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Playground equipment and surfacing – Part 10: Fully enclosed play equip-ment

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Spielplatzgeräte und Spielplatzböden - Teil 10: Vollständig umschlossene Spielgeräte

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Foreword

This document (prEN 1176-10:2006) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational equipment”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This standard consists of a number of parts as follows:

EN 1176-1 Playground equipment and surfacing — Part 1: General safety requirements and test methods.

EN 1176-2 Playground equipment and surfacing — Part 2: Additional specific safety requirements and test methods for swings.

EN 1176-3 Playground equipment and surfacing — Part 3: Additional specific safety requirements and test methods for slides.

EN 1176-4 Playground equipment and surfacing — Part 4: Additional specific safety requirements and test methods for runways.

EN 1176-5 Playground equipment and surfacing — Part 5: Additional specific safety requirements and test methods for carousels.

EN 1176-6 Playground equipment and surfacing — Part 6 : Additional specific safety requirements and test methods for rocking equipment.

EN 1176-7 Playground equipment and surfacing — Part 7: Guidance on installation, inspection, maintenance and operation.

EN 1176-10 Playground equipment and surfacing — Part 10: Additional specific safety requirements and test methods for fully enclosed play equipment.

EN 1176-11 Playground equipment and surfacing — Part 11: Additional specific safety requirements and test methods for spatial network.

EN 1177 Impact attenuating playground surfacing —Test methods.

This part of the standard should not be used in isolation, but in conjunction with parts EN 1176-1 and EN 1176-7.

For inflatable play equipment see

EN 14960 Inflatable play equipment — Safety requirements and test methods.

1 Scope

This part of the standard is applicable to fully enclosed play equipment intended for installation inside and outside buildings, and for children up to 14 years old, see 3.1.

The purpose of this standard is to provide additional safety requirements covering particularities of these structures, such as exits and escape routes, visibility, external "climbability", containment walls/netting in relation to safety area, ignition resistance, specific equipments/components, impact-absorbing surfaces, signage, specific inspection, maintenance and monitoring procedures.

2 Normative references

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

EN 1021-1, *Furniture — Assessment of the ignitability of upholstered furniture — Part 1: Ignition source smouldering cigarette*

EN 1021-2, *Furniture — Assessment of the ignitability of upholstered furniture — Part 2: Ignition source match flame equivalent*

prEN 1176-1:2006, *Playground equipment and surfacing — Part 1: General safety requirements and test methods*

prEN 1176-3:2006, *Playground equipment and surfacing — Part 3: Additional specific safety requirements and test methods for slides*

prEN 1176-4:2006 *Playground equipment and surfacing — Part 4: Additional specific safety requirements and test methods for runways*

prEN 1177:2006, *Impact alternating playground surfacing — Test methods*

ISO 11925-2, *Reaction for fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test*

3 Definitions

For the purposes of this standard, the definitions given in prEN 1176-1 and prEN 1177 apply, together with the following:

3.1
fully enclosed play equipment
equipment and structures, including components and constructional elements with, or on which, children can play that are within a three dimensional enclosure with specified entrances and exits

3.2
drop slide
an open-fronted, near vertical free-fall slide which then curves to a near horizontal run-out

3.3
overhead track ride
equipment on which children can travel by self propulsion along a fixed horizontal or inclined overhead track

3.4
terminus or starting point
the area in which the user can reach the grip and/or "seat" and set the equipment in motion

3.5
area of travel
area in which the user can travel freely

3.6
overhead track
the part of the structure that supports the traveller

3.7
traveller
moving part that, by influence of self propulsion by the user, he/she moves along the overhead track

3.8
linage element
the part of the structure between the traveller and the "seat" and which often also provides grip

3.9
end stops
energy absorbing materials positioned to cushion the impact of the traveller at the start and end of the overhead track

3.10
ball pools
an enclosure designed to contain a depth of balls within which children can play

3.11
evacuation passage
an uninterrupted path enabling adult access to bring a child to an exit. This includes access/egress points

3.12
evacuation slide
a slide which ends either outside the play equipment or directly in front of an exit, with a maximum distance of 2,5 m between the end of the sliding surface and the exit

4 Safety requirements

4.1 General

Fully enclosed play equipment shall comply with the requirements of prEN 1176-1:2006 except in so far as they are modified by this standard.

4.2 Emergency procedures and fire safety management

4.2.1 Materials including flammability

Materials used in the construction of fully enclosed play equipment shall conform to ISO 11925-2 and/or EN 1021-1 and EN 1021-2.

4.2.2 Evacuation

4.2.2.1 General requirements for entrapment of the whole body

In order to prevent entrapment of the whole body, the requirements for tunnels shall comply with the requirements for tunnels in 4.2.7.4 of prEN 1176-1:2006.

