skirt panels deflection for units installed or altered under A17.1-2019 and later editions (see 8.3.15.5).	Rationale: To provide requirements for documenting for the installation software related to A17.1 safety functions in a similar manner as current code provides with field wiring diagrams  Rationale: Limiting skirt deflection is one of the important components in preventing entrapments between steps and skirt panels.  A17.1 def'n. Maintenance procedure: an instruction or sequence of instructions for performing a specific task(s).  8.6.1.2.2 Contains requirements for; -Up to date wiring diagrams -Check out procedure for Leveling, overspeed valve, reversal stop switch -Unique maint procedure for SIL rated devices -Unique maint procedure for applied under alternate arrangements -Unique maint procedures for equipment installed under A17.7 -Procedures for traction-loss detection, broken-suspension-member detection means, residual-strength detection means -Check out procedures for elastomeric buffers, E/E/PES function, two way communication, leveling speed with open doors, overspeed valve, esc reversal stop device, esc handrail retarding force -Procedure for evacuation, cleaning of transparent enclosures, executable software, engineering test of skirt panels altered installed after 2019 code and later editions.	Inspector to verify following documents are on site;  Contractor ensure these are permanently kept on site



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
347	8.6.1.4.1	2019	<p>Subparagraphs (b)(3) and (d)(2) added</p> <p>8.6.1.4.1 On-Site Maintenance Records</p> <p>8.6.1.4.1 (new (b)(3) (b)(3) Where applicable, the USI(s) (2.26.1.7.3) and the associated functions in 2.26.1.7.1 or 3.26.11.1 that are affected.</p> <p>(d) Permanent Record.</p> <p>(2) For escalators and moving walks installed or altered under A17.1-2019/B44-19 or later editions, a permanent record of verification of conformance with 6.1.3.3.6 or 6.2.3.3.6, as applicable, for a skirt panel or skirt panel supporting components shall be kept with the On-Site Maintenance Records</p>	<p>Rationale: To add the unique software identifier (USI) and test record in the repair and replacement record.</p> <p>Esc/MW installed or altered under A17.1-2019 or later shall meet these requirements</p> <p>6.1.3.3.6 Skirt Panels</p> <p>(a) The height of the skirt above the tread nose line shall be at least 25 mm (1 in.) measured vertically (see Nonmandatory Appendix I, Figure I-4).</p> <p>(b) The skirt panel design and installation shall not permit deflection of more than 1.6 mm (0.06 in.) under a force of 667 N (150 lbf).</p> <p>(c) The exposed surfaces of the skirt panels adjacent to the steps shall be smooth.</p> <p>(d) Skirt Deflection Test and Marking/Labeling. Each skirt panel design shall be tested for deflection with load per (b) as described in 8.3.15. Skirt panels shall be marked with the part number or identifying mark and marked/labeled with the following: "Replacement shall meet OEM and A17.1/B44 Code requirements."</p>	<p>Inspector to verify that skirt panels are marked/labeled</p> <p>Contractor ensure these are present prior to inspection</p>
349	8.6.2.3	2019	<p>Revised</p> <p>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 and 8.6.4.20.2(a).</p>	<p>Rationale: To include the test required for pull-out and pull-through when doing a repair.</p>	<p>Inspector note if repair done test would be signed off in log book</p> <p>Contractor ensure test is completed if repair is done train personnel</p>
352	8.6.4.2.2	2019	<p>Revised</p> <p>8.6.4.2 Governor Wire Ropes</p> <p>(no longer allowed to clean lubricant off of a governor rope)</p>	<p>Rationale: If lubricants have been applied to governor ropes, the assumption is that it was intentional, thus it the governor ropes shall be replaced.</p>	<p>Inspector to order replacement if lubricated</p> <p>Contractor train personnel not to lubricate governor ropes, replace if previously has been lubricated.</p>
354	8.6.4.19.2	2019	<p>Subparagraph (b)(1) Revised</p>	<p>Clarify that the switches like governor switch, safety switch, means to activate emergency brake may be temporarily rendered inoperative.</p>	<p>Contractors may have to update procedures.</p>
355	8.6.4.19.8	2019	<p>Revised</p>	<p>Correct a cross reference</p>	<p>None</p>
356	8.6.4.19.18	2019	<p>Added</p> <p>8.6.4.19.18 Door Reopening Device(s). The detection means of the door reopening device(s) shall be examined and tested to verify proper operation (Item 1.1.1).</p>	<p>Rationale: To ensure ongoing functionality and proper operation of the detection means.</p>	<p>Inspector verify section is sign off in logbook</p> <p>Contractor train personnel and add to MCP procedures</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
356	8.6.4.19.19	2019	<p>Added</p> <p>8.6.4.19.19 Sequence Operation of Power Door Systems (Item 4.7) Ensure that sequence operation, where provided, is functioning according to code requirements in Section 2.13.</p>	<p>Add Cat -1 test for electric elevators to be consistent with the Cat-1 test for hydraulic elevators.</p>	<p>Inspector verify section is sign off in logbook Contractor train personnel and add to MCP procedures</p>
356	8.6.4.19.20	2019	<p>Added</p> <p>8.6.4.19.20 Testing of Alternative Arrangements and ASME A17.7/CSA B44.7—Conforming Equipment. As required by the manufacturer and/or an ASME A17.7/CSA B44.7 Code Compliance Document (CCD), tests shall be performed (a) on equipment applied under alternative arrangements [see 8.6.1.2.2(b)(3)] (b) on equipment specified in an ASME A17.7/CSA B44.7 CCD [see 8.6.1.2.2(b)(4)]</p>	<p>Rationale: To clarify that there may be additional unique testing procedures and/or unique tests not described in A17.2, but required by the manufacturer, for equipment applied under alternative arrangements and equipment specified in an ASME A17.7/CSA B44.7, Code Compliance Document (CCD). Such unique testing procedures and/or unique tests not described in A17.2 are currently required to be part of the MCP On-site Documentation per 8.6.1.2.2(b)(2), (3), and (4).</p>	<p>Inspector to ensure documents are on site Contractor to leave on site</p>
356	8.6.4.20.1	2019	<p>Subparagraphs (a) and (b)(2) Revised</p> <p>8.6.4.20.1 Car and Counterweight Safeties. Type A, Type B, and Type C car and counterweight safeties shall be tested in accordance with (a) or, subject to approval by the authority having jurisdiction, with (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. The car speed at which the governor trips shall be determined by means of a handheld tachometer or other device designed to measure car speed, such as controllers, service tools, and accelerometers.  The car safety mechanism switch shall not be rendered inoperative. The emergency brake required by 2.19.3 shall be disabled to prevent it from operating during this test. Since the counterweight safety does not have a safety mechanism switch, the circuit that would remove power from the driving-machine motor and brake must be opened as soon as the elevator stops to minimize slack rope and fallback of the car. The following operational conditions shall be checked (Item 2.29.2): ..... (b)(2) The "Periodic Test Record" shall be completed and installed as required by 8.6.1.7.2.</p>	<p>Clarify methods to measure car speed. Clarify which devices must be inoperative for testing.</p>	<p>Inspector verify signed off in log book  Contractor may have to update procedures</p>

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
359	8.6.4.23	2019	Added 8.6.4.23 Executable Software Verification. Where executable software for functions listed in 2.26.1.7.1 or 3.26.11.1 has changed as the result of repair or replacement, requiring a new USI, the related safety function(s) shall be tested on-site for the applicable installation and logged in the repair and replacement record.	Rationale: To provide guidelines for on-site testing by the service provider of executable software repairs or replacements when these software changes relate to the applicable Electric and Hydraulic Elevator affected	Inspector look at repair and replacement records Contractor train personnel to that this must be recorded in repair and replacement records as well as test may be required.
360	8.6.5.14.3	2019	(1) Subparagraph (g) Revised (2) Subparagraph (j) added  8.6.5.14.3 Additional Tests.	Text revised to sync with A17.2 test This Category 1 Test requirement will test the operational capability of this safety device on a periodic basis to ensure operational safety for the elevator passengers.	None Inspector verify log book if required
	8.6.5.14.3	2019	(j) Auxiliary Power Lowering Device. The auxiliary power lowering device, where provided, shall be tested with no load in the car for conformance with applicable requirements (3.26.10) (Item 2.44).	8.6.5.14.3 Additional Tests. The following tests shall also be performed: a).. B).. etc. (j) Auxiliary Power Lowering Device....	Contractor ensure added to log book and complete, if not required marked N/A
360	8.6.5.14.6	2019	Revised	Correct a cross reference	None
360	8.6.5.14.9	2019	Added Testing of Alternative Arrangements	see 8.6.4.19.20 for electric elevators Rationale: To clarify that there may be additional unique testing procedures and/or unique tests not described in A17.2, but required by the manufacturer, for equipment applied under alternative arrangements and equipment specified in an ASME A17.7/CSA B44.7, Code Compliance Document (CCD). Such unique testing procedures and/or unique tests not described in A17.2 are currently required to be part of the MCP On-site Documentation per 8.6.1.2.2(b)(2), (3), and (4).	Inspector to ensure documents are on site Contractor to leave on site
			Added 8.6.5.14.10 Functional Safety of SIL Rated Device(s). Verify that the SIL rated device(s) used to satisfy 2.26.4.3.2 and 2.26.9.3.2(b) is as identified on wiring diagrams (8.6.1.6.3) with part identification, SIL, and certification identification information. The person or firm installing the equipment shall provide a written checkout procedure and shall demonstrate that SIL rated devices, safety functions (see Table 2.26.4.3.2), and related circuits operate as intended.	Add for consistency with electric elevator requirement 8.6.4.19.10	Inspector to ensure written check out procedure is on site Contractor leave procedure on site
361	8.6.5.16.4	2019	Revised 8.6.5.16.4 A plunger gripper.. The person or firm installing or maintaining the equipment shall provide a written procedure in the Onsite Documentation [see 8.6.1.2.2(b)(1)] and demonstrate that the plunger gripper shall function as required by 3.17.3.	Rationale: to add inspections procedures for plunger gripper.	Inspector to ensure written procedure is on site, sign off in log book if appropriate Contractor leave procedure on site
361	8.6.6.1.1	2019	Revised	Update references that are only applicable for rack-and-pinion elevator	None
363	8.6.7.9.6	2019	Added	Rationale: Establish retirement criteria for mine elevator compensating chains.	None

