

---

---

**Safety requirements for lifts  
(elevators) —**

**Part 24:  
Convergence of lift requirements**

*Exigences de sécurité pour ascenseurs —*

*Partie 24: Convergence des exigences pour ascenseurs*  
**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO/TR 8100-24:2016

<https://standards.iteh.ai/catalog/standards/sist/df749f1c-c9dc-40bd-a837-bd64fd9c6bc/iso-tr-8100-24-2016>



**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO/TR 8100-24:2016

<https://standards.iteh.ai/catalog/standards/sist/df749f1c-c9dc-40bd-a837-bd64fd9c6bc/iso-tr-8100-24-2016>



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Comparison of CEN-ASME/CSA-Japanese standards and prescriptive recommendations</b> .....	<b>1</b>
4.1 Door locks.....	1
4.2 Buffers.....	29
4.3 Governors.....	41
4.4 Brakes.....	55
4.5 Safety gear.....	75
<b>Bibliography</b> .....	<b>98</b>

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO/TR 8100-24:2016](https://standards.iteh.ai/catalog/standards/sist/df749f1c-c9dc-40bd-a837-bd64fd9c6bc/iso-tr-8100-24-2016)

<https://standards.iteh.ai/catalog/standards/sist/df749f1c-c9dc-40bd-a837-bd64fd9c6bc/iso-tr-8100-24-2016>

## 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.

<https://standards.iteh.ai/catalog/standards/sist/df749f1c-c9dc-40bd-a837-bd64fd9c6bc/iso-tr-8100-24-2016>

## 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.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[ISO/TR 8100-24:2016](https://standards.iteh.ai/catalog/standards/sist/df749f1c-c9dc-40bd-a837-bd64fd9c6bc/iso-tr-8100-24-2016)

[https://standards.iteh.ai/catalog/standards/sist/df749f1c-c9dc-40bd-a837-  
bd64fd9c6bc/iso-tr-8100-24-2016](https://standards.iteh.ai/catalog/standards/sist/df749f1c-c9dc-40bd-a837-bd64fd9c6bc/iso-tr-8100-24-2016)

# 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/TS 22559-2	Comments and proposals for convergence
	<p><b>7.7.1 Locking and closed landing door check</b>  <b>Protection against the risk of falling</b>                      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.</p>	<p><b>SECTION 2.12</b>  <b>HOISTWAY DOOR LOCKING DEVICES AND ELECTRIC CONTACTS, AND HOISTWAY ACCESS SWITCHES</b>  <b>2.12.1 General</b>                      2.12.1.1 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.</p>	<p>Basically, the unlocking zone is same as EN 81-1. Added the definition of Leveling, Re-leveling and door zone.</p>		<p>Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting language and parameters from EN 81-1.</p>
	<p>NOTE For Emergency unlocking, see 7.7.3.2 l.</p>	<p><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).</p>			
	<p><b>Not in EN 81-1</b></p>	<p><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.</p>			<p>Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting language and parameters from ASME A17.1/CSA B44.</p>
	<p><b>7.7.1</b> (second and third paragraphs)                      The unlocking zone shall not extend more than 0,20 m above and below the landing level.                      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.</p>	<p><b>1.3 DEFINITIONS</b>  <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.  <b>Leveling zone:</b> ±250 mm if manual levelling.</p>	<p>(BS) J-EO 129-10 Item 3 paragraphs 1 and 2                      ±200 mm                      New JS is considered to be 350 mm.</p>		<p>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.</p>
	<p><b>7.7.2 Protection against shearing</b>                      7.7.2.1 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.</p>	<p><b>1.3 Definitions</b>  <b>Hoistway door interlock:</b> a device having two related and interdependent functions, that are:                      (a) to prevent the operation of the driving machine by the normal operating device unless the hoistway door is locked in the closed position;  <b>NOT in ASME A17.1/CSA B44.</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.</p>	<p>Basically, the unlocking zone is same as EN 81-1. Added the definition of preliminary operations for the movement of the car.</p>		<p>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.</p>
	<p><b>Not in EN 81-1</b></p>				<p>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.</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
	7.7.2.2 Operation with doors open is permitted in the following zones: a) in the unlocking zone to permit levelling or releveling at the corresponding floor level, provided the requirements of 14.2.1.2 are met;	2.12.2.3 Operation of the Driving Machine With a Hoistway Door Unlocked or Not in the Closed Position. 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: (a) by a car leveling or truck zoning device (see 2.26.1.6); (b) when a hoistway access switch is operated (see 2.12.7); (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.
	Not in EN 81-1		b) Excluded docking operation		
	Not in EN 81-1				
	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:	2.26.1.6.4 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;	NOT in ASME A17.1/CSA B44			
	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.	NOT in ASME A17.1/CSA B44			
	7.7.3 Locking and emergency unlocking Each landing door shall be provided with a locking device satisfying the conditions of 7.7.1.	2.12.2 Interlocks 2.12.2.1 General. 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.	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.
		2.12.1.4 Passenger elevator hoistway doors shall be equipped with interlocks conforming to 2.12.2.			
	Not in EN 81-1	2.12.1.5 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.			Do not consider freight elevators at this stage.
	This device shall be protected against deliberate misuse.	2.12.2.6 Location. Interlocks shall be so located that they are not accessible from the landing side when the hoistway doors are closed.			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)