4.2.2.2 Evacuation passages

Evacuation passages shall comply with Table 1.

No point of the equipment shall be more than 5 m from an evacuation passage or from the entrance/exit of the play equipment or from an evacuation slide.

NOTE Evacuation passages can also include slides.

4.2.2.3 Distance to the exit

Distance to the exit shall comply with Table 1.

There are some special cases for calculation of this distance:

— for a slide, the distance is half of the length of the sliding surface;

— for a climbing tower, add vertical and horizontal distances between the geometric centres of the platforms.

4.2.2.4 Access and egress

The number of access and egress points shall comply with Table 1.

Access/egress points shall be located so as to distribute evacuation through different zones of the play equipment (see Table 1).

Table 1 — Evacuation passages, access and egress points

Dimensions in metres

	Type			
	A	B	C	D
Capacity (number of children) Platform height	< 20 < 2	< 50 < 4	< 100 < 6	> 100 > 6
Minimum number of evacuation passages	0	1	1	2
Minimum number of access points	1	2	3	4
Minimum number of egress points	1	2	3	4
Maximum distance to the exit	18			
NOTE In the case of Type A, minimum opening shall be 0,75 m diameter.				

4.2.2.5 Capacity

Capacity shall be calculated taking into account:

a) The strength of the structure according to prEN 1176-1

b) Practical use based upon the formula:

Capacity calculated according to EN 1176-1 + capacity of ground floor playing area, calculated at 3 children per square metre) divided by 2

NOTE This takes into consideration that the structure is not fully loaded at the time of use.

4.3 Design and manufacture

4.3.1 Structural integrity

Structural integrity shall comply with prEN 1176-1.

4.3.2 Impact protection

4.3.2.1 Free height of fall

The maximum fall height allowable shall be 2 m.

NOTE The possibility for free fall is limited by separation and containment.

4.3.2.2 Impact absorbing surfaces (IAS)

Impact attenuating surfacing shall be provided in accordance with EN 1177.

4.3.3 External climbability

Protection against climbing shall be provided up to 2 m height from floor level.

Protection against climbing shall be provided from ground level and from other features surrounding the equipment.

Such methods of protection shall conform with entrapment specifications of EN 1176 and to the visibility requirements of 4.3.4.

NOTE This may be achieved by small mesh netting, panels without openings or with openings of less than 8 mm up to a height of 2 m.

4.3.4 Visibility

4.3.4.1 Good visibility is essential to the safety management of fully enclosed play equipment. Effective supervision and monitoring are dependent upon it and fire risk assessment research has shown it is important for successful search and rescue.

4.3.4.2 There shall be unrestricted sight lines from the supervision areas to the playing areas.

NOTE If, due to the shape of the building or other unavoidable design factors this cannot be achieved, closed circuit television surveillance could be provided.

4.3.4.3 There shall be unrestricted sight lines from the public viewing areas to the playing areas.

4.3.4.4 Activities within the playing area which are designed with no visibility from the outside shall be positioned no more than 5 m from an access point.

4.3.5 Determination of spaces and areas

4.3.5.1 General

Fully enclosed play equipment has a number of unique features that make a different hazard approach to EN 1176 necessary. Specific requirements are given in the clauses which follow for specific features.

4.3.5.2 Falling space

For a free height of fall > 600 mm or ≤ 1 500 mm the extent of the falling space as described in 4.2.8.2.4 of prEN 1176-1:2006 can be reduced to 1 m around the accessible parts of the equipment if on the reduced sides a protective surface against impact is provided.

4.3.5.3 Impact area

If the height of fall is ≤ 600 mm there are no special requirements. If the height of fall is > 600 mm and ≤ 1 500 mm the materials used in the horizontal impact area shall conform to 4.2.8.4 of prEN 1176-1:2006.

The extent of the impact area can be reduced to the extent of the falling space.

If the height of fall is > 1 500 mm then prEN 1176-1 for impact attenuation and extent shall be applied.

4.3.5.4 Free space

The dimensions of the free space shall allow access for adults in the event of evacuation.

4.3.6 Connections

Connections shall be inspected in accordance with the requirements of 5.1.

4.3.7 Ropes and nets

All rope features shall be securely knotted and strand ends treated to prevent fraying.

Care shall be taken when heat sealing nylon rope to avoid hard edges.

Cargo rope netting climbs and walks shall be designed in such a way as to prevent limbs from falling through, for example by an additional mesh under-net. This shall not create an additional hazard.

Where rope nets go over a rigid bar they shall be secured against movement.

Where necessary to improve the safety of grip and/or to minimize friction burns, protection sleeves shall be fitted to appropriate sections of rope features.

4.3.8 Lighting

Light fittings should be appropriately protected and out of the reach of children.