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**Safety requirements for lifts  
(elevators) —  
Part 24:  
Convergence of lift requirements**

*Exigences de sécurité pour ascenseurs —*

*Partie 24: Convergence des exigences pour ascenseurs*



Reference number  
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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

The committee responsible for this document is ISO/TC 178, *Lifts, escalators and moving walks*.

A list of all parts in the ISO 22559 series can be found on the ISO website.

## Introduction

This document has been developed as a step towards the convergence of key requirements in the major world-wide lift codes and also the updating of ISO/TR 11071 (all parts).

ISO/TR 11071 (all parts) represents a comprehensive comparison of the major lift prescriptive safety standards in use at the time of publication. Since that time, there has been considerable harmonization and rationalization of various standards with the result that there are currently three major sets of prescriptive safety requirements in extensive use. These are the CEN EN 81 series of standards, the ASME A17 series/CSA B44 of standards, and the JIS TS A 0028-1 and the Building Standard Law of Japan (BSLJ).

The goal of this document is to provide recommendations to assist national committees, when reviewing and revising individual standards, to initiate convergence towards harmonization of the technical requirements.

This document expands the list of “agreed-upon points”, with a view to facilitate convergence of key requirements of the documents identified above.

In order to divide the work into manageable increments and set the priorities, it was deemed constructive to start with requirements for door locks, buffers, governors, safeties and brakes as the first step towards the complete lift.

In order to expedite the convergence process, the recommendations have been prioritized to implement the harmonization of requirements for safety components. The priorities are ranked as follows:

- a) Priority 1, where the design of safety components are directly affected;
- b) Priority 2, where the design of systems or requirement language only are affected.

NOTE Priority 1 includes items that should be harmonized first as it affects the design of the components directly. Priority 2 includes items that should be harmonized at a later stage as it affects the system or language only.

The comparison of requirements in different parts of the world indicated the importance of good engineering practice in the implementation of standards with regard to safety. It was concluded that guidance on good engineering practice was necessary and it would be best to provide this guidance in ISO/TS 22559-2, the scope of which covers this issue. It is important that this document be read in conjunction with ISO/TS 22559-2.

This document was prepared by the Task Force on Convergence (TFC) and is based on information and input provided by the code study groups from Europe (EUCSG), North America (NACSG) and Japan (JPCSG). After in-depth analysis of differences and rationale, the code study groups have agreed and formulated actions to be implemented in the course of development or revisions of standards in their respective regions. Completion of those actions will result in harmonization of code requirements for door locks, buffers, governors, safeties and brakes and will facilitate free circulation of those safety components around the world.

This document is intended for use by standard writers in order to implement the prescriptive recommendations when developing or revising standards.



# Safety requirements for lifts (elevators) —

## Part 24: Convergence of lift requirements

### 1 Scope

This document provides a comparison of the requirements for door locks, buffers, governors, safeties and brakes covered by the major prescriptive safety standards:

- a) CEN EN 81-1:1998+A3:2009;
- b) ASME A17.1-2010/CSA B44-10;
- c) JIS TS A 0028-1:2011;
- d) The Building Standard Law of Japan.

It also includes prescriptive recommendations to harmonize the requirements within those standards.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 22559-2:2010, CEN EN 81-1:1998 and its amendment CEN EN 81-1:1998/Amd. A3:2009, ASME A17.1-2010/CSA B44-10 and JIS TS A 0028-1:2011 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 4 Comparison of CEN-ASME/CSA-Japanese standards and prescriptive recommendations

#### 4.1 Door locks

[Table 1](#) contains a comparison of door locks in the CEN-ASME/CSA-Japanese standards and prescriptive recommendations prepared by the TFC.

Table 1 — Convergence of CEN-ASME-Japan elevator standards —Door locks

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                     | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                     | Japan                                                                                                                         | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                         |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>7.7.1 Locking and closed landing door check</b><br><b>Protection against the risk of falling</b><br>It shall not be possible in normal operation to open a landing door (or any of the panels in the case of a multi-panel door) unless the car has stopped, or is on the point of stopping, in the unlocking zone of that door.           | <b>SECTION 2.12</b><br><b>HOISTWAY DOOR LOCKING DEVICES AND ELECTRIC CONTACTS, AND HOISTWAY ACCESS SWITCHES</b><br><b>2.12.1 General</b><br><b>2.12.1.1</b> When the car is stopped within the unlocking zone, the hoistway doors shall be unlocked, or locked but openable from the landing side either manually or by power. | Basically, the unlocking zone is same as EN 81-1. Added the definition of Leveling, Re-leveling and door zone.                |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting language and parameters from EN 81-1.                                                              |
|      | NOTE For Emergency unlocking, see 7.7.3.2 i.                                                                                                                                                                                                                                                                                                  | <b>2.12.1.2</b> When the car is outside the unlocking zone, the hoistway doors shall be openable from the landing side only by a hoistway door unlocking device (see 2.12.6, 2.12.7, and Non-mandatory Appendix B).                                                                                                            |                                                                                                                               |                    |                                                                                                                                                                                                                                |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                                                                                                                         | <b>2.12.1.3</b> For security purposes, hoistway doors shall be permitted to be locked out of service, subject to the requirements of 2.11.6, NOTE For 2.12.1.4 and 2.12.1.5, see 7.7.3.                                                                                                                                        |                                                                                                                               |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting language and parameters from ASME A17.1/CSA B44.                                                   |
|      | <b>7.7.1</b> (second and third paragraphs)<br>The unlocking zone shall not extend more than 0,20 m above and below the landing level.<br>In the case, however, of mechanically operated car and landing doors operating simultaneously, the unlocking zone may extend to a maximum of 0,35 m above and below the landing level.               | <b>1.3 DEFINITIONS</b><br><b>Unlocking zone:</b> a zone extending from the landing floor level to a point not less than 75 mm (3 in.) nor more than 450 mm (18 in.) above and below the landing.<br><b>Leveling zone:</b> ±250 mm if manual levelling.                                                                         | (BSL)-EO 129-10 item 3 paragraphs 1 and 2) ±200 mm<br>New JIS is considered to be 350 mm.                                     |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting requirements similar to EN 81-1:1998, 7.7.1.                                                       |
|      | <b>7.7.2 Protection against shearing</b><br><b>7.7.2.1</b> With the exception of 7.7.2.2, it shall not be possible in normal operation to start the lift nor keep it in motion if a landing door, or any of the panels in the case of a multi-panel door is open. However, preliminary operations for the movement of the car may take place. | <b>1.3 Definitions</b><br><b>Hoistway door interlock:</b> a device having two related and interdependent functions, that are:<br>(a) to prevent the operation of the driving machine by the normal operating device unless the hoistway door is locked in the closed position;<br><b>NOT in ASME A17.1/CSA B44.</b>            | Basically, the unlocking zone is same as EN 81-1. Added the definition of preliminary operations for the movement of the car. |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting requirements similar to EN 81-1:1998, 7.7.2.                                                       |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                                                                                                                         | (b) to prevent the opening of the hoistway door from the landing side unless the car is within the landing zone and is either stopped or being stopped.                                                                                                                                                                        |                                                                                                                               |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting requirements similar to paragraph (b) of hoistway door interlock definition of ASME A17.1/CSA B44. |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                   | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Japan                         | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                       |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>7.7.2.2</b> Operation with doors open is permitted in the following zones:<br>a) in the unlocking zone to permit levelling or levelling at the corresponding floor level, provided the requirements of 14.2.1.2 are met; | <b>2.12.2.3 Operation of the Driving Machine With a Hoistway Door Unlocked or Not in the Closed Position.</b><br>Operation of the driving machine when a hoistway door is unlocked or not in the closed position (see 2.12.2.2) shall be permitted under one of the following conditions:<br>(a) by a car leveling or truck zoning device (see 2.26.1.6);<br>(b) when a hoistway access switch is operated (see 2.12.7);<br>(c) when a bypass switch is activated (see 2.26.1.5).                                                                                                                                                                                                                                                      | Same as EN 81-1               |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting language of of EN 81-1:1998, 7.7.2.2 and EN 81-1:1998, 14.2.1.2. |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | b) Excluded docking operation |                    |                                                                                                                                                                                              |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |                    |                                                                                                                                                                                              |
|      | b) in a zone extending to a maximum height of 1,65 m above the landing level to permit the loading or unloading of the car, provided the requirements of 8.4.3, 8.14 and 14.2.1.5 are met, and:                             | <b>2.26.1.6.4</b> The truck zone at any landing shall not extend more than 1 700 mm (67 in.) above the landing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |                    | This is a priority 2 item as it does not affect the door lock as a component.                                                                                                                |
|      | 1) the clear height between the landing door header and the floor of the car, in any position, shall not be less than 2 m;                                                                                                  | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                    |                                                                                                                                                                                              |
|      | 2) whatever the position of the car inside this zone, it must be possible, without special operation, to effect the complete closure of the landing door.                                                                   | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                    |                                                                                                                                                                                              |
|      | <b>7.7.3 Locking and emergency unlocking</b><br>Each landing door shall be provided with a locking device satisfying the conditions of 7.7.1.                                                                               | <b>2.12.2 Interlocks</b><br><b>2.12.2.1 General.</b> Each entrance at a landing to an elevator used for passengers or freight and not conforming to 2.12.3.1 shall be equipped with one or more interlocks meeting the design requirements of 2.12.2.4.<br><b>2.12.1.4</b> Passenger elevator hoistway doors shall be equipped with interlocks conforming to 2.12.2.<br><b>2.12.1.5</b> Freight elevator hoistway doors shall be equipped with interlocks conforming to 2.12.2 or combination mechanical locks and electric contacts conforming to, and where permitted by, 2.12.3.<br><b>2.12.2.6 Location.</b> Interlocks shall be so located that they are not accessible from the landing side when the hoistway doors are closed. | Same as EN 81-1               |                    | Proposals: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider using the term landing entrance in EN 81-1:1998, 7.7.3.                  |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |                    | Do not consider freight elevators at this stage.                                                                                                                                             |
|      | This device shall be protected against deliberate misuse.                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting language from ASME A17.1-2010/CSA B44-10, 2.12.2.6.              |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Japan                                                                                                                 | ISO/TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                  |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <p><b>7 Landing Doors</b></p> <p><b>7.1 General Provisions</b></p> <p>The openings in the well giving access to the lift car shall be provided with imperforate landing doors. When closed, the clearance between panels, or between panels and uprights, lintels or sills, shall be as small as possible. This condition is considered to be fulfilled when the operational clearances do not exceed 6 mm. This value due to wear, may reach 10 mm. These clearances are measured at the back of recesses, if present.</p> | <p><b>2.12.2.2 Closed Position of Hoistway Doors.</b> Hoistway doors shall be considered to be in the closed position under the following conditions. These dimensions apply to the doors in their normal operating condition (see 2.14.4.11):</p> <p>(a) for horizontally sliding or swinging doors, when the leading edge of the door is within 10 mm (0.375 in.) of the nearest face of the jamb or when the panels of centre-opening doors are within 10 mm (0.375 in.) of contact with each other;</p> <p>(b) for vertically sliding counterweighted doors, when the leading edge of the door is within 10 mm (0.375 in.) of the sill for doors that slide up to open, or 10 mm (0.375 in.) of the lintel for doors that slide down to open;</p> <p>(c) for vertically sliding biparting counterbalanced doors, when the astragal on the upper panel is within 19 mm (0.75 in.) of the lower panel.</p> | <p>The following sentence is deleted.</p> <p>"This value due to wear, may reach 10 mm."</p> <p>(10 mm is too big)</p> |                | <p>Proposal: Standards writing bodies to consider adopting the following proposed requirements:</p> <p>Priority 2 — Consider expanding of EN 81-1:1998, 7.1 to harmonize with ASME A17.1-2010/CSA B44-10, 2.12.2.2.</p> |
|      | <p><b>7.7.3.1 Locking</b></p> <p>The effective locking of the landing door in the closed position shall precede the movement of the car. However, preliminary operations for the movement of the car may take place. The locking must be proved by an electric safety device in conformity with 14.1.2.</p> <p><b>7.7.3.1.1</b> The car shall not be able to start until the locking elements are engaged by at least 7 mm. See Figure 3.</p>                                                                               | <p><b>2.12.2.4.3</b> 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 in 2.12.2.3.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Japan is considering adopting a 7 mm parameter. Same as EN 81-1</p> <p>The swing door is out of scope.</p>         |                | <p>Proposal: Standards writing bodies to consider adopting the following proposed requirements:</p> <p>Priority 2 — Consider adopting the text and diagram of EN 81-1:1998, 7.7.3.1.</p>                                |