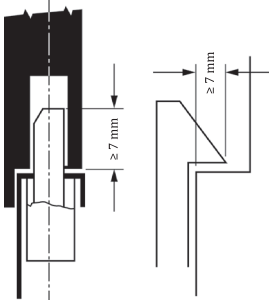
Sq #	EN 81-1:1998+Amd. A3:2009 <b>7 Landing Doors</b> <b>7.1 General Provisions</b> The openings in the well giving access to the lift car shall be provided with imperforate landing doors. When closed, the clearance between panels, or between panels and uprights, lintels or sills, shall be as small as 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.	ASME A17.1-2010/CSA B44-10 <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): (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; (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; (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.	Japan The following sentence is deleted. "This value due to wear, may reach 10 mm." (10 mm is too big)	ISO/TS 22559-2	Comments and proposals for convergence
					Proposal: Standards writing bodies to consider adopting the following proposed requirements: 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><b>7.7.3.1 Locking</b> 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. The swing door is out of scope.</p>			Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 1 — Consider adding requirements from ASME A17.1-2010/CSA B44-10, 2.12.2.2 (b) and (c).  Proposal: Standards writing bodies to consider adopting the following proposed requirements: Priority 2 — Consider adopting the text and diagram of EN 81-1:1998, 7.7.3.1.

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/TS 22559-2	Comments and proposals for convergence
	<b>Not in EN 81-1</b>	<b>2.12.2.4.3</b> (second paragraph) 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: Priority 1 — Consider adopting ASME A17.1-2010/CSA B44-10, 2.12.2.4.3. 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. <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> Interlocks shall conform to 2.12.2.4.1 to 2.12.2.4.7. <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) Same as EN 81-1		Proposals: Standards writing bodies to consider adopting the following proposed requirements: Priority 1 — Accept EN 81-1:1998, 7.7.3.1.2 as modified: “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) 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) 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: 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: 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: Priority 1 — Consider performance based language and appropriate parameters rather than requirements for metal. 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: 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; 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): ...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] 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. Priority 1 — Consider deleting requirements for permanent magnets. Priority 1 — Consider adding requirements for positive linkage.
	<b>7.7.3.1.7</b> (second paragraph) 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) 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. <b>0.3.19</b> (Assumption) 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. 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/ 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: 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> 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. An interlock retiring cam device shall be permanently marked by the manufacturer with its rated horizontal force and rated horizontal movement. 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: 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> <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: (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); (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)

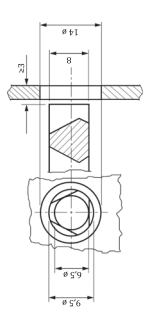
Sq #	EN 81-1:1998+Amd. A3:2009 Not in EN 81-1	ASME A17.1-2010/CSA B44-10	Japan	ISO/ TS 22559-2	Comments and proposals for convergence
		<p><b>2.12.5 Restricted Opening of Hoistway or Car Doors</b> Hoistway and car doors of passenger elevators shall conform to 2.12.5.1 to 2.12.5.3.</p> <p><b>2.12.5.1</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.</p> <p><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).</p> <p><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.</p> <p>NOTE (2.12.5) See also 2.12.1 and Nonmandatory Appendix B, Unlocking Zone.</p>	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.
		<p><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.</p> <p><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.</p> <p><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.</p> <p><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.</p>	Same as EN 81-1 (Japan is going to use the triangle key). 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.
	<p><b>7.7.3.2 Emergency unlocking</b> 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.</p> 				
	Keys of this type shall be given only to a responsible person.	<p><b>*8.1.2 Group 1: Restricted</b> <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.)</p>	NOT in JIS		

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
	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> 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> <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.			