PD CEN/TS 115-4:2015

BSI Standards Publication

Safety of escalators and moving walks

Part 4: Interpretations related to EN 115 family of standards

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National foreword

This Published Document is the UK implementation of CEN/TS 115-4:2015. It supersedes PD CEN/TS 115-4:2014 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MHE/4, Lifts, hoists and escalators.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Safety of escalators and moving walks - Part 4: Interpretations related to EN 115 family of standards

Sécurité des escaliers mécaniques et trottoirs roulants - Partie 4 : Interprétations relatives aux normes de la famille EN 115

Sicherheit von Fahrtreppen und Fahrsteigen - Teil 4: Auslegungen zur Normenreihe EN 115

This Technical Specification (CEN/TS) was approved by CEN on 3 August 2015 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (CEN/TS 115-4:2015) has been prepared by Technical Committee CEN/TC 10 “Lifts, escalators and moving walks”, the secretariat of which is held by AFNOR.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 115-4:2014.

EN 115 is divided into the following parts:

- EN 115-1, Safety of escalators and moving walks - Part 1: Construction and installation;
- EN 115-2, Safety of escalators and moving walks - Part 2: Rules for the improvement of safety of existing escalators and moving walks;
- CEN/TR 115-3, Safety of escalators and moving walks - Part 3: Correlation between EN 115:1995 and its amendments and EN 115-1:2008 [Technical Report];
- CEN/TS 115-4, Safety of escalators and moving walks - Part 4: Interpretations related to EN 115 family of standards [Technical specification; this document].

This document is a collection of interpretations related to the EN 115 series. For the time being, this collection of interpretations relates to EN 115-1. According to the progress in working out interpretations, this document will be amended and/or completed.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Standards reflect the consensus of the best European expertise and are prepared with highest care. Product standards cannot be formulated in such a way that they describe all possible technical solutions and therefore exclude all uncertainties regarding the understanding of the required provisions. On the other hand, technology is in a permanent evolution, the progress of which cannot be incorporated into standards quickly enough.

Interpretations are a practical way to give

a) answers to questions regarding the understanding of clauses in standards,

b) feedback to the CEN-Committee responsible for a standard about the practical experiences resulting from the use of the standard,

c) guidance to further development and improvement of standards following:

   1) experience, especially accidents and incidents;

   2) progress in technology;

   3) state of the art.

1 Scope

This Technical Specification is a collection of interpretations related to the EN 115 series. This document collects interpretations to EN 115-1:2008+A1:2010. Interpretations to other standards of the EN 115 series will be added when they are available.

Interpretations aim to improve the understanding of the clause(s) they are referring to and by that facilitating common understanding between manufacturers, lift installers, notified bodies, inspection bodies and national authorities.

Interpretations do not have the same status as the European Standards to which they are related. However, the application of interpretations should give to the interested parties confidence that the relevant European Standard has not been wrongly applied.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 115-1:2008+A1:2010, *Safety of escalators and moving walks — Part 1: Construction and installation*

EN 349, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

EN 1991-1-1, *Eurocode 1: Actions on structures — Part 1-1: General actions — Densities, self-weight, imposed loads for buildings*

EN 13501-1:2007+A1:2009, *Fire classification of construction products and building elements —Part 1: Classification using data from reaction to fire tests*

3 Lists of interpretations

3.1 General

The following lists show the valid interpretations contained in this document.

3.2 Lists of interpretations pertaining to EN 115-1

The interpretations related to EN 115-1 are listed in Tables 1 and 2.

Table 1 shows the list of interpretations in their numerical order.

Table 2 shows the list of interpretations in order of the clauses of EN 115-1:2008+A1:2010.

These interpretations are detailed in Clause 4.

Table 1 — List of interpretations in numerical order

Interpretation number	Related clause/ subclause	Date of validity	Keywords
101	5.3.1	2012-03-14	Increased height of the web on step treads side
102	5.5.2.4, 5.5.3.3	2012-03-14	Form of 25 cm^2 area
103	5.5.3.3	2012-03-14	Load on skirting
104	5.12.2.1.3, 5.12.2.2.2	2012-03-14	Automatic restart in two-direction mode
105	A.2.1	2012-03-14	Unrestricted area, fixed stairs, building height
106	5.12.2.5	2012-03-14	Number of inspection control on site
107	A.2.4	2012-03-14	Rigid deflectors
108	I.1	2012-03-14	Barrier to prevent access of shopping trolleys and baggage carts
109	5.4.3.2	2012-03-14	Testing of steps and pallets drive
110	5.2.1.2	2012-03-14	Stiffness of exterior panel
111	5.12.2.2.4.1 Table 6 h)	2012-03-14	Stopping of succeeding escalators
112	5.3.5	2012-03-14	Measurement of step to step gap
113	5.9	2012-03-14	Fire protection of steps and pallets
114	5.6.2.1	2012-03-14	Handrail clearances
115	A.2.5	2012-03-14	Unrestricted area at the exit
116	5.12.2.2.4.1 Table 6 h), A.2.5	2012-03-14	Area of exit
117	A.2.5, I.2	2012-03-14	Additional stop switch at handrail level - Building interfaces to escalator/moving walk
118	5.8.2.1, A.3.5	2012-03-14	Standing area in machinery spaces
119	A.2	2012-03-14	Fixed devices in unrestricted areas
120	Annex I	2012-03-14	Barriers to prevent shopping trolleys access
121	5.4.2.2.2	2014-11-14	Auxiliary braking system
122	5.3.6	2014-11-14	Location detection missing step device
123	5.4.2.1.1.1, 5.4.2.1.1.3, 5.12.1.2.1.1	2014-11-14	Electrical braking with inverter
124	5.4.1.3.2	2014-11-14	Safety factor of driving elements
125	4.9, 5.7.2.1	2014-11-14	- 2 horizontal steps ≤ 6 m vs. 3 horizontal steps > 6 m; - Lower escalator transition curve, exit/entry
126	5.3.3.2.2	2014-11-14	Step riser, inserts
127	5.7.3.2.6	2014-11-14	Comb switch
128	5.12.2.1.1	2014-11-14	Starting with passengers on the step/pallet band
129	5.12.2.1.3	2014-11-14	Automatic initiation of starting
130	5.7.2.1	2014-11-14	Landing, vertical difference, consecutive steps

Interpretation number	Related clause/ subclause	Date of validity	Keywords
131	5.5.3.4 d), Annex K	2014-11-14	Friction coefficient, material
132	A.2.2	2014-11-14	Measure b_{12}
133	5.5.3.4	2014-11-14	Skirt deflector
134	3.1.19, 5.4.1.2	2014-11-14	Definition of nominal speed
135	5.4.2.3	2014-11-14	Excessive speed
136	A.2.5	2014-11-14	Unrestricted area
137	A.2.5	2014-11-14	Unrestricted area

Table 2 — Interpretations in clause/subclause order

Related clause/ subclause	Interpretation number	Date of validity	Keywords
3.1.19	**134**	2014-11-14	Definition of nominal speed
4.9	**125**	2014-11-14	- 2 horizontal steps ≤ 6 m vs. 3 horizontal steps > 6 m; - Lower escalator transition curve, exit/entry
5.2.1.2	**110**	2012-03-14	Stiffness of exterior panel
5.3.1	**101**	2012-03-14	Increased height of the web on step treads side
5.3.3.2.2	**126**	2014-11-14	Step riser, inserts
5.3.5	**112**	2012-03-14	Measurement of step to step gap
5.3.6	**122**	2014-11-14	Location detection missing step device
5.4.1.2	**134**	2014-11-14	Definition of nominal speed
5.4.1.3.2	**124**	2014-11-14	Safety factor of driving elements
5.4.2.1.1.1	**123**	2014-11-14	Electrical braking with inverter
5.4.2.1.1.3	**123**	2014-11-14	Electrical braking with inverter
5.4.2.2.2	**121**	2014-11-14	Auxiliary braking system
5.4.2.3	**135**	2014-11-14	Excessive speed
5.4.3.2	**109**	2012-03-14	Testing of steps and pallets drive
5.5.2.4	**102**	2012-03-14	Form of 25 cm^2 area
5.5.3.3	**103**	2012-03-14	Load on skirting
5.5.3.3	**102**	2012-03-14	Form of 25 cm^2 area
5.5.3.4 d)	**131**	2014-11-14	Friction coefficient, material
5.5.3.4	**133**	2014-11-14	Skirt deflector
5.6.2.1	**114**	2012-03-14	Handrail clearances
5.7.2.1	**125**	2014-11-14	- 2 horizontal steps ≤ 6 m vs. 3 horizontal steps > 6 m; - Lower escalator transition curve, exit/entry
5.7.2.1	**130**	2014-11-14	Landing, vertical difference, consecutive steps

Related clause/ subclause	Interpretation number	Date of validity	Keywords
5.7.3.2.6	**127**	2014-11-14	Com switch
5.8.2.1	**118**	2012-03-14	Standing area in machinery spaces
5.9	**113**	2012-03-14	Fire protection of steps and pallets
5.12.1.2.1.1	**123**	2014-11-14	Electrical braking with inverter
5.12.2.1.1	**128**	2014-11-14	Starting with passengers on the step/pallet band
5.12.2.1.3	**104**	2012-03-14	Automatic restart in two-direction mode
5.12.2.1.3	**129**	2014-11-14	Automatic initiation of starting
5.12.2.2.2	**104**	2012-03-14	Automatic restart in two-direction mode
5.12.2.2.4.1 Table 6 h)	**111**	2012-03-14	Stopping of succeeding escalators
5.12.2.2.4.1 Table 6 h)	**116**	2012-03-14	Area of exit
5.12.2.5	**106**	2012-03-14	Number of inspection control on site
A.2	**119**	2012-03-14	Fixed devices in unrestricted areas
A.2.1	**105**	2012-03-14	Unrestricted area, fixed stairs, building height
A.2.2	**132**	2014-11-14	Measure b_{12}
A.2.4	**107**	2012-03-14	Rigid deflectors
A.2.5	**115**	2012-03-14	Unrestricted area at the exit
A.2.5	**116**	2012-03-14	Area of exit
A.2.5	**117**	2012-03-14	Additional stop switch at handrail level - Building interfaces to escalator/moving walk
A.2.5	**136**	2014-11-14	Unrestricted area
A.2.5	**137**	2014-11-14	Unrestricted area
A.3.5	**118**	2012-03-14	Standing area in machinery spaces
Annex I	**120**	2012-03-14	Barriers to prevent shopping trolleys access
I.1	**108**	2012-03-14	Barrier to prevent access of shopping trolleys and baggage carts
I.2	**117**	2012-03-14	Additional stop switch at handrail level - Building interfaces to escalator/moving walk
Annex K	**131**	2014-11-14	Friction coefficient, material

3.3 Lists of interpretations pertaining to EN 115-2

(kept free)

4 Interpretations related to EN 115-1

<table>
<tr><td>CEN</td><td colspan="2">INTERPRETATION
Related to</td><td>101
Page 1 of 1</td></tr>
<tr><td rowspan="2">EN 115-1</td><td rowspan="2">Edition:
2010</td><td rowspan="2">Clause(s):
5.3.1</td><td>Valid from:</td></tr>
<tr><td>Date of modification:
2011-03-30</td></tr>
<tr><td colspan="3">Key-word(s):
Increased height of the web on step treads side</td><td>Replacing interpretation
Nr.: 01</td></tr>
<tr><td colspan="4">QUESTION
Is it permitted to have an increased height of the web at both sides of the step tread (demarcation lines opposite to the skirt panels)?</td></tr>
<tr><td colspan="4">INTERPRETATION
Increased height of the rib (web) is permitted as long as the same safety level as for a totally flat step/pallet will be ensured. This shall be proofed in detail by risk analysis.</td></tr>
<tr><td colspan="4">Date of approval by CEN/TC 10 members: 2012-03-14</td></tr>
</table>

CEN	**INTERPRETATION** **Related to**		**102** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.5.2.4, 5.5.3.3	**Valid from:** **Date of modification:**
Key-word(s): Form of 25 cm^2 area			**Replacing interpretation** Nr.: 18

QUESTION

5.5.2.4 and 5.5.3.3 specify an area of 25 cm^2 on to which the force shall be applied.