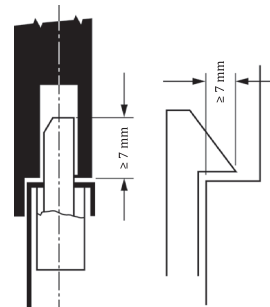


Figure 1 — Examples of locking elements

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Japan                                                                               | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                                                                                                                                             |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>2.12.2.4.3</b> (second paragraph)<br>Devices that permit operation of the driving machine by the normal operating device when the door is closed but before it is locked are not interlocks and are not permitted where interlocks are required by this Code.                                                                                                                                                                                                                                                                           |                                                                                     |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adopting ASME A17.1-2010/CSA B44-10, 2.12.2.4.3.<br>Consider adopting EN 81-1:1998, 14.1.2.                                                                                                                                  |
|      | <b>7.7.3.1.2</b> The element of the electric safety device proving the locked condition of the door panel(s) shall be positively operated without any intermediate mechanism by the locking element. It shall be foolproof but adjustable if necessary.<br><b>Specific case:</b> In the case of locking devices used in installations requiring special protection against risks of humidity or explosion, the connection may be only positive, provided the link between the mechanical lock and the element of the electric safety device proving the locked condition can only be interrupted by destroying deliberately the locking device. | <b>2.12.2.4 General Design Requirements.</b><br>Interlocks shall conform to 2.12.2.4.1 to 2.12.2.4.7.<br><b>2.12.2.4.1</b> Interlock contacts shall be positively opened by the locking member or by a member connected to and mechanically operated by the locking member, and the contacts shall be maintained in the open position by the action of gravity, or by a restrained compression spring, or by both, or by means of the opening member (see 2.26.2.14). Contacts shall be open when the hoistway door interlock is unlocked. | No specification (generally, positive opening contacts are used)<br>Same as EN 81-1 |                    | Proposals: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Accept EN 81-1:1998, 7.7.3.1.2 as modified:<br>“The element of the electric safety device proving the locked condition of the door panel(s) shall be positively operated without any intermediate mechanism by the locking element.” |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>2.12.2.4.1</b> (continuation)<br>If the contacts are maintained in the open position by other than the locking member, the interlock shall be located such that the contacts cannot be closed by hand from the car or landing when the doors are open.                                                                                                                                                                                                                                                                                  |                                                                                     |                    |                                                                                                                                                                                                                                                                                                                                                    |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>2.12.2.4.1</b> (second paragraph)<br>The electrical contact bridging means shall withstand a separating force of 200 N (45 lbf) in any direction from the locking member.                                                                                                                                                                                                                                                                                                                                                               |                                                                                     |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adding similar requirement as ASME A17.1-2010/CSA B44-10, 2.12.2.4.1 second paragraph, i.e. 200 N separating force.                                                                                                          |
|      | <b>7.7.3.1.3</b> For hinged doors, locking shall be effected as near as possible to the vertical closing edge(s) of the doors, and maintained even in the case of panels sagging.                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Not in JIS (swing door)                                                             |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 2 — Consider adopting EN 81-1:1998, 7.7.3.1.3.                                                                                                                                                                                            |
|      | <b>7.7.3.1.4</b> The locking elements and their fixings shall be resistant to shock, and be made or reinforced with metal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Same as EN 81-1                                                                     |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider performance based language and appropriate parameters rather than requirements for metal.<br>Priority 1 Consider adding the shock requirement. See also F. 1.2.2.3.                                                          |
|      | <b>7.7.3.1.5</b> The engagement of the locking elements shall be achieved in such a way that a force of 300 N in the opening direction of the door does not diminish the effectiveness of locking.                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Same as EN 81-1                                                                     |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adding requirements similar to EN 81-1:1998, 7.7.3.1.5, i.e. 300 N locking force.                                                                                                                                            |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                    | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                          | Japan               | ISO/TS 22559-2                                                                          | Comments and proposals for convergence                                                                                                                                                                                                                                                        |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>7.7.3.1.6</b> The lock shall resist, without permanent deformation during the test laid down in F.1, a minimum force at the level of the lock and in the direction of opening of the door of:                                                                                                                                                                                                                                             | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                    | Same as EN 81-1     |                                                                                         | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adding requirements similar to EN 81-1:1998, 7.7.3.1.6.                                                                                                                    |
|      | a) 1 000 N in the case of sliding doors;<br>b) 3 000 N on the locking pin, in the case of hinged doors.                                                                                                                                                                                                                                                                                                                                      | <b>8.3.3.4.8</b> (see also F.1.2.2.2.2):<br>...The force shall be 1 000 N (225 lb) in the case of a locking device intended for use with sliding doors, and 3 000 N (675 lb) ...in the case of locking device intended for use with swinging doors. | b) is out of scope. | 6.1.6 [p2]<br>When locked, locking device to resist an opening force $\geq 1\ 000\ N$ . |                                                                                                                                                                                                                                                                                               |
|      | <b>7.7.3.1.7</b> The locking action shall be effected and maintained by the action of gravity, permanent magnets, or springs. The springs shall act by compression, be guided and of such dimensions that, at the moment of unlocking, the coils are not compressed solid.                                                                                                                                                                   | <b>2.12.2.4.2</b> The locking member of the interlock shall hold the door in the locked position by means of gravity, or by a restrained compression spring, or by both, or by means of a positive linkage.                                         | Same as EN 81-1     |                                                                                         | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting EN 81-1:1998, 7.7.3.1.7.<br>Priority 1 — Consider deleting requirements for permanent magnets.<br>Priority 1 — Consider adding requirements for positive linkage. |
|      | <b>7.7.3.1.7</b> (second paragraph)<br>In the event of the permanent magnet (or spring) no longer fulfilling its function, gravity shall not cause unlocking.                                                                                                                                                                                                                                                                                | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                    | Same as EN 81-1     |                                                                                         | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting EN 81-1:1998, 7.7.3.1.7.                                                                                                                                          |
|      | <b>7.7.3.1.7</b> (third paragraph)<br>If the locking element is maintained in position by the action of a permanent magnet, it shall not be possible to neutralize its effect by simple means (e.g. heat or shock).                                                                                                                                                                                                                          | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                    | Same as EN 81-1     |                                                                                         | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 1 — Consider adding requirement from third paragraph of EN 81-1:1998, 7.7.3.1.7 if permanent magnets are retained.                                                                      |
|      | <b>7.7.3.1.8</b> The locking device shall be protected against the risk of an accumulation of dust, which could hinder its proper functioning.                                                                                                                                                                                                                                                                                               | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                    | Same as EN 81-1     |                                                                                         | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 1 — Consider adding the requirement in EN 81-1:1998, 7.7.3.1.8.                                                                                                                         |
|      | <b>7.7.3.1.9</b> Inspection of the working parts shall be easy, as, for example, by use of a vision panel.                                                                                                                                                                                                                                                                                                                                   | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                    | Same as EN 81-1     |                                                                                         | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 1 — Consider revising EN 81-1:1998, 7.7.3.1.9 to a performance requirement.                                                                                                             |
|      | <b>7.7.3.1.10</b> In the case where the lock contacts are in a box, the fixing screws for the cover shall be of the captive type, so that they remain in the holes in the cover or box when opening the cover.<br><b>0.3.19</b> (Assumption)<br>The fixing systems of guards or covers, which have to be removed during maintenance and inspection, remains attached to the guard or cover, or equipment when the guard or cover is removed. | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                    | Same as EN 81-1.    |                                                                                         | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 1 — Consider adoption of assumption EN 81-1:1998, 0.3.19.<br>Consider replacing EN 81-1:1998, 7.7.3.1.10 with EN 81-1:1998, 0.3.19.                                                     |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009 | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Japan      | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                    |
|------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Not in EN 81-1            | 2.12.2.4.5 Interlock systems employing a single master switch for more than one door are prohibited.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | NOT in JIS |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 2 — Consider deletion of ASME A17.1-2010/CSA B44-10, 2.12.2.4.5. |
|      | Not in EN 81-1            | 2.12.2.4.6 Mercury tube switches shall not be used.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NOT in JIS |                    |                                                                                                                                                                           |
|      | Not in EN 81-1            | <p><b>2.12.2.5 Interlock Retiring Cam Device.</b><br/>Retiring cams used to actuate an interlock shall exert a force at least double the average force required to operate the interlock and shall have a movement at least 13 mm (0.5 in.) more than the average movement required to operate the interlock.<br/>An interlock retiring cam device shall be permanently marked by the manufacturer with its rated horizontal force and rated horizontal movement.<br/>The rated horizontal force shall be the static force exerted by a retiring cam device in the horizontal direction when extended a distance equal to 75 % of its rated horizontal movement. The rated horizontal movement shall be the horizontal distance travelled by the retiring cam device from the fully retired position to the fully extended position.</p> |            |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adopting ASME A17.1-2010/CSA B44-10, 2.12.2.5.      |
|      | Not in EN 81-1            | <p><b>2.12.3 Hoistway Door Combination Mechanical Locks and Electric Contacts</b><br/><b>2.12.3.1 Where Permitted.</b> Hoistway door combination mechanical locks and electric contacts shall be permitted only on freight elevators equipped with manually operated vertically sliding doors and only at the following landings:<br/>(a) the top terminal landing and the landing whose sill is located not more than 1 225 mm (48 in.) below the top terminal landing sill, provided that the elevator rise does not exceed 4 570 mm (15 ft);<br/>(b) any landing whose sill is within 1 525 mm (60 in.) of the pit floor, regardless of the elevator rise.</p> <p>NOTE 2.12.3.2 to 2.12.3.5 are not copied since there are no corresponding requirements in EN 81-1.</p>                                                              | NOT in JIS |                    |                                                                                                                                                                           |

Table 1 (continued)

