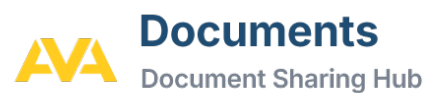


BS 8634:2017+A1:2022



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Portable roof ladders — Specification



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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 October 2017. It was prepared by Technical Committee B/512, *Ladders*. A list of organizations represented on this committee can be obtained on request to the committee secretary.

Supersession

BS 8634:2017+A1:2022 supersedes BS 8634:2017, which is withdrawn.

Information about this document

Text introduced or altered by Amendment No. 1 is indicated in the text by tags A1 A1. Minor editorial changes are not tagged.

Amendment A1 introduces changes to Annex E, which clarify the actual requirements of Annex E.

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The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of The Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

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Introduction

The Work at Height Regulations 2005 [1] gives specific requirements regarding the use of ladders which apply equally to roof ladders.

Roof ladders are suspended ladders retained at their top by a hook (ridge hook) which rests against the opposite side of a pitched roof. Bearers underneath the climbing face of the ladder serve both to support the ladder and to ensure there is sufficient distance between the ladder and the roof for the user's hands and feet enabling a firm hand and foot hold. This British Standard specifies the minimum distances required for that purpose.

The HSE has received reports that roof ladders might become unstable when subjected to forces which can be generated by the actions of the user working on roof ladders. Hence this standard specifies dimensions for the minimum width of the ridge hook and bearers to reduce the possibility of the ladder becoming unstable. Work is being carried out by the HSL (Health & Safety Laboratories) which might, in future revisions of this standard, enable a test for stability of roof ladders or provide further verification of the current dimensional requirements.

The scope of this British Standard encompasses roof ladders for use on certain angles of dual pitched roofs. A range of 25° to 65° encompasses the majority of pitched roofs that are likely to be encountered by users of this type of ladder. Other types of access equipment can be considered for roof pitches outside of this range.

This British Standard does not consider the use of personal protection equipment intended as a means of fall arrest, which is connected to a roof ladder and the potential loads that would be generated on the ladder in a fall arrest situation as a result of the attachment of such equipment. Designers of proprietary PPE systems connected to a roof ladder are advised to consider this fact and design the PPE, and its connections with the ladder, accordingly. [Annex A](#) is intended to assist with this.

1 Scope

This British Standard specifies requirements for portable roof ladders specifically designed solely to provide temporary access to pitched roofs with angles between 25° and 65° for tasks that are of short duration and low risk.

In particular, it specifies:

- a) general design features, requirements and test methods;
- b) the supporting elements, the bearers and ridge hook, and their connections to the ladders, including how a ladder is supported and located by the ridge of a pitched roof;
- c) the pitch, dimensions and form of a roof ladder's climbing surfaces, according to the intended angles of use;
- d) the wheels used to manoeuvre a roof ladder into position on a pitched roof; and
- e) markings and user instructions.

Roof ladders conforming to this standard are only intended for use on pitched roofs with angles between 25° and 65° and for no other purpose. They are not intended for use as leaning or standing ladders.

This British Standard covers single section roof ladders, extending roof ladders, roof ladders with hinge (articulated) joints, roof ladders with telescopic joints and multi-part (sectional) roof ladders.

It is not applicable to:

- 1) aftermarket accessories which are intended to convert leaning ladders into roof ladders;
- 2) roof ladders for use on mono-pitch roofs, e.g. a pent roof;
- 3) roof ladders used with personal protection equipment intended as a means of fall arrest unless the roof ladder is part of a proprietary system designed for that purpose; or

NOTE See [Annex A](#) for further information.

- 4) crawling boards for use on roof angles less than 25°.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions 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.

[BS 245](#), *Specification for mineral solvents (white spirit and related hydrocarbon solvents) for paints and other purposes*

BS 7371 (all parts), *Coatings on metal fasteners*

BS EN 131-1, *Ladders – Part 1: Terms, types, functional sizes*

BS EN 131-2:2010+A2:2017, *Ladders – Part 2: Requirements, testing, marking*

BS EN 131-4, *Ladders – Part 4: Single or multiple hinge-joint ladders*

BS EN 131-6, *Ladders – Part 6: Telescopic ladders*

BS EN ISO 3834 (all parts), *Quality requirements for fusion welding of metallic materials*

BS EN ISO 14713-1, *Zinc coatings – Guidelines and recommendations for the protection against corrosion of iron and steel in structures – General principles of design and corrosion resistance*

BS EN ISO 14731, *Welding coordination – Tasks and responsibilities*

3 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS EN 131-1 and the following apply.

