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Playground equipment and surfacing - Part 1: General safety requirements and test methods

Spielplatzgeräte und Spielplatzböden - Teil 1: Allgemeine sicherheitstechnische Anforderungen und Prüfver-fahren

Equipements d'aires de jeux et revêtements de surface d'aires de jeux - Partie 1 : Exigences de sécurité et méthodes d'essai générales

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97.200.40 Igrišča Playgrounds

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 97.200.40

Will supersede EN 1176-1:2008

English Version

Playground equipment and surfacing - Part 1: General safety requirements and test methods

Équipements d'aires de jeux et revêtements de surface d'aires de jeux - Partie 1 : Exigences de sécurité et méthodes d'essai générales

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This draft European Standard is submitted to CEN members for second enquiry. It has been drawn up by the Technical Committee CEN/TC 136.

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

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European foreword

This document (prEN 1176-1:2016) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational facilities and equipment”, the secretariat of which is held by DIN.

This document is currently submitted to the second CEN Enquiry.

This document will supersede EN 1176-1:2008.

The main changes are:

a) Reference to CEN/TR 16467:2013 added;

b) Reference to ‘permanently installed’ added in scope;

c) Clause 3.4 definition of easily accessible improved;

d) New definition for forced movement added;

e) New definition for fireman’s pole added;

f) Clause 4.2.4.1 amended to agree with Figure 8;

g) Clause 4.2.4.3 detail of measurement of 500mm opening added;

h) Clause 4.2.4.4 detail of measurement of 500mm opening added;

i) Clause 4.2.7.1 new sentence adding reference to Clause 4.2.7.2;

j) Figure 13 amended to show direction of travel;

k) Clause 4.2.8.1 cross reference to Table 2 added;

l) Table 2 amended to clarify distinctions for climbing and hanging fall heights;

m) Figure 14 amended to include two types of net structure in fall height examples;

n) Clause 4.2.8.2.5. clarification of overlapping fall heights added;

o) Clause 4.2.9.5 major rewrite to improve requirements for easily accessible equipment;

p) Clause 4.2.12.2 inclusion of reference to use of probe E;

q) New Clause 4.2.16 giving requirements for fireman’s poles;

r) In A.2.2, notes 1 and 2 now included as part of requirements;

s) In D.4.2, last paragraph now includes additional test requirement for holes behind holes;

t) New figure showing application of finger probes in test situations.

EN 1176 “Playground equipment and surfacing” consists of the following parts:

— *Part 1: General safety requirements and test methods*

— *Part 2: Additional specific safety requirements and test methods for swings*

— *Part 3: Additional specific safety requirements and test methods for slides*

— *Part 4: Additional specific safety requirements and test methods for cableways*

— *Part 5: Additional specific safety requirements and test methods for carousels*

— *Part 6: Additional specific safety requirements and test methods for rocking equipment*

— *Part 7: Guidance on installation, inspection, maintenance and operation*

— *Part 10: Additional specific safety requirements and test methods for fully enclosed play equipment*

— *Part 11: Additional specific safety requirements and test methods for spatial network*

This part of EN 1176 should be read in conjunction with:

— EN 1177, *Impact attenuating playground surfacing — Determination of critical fall height*;

— CEN/TR 16467:2013, *Playground equipment accessible for all children*;

— CEN/TR 16598:2014, *Collection of rationales for EN 1176*;

— CEN/TR 16396:2012, *Playground equipment for children, replies to requests for interpretation of EN 1176:2008 and its parts*.

For inflatable play equipment, see EN 14960, *Inflatable play equipment — Safety requirements and test methods*.

Introduction

It is not the purpose of the requirements of this standard to lessen the contribution that playground equipment makes to the child's development and/or play, which is meaningful from an educational point of view.

This standard acknowledges the difficulties of addressing safety issues by age criteria alone because the ability to handle risk is based on the individual users' level of skills and not by age. Also users other than the intended age range will almost certainly make use of the playground equipment.

Risk-taking is an essential feature of play provision and of all environments in which children legitimately spend time playing. Play provision aims to offer children the chance to encounter acceptable risks as part of a stimulating, challenging and controlled learning environment. Play provision should aim at managing the balance between the need to offer risk and the need to keep children safe from serious harm.

The principles of safety management are applicable both to workplaces in general as well as to play provision. However, the balance between safety and benefits is likely to be different in the two environments. In play provision exposure to some degree of risk may be of benefit because it satisfies a basic human need and gives children the chance to learn about risk and consequences in a controlled environment.

Respecting the characteristics of children's play and the way children benefit from playing on the playground with regard to development, children need to learn to cope with risk and this may lead to bumps and bruises and even occasionally a broken limb. The aim of this standard is first and foremost to prevent accidents with a disabling or fatal consequence, and secondly to lessen serious consequences caused by the occasional mishap that inevitably will occur in children's pursuit of expanding their level of competence, be it socially, intellectually or physically.

