A17.1-201X, Safety Code for Elevators and Escalators

(Proposed Revisions of ASME A17.1-2013)

TENTATIVE

SUBJECT TO REVISION OR WITHDRAWAL

Specific Authorization Required for Reproduction or Quotation

ASME Codes and Standards
TN 06-431

Add new requirement 8.6.3.13 to A17.1:

8.6.3.13 Replacement of Car Doors and Gates. Where a car door or gate is replaced, the replacement shall conform as follows:

(a) on passenger elevators, requirements of
   (1) 2.14.4 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) 2.14.5 except 2.14.5.2.

(b) on freight elevators, requirements of
   (1) 2.14.4 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) 2.14.6.

Rationale: Replacement car doors and gates need to meet important safety requirements including location and deflection requirements in A17.1. These requirements were added to prevent excessive deflection or gaps of the gates/doors whereby a person might become entrapped. Requirement 2.14.4.10 is excluded as it requires conformance to 2.13, which may dictate additional affects for devices not being replaced (e.g. power closing device). Requirement 2.14.5.2 is excluded because it does not allow the use of Folding Doors. The objective of this TN is not to exclude them, but when they are replaced, the must comply with Requirement 2.14.5.9, which is the intent of this TN.
8.9.3 Material and Construction
The data plate 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. The height of the letters and figures shall be not less than 3.2 mm (0.125 in.).

All data plates not located in the controller shall be provided with either:

(a) a durable means to prevent common contaminants (such as paint, adhesives, oil, and grease) from adhering to the data plate parent surface and permit the removal of these contaminants, without obscuring the Code required data, or

(b) letters and figures that are raised or depressed a minimum of 0.8 mm (0.03125 in.) from the plate surface face, and have a minimum character-stroke width of 0.5 mm (0.02 in.)

If the plates are exposed to weathering or a chemical atmosphere, then a durable means shall be provided to protect the information from deterioration while permitting the information to be easily read.

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 requirement.

Rational: It would cause and unnecessary expense to replace existing code data plates that provide the needed information.
ADD TO A17.1:

8.6.4.20.11(a) Emergency Brake and Unintended Car Movement Protection. Test the unintended car movement protection and the emergency brake in the down direction with 125% of rated load at a landing above the bottom landing.

**Rationale:** To cover Category 5 Test.

8.6.4.19.11 Ascending Car Overspeed Protection, and Unintended Car Movement and Emergency Brake

(a) **Examinations.** All working parts of ascending car overspeed protection and unintended car motion devices shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 2.19.1.2(a) and 2.19.2.2(a).

(b) **Tests.** These devices shall be subjected to tests with no load in the car at the slowest operating (inspection) speed in the up direction.

**Rationale:** Clarification.

8.6.4.20.11 Emergency Brake and Ascending Car Overspeed Protection. 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.

**Rationale:**
1. 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.
2. Editorial corrections.
3. Clarifications.
Revise ASME A17.1-2010/CSA B44-10, Requirements 2.12.7.2 and 2.12.7.3.8

2.12.7.2 Location and Design. Hoistway access switches shall conform to 2.12.7.2.1 through 2.12.7.2.35.

2.12.7.2.1 The switch shall be installed a minimum of 1200 mm (48 in.) and a maximum of 1825 mm (72 in.) above the floor measured to the centerline of the switch, adjacent to or part of the hoistway entrance at the landing with which it is identified, and in one of the following locations:
   (a) on the wall outside of the hoistway within 300 mm (12 in.) of the entrance frame
   (b) on the hoistway entrance frame or jamb
   (c) on the sight guard

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.

2.12.7.2.23 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).

2.12.7.2.34 The electric contacts in the switch shall be positively opened mechanically; their openings shall not be solely dependent on springs.

2.12.7.2.35 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.

2.12.7.3.8 Control circuits related to, or operated by, the hoistway access switches shall comply with 2.26.9.3.1(c), (d), and (e) and 2.26.9.4.

Rationale: 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.

Finally, this corrects references in 2.12.7.3.8.
2.12.7.3.3(c) 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.

Rationale:
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, e.g., a very short hoistway. The 12 inch window provides a tolerance.
IDENTIFICATION
2.29.1 Identification of Equipment
2.29.1.1 In buildings with more than one elevator, each elevator in the building shall be assigned a unique alphabetical, or numerical or alphanumeric identification. Where a destination-oriented elevator system operation is provided (see ICC A117.1), this unique identification shall be used for the destination-oriented elevator car designation.

2.29.1.2 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, and The identification shall be painted on, engraved, 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:
(a) the driving machine
(b) MG motor generator set
(c) operation controller, motion controller and motor controller
(d) selector
(e) governor, minimum of 25 mm (1 in.) in height
(f) main line disconnecting means (see NFPA 70, Article 620 or CSA C22.1 Section 38), minimum of 13 mm (0.5 in.) in height switch
(g) the crosshead, or where there is no crosshead, the car frame, such that it is visible from the top of the car hoistway landing
(h) the car operating panel, minimum of 13 mm (0.5 in.) in height
(i) adjacent to or on both door jambs of every elevator entrance at the designated level, minimum of 75 mm (3 in.) in height located immediately below the floor designation, (see Non-mandatory Appendix E, Item E-17), where provided.
(j) separately enclosed control components (e.g. motor circuit transformers, dynamic braking resistors, line rectifiers or chokes)
(k) means to trip and/or reset the governor from outside the hoistway as permitted by 2.7.6.3.4, minimum of 13 mm (0.5 in.) in height
(l) means necessary for tests (see 2.7.6.4), minimum of 13 mm (0.5 in.) in height
(m) inspection and test panel (see 2.7.6.5), minimum of 13 mm (0.5 in.) in height
(n) buffers or pit channel in the pit, visible from the pit access door landing.

Rationale:
The reformatting of 2.29.1 into 2.29.1.1 and 2.29.1.2 are to clarify that the marking requirements related to size of alphanumeric marking and marking methods apply only to those items listed in the proposed 2.29.1.2.
The proposed updates cover the marking requirements for equipment located in non-traditional areas and spaces. Panels may not be located in common enclosures but mounted in common areas of hallways and lobbies, in any configuration, adjacent to or across from entrances or remotely located in the building not within sight of the elevator.
Also added a requirement to ensure that the single unique identification for each elevator required for equipment identification is common with the destination oriented control car identification.
Revise A17.1-2013 as follows:

8.6.3.6 Replacement of Speed Governor. When a speed governor is replaced, it shall conform to 2.18. When a releasing carrier is provided, it shall conform to 2.17.15. The governor rope shall be of the type and size specified by the governor manufacturer. The governor shall be checked in conformance with 8.11.2.3.2. Drum-operated safeties that require continuous tension in the governor rope to achieve full safety application shall be checked as specified in 8.11.2.3.1 and 8.7.2.19.

8.6.3.6.1 Where a speed governor is replaced, it shall be considered an alteration and shall conform to 8.7.2.19 except when replaced with equipment authorized by the original equipment manufacturer as equivalent to the original make and model or having been verified by a professional engineer as meeting the original design criteria of the elevator system. The governor rope shall be of the type and size specified by the governor manufacturer.

The governor shall be tested in accordance with the applicable requirements specified in 8.10.2.3.2(f). Where a type “A” Safety is used the inertia application shall be tested as specified in 8.10.2.2.2(ii)(2)(a).

8.6.3.6.2 When a releasing carrier is provided, it shall conform to 2.17.15 except for replacements with equipment of the same make, model and manufacturer to that being replaced which shall conform to the code under which the releasing carrier was originally installed.

Rationale: To allow for the replacement of a speed governor with one of the same make, model and manufacturer to that being replaced and to add testing requirements to assure all replacements operate in the manner intended. The intention is to allow exception to the alteration requirement only when an equivalent governor is available. There are cases where old governor sit for years adjacent to running cars and a governor gear breaks on the running car. Why force the owner to pay for a costly alteration when the repair does not comprise safety. Other cases may include newer equipment damaged by outside forces.

