

Specification for

Permanently fixed ladders

ICS 97.145

Committees responsible for this British Standard

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- Department of the Environment for Northern Ireland
- Engineering Equipment and Materials Users Association
- Health and Safety Executive
- Office of the Deputy Prime Minister — Building Division
- Scottish Office — Construction and Building
- Spiral Stair Manufacturers Association
- Co-opted members

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C.2	30 April 2010	Correction to diagrams

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Foreword

This British Standard has been prepared by Subcommittee B/208/1. It supersedes BS 4211:1994, which is withdrawn.

This edition represents a full revision of the 1994 edition, to align the requirements with those currently used in the access industry and to adopt, where appropriate, the requirements of BS EN ISO 14122. The revision has included the removal of class A and class B designations of ladders.

BS 4211:2005+A1:2008 supersedes BS 4211:2005, which is withdrawn.

This British Standard forms one of a group of standards covering permanent fittings to give access to high structures including high buildings and chimneys, and plant. Others in the group are as follows.

BS 3572, *Specification for access fittings for chimneys and other high structures in concrete or brickwork*.

BS 3678, *Specification for access hooks for chimneys and other high structures in steel*.

BS 5395-3, *Stairs and ladders and walkways — Part 3: Code of practice for the design of industrial type stairs, permanent ladders and walkways*.

BS EN ISO 14122, *Safety of machinery — Permanent means of access to machinery*, particularly *Part 4: Fixed ladders (2005)*.

For portable ladders in aluminium and timber, attention is drawn to BS 2037 and BS 1129 respectively.

Attention is drawn to the requirements of the Building Regulations for England and Wales. The Building Regulations (Northern Ireland) and The Building Standards (Scotland) Regulations.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by A1 A1.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 25 and a back cover.

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1 Scope

This British Standard specifies requirements for ladders with single bar rungs intended to be fixed permanently to structures, including high structures such as chimneys, silos and bins, to provide means of access. Requirements for associated platforms and safety hoops are also given. ^[A1] This standard also covers permanently fixed companionway ladders. ^[A1]

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.

^[A1] BS 449-2, *Specification for the use of structural steel in building — Part 2: Metric units*. ^[A1]

BS 3382-1:1961 & BS 3382-2:1961, *Specification for electroplated coatings on threaded components — Part 1: Cadmium on steel components — Part 2: Zinc on steel components*.

BS 3382-3 & BS 3382-4, *Specification for electroplated coatings on threaded components — Part 3: Nickel or nickel plus chromium on steel components — Part 4: Nickel or nickel plus chromium on copper and copper alloy (including brass) components*.

BS 3382-7, *Specification for electroplated coatings on threaded components — Part 7: Thicker platings for threaded components*.

^[A1] BS 4592-0:2006, *Industrial type flooring, stair treads and protective barriers — Common design requirements and recommendations for installation*. ^[A1]

BS 4921, *Specification for sherardized coatings on iron or steel*.

BS EN 131-2, *Ladders — Part 2: Specification for requirements, testing, marking*.

BS EN 353-1:1993, *Personal protective equipment against falls from a height — Part 1: Guided type fall arresters including a rigid anchor line*.

BS EN 353-2:1993, *Personal protective equipment against falls from a height — Part 2: Guided type fall arresters including a flexible anchor line*.

BS EN 363:1993, *Personal protective equipment against falls from a height — Fall arrest systems*.

BS EN 12329, *Corrosion protection of metals — Electrodeposited coatings of zinc with supplementary treatment on iron or steel*.

BS EN 12330, *Corrosion protection of metals — Electrodeposited coatings of cadmium on iron or steel*.

BS EN 12373-1, *Aluminium and aluminium alloys — Anodizing — Part 1: Method for specifying decorative and protective anodic oxidation coatings on aluminium*.

BS EN 12540, *Corrosion protection of metals — Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and copper plus nickel plus chromium*.

BS EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods*.

BS EN ISO 12944-1, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 1: General introduction*.

BS EN ISO 12944-2, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 2: Classification of environments*.

BS EN ISO 12944-3, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 3: Design considerations*.

BS EN ISO 12944-4, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 4: Types of surface and surface preparation*.

BS EN ISO 12944-5, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 5: Protective paint systems.*

BS EN ISO 12944-6, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 6: Laboratory performance test methods.*

BS EN ISO 12944-7, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 7: Execution and supervision of paintwork.*

BS EN ISO 12944-8, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 8: Development of specifications for new work and maintenance.*

BS EN ISO 14122-2, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways.*

BS EN ISO 14122-3, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails.*

BS EN ISO 14122-4, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders.*

BS EN ISO 14713, *Protection against corrosion of iron and steel in structures — Zinc and aluminium coatings — Guidelines.*

3 Terms and definitions

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

3.1

safety cage

assembly which serves to limit the risk of people falling from the ladder

NOTE See Figure 1, and Figure 2 and Figure 3.