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
363	8.6.8	2019	Revised 8.6.8 Maintenance of Escalators and Periodic Testing of Escalators and Moving Walks	Update title to reflect periodic testing of both Esc and Mwalks	None
364	8.6.8.3.3	2019	Revised Subparagraph (a) Revised	Correct a cross reference Provide verification if skirt panels are installed / altered	None Inspector to verify that skirt panels are marked/labeled
364	8.6.8.5	2019	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. If the unit was installed or altered under ASME A17.1a-1982 or later editions, then verification that the replacement or repair conforms to 6.1.3.3.6 shall be documented in the on-site maintenance records [see 8.6.1.4.1(d)].		Contractor ensure these are present prior to inspection
365	8.6.8.15	2019	Title Revised	Update title to reflect periodic testing of both Esc and Mwalks - CAT1	None
365	8.6.8.15.4	2019	Revised in its entirety 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). For escalators and moving walks utilizing dynamic braking: (a) removal of electrical power from the driving machine motor and brake for conditions where deceleration and/or stopping distance requirements are not met shall be tested. (b) the person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate the system complies with the requirements of the Code.	Specify requirements when dynamic braking is provided.	Inspector verify check out procedure on site Contractor leave procedure on site train personnel
367	8.6.8.15.25	2019	Added 8.6.8.15.25 Skirt Obstruction Devices	Rationale: Skirt obstruction devices should be tested during a Category 1 Test and not a Periodic Inspection.	Inspector verify log book if required Contractor ensure added to log book and complete, if not required marked N/A
367	8.6.8.15.26	2019	Added 8.6.8.15.26 Testing of Alternative Arrangements and ASME A17.7/CSA B44.7-Conforming Equipment.	see 8.6.4.19.20 for electric elevators Rationale: To clarify that there may be additional unique testing procedures and/or unique tests not described in A17.2, but required by the manufacturer, for equipment applied under alternative arrangements and equipment specified in an ASME A17.7/CSA B44.7, Code Compliance Document (CCD). Such unique testing procedures and/or unique tests not described in A17.2 are currently required to be part of the MCP On-site Documentation per 8.6.1.2.2(b)(2), (3), and (4).	Inspector to ensure documents are on site Contractor to leave documentation on site

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
367	8.6.9	2019	Introductory paragraph Revised The periodic testing of moving walks shall conform to 8.6.8.15, where applicable.		None
368	8.6.9.14	2019	Added 8.6.9.14 Skirt Panels Damaged skirt panels shall be replaced or repaired and...	Add skirt panel requirements for moving walks	Inspector to verify if replaced in maintenance records check clearances  Contractor to train personnel to record in maintenance records when complete
368	8.6.10.1.1	2019	Revised	Correct reference for Maintenance and Testing of Dumbwaiters and Material Lifts	None
368	8.6.11.1	2019	Revised	Provide a reference to the nonmandatory checklist for FEO Operation added to Appendix AA	none
368	8.6.10.1.1	2019	Revised	Correct reference for Maintenance and Testing of Dumbwaiters and Material Lifts	
368	8.6.11.1	2019	Revised	Provide a reference to the nonmandatory checklist for FEO Operation added to Appendix AA	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>8.7 Alterations</b>					
358	8.7.1.9	2013	<b>8.7.1.9 Alterations Involving SIL Rated Device(s)</b> Added: <b>Alterations involving SIL Rated Devices(s) (See 1.3) ...</b>	Introduces new requirements to clarify alterations to a SIL rated device.	eng'g and inspection enforcement as written
	8.7.2.7.2	2013	Revised: Means of Access	Added control space and control room to alterations affecting means of access.	eng'g and inspection enforcement as written
360, 361	8.7.2.11.5	2013	Editorially revised: Restricted Opening of Hoistway Doors or Car Doors of Passenger Elevators	Updated reference for door restrictors. Was 2.12.5, changed to 2.14.5.7.	eng'g and inspection enforcement as written
	8.7.2.12	2013	Revised: Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, and 8.7.2.10.5. All new equipment and wiring shall conform to 8.7.2.8 and 2.26.4.2. All modified equipment and wiring shall conform to 8.7.2.8.	Relocated requirements previously in alteration 8.7.2.27.4(b) to make them easier to find.	eng'g and inspection enforcement as written
	8.7.2.13	2013	First paragraph revised: Door Reopening Device. Where a reopening device for power-operated car doors or gates is <del>altered or added</del> <b>or is part of an alteration</b> to the door system, the following requirements shall apply:	Incorporates modifications made to 8.6.3.8 in a previous change.	eng'g and inspection enforcement as written
	8.7.2.14.3	2013	Subparagraphs (b) and (c) editorially revised	Code and clause references editorially revised. Applies to jurisdiction not enforcing the NBCC.	eng'g and inspection enforcement as written
	8.7.2.14.4	2013	Revised compliance requirements	Changed compliance requirement for changes to the car from requiring full compliance with 2.14 to 2.14.2.1.2, 2.14.2.1.3 and 2.14.2.1.4.	eng'g and inspection enforcement as written
	8.7.2.16.2	2013	Second sentence added: <b>Where the freight loading class of a passenger elevator is changed, it shall conform to 2.16.1.3.</b>	Loading class alteration now includes passenger cars with freight loading classes.	eng'g and inspection enforcement as written
362	8.7.2.17.1	2013	(1) First paragraph revised	Alteration to increase or decrease rise is no longer coupled with no change in drive machine location.	eng'g and inspection enforcement as written
	8.7.2.17.1	2013	(2) Subparagraph (c)(3) editorially revised	Adds requirement to comply with 2.21.4 (Compensation)	eng'g and inspection enforcement as written
	8.7.2.17.1	2013	(3) Subparagraph (d) added	Adds requirement when a a blind hoistway section is created.	eng'g and inspection enforcement as written

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
364-3 66	8.7.2.25.2	2013	Revised in its entirety: (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, and, 2.7.6.3.1, 2.7.6.3.3, 2.7.6.4, 2.7.8, 2.7.9, 2.8, 2.9, 2.10.1, 2.19, 2.20, 2.24.1, 2.24.2.3, 2.28, 2.29.1. (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: the installation shall conform to 8.7.2.25.2(a) and 8.7.2.17.1.	Clarified which requirements must be conformed to when changing driving machine location.	eng'g and inspection enforcement as written
	8.7.2.27.1	2013	Title and paragraph revised in their entirety: 8.7.2.27.1 <del>Top of Car Inspection Operation and Inspection Operation with Open Door Circuits Operating Devices.</del> <del>Where there is an alteration to or addition of a top of car operating device, it shall conform to 2.26.1.4.</del> (a) 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. (b) 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.	Add requirements to cover addition or alteration to other forms of inspection operation beside top of car, including; In-car inspection operation, machinery space outside the hoistway, machine room, control room, control space outside the hoistway, control room, pit, landing and working platform inspection operations. Deleted top-of-car inspection operation is covered by new requirement (a).  Add requirements to address addition or alteration of door bypass switches	eng'g and inspection enforcement as written
	8.7.2.27.4	2013	<b>8.7.2.27.4 Controllers</b> Revised in its entirety	Changes to controller requirements have prompted changes to these alteration requirements. While these alteration scopes are somewhat interrelated, the objective of this change is to establish a logical progression of increasing safety requirements based on each alteration scope.	eng'g and inspection enforcement as written
	8.7.2.27.5	2013	<b>8.7.2.27.5 Change in Type of Motion Control</b> Revised in its entirety		eng'g and inspection enforcement as written
	8.7.2.27.6	2013	<b>8.7.2.27.6 Change in Type of Operation Control</b> Revised in its entirety		eng'g and inspection enforcement as written
	8.7.2.27.7	2013	Revised in its entirety		eng'g and inspection enforcement as written
	8.7.2.27.9	2013	<b>8.7.2.27.9 Door Monitoring System</b> Added: 8.7.2.27.9 Door Monitoring System (a) 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.	Rationale: Add requirements to cover addition or alteration of a door monitoring system for power operated car doors that are mechanically coupled with landing doors.	eng'g and inspection enforcement as written