Which form (square, circle, rectangle) shall this area have?

INTERPRETATION

With the definition of 25 cm^2, it was intended to precise the term “lump load” used in former codes.

Normally, the equipment for such tests has a circular or square surface so that such formed areas will be the practice in general.

This will be considered in the next revision of the standard.

Date of approval by CEN/TC 10 members: 2012-03-14

CEN	**INTERPRETATION** **Related to**		**103** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.5.3.3	**Valid from:** **Date of modification:**
Key-word(s): Load on skirting			**Replacing interpretation** Nr.: 20

QUESTION

1. 5.5.3.3 defines the load carrying ability of the skirting and deformation. Does this apply to the whole skirting or only to the area of 25 mm according to 5.5.3.2?

2. If the whole skirting has to be dimensioned for the test load, shall then also the comb plate lighting, if installed in the skirting, withstand this load?

INTERPRETATION

1. The load and deflection requirements of 5.3.3.3 shall be met up to a height of 25 mm above the line of the step nose or the tread surface of the pallets or belt where the risk of entrapment exists. Above the height of 25 mm, the force requirements of the balustrade of 500 N (see 5.5.2.4) shall be fulfilled.

2. The comb plate lighting has to withstand the test load according to 5.5.3.3 if the lighting or part of it is arranged within the area of skirting of 25 mm above the tread surface.

All other requirements of the skirting according to 5.5.3 are still valid. This includes that under the force requirements above the skirting shall remain plain and butt-joined according to 5.5.3.1.

At the next revision of EN 115-1:2008+A1:2010, 5.5.3 has to be amended accordingly.

Date of approval by CEN/TC 10 members: 2012-03-14

CEN	**INTERPRETATION** **Related to**		**104** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.12.2.1.3, 5.12.2.2.2	**Valid from:** **Date of modification:**
Key-word(s): Automatic start in two-direction mode			**Replacing interpretation** Nr.: 22

QUESTION

Is it allowed to make an arrangement as follows:

The escalator can start automatically in both directions by a user passing a light barrel depending on the direction from which the user is coming. Both directions can be predetermined directions at the same time.

When the escalator has stopped after a sufficient time (5.12.2.2.2), the signal lights show “green” light in both landings.

However, when a user comes to the end of a running escalator by passing the “red” signal light and stays near to the comb waiting till the escalator has stopped, there is another light barrel installed in the skirting above the comb and when the user passes this light barrel, the escalator stops and can be re-started only with a key.

INTERPRETATION

Operation in “two direction mode” for escalators with automatic start is permitted under the following conditions:

a) On escalators which can start automatically in either direction (“two direction mode”) by the entering of a user, the “two direction mode” and the momentary capable direction of travel shall be clearly visible to the user and marked distinctly on the escalator (see 7.2.2 plus “two direction mode” sign). They shall start in the direction determined by the user entering first. When the escalator is started by a user from either direction, the indicator opposite from the initiated starting side shall automatically indicate “no entry” (see 7.2.2).

b) Measures for control and/or monitoring function shall prevent:
   - failures of the control elements actuating the automatic start at the entries (e.g. no or partly no detection of users);
   - a restart of the step band when a user has entered the area between the control element and the comb intersection line and the step band is stopped.

c) Control and monitoring function shall be regarded as electric safety devices and shall be applied as safety switches (5.12.1.2.2), fail safe circuits (5.12.1.2.3) or SIL 1 according to PESSRAE (5.12.1.2.6).

The application of “two direction mode” is not permitted for moving walks.

This will be considered in the next revision of the standard.

Date of approval by CEN/TC 10 members: 2012-03-14

CEN	**INTERPRETATION** **Related to**		**105** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** A.2.1	**Valid from:** **Date of modification:**
Key-word(s): Unrestricted area, fixed stairs, building height			**Replacing interpretation** Nr.: 24

QUESTION

At the landings of the escalator, on the unrestricted area of 2,50 m (2,00 m) depth, is the existence of fixed stairs forbidden?

The height on the unrestricted area shall be not less than 2,30 m, if the building's regulation does not impose more?

INTERPRETATION

The existence of fixed stairs is forbidden in the unrestricted area. The area shall be flat. A maximum inclination of 6° is permissible.

In A.2.1, a building height is stated for the unrestricted area which is necessary from the view of machinery safety. National authorities are free to request more.

This will be considered in the next revision of the standard.

Date of approval by CEN/TC 10 members: 2012-03-14

CEN	**INTERPRETATION** **Related to**		**106** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.12.2.5	**Valid from:** **Date of modification:**
Key-word(s): Number of inspection control on site			**Replacing interpretation** Nr.: 26

QUESTION

For the inspection control for 2 parallel or criss-cross escalators, shall we have 2 portable control devices or is it sufficient to have one control device for both?

INTERPRETATION

According to the Machinery Directive, each escalator/moving walk shall be equipped with a permanent available portable control device.

The wording of the standard (5.12.2.5) will be improved in the next revision of the standard.

Date of approval by CEN/TC 10 members: 2012-03-14

CEN	**INTERPRETATION** **Related to**		**107** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** A.2.4	**Valid from:** **Date of modification:**
Key-word(s): Rigid deflectors			**Replacing interpretation** Nr.: 33

QUESTION

Are deflectors which correspond to A.2.4 of EN 115-1:2008+A1:2010 permitted to be pendulous, in order to prevent vandalism?

INTERPRETATION

Deflectors shall be mounted rigidly in order to meet all requirements. A pendulous deflector can be used in addition before the mandatory rigid deflector.

The rigid mounting of the deflector will be considered in the next revision of the standard.

Date of approval by CEN/TC 10 members: 2012-03-14

CEN	**INTERPRETATION** **Related to**		**108** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** I.1	**Valid from:** **Date of modification:**
Key-word(s): Barrier to prevent access of shopping trolleys and baggage carts			**Replacing interpretation** Nr.: 36 b)

QUESTION

In EN 115-1:2008+A1:2010 , I.1 requires suitable barriers to prevent access of shopping trolleys and baggage carts.

Is the former interpretation related to EN 115:1995 still valid? What are the requirements for a "suitable" barrier?

INTERPRETATION

The old interpretation is referring to EN 115:1995 including Amendments 1 and 2 and is not valid for EN 115-1:2008+A1:2010.

To protect the use of shopping trolleys and baggage carts on escalators resp. moving walks, the requirements concerning the barriers are as follows:

- The barrier shall be installed at the entrance only. An installation at the exit is not permitted in the unrestricted area.
- The design of the barrier shall not create another risk.
- The free entrance width between ends of the newels and barriers – and between barriers itself - shall be at least 500 mm (see EN 349) and less than the width of the type of shopping trolley or baggage cart which will be used.
- The height of the barrier shall be between 900 mm and 1 100 mm.
- The load the barrier and its fixation has to withstand: At a height of 200 mm a horizontal force of 3 000 N applies. This force results from an impact of a chassis of a loaded shopping trolley (according to EN 1929-1) / baggage cart loaded with 160 kg moving with a speed of 1 m/s.
- The fixation of the barrier shall preferably be done at the building structures. It is also permitted to fix it at the floor plate. In that case, when the defined forces apply, there shall be no permanent deformation and increased/additional gaps.
- If the escalator/moving walk is dedicated to work in both directions, the presence of the removable barrier shall be electrically monitored preventing wrong positioning of the barrier, except when under maintenance condition.

Date of approval by CEN/TC 10 members: 2012-03-14

<table>
<tr><td>CEN</td><td colspan="2">INTERPRETATION
Related to</td><td>109
Page 1 of 1</td></tr>
<tr><td rowspan="2">EN 115-1</td><td rowspan="2">Edition:
2010</td><td rowspan="2">Clause(s):
5.4.3.2</td><td>Valid from:</td></tr>
<tr><td>Date of modification:</td></tr>
<tr><td colspan="3">Key-word(s):
Testing of steps and pallets drive</td><td>Replacing interpretation Nr.:</td></tr>
<tr><td colspan="4">QUESTION
Regarding the step or pallet chain mentioned in 5.4.3.2:
1. Pallet chains are not mentioned
2. It is not clear, whether every step or pallet chain must be subjected to a tensile test or a type test for every chain type is sufficient.</td></tr>
<tr><td colspan="4">INTERPRETATION
1. Pallet chains are missing in the paragraph. This shall be updated during the next revision
2. To fulfil the requirement of EN 115-1 it is sufficient that every design of step or pallet chain has passed a type tensile test.
Hence, in the next revision, Table 7 will identify this requirement. In addition, the type test report should also be mentioned in 6.2.</td></tr>
<tr><td colspan="4">Date of approval by CEN/TC 10 members: 2012-03-14</td></tr>
</table>

