

# Artificial climbing structures

## Part 2: Safety requirements and test methods for bouldering walls

ICS 97.220.10

# National foreword

This British Standard is the UK implementation of EN 12572-2:2008. Together with BS EN 12572-1:2007 and BS EN 12572-3:2008, it supersedes BS EN 12572:1999, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee SW/136, Sports, playground and other recreational equipment.

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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**Artificial climbing structures - Part 2: Safety requirements and  
test methods for bouldering walls**

Structures artificielles d'escalade - Partie 2 : Exigences de  
sécurité et méthodes d'essai relatives aux pans et blocs  
d'escalade

Künstliche Kletteranlagen - Teil 2: Sicherheitstechnische  
Anforderungen und Prüfverfahren für Boulderwände

This European Standard was approved by CEN on 27 September 2008.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

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## Foreword

This document (EN 12572-2:2008) 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 European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

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 EN 12572:1998, together with EN 12572-1:2007 and EN 12572-3:2008.

This standard consists of a number of parts as follows:

EN 12572-1, *Artificial climbing structures — Part 1: Safety requirements and test methods for ACS with protection points*

EN 12572-2, *Artificial climbing structures — Part 2: Safety requirements and test methods for bouldering walls*

EN 12572-3, *Artificial climbing structures — Part 3: Safety requirements and test methods for climbing holds*

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

## 1 Scope

This European Standard specifies the safety requirements and calculation methods for bouldering walls, including the safety zone.

This European Standard is applicable when the bouldering is in normal use.

This European Standard is not applicable to ice climbing, dry tooling, playground equipment and deep water soloing.

## 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 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 1991-1-5, *Eurocode 1: Actions on structures — Part 1-5: General actions — Thermal actions*

EN ISO/IEC 17020, *General criteria for the operation of various types of bodies performing inspection (ISO/IEC 17020:1998)*

## 3 Terms and definitions

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

### 3.1 artificial climbing structure (ACS)

sports equipment consisting of a purpose-built climbing structure, which displays different construction characteristics, and is designed for different use objectives and is not reserved for a particular age group

NOTE See EN 12572-1.

### 3.2 bouldering wall

artificial climbing structures allowing climbing without protection points including the falling space and impact area

NOTE For protection points see EN 12572-1.

### 3.3 characteristic load

maximum load that can be generated in normal use

NOTE See EN 12572-1.

### 3.4 falling space

space on or around the bouldering wall that can be occupied by a user during a fall

NOTE See EN 12572-1.

### 3.5

#### **impact area**

surface on which a user lands after falling

### 3.6

#### **bouldering wall height**

vertical height measured between the highest possible hold and the top of the impact area

### 3.7

#### **impact absorbing material**

material beneath a bouldering wall filling the impact area designed to absorb the energy of a fall

EXAMPLE Water, air cushion, shingle and foam safety mats.

## 4 Safety requirements and test methods

### 4.1 Maximum bouldering wall height

The maximum height of a bouldering wall where it is not possible to stand on the top shall be 4 500 mm. It shall be 4 000 mm where it is possible to stand on the top.

### 4.2 Impact absorbing material

#### 4.2.1 General

The impact absorbing material shall be adapted to accept a fall from at least the maximum height of the bouldering wall at the bottom of which it is installed.

#### 4.2.2 Impact attenuation

##### 4.2.2.1 Impact attenuating capacity for foam safety mats

The most common indoor impact absorbing materials are foam safety mats.

There is currently no unity in Europe between member countries in specifying the correct thickness and density of foam to use in safety mats for any given bouldering wall height. Refer to relevant national standards where applicable.

##### 4.2.2.2 Impact attenuating capacity for shingle

One of the most common outdoor impact absorbing materials is shingle.

When shingle is used it shall be washed, rounded and be between 8 mm and 16 mm in diameter and have a minimum depth of 400 mm.

For bouldering wall heights greater than 3 000 mm, as the impact attenuating capacity of shingle may not be sufficient to safely absorb all falls, a notice shall be erected at the bouldering wall site warning climbers that the use of this bouldering wall is more like climbing at a natural site, and therefore they should use other regular techniques for protecting each other such as: hand spotting, use of crash pads (individual protection mats) etc.

This information shall be visible and accessible to all.