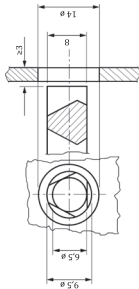
| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                       | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Japan                                                                       | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                 |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Not in EN 81-1                                                                                                                                                                                                                                                                                  | <b>2.12.5 Restricted Opening of Hoistway or Car Doors</b><br>Hoistway and car doors of passenger elevators shall conform to 2.12.5.1 to 2.12.5.3.<br><b>2.12.5.1</b> When a car is outside the unlocking zone, the hoistway doors or car doors shall be so arranged that the hoistway doors or car doors cannot be opened more than 100 mm (4 in.) from inside the car.<br><b>2.12.5.2</b> When the car doors are so arranged that they cannot be opened when the car is outside the unlocking zone, the car doors shall be openable from outside the car without the use of a special tool(s).<br><b>2.12.5.3</b> The doors shall be openable from within the car (see 2.14.5.7) when the car is within the unlocking zone.<br>NOTE (2.12.5) See also 2.12.1 and Nonmandatory Appendix B, Unlocking Zone. | NOT in JIS                                                                  |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adoption of ASME A17.1-2010/CSA B44-10, 2.12.5.     |
|      |                                                                                                                                                                                                                                                                                                 | <b>2.12.6 Hoistway Door Unlocking Devices</b><br><b>2.12.6.1 General.</b> Except in jurisdictions that limit the use of hoistway door unlocking devices, they shall be provided for use by elevator and emergency personnel for each elevator at every landing where there is an entrance.<br><b>2.12.6.2 Location and Design.</b> Hoistway door unlocking devices shall conform to 2.12.6.2.1 to 2.12.6.2.5.<br><b>2.12.6.2.1</b> The device shall unlock and permit the opening of a hoistway door from a landing irrespective of the position of the car.<br><b>2.12.6.2.4</b> The hoistway door unlocking device shall be Group 1 Security* (see 8.1). The operating means shall also be made available to emergency personnel during an emergency.                                                    | Same as EN 81-1 (Japan is going to use the triangle key)<br>Same as EN 81-1 |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adoption of ASME A17.1-2010/CSA B44-10, 2.12.6.2.1. |
|      | <b>7.7.3.2 Emergency unlocking</b><br>Each of the landing doors shall be capable of being unlocked from the outside with the aid of a key, which will fit the unlocking triangle as defined in Annex B.<br> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                             |                    |                                                                                                                                                                        |
|      | Keys of this type shall be given only to a responsible person.                                                                                                                                                                                                                                  | <b>*8.1.2 Group 1: Restricted</b><br><b>8.1.2 (k)</b> Requirement 2.12.6.2.4, hoistway door unlocking device. (Shall also be made available to emergency personnel during an emergency.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | NOT in JIS                                                                  |                    |                                                                                                                                                                        |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                   | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                      | Japan           | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                                                                 |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | They shall be accompanied by a written instruction detailing the essential precautions to be taken in order to avoid accidents which could result from an unlocking which was not followed by effective relocking.                          | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                | Same as EN 81-1 |                    |                                                                                                                                                                                                                                                                        |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                       | <b>2.12.6.2.2</b> The device shall be designed to prevent unlocking the door with common tools.                                                                                                                                                                                                                                 | NOT in JIS      |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting ASME A17.1-2010/CSA B44-10, 2.12.6.2.2.                                                                                                    |
|      | After an emergency unlocking, the locking device shall not be able to remain in the unlocked position with the landing door closed.                                                                                                         | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                | NOT in JIS      |                    |                                                                                                                                                                                                                                                                        |
|      | <b>Not in EN 81-1</b><br>NOTE 2.12.6.2.3 intended for "lock and contact" not for Interlocks.                                                                                                                                                | <b>2.12.6.2.3</b> Where a hoistway unlocking device consists of an arrangement whereby a releasing chain, permanently attached to a door locking mechanism, is kept under a locked panel adjacent to the landing door, such a panel shall be self-closing and self-locking and shall not have identifying markings on its face. | Same as EN 81-1 |                    |                                                                                                                                                                                                                                                                        |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                       | <b>2.12.6.2.5</b> The unlocking device keyway and locked panel (see 2.12.6.2.3), if provided, shall be located at a height not greater than 2 100 mm (83 in.) above the landing.                                                                                                                                                |                 |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider amending ASME A17.1-2010/CSA B44-10 2.12.6.2.5 to include the alternative use of special lock release tools where the height is greater than 2.1 m. |
|      | In the case of landing doors driven by the car door, a device (either weight or springs) shall ensure the automatic closing of the landing door if this door becomes open, for whatever reason, when the car is outside the unlocking zone. | <b>2.11.3 Closing of Hoistway Doors</b><br><b>2.11.3.1</b> Horizontally sliding or single-section swinging doors of automatic-operation elevators shall be provided with door closers arranged to close an open door automatically if the car, for any reason, leaves the landing zone.                                         |                 |                    |                                                                                                                                                                                                                                                                        |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                               | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Japan                                                                                           | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                             |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>7.7.3.3</b> The locking device is regarded as a safety component and shall be verified according to the requirements in <b>F.1</b> .                                                                                                                                                 | <p><b>2.12.4 Listing/Certification Door Locking Devices and Door or Gate Electric Contacts</b></p> <p><b>2.12.4.1 Type Tests.</b> Each type and make of hoistway door interlock, hoistway door combination mechanical lock and electric contact, and door or gate electric contact shall conform to the type tests specified in 8.3.3, unless tested prior to:</p> <p>(a) August 1, 1996, and shall have been subjected to the tests specified in A17.1a-1994, Section 1101;</p> <p>(b) March 23, 2002 in jurisdictions enforcing CSA B44 and shall have been subjected to the tests specified in CSA B44S1-97, 11.5. The tests shall be done by or under the supervision of a certifying organization.</p> <p><b>2.12.4.2 Listing/Certification.</b> Each type and make of hoistway door interlock, hoistway door combination mechanical lock and electric contact, and door or gate electric contact shall conform to the general requirements for tests and certification specified in 8.3.1.</p> | Same as EN 81-1. But the locking device is not in the category of safety device in new notice.) |                    | See section in table below pertaining to EN 81-1 and ASME A17.1-2010/CSA B44-10 test requirements<br><br>NOTE EU administrative requirements are contained in the Lifts Directive. |
|      | <b>7.7.4 Electrical device for proving the landing door closed</b><br><b>7.7.4.1</b> Each landing door shall be provided with an electric safety device in conformity with <b>14.1.2</b> for proving the closed position, so that the conditions imposed by <b>7.7.2</b> are satisfied. | <p><b>2.26.2.14 Hoistway Door Interlocks and Hoistway Door Electric Contacts.</b><br/>Hoistway door interlocks or hoistway door electric contacts conforming to 2.12 shall be provided for all elevators.</p> <p><b>2.26.4.3</b> The devices covered by 2.26.2 shall meet the requirements of either 2.26.4.3.1 or 2.26.4.3.2.</p> <p><b>2.26.4.3.1</b> They shall have contacts that are positively opened mechanically; their opening shall not be solely dependent on springs. Exceptions are devices...</p> <p><b>2.12.2.4.4</b> Interlocks, used with multisection doors, shall conform to the following requirements:</p>                                                                                                                                                                                                                                                                                                                                                                      | Same as EN 81-1                                                                                 |                    | Proposals: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting EN 81-1:1998, 7.7.4.1 and EN 81-1:1998, 7.7.4.2.      |
|      | <b>7.7.4.2</b> In the case of horizontally sliding landing doors, coupled with car doors, this device may be in common with the device for proving the locked condition, provided that it is dependent upon the effective closing of the landing door.                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Same as EN 81-1                                                                                 |                    |                                                                                                                                                                                    |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                      | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Japan                           | ISO/<br>TS 22559-2 | Comments and proposals for convergence |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------|----------------------------------------|
|      | <b>Not in EN 81-1</b>                                                                                                                                                                          | (b) Where used with vertically sliding biparting counter balanced doors, they shall be so arranged that the interlock contacts are mechanically held in the open position by the door or devices attached thereto, unless the door is in the closed position.<br>(c) Where used with centre-opening horizontally swinging doors, either<br>(1) both door panels shall be equipped with interlocks, or                                                                                                                                                                         | NOT in JIS<br>(out of scope)    |                    |                                        |