Second sentence, first paragraph, relocated to new 8.6.3.6.2.

Rationale for deletion of first sentence, second paragraph: This is an Alteration – Alteration requires testing of governor.

Rationale for deletion of second sentence, second paragraph: This paragraph is moved to 8.7.2.19.

8.7.2.19 Speed Governors and Governor Ropes.
Where any alteration is made to a speed governor, or where a new governor is installed, it shall conform to 2.18. Where there is a releasing carrier, it shall conform to 2.17.15. Governor ropes of a different material, or construction than originally specified by the governor manufacturer shall be permitted, provided that (a) there is conformance with 2.18.6 and 2.18.7, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7 (b) a test is made of the car or counterweight safety and speed governor with the new rope to demonstrate that the safety will function as required by 2.17.3

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.

Rationale: Relocated from 8.6.3.6.
Proposed additional language for A17.1:

8.7.2.2 Pits.

**8.7.2.2.1** Alterations made to the pit shall conform to 2.2 and 2.1.2.3. See also 8.7.2.4.

**8.7.2.2.2** 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

8.7.3.2 Pits.

**8.7.3.2.1** Alterations made to the pit shall conform to 2.1.2.3 and 2.2. See also 8.7.3.4.

**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 3.4.1.

(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.
Proposed Change to Table 2.18.2.1

Requirement 2.18.4.2.1 as follows:

2.18.4.2.1 For rated speeds more than 0.75 m/s (150 ft/min), up to and including 2.5 m/s (500 ft/min), the car speed-governor overspeed switch shall open in the down direction of the elevator at not more than 90% of the speed at which the governor is set to trip in the down direction.

Revise Table 2.18.2.1 as follows:

Table 2.18.2.1 Maximum Car Speeds at Which Speed Governor Trips and Governor Overspeed Switch Operates

<table>
<thead>
<tr>
<th>SI Units</th>
<th>Imperial Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Speed, m/s</td>
<td>Maximum Car Governor Trip Speed, m/s</td>
</tr>
<tr>
<td>0–0.63</td>
<td>0.90</td>
</tr>
<tr>
<td>0.75</td>
<td>1.05</td>
</tr>
<tr>
<td>0.87</td>
<td>1.25</td>
</tr>
<tr>
<td>1.00</td>
<td>1.40</td>
</tr>
<tr>
<td>1.12</td>
<td>1.55</td>
</tr>
</tbody>
</table>

Rationale:
The proposed change is to correct an error in Table 2.18.4.2.1 that goes back to the harmonization of the ASME A17.1 with CSA B44.

The ASME A17.1 code did not require an overspeed switch on governors on elevators with rated speeds of 150 fpm or less. When the Code was harmonized an overspeed switch was required on all governors (2.18.4.1.1). The maximum setting for the overspeed switch to operate at was 90% of the governor tripping speed for rated speeds over 0.75 m/s (150 fpm) up to 2.5 m/s (500 fpm). The metric values in Table 2.18.2.1 need to be revised to address speed up to 0.75 m/s as shown above. This will agree with the imperial values in Table 2.18.2.1, which are correct, but not the metric values, which need to be revised as shown using practical conversion values.
Revise A17.1 as follows:

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.

8.7.2.14.5.1 The installation shall conform to 2.14.1.7.

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;

(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";

(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;

(c) when the railing is neither stowed nor in the fully extended position, the car shall not be permitted to operate;

(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,

(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,

(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),

(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 stowed position. Activation of the means shall not cause an average retardation exceeding 9.81 m/s2 (32.2 ft/s2),

(h) when in the fully extended position the railing shall meet the requirements of 2.10.2, and shall be designed to prevent accidental disengagement, and

(i) the force required to extend or retract the railing shall not exceed 220 N (50 lbf).

RATIONALE:
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. 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. Other means to achieve compliance are always available via the means permitted in Section 1.2 of A17.1/B44.
Proposed Revisions to A17.1, Part 7:

Scope: Expand the Type A Material Lift requirements to allow larger, no rider material lifts.

Rationale: Expanding the size of Type A Material Lifts brings devices that are currently outside of the scope of A17.1 into scope and ensures the additional safety features are provided for these devices that might not otherwise be required.

7.5.1.1.1 Requirement 2.14.1 applies, except
(a) for Type A Material Lifts, the enclosure width shall not exceed 1220 mm (48 in.). The height of the enclosure walls shall not exceed 2280 mm (90 in.).
(b) for Type A Material Lifts, the width of the enclosure shall not exceed 1220 mm (48 in.) unless the height of the enclosure is 1525 mm (60 in.) or less.
(bc) for Type B Material Lifts, the platform enclosure on non-access sides shall be 2030 mm (80 in.) high, shall be permitted to be of openwork construction, and shall be in compliance with 7.4.3(b), (c), and (d).

Rationale: Remove the width restriction for Type A Material Lifts with a restricted height. This continues to prevent forklifts from being driven onto Type A Material Lifts while expanding the range of sizes available.

7.5.4.3 Requirement 2.17.8 applies, except that Type A safeties shall be permitted to be used regardless of the 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 0.5 to 1.0 m/s (100 to 200 ft/min) or less where the space below the material lift is not accessible.

Rationale: These safeties are permitted to be similar to that of freight elevators except the speed is increased since there are no riders.

Limit the use of slack rope safeties when space below the material lift is accessible to reduce the possibility of personal injury.

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.

Rationale: We do not want to put people on the car top if there is not adequate refuge space. The area was chosen to consider typical equipment on the top of the material lift, including door operator(s), crosshead, etc., and possible refuge space.

7.2.12.40 Requirement 2.27 does not apply.

7.3.11.10 Requirement 7.2.12.40 applies.

7.5.12.1.25 Requirement 7.2.12.40 applies.

7.5.12.2.35 Requirement 7.2.12.40 applies.

Rationale: Clarify that fire service is not applicable to dumbwaiters and material lifts.
Proposed revisions to ASME A17.1, Part 7:

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
(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.)
(c) any landing whose sill is within 1,525 mm (60 in.) of the pit floor, regardless of the dumbwaiter rise.

Rationale: Remove the permission for lock and contacts at floors with other than counter height loading. The previous rule allowed lock and contacts only when the fall hazard was restricted however, the rule appears to have been attempting to apply the rules for vertically sliding freight doors. In this case the car is at least 2030 mm (80" in.) high and with a travel limit of 4570 mm (180 in.) would result in a potential fall hazard of 2540mm (100") from the top landing to the car top with the car at the bottom landing. Applying the same rule to a dumbwaiter with a maximum height of 1220 mm (48 in.) results in a potential fall hazard of at least 3350 mm (132").

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.
       (bb) 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

Rationale: Maintain the current interlock requirements for dumbwaiters with a rated speed greater than 0.5 m/s (100 fpm). This will require a full interlock and a retiring cam for these devices.

(b) where the rated speed of the dumbwaiter is less than or equal to 0.5 m/s (100 fpm)
   (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. 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.
   (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

**Rationale:** Allow dumbwaiters with a rated speed less than 0.5 m/s (100fpm) to move within a zone 75mm (3 in.) above or below the landing with the doors closed but before they are locked. This is similar to the level of safety provided by the lock and contact but once outside the 75mm (3 in.) door zone, the car will not continue to move unless the interlock is locking the doors. This provides safer operation than a mechanical lock and contact but allows the use of a fixed cam like the mechanical lock and contact. This rule allows a fixed cam to be used on dumbwaiters where space can be limited but with a greater level of safety than previously allowed by rule 7.1.12.1.1 where mechanical lock and contacts were previously permitted.

### 7.2.12.31 Hoistway Door Close Contacts

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.

