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**Comparison of worldwide escalator  
and moving walk safety standards —**

**Part 1:  
Clause by clause comparison**

*Comparaison des normes mondiales de sécurité des escaliers  
mécaniques et trottoirs roulants —*

*Partie 1: Comparaison paragraphe par paragraphe*

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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 of the voluntary nature of standards, 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 [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 178, *Lifts, escalators and moving walks*.

This third edition cancels and replaces the second edition (ISO/TR 14799-1:2015), which has been technically revised.

The main changes are as follows:

- Updated the content according to the latest revisions of EN 115-1, ASME A17.1/CSA B44 and Japanese Codes 2016;
- Added an explanation of the difference between this revision and the previous edition;
- Removed ASME A17.1/CSA B44 content, which is not included due to copyright issues (only the clause numbers are indicated).

A list of all parts in the ISO 14799 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document is a result of work by ISO/TC 178 on a comparison of worldwide standards on escalators and moving walk safety including standards from Australia, Europe, Japan, Russia and the US. In 1995, ISO/TC 178 was tasked with preparing a cross-reference document with the relevant sections of each standard and an analysis of the differences. The goal at that time was to prepare a Technical Report which would provide reference information to assist national committees when reviewing and revising individual standards which can initiate a gradual convergence of the technical requirements. In 1996, the study was expanded to include the Korean safety standard.

This document is intended to aid standards writers in developing their safety requirements and to help standards users understand the basis for the requirements as they are applied throughout the world.

EN 115-1 is used as a reference document and its clauses are shown in their normal sequence. The other reference documents (ASME A.17/B.44.1 and Japanese Codes) are not in their normal sequence and logical order. They are structured differently to EN 115-1. The result is that can appear in [Table 1](#) that these standards are incomplete. These standards in their original structure inclusive of their references to other standards and requirements are, however, complete.

This comparison no longer includes the Australian, Korean, and Russian safety codes as there are intentions on the national level to bring these codes in line with one of the remaining three codes.

Due to copyright restrictions, the content of ASME A.17/B.44.1 is not included in the comparison table ([Table 1](#)). Only reference to the clauses in ASME A.17/B.44.1 are included.

The graphical symbols shown in the following figures from EN 115-1:2017 are not included in this document, as they are not registered as official ISO graphical symbols:

- Figure 1.2
- Figure G.1
- Figure G.2
- Figure G.3
- Figure G.4



# Comparison of worldwide escalator and moving walk safety standards —

## Part 1: Clause by clause comparison

### 1 Scope

This document compares the requirements of selected clauses of the following standards (excluding local deviations):

- a) EN 115-1:2017 <sup>[12]</sup>;
- b) ASME A17.1/CSA B44-2016 <sup>[11]</sup>;
- c) Japanese Codes 2016 <sup>[13]</sup>.

NOTE The original Japanese codes were written in Japanese and no official English versions have been released. Listed Japanese codes were carefully translated, but English correspondence to the original document is not guaranteed.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

No terms and definitions are listed in this document.

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

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

### 4 Clause by clause comparison

#### 4.1 General

[Table 1](#) compares the content of EN 115 1 (European), ASME A17.1/B44 (North American) and the Japanese codes, clause by clause. There are other standards in the countries concerned that have requirements not shown in the escalator/moving walk standards compared, but which address some of the same requirements as EN 115-1.

The principal dimensions (e.g. L1, b8, h6) in EN 115-1 can be seen in the figures shown in EN 115-1:2017, 2.2, ASME A17.1/B44-2016, 2.3 and Japanese Codes 2016, 2.4.

Table 1 — Comparison of EN 115-1, ASME 17.1/CSA B44 and Japanese codes 2016

EN 115-1:2017	ASME A17.1/CSA B44:2016	Japanese codes 2016
<p><b>Introduction</b></p> <p>This document is a type-C standard as stated in EN ISO 12100:2010.</p> <p>This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:</p> <ul style="list-style-type: none"> <li>— machine manufacturers (small, medium, and large enterprises);</li> <li>— health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).</li> </ul> <p>Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:</p> <ul style="list-style-type: none"> <li>— machine users/employers (small, medium and large enterprises);</li> <li>— machine users/employees (e.g. trade unions, organizations for people with special needs);</li> <li>— service providers, e.g. for maintenance (small, medium and large enterprises);</li> <li>— consumers (in the case of machinery intended for use by consumers).</li> </ul>	<p>1.1/1.2</p> <p style="text-align: center; color: #e91e63; font-weight: bold;">iTeh STANDARD PREVIEW (standards.iteh.ai)</p> <p style="text-align: center; color: #e91e63; font-weight: bold;">ISO/TR 14799-1:2022</p> <p style="text-align: center; color: #e91e63;">https://standards.iteh.ai/catalog/standards/sist/1a730f8f-1b44-4fec-966d-4daf45ce6ff8/iso-tr-14799-1-2022</p>	<p>No equivalent statement.</p>