Refusal of admittance and access as a safety precaution is problematic due to, for example, breach in supervision or help by peers. Requirements of significant importance, such as, for example, head and neck entrapment and protection against inadvertent falls, have been written with this in mind. It is also recognized that there is an increasing need for play provision to be accessible to users with disabilities. This of course requires play areas to provide a balance between safety and the offer of the required level of challenge and stimulation to all possible groups of users. However, for the purposes of protection against head and neck entrapment, this standard does not take into account children with an increased size of the head (e.g. hydrocephalus or Downs Syndrome) or wearing helmets.

For further additional information about making play provision suitable for less able users a CEN Technical Report is available which discusses the challenges in provision and possible solutions that designers may consider. See the European foreword above for details of this document.

In addition to the short-term risks that are associated with a playground, there is a risk that the playing child is overexposed to the ultraviolet radiation of the sun. Too much ultraviolet radiation and sunburns in childhood increase the risk of developing cancer of the skin later in life. Therefore, the playgrounds should be organized in a way that takes into account the availability of shade options, and that a part of the playground equipment and recreational areas are placed entirely or partly in shade.

1 Scope

This part of EN 1176 specifies general safety requirements for permanently installed public playground equipment and surfacing. Additional safety requirements for specific pieces of playground equipment are specified in subsequent parts of this standard.

This part of EN 1176 covers playground equipment for all children. It has been prepared with full recognition of the need for supervision of young children and of less able or less competent children.

The purpose of this part of EN 1176 is to ensure a proper level of safety when playing in, on or around playground equipment, and at the same time to promote activities and features known to benefit children because they provide valuable experiences that will enable them to cope with situations outside the playground.

This part of EN 1176 is applicable to playground equipment intended for individual and collective use by children, but excluding adventure playgrounds. It is also applicable to equipment and units installed as children's playground equipment although they are not manufactured as such, but exclude those items defined as toys in EN 71 and the Toys Safety Directive.

Adventure playgrounds are fenced, secured playgrounds, run and staffed in accordance with the widely accepted principles that encourage children's development and often use self-built equipment; commercially sourced equipment should still comply with the standard.

This part of EN 1176 specifies the requirements that will protect the child from hazards that he or she may be unable to foresee when using the equipment as intended, or in a manner that can be reasonably anticipated.

The use of electricity in play equipment, either as a play activity or as a motive force, is outside the scope of this standard. The attention of users is drawn to European and local national standards and regulations which are to be complied with when using electricity

Play equipment placed in water is not fully covered by this standard and additional risks are associated with wet environments.

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 335:2013, *Durability of wood and wood-based products - Use classes: definitions, application to solid wood and wood-based products*

EN 350-2:1994, *Durability of wood and wood-based products - Natural durability of solid wood - Part 2: Guide to natural durability and treatability of selected wood species of importance in Europe*

EN 351-1:2007, *Durability of wood and wood-based products - Preservative-treated solid wood - Part 1: Classification of preservative penetration and retention*

EN 636, *Plywood — Specifications*

EN 818-3, *Short link chain for lifting purposes — General conditions of acceptance*

EN 1177, *Impact attenuating playground surfacing - Determination of critical fall height*

EN 1991-1-2, *Eurocode 1: Actions on structures - Part 1-2: General actions - Actions on structures exposed to fire*

EN 1991-1-3, *Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads*

EN 1991-1-4, *Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions*

EN 13411-3, *Terminations for steel wire ropes – Safety – Part 3: Ferrules and ferrule-securing*

EN 13411-5, *Terminations for steel wire ropes – Safety – Part 5: U-bolt wire rope grips*

EN ISO 2307, *Fibre ropes - Determination of certain physical and mechanical properties (ISO 2307)*

EN ISO 9554, *Fibre ropes - General specifications (ISO 9554)*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025)*

3 Terms and definitions

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

3.1
playground equipment
equipment and structure, including components and constructional elements with, or on which, children can play outdoors or indoors, either individually or in groups, according to their own rules or own reasons for playing which can change at any time

3.2
climbing equipment
playground equipment that only allows the user to move on it or in it by the use of a hand and foot/leg support and requires a minimum of three points of contact with the equipment, one of these being a hand

Note 1 to entry: During movement, it is possible to have only one or two points of contact but this is only during a transition from one rest position to the next.

3.3
impact area
area that can be hit by a user after falling through the falling space

3.4
playing surface
surface of a playground from which the use of the playground equipment commences and which comprises at least the impact area

3.5
free space
space in, on or around the equipment that can be occupied by a user undergoing a movement forced by the equipment

EXAMPLE Sliding, swinging, rocking, jumping in bouncing facility for several users (specific requirements are dealt with in the additional parts of EN 1176)

Note 1 to entry: See Figure 19.

