



DPC: 16 / 30337080 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

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Part 8: Activity toys for domestic use

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Responsible Committee Secretary: **Miss Sarah Horsfield (BSI)**
Direct tel: **020 8996 7142**
E-mail: sarah.horsfield@bsigroup.com

Introduction

This draft standard is based on European discussions in which the UK has taken an active part. Your comments on this draft are welcome and will assist in the preparation of the consequent British Standard. Comment is particularly welcome on national, legislative or similar deviations that may be necessary.

Even if this draft standard is not approved by the UK, if it receives the necessary support in Europe, the UK will be obliged to publish the official English Language text unchanged as a British Standard and to withdraw any conflicting standard.

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1	2	(3)	4	5	(6)	(7)
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/ Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

English Version

Safety of toys - Part 8: Activity toys for domestic use

Sécurité des jouets - Partie 8 : Jouets d'activité à usage
familial

Sicherheit von Spielzeug - Teil 8: Aktivitätsspielzeug
für den häuslichen Gebrauch

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 52.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European foreword

This document (prEN 71-8:2016) has been prepared by Technical Committee CEN/TC 52 “Safety of toys”, the secretariat of which is held by DS.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 71-8:2011.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2009/48/EC.

For relationship with EU Directive 2009/48/EC, see informative Annex ZA, which is an integral part of this European Standard.

Annex B provides details of significant technical changes between this European Standard and the previous edition.

This European Standard constitutes the eight part of the European Standard on safety of toys. It should be read in conjunction with Part 1.

This European Standard, *Safety of toys*, consists of the following parts:

- *Part 1: Mechanical and physical properties;*
- *Part 2: Flammability;*
- *Part 3: Migration of certain elements;*
- *Part 4: Experimental sets for chemistry and related activities;*
- *Part 5: Chemical toys (sets) other than experimental sets;*
- *Part 7: Finger paints — Requirements and test methods;*
- *Part 8: Activity toys for domestic use;*
- *Part 9: Organic chemical compounds — Requirements;*
- *Part 10: Organic chemical compounds — Sample preparation and extraction;*
- *Part 11: Organic chemical compounds — Methods of analysis;*
- *Part 12: N-Nitrosamines and N-nitrosatable substances;*
- *Part 13: Olfactory board games, cosmetic kits and gustative games;*
- *Part 14: Trampolines for domestic use.*

prEN 71-8:2016 (E)

NOTE 1 In addition to the above parts of EN 71, the following guidance documents have been published: CEN Technical Report CEN/TR 15071, *Safety of toys — National translations of warnings and instructions for use in the EN 71 series*, and CEN Technical Report CEN/TR 15371 (all parts), *Safety of toys — Interpretations*.

NOTE 2 Different legal requirements may exist in non-EU countries.

1 Scope (see A.1)

This European Standard specifies requirements and test methods for activity toys for domestic use often attached to or incorporating a crossbeam, and similar toys intended for children under 14 years to play on or in and often intended to bear the mass of one or more children.

This European Standard also specifies requirements for:

- separately sold accessories for, and components of activity toys;
- separately sold swing elements that are ready for use on or in combination with an activity toy;
- construction packages for activity toys including components used to build activity toys according to a scheduled building instruction.

The scope of this European Standard excludes:

- playground equipment intended for public use dealt with in the EN 1176 series;
- bow-mounted rocking activity toys such as rocking horses and similar toys, which are covered by specific requirements in EN 71-1;
- toy pools with maximum depth of water over 400 mm measured, between the overflow level and the deepest point within the pool;

NOTE 1 For information regarding the classification of pools as toys see European Commission guidance document No. 8 from Bibliographical Entry [1].

- pools with maximum depth of water over 400 mm measured, between the overflow level and the deepest point within the pool, without play elements covered by the EN 16582 series;

NOTE 2 There is an enhanced risk of drowning in toy pools where the depth of water is in excess of 400 mm.

- trampolines for domestic use dealt with in EN 71-14.

NOTE 3 Requirements for non-aquatic inflatable activity toys are being elaborated.