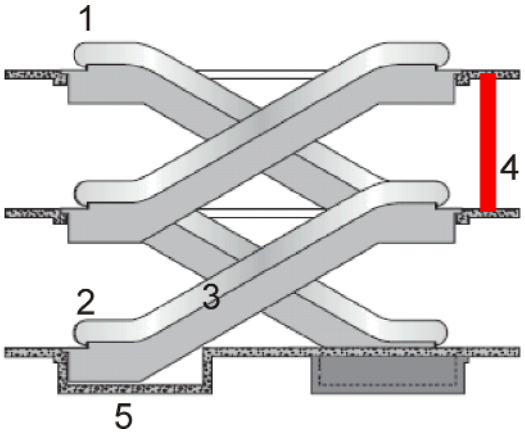
<table>
<tr><td>CEN</td><td colspan="2">INTERPRETATION
Related to</td><td>110
Page 1 of 1</td></tr>
<tr><td rowspan="2">EN 115-1</td><td rowspan="2">Edition:
2010</td><td rowspan="2">Clause(s):
5.2.1.2</td><td>Valid from:</td></tr>
<tr><td>Date of modification:</td></tr>
<tr><td colspan="3">Key-word(s):
Stiffness of exterior panel</td><td>Replacing interpretation Nr.:</td></tr>
<tr><td colspan="4">QUESTION
5.2.1.2 defines the stiffness of the exterior panels as follows:
5.2.1.2 The exterior panels shall withstand a force of 250 N at any point at right angles on an area of 25 cm^2 without breakage or deflection resulting in any gap. The fixing shall be designed in that way to carry at least twice the dead load of the enclosure.
When we have 2 panels side by side we have automatically a small gap between them. How can we fulfil then 5.2.1.2?</td></tr>
<tr><td colspan="4">INTERPRETATION
5.2.1.2 is a new requirement in EN 115-1 ensuring that exterior panels will be rigid enough to protect from contact with moving parts inside the escalator/moving walk and/or creation of points of entrapment. The requirement derives from the balustrade requirement and is similar to the interior panel.
In 5.5.2.4, the 3rd paragraph states, “gaps between the interior panels of the balustrade shall be not wider than 4 mm.”
The same applies also to the exterior panels as long as movable parts are reachable.
This paragraph will be updated in the next revision of this standard as follows:
“5.2.1.2 The exterior panels shall withstand a force of 250 N at any point at right angles on an area of 25 cm^2 without breakage. Any gaps or openings are restricted to 4 mm where there is a risk of contact with moving parts. The fixing … “</td></tr>
<tr><td colspan="4">Date of approval by CEN/TC 10 members: 2012-03-14</td></tr>
</table>

CEN	**INTERPRETATION** **Related to**		**111** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.12.2.2.4.1 Table 6 h)	**Valid from:** **Date of modification:**
Key-word(s): Stopping of succeeding escalators			**Replacing interpretation Nr.:**

QUESTION

Item h) in Table 6 indicates requirement of "stopping of a succeeding escalator or moving walk where an intermediate exit does not exist…." especially for successive escalators, as shown in A.2.6 of EN 115-1:2008+A1:2010.

In our opinion, this should read as 'stopping of a preceding escalator'.



Key

1 defective escalator
2 preceding escalator
3 STOP THIS!
4 No exit
5 side view

Figure 1

Definitely, shutting down all the successive escalators on the same route will be helpful. However, stopping a "preceding escalator" is relatively more important because this will prevent feeding more passengers in front of the defective escalator "which does not have intermediate exit" (see Figure 1 above).

If the preceding escalator is not stopped, more number of passengers will arrive in front of the defective escalator and there will not be enough space. Since there is no intermediate exit, the passengers cannot move out of the escalators path. There will be overcrowding, tripping, falling over, etc. which will be a dangerous situation.

INTERPRETATION

The intention of the code is exactly as described in the question. The requirement is to stop the escalator, if the succeeding escalator will stop where no exit exists. Table 6 is related to the escalators where the action has to be taken and where the requirements are listed.

So the heading of the table and the paragraph has to be read together which means "Requirements **for monitoring** ….. (h) …. of a succeeding escalator stopping…".

That means when travelling on the preceding escalator and the succeeding one will stop, the preceding one also shall stop. The table is listing the events when the escalator is stopping.

Date of approval by CEN/TC 10 members: 2012-03-14

<table>
<tr><td>CEN</td><td colspan="2">INTERPRETATION
Related to</td><td>112
Page 1 of 1</td></tr>
<tr><td rowspan="2">EN 115-1</td><td rowspan="2">Edition:
2010</td><td rowspan="2">Clause(s):
5.3.5</td><td>Valid from:</td></tr>
<tr><td>Date of modification:</td></tr>
<tr><td colspan="3">Key-word(s):
Measurement of step to step gap</td><td>Replacing interpretation Nr.:</td></tr>
<tr><td colspan="4">QUESTION
The edge, along the nose line of the steps, has a radius as shown in EN 115-1:2008+A1:2010, Figure 2. The measurement of the maximum allowable gap of 6 mm shown on the drawing is taken at a point below the tread surface where the radius ends.
5.3.5 states, “The clearance between two consecutive steps or pallets in any usable position measured at the tread surface shall not exceed 6 mm.”
Can the committee confirm that location for measurement is as shown on the drawing and the drawing can be considered as a correct interpretation of 5.3.5?</td></tr>
<tr><td colspan="4">INTERPRETATION
The measurement shall be carried out as the dimensions of the gaps are indicated in Figure 2. For pallets, the measurements have to be done according Figures 6 and 7.
This will be considered in the next revision of EN 115-1.</td></tr>
<tr><td colspan="4">Date of approval by CEN/TC 10 members: 2012-03-14</td></tr>
</table>

<table>
<tr><td>CEN</td><td colspan="2">INTERPRETATION
Related to</td><td>113
Page 1 of 1</td></tr>
<tr><td rowspan="2">EN 115-1</td><td rowspan="2">Edition:
2010</td><td rowspan="2">Clause(s):
5.9</td><td>Valid from:</td></tr>
<tr><td>Date of modification:</td></tr>
<tr><td colspan="3">Key-word(s):
Fire protection of steps and pallets</td><td>Replacing interpretation Nr.:</td></tr>
<tr><td colspan="4">QUESTION
“…, pallets/steps, … shall be at least class C according to EN 13501-1:2007+A1:2009, 11.5.”
In the past, steps with demarcation parts as plastic inserts were used and they never caused any fire hazard.
Does this requirement include parts like plastic inserts on the tread surface?</td></tr>
<tr><td colspan="4">INTERPRETATION
Yes, this requirement applies also for the plastic inserts. The compliance test according to EN 13501-1 (SBI Test according EN 13823) shall be carried out in the vertical position where the tread surfaces are forming the test surface. This test is applicable for steps where the plastic inserts are on the tread surface only because in this configuration, a flame spread over the complete step band is not possible.
In a configuration where plastic inserts are used in the step tread AND the step riser, a flame spread over the complete step band is possible. In this case the test according EN 13501-1 (SBI Test according to EN 13823) has to be done solely with plastic insert material forming the whole test surface.
This will be taken into account in the next revision of the standard.</td></tr>
<tr><td colspan="4">Date of approval by CEN/TC 10 members: 2012-03-14</td></tr>
</table>

CEN	**INTERPRETATION** **Related to**		**114** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.6.2.1	**Valid from:** **Date of modification:**
Key-word(s): Handrail clearances			**Replacing interpretation Nr.:**

QUESTION

5.6.2.1 says, "The distance between the handrail profile and guide or cover profiles shall under no circumstances be wider than 8 mm.".

We think the Figure 1 below complies with 5.6.2.1. But in Figure 3 of EN 115-1:2008+A1:2010, the description is "b_6' + b_6" ≤ 8 mm", we think it should be "b_6', b_6" ≤ 8 mm", is this correct?

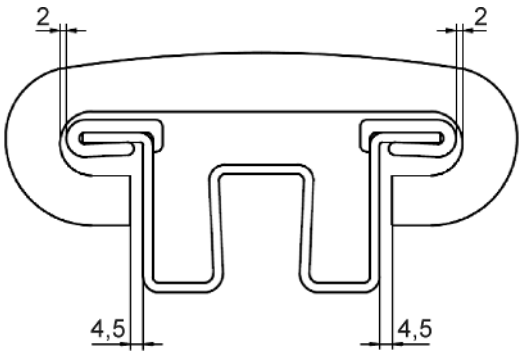


Figure 1

INTERPRETATION

Yes. This is a mistake in EN 115-1 that will be corrected in the next revision.

To avoid here any confusion, it is even better to write:

" b_6' ≤ 8 mm"

" b_6" ≤ 8 mm".

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CEN	**INTERPRETATION** **Related to**		**115** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** A.2.5	**Valid from:** **Date of modification:**
Key-word(s): Unrestricted area at the exit			**Replacing interpretation Nr.:**

QUESTION

Why does EN 115-1 provide more strict requirements related to the unrestricted area (see Figure 2 below) compared to the former release (see Figure 1 below)?

EN 115:1995

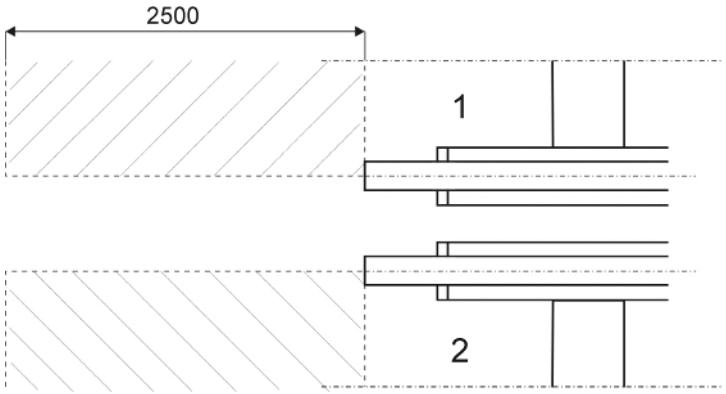

Figure 1

Key
1 escalator 1
2 escalator 2

EN 115-1:2008+ A1:2010

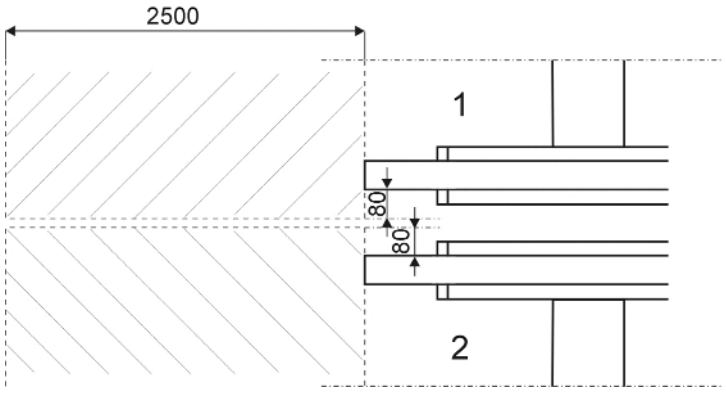

Figure 2

Key
1 escalator 1
2 escalator 2

INTERPRETATION

With the extension of the unrestricted area, the risk of entrapment (for requirements on safety distances, see EN 349) by fixed devices near the handrail was considered.

