

Particleboard —

Part 3: Specification for oriented strand board (OSB)

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Technical Sector Board for Building and Civil Engineering (B/-) to Technical Committee B/541, upon which the following bodies were represented:

- American Plywood Association
- Association of British Plywood and Veneer Manufacturers
- British Woodworking Federation
- Chartered Institute of Building
- Council of the Forest Industries of British Columbia
- Department of the Environment (Building Research Establishment)
- Fibre Building Board Organisation (FIDOR)
- Finnish Plywood International
- Flat Roofing Contractors Advisory Board
- Forestry Commission
- Furniture Industry Research Association
- Institution of Structural Engineers
- Municipal Mutual
- National Federation of Roofing Contractors
- National House (Building Council)
- National Panel Products Association
- Royal Institute of British Architects
- Structural Board Association
- Timber Research and Development Association
- Timber Trade Federation
- United Kingdom and Ireland Particleboard Association

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Foreword

This Part of BS 5669 has been prepared under the direction of the Technical Sector Board for Building and Civil Engineering.

Since BS 5669:1979 was published, the range of particleboards available has continued to grow. The format of the 1979 standard, which covered only four board types, does not permit the expansion necessary to include additional types of particleboard and this revision therefore comprises a series of Parts of BS 5669, as follows:

- *Part 1: Methods of sampling, conditioning and test;*
- *Part 2: Specification for wood chipboard;*
- *Part 3: Specification for oriented strand board (OSB);*
- *Part 4: Specification for cement bonded particleboard;*
- *Part 5: Code of Practice for the selection and application of particleboards for specific purposes.*

This Part of BS 5669 specifies two quality levels of OSB in terms of their property levels rather than by type of adhesive or wood species used.

Although the adhesive used in the manufacture of these boards has a high resistance to the effects of moisture, the durability of the timbers commonly used in the production of the wafers are categorized as “perishable” or “non-durable” by the Building Research Establishment in their Digest 296 [1]. Consequently oriented strand boards should not be used in permanently damp or poorly ventilated conditions unless effectively treated with a suitable preservative. Manufacturers should be consulted regarding suitable preservative treatments.

Under conditions of high humidity or actual wetting, oriented strand board may increase in thickness to a greater extent than wood chipboards conforming to BS 5669-2.

Oriented strand boards are manufactured by alignment of some or all of their strands or wafers to give different properties along their length (major axis) and width (minor axis).

Unless otherwise stated the test methods used in assessing oriented strand board are given in BS 5669-1 and are identical with those used for particleboards specified in Parts 2 and 4 of this standard.

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 10, 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.

1 Scope

This Part of BS 5669 specifies requirements for two types of oriented strand board, from 6 mm up to 25 mm thickness, in terms of mean quality levels for strength, stiffness, dimensional tolerances and swelling together with strength retention when exposed to water (see note 1). Marking requirements are also specified.

NOTE 1 The values for mean quality levels given in this Part of BS 5669 are not suitable for structural design purposes without applying appropriate reduction factors.

NOTE 2 Subsequent overlayment with other materials or treatment with chemicals to improve resistance to biodegradation or spread of flame may modify the performance of the board as specified.

Methods of test for these boards are not included in this Part of BS 5669 but are given in BS 5669-1.

This Part of BS 5669 does not specify either the wood species or adhesive type used in the manufacture of these boards (see clause 4).

Board sizes are not specified in this Part of BS 5669.

NOTE 3 Where there is a requirement for co-ordinating sizes they should be as specified in BS 6750.

Density is not specified in this Part of BS 5669.

NOTE 4 Should measurement of density be required, the method given in BS 5669-1 should be used.

Annex A gives guidance on verifying compliance with this standard.

Recommendations for the selection and application of the various types of oriented strand board for specific purposes are given in an amendment to BS 5669-5¹⁾.

2 References

2.1 Normative references

This Part of BS 5669 incorporates, by reference, provisions from specific editions of other publications. These normative references are cited at the appropriate points in the text and the publications are listed on the inside back cover. Subsequent amendments to, or revisions of, any of these publications apply to this Part of BS 5669 only when incorporated in it by updating or revision.

2.2 Informative references

This Part of BS 5669 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 the inside back cover, but reference should be made to the latest editions.

3 Definitions

For the purposes of this Part of BS 5669 the definitions given in BS 6100-4.3:1984 apply together with the following.

3.1 oriented strand board (OSB)²⁾

three layered flakeboard in which the grain of the flakes in each of the layers is aligned, the orientation in the centre layer being across the board while the grain of the flakes in the surface layer lies parallel to the long axis of the board

3.2 major (long) axis

direction in the plane of the board in which the bending strength and modulus of elasticity in bending are greater

NOTE This direction is indicated by a row of arrows on the face of the board.

3.3 minor axis

direction in the plane of the board at right angles to the major axis

4 Classification

Boards shall be classified by their properties which relate to intended general or special use, as follows. The prefix "F" is used to avoid confusion with classification designation of other types of particleboard.

a) F1. oriented strand board

The flakes of the board are oriented to increase strength and stiffness parallel to the length (major axis) of the board and reduce strength and stiffness across the width (minor axis) of the board.

b) F2. oriented strand board

The board is similar in construction to F1, but has enhanced properties in relation to moisture resistance, durability and resistance to fungal attack. These boards also have a minimum moisture content of 5 % on leaving the place of manufacture thereby reducing the initial instability on site.

NOTE Boards specified in this Part of BS 5669 are bonded with adhesives which are inherently moisture resistant. Such boards recover an acceptable degree of strength after exposure to water and/or high humidity for limited periods although such exposure may cause non-reversible dimensional changes. They do not necessarily resist prolonged exposure to weather, attack by micro-organisms or persistent damp conditions.

¹⁾ An amendment to BS 5669-5 is in course of preparation.

²⁾ Repeated from BS 6100-4.3.