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 71-1:2014, *Safety of toys — Part 1: Mechanical and physical properties*

ISO 20712-1:2008, *Water safety signs and beach safety flags — Part 1: Specifications for water safety signs used in workplaces and public areas*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

activity toy

toy for domestic use, in which the support structure remains stationary while the activity is taking place and which is intended for the performance by a child of any of the following activities: climbing,

jumping, swinging, sliding, rocking, spinning, paddling, crawling and creeping, or any combination thereof

Note 1 to entry: Examples of such toys are swings, slides, carousels, climbing frames, rigid playhouses, paddling pools, non-aquatic inflatable toys. In contrast, ride-on vehicles are not considered as activity toys.

3.2

anchor

device used to fix an *activity toy* to the standing surface

3.3

barrier

device intended to prevent the user from falling and from passing beneath

[SOURCE: prEN 1176-1:2016, 3.23]

3.4

crossbeam

bar or beam which forms a main load bearing part of certain *activity toys* (see Figure 1)

3.5

entrapment

hazard presented by a situation in which a body, part of a body, or clothing is entrapped

3.6

exposed edge

edge intended to be touched and/or gripped by a child during the use of an *activity toy*

Note 1 to entry: *Exposed edges* are commonly found on doors, windows, shutters, ladders, steps, *handrails*, retaining sides for *slides* and seats.

3.7

forced movement

movement of the user imposed by the equipment (e.g. swings, slides, rocking equipment etc) which, once started, cannot be controlled by the user

Note 1 to entry: Rationale - Falls are not considered *forced movement* as they are not imposed on the user by the equipment but occur for other reasons.

[SOURCE: prEN 1176-1:2016, 3.32, modified — An original Note 2 to entry is not reproduced here.]

3.8

free height of fall

greatest vertical distance from the clearly intended body support to the impact area below

3.9

free space

space in, on or around the *activity toy* that can be occupied by a user undergoing a *forced movement* caused by use of the equipment (e.g. swinging, sliding, rocking, revolving)

Note 1 to entry: The definition of *free space* does not include the three-dimensional space in which a falling movement takes place.

3.10**handrail**

rail intended to assist the user to balance

[SOURCE: prEN 1176-1:2016, 3.21]

3.11**platform**

raised surface where one or more users can stand without the need of hand support

Note 1 to entry: The classification of a platform will vary depending on its function. Surfaces where the user is only able to stand with the aid of hand supports are not classified as platforms. Exclusion of surfaces from the definition can be achieved by a number of means, e.g.:

- reducing the surface area to restrict free movement and encourage holding on;
- incline the surface to encourage holding on;
- introducing movement to the surface to encourage holding on.

[SOURCE: prEN 1176-1:2016, 3.20, modified — The wording of the Note 1 to entry was modified.]

3.12**slide**

structure with inclined surface(s) on which the user slides in a defined track

Note 1 to entry: Inclined planes, designed primarily for other purposes, such as roofs, do not constitute *slides*.