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CEN	**INTERPRETATION** **Related to**		**116** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.12.2.2.4.1 Table 6 h), A.2.5	**Valid from:** **Date of modification:**
Key-word(s): Area of exit			**Replacing interpretation Nr.:**

QUESTION

Table 6 h) including A.2.5, requires monitoring of:

- stopping of succeeding escalators/moving walks;
- exits blocked by structural measures

Under these conditions, the exit is not described in detail. Is there a defined space which can be considered as an exit?

INTERPRETATION

In A.2.5, the area of the exit is defined as being the unrestricted area with the minimum (sufficient) values. This definition has to be applied for all conditions.

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CEN	**INTERPRETATION** **Related to**		**117** Page 1 of 2
EN 115-1	**Edition:** 2010	**Clause(s):** A.2.5, I.2	**Valid from:** **Date of modification:**
Key-word(s): Additional stop switch at handrail level - Building interfaces to escalator/moving walk			**Replacing interpretation Nr.:**

QUESTION

- What are the definition of the term “at handrail level” and the position of the stop button?
- Is this requirement related to the stop button or to the entire installation (e.g. including housing)?
- Are installations slightly above or below the handrail permitted, avoiding hidden installation or conflict with installations close to the handrail?

The intention of this requirement is quite clearly defined in A.2.5. A more precise specification of the requirements related to handrail and stop switch or stop switch housing would be appreciated.

INTERPRETATION

- The intention of the wording “at handrail level” is to point out an installation of the stop switch close to the handrails within the reach for the passengers with a distance from the comb intersection line in the range of 2 000 to 3 000 mm (see Figure 1 below).
- The installation can be regarded within a vertical range of 200 mm below and 400 mm above the handrails (see Figures 2 and 3 below). Within that range, the stop button can be considered as “not hidden”.
- Assemblies in the inside of the balustrade are permitted when they are arranged and formed in such a manner as to eliminate any risk of harm caused by trapping.
- The vertical limitations are related to the middle of the actuator (e.g. push button or handle).

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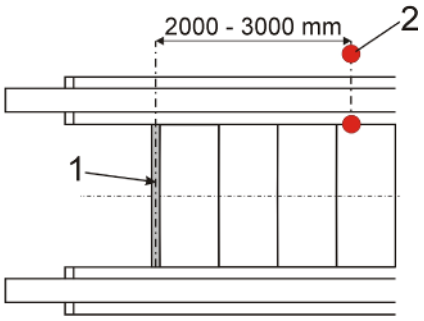

Figure 1

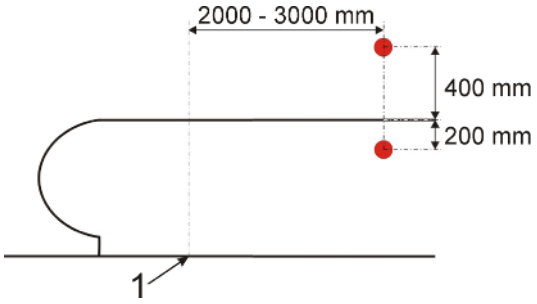

Figure 2

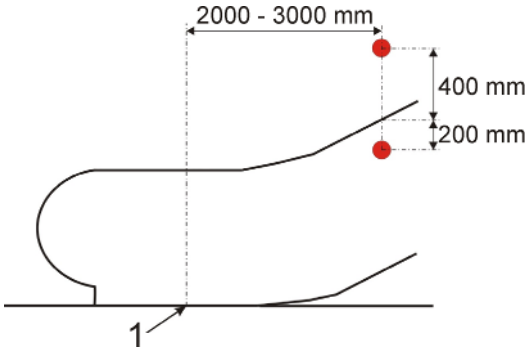

Figure 3

Key to Figures 1 to 3

1 comb intersection line

2 additional stop switch at handrail level

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CEN	**INTERPRETATION** **Related to**		**118** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.8.2.1, A.3.5	**Valid from:** **Date of modification:** 2011-09-23
Key-word(s): Standing area in machinery spaces			**Replacing interpretation Nr.: 28**

QUESTION

Shall the space above the defined standing area be free of any equipment?

INTERPRETATION

Above the standing area it is acceptable to install equipment in corners provided this equipment does not affect the standing

The space above the defined standing area may be occupied by permanently installed parts provided that the permanently installed parts are placed behind rounded corners of 0,25 m radius (see Figure 1 below) and at a height of at least 0,12 m above the free standing area.

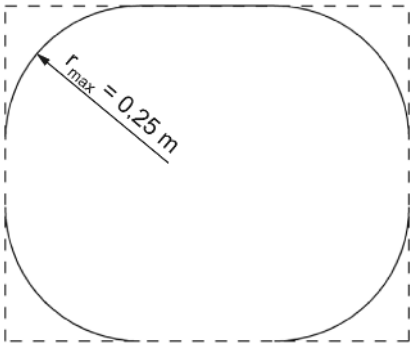

Figure 1

This will be considered in the next revision of EN 115-1.

Date of approval by CEN/TC 10 members: 2012-03-14

CEN	**INTERPRETATION** **Related to**		**119** Page 1 of 7
EN 115-1	**Edition:** 2010	**Clause(s):** A.2	**Valid from:** 2011-09-23
			Date of modification: 2011-10-13
Key-word(s): Fixed devices in unrestricted areas			**Replacing interpretation Nr.:**

QUESTION

Fixed devices like guiding barriers for improving the traffic flow or traffic columns, especially in the unrestricted area, are not clearly defined in EN 115-1. What are the requirements on these devices?

INTERPRETATION

Where fixed devices such as guiding barriers and/or traffic columns are necessary in the unrestricted area, the following requirements, to avoid any additional risk, shall be met. The safety distances are defined according to EN 349.

1 General requirements

- The devices shall have no sharp or cutting edges.
- There shall be no pinching hazard, especially with the moving handrail.
- The devices and its fixation shall withstand a horizontal force of 1 kN/m applied to the top of the device. This force results from EN 1991-1-1, Category C2-C4 and D

  NOTE Guiding barriers and traffic columns are not intended as safeguards against falling down, for which higher forces and further regulations are applicable.

- The devices shall preferably be affixed to the building structure or the escalator/moving walk structure. If affixed to a fixed part of the floor plate, when the defined forces are applied, there shall be no permanent deformation and no increased/additional gaps.
- A further improvement of the level of safety is accomplished by attachment of caution markings to the columns to improve the visual recognition of the obstruction, or by installing round columns resp. columns with diagonal deflectors in front of the columns, to eliminate the risk of getting stuck with e.g. luggage.

2 Placement requirements

A) In case of a free-standing guiding barriers or traffic columns, they shall be positioned in a minimum horizontal distance (radius) of 500 mm from any point of the handrail, and outside of the centre line of the handrail (see Figures 1 a)/b) on Page 3, Figure 8 on Page 7).

B) This minimum distance may be reduced to 300 mm, provided that the guiding barriers or traffic columns are positioned outside of the centre lines of the handrails and an additional barrier is installed between the guiding barriers or traffic columns and the vertical centre line of the balustrade newel (see Figures 2 a)/b) on Page 3, Figure 8 on Page 7).

   The additional barrier shall have a lateral distance between 80 mm to 120 mm of the handrail outer edge and shall close at least the area between the actual lowest point of the handrail entry into the newel (h_3, see 5.6.4.1 of EN 115-1:2008+A1:2010) and the balustrade decking profile and shall have filled inlets with gaps < 25 mm with no pinching risk (see Figures 6 a)/b)/c)/d) on Page 5).

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C) Further reduction to 180 mm is permitted, as long as the guiding barrier or traffic column is positioned outside of the outer edge of the handrail and an additional barrier is installed between the guiding barrier or traffic column and the vertical centre line of the balustrade newel (see Figures 3 a)/b) on Page 4, Figure 8 on Page 7).

The additional barrier shall have a lateral distance between 80 mm to 120 mm of the handrail outer edge and shall close at least the area between the actual lowest point of handrail entry into the newel (h_3) and the balustrade decking profile and shall have filled inlets with gaps < 25 mm with no pinching risk (see Figures 6 a)/b)/c)/d) on Page 5).

D) A reduction of the horizontal distance to 100 mm (identical to the minimum value of h_3) is permitted, only if the guiding barrier or traffic column is of a round shape and is positioned outside of the outer edge of the handrail and an additional barrier is installed between the guiding barrier or traffic column and the vertical centre line of the balustrade newel (see Figures 4 a)/b) on Page 4, Figure 8 on Page 7).

The additional barrier shall have a lateral distance between 80 mm to 120 mm of the handrail outer edge and shall close at least the area between the actual lowest point of handrail entry into the newel (h_3) and the balustrade decking profile and shall have filled inlets with gaps < 25 mm with no pinching risk (see Figures 6 a)/b)/c)/d) on Page 5).

3 Traffic columns requirements

The height of traffic columns shall be at least the height of the handrail level.

4 Guiding barriers requirements

The height of guiding barriers shall be at least the height of the balustrade decking, that is at least the vertical distance between floor level and the upper edge of moving handrail minus thickness of the moving handrail minus at least 25 mm (see b_{12}, A.2.2 of EN 115-1:2008+A1:2010).

5 Additional requirements

An arrangement of guiding barriers or traffic columns completely outside of the unrestricted area is not subject of this interpretation. The safety distances according to EN 349 shall be respected.

If fixed devices are placed inside the unrestricted area, the size of the unrestricted area shall remain the same and in this case be extended in the length (see Figure 7 a)/b) on Page 6).

Respect the minimum widths of crossing escape and rescue routes. Local legislations may apply.

Building barriers and traffic columns are not considered as structural measures that block the exit.

6 Annex: Illustrations

See Figures 1 to 8 below.