Table 1 (continued)

EN 115-1:2017	ASME A17.1/CSA B44:2016	Japanese codes 2016
<p>The above mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.</p> <p>The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the scope of this document.</p> <p>When requirements of this type-C standard are different from those which are stated in type-A or -B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.</p> <p>The purpose of this standard is to define safety requirements for escalators and moving walks in order to safeguard people and objects against risks of accidents during installation, operation, maintenance and inspection work.</p> <p>The contents of this standard are based on the assumption that persons using escalators and moving walks are able to do so unaided. However, physical and sensory abilities in a population can vary over a wide range, escalators and moving walks are also likely to be used by persons with a range of other disabilities.</p> <p>Some individuals, in particular older people, might have more than one impairment. Some individuals are not able to use an escalator or moving walk independently and rely on assistance/support being provided by a companion. Furthermore, some individuals can be encumbered by objects or be responsible for other persons, which can affect their mobility. The extent to which an individual is incapacitated by impairments and encumbrances often depends on the usability of products, facilities and the environment.</p>	<p>iTeh STANDARD PREVIEW (standards.iteh.ai)</p> <p>ISO/TR 14799-1:2022</p> <p><a href="https://standards.iteh.ai/catalog/standards/sist/1a730f8f-1b44-4fec-966d-4daf45ce6ff8/iso-tr-14799-1-2022">https://standards.iteh.ai/catalog/standards/sist/1a730f8f-1b44-4fec-966d-4daf45ce6ff8/iso-tr-14799-1-2022</a></p>	

Table 1 (continued)

EN 115-1:2017	ASME A17.1/CSA B44:2016	Japanese codes 2016
<p>The use of wheelchairs on escalators and moving walks can lead to dangerous situations which cannot be mitigated by machine designs and therefore should not be permitted.</p> <p>The use of lifts is the preferred method of vertical travel for most people with disabilities and in particular wheelchair users and persons with guide dogs.</p> <p>Additional signs should be provided to indicate the location of other facilities, these facilities should be in close proximity to the escalators and moving walks and easy to find.</p> <p>No equivalent requirement.</p>	<p>No equivalent requirement.</p> <p><a href="https://standards.iteh.ai/catalog/standards/sist/1a730f8f-1b44-4fec-966d-4daf45ce6ff8/iso-tr-14799-1-2022">https://standards.iteh.ai/catalog/standards/sist/1a730f8f-1b44-4fec-966d-4daf45ce6ff8/iso-tr-14799-1-2022</a></p> <p>ISO/TR 14799-1:2022</p>	<p><b>BSLJ-EO (Fundamental Principles of Structural Design)</b></p> <p><b>Article 36-2</b></p> <p>In planning the structural design of buildings, columns, beams, floors, walls, etc., shall be arranged effectively according to use, scale, and structural features of the building concerned, as well as the conditions of the land concerned, so that the said building, as a whole, will be of structure safe from dead load, live load, snow load, wind pressure, ground pressure, and water pressure, as well as earthquakes or other vibration or shock acting upon the said building.</p> <p>2. Principal parts necessary for structural strength shall be arranged in balance so as to resist any horizontal forces acting upon the building concerned.</p> <p>3 Principal parts of a building necessary for structural strength shall be designed to have rigidity enough to prevent distortion or vibration adversely affecting the use of the said building and toughness enough to prevent sudden destruction.</p>

Table 1 (continued)

EN 115-1:2017	ASME A17.1/CSA B44:2016	Japanese codes 2016
No equivalent requirement.	No equivalent requirement.	<p><b>BSLJ (Maintenance)</b>  <b>Article 8-1</b>            The owner, custodian, or occupant of a building shall endeavour to maintain the site, structure, and building equipment of the building in a state complying with legal requirements.</p>
No equivalent requirement.	No equivalent requirement.	<p><b>BSLJ (Reports, Inspection, etc.)</b>  <b>Article 12-2</b>            The owners of elevatory equipment and those of building equipment other than elevatory equipment (including building equipment installed in buildings of the State, a prefecture, or a city, town, or village having building officers) of a building as mentioned in article 6, paragraph 1, item (1), or any other building specified by cabinet order as mentioned in the preceding paragraph and designated by the special administrative agency, shall, in accordance with Ministry of Construction Order, have a 1st-class licensed architect/building engineer, 2nd-class licensed architect/building engineer, or a qualified person as designated by the Ministry of Construction periodically inspect the said building equipment, and report the inspection results to the special administrative agency.</p>
No equivalent requirement.	Page xxi shows the way to demonstrate compliance for new technologies	No equivalent requirement.