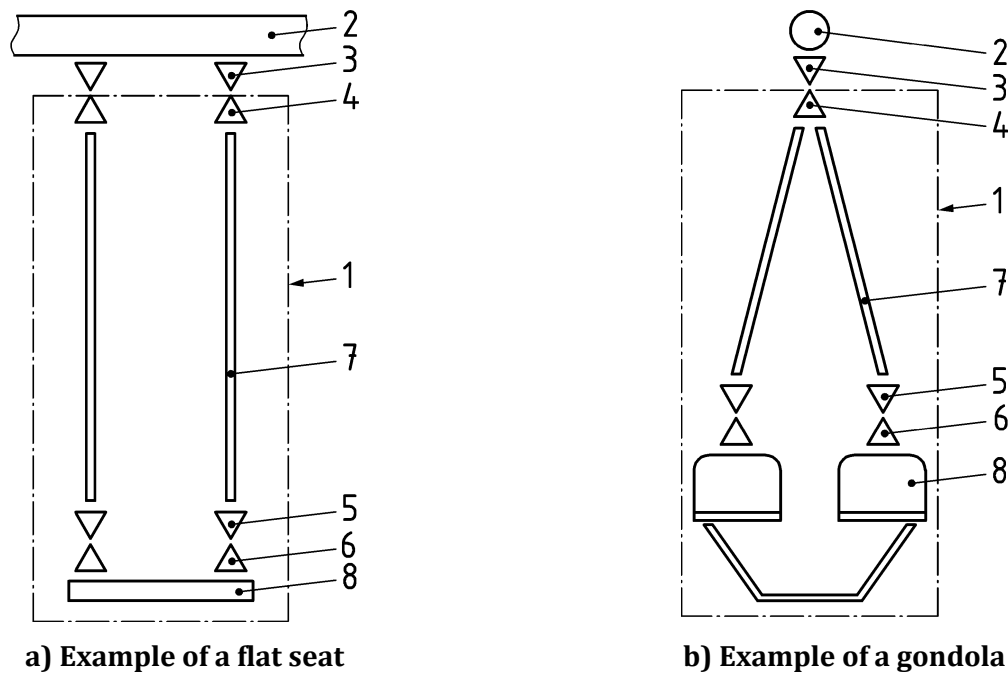
3.13**suspension connector**

device which forms the direct contact between a *crossbeam* and the means of suspension (see Figure 1)

3.14**swing**

structure incorporating a *crossbeam*, *suspension connectors* and a swing device with swing element, suspension coupling and means of suspension

Note 1 to entry: Examples of *swings* are shown in Figure 1.



Key

- 1 swing device
- 2 crossbeam
- 3 upper suspension connector
- 4 upper suspension coupling
- 5 lower suspension connector
- 6 lower suspension coupling
- 7 means of suspension
- 8 swing element (e.g. seat, rings, bar, gondola)

Note 1 to entry: A swing device can include one or more footrests. Footrests are considered as parts of the swing elements.

Figure 1 — Diagrammatic representation of examples of swings

3.15

paddling pool

toy pool with a maximum depth of water of 400 mm measured between the overflow level and the deepest point within the pool

Note 1 to entry: Examples of typical *paddling pools* can be found in the guidance document on the application of the directive on the safety of toys (2009/48/EC).

3.16

resilient material

material which is capable of regaining its original shape, position or absorbing shock after bending, stretching, compression, impact or others actions

3.17

attachment slide

slide for which access to the starting section is possible only by passing via other equipment or parts of equipment

Note 1 to entry: Such equipment includes climbing nets, bridges, platforms, inclined planes, other climbing devices.

[SOURCE: EN 1176-3:2008, 3.4]

3.18

declined plane

surface, which might be used for gliding downward in a sitting or lying position

4 Requirements

4.1 General (see A.2)

4.1.1 Assembly

Activity toys shall be assembled using self-locking mechanisms which, to avoid unintentional disassembling due to dynamic forces during use, may include spring washers and/or self-locking nuts.

NOTE Self-taping screws or nails are considered as self-locking devices.

4.1.2 Static strength

Activity toys other than *swings* and *paddling pools*, when tested according to 6.3.2 (strength of activity toys other than swings and paddling pools), shall not *collapse* such that they do not continue to comply with the relevant requirements of EN 71-1.

NOTE Static strength requirements for *swings* are given in 4.6.2 and for *paddling pools* in 4.9.1.

4.1.3 Maximum height (see A.3)

When measured from the ground, there shall be no part of the *activity toy* where the child is able to climb, sit or stand above a height of 2 500 mm.

4.1.4 Corners and edges (see A.4)

Exposed edges shall be rounded.

Corners and *exposed edges* on moving parts shall have a minimum radius of 3 mm. This requirement does not apply to swing elements with a mass of 1 000 g or less, the corners and edges of which shall be rounded.

4.1.5 Protruding parts

Protruding parts such as bolt ends, threaded bolt ends and other protrusions shall be recessed or be protected in such a way that they do not constitute a hazard to users of the equipment. This requirement is applicable when protrusions are situated on accessible moving parts and in places where the user is running, sliding, climbing, sitting or lying down.

4.1.6 Diameter of ropes and other means of suspension

When measured according to 6.8 (diameter of ropes and other means of suspension), ropes and other means of suspension shall have the following diameters:

Ropes fixed at both ends	diameter between 16 mm and 45 mm
Ropes used in climbing nets and ladders	diameter between 10 mm and 45 mm
Free-hanging ropes fixed at upper end	diameter between 25 mm and 45 mm
Means of suspension for swing elements	minimum diameter/width 10 mm

4.1.7 Water accumulation

Except when intended for water play, all parts of *activity toys* should be designed so that they do not accumulate water which could produce drowning hazard.

