

Specification for

Ladders for permanent access to chimneys, other high structures, silos and bins

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee B/542, Roofing and cladding products for discontinuous laying, to Subcommittee B/542/9, Access fittings for chimneys and other high structures, upon which the following bodies were represented:

- Agricultural and Allied Workers' National Trade Group
- Agricultural Engineers' Association
- Engineering Equipment and Materials Users' Association
- Federation of the Electronics Industry
- Institution of Civil Engineers
- Institution of Structural Engineers
- National Federation of Master Steeplejacks and Lightning Conductor Engineers
- Refractory Contractors' Association
- Suspended Access Equipment Manufacturers' Association
- Union of Construction, Allied Trades and Technicians

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Foreword

This British Standard has been prepared under the direction of Technical Committee B/542, Roofing and cladding products for discontinuous laying. It supersedes BS 4211:1987, which is withdrawn. This new edition incorporates Amendment 1:1992 and introduces further technical changes but it does not reflect a full review or revision of the standard, which will be undertaken in due course.

This British Standard forms one of a series of standards covering permanent fittings to give access to high buildings, chimneys, plant and other high structures. Others in the series 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 chimney and other high structures in steel.*

Recommendations for the design of industrial type stairs, permanent ladders and walkways are given in BS 5395-3.

For portable ladders in aluminium and timber reference should be made to BS 2037 and BS 1129 respectively.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself 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 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. General

1.1 Scope

This British Standard specifies, in section 2, requirements for steel ladders with single bar rungs intended to be fixed permanently to chimneys in continuous vertical lengths or to buildings and other structures, to provide means of access.

Requirements for associated platforms and safety hoops are also given. The ladders, designated class A, are suitable for use in relatively short lengths between working platforms or for fixing to high structures in vertical lengths interspersed with landings.

The standard also includes, in section 3, requirements for ladders to be used on silos, bins and stationary agricultural plant. Formed of sections in steel or aluminium, these ladders are designated class B and are unsuitable for chimneys or for manholes for sewage or drainage installations.

1.2 References

1.2.1 Normative references

This British Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are made at the appropriate places in the text and the cited publications are listed on inside back cover. For dated references, only the edition cited applies; any subsequent amendments to or revisions of the cited publication apply to this British Standard only when incorporated in the reference by amendment or revision. For undated references, the latest edition of the cited publication applies, together with any amendments.

1.2.2 Informative references

This British Standard refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on inside back cover but reference should be made to the latest editions.

1.3 Definitions

For the purposes of this British Standard the following definitions apply.

1.3.1

stiles

the side members of the ladder to which the rungs are fitted

1.3.2

safety hoop

a bar fixed to both stiles to enclose the path of the person climbing the ladder, to prevent him or her falling outwards

1.3.3

rest platform

a platform provided to enable the person climbing the ladder to rest

1.3.4

work platform

a platform provided to enable to work activity to be carried out

Section 2. Class A ladders

2.1 Materials

NOTE The design of ladders, platforms and connectors should be in accordance with BS 5950-1.

2.1.1 General

The material used for the construction of class A ladders, hoops, straps, platforms and connectors shall be low carbon steel conforming to grade 43C of BS 4360.

2.1.2 Bolts, nuts, washers and rivets

Bolts and nuts shall conform to BS 4190 or BS 4933, and, unless otherwise specified in the relevant bolt or nut standard, washers shall conform to BS 4320. Rivets shall conform to BS 275.

2.1.3 Welding

Welding shall be in accordance with BS 5135.

2.2 Finish

2.2.1 General

All burrs, weld-flash, sharp edges and other imperfections shall be removed and made smooth. This work shall be carried out before any required protective finish is applied.

2.2.2 Protective

Depending on the situation and atmospheric conditions in which steel ladders are to be used, they shall be given a suitable protective finish in accordance with Table 1. The choice of protection shall be made in accordance with BS 5493.

NOTE Where ladder components or connectors are to be hot dip galvanized, attention is drawn to appendix E of BS 729:1971, which refers to the possible embrittlement of susceptible materials after cold forming operations, including riveting.

2.3 Stiles

2.3.1 Section

Stiles shall be a minimum of 65 mm × 10 mm flat.

2.3.2 Arrangement of stiles throughout rung position

The stiles shall be parallel and straight to a tolerance of 10 mm in a 3 m length throughout the rung portion and the distance between stiles, *x*, measured from the inside faces, shall be not less than 300 mm and not more than 480 mm (see Figure 1).

Table 1 — Coatings for steel components

Component	Coating	British Standard	Grade
Steel	Electroplated zinc ^a	1706	Zn 3
	Electroplated cadmium ^a	1706	Cd 3
	Hot dip galvanized	729	—
	Sherardized	4921	Class 2
	Electroplated nickel	1224	Medium application grade
	Electroplated nickel and chromium	1224	Service condition no. 2
Screw threads	Any of the above coatings covered by BS 3382-1, BS 3382-2, BS 3382-3, BS 3382-4 and BS 3382-7	BS 3382-1, BS 3382-2, BS 3382-3, BS 3382-4 and BS 3382-7	—
^a Zinc coatings are more suitable for general use, including use in industrial atmospheres, and cadmium is more suitable for use in marine environments.			