Table 1 (continued)

EN 115-1:2017	ASME A17.1/CSA B44:2016	Japanese codes 2016
<p><b>Introduction - continued</b></p> <p>The risks arising from the configuration of escalators and moving walks within a building (e.g. obstructions or voids adjacent to escalators) should be risk assessed according to methodology of the ISO 14798 by the building designer/owner at the building design stage and measures identified to eliminate hazards or reduce risk to an acceptable level.</p> <p>It is assumed that negotiations have been made for each contract between the customer and the supplier/installer (see also Annex A) about:</p> <ul style="list-style-type: none"> <li>a) intended use of the escalator or moving walk;</li> <li>b) environmental conditions;</li> <li>c) civil engineering problems;</li> <li>d) other aspects related to the place of installation.</li> </ul>	<p>6.1.8.1/6.2.8.16.1.8.1.1/6.2.8.1.1</p> <p>6.1.8.1.2/6.2.8.1.2</p> <p>6.1.8.2/6.2.8.2</p> <p>6.1.8.2.1/6.2.8.2.1</p> <p>6.1.8.2.2/6.2.8.2.2.6.1.8.3/6.2.8.3</p>	<p><b>JEAS-520A (2010)</b></p> <p><b>Installation for outdoor condition</b></p> <p><b>3.1 Building planning consideration</b></p> <p><b>3.1.1 Installation of roof</b></p> <p>In outdoor environments, the step surface is slippery at the time of rain and snow, and the user's posture tends to be unstable.</p> <p>On the management side, it is necessary to install a roof on the escalator in order to prolong the life of the equipment and maintain safe operation.</p> <p>3.1.2 Invasion and drainage of rainwater etc.</p> <ol style="list-style-type: none"> <li>1. In order to prevent rain or snow from entering the escalator, At the landing, it is higher than the surrounding floor surface and a gradient and a drain groove are provided.</li> <li>2. A facility capable of draining the accumulated water is provided in the lower pit of the escalator.</li> </ol>

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Table 1 (continued)

EN 115-1:2017	ASME A17.1/CSA B44:2016	Japanese codes 2016
<p>Planning of traffic flows and evacuation/rescue purposes are under the responsibility of the building designer/owner.</p> <p>If escalators or moving walks are intended to be operated under special conditions, such as directly exposed to the weather or explosive atmosphere, or in exceptional cases serve as emergency exits, appropriate design criteria, components, materials and instructions for use should be used that satisfy the particular conditions.</p> <p>An Interpretation Committee has been established to clarify, if necessary, the spirit in which the clauses of the standard have been drafted and to specify the requirements appropriate to particular cases. Interpretation Requests can be sent to the National Standard Bodies which will contact the responsible Technical Committee CEN/TC 10. The formats of an interpretation request and the interpretation are given in Annex N.</p>	<p>Because there is contamination of oil and dust in the drainage, a filtration facility is installed in the external drain outlet to facilitate the removal of contaminants.</p> <p>It is necessary that measures shall be applied to prevent reverse flow of wastewater.</p> <p>3.1.3 Installation of monitoring board, TV camera etc. for management.</p> <p>In case of trouble in operation and management, it shall be install the monitoring board and/or camera.</p> <p><b>3.1.4 Thermal insulation</b></p> <p>Depending on the installation environment, a thermal insulation device etc. shall be provided to prevent failure due to freezing of equipment.</p> <p><b>3.1.5 Others</b></p> <ol style="list-style-type: none"> <li>1. In consideration of night time use, it shall be provided the lighting equipment where the user can see the feet</li> <li>2. It shall be applied the waterproof measures at the escalator's power inlet.</li> </ol> <p><b>3.2 Management consideration</b></p> <p>The escalators installed in outdoor environments need the following consideration for operation management.</p> <p>3.2.1 When the wind and rain blows into the escalator, it shall be stopped the operation of the escalator to prevent the user from falling.</p> <p>3.2.2 When snowfall or freezing in winter, it shall be stopped the operation of the escalator to prevent the user from falling or damage the equipment.</p> <p>3.2.3 When escalator is out of service, the measures shall be taken that will not be used instead of stairs.</p>	<p>Because there is contamination of oil and dust in the drainage, a filtration facility is installed in the external drain outlet to facilitate the removal of contaminants.</p> <p>It is necessary that measures shall be applied to prevent reverse flow of wastewater.</p> <p>3.1.3 Installation of monitoring board, TV camera etc. for management.</p> <p>In case of trouble in operation and management, it shall be install the monitoring board and/or camera.</p> <p><b>3.1.4 Thermal insulation</b></p> <p>Depending on the installation environment, a thermal insulation device etc. shall be provided to prevent failure due to freezing of equipment.</p> <p><b>3.1.5 Others</b></p> <ol style="list-style-type: none"> <li>1. In consideration of night time use, it shall be provided the lighting equipment where the user can see the feet</li> <li>2. It shall be applied the waterproof measures at the escalator's power inlet.</li> </ol> <p><b>3.2 Management consideration</b></p> <p>The escalators installed in outdoor environments need the following consideration for operation management.</p> <p>3.2.1 When the wind and rain blows into the escalator, it shall be stopped the operation of the escalator to prevent the user from falling.</p> <p>3.2.2 When snowfall or freezing in winter, it shall be stopped the operation of the escalator to prevent the user from falling or damage the equipment.</p> <p>3.2.3 When escalator is out of service, the measures shall be taken that will not be used instead of stairs.</p>