**Rationale:** Provide a clear indication that door close contacts must be provided when operation with the door closed but not locked is permitted by clause 7.1.12.1.3(b)(2). Confirm that the door close contacts are EPDs and must all EPD requirements such as the requirements of 2.26.9.3 as applicable.

7.2.12.31 through 7.2.12.39 renumbered to one greater

**Rationale:** Renumber clauses to allow insertion in correct position in list of EPD requirements.
Proposed Revision to A17.1, monitoring the performance of the driving machine brake(s):

**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).

Add New 6.2.5.3.1(d)(5) to A17.1:

**6.2.5.3.1(d)(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.

**6.2.6.8 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 manual reset type (6.2.6.13).

**Rationale:** The device is intended to monitor the stopping distance every time the escalator/moving walk is stopped to ensure correct brake operation. The min./max. stopping distance requirements are already defined described within the code.
Proposed Revision to A17.1 Appendix T New Note (11) for Sky Lobby:

Note (11): For buildings with sky lobbies, the building fire safety and evacuation plan should address any unique evacuation requirements when an incident occurs at the sky lobby floor, which could also be the elevator discharge level, or at a floor immediately above or below the sky lobby floor. An example of a unique evacuation requirement could be that manual initiation of Occupant Evacuation Operation may be necessary for the elevator groups servicing floors above and below the sky lobby floor when an incident requires Occupant Evacuation Operation to be initiated.

Rationale: special consideration needs to be given to a high rise building with sky lobbies for incidents occurring at or near the sky lobby floor.
PROPOSAL TO HARMONIZE THE USE OF THE TERM “SOUND ENGINEERING PRACTICE”

Section 1.3, Definitions

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, regulatory and industry guidelines as well as accepted engineering and design methods and installation and maintenance practices.

2.20.3 Factor of Safety

The factor of safety of the suspension means shall be not less than shown in Table 2.20.3. Figure 8.2.7 gives the minimum factor of safety for intermediate speeds. The factor of safety shall be based on the actual speed of the suspension means corresponding to the rated speed of the car. Where suspension means are different from traditional steel wire ropes, technical criteria for essential safety requirements and parameters, such as minimum factor of safety, monitoring, residual strength, replacement, etc., shall be selected on the basis of best sound engineering practice compatible with the product technology, including performance testing under elevator operating conditions for its range of application. The minimum factor of safety for any suspension means shall be not less than the values shown in Table 2.20.3 except that the factor of safety of steel wire suspension ropes with diameters equal to or greater than 8mm (0.315 in.) but less than 9.5mm (0.375 in.) shall be not less than 12 or they shall meet the requirements of 2.20.8.2. See also Nonmandatory Appendix U.

2.15.6.3 Requirements for Metals Other Than Steel.

Metals other than steel shall be permitted to be used in the construction of car frames and platforms, provided the metal used has the essential properties to meet all the requirements for the purpose in accordance with good sound engineering practice, and provided the stresses and deflections conform to 2.15.10 and 2.15.11, respectively.

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 good 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.

2.24.8.6 Driving-Machine Brake Design.

The driving-machine brake design shall ensure contact of the friction material on the braking surface consistent with good sound engineering practice. Means shall be provided to protect the braking surfaces from contamination caused by any driving-machine fluid leak.
### TableU-1 Design Requirements—Traction Elevator Suspension System

<table>
<thead>
<tr>
<th>Suspension Type</th>
<th>Factor of Safety (FS)</th>
<th>Traction-Loss Detector and Protection (2.20.8.1)</th>
<th>Broken-Suspension-Member Detector and Protection (2.20.8.2)</th>
<th>Suspension-Member Residual-Strength Detection (2.20.8.3)</th>
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</thead>
<tbody>
<tr>
<td>SWR d ≥ 9.5mm</td>
<td>FS ≥ Table 2.20.3</td>
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<td>Not Required</td>
<td>Not Required</td>
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<td>8 mm ≤ d &lt; 9.5mm</td>
<td>FS ≥ 12</td>
<td>Required</td>
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<td>Not Required</td>
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<td>FS ≥ Table 2.20.3</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>FS ≥ BEP SEP</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>CSM Any</td>
<td>FS ≥ Table 2.20.3</td>
<td>Required</td>
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</tr>
<tr>
<td></td>
<td>FS ≥ BEP SEP</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
</tbody>
</table>

**GENERAL NOTES:**

(a) AFR = aramid fiber ropes
(b) **BEP SEP** = best sound engineering practice
(c) CSM = noncircular elastomeric-coated steel suspension members
(d) SWR = steel wire ropes

**Rationale for proposed changes to Section 1.3 (Definitions), 2.20.3, 2.15.6.3, 2.15.7.2, 2.24.8.6 and Non-Mandatory Appendix U:**

“Sound engineering practice” is a common term used in the design of components and systems and is appropriate for use in writing performance-based requirements. The definition provides a list of typical considerations that must be taken into account in order to provide safe designs of components and systems.
Revise A17.1 as follows:

8.8.1 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 5 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.

8.8.2 Welding Steel
Where required elsewhere in this Code, welding shall conform to either 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

Section 9

ANSI/AWS D1.1 (latest edition Structural Welding Code-Steel AWS US, Canada
ANSI/AWS D1.3 (latest edition) Structural Welding Code-Sheet Steel AWS US, Canada

RATIONALE
To clarify the requirements for welders qualification and welding in Canadian jurisdictions.
Proposed Revision to A17.1 Requirement 8.6.5.16 Overspeed Testing for Hydraulic Elevators:

8.6.5 Maintenance and Testing of Hydraulic Elevators

8.6.5.16 Periodic Test Requirements — Category 5

NOTE: For test frequency, see 8.11.1.3.

8.6.5.16.1 Governors, safeties, and oil buffers, where provided, shall be inspected and tested as specified in 8.6.4.20.1, 8.6.4.20.2, and 8.6.4.20.3 at intervals specified by the authority having jurisdiction. Where activation is allowed or required both by a speed governor overspeed and slack rope, the safety shall have both means of activation tested.

Rationale: To clarify that overspeed testing is not required for hydraulic elevators on a Category 5 Test, which is not required for electric elevators.
Proposed Revision to ASME A17.1- 2010/CSA B44- 10, Requirement 2.27.3.1.6(d) Phase 1 Emergency Recall Operation:

2.27.3.1.6(d) A car standing at a landing other than the designated level, with the doors open and the in-car stop switch and the emergency stop switch in the car, when provided, in the run position, shall proceed to the designated level if the doors are closed, or shall conform to the following if the doors are not closed:

Rationale: Requirements 2.27.3.1.6(d)(1), (2), and (3) only require Phase 1 Emergency Recall when the doors are in the open position, this modification is to include Phase 1 Emergency Recall when initiated with the doors in the closed position.
Proposed new definition of Unlocking Zone *(based on approved language in TN 02-3046)*:

unlocking zone – a zone extending from the landing floor level to a specified point above and below the landing, not less than 75 mm (3 in.) nor more than 175 mm (7 in.), except not more than 450 mm (18 in.) for freight elevators with vertically sliding doors, above and below the landing.

Proposed new requirement for unlocking zone dimensions:

SECTION 2.12
HOISTWAY DOOR LOCKING DEVICES AND ELECTRIC CONTACTS, AND HOISTWAY ACCESS SWITCHES
2.12.1 General
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.).

2.12.1.1 …2.12.1.5, unchanged.

**Rationale:** The dimensional requirements for “unlocking zone” are removed from the definition and placed into the appropriate section in the code.

Add a reference to 2.12.1 in the following requirements:

2.5.1.5.3 The clearance is not limited on passenger elevators, provided that (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)*

2.7.6.4.1 Where direct observation of the elevator drive sheave or ropes is not possible from the location of the means necessary for tests that require movement of the car or release of the driving-machine brake or emergency brake, display devices or the equivalent shall be provided. They shall be visible from the location of the means and shall convey the following information about the elevator simultaneously (a) the direction of movement (b) the reaching of a position within the door unlocking zone *(see 2.12.1)*

2.11.6.1 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.