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.7.2.28	2013	(1) Subparagraph (c) revised: (c) Where an alteration is made to, or consists of the addition of, Firefighters' Emergency Operation, <del>the installation</del> <b>the elevator and all elevators in the same group automatic operation</b> shall conform to 2.27.3 through 2.27.8.	Rationale: To address alterations to emergency operations for elevators in a group operation	eng'g and inspection enforcement as written
	8.7.2.28	2013	(2) Subparagraph (e) added: <b>(e) where any of the alterations (a) through (d) occur all new equipment and wiring shall conform to 8.7.2.8 and 2.26.4.2. and all modified equipment and wiring shall conform to 8.7.2.8. Equipment and floors shall be identified as required by 2.29.</b>	The requirements of 8.7.2.27.4(c) have been moved here, in a more appropriate location. Readers of the code may not look under "controller alteration" when dealing with emergency power, standby power or FEO alterations. Also move requirement for equipment identification.	eng'g and inspection enforcement as written
367	8.7.3.7	2013	Title and paragraph revised		eng'g and inspection enforcement as written
	8.7.3.12	2013	Revised		eng'g and inspection enforcement as written
	8.7.3.13	2013	(1) Title revised		eng'g and inspection enforcement as written
		2013	(2) Revised in its entirety		eng'g and inspection enforcement as written
368	8.7.3.18	2013	Last sentence added: <b>Where the freight loading class of a passenger elevator is changed, it shall conform to 2.16.1.3 as modified by 3.16.</b>	Loading class alteration now includes passenger cars with freight loading classes.	eng'g and inspection enforcement as written
369-371	8.7.3.31.5	2013	Revised in its entirety	Changes to controller requirements have prompted changes to these alteration requirements. While these alteration scopes are somewhat interrelated, the objective of this change is to establish a logical progression of increasing safety requirements based on each alteration scope.	eng'g and inspection enforcement as written
	8.7.3.31.6	2013	Revised in its entirety		eng'g and inspection enforcement as written
	8.7.3.31.7	2013	Revised in its entirety		eng'g and inspection enforcement as written
	8.7.3.31.8	2013	(1) Subparagraph (c) revised: (c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, <del>the installation</del> <b>the elevator and all elevators in the same group automatic operation</b> shall conform to 3.27, <b>except 2.27.1 and 2.27.2.</b>	Rationale: To address alterations to emergency operations for hydraulic elevators. And provide consistency with 8.7.2.28.	eng'g and inspection enforcement as written
	8.7.3.31.8	2013	(2) Subparagraphs (d) and (e) added: <b>(d) Where the alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to 3.27.</b> <b>d) where any of the alterations (a) through (c) occur all new equipment and wiring shall conform to 8.7.3.8 and 2.26.4.2 and all modified equipment and wiring shall conform to 8.7.3.8. Equipment and floors shall be identified as required by 2.29.</b>	To address alterations to emergency operations in hydraulic elevators in group operation and to make the hydraulic elevator alterations consistent with the electric elevators elevator alterations.  The requirements of 8.7.2.27.4(b) have been moved here, in a more appropriate location. Readers of the code may not look under "controller alteration" when dealing with emergency power, standby power or FEO alterations. Also move requirement for equipment identification.	eng'g and inspection enforcement as written



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
	8.7.3.31.10	2013	<p>Revised in its entirety: 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 and replaced by if an in-car stop switch conforming to the following: <del>2.26.2.21, 2.26.4.3, 2.26.9.3(a), and 3.26.4.2 is provided.</del> (a) it is either key operated or behind a locked cover, and located in or adjacent to the car operating panel. The key shall be Group 1 Security (see 8.1). The switch shall be clearly and permanently marked "STOP" and shall indicate the "STOP" and "RUN" positions. When opened ("STOP" position), this switch shall cause the electric power to be removed from the elevator hydraulic machine. (b) The device shall meet the requirements of 2.26.4.3. (c) The device shall meet the requirements of 3.26.4.2</p>	<p>Rationale: To assist in improving personal safety for the riding public. If an alteration only consists of the change to the In-Car Stop Switch to a keyed switch, the current requirement (2.26.2.21) requires meeting requirements which may require extensive controller changes for single failure fault protection. The in-car stop switch was modified from the toggle to be behind a locked cover/key switch with the A17.1d-1986 code. This allowed the Emergency Switch on Freights and passenger perforated car enclosures, but required the in car stop switch (cover/key) for non perforated car enclosures. The requirement for single failure fault protection was not incorporated into the code until A17.1-1987, therefore these units that are affected by this alteration would have been installed prior to these 1987 code requirements.</p>	eng'g and inspection enforcement as written
	8.7.3.31.12	2013	<p>Added: 8.7.3.31.12 Change of hydraulic pump motor starter Where there is a change to the hydraulic pump motor starter, and the starter solely controls the motion of the car in the up direction without the use of valves, the installation shall conform to 3.26.6.4 and 3.26.5. The new and modified equipment and wiring shall conform to (a) 2.8.2.1 (b) 2.26.4.1 (c) 2.26.4.2</p>	<p>A change to the pump motor starter is a replacement, unless the starter also controls the upward motion of the car (ie a design that does not incorporate a hydraulic valve to control upward motion), then the change must meet 8.7.3.31.12 Rationale for individual requirements is as follows: 2.8.2.1 electrical equipment to meet electrical code 2.26.4.1 electrical equipment &amp; wiring to electrical code, 2.26.4.2 equipment to be listed for elevator use 3.26.6.4 important if design does not incorporate a valve, then we need 2 means to remove power 3.26.5 phase reversal protection</p>	eng'g and inspection enforcement as written
373	8.7.5.10	2013	<p>Added: 8.7.5.10 Outside Emergency Elevators. Where an alteration is made to an outside emergency elevator, the alteration shall conform to the requirements of 8.7.1 and ASME A17.7/CSA B44.7, requirement 2.12.2.</p>	<p>Adds alteration requirements of outside emergency elevators</p>	eng'g and inspection enforcement as written
374	8.7.6.1.17	2013	<p><b>8.7.6.1.17 Variable Frequency Drive Motor</b> Added: 8.7.6.1.17 Variable Frequency Drive Motor Control. Where the alteration consists of the addition of, or alteration to, a variable frequency drive motor control, the installation shall conform to 6.1.6.3.2 and 6.1.6.10.3.</p>	<p>Rationale: To add requirements for the addition of or alteration to a variable frequency drive motor control on an escalator. This is to handle potential over speed faults caused by a loss of a phase, under voltage or an open delta.</p>	eng'g and inspection enforcement as written
375	8.7.6.2.16	2013	<p>Added: 8.7.6.2.16 Variable Frequency Drive Motor Control Where the alteration consists of the addition of, or alteration to, a variable frequency drive motor control the installation shall conform to 6.2.6.3.2 and 6.2.6.9.3</p>	<p>Rationale: To add requirements for the addition of or alteration to a variable frequency drive motor control on a moving walk. This is to handle potential over speed faults caused by a loss of a phase, under voltage or an open delta.</p>	eng'g and inspection enforcement as written