4.2 Barriers, handrails and ladders and similar means of access to activity toys

4.2.1 Barriers and handrails preventing a child from falling down (see A.5)

Any *platform* 1 000 mm or more from the ground shall be equipped with a *barrier* on all sides that face outwards from the toy.

The openings between the surface of the platform and the lower edge of the barrier, and the openings in the barrier, shall not allow the passage of probe C (see Figure 18) and probe E (see Figure 20), except for entrance and exit openings necessary for each play element.

Openings to give access to *slides*, climbing structures and ladders are allowed.

The minimum height of the *barrier* shall be 600 mm.

For *barriers* with an uneven top design, a ruler of (200 ± 5) mm shall be used for measuring minimum height. Place the ruler horizontally on top of the *barrier*. Measure the vertical distance between the *platform* and the bottom of the ruler. The distance shall in no place be less than 600 mm.

NOTE Special requirements apply to *slides* (see 4.5.3 and 4.5.4).

After testing according to 6.4 (dynamic strength of barriers and handrails), no part of the *barrier* or *handrail* shall collapse so that the toy does not comply with the relevant requirements of EN 71-1.

4.2.2 Ladders and similar means of access to activity toys (see A.6)

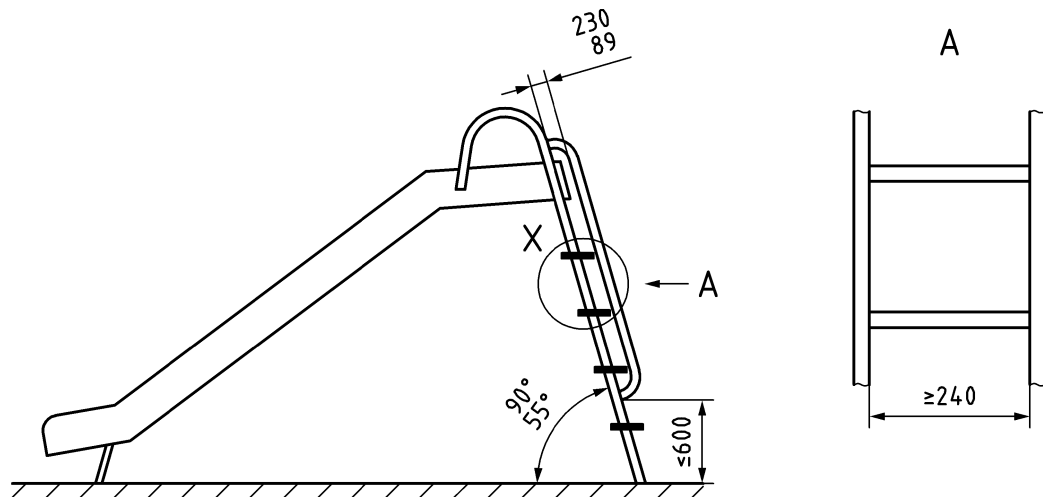
The requirements in 4.2.2 do not apply to *activity toys* with a *platform* height of 600 mm or less.

Ladders and similar means of access to *activity toys* shall comply with the following requirements:

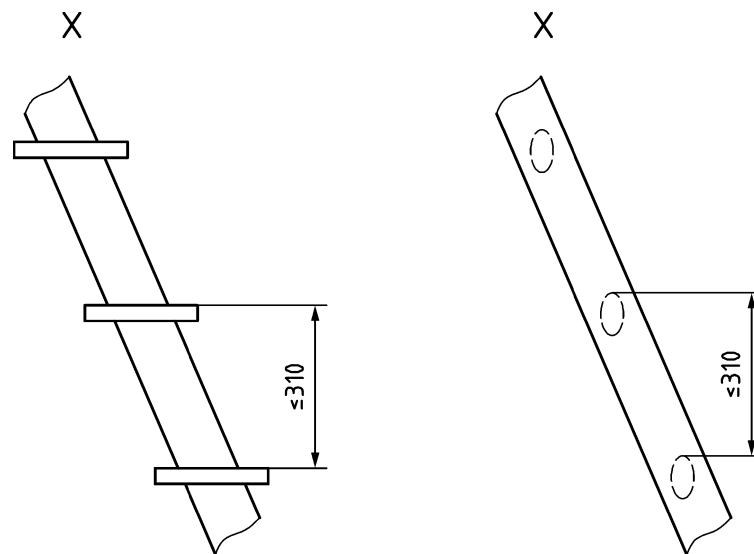
- a) any opening shall comply with 4.3.1 (head and neck entrapment);
- b) where a ladder or a stair is used, the lateral width of the tread or rung shall be 240 mm or more (see Figure 2 a));
- c) the distance between the upper surfaces of the treads or rungs shall not exceed 310 mm when measured vertically as indicated in Figure 2 b). This requirement does not apply to the vertical distance between the ground and the upper surface of the first step;
- d) the surface of the tread shall not be slippery. This can be achieved by corrugation of the steps or by the use of non slippery types of materials;
- e) when ladders are provided with rungs, the cross-sectional dimension of the rungs shall be not less than 16 mm and not more than 45 mm;
- f) the depth of treads on closed step ladders shall be 120 mm or more;

- g) the inclination for ladders that are fixed to a toy shall be between 55° and 90° to the horizontal;
- h) ladders any part of which reaches a height of 1 200 mm or more from the ground shall be provided with handrails from a height of not more than 600 mm from the ground to the top of the platform (see Figure 2 a)). This requirement does not apply to ladders with rungs.

Dimensions in millimetres



a) Dimensions of ladders



b) Details of a step ladder

Figure 2 — Ladders

4.3 Entrapment (see A.7)

4.3.1 Entrapment of head and neck

Activity toys shall be constructed so that any openings do not create head and neck entrapment hazards either by head first or feet first passage.

Hazardous situations in which this type of entrapment can be encountered include the following:

- completely bound openings through which a user may slide feet first or head first;
 - partially bound or V-shaped openings;
 - other openings (e.g. shearing or moving openings).
- a) Accessible completely bound openings with a lower edge more than 600 mm above ground, or above any other surface which is of such a size that it will support a child, shall be tested in accordance with 6.5.1 (head and neck entrapment in accessible completely bound openings). Probes C or E shall not pass through any opening unless it also allows the passage of the large head probe D.
- b) Accessible completely bound openings, that allow the free passage of probe C, when tested according to 6.5.1, shall have no parts that converge in the downward direction at an angle of less than 60° if the lower edge is 600 mm or more above the ground (V-shaped opening).
- c) Partially bound and V-shaped openings with an entrance at 600 mm or more above the ground, or above any other surface which is of such a size that it will support a child, shall be constructed so that either:
- 1) opening is not accessible as defined in Figure 23, when tested according to 6.5.2.3 a) (head and neck entrapment in partially bound and V-shaped openings); or
 - 2) if accessible at a position of 600 mm or more above ground when tested in accordance with 6.5.2.3 a), depending on the angular orientation range of the opening (see Figure 21), shall conform to the following:
 - i) Range 1: (probe F centre line $\pm 45^\circ$ from vertical); when the probe F apex contacts the base of the opening, the depth of the opening shall be less than the length of probe F to the underside of the shoulder section.
 - ii) Range 2: (probe F centre line from horizontal to $+ 45^\circ$); when the probe F apex contacts the base of the opening, the depth of the opening shall be less than the 'A' portion of probe F. If the depth of the opening is greater than the 'A' portion of probe F all parts of the opening above the 'A' portion shall also allow insertion of the shoulder section of probe F or probe D.
 - iii) Range 3: No probe test requirements.
- d) Non-rigid members (for example ropes) shall not overlap if, by doing so, they create openings that do not conform to the requirements for completely bound openings.
- e) Openings between flexible parts of suspended bridges and any rigid side members shall not be less than 230 mm in diameter under the most onerous condition of loading. Both loaded and unloaded situations shall be considered;
- f) Swing devices with suspension ropes hanging from a crossbeam (for adjustable means of suspension, the most onerous length shall be used) shall not create a head and neck entrapment in the area of the starting and sliding sections of slides.