2.13.2.1.1 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)* where an automatic car-leveling device is provided, except that on freight elevators with vertically sliding doors and static control, power shall not be applied to open car doors until the car is within 300 mm (12 in.) of the landing.

2.13.2.2.1 Power opening shall occur only at the landing where the car is stopping, leveling, or at rest, and shall start only when the car is within the unlocking zone *(see 2.12.1)* where an automatic car-leveling device is provided, except that on freight elevators with vertically sliding doors and static control, opening shall not start until the car is within 300 mm (12 in.) of the landing.
2.14.4.2.4 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

2.14.5.7.1 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.

2.14.5.7.3 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)(i).

2.14.5.8 Manual Opening of Car Doors.
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)(i). The force required at the edge of sliding doors to move them shall not exceed 330 N (75 lbf).

2.27.3.3.1(c) Door open and close buttons shall be provided for power-operated doors only and located as required by 2.27.3.3.7. Buttons shall be a minimum of 19 mm (0.75 in.) in the smallest dimension. The door open and door close buttons shall be labeled “OPEN” and “CLOSE” and when applicable “REAR OPEN” and “REAR CLOSE” or “SIDE OPEN” and “SIDE CLOSE” in lettering a minimum of 5 mm (0.25 in.) in height with a contrasting background. The labeling shall be on or adjacent to the buttons. Requirement 2.26.12 does not apply to these buttons. The door open and close buttons shall be operative when the elevator is stopped within an unlocking zone (see 2.12.1).

3.26.8 Pressure Switch
When cylinders are installed with the top of the cylinder above the top of the storage tank, a pressure switch shall be provided in the line between the cylinder and the valve, which shall be activated by the loss of positive pressure at the top of the cylinder. The switch shall prevent automatic door opening and the operation of the lowering valve or valves. The door(s) shall be permitted to open by operation of the in-car open button(s), when the car is within the unlocking zone (see 2.12.1).

5.1.11.4 Restricted Opening of Hoistway or Car Doors
Inclined elevators shall conform to 2.14.5.7, except that the unlocking zone (see 2.12.1) shall not exceed 152 mm (6 in.) beyond the landing measured in the direction of travel.

5.2.1.14(m) Requirement 2.14.5.7. The dimension for the unlocking zone (see 2.12.1) shall be not more than the straight vertical face of the platform guard minus 75 mm (3 in.).

5.2.1.15.2 Platform Guards. Requirement 2.15.9.2 does not apply. The platform guard shall have a straight vertical face, extending below the floor surface of the platform of not less than the depth of the unlocking zone (see 2.12.1) plus 75 mm (3 in.) but in no case less than the maximum distance from the landing that it takes to stop and hold the car upon detection and actuation of the device as prescribed in 2.19.2.
7.4.13.2.5 Requirement 2.11.6 does not apply. When the car is within the unlocking zone (see 2.12.1) the material lift hoistway doors shall be manually openable from within the car.

8.7.2.11.3 Parking Devices. Where an alternation is performed to an elevator operated from within the car only, an elevator parking device shall be provided conforming to the following requirements:
(a) At every elevator landing that is equipped with an unlocking device, if
1) the doors are not automatically unlocked when the car is within the unlocking zone (see 2.12.1)

NONMANDATORY APPENDIX B
UNLOCKING ZONE
Fig. B-1 Unlocking Zone
(see 2.12.1 and 2.14.5.7)

Rationale: 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.
Revise A17.1 as follows:

8.7.2.11.3 Parking Devices. Where an alteration is performed to an elevator operated from within the car only, an elevator parking device shall be provided and the installation shall conforming to the following requirements:

(a) An elevator parking device shall be provided at every elevator landing that is equipped with an unlocking device, if
   (1) the doors are not automatically unlocked when the car is within the unlocking zone
   (2) the doors are not operable from the landing by a door open button or floor button

(b) Parking Elevator parking devices shall be permitted to be provided at other landings.
(c) Parking Elevator parking devices shall conform to the following requirements:
   (1) they shall be located at a height not greater than 2 108 mm (83 in.) above the floor.
   (d) Parking devices shall conform to the following requirements:
       (1) they shall be mechanically or electrically operated
       (2) they shall be designed and installed so that friction or sticking or the breaking of any spring used in the device will not permit opening or unlocking a door when the car is outside the landing zone of that floor
       (3) springs, where used, shall be of the restrained compression type, which will prevent separation of the parts in case the spring breaks

(d) In elevators with a parking device, means shall not be permitted to turn off the lighting inside the car.

Reason: Parking devices are required by 8.7.2.11.3. They are usually strictly mechanical devices which can fail to operate as intended without being detected, similar to door locks and contacts versus interlocking. This failure can permit a landing door to be opened without the car to being at the landing. If the hoistway was dark the operator would not know it is not at the landing.
Proposed Revisions to A17.1, Requirement 7.2.3.2, Capacity Plate:

7.2.3.2 Capacity Plate. A metal 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. 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.

Rationale: To make the dumbwaiter plates consistent with elevator capacity plates.
The objective of this TN is to address refuge space on top of the car which was eliminated for electric and hydraulic elevators for new elevators and revise other elevator code sections in line with the original TN's requirements.

Revise A17.1 as follows:

2.7.5.4 Working Platforms in the Line of Movement of the Car or Counterweight.
Working platforms in the line of movement of the car or counterweight shall be permitted
(a) where retractable stops are provided and the car is
   (1) below the platform, the travel of the elevator shall be limited by a retractable stop(s) in such a manner that the car shall be stopped below the platform at least the distance required for car top refuge space (see 2.4.12) – top of car clearance (see 2.4.7)
   (2) above the platform, the travel of the elevator shall be limited by a retractable stop(s) in such a manner that the car shall be stopped above the platform at least the distance required in 2.7.4.5; or
(b) where the elevator is provided with a device conforming to 2.7.5.1.1 and 2.7.5.1.2.

Rationale: Refuge space is no longer specified in the code when on top of the car for new elevators. The top of car clearance requirements above the car top should be the same whether there is a working platform above the car or not.

2.14.1.5.1 Top emergency exits shall conform to the following requirements:

No change to (a), (b), (c) and (d)...

(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).
(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.

All exit covers shall be provided with a car top emergency exit electrical device (see 2.26.2.18) that will prevent operation of the elevator car if the exit cover is open more than 50 mm (2 in.) and the device shall be so designed that it
   (1) is positively opened
   (2) cannot be closed accidentally when the cover is removed
   (3) must be manually reset from the top of the car and only after the cover is within 50 mm (2 in.) of the fully closed position
   (4) shall be protected against mechanical damage

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.
4.2.2.3 Top Car Clearance. The top car clearance shall be not less than the sum of the following two items:
(a) the top car runby
(b) the height of the refuge space on top of the enclosure (see 4.2.2.4) or the clearance required for equipment projecting above the top of the car to prevent its striking any part of the overhead structure or equipment located in the hoistway, but in no case less than 1,070 mm (42 in.).

4.2.2.3 Maximum Upward Movement of the Car
The maximum upward movement of the car shall be the top maximum design car runby in 4.2.2.2

Rationale: Refuge space is no longer specified in the code when on top of the car for new elevators. Top of car clearances are the same for electric and hydraulic elevators.

4.2.2.4 Refuge Space on Top-of-Car Enclosure. A refuge space shall be provided on top of the car enclosure conforming to 2.4.12.

4.2.2.4 Top of Car Clearances
When the car has reached its maximum upward movement the clearance above the car top shall comply with 2.4.7

Rationale: Refuge space is no longer specified in the code when on top of the car for new elevators. Top of car clearances are the same for electric and hydraulic elevators.