3.2

stiles

side members of the ladder to which the rungs are fitted

3.3

rest platform

platform with the required protective devices, provided to enable the person climbing the ladder to rest

3.4

work platform

platform with the required protective devices, provided to enable a work activity to be carried out

3.5

trap door

normally closed device which can be opened to give access through a platform or through other similar horizontal structures

3.6

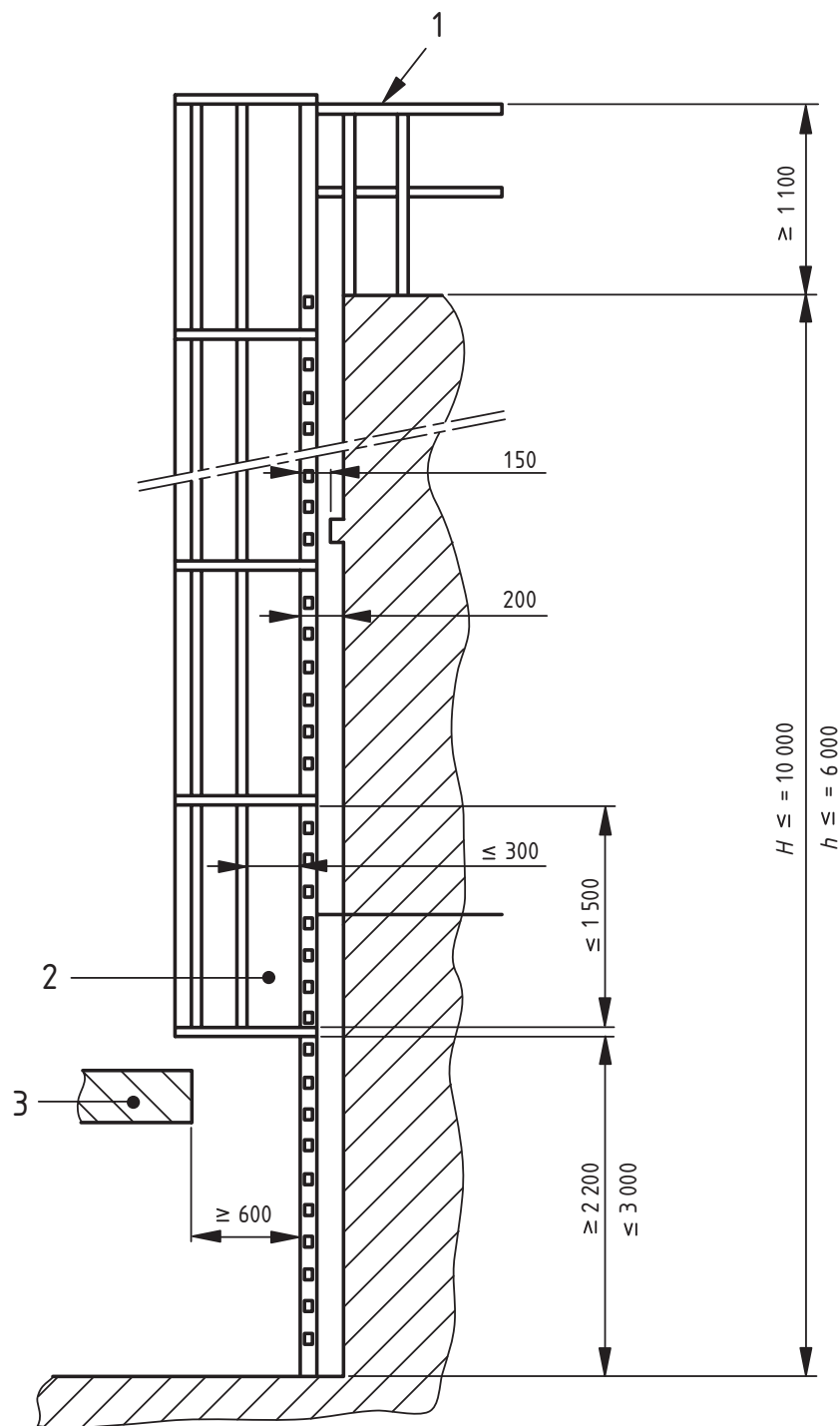
companionway ladder

consisting of a succession of horizontal levels (steps) fixed between the strings of a single flight ladder, having an angle of pitch of between 60° and 75° and allows passage on foot from one level to another

NOTE Sometimes referred to as “step-ladder” or “ship-ladder”. 