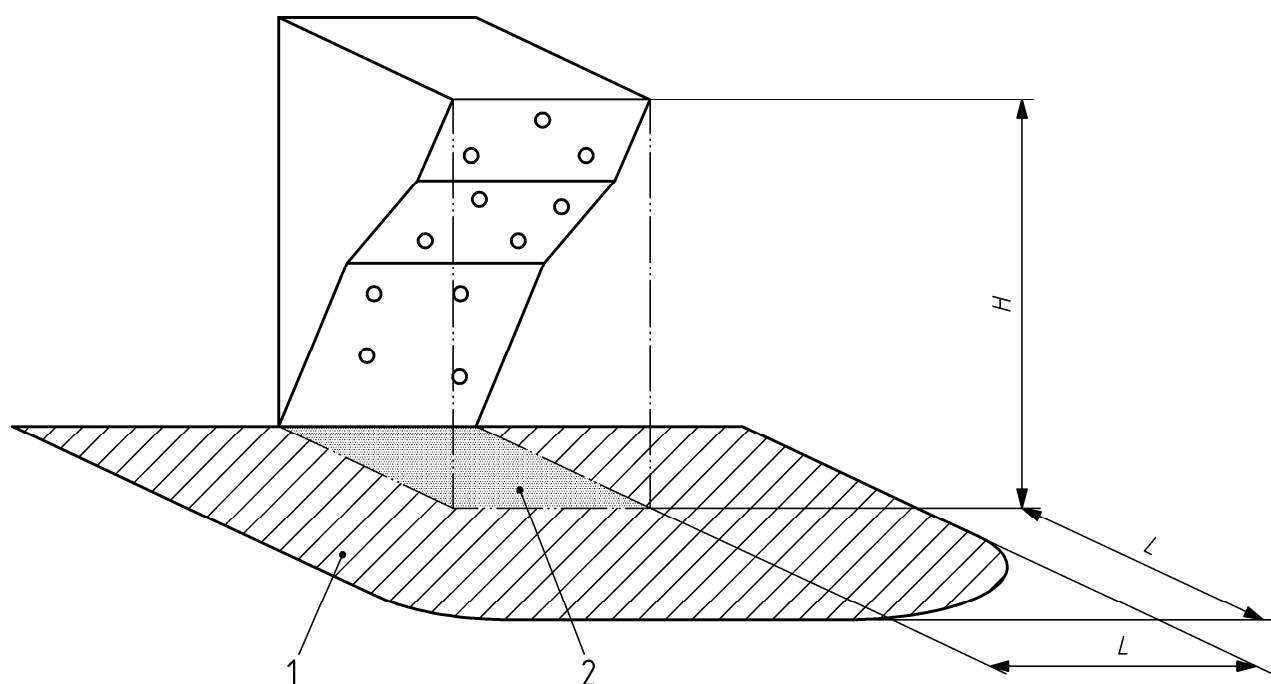
#### 4.2.2.3 Impact attenuating capacity for other types of impact absorbing material

For other types of material such as water, air cushion, net, rubber, bark etc. relevant standards for the selected material should be followed where applicable.

### 4.3 Impact area

#### 4.3.1 Size of the impact area

Extent of the impact area: if the bouldering wall height is less than 3 000 mm, the ground projection of the bouldering wall shall be extended by  $L \geq 2\,000$  mm; if the height of the bouldering wall is 3 000 mm or more, the ground projection of the bouldering wall shall be extended by  $L \geq 2\,500$  mm, see Figure 1. If the bouldering wall is vertical or less than  $10^\circ$  overhanging with no holds on the side walls, the impact area either side of the bouldering wall can be reduced to 1 500 mm.



#### Key

- 1 impact area
- 2 projection of the bouldering wall
- H height of the highest possible hold
- L additional length added to the ground projection of the bouldering wall

**Figure 1 — Example of the dimensions of the impact area at the base of a bouldering wall**

If a bouldering wall constructor can prevent through considered design the possibility of a climber falling to the side of the bouldering wall, the extent of the impact area can be reduced accordingly.

#### 4.3.2 Position of foam safety mats

Foam safety mats shall touch the base of the bouldering wall, see Figure 2 a).

For steeply overhanging bouldering walls with sit down starts it is recommended that a thin or sloping mat is installed between the base of a bouldering wall and the main foam safety mat to prevent foot injuries, see Figure 2 b).