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Illustration of the unrestricted area with column at a radius R ≥ 500 mm from any point of the handrail according to **Placement A)**

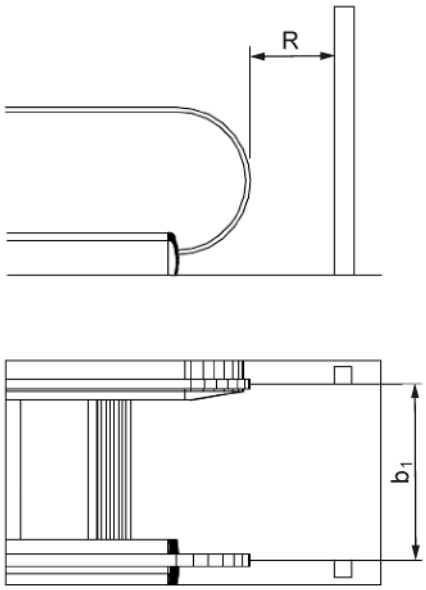

Figure 1 a)

Illustration of the unrestricted area with guiding barrier at a radius R ≥ 500 mm from any point of the handrail according to **Placement A)**

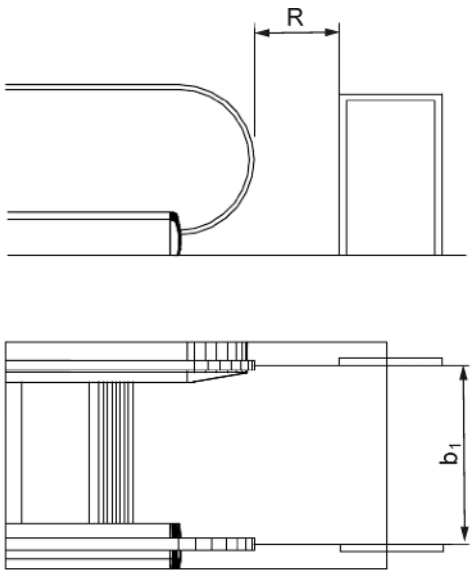

Figure 1 b)

Illustration of the unrestricted area with column and with additional barrier (hatched area) at a radius 300 mm ≤ R < 500 mm from any point of the handrail according to **Placement B)**

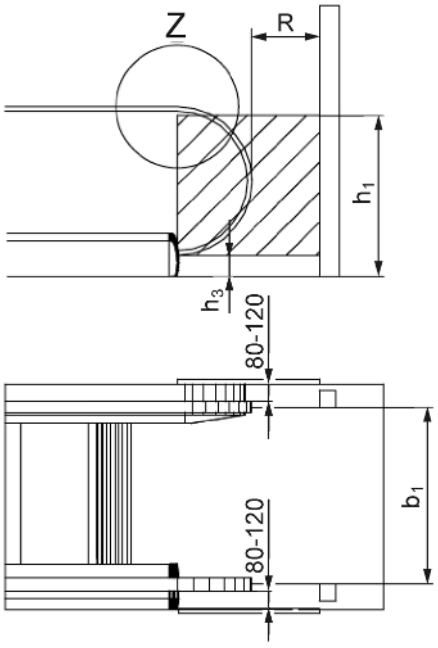

Figure 2 a)

Illustration of the unrestricted area with guiding barrier and with additional barrier (hatched area) at a radius 300 mm ≤ R < 500 mm from any point of the handrail according to **Placement B)**

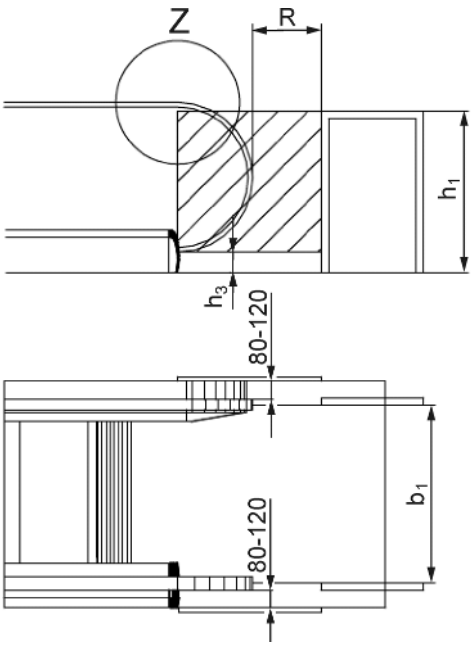

Figure 2 b)

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Illustration of the unrestricted area with column and with additional barrier (hatched area) at a radius 180 mm ≤ R < 300 mm from any point of the handrail according to **Placement C)**

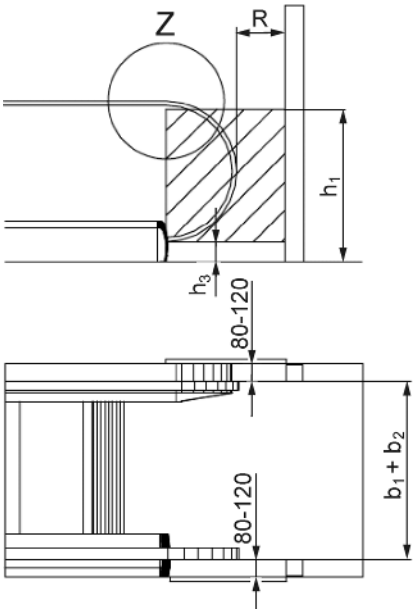

Figure 3 a)

Illustration of the unrestricted area with guiding barrier and with additional barrier (hatched area) at a radius 180 mm ≤ R < 300 mm from any point of the handrail according to **Placement C)**

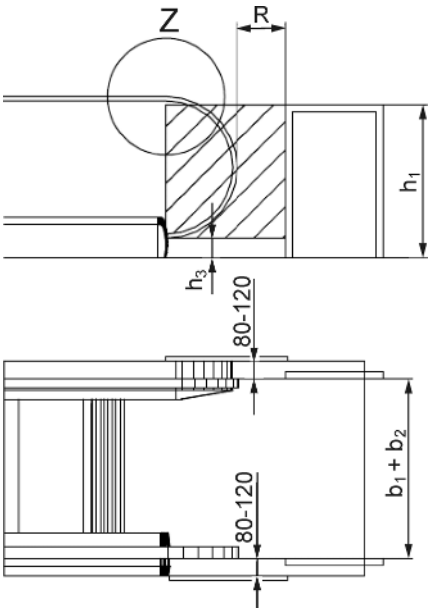

Figure 3 b)

Illustration of the unrestricted area with column and with additional barrier (hatched area) at a radius 100 mm ≤ R < 180 mm from any point of the handrail according to **Placement D)**

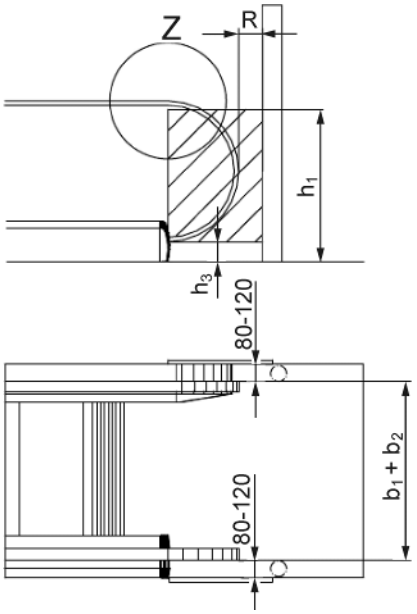

Figure 4 a)

Illustration of the unrestricted area with guiding barrier and with additional barrier (hatched area) at a radius 100 mm ≤ R < 180 mm from any point of the handrail according to **Placement D)**

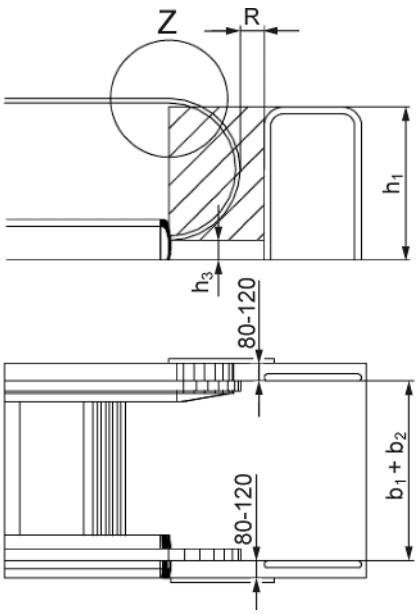

Figure b)

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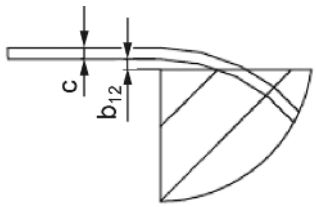
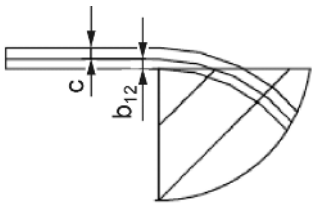


a) Glass balustrade



b) Metal balustrade

Figure 5 — Detail Z to Figure 1/2/3/4 a/b

EN 115-1: h_3 = Distance between the entry of handrail into the newel and the floor; min. 100 mm, max. 250 mm.

The lower edge of the additional barriers may be at floor level or at the actual lowest point of the handrail entry into the newel.

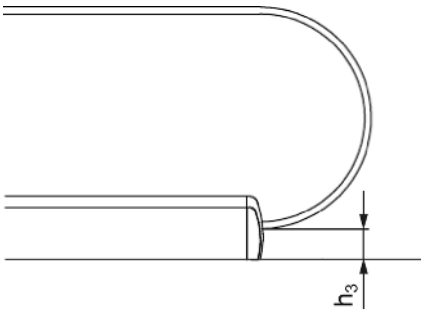


Figure 6 a) — Detail to h_3

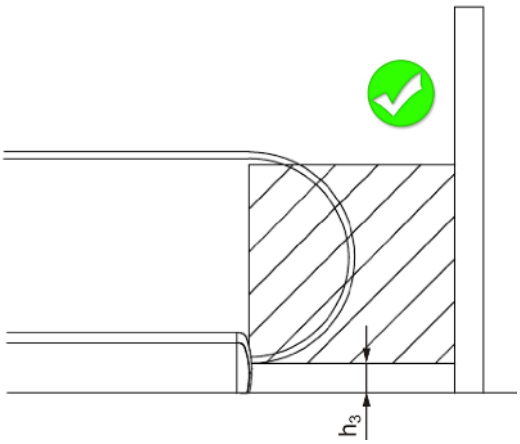


Figure 6 b) — Height of lower edge of additional barrier = actual h_3

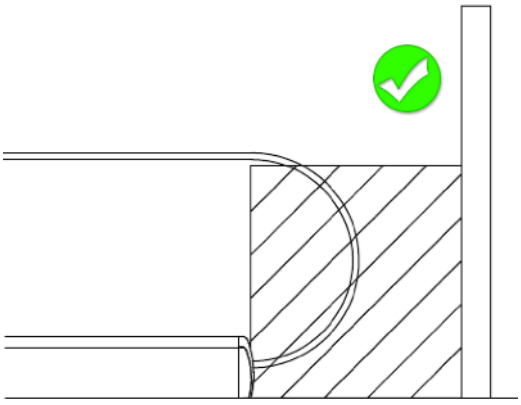


Figure 6 c) — Height of lower edge of additional barrier = floor level

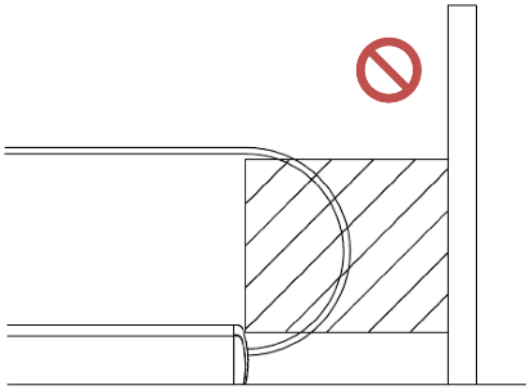


Figure 6 d) — Height of lower edge of additional barrier > actual h_3

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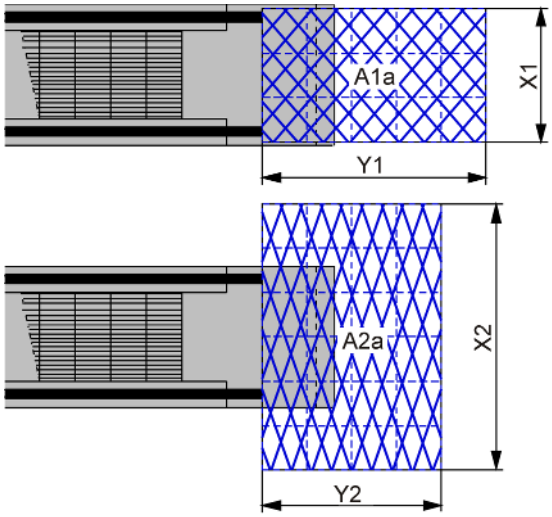