5.6.1.4 Vertical Clearances and Runbys. Bottom and top clearances and runbys for cars and counterweights shall conform to 2.4, except as modified by the following:
(a) Table 2.4.2.2, maximum speed 0.25 m/s (50 ft/min). See 5.6.1.25.4.
(b) Requirement 2.4.10 does not apply.
(c) Requirement 2.4.11 does not apply.
(d) Requirement 2.4.12 does not apply if rise is 6.1 m (20 ft.) or less. When refuge space 5.6.1.25.3 is required, it shall be measured to the underside of the roof door when the bow iron or stanchion is in contact with the door.

Rationale: Refuge space is no longer specified in the code when on top of the car. Sections 2.4.10, 2.4.11 & 2.4.12 do not exist. Top of car clearance requirements added to replace refuge space when a person is on top of the car.

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.) 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 1,070 mm (42 in.) 1,100 mm (43 in.).

Rationale: Dimensions revised to reflect requirements in 2.4.7. Refuge space is no longer specified in the code when on top of the car.
8.7.3.22.1 Increase or Decrease in Rise. Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, it shall conform to the following:

(a) The terminal stopping devices shall be relocated to conform to 3.25.
(b) Where the increase in rise is at the lower end of the hoistway, bottom car and counterweight clearances and runbys shall conform to 3.4.1, 3.4.2, and 3.4.3, and existing top car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
(c) Where the increase in rise is at the upper end of the hoistway, top car and counterweight clearances and runbys, and refuge spaces shall conform to 3.4, and existing bottom car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
(d) The plunger shall conform to 3.18.2.
(e) Where the decrease is at the lower end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

Rationale: Refuge space is no longer specified in the code when on top of the car.

8.10.2.2.3 Top-of-Car

(a) Top-of-Car Stop Switch (2.26.2.8) (Item 3.1)
(b) Car Top Light and Outlet (2.14.7.1.4) (Item 3.2)
(c) Top-of-Car Operating Device and Equipment (Item 3.3)
   (1) top-of-car inspection operation (2.26.1.4.2)
   (2) equipment on car top (2.14.1.7)
   (3) inspection operation with open door circuits (2.26.1.5)
(d) Top-of-Car Clearance and Refuge Space (Item 3.4)
   (1) top-of-car clearance (2.4.6 through 2.4.8), and 2.4.10
   (2) refuge space and marking (2.4.12) lower clearance signage and marking of car top equipment (2.4.7.2)
   (3) guard rails (2.14.1.7.1)

... (e) to (kk) no change

Rationale: Refuge space is no longer specified in the code when on top of the car.
Note: Inspectors Guide item 3.4.4 needs to reflect Nonmandatory Appendix G in ASME A17.1b-2009.

8.10.3.2.3 Top-of-Car

(a) Top-of-Car Stop Switch [3.26.4 and 8.10.2.2.3(a)] (Item 3.1)
(b) Car Top Light and Outlet [3.14 and 8.10.2.2.3(b)] (Item 3.2)
(c) Top-of-Car Operating Device [8.10.2.2.3(c)] (Item 3.3)
   (1) operation (3.26.2)
   (2) operation with open door circuits (2.26.1.5)
(d) Top-of-Car Clearance, Refuge Space (Item 3.4)
   (1) top car clearance (3.4.4.5)
   (2) car top minimum runby (3.4.2.2)
   (3) top-of-car equipment (3.4.5.7)
   (4) vertical clearance above hydraulic jack projecting above the car of underslung car frames (3.4.8)
   (5) refuge space (3.4.7)

... (e) to (jj) no change

Rationale: Refuge space is no longer specified in the code when on top of the car. Note: Inspectors Guide item 3.4.4 needs to reflect Nonmandatory Appendix G in ASME A17.1b-2009.
ASME A17.1-2010/CSA B44-10 Index to be updated:

Refuge space, top-of-car
electric elevator, 2.4.12
hydraulic elevator, 3.4.7
material lift with automatic transfer device, 7.9.1
rack-and-pinion elevator, 4.1.1
screw-column elevator, 4.2.2.4
Limited-Use/Limited-Application existing Elevators 5.2.1.4.4
Inspection Requirements Existing Electric Elevators 8.11.2.1.3
Inspection Requirements Existing Hydraulic Elevators 8.11.3.1.3

**Rationale:** Refuge space is no longer specified in the code when on top of the car for new elevators but still has requirements for existing elevators.
### Proposed Editorial Revision to A17.1/B44, Index:

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**New Requirements that are current not listed in the Index**

- Mine Elevator Periodic Test 8.6.7.9.5
- 5 year category 5 8.6.5.16
- Ascending Protection test Periodic 8.6.4.19.11
- Loss traction Test 8.6.19.12
- Broken Suspension and Strength 8.6.4.19.13
- Governor 5 year Test 8.6.4.20.2
- Pressure Test Periodic 8.6.5.14.5

| 8.6.2.4 | 8.11.2.3.2(b) Repair Release Carrier |
| 8.6.3.4.3 | 8.11.2.3.2(b) Replace governor rope |
These requirements are incorrect and should be revised as follows:

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

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

**8.6.3.6 Replacement of Speed Governor.** When a speed governor is replaced, it shall conform to 2.18. When a releasing carrier is provided, it shall conform to 2.17.15. The governor rope shall be of the type and size specified by the governor manufacturer.

The governor shall be checked in conformance with 8.11.2.3.2 8.6.4.20.2 Drum-operated safeties that require continuous tension in the governor rope to achieve full safety application shall be checked as specified in 8.11.2.3.4 8.6.4.20.1 and 8.7.2.19.

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

*Rationale: to correct references in A17.1.*
Proposed Revision to A17.1 Requirement 8.10.4.1.1(t)(6) Step/Skirt Performance Index

8.10.4 Acceptance Inspection and Tests of Escalators and Moving Walks

8.10.4.1.1 External Inspection and Tests

(t) Step/Skirt Performance Index

(6) Verify that the step/skirt performance index conforms to the requirements in 6.1.3.3.9 (Item 7.17.2) and in jurisdictions not enforcing NBCC (8.6.8.3).

Rationale: Regardless of NBCC or non NBCC jurisdictions, requirement 8.6.8.3 relates to maintenance and should not be referenced during the Acceptance Inspection criteria of section 8.10. Item 1.17.2 should read 7.17.2.
Proposed Revision to A17.1 Requirement 8.6.6.1 Rack-and-Pinion Elevators

8.6.6.1 Rack-and-Pinion Elevators. The maintenance of rack-and-pinion elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6. Where the car and/or counterweight safeties are sealed to prevent field adjustment and examination, 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. A data plate shall be installed to show the date that the next maintenance/calibration is due. Field testing in accordance with 8.6.6.1.1 shall be required prior to placing the elevator in service for rack and pinion safeties after the manufacturer replaces components or calibrates car or counterweight safeties.

8.6.6.1.1 Rack-and-Pinion Elevator Periodic Test.
Rack-and-pinion elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 4.1. Any additional requirements for this equipment shall also be checked during these tests.

Rationale: 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.
Proposed Revision to A17.1 Requirements 6.1.5.3.2 Main Drive Shaft Brake and 6.1.6.3.4 Drive Chain Device:

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, either:
- 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. or
- 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.

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, if so equipped (see 6.1.5.3.2 a)), and will also cause the electric power to be removed from the driving machine motor and brake if the any drive chain between the machine and the main drive shaft becomes disengaged from the sprockets. The device shall be of the manual reset type.

Rationale: 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. Inquiry 92-58 further supporting this TN is attached. 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.
Fig. G-1  Top of Car Clearance Requirements (2.4.7.1 and 2.14.1.7.2)

Area where top car clearance requirements apply (2.4.7.1 and 2.14.1.7.2)

Rationale: To clarify that both 2.4.7.1 and 2.14.1.7.2 reference Non-Mandatory Appendix G.
Editorially revise as follows:

2.1.3.2 Strength of Floor. Overhead floors shall be capable of sustaining a concentrated load of 1 000 N (225 lb) on any 2 000 mm² (3 in.²) area, and in addition, where it constitutes the floor of the main or secondary level machinery space, it shall be designed for a live load of not less than 6 kPa (125 lb/ft²) in all open areas.