|      | <b>7.7.4.3</b> In the case of hinged landing doors, this device shall be placed adjacent to the closing edge of the door or on the mechanical device proving the closed condition of the door. | (2) where the door panels are so arranged that one panel can be opened only after the other panel has been opened, the interlock is not required on the section that opens last, if that door panel is provided with a door electric contact conforming to 2.14.4.2.3, 2.14.4.2.5, and 2.26.2.15, except that terms "door or gate" and "car door or gate" shall be replaced with the term "hoistway door" or "hoistway door section" and the term "accessible from inside the car panel" with the term "accessible from the landing side when the hoistway doors are closed." | The swing door is out of scope. |                    |                                        |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                          | (d) Where used with combination horizontally sliding and swinging doors, either<br>(1) the sliding and swinging panels shall both be equipped with interlocks, or<br>(2) where the sliding and swinging panels are interconnected in conformity with the requirements of 2.11.13.5, the interlock is not required on the swinging panel, provided that the interlock on the sliding panel is so designed and installed that the car cannot be operated unless the sliding and swinging panels are both locked in the closed position, as defined in 2.12.2.2.                 | NOT in JIS<br>(out of scope)    |                    |                                        |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                          | (e) Where a door closer, used with a combination sliding and swinging door, is arranged to be disconnected to allow the sliding panel to swing, it shall be so designed and installed that it shall not make the interlock contact when disconnected and released.                                                                                                                                                                                                                                                                                                            | NOT in JIS<br>(out of scope)    |                    |                                        |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                  | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Japan                          | ISO/TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                                                                                                                                                                                         |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <p><b>7.7.5</b> Requirements common to devices for proving the locked condition and the closed condition of the door</p> <p><b>7.7.5.1</b> It shall not be possible, from positions normally accessible to persons, to operate the lift with a landing door open or unlocked, after one single action not forming part of the normal operating sequence.</p>                                                                                               | <p><b>2.26.1.5 Inspection Operation With Open Door Circuits.</b></p> <p>A single set of switches marked "CAR DOOR BYPASS" and "HOISTWAY DOOR BYPASS" shall be provided in the elevator controller enclosure containing the car door and gate electric contact circuits and hoistway door interlock and hoistway door electric contact circuits (see 2.26.2.14 and 2.26.2.15); except where the switches are not accessible from outside the hoistway, they shall be located in the inspection and test panel (see 2.7.6.5). The switches shall prepare the control system so that, only when top-of-car or in-car inspection operation is activated, the car shall be permitted to be moved with open door contacts. The switches shall conform to 2.26.1.5.1 to 2.26.1.5.8.</p> | The swing door is out of scope |                | <p>Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting EN 81-1:1998, 7.7.5 and add ASME A17.1-2010/CSA B44-10, 2.12.2.4.1 to EN 81-1:1998, 7.7.5.2 text for clarity.</p> <p>Priority 2 — Consider the addition of "inspection operation with open door circuits" (i.e. bypass operation) to EN 81-1:1998, 7.7.5.1.</p> |
|      | <p><b>7.7.5.2</b> The means used to prove the position of a locking element shall have positive operation.</p>                                                                                                                                                                                                                                                                                                                                             | <p><b>2.12.2.4.1</b> Interlock contacts shall be positively opened by the locking member or by a member connected to and mechanically operated by the locking member, and the contacts shall be maintained in the open position by the action of gravity, or by a restrained compression spring, or by both, or by means of the opening member (see 2.26.2.14). Contacts shall be open when the hoistway door interlock is unlocked</p>                                                                                                                                                                                                                                                                                                                                          | Same as EN 81-1.               |                |                                                                                                                                                                                                                                                                                                                                                                                                |
|      | <p><b>7.7.6 Sliding doors with multiple, mechanically linked panels</b></p> <p><b>7.7.6.1</b> If a sliding door comprises several directly mechanically linked panels, it is permitted: a) to place the device required in 7.7.4.1 or 7.7.4.2 on a single panel, and b) to lock only one panel, provided that this single locking prevents the opening of the other panel(s) by hooking the panels in the closed position in case of telescopic doors.</p> | <p><b>2.12.2.4.4</b> Interlocks, used with multisection doors, shall conform to the following requirements: (a) They shall lock all sections of the door, but shall be permitted to be applied to only one section of the door, provided the device used to interconnect the door sections is so arranged that locking one section will prevent the opening of all sections.</p>                                                                                                                                                                                                                                                                                                                                                                                                 | Same as EN 81-1.               |                | <p>Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider harmonizing ASME A17.1-2010/CSA B44-10, 2.12.2.4.4 with EN 81-1:1997, 7.7.6 requirements.</p>                                                                                                                                                                            |
|      | <p><b>7.7.6.2</b> If a sliding door comprises several indirectly, mechanically linked panels (e.g. by rope, belt or chain), it is permitted to lock only one panel, provided that this single locking will prevent the opening of other panels, and that these are not fitted with a handle.</p>                                                                                                                                                           | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Same as EN 81-1.               |                |                                                                                                                                                                                                                                                                                                                                                                                                |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                   | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                                                                                            |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | The closed position of the other panel(s), not locked by the locking device, shall be proved by an electric safety device in conformity with 14.1.2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | NOTE The following is partially repeated from 2.12.2.2.4.4 (c) copied in line with 7.7.4.3 above.<br><br>2.12.2.2.4.4 (c)(2) where the door panels are so arranged that one panel can be opened only after the other panel has been opened, the interlock is not required on the section that opens last, if that door panel is provided with a door electric contact conforming to 2.14.4.2.3, 2.14.4.2.5, and 2.26.2.15                                    |       |                    |                                                                                                                                                                                                                                                                                                   |
|      | <b>14.1.2.2 Safety contacts</b><br><b>14.1.2.2.1</b> The operation of a safety contact shall be by positive separation of the circuit-breaking devices. This separation shall occur even if the contacts have welded together.<br>The design of a safety contact shall be such as to minimize the risk of a short-circuit resulting from component failure.<br><br>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. | <b>2.26.4.3</b> The devices covered by 2.26.2 shall meet the requirements of either 2.26.4.3.1 or 2.26.4.3.2 [PESRAL].<br><b>2.26.4.3.1</b> They shall have contacts that are positively opened mechanically; their opening shall not be solely dependent on springs. Exceptions are devices described by 2.26.2.4, 2.26.2.19, 2.26.2.29, and 2.26.2.30; and 2.26.2.12 and 2.26.2.16 where magnetically operated, optical, or static-type switches are used. |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 2 — Consider adding requirements for interruption of circuit in case of welded contacts as per EN 81-1:1998, 14.1.2.2.1.                                                                 |
|      | <b>14.1.2.2.2</b> The safety contacts shall be provided for a rated insulation voltage of 250 V if the enclosure provides a degree of protection of at least IP 4X, or 500 V if the degree of protection of the enclosure is less than IP 4X.<br>The safety contacts shall belong to the following categories as defined in EN 60947-5-1:<br>a) AC-15 for safety contacts in AC circuits;<br>b) DC-13 for safety contacts in DC circuits.                                                                                                                                                                                                                                    | <b>Not in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adoption of EN 81-1:1998, 14.1.2.2.2, 14.1.2.2.3, 14.1.2.2.4, and 14.1.2.2.5.                                                                                               |
|      | <b>14.1.2.2.3</b> If the degree of protection is equal or less than IP4X, the clearances shall be at least 3 mm, the creepage distances at least 4 mm and the distances for breaking contacts at least 4 mm after separation. If the protection is better than IP4X the creepage distance can be reduced to 3 mm.                                                                                                                                                                                                                                                                                                                                                            | <b>See 8.3.3.4.9</b>                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider clearance and creepage parameters and background for the purpose of identifying any variations and discrepancies. See CSA B44.1/ASME A17.5, IEC 60947-5-1, and JISC 0664-1. |
|      | <b>14.1.2.2.4</b> In the case of multiple breaks, the distance after separation between the contacts shall be at least 2 mm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Not in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                    |                                                                                                                                                                                                                                                                                                   |
|      | <b>14.1.2.2.5</b> Abrasion of conductive material shall not lead to short circuiting of contacts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Not in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                    |                                                                                                                                                                                                                                                                                                   |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Japan                                                                           | ISO/TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <p><b>15.13 Locking Devices</b><br/>On locking devices, a data plate shall be fixed indicating</p> <p>a) the name of the manufacturer of the locking devices, and</p> <p>b) the type examination sign and its references.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p><b>2.12.4.3 Identification Marking.</b> Each listed/certified device shall be labelled. It shall be permanently attached to the device, and shall be so located as to be readily visible when the device is installed in its operating position. The labels shall include the following data:</p> <p>(a) the name, trademark, or certifying organization file number by which the organization that manufactured the product can be identified;</p> <p>(b) the certifying organization name or identifying symbol;</p> <p>(c) statement of compliance with ASME A17.1 or CSA B44;</p> <p>(d) a distinctive type, model, or style letter or number;</p> <p>(e) rated voltage and current, and whether AC or DC;</p> <p>(f) rated test force and rated test movement when the device is of a type released by an interlock retiring cam (see 8.3.4.7);</p> <p>(g) date (month and year) devices subjected to type test specified in 2.12.4.1;</p> <p>(h) if the device has only been type-tested and listed/certified for use on a private residence elevator, the label shall indicate the restricted use.</p> | <p>Same as EN 81-1.<br/>(The certification system is under study.)</p>          |                | <p>Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br/>Priority 2 — Consider removing these requirements from the ASME A17.1/CSA B44 label and having them added to the report.<br/>Priority 2 — Clarify the meaning of EN 81-1:1998, 15.13 b).</p> |