Figure 7 a) — Size of the unrestricted area without fixed devices

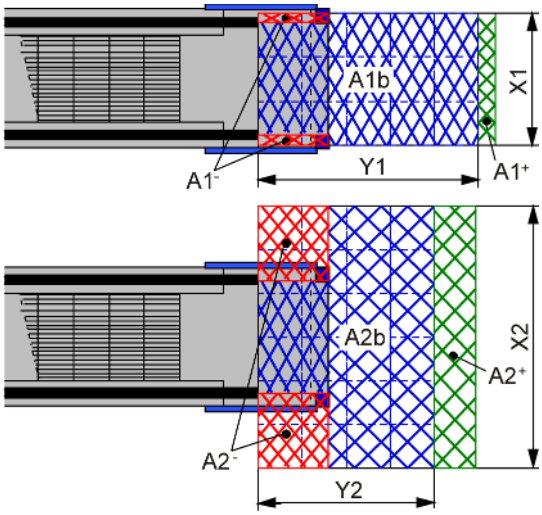
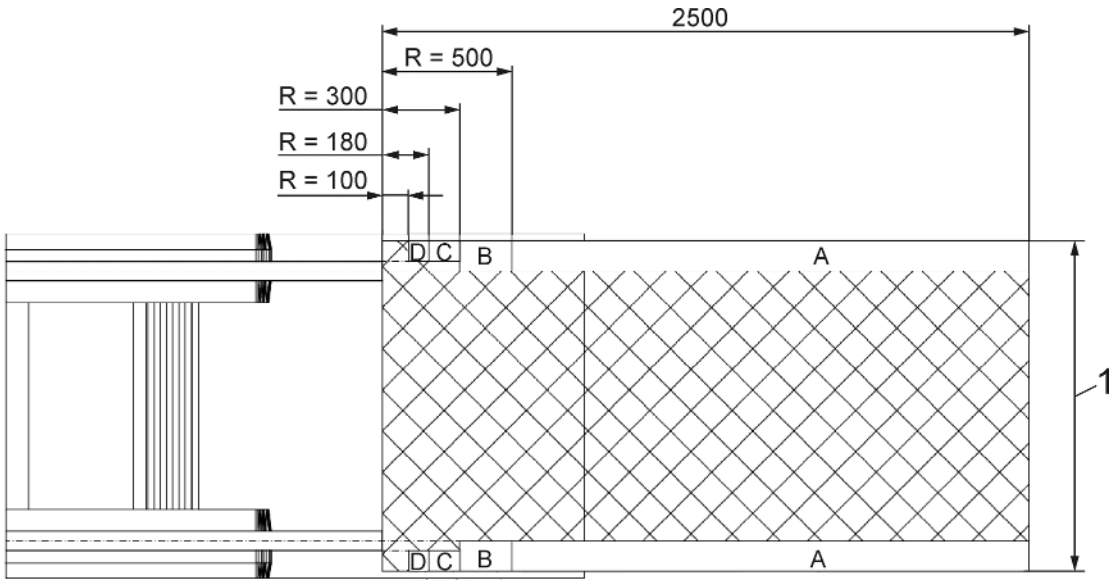


Figure 7 b) — Size of the unrestricted area with example of fixed devices

Key to Figures 1 to 7

b_1	EN 115-1: distance between the handrail centre lines	depending on model
b_2	EN 115-1: width of the handrail	depending on model
b_{12}	EN 115-1: vertical distance between the lower edge of the handrail and the balustrade decking	min. 25 mm
c	thickness of the handrail	depending on model
h_1	EN 115-1: vertical distance between the top of the handrail and step nose or pallet surface or belt surface	at least the vertical distance between floor level and upper edge of moving handrail minus thickness of moving handrail c minus 25 mm
h_3	EN 115-1: distance between the entry of handrail into the newel and the floor	min. 100 mm, max. 250 mm (min. 100 mm also used as absolute minimum for R)
R	horizontal distance (radius) between any point of the handrail and the traffic column / guiding barrier	see different placements
X_1	width of unrestricted area	$b_1 + 2 \cdot 0{,}5 \cdot b_2 + 2 \cdot 80$ mm
X_2	width of unrestricted area with reduced depth	$2 \cdot (b_1 + 2 \cdot 0{,}5 \cdot b_2) + 2 \cdot 80$ mm
Y_1	depth of unrestricted area	2 500 mm
Y_2	reduced depth of unrestricted area	2 000 mm
A_1	size of unrestricted area	$X_1 \cdot Y_1$
A_2	size of unrestricted area with reduced depth	$X_2 \cdot Y_2$

CEN	INTERPRETATION	119 Page 7 of 7



Key

1 distance between the outer edge of the handrails plus 80 mm on each side

A position: outside of the handrail centre lines;
additional barrier: not needed

B position: outside of the handrail centre lines;
additional barrier: between the column/guiding barrier and the vertical centre line of the handrail

C position: outside of the outer edge of the handrail;
additional barrier: between the column/guiding barrier and the vertical centre line of the handrail

D round column/guiding barrier, position: outside of the outer edge of the handrail;
additional barrier: between the column/guiding barrier and the vertical centre line of the handrail

R horizontal distance (radius) between any point of the handrail and the traffic column/guiding barrier

Figure 8 — Possible placements of fixed devices in unrestricted areas (Guiding barriers and traffic columns)

This will be considered in the next revision of the standard.

Date of approval by CEN/TC 10 members: 2012-03-14

CEN	**INTERPRETATION** **Related to**		**120** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** Annex I	**Valid from:** **Date of modification:**
Key-word(s): Barriers to prevent shopping trolleys access			**Replacing interpretation Nr.:**

QUESTION

Annex I says: "Where shopping trolleys and baggage carts are available in the area around escalator installations, suitable barriers shall be provided to prevent access".

The question is: It should be defined with more detail the term "are available in the area around the escalator". There are some big areas with trolleys not close to the escalators, but sometime some of them could go close the escalator. Additionally, what about if there are elevators and the shopping trolleys can go from one floor to others?

Should there be barriers for all escalators in this type of installations?

INTERPRETATION

If it is reasonably foreseeable that trolleys can be taken onto an escalator, then suitable barriers shall be installed to prevent this occurrence.

Date of approval by CEN/TC 10 members: 2012-03-14

<table>
<tr><td>CEN</td><td colspan="2">INTERPRETATION
Related to</td><td>121
Page 1 of 1</td></tr>
<tr><td rowspan="2">EN 115-1</td><td rowspan="2">Edition:
2010</td><td rowspan="2">Clause(s):
5.4.2.2.2</td><td>Valid from:</td></tr>
<tr><td>Date of modification:
2011-03-30</td></tr>
<tr><td colspan="3">Key-word(s):
Auxiliary braking system</td><td>Replacing interpretation Nr.: 01</td></tr>
<tr><td colspan="4">QUESTION
5.4.2.2.2 describes the dimensioning of the auxiliary braking system:
The auxiliary braking system shall be dimensioned in such a way that escalators and moving walks travelling with brake load downward are brought to rest by effective retardation and maintained stationary. The deceleration of 1 m/s² shall not be exceeded.
Upon operation of auxiliary brakes it is not necessary to keep the stopping distances defined for the operational brake (see 5.4.2.1.3.1).
In case of escalators which are equipped with 3 brakes, is it allowed that the function as described in 5.4.2.2 is executed by 2 of them and the function of the operating brake also by 2 of them, which means that one of the total 3 brakes is fulfilling 2 functions?</td></tr>
<tr><td colspan="4">INTERPRETATION
The code defines the function of an operational brake and an auxiliary brake in detail, in which situation they have to trigger and how they operate together.
If an escalator has more than 2 brakes, it is possible to define some of these brakes as operational brake and others as auxiliary brake. This definition can be done and adapt for any hazard scenario which may be considered.
Doing this, the design shall be documented in respect of functions, dimensioning, behaviour, control and cooperation of these brakes in the escalator system. The design is based on risk analysis results. This includes also adjustment setup, maintenance and inspection process and corresponding update in the operating manual for the owner.</td></tr>
<tr><td colspan="4">Date of approval by CEN/TC 10 members: 2014-11-14</td></tr>
</table>

CEN	**INTERPRETATION** **Related to**		**122** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.3.6	**Valid from:** **Date of modification:**
Key-word(s): Location detection missing step device			**Replacing interpretation Nr.:**

QUESTION

A missing step/pallet (see Table 6 k)) shall be detected before a dangerous situation occurs. The escalator/moving walk must be stopped before the gap (resulting from the missing step/pallet) emerges from the comb.

What is the maximum distance of the location detection of the missing step device?

INTERPRETATION

5.3.6 defines the location and requires that such a device shall be provided at each driving and return station. The device shall be positioned in the return run of the steps/pallets. The installation in the straight part between the transition curves is not permitted.

This will be considered in the next revision of the standard.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**123** Page 1 of 2
EN 115-1	**Edition:** 2010	**Clause(s):** 5.4.2.1.1.1, 5.4.2.1.1.3, 5.12.1.2.1.1	**Valid from:** **Date of modification:**
Key-word(s): Electrical braking with inverter			**Replacing interpretation Nr.:**

QUESTION

As currently stated in EN 115-1 operational braking is allowed by other means (e.g. electrical based inverter braking).

1) Is there contradiction or conflict between such a design and the requirements of
   - 5.4.2.1.1.1 *("there shall be no intentional delay in the application of the braking system")* and
   - 5.12.1.2.1.1 *(" ... or cause the immediate stopping of the driving machine ...")*?
2) What are the requirements in 5.4.2.1.1.3 for using "other means"?