2.7.5.3.2 A working platform shall be able to support in any position at least 2 000 N (450 lb), with a load concentration of at least 1 000 N (225 lb) over an area of 40 000 mm² (64 in.²) with a factor of safety of not less than 5. If the platform is to be used for handling heavy equipment, the dimensions and the strength of the platform shall be considered accordingly.

5.3.1.1.2 The enclosure shall be permitted to be omitted on the upper landing on continuous-pressure operation elevators serving only adjacent landings (one-floor rise) conforming to one of the following:
(a) the floor opening at the upper landing is protected by a partial enclosure and gate at least 910 mm (36 in.) high with openings that will reject a ball 25 mm (1 in.) in diameter and the gate is provided with a combination mechanical lock and electric contact
(b) the floor opening is provided with a vertically lifting hatch cover which is automatically raised and lowered vertically by the ascending and descending car, provided this cover meets the following requirements:
   (1) It is fitted with guides to ensure its proper seating.
   (2) It is designed and installed to sustain a total load of 3.6 kPa (75 lb/ft²) or 135 kg (300 lb) at any one point.
   (3) It is equipped with an electric contact that will prevent the upward travel of the car when a force of 90 N (20 lbf) is placed at any point on the top of the hatch cover.

5.5.1.11.3 Hinged-Type Swing Sidewalk Doors
(a) The line of the hinges shall be at right angles to the building wall.
(b) There shall be a minimum clearance of 450 mm (18 in.) between the face of the doors and any obstruction when the doors are in the open position.
(c) The doors shall be opened by the ascending car and shall be self-closing as the car descends, and shall be kept in the closed position when the car is not at the top landing, except as provided for in 5.5.1.11.3(d).
(d) The doors shall be permitted to be held or fastened in the open position when the car is not at the top landing, provided self-closing hinged metal screen panels, which will reject a ball 50 mm (2 in.) in diameter and which will support a static load of not less than 1 136 kg (300 lb) applied on any area 600 mm (24 in.) on a side and not less than 68 kg (150 lb) applied at any point, are installed directly below the watertight sidewalk doors. Screen panels shall be opened and closed automatically by the ascending and descending car and shall always be closed when the car is not at the top landing.
(e) Stops shall be provided to prevent the doors from opening more than 90 deg from their closed position.
5.6.1.11.2 Horizontal Openings in Rooftops
(a) The pedestrian path on a rooftop, when the door or cover is open, shall be such that it permits a minimum 1 200 mm (48 in.) wide unobstructed path that is not normally accessible to vehicular traffic.
(b) Hoistways shall not be located either wholly or partially in front of any entrance to a building or openable window.
(c) The side of the door opening nearest to any building wall or other obstruction shall be 100 mm (4 in.) or less, or greater than 900 mm (36 in.), from the wall or obstruction.
(d) Horizontal openings in rooftops shall be protected by hinged metal doors or vertically lifting covers having a nonslip upper surface. Doors or covers shall be of sufficient strength to safely support a static load of not less than 14.4 kPa (300 lbf/ft²), uniformly distributed.
(e) When in the closed position, doors shall be flush with the landing sill.
(f) Such doors and covers shall conform to 5.6.1.11.3 or 5.6.1.11.4.
(g) All openings between rooftop door panels and frames shall be provided with minimum 50 mm (2 in.) gutters to collect rainwater. The gutters shall be piped rigidly to a discharge point exterior to the hoistway and pit.

7.2.1.1.5 Requirement 2.14.1.6 does not apply. Car tops shall be capable of sustaining a load of 3.5 kPa (75 lbf/ft²) without permanent deformation. The resulting deflection under this load shall be limited to prevent damage to any equipment, device, or lighting assemblies fastened to or adjacent to the car enclosure top.

8.2.2.1.1 Formula Symbols. The symbols used in the formulas in 8.2.2 shall have the following meaning:
A = net area of section, m² (in²)
B = inside clear width of car, mm (in.)
C = net weight of complete elevator car, kg (lb)
D = distance between guide rails, mm (in.)
E = modulus of elasticity of material used, MPa (psi)
G = load supported by crosshead with the maximum load for the class of loading in car at rest at top terminal landing, kgf (lbf)
H = vertical center distance between upper and lower guide shoes (or rollers), mm (in.)
I = moment of inertia of member, gross section, mm⁴ (in.⁴)
K = turning moment as determined by class of loading, N.mm (lbf-in.)
L = free length of uprights (distance from lowest fastening in crosshead to top fastening in plank), mm (in.)
R = least radius of gyration of section, mm (in.)
W = rated load, kg (lb)
Z = combined section moduli of plank members, gross section, mm³ (in.³)
ZU = section modulus of one upright, gross section, mm³ (in.³)

8.3.3.4.8 Static Test. After completion of the endurance test in 8.3.3.4.1, a type test shall be made consisting of a static force applied over a period of 300 s with the force increasing incrementally. The force shall be applied in the opening direction of the door and at a location as near to the locking element as possible, but not to exceed 300 mm (12 in.). The force shall be 1 000 N (225 lbf) in the case of a locking device intended for use with sliding doors, and 3 000 N (675 lbf) or 670 N (150 lbf) for private residence elevator applied at right angles to the panel evenly distributed over an area 5 cm² (0.78 in.²) in round or square section in the case of a locking device intended for use with swinging doors.

**Rationale:** Editorial correction of abbreviations used for pound mass (lb) and pound force (lbf) as outlined in ASME Preface for Abbreviations Used in This Code and to correct the spelling of “platform” in 2.7.5.3.2.
Add to A17.1-2013
This proposal introduces a Non-mandatory Appendix XX related to typical door closing times. Appendix XX is an extraction from a prior edition of B44 table J3. The relevant code sections of 8.6.3.8, 8.6.4.13.2, 8.6.4.19.8 and 8.6.5.14.6 have been modified to bring awareness to the proposed non-mandatory appendix XX.

8.6.3.8 Replacement of Door Reopening Device.
Where a reopening device for power-operated car doors or gates is replaced, the following requirements shall apply:
(a) The door closing force shall comply with the Code in effect at the time of the installation or alteration.
(b) The kinetic energy shall comply with the Code in effect at the time of the installation or alteration. See non-mandatory appendix XX where a data plate conforming to 2.13.4.2.4 was not required.
(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, 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).

Rationale:
Item (b) 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 XX provides guidance / best estimates of permissible door times which can be used to establish closing times in the absence of data tags.

Item (c) Editions of A17 or 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).

8.6.4.13.2 Kinetic Energy and Force Limitation for Automatic Closing, Horizontal Sliding Car and Hoistway Doors or Gates. Where a power-operated horizontally sliding door is closed by momentary pressure or by automatic means, the closing kinetic energy and closing force shall be maintained to conform to 2.13.4 and 2.13.5 See non-mandatory appendix XX where a data plate conforming to 2.13.4.2.4 was not required.

8.6.4.19.8 Power Operation of Door System.
The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.1). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate See non-mandatory appendix XX where a data plate conforming to 2.13.4.2.4 was not required.

8.6.5.14.6 Power Operation of Door System.
The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.2). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate See non-mandatory appendix XX where a data plate conforming to 2.13.4.2.4 was not required.