Table 1 (continued)

EN 115-1:2017	ASME A17.1/CSA B44:2016	Japanese codes 2016
<p>Remark: European foreword</p> <p>e) clarification of the text and incorporation of proposals resulting from interpretation requests 1);</p> <p>1) Within CEN/TC 10 an interpretation committee has been established to answer questions about the spirit in which the experts have drafted the various clauses of this standard. All such interpretations are published within CEN/TS 115-4<sup>[1]</sup> until incorporated by amendment into the standards concerned</p>	<p>Page xxiii is describing the method of managing interpretations</p>	<p>3.2.4 Because the usage conditions are severe than in indoor environments, escalators installed under outdoor environments need to be maintained and inspected according to the installation environment.</p> <p>3.3 Equipments consideration</p> <p>The escalators installed in outdoor environments need the following consideration for the equipments management.</p> <p>3.3.1 It shall be applied the appropriate anti-rust measures to the main structure.</p> <p>3.3.2 It shall be applied the waterproof measures at the electrical equipments</p> <p>The Interpretation Committee corresponding to each law or standard is different.</p>

Table 1 (continued)

EN 115-1:2017	ASME A17.1/CSA B44:2016	Japanese codes 2016
<p><b>1 Scope</b></p> <p>This European Standard is applicable for new escalators and moving walks (pallet or belt type) as defined in Clause 3.</p> <p>This European Standard deals with all significant hazards, hazardous situations and events relevant to escalators and moving walks when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).</p>	<p><b>1.1.1</b></p>	<p><b>BSLJ-EO (Structure of escalator)</b></p> <p><b>Article 129-3</b></p> <p>The provisions of this section shall apply to the elevatory equipment installed in buildings and described in each of the following items.</p> <p>1. (2) Escalator</p> <p>Notwithstanding the provision of the preceding paragraph, the provisions of each said item shall not apply to the elevatory equipment described in following each item.</p> <p>2. (2) The escalators of special construction and special use form of which structural method designated by the minister of land, infrastructure, and transport; the provisions of BSLJ-EO; Article 129-12, paragraph 1.</p>
<p>This European Standard is not applicable to escalators and moving walks which were manufactured before the date of its publication. It is, however, recommended that existing installations be adapted to this standard.</p>	<p>No equivalent requirement.</p>	<p><b>BSLJ (Exclusion of application)</b></p> <p><b>Article 3</b></p> <p>The provision of the preceding paragraph shall not apply to building, sites of building, or the parts of buildings or sites thereof coming under any of the following items:</p> <p>3. (3) Building or sites thereof whose construction work for addition, rebuilding, major repair, or major remodelling is started after the enforcement or application of the provisions of this Law or those of orders or ordinances based thereon</p> <p><b>EXP.3.(3)</b> In case of addition to a building, modification of a building, change of location, major renovation or change of layout, the current law shall be applied. The part which does not comply with the law, shall be modified to comply with the law.</p>