INTERPRETATION

re 1) There is no conflict or contradiction between these two subclauses and the use of "other means" for braking. As long as the control system starts a braking sequence immediately to bring the machine to a stop, that is considered "immediate stopping" and is not considered "intentional delay".

re 2) In accordance with 5.4.2.1.1.3 "Operational braking shall be effected by an electro-mechanical brake or other means. Where no electro-mechanical operational brake is used, an auxiliary brake in accordance with 5.4.2.2 shall be provided."

With reference to this clause the "electrical braking with inverter" (electrical brake system) can be regarded as "other means" and is accordingly permitted to replace the electro-mechanical operational brake when both of the following are installed:

- an auxiliary brake according to 5.4.2.2 and
- monitoring of excessive speed and unintended reversal of direction.

The operational braking system implemented using "other means" must fulfil the operational braking requirements as specified by 5.4.2.1 (i.e. brought to rest with a uniform deceleration and maintained stationary). The following functions shall be provided for the control of the operational brake when performed as "other means" (electrical brake) (obviously, each function listed performs at least equally or with better integrity * described in EN 115-1:2008+A1:2010).

1. Operational brake operate automatically (event of loss of voltage supply)
   integrity equivalent to A, B3-B6, G
2. Operational brake operate automatically (event of loss of voltage supply to the control circuit)
   integrity equivalent to A, B3-B6, C, E, F, G
3. Brought to rest with a uniform deceleration (under any load condition) integrity equivalent to A, B, G
4. Electro-mechanical (other means) integrity equivalent to A, B1, G
5. immediate power current interruption immediately integrity equivalent to A, C, E, F, G

* Integrity is a measure of "how well" a function is achieved.

CEN	INTERPRETATION	123 Page 2 of 2

6. slide friction torque - to decelerate the system under brake load integrity equivalent to B
7. static friction torque - to hold the system under brake load integrity equivalent to B2-B8

NOTE 1 It is unlikely under current available technology to achieve the "maintain stationary" function (and disconnecting the power from the motor) under all circumstances (e.g. power loss) using the "other means" of braking alone.

NOTE 2 It is important to achieve the requirement of 5.12 "protection against electric faults – control" in the design of the "other means" braking system.

The following are examples of parameters essential to achieve integrity:

A) brake magnet drop time default < 150 ms
B1) friction torque – permitted stopping distance monitoring - Table 6
B2) friction torque – safety factor requirements 5.4.1.3.2. between step and brake
B3) friction torque – supply voltage independent
B4) friction torque – protection from contamination (e.g. grease)
B5) friction torque – lining specification
B6) friction torque – inertia fly wheel mass
B7) friction torque – product data in respect to 6.2 c)
B8) friction torque – inspection and maintenance process definition in respect of: 7.4.1.f); 7.3.2.d);;
C1) two independent electric devices (switch off brake magnet/motor) (see 5.12)
C2) one of these devices has not opened, restarting prevented
E) integrity of electric devices used 5.11.2 and contactor drop time < 50 ms
F) measures to be taken 5.11.2.1.3
G) supply quality of brake magnet components (required integrity)

NOTE 3 A, B4 to B6 and G are not required by the code but represent current available technology.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**124** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.4.1.3.2	**Valid from:** **Date of modification:**
Key-word(s): Safety factor of driving elements			**Replacing interpretation Nr.:**

QUESTION

5.4.1.3.2 defines a static safety factor. For step and pallet chain in 5.4.3.2, a static safety factor and nominal infinite fatigue life is required. Does this also apply to driving elements?

INTERPRETATION

Infinite fatigue life is also a requirement for driving elements and will be mentioned in the next revision.

Driving elements are the parts which are moving and hence dynamically loaded, e.g. shaft, gear wheels, multiplex chains.

The fixation of these parts in the truss has to be done according to the specific requirements of these components (e.g. Eurocode for the truss, welding and screws acc. to the relevant standards).

Date of approval by CEN/TC 10 members: 2014-11-14

<table>
<tr><td>CEN</td><td colspan="2">INTERPRETATION
Related to</td><td>125
Page 1 of 1</td></tr>
<tr><td rowspan="2">EN 115-1</td><td rowspan="2">Edition:
2010</td><td rowspan="2">Clause(s):
4.9, 5.7.2.1</td><td>Valid from:</td></tr>
<tr><td>Date of modification:</td></tr>
<tr><td colspan="3">Key-word(s):
– 2 horizontal steps ≤ 6 m vs. 3 horizontal steps > 6 m
– Lower escalator transition curve, exit/entry</td><td>Replacing interpretation Nr.:</td></tr>
<tr><td colspan="4">QUESTION
5.7.2.1 requires three flat steps for rises above 6 m. Is this necessary for the upper and lower landing?</td></tr>
<tr><td colspan="4">INTERPRETATION
For safety reasons, this requirement applies for both landings</td></tr>
<tr><td colspan="4">Date of approval by CEN/TC 10 members: 2014-11-14</td></tr>
</table>

CEN	**INTERPRETATION** **Related to**		**126** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.3.3.2.2	**Valid from:** **Date of modification:**
Key-word(s): Step riser, inserts			**Replacing interpretation Nr.:**

QUESTION

This paragraph does not consider inserts/attachments on the step riser. Are there special requirements for inserts/attachments on step risers?

INTERPRETATION

This shall be considered in the revision of the standard.

In case of inserts/attachments on a step riser, an additional test shall be undertaken on a fully assembled step with a load applied on the riser insert/attachment, in the middle of the full height of the step riser, to an area of 5 cm by the width of the insert/attachment.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**127** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.7.3.2.6	**Valid from:** **Date of modification:**
Key-word(s): Comb switch			**Replacing interpretation Nr.:**

QUESTION

When foreign bodies are being trapped at the point where the steps, pallets or the belt enter the comb, shall the comb plate contact trigger in both horizontal and vertical direction?

INTERPRETATION

EN 115-1 does not define the design of the comb plate, the trigger direction or the requirement for movement to initiate a trigger. The comb plate shall fulfil the requirements of 5.7.3.2.6.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**128** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.12.2.1.1	**Valid from:** **Date of modification:**
Key-word(s): Starting with passengers on the step/pallet band			**Replacing interpretation Nr.:**

QUESTION

5.12.2.1.1 states

" … The person who operates the switch shall:

– be able to see the entire escalator or entire moving walk or

– shall have means

to ensure that nobody is using the escalator or moving walk before making this operation …"

Does this mean that the escalator/moving walk can be started with passengers on the step/pallet band when the person who operates the start switch sees the entire escalator/moving walk, or is the general intention to start without passengers on the step/pallet band under all conditions?

INTERPRETATION

It is the requirement to ensure that no user/object is on the step/pallet band when the escalator/moving walk is started by starting switches (5.12.2.1.1).

This applies also to 5.12.2.2.1.

Wording will be improved in the next revision.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**129** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.12.2.1.3	**Valid from:** **Date of modification:**
Key-word(s): Automatic initiation of starting			**Replacing interpretation Nr.:**

QUESTION

Is the automatic initiation of starting permitted by other means in accordance with 5.12.2.1.3 (Start automatically by entering of a user) when no user is activating the control element at the entries?

EXAMPLE A stationary escalator shall be started when the ambient temperature is below a specified limit in order to avoid permanent heating with relation to environmental protection etc.?

PROPOSED ANSWER

With reference to the Machinery Directive the auto-start condition (escalator/moving walk is stationary and powered up and ready to start initiated by passenger detection) of the escalator/moving walk is regarded to be in operation. Accordingly, the step band can be started by other means.

INTERPRETATION

With reference to the Machinery Directive the auto-start condition (escalator/moving walk is stationary and powered up and ready to start initiated by passenger detection) of the escalator/moving walk is regarded to be in operation. Accordingly, the step band can be started by other means. These other means shall not stop the escalator/moving walk.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**130** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.7.2.1	**Valid from:** **Date of modification:**
Key-word(s): Landing, vertical difference, consecutive steps			**Replacing interpretation Nr.:**

QUESTION

Is it acceptable for all of the vertical difference of 4 mm between two consecutive steps, arising from the step nearest the curve starting to form, to be used as the basis of nominal design, or is it the intention that the allowance of 4 mm is intended to be used for tolerances and other effects?

INTERPRETATION

Yes, it needs to take into account all of the above as long as the 4 mm are fulfilled.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**131** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.5.3.4 d), Annex K	**Valid from:** **Date of modification:**
Key-word(s): Friction coefficient, material			**Replacing interpretation Nr.:**

QUESTION

DIN 51131:2006 has been changed in 2008 and 2014 with the following main modifications influencing EN 115-1:

- Deletion of PVC slider material;
- For leather slider material, a large standard deviation (0,13) for measured values has been mentioned.

How to deal with that situation within EN 115-1?

INTERPRETATION

To be in accordance with the modifications in DIN 51131:2014, PVC will be deleted due to the non-availability and leather due to the large standard deviation, too. Testing shall be carried out with rubber only according to DIN 51131:2014.

This will be taken into account in the next revision of EN 115-1.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**132** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** A.2.2	**Valid from:** **Date of modification:**
Key-word(s): Measure b_{12}			**Replacing interpretation Nr.:**

QUESTION

In Figure 3, detail W, the measure b_{12} represents the distance between the lower edge of the handrail and the upper edge of the balustrade decking profile. According to the related table, the measure b_{12} is referring to A.2.2.

A.2.2 states: "The distance between the outer edge of the handrail and walls or other obstacles (see b_{10} in Figure A.1) shall under no circumstances be less than 80 mm horizontally and 25 mm vertically below the lower edge of the handrail (see b_{12} in Figure 3). The area is permitted to be smaller, if by appropriate measures, the risk of injury is minimised."

Is this requirement only related to obstacles within the handrail run or also to the balustrade design?

INTERPRETATION

The distance b_{12} is defined in details in A.2.2 and is valid for building interfaces and related obstacles which are regarded as discontinuities. It is also used in 5.5.2.2 related to anti-climbing devices as they can also be considered as obstacles/discontinuities.

It is not related to the continuous balustrade profile and decking and other continuous parts of the escalator as defined in Clause 5. For avoiding entrapment related to the handrail, b_6' and b_6" are defined.

The next revision of EN 115-1 will consider this topic more detailed.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**133** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.5.3.4	**Valid from:** **Date of modification:**
Key-word(s): Skirt deflector			**Replacing interpretation Nr.:**

QUESTION

The geometrical requirements for skirt deflectors are shown in Figure 1. Are there also designs with similar shapes permitted?

INTERPRETATION

Figure 1 is a sketch of the principle. Designs with similar shapes are permitted.

Deviating from Figure 1, it is permitted to provide a flat surface perpendicular to the skirt with a width ≤ 5 mm that is followed by an increasing downward (on the top)/upward (on the bottom) convex slope. The shape shall reach an inclination of 25° at least in half of the horizontal projection of the rigid part.