|      | <p><b>Annex F (normative)</b><br/><b>Safety components — Tests procedures for verification of conformity</b></p> <p><b>F.0 Introduction</b></p> <p><b>F.0.1 General provisions</b></p> <p><b>F.0.1.1</b> For the purposes of this standard, it is assumed that the laboratory undertakes both the testing and the certification as an approved body. An approved body may be that of a manufacturer operating an approved full quality assurance system. In certain cases, the test laboratory and the body approved for the issue of type examination certificates may be separate. In these cases, the administrative procedures may differ from those described in this annex.</p> | <p><b>SECTION 8.3</b><br/><b>ENGINEERING TESTS, TYPE TESTS, AND CERTIFICATION</b></p> <p><b>8.3.1 General Requirements for Tests and Certification</b></p> <p><b>8.3.1.1 General</b></p> <p>(a) Type Tests (see 1.3) shall be carried out when required.</p> <p>(b) Engineering Tests (see 1.3) shall be carried out when required.</p> <p>(c) The tests shall be permitted to be made by laboratories other than the certifying organization or manufacturers, but the responsibility shall remain with the original certifying organization.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Same as EN 81-1<br/><b>But Annex F is informative.</b><br/>(under study)</p> |                | <p>Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br/>Priority 2: Consider including the text of Annex F.<br/>Priority 2 — Consider revision for administrative and general requirements for testing to be harmonized with Annex F.</p>            |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                          | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <p><b>F.0.1.2</b> The application for type examination shall be made by the manufacturer of the component or his authorized representative and shall be addressed to an approved test laboratory.</p> <p>NOTE At the request of the laboratory, the necessary documents may be required in triplicate. The laboratory may likewise call for supplementary information, which might be necessary for the examination and tests.</p> | <p><b>8.3.1.2 Application for Certification</b><br/> <b>8.3.1.2.1</b> The application for engineering or type tests shall be made by the component manufacturer, equipment manufacturer, installer, or importer.</p> <p><b>8.3.1.2.2</b> The application shall include:<br/> (a) the manufacturer's name and the equipment or component designation or model;<br/> (b) two sets of assembly and detail drawings showing details as specified in 8.3;<br/> (c) a description of the elevator component or equipment, and its field of application, along with calculated performance feature.</p> <p><b>NOT in ASME A17.1/CSA B44</b></p> |       |                    |                                                                                                                                                                       |
|      | <p><b>F.0.1.3</b> The despatch of samples for examination shall be made by agreement between the laboratory and the applicant.</p> <p><b>F.0.1.4</b> The applicant may attend the tests.</p>                                                                                                                                                                                                                                       | <p><b>8.3.1.3.4</b> The applicant shall be permitted to examine and copy the test records upon request.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                    |                                                                                                                                                                       |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                                                                                                                                                                                                              | <p><b>8.3.1.4 Changes to Listed/Certified Components or Equipment</b><br/> <b>8.3.1.4.1</b> Where any change is made in the design of the component or equipment after certification, including changes resulting from the revisions in applicable code requirements, revised drawings showing such changes shall be filed with the original or other certifying organization. The certifying organization shall issue to the applicant a revised certificate, based upon the previous test results or any new tests that are needed, depending on the nature of the changes.</p>                                                        |       |                    |                                                                                                                                                                       |
|      | <p><b>F.0.1.5</b> If the laboratory entrusted with the complete examination of one of the components requiring the supply of a type examination certificate has no available appropriate means for certain tests or examinations, it may, under its responsibility, have these made by other laboratories.</p>                                                                                                                     | <p><b>The following is partial repeat of 8.3.1.1 shown in line with F.0.1.1</b><br/> (c) The tests shall be permitted to be made by laboratories other than the certifying organization or manufacturers, but the responsibility shall remain with the original certifying organization.</p>                                                                                                                                                                                                                                                                                                                                             |       |                    |                                                                                                                                                                       |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                                                                                                                                                                                                              | <p><b>8.3.1.4.2</b> Changes in the design that do not affect the performance of the component or equipment shall be permitted to be made without the approval of the certifying organization. The certifying organization shall be apprised in writing of the change.</p>                                                                                                                                                                                                                                                                                                                                                                |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adopting ASME A17.1-2010/CSA B44-10, 8.3.1.4.2. |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                               | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                             | Japan                                                                   | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                     |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>F.0.1.6</b> The precision of the instruments shall allow, unless particularly specified, measurements to be made within the following tolerances:<br>a) $\pm 1$ % masses, forces, distances, speeds;<br>b) $\pm 2$ % accelerations, retardations;<br>c) $\pm 5$ % voltages, currents;<br>d) $\pm 5$ °C temperatures; | <b>8.3.1.5 Testing Instruments.</b> The precision of the instruments shall allow measurements to be made, unless otherwise specified, within the following tolerances:<br>(a) $\pm 1$ % — masses, forces, distances, time, speeds, and hydraulic pressure;<br>(b) $\pm 2$ % — accelerations, retardations, and flow rating;<br>(c) $\pm 5$ % — voltages and currents;<br>(d) $\pm 10$ % — temperatures |                                                                         |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting F.0.1.6 d) temperature tolerance.                                              |
|      | e) recording equipment shall be capable of detecting signals, which vary in time of 0,01 s.                                                                                                                                                                                                                             | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                         |                    |                                                                                                                                                                                                            |
|      | <b>F.1 Landing door locking devices</b>                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                        | Landing door locking device is not a safety device in new BSLJ in 2008. |                    |                                                                                                                                                                                                            |
|      | <b>F.1.1 General provisions</b><br><b>F.1.1.1 Field of application</b><br>These procedures are applicable to locking devices for lift landing doors. It is understood that each component taking part in the locking of landing doors and in the checking of the locking forms part of the locking device.              | <b>8.3.3 Type Tests of Interlocks, Combination Mechanical Locks and Electric Contacts, and Door or Gate Electric Contacts</b>                                                                                                                                                                                                                                                                          |                                                                         |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Clarify certification requirements for hoistway door and car door electric contacts.             |
|      | <b>F.1.2 Object and extent of the test</b><br>The locking device shall be submitted to a test procedure to verify that insofar as construction and operation are concerned, it conforms to the requirements imposed by this standard.                                                                                   | <b>8.3.3.1 General.</b> This Section specifies the type test of hoistway door interlocks, car door interlocks, combination mechanical locks and electric contacts, and hoistway door and car door or gate electric contacts.                                                                                                                                                                           |                                                                         |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider harmonizing ASME A17.1-2010/CSA B44-10, 8.3.3.2 with EN 81-1:1998, F.1.1.2 and F.1.1.3. |
|      | It shall be checked in particular that the mechanical and electrical components of the device are of adequate size and that in the course of time, the device does not lose its effectiveness, particularly through wear.                                                                                               | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                         |                    |                                                                                                                                                                                                            |
|      | If the locking device is needed to satisfy particular requirements (waterproof, dust proof or explosion proof construction), the applicant shall specify this and supplementary examinations and/or tests under appropriate criteria shall be made.                                                                     | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                         |                    |                                                                                                                                                                                                            |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                         | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                           |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <p><b>F.1.1.3 Documents to be submitted</b><br/>The following documents shall be attached to the application for a type test:</p> <p><b>F.1.1.3.1</b> Schematic arrangement drawing with description of operation<br/>This drawing shall show clearly all the details relating to the operation and the safety of the locking device, including:</p> <ul style="list-style-type: none"> <li>a) the operation of the device in normal service showing the effective engagement of the locking elements and the point at which the electrical safety device operates;</li> <li>b) the operation of the device for mechanical checking of the locking position if this device exists;</li> <li>c) the control and operation of the emergency unlocking device;</li> <li>d) the type (AC and/or DC) and the rated voltage and rated current.</li> </ul> | <p><b>8.3.1.2.2</b><br/>(b) two sets of assembly and detail drawings showing details as specified in 8.3;<br/>(c) a description of the elevator component or equipment, and its field of application, along with calculated performance feature.</p>                                                                                                                                                                                               |       |                    |                                                                                                                                                                  |
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p><b>NOT addressed in ASME A17.1/CSA B44</b></p>                                                                                                                                                                                                                                                                                                                                                                                                  |       |                    |                                                                                                                                                                  |
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p><b>8.3.3.3.1 Connections for and Test of Electrical Parts.</b> During the tests ....., the devices shall have their electrical parts connected in a noninductive electrical circuit having a constant resistance and in which a current of twice the rated current at rated voltage is flowing. The electric circuit shall be closed, but shall not be broken at the contact within the device on each cycle of operation during the tests.</p> |       |                    |                                                                                                                                                                  |