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
356, 357	8.7.1.3	2016	Last sentence added 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. See also 8.10.1.5.	8.10.1 5 deals with 'Devices not covered in 8.10'. Provide testing requirements for safety devices that are present, despite their non-required presence by the code.	OEM's to provide test procedures. Inspectors to test as per script.
358	8.7.2.2	2016	<b>8.7.2.2 Pits</b> Revised 8.7.2.2.2 & 8.7.3.2.2 Where a surface mounted sump pump is added to an existing pit, the installation shall conform to the following: (a) The pump and any attachment thereof shall not be located in the refuge space or affect the clearances specified in 2.4.1. (b) The pump and any attachment thereof shall not restrict or infringe upon the pit access. (c) 2.2.2.4 (d) 2.2.2.5	Rationale: To assure refuge space and other safety factors are maintained when a surface mounted sump pump is to be installed in an existing pit.	info: surface mounted sump pumps permitted on existing installations per provisions
359	8.7.2.10.1	2016	Subparagraphs (a), (b), and (c) revised	Updated to reflect relocation of 2.14.5.7 Restricted Opening of Car Doors	
360-3 62	8.7.2.11.1	2016	Revised		
360-3 62	8.7.2.11.3	2016	Revised	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
360-3 62	8.7.2.14.1	2016	Revised except 2.14.5.7,	Updated to reflect relocation of 2.14.5.7 Restricted Opening of Car Doors	
360-3 62	8.7.2.14.2	2016	Subparagraph (i) revised except 2.14.5.7,		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
360-3 62	8.7.2.14.5	2016	<p><b>8.7.2.14.5 Addition of Car Top Railing</b> Added</p> <p>8.7.2.14.5 Addition of Car Top Railing Where a car top railing is installed, the installation shall conform to 8.7.2.14.5.1 or 8.7.2.14.5.2.</p> <p>8.7.2.14.5.1 The installation shall conform to 2.14.1.7.</p> <p>8.7.2.14.5.2 Where conformance with 2.14.1.7 is not possible due to existing overhead conditions, a stowable design, e.g. foldable, collapsible, etc. shall be permitted provided that;</p> <p>(a) when the railing is in the fully stowed position, the car shall be permitted to operate in any mode of operation except "top-of-car inspection operation",</p> <p>(b) when the railing is in the fully extended position, the car will only be permitted to operate in "top-of-car inspection operation" in accordance with 2.26.1.4.2,</p> <p>(c) when the railing is neither stowed nor in the fully extended position, the car shall not be permitted to operate,</p> <p>(d) switches used to monitor the stowed position shall have contacts that are positively opened mechanically when the railing is moved from its stowed position,</p> <p>(e) 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,</p> <p>(f) the occurrence of a single ground, or the failure of a contactor, a relay, any single solid-state device, or a failure of a software system in the circuits incorporating these switches shall not permit operation other than as specified in 8.7.2.14.5.2(a), (b) or (c),</p> <p>(g) 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</p>	<p>Previously a TSSA CAD requirement, this alteration scope is now codified.</p> <p>The addition of a railing to a car top is an alteration of the car top. Given the specific requirements related to railing as outlined in 2.14.1.7, care and diligence are required to ensure that the railing is achieving its intended safety purpose, that it is meeting strength and clearance requirements, that low clearance areas on the car top are marked accordingly, and to ensure that no new hazards are being created as a result of the railing addition.</p> <p>In existing installation where overheads may not permit a fixed 1070mm railing, a stowable design (example: foldable, collapsible etc..) is permitted provided that specific requirements are met to ensure any potential hazards are mitigated.</p> <p>Other means to achieve compliance are always available via the means permitted in Section 1.2 of A17.1/B44.</p>	<p>eng'g and inspection enforcement as written</p>
360-3 62	8.7.2.15.2	2016	<p>Subparagraph (e) revised</p> <p>8.7.2.15.2 Increase or Decrease in Deadweight of Car. (e) requirement 2.20, except as specified in 8.7.2.21.4.</p>		
360-3 62	8.7.2.16.1	2016	<p>Subparagraph (g) revised except as specified in 8.7.2.21.4.</p>	<p>Rationale: Highlight that an exemption to 2.20 exists in 8.7.2.21.</p>	
360-3 62	8.7.2.16.4	2016	<p>Subparagraphs (a) and (g) revised except as specified in 8.7.2.21.4.</p>		
363-3 65	8.7.2.17.2	2016	<p>Subparagraphs (b)(4), (b)(10), and (c)(2) revised except as specified in 8.7.2.21.4.</p>		
363-3 65	8.7.2.19	2016	<p>Last paragraph added</p> <p>8.7.2.19 Speed Governors and Governor Ropes. 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.</p>	<p>Rationale: Relocated from 8.6.3.6.</p>	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
363-3 65	8.7.2.21.1	2016	Revised 8.7.2.21.1 Change in Suspension Members. (a) Where the material, grade, number, or size of suspension members is changed, the new suspension members and their fastenings shall conform to 2.20 <b>except as specified in 8.7.2.21.4</b> . 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. <b>(b) Where there is a change to the type of suspension means the installation shall conform to 2.20.</b>	Rationale: Highlight that an exemption to 2.20 exists in 8.7.2.21 , except if rope size is changed then all of 2.20 applies. Move a requirements from 8.7.2.21.4 to 8.7.2.21.1 which deals with changes to suspension members. Address requirements for change in suspension member fastenings.	
363-3 65	8.7.2.21.3	2016	Revised ...they shall conform to 2.20.10	Rationale: More precisely identify the requirements related to auxiliary suspension-member fastening.	
363-3 65	8.7.2.21.4	2016	Revised <del>8.7.2.21.4 Exception for Suspension-Means Monitoring and Protection. 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.</del> <b>(a) If a traction-loss detection means is provided altered or added, it shall comply with 2.20.8.1.</b> <b>(b) If a broken suspension-member means detection means is provided altered or added, it shall comply with 2.20.8.2.</b> <b>(c) If a suspension member residual strength detection means is altered or added, if shall comply with 2.20.8.3</b> <b>(d) Elevators installed to editions prior to the A17.1-1-2007 including A17.1a-2008 are exempt from the requirements of 2.20.8 and 2.20.11 if not previously provided or required by a subsequent alteration.</b>	Rationale: State the requirements of alteration scope of 8.7.2.21.4 at the beginning of the alteration scope and in clear language. Retain an exemption to suspension means monitoring, and place at the end of 8.7.2.21.4 Move an implied requirement regarding “no change to the type of suspension means” and clearly address in 8.7.2.21.1 Add requirements if residual strength detection means are altered or added. 8.7.2.25.1	
363-3 65	8.7.2.25.1	2016	Subparagraphs (a) and (c) revised 8.7.2.25.1 Alterations to Driving Machines and Sheaves (a) Where a driving machine is installed as part of an alteration, the installation shall conform to 2.7.2, 2.9, 2.10.1, 2.19, 2.20 <b>except as specified in 8.7.2.21.4</b> , 2.24, and 2.26.8 <del>except as specified in 8.7.2.21.4</del> . Requirement 2.7.2 applies to the extent existing installations permit. (c) Where an alteration consists of a change in the driving-machine sheave, the suspension <del>ropes</del> <b>means</b> and their connections shall conform to 2.20 <b>except as specified in 8.7.2.21.4</b> . The sheave shall conform to 2.24.2, 2.24.3, and 2.24.4.	Rationale: Highlight that an exemption to 2.20 exists in 8.7.2.21.	
366	8.7.2.27.5	2016	Subparagraph (f)(6) revised	Updated to reflect relocation of 2.14.5.7 Restricted Opening of Car Doors	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
367	8.7.2.28	2016	Subparagraph (a) revised 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>except the visual and audible signal required by 2.27.1.1.6(b) shall be permitted to be located inside each car.</b>	Rationale: The addition of an auto dialer telephone would fall under the scope of these alterations. Proposed change allows the addition or upgrade to an auto dialer phone with line monitoring – but permits the audible / visible signals to be provided in the car. In this manner, line monitoring and the related visual and audible trouble signals are retained, except that they are displayed within the elevator.	
367	8.7.3.2	2016	Revised 8.7.2.2.2 & 8.7.3.2.2 <b>Where a surface mounted sump pump is added to an existing pit, the installation shall conform to the following:</b> (a) <b>The pump and any attachment thereof shall not be located in the refuge space or affect the clearances specified in 2.4.1.</b> (b) <b>The pump and any attachment thereof shall not restrict or infringe upon the pit access.</b> (c) <b>2.2.2.4</b> (d) <b>2.2.2.5</b>	Rationale: To assure refuge space and other safety factors are maintained when a surface mounted sump pump is to be installed in an existing pit.	info: surface mounted sump pumps permitted on existing installations per provisions
369	8.7.3.22.1	2016	Subparagraph (c) revised	Rationale: Refuge space is no longer specified in the code when on top of the car.	
369	8.7.3.22.2	2016	Subparagraph (c) revised	Correct a cross reference	
370	8.7.3.27	2016	First sentence revised		
371	8.7.3.31.6	2016	Subparagraph (f)(6) revised	Updated to reflect relocation of 2.14.5.7 Restricted Opening of Car Doors	
372	8.7.3.31.8	2016	<b>8.7.3.31.8 Emergency Operation and Signaling Devices</b> Subparagraph (a) revised 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>except the visual and audible signal required by 2.27.1.1.6(b) shall be permitted to be located inside each car.</b>	Rationale: The addition of an auto dialer telephone would fall under the scope of these alterations. Proposed change allows the addition or upgrade to an auto dialer phone with line monitoring – but permits the audible / visible signals to be provided in the car. In this manner, line monitoring and the related visual and audible trouble signals are retained, except that they are displayed within the elevator.	
375	8.7.6.1.18	2016	<b>8.7.6.1.18 Addition of Escalator Speed Variation</b> Added <b>8.7.6.1.18 Addition of Escalator Speed Variation</b> <b>Where an escalator alteration introduces intentional speed variation after start-up, the addition of speed variation shall conform to 6.1.4.1.2.</b>	RATIONALE: The 2010 code introduced requirements for speed variation after start-up on both Escalators and Moving Walks, to permit empty escalators and moving walks to slow down when riders are not present. If existing devices are altered to provide this feature, they should conform to the speed variation requirements for new equipment. This proposal addresses an	eng'g and inspection enforcement as written