Rationale:
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 XX 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.
### NON-MANDATORY APPENDIX XX

**TYPICAL DOOR WEIGHTS AND MINIMUM CLOSING TIMES**

(See 2.13.4.2.4, 8.6.3.8, 8.6.4.13.2, 8.6.4.19.8, and 8.6.5.14.6)

#### SI units

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#### Imperial units

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**NOTES:**

1. This Table was developed to assist in maintenance inspection and Category 1 testing in accordance with 8.6 requirements where no data plate is provided in accordance with 2.13.4.2.4. Where a data plate is provided, data plate values prevail.
2. The data provided in the Table is based on a survey of several manufacturers and is intended to be used as a guideline only.
3. The Table covers sheet steel doors with painted surfaces without cladding.
4. Door closing times, expressed in the table as either normal speed, s, or reduced speed, s, are the times to travel from a point 50 mm (2 in.) away from jamb to a point 50 mm (2 in.) away from the opposite jamb for side opening doors. In the case of center-opening doors, time, s, is the time to travel from a point 25 mm (1 in.) away from jamb to a point 25 mm (1 in.) from the center.
5. In the absence of actual figures available from the manufacturer, use the upper limit of the range for adjustment and inspection purposes.
Proposed Revision to A17.1:

**8.7.3.22.2 Increase in Rated Speed.** Where an alteration increases the rated speed, the installation shall conform to the following:

(a) Requirement 2.5.
(b) Requirement 3.4.
(c) Requirements 3.21, 3.22.1 and 3.22.2, except that existing buffers, where retained, are not required to conform to referenced 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.

**8.7.3.27 Car Buffers and Bumpers.** Where alterations are made to car buffers or bumpers, the installation shall conform to 3.21, 3.22.1 and 3.22.2. Existing buffers are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.

*Rationale: To editorially correct requirement references made in A17.1-2000. Referenced requirement 3.21 is for COUNTERWEIGHTS, while the corrected requirement 3.22.1 appropriately references “Car Buffers or Bumpers.”*
Table N-1 Recommended Inspection and Test Intervals in “Months”

<table>
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<th>Reference Section</th>
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Note: Intervals in months.
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<td>Rack and pinion elevators</td>
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<td>-</td>
<td>12</td>
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Rationale: to update references in Table N-1 in A17.1.

Summary of editorial revisions:

- Strikeout for 8.11.5.8 editorially removed and the extra decimals have been editorially removed from 8.6.7.6.1 and 8.6.6.1.1
- The 8.6.5.15 reference has been editorially revised to 8.6.8.15
Revise A17.1 as follows:

8.4.8.6 Design and Construction Rail Joints

(h) The threaded portion of the bolts shall not occur in the shear plane of the guide rail fishplate assembly.

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.
Revise A17.1 as follows:

Section 9.1 Reference Documents

<table>
<thead>
<tr>
<th>Designation</th>
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Rationale: To make the table in section 9 consistent with TN 12-139.
Proposed corrections to ASME A17.1-2013/CSA B44-13

8.10.2.2.3(t) Hoistway Clearances (2.4 and 2.5) (Item 3.12.3.14)
8.10.2.2.3(dd) Compensating Means (2.21.4) (Item 3.34.3.33)
8.11.2.1.1(d) Car Floor and Landing Sill (Item 3.14.3.1.4)
8.11.2.1.3(dd) Compensation Means (Item 3.34.3.33)
8.11.2.1.3(qq) Sheaves with nonmetallic groove surfaces (see 8.6.4.18) (Item 3.34.3.25)
8.10.3.2.1(q) Emergency and Auxiliary Power (Item 1.17)
8.10.3.2.2(cc) Static Control Elevator. The person or firm installing a static control elevator shall demonstrate conformance with 3.25.2.4.4 (Item 2.41)
8.10.3.2.2(dd) Code Data Plate (8.9) (Item 2.14)
8.10.3.2.3(e) Normal Terminal Stopping Devices (3.25.1) (Item 2.29.3.5)
8.10.3.2.3(j) Identification [8.10.2.2.3(o)] (Item 3.9)
8.10.3.2.3(m) Pipes, Wiring, and Ducts (3.8) (Item 3.12)
8.10.3.2.3(kk) Earthquake inspection & tests (seismic Zone 2 or greater) (Item 3.34)
8.10.3.2.4(o) Elevator Parking Device (Item 4.9)
8.10.3.2.5(l) Counterweight (Item 3.28)
   (1) top clearance and bottom runby (3.4.6 and 3.22.2)
   (2) guards (3.3)
   (3) design (3.21)

[8.10.4.1.2] (m) Handrail Speed Monitor. The handrails operating mechanism shall be visually inspected for condition and the handrail speed monitor device shall be tested (6.1.6.4 or 6.2.6.4) (Items 7.12, 8.13, 9.12, and 10.13).

Rationale: to provide correct and missing Item references in 8.10 and 8.11. Also to provide for missing inspection and/or test requirements noted in A17.1/B44.
Revise A17.1 as follows:

8.7.2.15.2 Increase or Decrease in Deadweight of Car.
Where an alteration results in an increase or decrease in the deadweight of the car that is sufficient to increase or decrease the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to the following requirements:
(e) requirement 2.20, except as specified in 8.7.2.21.4.

Rationale: Highlight that an exemption to 2.20 exists in 8.7.2.21.

8.7.2.16.1 Change in Type of Service.
Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to:
(g) requirements 2.16, 2.20, 2.24 through 2.27, except
  (1) as specified in 8.7.2.21.4
  (2) 2.24.1

Rationale: Highlight that an exemption to 2.20 exists in 8.7.2.21.

8.7.2.16.4 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to the following:
(g) Requirement 2.20, except as specified in 8.7.2.21.4.

Rationale: Highlight that an exemption to 2.20 exists in 8.7.2.21.

8.7.2.17.2 Increase in Rated Speed
(b) Where the alteration involves an increase in the rated speed, except as specified in 8.7.2.17.2(c), the following requirements shall be conformed to:
  (10) Suspension ropes means and rope suspension member connection shall conform to 2.20, except as specified in 8.7.2.21.4.

Rationale: Highlight that an exemption to 2.20 exists in 8.7.2.21.

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 except as specified in 8.7.2.21.4. 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) Where there is a change to the type of suspension means the installation shall conform to 2.20.

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.
8.7.2.21.3 Addition of Auxiliary Suspension-Member-Fastening Devices.
Where auxiliary suspension-member-fastening devices are installed, they shall conform to 2.20.10

Rationale: More precisely identify the requirements related to auxiliary suspension-member fastening.

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.
(a) If a traction-loss detection means is provided altered or added, it shall comply with 2.20.8.1.
(b) If a broken suspension-member means detection means is provided altered or added, it shall comply with 2.20.8.2.
(c) If a suspension member residual strength detection means is altered or added, if shall comply with 2.20.8.3.
(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.

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 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 except as specified in 8.7.2.21.4, 2.24, and 2.26.8 except as specified in 8.7.2.21.4. 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 ropes means and their connections shall conform to 2.20 except as specified in 8.7.2.21.4. 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.
Revise A17.1 as follows:

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, except the visual and audible signal required by 2.27.1.1.6(b) shall be permitted to be located inside each car.

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, except the visual and audible signal required by 2.27.1.1.6(b) shall be permitted to be located inside each car.

Rationale:
The addition of an auto dialer telephone would fall under the scope of these alterations. If an existing auto dialer telephone was upgraded to a unit capable of line monitoring (an enhancement in safety) the requirements for new equipment installations in 2.27 would require an audible and visual signal to added to the lobby fire recall switch panel.

If the current panel does not exists, or could not accommodate the additional components needed to provide the audible and visual signal, a new or additional fixture would be required as well as a dedicated wire run from the car to the machine room to the lobby panel to support this audible/visual annunciation.

While switching an auto dialer telephone to a new unit with line monitoring is relatively simple, the difficulties associated with providing a lobby annunciation may be prohibitive and the line monitoring feature excluded.