|      | <p><b>F.1.1.3.2</b> Assembly drawing with key<br/>This drawing shall show all parts, which are important to the operation of the locking device, in particular those required to conform to requirements of this standard. A key shall indicate the list of principal parts, the type of materials used, and the characteristics of the fixing elements.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p><b>NOT specifically covered in ASME A17.1/CSA B44</b></p>                                                                                                                                                                                                                                                                                                                                                                                       |       |                    |                                                                                                                                                                  |
|      | <p><b>F.1.1.4 Test samples</b><br/>One door locking device shall be submitted to the laboratory.<br/>If the test is carried out on a prototype, it shall be repeated later on a production model.<br/>If the test of the locking device is only possible when the device is mounted in the corresponding door (for example, sliding doors with several panels or hinged doors with several panels), the device shall be mounted on a complete door in working order. However, the door dimensions may be reduced by comparison with a production model, on condition that this does not falsify the test results.</p>                                                                                                                                                                                                                               | <p><b>NOT specified in ASME A17.1/CSA B44</b></p>                                                                                                                                                                                                                                                                                                                                                                                                  |       |                    | <p>Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br/>Priority 1 — Consider adoption of EN 81-1:1998, F.1.1.4.</p> |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                | Japan | ISO/TS 22559-2 | Comments and proposals for convergence                                                                                                               |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | NOT specified or permitted in EN 81-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>8.3.3.3.4 Tests of Hoistway Door (Runway Door) Combination Mechanical Locks and Electric Contacts.</b><br>The testing equipment shall actuate the mechanical locking members of hoistway door (runway door) combination mechanical locks and electric contacts to unlock at each cycle of operation during the tests specified by 8.3.3.4.1, 8.3.3.4.3, and 8.3.3.4.4. |       |                |                                                                                                                                                      |
|      | <b>F.1.2 Examination and tests</b><br><b>F.1.2.1 Examination of operation</b><br>This examination has the aim of verifying that the mechanical and electrical components of the locking device are operating correctly with respect to safety, and in conformity with the requirements of this standard, and that the device is in conformity with the particulars provided in the application. In particular it shall be verified:<br>a) that there is at least 7 mm engagement of the locking elements before the electric safety device operates. Examples are shown in 7.7.3.1.1.<br>b) that it is not possible from positions normally accessible to persons to operate the lift with a door open or unlocked, after one single action, not forming part of the normal operation (7.7.5.1). | <b>8.3.3.4.10 Examination of Operation.</b><br>Verify that there is at least 7 mm (0.28 in.) engagement of the locking elements before the hoistway door interlock contact closes.                                                                                                                                                                                        |       |                | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 2 — Consider adopting EN 81-1:1998, F.1.2.1 |
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                          |       |                |                                                                                                                                                      |
|      | <b>F.1.2.2 Mechanical tests</b><br>These tests have the purpose of verifying the strength of the mechanical locking components and the electrical components.<br>The sample to the locking device in its normal operating position is controlled by the devices normally used to operate it.<br>The sample shall be lubricated in accordance with the requirements of the manufacturer of the locking device.<br>When there are several possible means of control and positions of operation, the endurance test shall be made in the arrangement which is regarded as the most unfavourable from the point of view of the forces on the components.                                                                                                                                             | <b>F.1.2.2 NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                  |       |                | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adopting EN 81-1, F.1.2.2.     |
|      | The number of complete cycles of operation and the travel of the locking components shall be registered by mechanical or electrical counters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>8.3.3.4 Required Tests and Procedure.</b><br>Each device submitted shall be subjected to and shall successfully pass the following tests                                                                                                                                                                                                                               |       |                |                                                                                                                                                      |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                    | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                                    |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>F.1.2.2.1 Endurance test</b><br><b>F.1.2.2.1.1</b> The locking device shall be submitted to 1 000 000 ( $\pm 1$ %) complete cycles; one cycle comprises one forward and return movement over the full travel possible in both directions. | <b>8.3.3.4.1 Endurance Test.</b> The device, lubricated in accordance with the manufacturer's instructions, shall complete 960 000 cycles of operation without failure of any kind, without excessive wearing or loosening of parts, or without undue burning or pitting of the contacts (see 8.3.3.3.1). For private residence elevators, the number of cycles shall be reduced to 25 000.                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 1 — Consider adoption of EN 81-1:1998, F.1.2.2.1.                                                                                   |
|      | The driving of the device shall be smooth, without shocks, and at a rate of 60 ( $\pm 10$ %) cycles per minute.                                                                                                                              | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                    |                                                                                                                                                                                                                                           |
|      | During the endurance test, the electrical contact of the lock shall close a resistive circuit under the rated voltage and at a current value double that of the rated current.                                                               | <b>8.3.3.3.1 Connections for and Test of Electrical Parts.</b> During the tests ....., the devices shall have their electrical parts connected in a noninductive electrical circuit having a constant resistance and in which a current of twice the rated current at rated voltage is flowing. The electric circuit shall be closed, but shall not be broken at the contact within the device on each cycle of operation during the tests.                                                                                                                                                                                                                                                                                                                                                                                            |       |                    |                                                                                                                                                                                                                                           |
|      | <b>Not in EN 81-1</b>                                                                                                                                                                                                                        | <b>8.3.3.4.3 Test Without Lubricant.</b> After completion of the test specified by 8.3.3.4.2, the device used therein shall be used for this test.<br>The device, except self-lubricating bearings and bearings of a type not requiring frequent replenishment of lubricant, shall then be taken apart and freed of lubricant by washing in nonflammable liquids having cleansing characteristics.<br>After reassembling, the device shall, without other than the usual initial adjustment (i.e. without adjustment especially made to meet the conditions of the particular test) and without further attention, complete 25 000 cycles or 20 000 cycles for private residence elevator of operation without failure of any kind, without excessive wearing or loosening of parts, and without undue burning or pitting of contacts. |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 1 — Consider adopting ASME A17.1-2010/CSA B44-10, 8.3.3.4.3, 8.3.3.4.4, 8.3.3.4.5, 8.3.3.4.6, 8.3.3.4.7, 8.3.3.4.9, and 8.3.3.4.11. |
|      |                                                                                                                                                                                                                                              | <b>ASME A17.1-2010/CSA B44-10, 8.3.3.4.3 to 8.3.3.4.9 and also 8.3.3.4.11 are not in EN 81-1.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                    |                                                                                                                                                                                                                                           |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                       | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|----------------------------------------|
|      | F.1.2.2.1.2 If the locking device is provided with a mechanical checking device for the locking pin or the position of the locking element, this device shall be submitted to an endurance test of 100 000 ( $\pm 1$ %) cycles. | NOT in ASME A17.1/CSA B44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                    |                                        |
|      | The driving of the device shall be smooth, without shocks, and at a rate of 60 ( $\pm 10$ %) cycles per minute.                                                                                                                 | NOT in ASME A17.1/CSA B44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                    |                                        |
|      |                                                                                                                                                                                                                                 | <p><b>8.3.3.4.4 Test in Moist Atmosphere.</b> After completion of the test specified by 8.3.3.4.3, the device used therein shall be used for this test.</p> <p>The device shall be subjected continuously, in an unventilated enclosure, to an atmosphere saturated with a range of 3,5 % to 5 % solution of sodium chloride for 72 consecutive hours. During this period, it shall be operated for only 10 consecutive cycles at the end of each of the first two 24 h periods and shall be allowed to stand exposed to the air for 24 h, and shall not fail in a manner that creates an unsafe condition.</p> <p>The device shall again be lubricated and shall, without adjustment and without further attention, complete 15 000 cycles or 10 000 cycles for private residence elevator of operation without failure of any kind.</p> |       |                    |                                        |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009 | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence |
|------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|----------------------------------------|
|      |                           | <p><b>8.3.3.4.5 Misalignment Test</b></p> <p>(a) All Types of Doors. The device shall operate effectively when the car cam or other equivalent operating device used in making the test has been displaced horizontally from its normal position (the position in which it was when the device was installed) successively as follows:</p> <p>(1) in a direction perpendicular to the plane of the door opening</p> <p>(a) backward 6 mm (0.25 in.)</p> <p>(b) forward 6 mm (0.25 in.)</p> <p>(2) in a direction parallel to the plane of the door opening</p> <p>(a) to the right 6 mm (0.25 in.)</p> <p>(b) to the left 6 mm (0.25 in.)</p> <p>(b) Horizontally Sliding Doors. The device shall operate effectively:</p> <p>(1) when the bottom of the door has been displaced horizontally from its normal position in a direction perpendicular to the plane of the door opening</p> <p>(a) backward 6 mm (0.25 in.)</p> <p>(b) forward 6 mm (0.25 in.)</p> <p>(2) when the top of the door has been displaced horizontally from its normal position in a direction perpendicular to the plane of the door opening</p> |       |                    |                                        |