3.1 aftermarket accessory

component not made or supplied by the original equipment manufacturer as a part of the original product but which is added to the product after it has been produced and distributed, to enable that product to serve an additional function

3.2 bearer

component of a roof ladder that provides support between the roof ladder and the roof, spreads the load, provides distance from the roof to the user's feet and hands and accommodates the form of the roof

3.3 locking device

means of preventing unintentional movement relative to each other between the connecting parts or sections of extending, hinged, telescopically jointed or multi-part (sectional) roof ladders

3.4 maximum total load

maximum weight that the ladder is designed to support when set up in accordance with the manufacturer's instruction

[SOURCE: BS EN 131-2:2010+A2:2017, 3.4]

3.5 ridge hook

component at the top of the roof ladder that utilizes the opposite slope of the roof to retain the ladder

4 Design

4.1 General

COMMENTARY ON 4.1

The requirements of this British Standard are based upon a roof ladder with a maximum total load of 1 472 N (150 kg). This value, taken from BS EN 131-2:2010+A2 for tests in the position of use, takes account of the weights of European professionals working at height and their equipment together with factors including safety, dynamic loads and material variations. Roof ladders are assumed to be used by one person at a time.

4.1.1 The roof ladder and its parts shall conform to the requirements of [Annex B](#) to [Annex I](#). For all tests in this British Standard, unless otherwise stated in the particular test, the following tolerances shall apply:

- a) ± 1 mm for longitudinal measurements;
- b) ± 5 mm for the measurement of the distance between the supports and the overhanging length;
- c) $\pm 1^\circ$ for the measurement of angles; and
- d) $\pm 1\%$ for static forces and torque.

4.1.2 The dimensions for the ladder element of the roof ladder shall conform to the dimensional requirements for a leaning ladder specified in BS EN 131-1, except where specified otherwise in this standard.

4.1.3 Components forming part of the roof ladder shall be secured such that they cannot be removed except by direct intentional action and where designed and detailed within the user instructions.

4.1.4 All fastenings shall be secured against accidental loosening.

4.1.5 Metallic welded joints shall be welded in accordance with BS EN ISO 3834 (all parts) and BS EN ISO 14731.

4.1.6 Nails shall be allowed only if their function is related to the production process, e.g. fixation during the drying of glues.

4.1.7 Accessible edges shall be free of burrs or sharp points and chamfered, rounded or otherwise formed in order to avoid injuries. The design shall seek to minimize the existence of shearing and squeeze points and where they do exist to minimize the shearing and squeezing effects as far as practicable.

NOTE Shear or squeeze points exist if the distance between two accessible parts relative to each other is less than 18 mm and more than 7 mm in any position during movement (see BS EN 581-1 for further guidance).

4.1.8 Extending, hinged, telescopically jointed or multi-part (sectional) roof ladders shall be provided with a means of preventing unintentional opening, closing or movement between the connecting parts or sections, relative to each other.

4.2 Rungs and steps

4.2.1 Rungs and steps shall have a standing surface designed to reduce slipping.

4.2.2 Rungs and steps shall be firmly and durably connected to the stiles.

4.3 Ridge hooks

4.3.1 Ridge hooks shall be permanently attached to the ladder. It shall not be possible to separate the ridge hook from the ladder without the use of tools.

4.3.2 Ridge hooks shall be designed to operate on all common roof tiles, ridge tiles, slates, shingles and sheeting profiles when the ladder is in its intended position of use and at all intended angles of use.

4.3.3 Ridge hooks shall be designed to reduce point loads on the roof generated by the weight of the ladder and the user to lessen the possibility of damage to the surface of the roof during use.

4.3.4 The width dimension of the ridge hook at its widest contact points with the roof (W_1) shall be equal to or greater than b_2 .

4.4 Bearers

4.4.1 Bearers shall be permanently attached to the ladder. It shall not be possible to separate the bearers from the ladder without the use of tools.

4.4.2 Bearers shall be of sufficient number and designed to reduce the point loads on the roof generated by the weight of the ladder and the user to lessen the possibility of damage to the surface of the roof during use.

4.4.3 The width dimension of the bearers at their widest contact points with the roof (W_3) shall be equal to or greater than the sum of $b_2 + 2 W_2$ where:

b_2 = the outside width of the roof ladder at its widest point;

$W_2 \geq g/2$ (the unobstructed gap behind climbing surface – see [Table 1](#) and [Figure 1](#)).

See [Figure 2](#).

Table 1 — *Dimensions for rungs and steps*

Dimensions	Symbol	Rungs		Fixed steps		Articulating steps	
		Max	Min	Max	Min	Max	Min
Inside width	b_1	—	280 mm	—	280 mm	—	280 mm
Outside width	b_2	—	$b_1 + 2t$	—	$b_1 + 2t$	—	$b_1 + 2t$
Climbing surface depth	d	51 mm	20 mm	—	80 mm	—	100 mm
Climbing surface spacing	I_s	300 mm	250 mm	300 mm	250 mm	300 mm	300 mm
Climbing surface radii	x	—	—	—	300 mm	—	—
Inclination	α	65°	35°	<35°	25°	65°	25°
Unobstructed horizontal gap between climbing surfaces	g_1	—	—	—	0 mm	—	0 mm
Unobstructed gap behind climbing surface measured under load	$g_2^{A)}$	—	150 mm	—	150 mm	150 mm	150 mm

^{A)} g_2 is measured under load (see [Annex H](#)) horizontally from the centreline of the rungs or steps to the plane of the underside of the bearers where they contact the roof. See [Figure 1](#) and [Annex H](#) for test arrangements.