

Wood stairs —

Part 2: Specification for performance requirements for domestic stairs constructed of wood-based materials

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Committees responsible for this British Standard

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- British Woodworking Federation
- Builders Merchants' Federation
- Department of the Environment (Building Research Establishment Princes Risborough Laboratory)
- Department of the Environment (Housing and Construction Industries)
- Fibre Building Board Organization (FIDOR)
- Institute of Carpenters
- Joinery Managers' Association Ltd.
- London Housing Consortium
- Royal Institute of British Architects
- Scottish Development Department
- Timber Research and Development Association
- Timber Trade Federation

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Foreword

This British Standard, which has been prepared under the direction of the Timber Standards Committee, is a revision of BS 585:1972 in two Parts. BS 585-1 is a prescriptive specification applicable only to timber stairs, which may include plywood risers and/or edge-to-edge jointed timber and/or glue-laminated wood components. This Part is a performance specification for stairs which may use the newer wood-based materials and/or non-traditional methods of construction or fixing of members.

Since there is no satisfactory accelerated ageing test to assess durability of wood-based materials, the scope of the standard has been restricted to materials complying with British Standards. This has made it possible to reduce the number of performance criteria and associated test methods.

The proper functioning and durability of a stair complying with this standard depend on care in handling during transportation to, and on site, as well as careful site storage, correct installation and temporary protection, and subsequent proper maintenance. Some general advice is given in BS 5395-1.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, 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.

0 Introduction

0.1 General

To perform satisfactorily in use, a stair and its component parts have to attain a specific level of performance for each of a number of relevant attributes. The main attributes to be considered are strength, deflection and vibration under dynamic load. Other attributes, such as slip resistance, wear resistance and resistance to wetting may be important, depending on the materials used in the stair construction or the particular end use.

Performance requirements and acceptance levels are given for complete staircases and separately for balustrades, treads, nosings and risers. The acceptance levels relate to the test methods given in Appendix B which allow for various forms of support for the stair strings simulating the fixing to be used in practice, i.e. top and bottom support only or an additional intermediate support for one string.

In drawing up performance requirements for this Part of BS 585, acceptance levels have been based largely upon tests on domestic wood stairs known to be satisfactory in use. Consideration has also been given to mandatory requirements contained in building regulations, and the recommendations in BS 5395-1 and BS 6399-1.

0.2 Stairs

Tests for complete stairs (see clause 6) are based on the application of concentrated loads, which are considered to be a more realistic representation of actual loading than the equivalent uniformly distributed loads.

Information on user reaction to dynamic movement of stairs is limited. There is evidence of a relation between dynamic movement of stairs and their deflection under static load. To enable further data to be obtained, a suitable test method has been given in Appendix D.

A stair should be strong enough to carry normal loading with an acceptable margin of safety, and without excessive deflection that would impair its efficiency or the performance of adjacent components. Movements under dynamic load should not affect user comfort or safety. The stair should maintain these performance levels during its expected life.

Stairs do not have to sustain loads over long periods of time. However, since certain materials are subject to creep, the inclusion of a 24 h load test in a future edition of the standard is under consideration.

0.3 Balustrades

Balustrades act as a barrier to prevent accidents due to stumbling and falling. Their handrails are intended to assist in ascending or descending stairs or to act as a grab rail in case of falling by providing a firm handgrip which also provides a feeling of security. Thus it is essential to consider balustrades as structural elements designed to meet the appropriate strength requirements (see BS 6180). The tests on balustrades described in Appendix B are intended to simulate a static loading condition and an impact loading condition.

0.4 Treads and nosings

Stair treads should be capable of carrying the concentrated static and impact loads that occur in use with safety and without excessive deflection that would cause a feeling of insecurity to users.

Nosings of treads should be capable of carrying the impact loads they receive in normal use without sustaining damage. This aspect of performance is particularly important where a tread material is known to be unsuitable for nosings and it is intended to superimpose a nosing of a higher performance material.

The performance requirements for treads and nosings given in 6.4 and 6.5 are based on those given for chipboard in BS 5669.

0.5 Risers

Risers should be capable of resisting the loads they receive in use. The main type of loading to be considered is the impact loads that can arise from the toes of shoes when a person goes up the stair.

1 Scope

This Part of BS 585 specifies performance requirements for domestic stairs constructed from certain wood-based materials (see clause 4).

It applies to straight flight stairs and stairs with quarter and half landings, intended primarily for use inside one-family dwellings, but excludes stairs having flights with winder treads.

NOTE 1 For guidance on design of stairs with straight flights, see BS 5395-1.

NOTE 2 Appendix D describes a recommended test method for vibration of stairs. Reference may be made to BRE Digest 278 "Vibrations, buildings and human response"¹⁾.

NOTE 3 The titles of the publications referred to in this standard are listed on the inside back cover.

¹⁾ Obtainable from Her Majesty's Stationery Office (HMSO), 49 High Holborn, London WC1.