Table 1 (continued)

| Sq<br># | EN 81-1:1998+Amd. A3:2009 | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence |
|---------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|----------------------------------------|
|         |                           | <p>(a) backward 3 mm (0.125 in.)<br/>(b) forward 3 mm (0.125 in.)</p> <p>(c) Swinging Doors. The device shall operate effectively when the strike edge of the door has been displaced:</p> <p>(1) perpendicular to the plane of the door opening</p> <p>(a) forward 3 mm (0.125 in.)<br/>(b) backward 3 mm (0.125 in.)</p> <p>(2) parallel to the plane of the door opening</p> <p>(a) 3 mm (0.125 in.) to the right<br/>(b) 3 mm (0.125 in.) to the left<br/>(c) 3 mm (0.125 in.) up<br/>(d) 3 mm (0.125 in.) down</p> <p>(d) Vertically Sliding Doors. The device shall operate effectively when the door has been displaced:</p> <p>(1) perpendicular to the plane of the door opening</p> <p>(a) forward 3 mm (0.125 in.)<br/>(b) backward 3 mm (0.125 in.)</p> <p>(2) parallel to the plane of the door opening:</p> <p>(a) 3 mm (0.125 in.) to the right<br/>(b) 3 mm (0.125 in.) to the left</p> |       |                    |                                        |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p><b>8.3.3.4.7 Force and Movement Test.</b> When testing devices of a type that are released by retiring cam (see 2.12.2.5), measurements shall be made of the force required to release the device and of the movement of the element engaged by the cam, with the device mounted in its normal position as specified by the manufacturer, before and after the test specified by 8.3.3.4.1.</p> <p>The force and movement recorded in each test shall be, respectively:</p> <p>(a) the maximum force, measured in a horizontal plane, that must be applied to that member of the device that is directly actuated by the cam to release the door locking member of the device from locking engagement</p> <p>(b) the distance, projected on a horizontal plane, that the member of the device directly actuated by the cam travels from its position when the lock is fully engaged to its position when the locking member is released from engagement.</p> <p>The force and movement markings required by 2.12.4.3 (f) shall be not less than the average of these recorded values.</p> |       |                    |                                                                                                                                                                                                                                                                                |
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p><b>8.3.3.4.9 Examination of Electrical Spacings.</b> The electrical spacings shall comply with CSA B44.1/ASME A17.5, Section 16.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                    |                                                                                                                                                                                                                                                                                |
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p><b>8.3.3.4.11 Testing of Bridging Means.</b> The electrical contact bridging means shall be tested to verify conformance to 2.12.2.4.1.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                    |                                                                                                                                                                                                                                                                                |
|      | <p><b>F.1.2.2.2 Static test</b></p> <p>For locking devices intended for hinged doors, a test shall be made consisting of the application over a total period of 300 s of a static force increasing progressively to a value of 3 000 N.</p> <p>This force shall be applied in the opening direction of the door and in a position corresponding as far as possible to that which may be applied when a user attempts to open the door. The force applied shall be 1 000 N in the case of a locking device intended for sliding doors.</p> | <p><b>8.3.3.4.8 Static Test.</b> 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.).</p> <p>The force shall be 1 000 N (225 lb) in the case of a locking device intended for use with sliding doors, and 3 000 N (675 lb) or 670 N (150 lb) for private residence elevator applied at right angles to the panel evenly distributed over an area of 5 cm<sup>2</sup> (0.78 in.<sup>2</sup>) in round or square section in the case of a locking device intended for use with swinging doors.</p>                                                                                                                                                                                                                                                                                             |       |                    | <p>Proposal: Standards writing bodies to consider adopting the following proposed requirements:</p> <p>Priority 2 — Consider adopting ASME A17.1-2010/CSA B44-10, 8.3.3.4.8 or clarifying requirement related to test time for locking devices intended for sliding doors.</p> |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                               | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                 |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>F.1.2.2.3 Dynamic test</b><br>The locking device, in the locked position, shall be submitted to a shock test in the opening direction of the door.<br>The shock shall correspond to the impact of a rigid mass of 4 kg falling in free fall from a height of 0,50 m. | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adoption of EN 81-1:1998, F.1.2.2.3.                             |
|      | <b>F.1.2.3 Criteria for the mechanical tests</b><br>After the endurance test (F.1.2.2.1), the static test (F.1.2.2.2) and the dynamic test (F.1.2.2.3), there shall not be any wear, deformation or breakage, which could adversely affect safety.                      | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adoption of EN 81-1:1998, F.1.2.3.                               |
|      | <b>F.1.2.4 Electrical test</b><br><b>F.1.2.4.1 Endurance test of contacts</b><br>This test is included in the endurance test laid down in F.1.2.2.1.1.                                                                                                                  | <b>8.3.3.3 General Requirements</b><br><b>8.3.3.3.1 Connections for and Test of Electrical Parts.</b> During the tests specified by 8.3.3.4.1, 8.3.3.4.3, and 8.3.3.4.4, the devices shall have their electrical parts connected in a noninductive electrical circuit having a constant resistance and in which a current of twice the rated current at rated voltage is flowing. The electric circuit shall be closed, but shall not be broken at the contact within the device on each cycle of operation during the tests.<br><b>8.3.3.3.2 Retesting of Electric Contacts Previously Tested.</b> If the electric contact of a device submitted for test has already been tested as part of another device, and has successfully met the test requirements (see 8.3.3), the electrical tests of the contact need not be repeated.<br><b>8.3.3.3.3 Tests of Retiring Cams or Equivalent Devices.</b> Tests of retiring cams or equivalent devices used to operate interlocks shall not be required. |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 1 — Consider adoption of EN 81-1:1998, F.1.1.3.1, F.1.2.2.1.1, and F.1.2.4.1. |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Japan | ISO/<br>TS 22559-2 | Comments and proposals for convergence                                                                                                                                                                   |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <p><b>F.1.2.4.2 Test of ability to break circuit</b><br/>This test is to be carried out after the endurance test. It shall check that the ability to break a live circuit is sufficient. This test shall be made in accordance with the procedure in EN 60947-4-1 and EN 60947-5-1, the values of current and rated voltage serving as a basis for the tests shall be those indicated by the manufacturer of the device. If there is nothing specified, the rated values shall be as follows:</p> <p>a) alternating current: 230 V, 2 A;<br/>b) direct current: 200 V, 2 A.</p> <p>In the absence of an indication to the contrary, the capacity to break circuit shall be examined for both AC and DC conditions.</p> <p>The tests shall be carried out with the locking device in the working position. If several positions are possible, the test shall be made in the most unfavourable position.</p> <p>The sample tested shall be provided with covers and electric wiring as used in normal service.</p> | <p><b>8.3.3.4.2 Current Interruption Test.</b> 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.</p> <p>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 unfavourable.</p> |       |                    | Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adoption of language in EN 81-1:1998, F.1.2.4.2, F.1.2.4.3, F.1.2.4.4, and F.1.2.4.5. |
|      | <p>The tests shall be carried out with the locking device in the working position. If several positions are possible, the test shall be made in the most unfavourable position.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>NOT in ASME A17.1/CSA B44</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                    |                                                                                                                                                                                                          |
|      | <p>The sample tested shall be provided with covers and electric wiring as used in normal service.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | The sample tested shall be provided with covers and electrical wiring in accordance with the manufacturer's drawings.                                                                                                                                                                                                                                                                                                                                                                                                 |       |                    |                                                                                                                                                                                                          |
|      | <p><b>F.1.2.4.2.1</b> AC locking devices shall open and close an electric circuit under a voltage equal to 110 % of the rated voltage 50 times, at normal speed, and at intervals of 5 s to 10 s. The contact shall remain closed for at least 0,5 s.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (a) AC rated locking devices shall have their electrical parts connected to an inductive circuit with a power factor of $(0.7 \pm 0.05)$ 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.                                                                                                                       |       |                    |                                                                                                                                                                                                          |
|      | <p>The circuit shall comprise a choke and a resistance in series. Its power factor shall be <math>0.7 \pm 0.05</math> and the test current shall be 11 times the rated current indicated by the manufacturer of the device.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                    |                                                                                                                                                                                                          |
|      | <p><b>F.1.2.4.2.2</b> DC locking devices shall open and close an electric circuit under a voltage equal to 110 % of the rated voltage 20 times, at normal speed, and at intervals of 5 s to 10 s. The contact shall remain closed for at least 0,5 s.</p> <p>The circuit shall comprise a choke and a resistance in series having values such that the current reaches 95 % of the steady-state value of the test current in 300 ms.</p> <p>The test current shall be 110 % of the rated current indicated by the manufacturer of the device.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (b) DC rated locking devices shall have their electrical parts connected to an inductive circuit in which the current reaches 95 % of the steady-state value of 110 % of the rated current in 0,3 s maximum, 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.                                                                                                                 |       |                    |                                                                                                                                                                                                          |