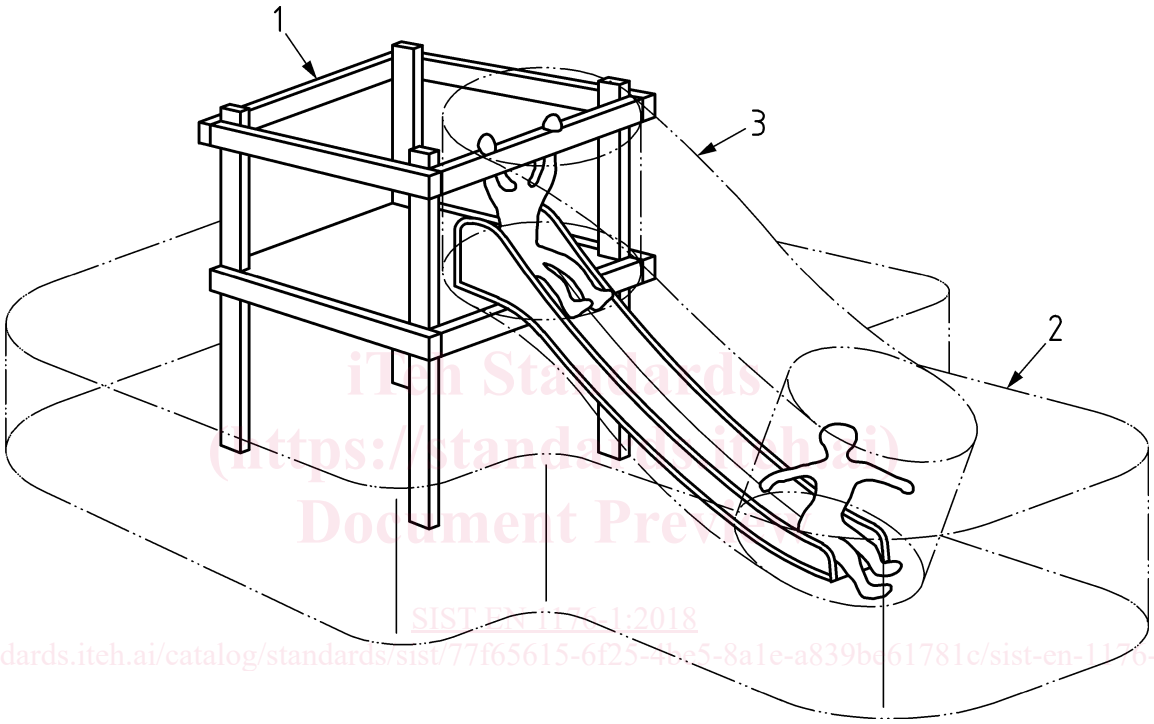
3.6
free height of fall
greatest vertical distance from the clearly intended body support to the impact area below

Note 1 to entry: The intended body support includes those surfaces to which access is encouraged.

3.7
falling space
space in, on or around the equipment that can be passed through by a user falling from an elevated part of the equipment

Note 1 to entry: The falling space commences at the free height of fall.

Note 2 to entry: See Figure 1.



Key
1 space occupied by equipment
2 falling space
3 free space

Figure 1 — Spaces

3.8
minimum space
space required for the safe use of equipment, comprising falling space, free space and space occupied by the equipment

3.9
collective use
use by more than one user at the same time

3.10
crushing point
place where parts of the equipment can move against each other, or against a fixed area so that persons, or parts of their body, can be crushed

3.11
shearing point
place where part of the equipment can move past a fixed or other moving part, or past a fixed area so that persons, or parts of their body, can be cut

3.12
ladder
means of access incorporating rungs or steps on which a user can ascend or descend with the aid of the hands

Note 2 to entry: See Figure 2.

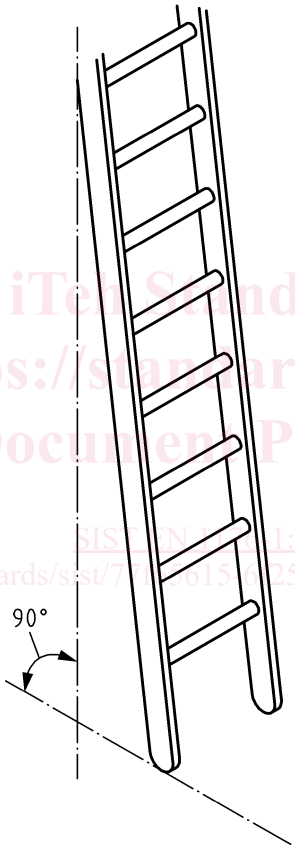


Figure 2 — Example of a ladder

3.13
stairs
means of access incorporating treads on which a user can ascend or descend

Note 2 to entry: See Figure 3.