4.3.2 Entrapment of clothing and hair

- a) *Slides*, fireman's poles and roofs shall be constructed so that hazardous situations in which clothing or hair can be entrapped are not created. Such situations may be created by:

- 1) gaps or V-shaped openings in which parts of clothing can become entrapped while, or immediately before, the user is undergoing a forced movement;
- 2) protrusions; and
- 3) spindles/rotating parts.

When tested according to 6.6 (toggle test), entrapment of the toggle or chain shall not occur.

Application of the toggle test, as described in 6.6, is restricted to the free space, as practical experience has shown that natural material and connections between different parts can vary over time.

- b) *Slides* and fireman's poles shall be constructed so that openings located within the free space do not entrap the toggle or chain when tested according to 6.6 (toggle test).
- c) Roofs shall be constructed so that they do not entrap the toggle or chain when tested according to 6.6 (toggle test).
- d) Spindles and rotating parts shall have means of preventing entanglement of clothing or hair.

NOTE Prevention of entanglement can be achieved by use of suitable covering or shields.

4.3.3 Entrapment of feet

The requirement in 4.3.3 does not apply to nets for climbing or walking, or net bridges.

Surfaces intended for standing, running or walking shall not contain any gaps likely to cause foot or leg *entrapment*. There shall be no gaps greater than 30 mm measured in one direction (see Figure 3).

Dimensions in millimetres

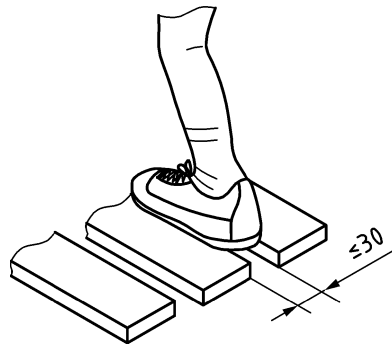


Figure 3 — Measurement of surface gap on running and walking levels

4.3.4 Entrapment of fingers

The requirements in 4.3.4 do not apply to weather-induced dry cracks in solid wood.

Activity toys shall be constructed so that hazardous situations in which *entrapment* can occur are not created.

Holes, slots and gaps in any rigid material that are within the reach of a child during use of the toy, when the body of the child is in a *forced movement*, shall not allow a 7 mm diameter rod to be inserted to a depth of 10 mm or more, unless a 12 mm diameter rod can also be inserted. If an *activity toy* is intended for children under 36 months, the *accessible* holes, slots or gaps in any rigid material that are

within the reach of a child during use of the toy, when the body of the child is in a *forced movement*, shall not allow a 5 mm diameter rod to be inserted to a depth of 10 mm or more unless a 12 mm diameter rod can also be inserted. Specific requirements for chains are given in 4.6.7 (suspension connectors and swing devices).

4.4 Stability of activity toys other than slides, swings and activity toys with crossbeams, and see-saws

4.4.1 General

NOTE Stability requirements for *slides* are given in 4.5.2; for *swings* and other *activity toys* with *crossbeams* in 4.6.1; and for see-saws in 4.7.1.

Activity toys supplied with *anchors* which, according to the manufacturer's instructions, are intended to be permanently fixed (e.g. in concrete) when in use, shall not be subjected to stability tests.

Activity toys supplied with removable ground *anchors* shall be tested with *anchors* fixed to the standing surface according to the manufacturer's instructions.

Activity toys not supplied with *anchors* shall be subjected to stability tests.

4.4.2 Stability of activity toys with a free height of fall of 600 mm or less

Activity toys with a *free height of fall* of 600 mm or less shall not tip over when tested according to 6.2.1 (stability of activity toys with a free height of fall of 600 mm or less).

4.4.3 Stability of activity toys with a free height of fall of more than 600 mm

Activity toys with a *free height of fall* of more than 600 mm shall not tip over when tested according to 6.2.2 (stability of activity toys with a free height of fall of more than 600 mm).

4.5 Slides (see A.8)

4.5.1 General

The requirements in 4.5 do not apply to declined planes, which meet the following requirements:

- the free height of fall is less than 600 mm and the overall declination of the declined section is less than 30° from the horizontal; or
- the free height of fall is less than 400 mm.

4.5.2 Stability of slides

Slides supplied with *anchors* and intended to be permanently fixed (e.g. in concrete) when in use according to the manufacturer's instructions, shall not be subjected to stability tests.