C1

Dimensions in millimetres



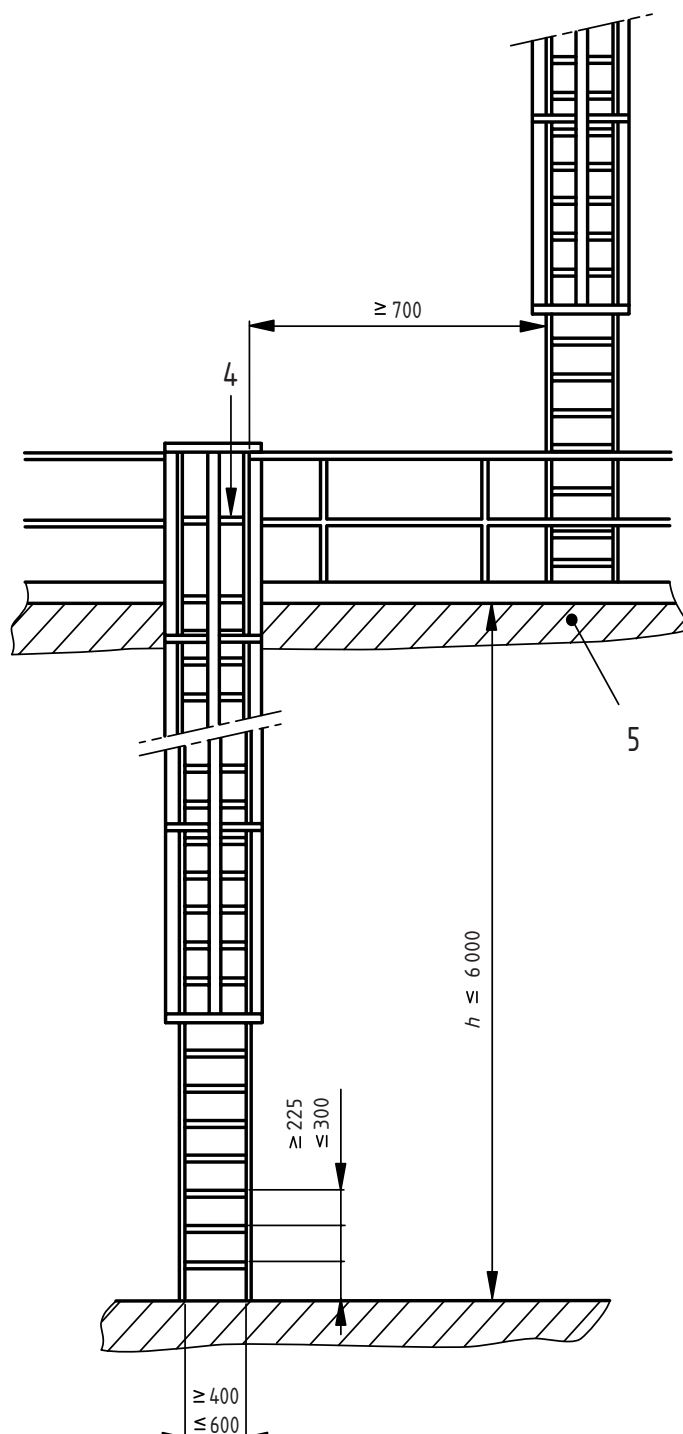
C1

Key

- 1 Connection element
- 2 To suit maximum area $\leq 0.4 \text{ m}^2$
- 3 Discontinuous obstacle

a) Side elevation on ladder with a safety cage

Figure 1 — Principal dimensions of ladders and safety cages

**Key**

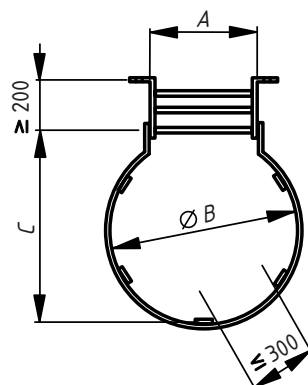
4 Gate

5 Intermediate platform

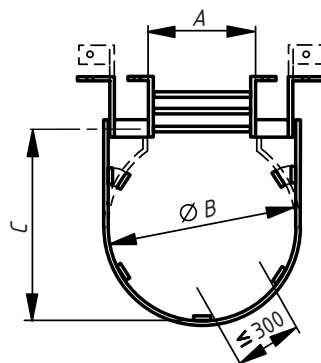
b) Front elevation on ladder with safety cage

Figure 1 — Principal dimensions of ladders and safety cages (continued)

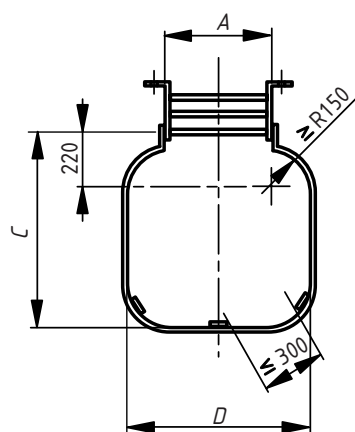
Dimensions in millimetres



a) Circular and intermediate and bottom hoop



b) Top hoop connection to ladder extension



c) Rectangular intermediate and bottom hoop option

A min. = 400 mm; A max. = 600 mm C min. = 700 mm; C max. = 800 mm
 B min. = 650 mm; B max. = 800 mm D min. = 650 mm; D max. = 700 mm.

Figure 2 — Plan views of ladders with a safety cage