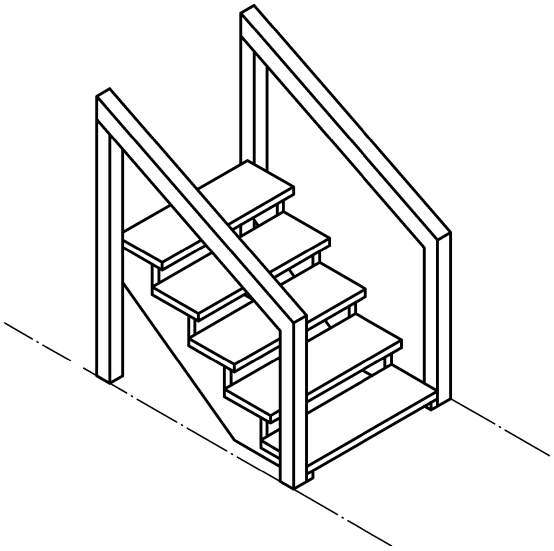


Figure 3 — Example of stairs

3.14
ramp
means of access incorporating an inclined surface on which a user can ascend or descend

Note 1 to entry: See Figure 4 and 4.2.9.3.

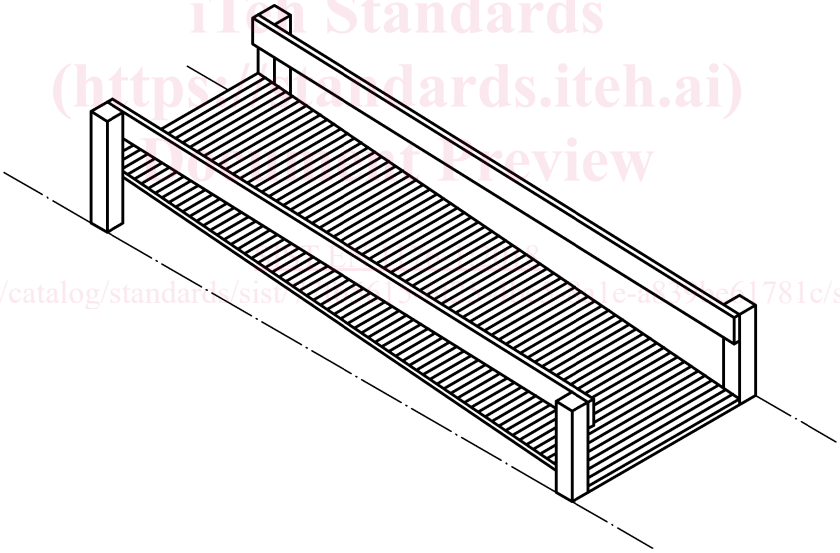


Figure 4 — Example of a ramp

3.15
grip
holding of the hand round the entire circumference of a support

Note 1 to entry: See Figure 5.

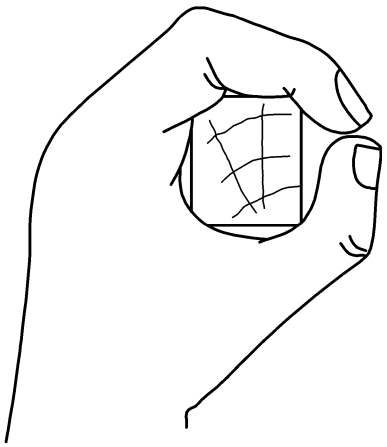


Figure 5 — Grip

3.16
grasp
holding of the hand round part of the circumference of a support

Note 1 to entry: See Figure 6.

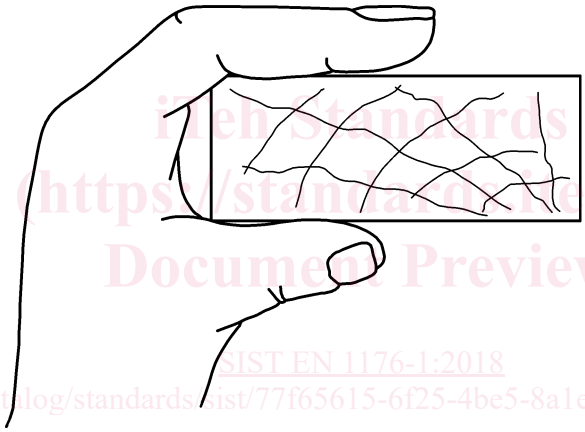


Figure 6 — Grasp

3.17
entrapment
hazard presented by the situation in which a body, or part of a body, or clothing can become trapped

Note 1 to entry: This part of EN 1176 only considers certain types of entrapment where the user is not able to free him/herself and injury is caused by the entrapment.