Slides supplied with removable ground *anchors* shall be tested with *anchors* fixed to the standing surface according to the manufacturer's instructions.

Slides not supplied with *anchors* shall be subjected to stability tests.

Slides (excluding *attachment slides*) shall not tip over when tested according to 6.2.3 (stability of slides).

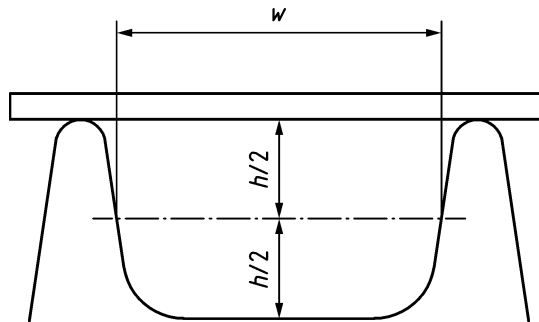
NOTE Attachment slides are tested in conjunction with the activity toy according to the relevant subclause.

4.5.3 Retaining sides for slides (see A.9)

Retaining sides for *slides* shall comply with the following requirements (see Figure 4):

- a) for *slides* with a starting section height of more than 1 000 mm measured from the ground, the height (h) of the retaining sides shall be 100 mm or more;
- b) for *slides* with a starting section height of 1 000 mm or less measured from the ground, the height (h) of the retaining sides shall be 50 mm or more.

Retaining sides are not required for the run-out section of *slides*.



Key

- h height of the retaining sides
- w width of the *slide*

Figure 4 — Height of retaining sides

4.5.4 Starting, sliding and run-out sections on slides

Slides shall consist at least of a starting section, a sliding section and a run-out section. For attachment slides, a platform may be regarded as the starting section.

The starting, sliding and run-out sections of *slides* shall comply with the following requirements (see Figure 5):

- a) the starting section for *slides* with a starting section height of less than 1 000 mm measured from the ground shall have at least the same width as the sliding section; a length of 150 mm or more; and an inclination of between 0° and 10° to the horizontal. The width is measured as indicated in Figure 4;
- b) the starting section for *slides* with a starting section height of 1 000 mm or more measured from the ground shall have at least the same width as the sliding section; a length of 250 mm or more; and an inclination of between 0° and 10° to the horizontal. The width is measured as indicated in Figure 4;
- c) the starting section of *slides* (excluding attachment *slides*) shall be provided with handrails in order to provide assistance to the child coming from the stair/ladder into the sitting position:
 - 1) for *slides* with a starting section height less than 600 mm, the height of the handrail shall be 100 mm or more;
 - 2) for *slides* with a starting section height of 600 mm or more but less than 1 000 mm, the height of the handrail shall be 150 mm or more;
 - 3) for *slides* with a starting section height of 1 000 mm or more but less than 1 800 mm, the height of the handrail shall be 350 mm or more;

- 4) for *slides* with a starting section height of 1 800 mm or more, the height of the handrail shall be 500 mm or more;
- d) the run-out section of the *slide* shall have a length of 150 mm or more. The inclination of the run-out section shall be between 0° and 10° to the horizontal, and the height of the end of the run-out section shall be 300 mm or less from the ground;
- e) the finishing end of the run-out section shall have a minimum radius of 25 mm. This requirement does not apply to *slides* where the run-out section ends 50 mm or less from the ground;
- f) the sliding section of the *slide* shall not exceed an angle of inclination of 60° to the horizontal at any point when measured according to 6.7.1 (measurement of inclination of the sliding section on slides);
- g) the minimum angle (α) along the sliding section and the run-out section shall not be less than the values given in Table 1, when measured according to 6.7.2 (measurement of the angle along the sliding section and the run-out section on slides);
- h) junction between sliding section and run-out section shall be a continuous curve.

Table 1 — Minimum angle (α) along the sliding section and the run-out section in relation to the height of the starting section

Height of the starting section	Minimum angle (α) along the sliding section and the run-out section
Less than 600 mm	120°
600 mm or more but less than 1 000 mm	130°
1 000 mm or more but less than 1 800 mm	140°
More than 1 800 mm	150°