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
376	8.7.6.2.17	2016	<b>8.7.6.2.17 Addition of Moving Walk Speed Variation</b> Added 8.7.6.2.17 Addition of Moving Walk Speed Variation Where a moving walk alteration introduces intentional speed variation after start-up, the addition of speed variation shall conform to 6.2.4.1.2.	alteration of this nature by referencing 6.1.4.1.2 and 6.2.4.1.2. Testing requirements in 8.10.4.2.2(j) are to verify the operating parameters of 6.1.4.1.2 and 6.2.4.1.2.	
371	8.7.1.4	2019	Revised	Editorially reworded for clarity	
372	8.7.1.10	2019	<b>8.7.1.10 Executable Software Verification and Witness Test</b> Added 8.7.1.10 Executable Software Verification and Witness Test. Where executable software for functions listed in 2.26.1.7.1 or 3.26.11.1 is changed as part of an alteration, the software changed shall have a new USI that shall be logged in On-Site Documentation (8.6.1.2.2(e)).	Rationale: To provide guidelines for on-site verification of executable software when these software changes relate to the alteration of an Electric or Hydraulic Elevator.	eng'g and inspection enforcement as written
372	8.7.2.2	2019	Introductory paragraph added 8.7.2.2 Pits. For inspection and test requirements, see 8.10.2.3.2(x).	Rationale: To add OEO Operation that was overlooked in the previous edition.	Alteration requirements are now supplemented with
372	8.7.2.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	Testing Requirements specified
372	8.7.2.4	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	in Section 8.10
372	8.7.2.5	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
372	8.7.2.6	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
372	8.7.2.7	2019	Introductory paragraph added 8.7.2.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms For inspection and test requirements, see 8.10.2.3.2(bb).		
373	8.7.2.8	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
373	8.7.2.10.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
373	8.7.2.10.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
373	8.7.2.10.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
373	8.7.2.10.4	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
374	8.7.2.11	2019	Introductory paragraph added 8.7.2.11 Hoistway Door Locking Devices, Access Switches, and Parking Devices. For inspection and test requirements, see 8.10.2.3.2(dd).		
374	8.7.2.11.5	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
374	8.7.2.12	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
374	8.7.2.13	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
374	8.7.2.14	2019	Introductory paragraph added 8.7.2.14 Car Enclosures, Car Doors and Gates, and Car Illumination. For inspection and test requirements, see 8.10.2.3.2(ff).	Rationale: Adding Test Requirements for an Alteration.	
375	8.7.2.14.5	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
375	8.7.2.15.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
375	8.7.2.15.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
376	8.7.2.16.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
376	8.7.2.16.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
376	8.7.2.16.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
376	8.7.2.16.4	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
376	8.7.2.17.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES	Enforcement & Notes
				Comments in blue, new text in red, original code text in black green = summary highlight	
377	8.7.2.17.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
377	8.7.2.18	2019	Introductory paragraph added 8.7.2.18 Car and Counterweight Safeties. For inspection and test requirements, see 8.10.2.3.2(e).	Rationale: Adding Test Requirements for an Alteration.	
378	8.7.2.19	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
378	8.7.2.20	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
378	8.7.2.21	2019	Introductory paragraph added 8.7.2.21 Suspension Means and Their Connections For inspection and test requirements, see 8.10.2.3.2(hh).	Rationale: Adding Test Requirements for an Alteration.	
378	8.7.2.22	2019	Introductory paragraph added 8.7.2.22 Counterweights. For inspection and test requirements, see 8.10.2.3.2(ii).	Rationale: Adding Test Requirements for an Alteration.	
378	8.7.2.23	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
378	8.7.2.24	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
379	8.7.2.25.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
379	8.7.2.25.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
379	8.7.2.26	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
379	8.7.2.27.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
379	8.7.2.27.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
379	8.7.2.27.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
379	8.7.2.27.4	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
380	8.7.2.27.5	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
381	8.7.2.27.6	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
381	8.7.2.27.7	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
381	8.7.2.27.8	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
381	8.7.2.27.9	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
382	8.7.2.28	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
382	8.7.3.2.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
382	8.7.3.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
382	8.7.3.4	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
382	8.7.3.5	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
382	8.7.3.6	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
382	8.7.3.7	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
382	8.7.3.8	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.10	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.11	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.12	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.13.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.13.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.14	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.15.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.15.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.15.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.16	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.17	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
383	8.7.3.18	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
384	8.7.3.19	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.20	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.21	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.22.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.22.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.22.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.23.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.23.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.23.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.23.4	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
384	8.7.3.23.5	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.23.6	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.23.7	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.24	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.25.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.26	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.27	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.28	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.30	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.31.1	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.31.2	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.31.3	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
385	8.7.3.31.4	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
386	8.7.3.31.5	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
386	8.7.3.31.6	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
387	8.7.3.31.7	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
387	8.7.3.31.8	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
388	8.7.3.31.9	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
388	8.7.3.31.10	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
388	8.7.3.31.11	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
388	8.7.3.31.12	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
388	8.7.3.31.13	2019	<b>8.7.3.31.13 Door Monitoring System</b> Added 8.7.3.31.13 Door Monitoring System. 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 2.26.5. For inspection and test requirements, see 8.10.3.3.2(mm).	Rationale: Adding Test Requirements for an Alteration. Rationale: To add Requirements for Alteration or Addition of Door Monitoring Systems to Hydraulic Elevators.	new alteration
389	8.7.5.7	2019	Revised in its entirety 8.7.5.7 Special Purpose Personnel Elevators. Where any alteration is made to a special purpose personnel elevator, the <del>entire installation shall comply with Section 5.7</del> alteration shall comply with 8.7.1 and where applicable 8.7.5.7.1 through 8.7.5.7.28.	Rationale: Specify alteration requirements for SPPE elevators.	



What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
395	8.7.6.1.5	2019	Introductory paragraph added 8.7.6 Alterations to Escalators and Moving Walks 8.7.6.1.5 Construction Requirements For Inspection and Test Requirements, see 8.10.4.2.2(a).	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.6	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.7	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.8	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.9	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.10	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.11	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.12	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.13	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.14	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.15	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.16	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.17	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.18	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
395	8.7.6.1.19	2019	<b>8.7.6.1.19 Skirt Panels</b> Added 8.7.6.1.19 Skirt Panels. Any alteration of a skirt panel or skirt panel supporting components shall conform to 6.1.3.3.6(d) and the person or firm performing the alteration shall verify conformance in accordance with 8.3.15.	Rationale: Add alteration requirements for Escalator skirt panels. Adding Test Requirements for an Alteration.	eng'g and inspection enforcement as written
396	8.7.6.2.5	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.6	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.7	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.8	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.9	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.10	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.11	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.12	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.13	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.14	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.15	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
396	8.7.6.2.16	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
397	8.7.6.2.17	2019	Revised	Rationale: Adding Test Requirements for an Alteration.	
397	8.7.6.2.18	2019	Added	Rationale: To add a requirement for alterations on Entrances and Egresses on Moving Walks consistent with Escalators.	
397	8.7.6.2.19	2019	Added	Rationale: Add alteration requirements for Moving Walk skirt panels. Adding Test Requirements for an Alteration.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>8.8 Welding</b>					
376	8.8.1	2016	<p>Subparagraph (b) revised: Qualification of Welders Where required elsewhere in this Code, welding of parts, except for tack welds later incorporated into finished welds, shall be undertaken (a) by welders qualified in accordance with the requirements of Section 4 of ANSI/AWS D1.1, whereby the welders shall be qualified by the manufacturer or contractor; a professional consulting engineer; or a recognized testing laboratory; or (b) by a fabricator qualified to the requirements of CSA W47.1 whichever is applicable (see Part 9). In jurisdictions enforcing NBCC, only the requirements of 8.8.1(b) apply.</p>	Exclusion for jurisdictions enforcing NBCC to requirement 8.8.1 (a), There is no change in Ontario requirements	None
376	8.8.2	2016	<p>Revised: Welding Steel Where required elsewhere in this Code, welding shall conform to one of the following whichever is applicable (see Part 9): (a) the design and procedure requirements of the applicable section of ANSI/AWS D1.1 or ANSI/ AWS D1.3, or (b) the design and procedure requirements of CSA W59 In jurisdictions enforcing NBCC, only the requirements of 8.8.2(b) apply.</p>	Exclusion for jurisdictions enforcing NBCC to requirement 8.8.2 (a), There is no change in Ontario requirements	None
<b>8.9 CODE DATA PLATE</b>					
	8.9.1	2013	<p><b>8.9.1 Required Information</b> Revised to add: Where the installation or alteration contains SIL Rated Devices the following wording <b>“Installation contains SIL Rated Devices”</b> shall be included on the data plate or on an additional plate located adjacent to the Code Data Plate.</p>	Adds requirement to identify that SIL devices are present on the code data plate.	field verifiable
377	8.9.3	2016	<p><b>8.9.3 Material and Construction</b> Last paragraph added: Existing Code data plates that comply with the edition of the Code under which they were installed and have legible accurate information do not have to be changed to comply with these material and construction requirements.</p>	Provision to not replace existing code data plates installed to previous code requirements provided it is still legible	field verifiable