This 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.
Proposed Revision to A17.1 Requirement 8.6.4.19.2 Safeties:

8.6.4.19.2 Safeties

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

Rationale: Both of these switches are important and test of their operation is needed to assure that they will perform their intended function.
8.6.8.15 Periodic Test Requirements — Category 1

8.6.8.15.1 Machine Room and Truss Interior Space: The condition of and access to machine rooms, the truss interior and all escalator components contained therein, space access, lighting, receptacles, operation, and conditions shall be examined, and if required, cleaned to perform the required inspections and tests of 8.6.8.15. The operation and adequacy of lighting and receptacles shall be checked. (Items 8.1 and 10.1). All escalator components shall be cleaned and examined. These components shall include, but not be limited to:

- a) oil drip pans
- b) upper and lower stations
- c) steps and rollers
- d) step frames, risers, and treads
- e) tracks
- f) truss components

Rationale: Clarification of the requirements.
Proposed Revision to A17.1, Requirements 8.6.1.7.5, 8.7.1.3, 8.10.1.5, 8.11.1.8 Devices Installed for Safe Operations:

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.

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 Devices Not Covered in 8.10. When any device on which the safety of users is dependent is installed that is not specifically covered in 8.10 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.

8.11.1.8 Devices Not Covered in 8.11. When any device on which the safety of users is dependent is installed that is not specifically covered in 8.11 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.

Rationale: 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.

In addition, manufacturers/installers sometimes include safety device and features beyond code requirement to enhance the safety of equipment. This may be done because of design features or to assure the maximum safety allowed by the state of technology. Also, compliance with ASME A17.7/CSA B44.7 may require additional safety features or devices.

8.6.1.6.1 already prohibits making a device on which the safety of users is dependent inoperative or ineffective. This proposal merely requires applicable testing to be performed. If the manufacturer installed it and considers it a device on which the safety of users is dependent, then the manufacturer must provide testing procedures and the AHJ must test it (assuming adoption of the applicable A17 requirements). Also, this is very similar to 8.6.1.2.1(f), which requires unique or product specific procedures to test equipment since the code does not contain the requirements for those devices.

While many jurisdiction follow the “If it’s there it has to work” rule of thumb and this is the assumed intent of 1.2, 8.6.1.6.1 and 8.7.1.2; it has sometimes been unclear whether these safety devices were required to function and be tested during acceptance and periodic tests. The addition of the above requirement allows the Code to clarify these issues.

Also, the addition of the above requirement would allow the Code to specify that inspection and test documentation be kept with the unit at all times, so that the safety devices may be properly inspected and tested.

The phrase “device on which safety of users is dependent” has been in A17.1 for many years without any apparent confusion and therefore is well understood in the elevator industry.
Proposed Revision to A17.1, 8.6.1.2.2(c) and 8.6.4.19.15:

8.6.1.2.2 On-Site Documentation

(c) Written checkout procedures:
   (1) to demonstrate E/E/PES function as intended (see 8.6.4.19.10)
   (2) for elevator leveling speed with open doors (see 8.6.4.20.8)
   (3) for hydraulic elevator over speed valve (see 8.6.5.16.5)
   (4) for escalator reversal stopping device (see 8.6.8.15.7)
   (5) for escalator handrail retarding force (see 8.6.8.15.13)
   (6) for two way communication means (see 8.6.4.19.15)

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.

Note: This proposed revision is based on language from TN 08-1348, which was approved in A17 Ballot 12-1117RC1 and has been published in A17.1-2013/B44-13.

8.6.4.19.15 Emergency Communications. 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 requirement for a checkout procedure for testing of the two-way communications means validating the automatic verification of line operability.
8.3.3.4.2 Current Interruption Test. After completion of the test specified by 8.3.3.4.1, the
device used therein shall satisfactorily complete the following additional tests, to check that the ability to
break a live circuit is adequate.

The tests shall be carried out with the locking device located in accordance with the
manufacturer’s drawings.

If several positions are indicated, the test shall be made in the position that the laboratory judges to be
the most unfavorable.

The sample tested shall be provided with covers and electrical wiring in accordance with the
manufacturer’s drawings.

(a) AC rated locking devices shall have their electrical parts connected to an inductive test
circuit comprised of a choke (inductor) and resistor in series having with a power factor of 0.7 ± 0.05 in
which a current of 11 times the rated current, at 110% of rated voltage, is flowing. The AC locking devices
shall open and close 50 times, at normal speed, and at intervals of 5 s to 10 s, with the contact remaining
closed for at least 0.5 s.

(b) DC rated locking devices shall have their electrical parts connected to an inductive test
circuit comprised of a choke (inductor) and resistor in series in which the current reaches 95% of the
steady state value of 110% of the rated current in 0.3 s maximum 0.27 ± 0.03 s, at 110% of rated voltage.
The DC locking devices shall open and close 20 times, at normal speed, and at intervals of 5 s to 10 s,
with the contact remaining closed for at least 0.5 s.

(c) The test results are considered satisfactory if no evidence of insulation breakdown due to
arcing or tracking occurs and if no deterioration occurs that could adversely affect safety.

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. The proposed change will
maintain the original maximum inductance in the test circuit with a rise time of 0.3 seconds while
establishing a minimum inductance with a rise time of 0.24 seconds. This allows the inductance used in
the test circuit to be within a ± 10% range.

For both AC and DC the proposed change harmonizes A17.1/B44 with EN81 by clearly indicating that the
inductive circuit is a series L/R test circuit used when performing the current interrupt test. Except for the
addition of the tolerance this proposed change would harmonize A17.1/B44 requirements for the DC
current interruption test with the requirements in EN81 (see EN81, Annex F(normative) F.1.2.4.2.2 “…the
current reaches 95% of the steady-state value of the test current in 300 ms”). In this case, for complete
harmonization EN81 should harmonize with A17.1/B44 by adding a similar tolerance.
Proposed changes to A17.1/B44 Elevator and Escalator Safety Code - 2013 Edition:

2.27.3.2.1 In jurisdictions not enforcing the NBCC, smoke detectors or other automatic fire detectors in environments not suitable for smoke detectors (fire alarm initiating devices) used to initiate Phase I Emergency Recall Operation shall be installed in conformance with the requirements of NFPA 72, and shall be located:
(a) at each elevator lobby served by the elevator
(b) in the associated elevator machine room, machinery space containing a motor controller or driving machine, control space, or control room
(c) in the elevator hoistway, when sprinklers are located in those hoistways.

Note 2.27.3.2.1(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.

2.27.3.2.2 In jurisdictions enforcing the NBCC, smoke detectors, or heat detectors in environments not suitable for smoke detectors (fire alarm initiating devices), used to initiate Phase I Emergency Recall Operation, shall be installed in conformance with the requirements of the NBCC, and shall be located:
(a) at each elevator lobby served by the elevator
(b) in the associated elevator machine room, machinery space containing a motor controller or driving machine, control space, or control room
(c) in the elevator hoistway, when sprinklers are located in those hoistways.

NOTE (2.27.3.2.2): Smoke and heat detectors (fire alarm initiating devices) are referred to as fire detectors in the NBCC. Pull stations are not deemed to be fire detectors.

Note 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.

Rationale:
These notes were added to clarify the existing requirement for FAIDs in the hoistway. Because of new technology, elevator machinery and elevator control spaces can now be located in elevator hoistways and, as such, FAIDs would be required in the hoistway.
2.26.4.3.1 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 solid-state devices are used.

*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.*

_Rationale: To clarify “positively opened” for the users of the Code. This also substantially harmonizes with EN 81._

Add to Section 9.1:

IEC 60947-5-1:2004  Low-voltage switchgear and control gear ANSI US, Canada

_Rationale: To add the necessary requirements to the reference documents section of the standard._
Proposed editorial revision:

8.3.11.3 The steps or pallets 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.

8.3.11.4 The load shall be applied normal to the tread surface to a plate 25 mm (1 in.) thick, 200 mm (8 in.) wide, and 300 mm (12 in.) long, located at the center of the step or pallet, with the 300 mm (12 in.) dimension in the direction of step or pallet travel.