Table 1 (continued)

| Sq # | EN 81-1:1998+Amd. A3:2009                                                                                                                                                                                                                                           | ASME A17.1-2010/CSA B44-10                                                                                                                                                                                     | Japan                                                                                                                                                                                                                                                                                                                                                 | ISO/TS 22559-2 | Comments and proposals for convergence                                                                                                                                                          |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>F.1.2.4.2.3</b> The tests are considered as satisfactory if no tracking or arcing is produced and if no deterioration occurs which could adversely affect safety.                                                                                                | (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.                    |                                                                                                                                                                                                                                                                                                                                                       |                |                                                                                                                                                                                                 |
|      | <b>F.1.2.4.3 Test for resistance to leakage currents</b><br>This test shall be made in accordance with the procedure in CEN/LEC HD 214 S2 (see IEC 112). The electrodes shall be connected to a source providing an AC voltage which is sinusoidal at 175 V, 50 Hz. | <b>8.3.3.4.6 Insulation Test.</b> The insulation of the electrical parts shall withstand a test with a root-mean square (effective) voltage of twice the rated voltage plus 1 000 V, 60 Hz, applied for 1 min. | JIS A 4302 4.2.1 (2)<br>Insulation resistance (see NOTE)<br>≤150 V DC<br>-0,1 MΩ<br>-150 V DC but<br>-300 V DC<br>-0.2 MΩ<br>NOTE JAPAN column indicates the insulation resistance which should be measured in commissioning inspection and annual inspection.<br>It is not the voltage that the insulation must withstand during an insulation test. |                | Proposal: Standards writing bodies to consider adopting the following proposed requirements:<br>Priority 2 — Consider adoption of EN 81-1:1998, F.1.2.4.2, F.1.2.4.3, F.1.2.4.4, and F.1.2.4.5. |
|      | <b>F.1.2.4.4 Examination of clearances and creepage distances</b><br>The clearances in air and creepage distances shall be in accordance with 14.1.2.2.3.                                                                                                           | NOT in ASME A17.1/CSA B44                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                       |                |                                                                                                                                                                                                 |
|      | <b>F.1.2.4.5 Examination of the requirements appropriate to safety contacts and their accessibility (14.1.2.2)</b><br>This examination shall be made taking account of the mounting position and the layout of the locking device, as appropriate.                  | NOT in ASME A17.1/CSA B44                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                       |                |                                                                                                                                                                                                 |