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>8.10 Acceptance Inspections and Tests</b>					
376	Section 8.10	2013	Note revised: Category 5 tests utilizing alternative test methods require a comparison against baseline measures made during acceptance inspection tests. See 8.6.11.10 if alternative test methods are contemplated on future category 5 tests.	Since alternative testing is contingent on results obtained during an acceptance test, the note intends to alert readers that if no load category 5 testing is intended to be performed in the future, readers can refer to the requirements that will apply at the category 5 test.	
	8.10.1.1.3	2013	Revised: The inspector shall meet the qualification requirements of the ASME QEI-1. Inspectors and inspection supervisors shall be certified in accordance with the requirements of ASME QEI-1 by an organization accredited, independent organization concerned with personnel certification accredited by ASME in accordance with the requirements of ASME QEI-1.	Revised language reflects ASME's recent decision to discontinue accreditation of certifying organizations and allows organizations to seek accreditation elsewhere while continuing certification of inspectors and inspection supervisors to the QEI-1 Standard.	
	8.10.1.1.4	2013	<b>8.10.1.1.4 Acceptance Test Tags</b> Added: Acceptance Test Tags. A metal tag with the applicable code requirement(s) and date(s) performed, and the name of the person or firm performing the test and the inspector witnessing the test, including their inspector's ID number and certifying organization, shall be installed to be readily visible and shall be permanently attached to the controller of each unit.	To provide a similar requirement for an Acceptance Test Tag as now exists for Periodic Test tags in 8.6.1.7.2	Inspector to install name QEI number was well as NEASAI as being certifying body.  Acceptance Test Tag to be provide by the contractor.
	8.10.1.1.5	2013	<b>8.10.1.1.5 Acceptance Test Records</b> Added: Acceptance Test Records. A permanent test record showing the test dates, the requirement number for each test, the name of the person or firm performing the test, the inspector's name that witnessed the tests, their inspector's ID number and certifying organization shall be made a permanent part of the maintenance records (8.6.1.4.1). The test record shall document all applicable acceptance tests shown in Non- Mandatory Appendix X.	To provide permanent records of test results on the job site for future use.	Inspector to install name QEI number was well as NEASAI as being certifying body. Completed Appendix X acceptance checklist to be left with the Maintenance Records. Check chart provided by the contractor
377-3 80	8.10.1.2 -8.10.1.4	2013	(1) Original 8.10.1.2 redesignated as 8.10.1.3, and new 8.10.1.2 added: <b>8.10.1.2 Accreditation of Certifying Organizations.</b> All organizations that certify elevator inspectors and inspection supervisors shall be accredited by an accrediting body (see 1.3) in accordance with ANSI/ISO/IEC 17024, or equivalent, and ASME QEI-1.		
		2013	(2) Original 8.10.1.3 redesignated as 8.10.1.4		
		2013	(3) Original 8.10.1.4 redesignated as 8.10.1.5 and revised		
		2013	<b>8.10.1.6 Maintenance Control Program</b> (4) New 8.10.1.6 added: <b>8.10.1.6 Maintenance Control Program.</b> The Maintenance Control Program complying with 8.6.1.2.1 shall be available at the time of inspection. On-site equipment documentation complying with 8.6.1.2.2 shall be available at the time of inspection.		requirements for on-site documentation
	8.10.2.2.1	2013	(1) Subparagraph (k)(2) editorially revised	Reference for glass doors revised.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
		2013	(2) Subparagraph (r) revised	Reference and text for means to restrict car door revised.	
	8.10.2.2.2	2013	<b>8.10.2.2.2 Machine Rooms, Machinery Spaces, and Control Rooms/Spaces</b> (1) Subparagraph (v) revised: <b>The means of adjusting the holding capacity of the brake 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 Tags)</b>	Rationale: The increased frequency of testing of the critical braking system will aid in monitoring the performance of the braking system. The sealing of the brake adjustment will ensure that the adjustment is not inadvertently changed between testing periods. It is necessary to identify the party that applied the seal.	Ensure seals are in place
		2013	(2) Subparagraph (cc)(3)(c)(2) editorially revised	Editorial changes have been made to correct terminology to be consistent with 2.24.2.3.1. The Note for 8.10.2.2.2(cc)(3)(b) and 8.10.2.2.2(cc)(3)(c) is intended to clarify that it might not be physically possible to cause a loss of traction. For this reason, the alternatives in 8.10.2.2.2(cc)(3)(b) and 8.10.2.2.2(cc)(3)(c) are given. Additions to 8.10.2.2.2(cc)(3) are to provide acceptance testing consistent with other important testing requirements in ASME A17.1. A physical test will demonstrate compliance as required by 2.20.8.2(e).	
		2013	(3) Subparagraph (ii)(1)(b) revised: (b) The <del>tripping speed of the governor</del> <b>car speed at which the governor trips</b> shall be <del>measured</del> <b>determined</b> by means of a tachometer <b>or other device designed to measure car speed</b> and, if necessary, <b>the governor shall be replaced or</b> adjusted to conform to 2.18.2.	2.18.2 refers to the car speed at which the governor trips, not the governor speed. Additionally, some governors are not adjustable, and these governors require replacement if the car speed at which the governor trips is outside of the allowable range.	Verified during initial inspection
382	8.10.2.2.8	2013	(4) Subparagraph (nn) editorially revised Title and paragraph revised	Corrected reference for wiring diagrams in 8.6 Clarifies requirements for labeling and checkout of SIL rated devices.	
	8.10.2.2.9	2013	Added: <b>8.10.2.2.9 Occupant Evacuation Operation. Verify conformance with 2.27.10.</b>	Adds new acceptance requirement.	
384-3 86	8.10.3.2.2	2013	(1) Subparagraph (cc) editorially revised	Reference corrected	
		2013	(2) Subparagraph (gg) editorially revised	Corrected reference for wiring diagrams in 8.6	
	8.10.3.2.3	2013	(1) Subparagraph (z) editorially revised	Reference corrected	
		2013	(2) Subparagraph (aa) editorially revised	Reference corrected	
387	8.10.3.3.2	2013	Subparagraph (i) editorially revised: (i) Where the location of the <del>driving machine</del> <b>hydraulic jack</b> has been changed (8.7.3.23.5), tests shall be performed as specified 8.10.3.2.	Definition of driving machine changed prior to 1996 and is now entitled "hydraulic jack" (see 8.7.3.23.5).	
388	8.10.4.1.1	2013	Subparagraph (e) editorially revised in its entirety: (e) Lighting (Items 7.5 and 9.5) <b>(6.1.7.2 or 6.2.7.2)</b> <del>(1) illumination of steps (6.1.7.2 or 6.2.7.2)</del> <del>(2) demarcation (6.1.6.7 or 6.2.6.7)</del>	Revised to reflect that step demarcation lighting is no longer required.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
389	8.10.4.1.2	2013	<p><b>Escalator and Moving Walk 8.10.4.1.2 Internal Inspection and Tests</b>                      Subparagraph (c)(2) revised in its entirety:                      (c) Controller and Wiring. Controller and wiring shall be inspected (Items 8.3 and 10.3).                      (1) Wiring (6.1.7.4 or 6.2.7.4)                      (2) Control (<del>6.1.6.10 through 6.1.6.13 or 6.2.6.9 through 6.2.6.11</del>)                      The person or firm installing the escalator or moving walk shall provide a manufacturer's written procedure and demonstrate compliance with redundancy and software checking of control and operating circuits (6.1.6.10 and 6.2.6.9).                      Where there are no test or check requirements, the written checklist shall state "No test or check required." The documentation shall state the reason no test or check is required.                      The following shall be documented or demonstrated:                      i) General (6.1.6.13 and 6.2.6.12)                      ii) Redundancy and its checking (6.1.6.10.1, 6.1.6.10.2, 6.2.6.9.1 and 6.2.6.9.2)                      iii) Static control (6.1.6.10.3 and 6.2.6.9.3), where applicable                      iv) Electrically Powered Safety devices (6.1.6.11 and 6.2.6.10), where applicable                      v) Installation of Capacitors or Other Devices to Make Electrical Protective Devices Ineffective (6.1.6.12 and 6.2.6.11)                      vi) Contactor and relays for use in critical operating circuits (6.1.6.15 and 6.2.6.14), where applicable</p>	<p>Updated the Escalator and Moving Walk inspection guidelines and requirements of A17.1 and A17.2 to correspond with the latest electrical requirements in A17.1 Part 6 and provide consistency with new technology A17.7-2007 / B44.7-07 Performance Based Safety Code for Elevators and Escalators 2.10.1 and 2.10.2.</p>	<p>Testing script - and/or - Documentation, as part of design submissions.                       Inspection to follow test script.</p>
392	8.10.5.14	2013	Added	Added acceptance testing requirements for Wind Turbine Tower Elevators	Verified during initial inspection
	8.10.5.15	2013	Added	Added acceptance testing requirements for Outside Emergency Elevators	Verified during initial inspection
377	8.10.2.2.1	2016	Subparagraph (m) revised, and subpara. (y) added	Earthquake testing added	None
377	8.10.2.2.2	2016	Subparagraphs (cc)(3)(-c)(-2) and (rr) revised	Traction limits and Alternative testing added	None
377	8.10.2.2.3	2016	(1) Subparagraphs (d), (d)(1), (d)(2), (s), (t), (dd), (ff)(3), and (ff)(4) revised	several sections revised tops of car clearance, clearances if window well etc.	None
377	8.10.2.2.3	2016	(2) Subparagraph (ll) added	Guarding of equipment	Inspection
377	8.10.2.2.5	2016	Subparagraphs (c) and (f) revised	Buffer testing and travel cables verbiage revised	None
384	8.10.2.2.9	2016	Revised	Occupant Evacuation Operation added	Inspection
384	8.10.2.3.2	2016	Subparagraph (a) revised	Verbiage revised	None
385	8.10.3.2.1	2016	(1) Subparagraphs (m) and (q) revised	Emergency Exit and Emergency Power updated	Inspection if provided
385	8.10.3.2.1	2016	(2) Subparagraph (y) added	Earthquake testing added	None
386	8.10.3.2.2	2016	Subparagraphs (a), (b), (c), (f), (g), (i), (l), (m), (p) through (s), (cc), (dd), (ff), and (gg) revised	8.10 sections added to these requirements	None
387, 388	8.10.3.2.3	2016	(1) Subparagraphs (d), (d)(1), (d)(3), (d)(4), (e), (g), (j), (k), (m), (o), (ff)(3), and (ff)(4) revised	8.10 sections added to these requirements	None
387, 388	8.10.3.2.3	2016	(2) Subparagraph (d)(5) deleted	Deleted	None
387, 388	8.10.3.2.3	2016	(3) Subparagraph (kk) added	Earthquake testing added	None