If there is a flat surface perpendicular to the skirt followed by straight slope (≥ 25°), on the top a width ≤ 10 mm and on the bottom a width ≤ 5 mm are permitted.

This will be considered in the next revision of EN 115-1.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**134** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 3.1.19, 5.4.1.2	**Valid from:** **Date of modification:**
Key-word(s): Definition of nominal speed			**Replacing interpretation Nr.:**

QUESTION

Is the nominal speed defined as: (either or)

1. when operating the equipment under no load condition, e.g. 0,492 m/s; 0,51 m/s ?
2. stated by the manufacturer as that for which the escalator or moving walk has been designed, e.g. 0,5 m/s ?

According to terms and definitions, the nominal speed is a fixed value. Is the wording in 5.4.1.2.1 "The **nominal** speed shall not deviate by more than 5 % at nominal frequency and nominal voltage." correct?

INTERPRETATION

The nominal speed is defined in 3.1.19 as stated by the manufacturer as that for which the escalator or moving walk has been designed, e.g. 0,5 m/s.

Correct meaning for 5.4.1.2.1: "The speed of an unloaded escalator shall not deviate by more than ± 5 % at nominal frequency and nominal voltage."

This will implemented in the next revision and the wording of the nominal speed defined.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**135** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** 5.4.2.3	**Valid from:**
			Date of modification:
Key-word(s): Excessive speed			**Replacing interpretation Nr.:**

QUESTION

Requirement for over speed:

5.4.2.3.1 Escalators and moving walks shall be equipped in such a way that they stop automatically before the speed exceeds a value of 1,2 times the nominal speed (see Table 6 c)). Where speed control devices are used for this purpose, they shall have switched off the escalator or moving walk before the speed exceeds a value of 1,2 times the nominal speed.

At which acceleration the response time of control shall switch off before the speed exceeds a value of 1,2 times the nominal speed?

INTERPRETATION

It is unnecessary to define an acceleration. The term “switched off” could be misleading and should read, “starting a braking sequence immediately” which is in line with Interpretation 123.

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**136** Page 1 of 3
EN 115-1	**Edition:** 2010	**Clause(s):** A.2.5	**Valid from:** **Date of modification:**
Key-word(s): Unrestricted area			**Replacing interpretation Nr.:**

QUESTION

1. In case of a depth reduced to 2 m, is it possible to shift laterally the unrestricted area from the centre line of the escalators/moving walk (see Figure 1)?
2. In case of 2 adjacent units with reduced depth of their unrestricted areas, (parallel or scissor configuration) is it allowed to
   - superimpose their two areas?
   - shift laterally the area(s)?

(See Figures 2 to 4).

INTERPRETATION

1. A lateral shift of the unrestricted area is permitted.
2. An overlapping of unrestricted areas is not permitted.

This will be taken into account in the next revision of the standard.

CEN	INTERPRETATION	136 Page 2 of 3

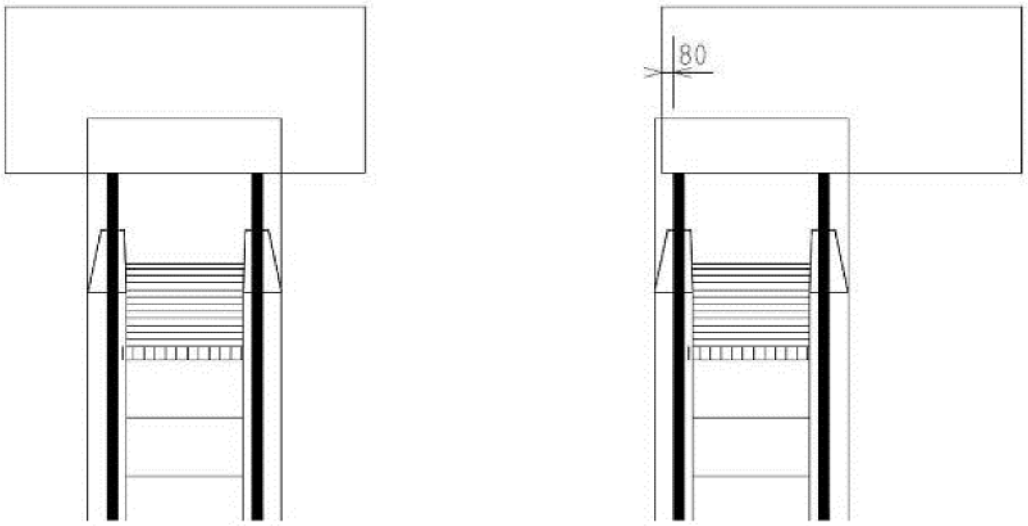


Figure 1

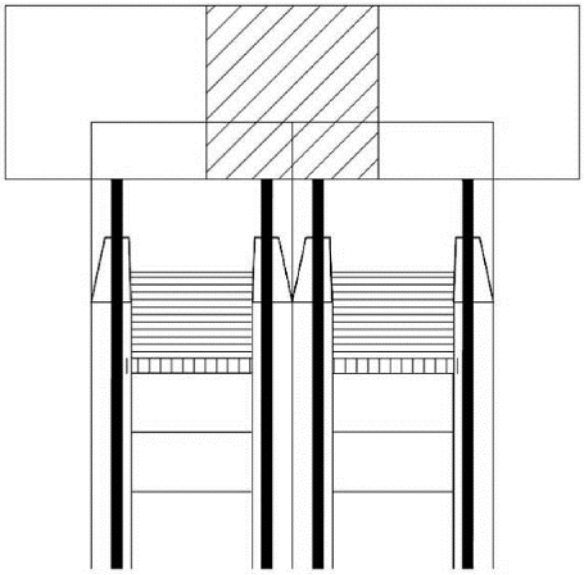


Figure 2

CEN	INTERPRETATION	**136** Page 3 of 3

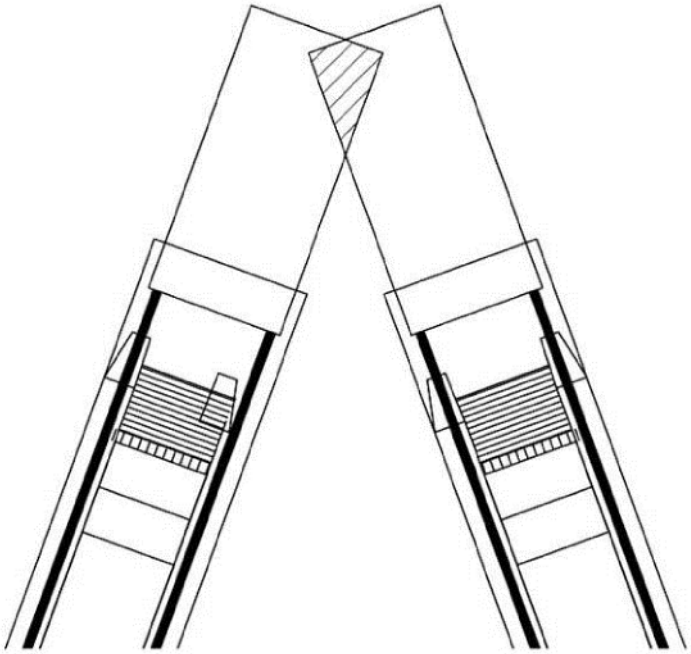


Figure 3

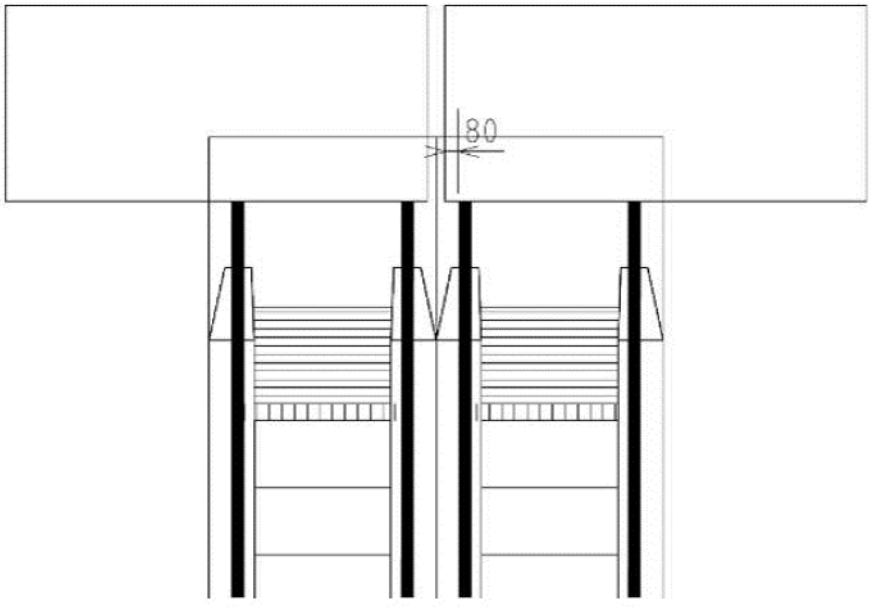


Figure 4

Date of approval by CEN/TC 10 members: 2014-11-14

CEN	**INTERPRETATION** **Related to**		**137** Page 1 of 1
EN 115-1	**Edition:** 2010	**Clause(s):** A.2.5	**Valid from:** **Date of modification:**
Key-word(s): Unrestricted area			**Replacing interpretation Nr.:**

QUESTION

The standard defines only a surface area for the unrestricted area.

1. Wouldn't it make sense to require a minimum exit capacity of the unrestricted area for the given passenger flow of the escalator/moving walk?
2. At the exit of the escalator/moving walk, is it assumed that this area is defined on a basis that it is not affected by e.g. other passenger flows within the building?

INTERPRETATION

1. Annex H gives guidance for the maximum capacity of escalators and moving walks. This must be considered by traffic planning work and is outside the responsibility of the manufacturer.
2. Yes, this area has been defined on a basis that it is not affected.

Date of approval by CEN/TC 10 members: 2014-11-14

5 Interpretations related to EN 115-2

(kept free)

Bibliography

[1] EN 115:1995[1], *Safety rules for the construction and installation of escalators and passenger conveyors*

[2] EN 115-2, *Safety of escalators and moving walks — Part 2: Rules for the improvement of safety of existing escalators and moving walks*

[3] CEN/TR 115-3, *Safety of escalators and moving walks — Part 3: Correlation between EN 115:1995 and its amendments and EN 115-1:2008*

[4] EN 1929-1, *Basket trolleys — Part 1: Requirements and tests for basket trolleys with or without a child carrying facility*

[5] EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

1) EN 115:1995 was impacted by the stand-alone amendments EN 115:1995/A1:1998 and EN 115:1995/A2:2004.

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