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES	
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387, 388	8.10.3.2.4	2016	(1) Subparagraphs (a), (b), and (c) revised	Verbiage revised	None
387, 388	8.10.3.2.4	2016	(2) Subparagraph (o) added	Elevator parking device	Inspection
387, 388	8.10.3.2.5	2016	(1) Subparagraphs (d), (f), (i) through (l), and (o) revised	Verbiage revised	None
387, 388	8.10.3.2.5	2016	(2) Subparagraph (v) added	governor rope releasing carrier added	None
389-393	8.10.3.3.2	2016	Subparagraph (a) revised	8.10 section to go to updated	None
389-393	8.10.4.1.1	2016	(1) Subparagraphs (i)(1)(-h), (r), and (t)(6) revised	Verbiage revised	None
389-393	8.10.4.1.1	2016	(2) Subparagraph (u) added	Testing of inspection control devices added	None
389-393	8.10.4.1.2	2016	Subparagraphs (m) and (x) revised	Handrail sensor monitoring and seismic devices changed	None
389-393	8.10.4.2.2	2016	Subparagraph (a) revised, and subpara. (j) added	Verbiage revised	None
394	8.10.5.16	2016	Added	added for mine elevators	None
398	8.10.1.3	2019	Notes Revised	Rationale: To clarify revise the notes in 8.10.1.3 and 8.11.1.2 so that they do not conflict with the A17.2 Introduction, which indicates that A17.2 covers recommended procedures:	
399	8.10.2.2.1	2019	Subparagraphs (i) and (j)(2) Revised	Correct a cross reference	
400	8.10.2.2.2	2019	(1) Subparagraphs (ff)(4) and (tt) added (ff)(4) Test emergency terminal stopping device for conformance with 2.25.4.2. (tt) The means to view the USI on site. See 2.26.1.7.3	Rationale: to add emergency terminal stopping means in 8.10. Rationale: Provide inspection criteria to verify the USI in the on-site documentation matches the required viewable USI for apparatus and the maintenance record (8.6.1.4.1).	
			(2) Subparagraphs (ii)(1)(-b), (ii)(1)(-c), (ii)(1)(-f), (ii)(4)(-a), (ii)(4)(-b), and (ii)(4)(-c) Revised		
403	8.10.2.2.3	2019	Subparagraph (k) Revised	add reference to electric elevator requirement	
405	8.10.2.2.7	2019	In subpara. (a)(1), reference to 8.6.11.9 corrected by errata	errata	
405	8.10.2.3.2	2019	(1) Subparagraphs (a), (d), (g), (i), (j), (l) through (q), (s), and (u) Revised		
			(2) Subparagraphs (v) through (rr) added		
408	8.10.3.2.2	2019	Subparagraph (jj) added		
410	8.10.3.2.5	2019	Subparagraphs (d) and (n) Revised		
411	8.10.3.2.7	2019	In subpara. (a)(1), reference to 8.6.11.9 corrected by errata		
411	8.10.3.3.2	2019	(1) Subparagraphs (a), (d), (g), (j), (n), (o), and (q) through (s) Revised		
			(2) Subparagraphs (t) through (pp) added		
413	8.10.4.1.1	2019	Subparagraph (p)(3) Revised		
414	8.10.4.1.2	2019	Subparagraph (t) Revised		
416	8.10.4.2.2	2019	(1) Subparagraphs (i) and (j) Revised		
			(2) Subparagraphs (k) through (o) added		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>8.11 Periodic Inspections and Witnessing of Tests</b>					
393, 394	8.11.1.1	2013	Revised: The inspector shall meet the qualification requirements of the ASME QEI-1. Inspectors and inspection supervisors shall be certified <b>in accordance with the requirements of ASME QEI-1 by an organization accredited, independent organization concerned with personnel certification accredited by ASME in accordance with the requirements of ASME QEI-1.</b>	Revised language reflects ASME's recent decision to discontinue accreditation of certifying organizations and allows organizations to seek accreditation elsewhere while continuing certification of inspectors and inspection supervisors to the QEI-1 Standard.	TSSA does not adopt 8.11
393, 394	8.11.1.1.2	2013	Subparagraph (a) revised: (a) Periodic tests as required in 8.6 shall be <b>performed by elevator personnel that are qualified to perform such tests. These tests shall be</b> witnessed by an inspector <b>(see 8.11.1.1)</b> employed by the authority having jurisdiction, or by persons authorized by the authority having jurisdiction.	To clarify that the inspector is not responsible for conducting the periodic tests. This could result in a conflict of interest. According to QEI-1 Paragraph 2.2 the inspector only duty is to witness the tests.	
393, 394	8.11.1.7	2013	Revised: Where unique or product-specific procedures or methods are required to <b>maintain, repair, replace,</b> inspect or test equipment, such procedures or methods shall be provided by the manufacturer or installer [see 8.6.1.2.1 <del>(e)</del> <b>2(b)</b> ].	Revised references to reflect changes in 8.6.	
393, 394	8.11.1.8	2013	Added: <b>The Maintenance Control Program complying with 8.6.1.2.1 shall be available. On-site equipment documentation complying with 8.6.1.2.2 and maintenance records complying with 8.6.1.4 shall be available.</b>	The MCP is needed and on-site equipment documentation is needed for safe operation and maintenance.. Add to 8.10 and 8.11 a reference to 8.6.1.2.1	
393, 394	8.11.2.1.1	2013	Subparagraph (r) revised	Update to agree with requirements in 2.14.5.7 Restricted Opening of Car Doors.	
393, 394	8.11.2.1.2	2013	Subparagraph (II) editorially revised	Corrected reference for wiring diagrams in 8.6	
396	8.11.2.1.8	2013	Added: <b>8.11.2.1.8 Braking System. For passenger elevators and all freight elevators, verify that seal on the means of adjusting the holding capacity of the driving machine brake has not been broken and that it bears or otherwise attaches the identification of the person or firm that installed it. (see 8.6.4.20.4)</b>	The increased frequency of testing of the critical braking system will aid in monitoring the performance of the braking system. The sealing of the brake adjustment will ensure that the adjustment is not inadvertently changed between testing periods. It is necessary to identify the party that applied the seal.	
	8.11.3.1.2	2013	Subparagraph (cc) editorially revised	Corrected reference for wiring diagrams in 8.6	
399	8.11.5.14	2013	Added	Added periodic testing requirements for Wind Turbine Tower Elevators	
	8.11.5.15	2013	Added	Added periodic testing requirements for Outside Emergency Elevators	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES	
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396, 397	8.11.1.9	2016	Added		
396, 397	8.11.2.1.1	2016	(1) Subparagraphs (d) and (m) revised		
396, 397	8.11.2.1.1	2016	(2) Subparagraph (y) added		
396, 397	8.11.2.1.2	2016	Subparagraph (nn) revised		
396, 397	8.11.2.1.3	2016	Subparagraphs (ll), (dd), and (qq) revised		
399	8.11.3.1.6	2016	Revised		
401	8.11.5.16	2016	Added		
419	8.11.1.2	2019	Notes Revised		
420	8.11.2.1.2	2019	Subparagraph (oo) added		
421	8.11.2.1.6	2019	Revised in its entirety		
421	8.11.2.1.7	2019	In subpara. (a)(1), reference to 8.6.11.9 corrected by errata		
422	8.11.3.1.2	2019	Subparagraph (dd) added		
423	8.11.3.1.5	2019	(1) Subparagraph (d) Revised		
		2019	(2) Subparagraph (r) added		
423	8.11.3.1.7	2019	In subpara. (a)(1), reference to 8.6.11.9 corrected by errata		
423	8.11.4.1	2019	Subparagraph (k) Revised		



Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
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**8.13 Signs, Plates, and Tags**

425	Section 8.13	2019	<p><b>Added</b> SECTION 8.13 SIGNS, PLATES, AND TAGS <b>8.13.1 Permanent Plates</b> Data plates and capacity plates shall (a) be made of metal or other durable materials designed to last the life of the equipment. Stick-on foil or paper labels shall not be permitted. (b) be securely attached to prevent removal when subjected to a force of 65 N (15 lb). In addition, adhesive- attached plates shall conform to the requirements of UL 969 or CAN/CSA C22.2, whichever is applicable.</p> <p><b>8.13.1.3 The use of writing instruments, stamping, and scratching to apply the lettering and figures shall not be permitted.</b></p>	<p><b>Add New. To provide a location in code for reference to gathered / consolidated signage requirements.</b></p> <p><b>Applies to Data and Capacity Plates</b></p>	<p>durable, metal or other.</p> <p>No stick on foil labels.</p> <p>No writing, stamping or scratching info onto the plate.</p>
425		2019	<p><b>8.13.2 Signs</b> The sign shall conform to the requirements of ANSI Z535.2 or CAN/CSA C22.2- Z321, shall be made of a durable material, and shall be securely fastened.</p>	<p>Applies to signs.</p>	<p>Durable to listed codes</p>
425	Section 8.13	2019	<p><b>8.13.3 Marking Plates and Tags</b> Marking plates and tags shall (a) be made of metal or other durable materials designed to last the life of the equipment. (b) be securely attached to prevent removal when subjected to a force of 65 N (15 lb). (c) permit the use of writing instruments, stamping, and scratching to apply the lettering and figures. (d) be provided with preprinted permanent letters and figures on marking plates and tags with letters or figures not less than 3 mm (0.125 in.) high.</p>	<p>Add new section to recognize some marking plates or tags require the addition of data by field personnel.</p>	<p>Durable, last a life time</p> <p>securely attached</p> <p>writing, stamping scratching IS PERMITTED</p> <p>other non field entered info to be Preprinted</p>

**PART 9**  
**9.1 Referenced Documents**

401-4 07	Section 9.1	2013	Updated to reflect new and revised references		
403-4 09	Section 9.1	2016	Updated to reflect new and revised references		
427	Part 9	2019	(1) Introductory text <b>Revised</b>		
		2019	(2) In Section 9.1, ADA/ABAAG and FED-STD-595C <b>added</b>		
		2019	(3) In Section 9.1, ASME A17.8/CSA B44.8, ASME B29.1, ASME B29.8, ASME B29.100, CSA C22.2 No. 141, and UL 924 <b>Revised</b>		
		2019	(4) In Section 9.1, ASME B29.2M-1982 (R1987) and ASME B29.15-1973 (R1987) <b>deleted</b>		
		2019	(5) Section 9.2 updated		

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req't # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
<b>9.2 Procurement Information</b>					
410, 411	Section 9.2	2016	Updated to reflect new and revised references		
408, 409	Section 9.2	2013	Updated to reflect new and revised references		
<b>Nonmandatory Appendix</b>					
413	Nonmandatory Appendix B	2013	<b>APPENDIX B UNLOCKING ZONE</b> Title revised	Title revised	Figure revised with 175mm (7 in.) unlocking zone for non-freight elevators
	Fig. B-1	2013	Subtitle and figure revised	Revised to show 175 mm (7 in.) dimension, 2.12.5 revised moved to 2.14.5.7.	
415	Fig. B-1	2016	Cross-reference to 2.12.1 added	Add a reference to 2.12.1 for the unlocking zone so that code readers can locate the dimension requirements previously specified in the definition.	
416-423	Nonmandatory Appendix E	2013	<b>NONMANDATORY APPENDIX E ELEVATOR REQUIREMENTS FOR PERSONS WITH PHYSICAL DISABILITIES IN JURISDICTIONS ENFORCING THE NBCC</b>  Revised in its entirety	Definition and requirements for VMS (variable message signs) added. Permission to reduce door reopening to 910mm (36 in.) removed. Minimum door dwell time for non Destination-oriented elevators increased based on distance from the farthest hall call button to the centerline of the hoistway door, and timing starts when lantern-gong is visible and audible. Reference to LU/LA min. dimensions removed. Minimum clear door opening 915mm (36 in.) and min. circular space specified. Car call sequential step scanning defined, permitted for car buttons more than 1220 mm (48 in.) above the floor. Destination-oriented elevators require verbal floor announcement regardless of speed. Operable parts of emergency two-way communications cannot be lower than 380 mm (1.5 in.). Hall buttons require an audible signal or mechanical motion of the button to indicate when a call is registered. Destination-oriented elevators require visual, audible, and verbal announcements to indicate which car is responding to a call. LU/LS swing doors shall open and close automatically, clear floor space for hall station located beyond the arc of the door swing, swing doors remain open for 20 sec. minimum, car door requirements based on number, opposite ends, adjacent sides, control panel centered on longest side wall. Signs permitted to be uppercase, lowercase, or a combination of both; requirements for characters on signs revised. Braille requirements revised.	
425	Table F-1	2013	<b>NONMANDATORY APPENDIX F ASCENDING CAR OVERSPEED AND UNINTENDED CAR MOVEMENT PROTECTION</b> <b>Table F-1 Traction Elevator Brake Type, Function, and Performance</b> Revised	Emergency terminal speed limiting added to table for emergency brake function and performance (2.25.4.1.1 referenced). 2.16.8 reference added for braking system performance emergency.	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
449	Table F-1	2019	<b>Table F-1 Traction Elevator Brake Type, Function, and Performance</b> Revised	Rationale: To revise Table F-1 in the Non-Mandatory Appendix F to be consistent with code requirements in 2.24.8.2 and 2.16.8.	
430	Fig. G-1	2016	<b>NONMANDATORY APPENDIX G TOP-OF-CAR CLEARANCE</b> <b>Figure G-1 Top-of-Car Clearance Requirements</b> Revised	Added reference to 2.14.1.7.2, dimension to items in the hoistway horizontally from car top railing added.	
452	Figure G-1	2019	<b>NONMANDATORY APPENDIX G TOP-OF-CAR CLEARANCE</b> <b>Figure G-1 Top-of-Car Clearance Requirements</b> Revised	Rationale: To clarify that both 2.4.7.1 and 2.14.1.7.2 reference Non-Mandatory Appendix G.	
466	Nonmandatory Appendix L	2019	<b>NONMANDATORY APPENDIX L INDEX OF ALTERATION REQUIREMENTS FOR ELECTRIC ELEVATORS, HYDRAULIC ELEVATORS, ESCALATORS, AND MOVING WALKS</b> Revised	Updated	
452	Table N-1	2016	<b>Table N-1 Recommended Inspection and Test Intervals in "Months"</b> Revised	First column removed, references updated, and references added for rack-and-pinion elevators, mine elevators, and wind turbine elevators.	
451	Table N-2	2013	<b>Table N-2 Guidelines on Use of Monitoring to Provide Inspection Data</b> First column heading editorially revised	Heading A17.1 changed to A17.1/B44	
483	Table P-1	2019	<b>Table P-1 Plunger Gripper Stopping Distances With Rated Load in the Car (8.6.5.16.4)</b> Title Revised	Rationale: to add inspections procedures for plunger gripper. Editorially amend table for clarity.	
462	Table R-1	2013	<b>Table R-1 Inspection Operation and Hoistway Access Switch Operation Hierarchy</b> Fourth column heading revised	Heading Hoistway Access changed to Hoistway Access Operation	
489	Nonmandatory Appendix S	2019	<b>NONMANDATORY APPENDIX S HORIZONTALLY AND VERTICALLY SLIDING DOORS —</b> <b>ILLUSTRATIONS OF DETECTION ZONES (2.13.3.4 AND 2.13.5.4)</b> (2) Figures S-13 through S-16 added	Add figures for door detection zones used on horizontally sliding doors	
478	Appendix T	2016	Deleted	ASME A17.6 Elevator Suspension applies, note and appendix removed.	
479	Table U-1	2016	<b>Table U-1 Design Requirements — Traction Elevator Suspension System</b> "Best engineering practice (BEP)" revised to "sound engineering practice (SEP)"	In Factor of Safety reference change to SEP (Sound Engineering Practice).	
479	Nonmandatory Appendix V	2013	<b>NONMANDATORY APPENDIX V BUILDING FEATURES FOR OCCUPANT EVACUATION OPERATION</b> Added	New section for Occupant Evacuation Operation	

What's New in ASME A17.1-2013 to A17.1-2019 CSA B44-13 to CSA B44:19

Page	Req'mt # (see update)	Yr	Change	CHANGE NOTES Comments in blue, new text in red, original code text in black green = summary highlight	Enforcement & Notes
481	Nonmandatory Appendix W	2013	Added	New section for Wind Turbine Tower Elevator Clearances	
482	Appendix W	2016	Deleted	ASME A17.8 Wind Turbine Tower Elevators applies, appendix removed.	
482	Nonmandatory Appendix X	2013	<b>NONMANDATORY APPENDIX X ACCEPTANCE TESTS</b> Added	Test records for Acceptance Tests (See 8.10.1.1.5)	
483	Table X-1	2016	<b>Table X-1 Acceptance Test for Electric Elevators Acceptance Test: Electric Elevators</b> Item 28 Revised	Reference to counterweight added.	
510	Table X-1	2019	Lines 10, 11, 24, and 27 Revised	update cross references for acceptance tests	
511	Table X-2	2019	<b>Table X-2 Acceptance Test for Hydraulic Elevators Acceptance Test: Hydraulic Elevators</b> (1) Line 19 deleted and following lines redesignated (2) Lines 24 (formerly 25), 28 (formerly 9), and 29 (formerly 30) Revised	update cross references for acceptance tests	
485	Table X-3	2016	<b>Table X-3 Acceptance Test for Escalators Acceptance Test: Escalators</b> Item 21 Revised	Reference clause was corrected.	
512	Table X-3	2019	Lines 1, 3, 17, 22, and 25 Revised	update cross references for acceptance tests	
513	Table X-4	2019	<b>Table X-4 Acceptance Test for Moving Walks Acceptance Test: Moving Walks</b> Lines 1, 3, 16, and 21 Revised	update cross references for acceptance tests	
486	Nonmandatory Appendix Y	2013	<b>NONMANDATORY APPENDIX Y MAINTENANCE CONTROL PROGRAM RECORDS</b> Added	Maintenance Control Program Records.	
490	Appendix Z	2016	<b>NONMANDATORY APPENDIX Z MASS AND CLOSING TIME OF HORIZONTALLY SLIDING ELEVATOR DOORS</b> Added	To assist where no data plate was provided (closing times for Horizontally sliding elevator doors).	
519	Nonmandatory Appendix AA	2019	<b>NONMANDATORY APPENDIX AA CHECKLIST FOR FIREFIGHTERS' EMERGENCY OPERATION (8.6.11.1)</b> Added		
522	Index	2019	Updated		

What's New in ASME A17.1/ CSA B44 2013 to 2019 covers changes since the release of the 2013, 2016 and 2019 code editions. The "Change" column above primarily reflects the Summary of Changes presented at the front of the published code and the various addenda. The "Change Notes" column often utilizes information from the public review drafts that provided the rationale for the proposed code revision. TSSA does not verify the accuracy of all items within. For accuracy of requirements, users are advised to check the actual published code.