

CONFIRMED  
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# Plywood —

## Part 8: Specification for bond performance of veneer plywood

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# Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Timber Standards Committee (TIB/-) to Technical Committee TIB/7 upon which the following bodies were represented:

- Association of British Plywood and Veneer Manufacturers
- British Railways Board
- British Wood Preserving Association
- British Woodworking Federation
- Department of the Environment (Property Services Agency)
- Department of the Environment (Building Research Establishment Princes Risborough Laboratory)
- Greater London Council
- Institution of Structural Engineers
- National Association of Shopfitters
- Royal Institute of British Architects
- Timber Research and Development Association
- Timber Trade Federation

This British Standard, having been prepared under the direction of the Timber Standards Committee, was published under the authority of the Board of BSI and comes into effect on 28 February 1985

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The following BSI references relate to the work on this standard:  
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## Foreword

BS 6566 has been prepared under the direction of the Timber Standards Committee and is in a number of Parts, issued separately. So far eight Parts have been published and Part 9 dealing with strength is in preparation.

- *Part 1: Specification for construction of panels and characteristics of plies including marking;*
- *Part 2: Glossary of terms;*
- *Part 3: Specification for acceptance levels for post-manufacture batch testing including sampling;*
- *Part 4: Specification for tolerances on the dimensions of plywood panels;*
- *Part 5: Specification for moisture content;*
- *Part 6: Specification for limits of defects for the classification of plywood by appearance;*
- *Part 7: Specification for classification of resistance to fungal decay and wood borer attack;*
- *Part 8: Specification for bond performance of veneer plywood.*

For the purpose of this standard, satisfactory performance in the strength tests following the various treatment conditions laid down in **A.4** is used to determine the bond designation and bond performance of a particular plywood. For routine quality control purposes, the knife test, as used in former British Standards for plywood and detailed in Appendix C, may be used but, in the event of dispute, characterization of the plywood bond performance will be by the tensile shear test.

Guidance on sample preparation, testing, assessment and equipment is given in Appendix B.

For information on structural uses, specifiers should refer to BS 5268-2.

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.

## 0 Introduction

For the purpose of this Part of BS 6566 four plywood bond types are recognized. Three, designated WBP (weather and boil proof), MR (moisture resistant) and INT (interior), are comparable to those formerly used in British Standards for plywood. The fourth, designated CBR (cyclic boil resistant), replaces the BR category of BS 1455 and is defined in Table 1.

The designations WBP, MR and INT are used in BS 1203 to characterize phenolic and aminoplastic resins. Conformity with that standard requires that when an adhesive is used with beech veneers to make a plywood, test specimens cut from the plywood sustain a minimum load when tested in tension after appropriate pretreatments.

The adhesive designations, WBP, MR, etc. were adopted in plywood standards (BS 1088 and BS 4079, BS 1455, etc.) to describe bond performance. Pretreatments for different adhesive types were as in BS 1203 but assessment of the bond was by a knife test. It cannot be assumed that the use of an adhesive of a type designated by BS 1203 will necessarily give a plywood bond performance of the same designation if, for example, veneers of wood species other than beech are used. Thus the same designations were used to categorize on the one hand adhesives and on the other hand plywood bond performance. However, because of their long adopted and well established use for characterizing plywood bond performance, the use of these designations is continued in this standard and they are defined in Table 1.

## 1 Scope

This Part of BS 6566 specifies requirements for bond performance of veneer plywood made with phenolic and aminoplastic resin adhesives. In the case of plywood bonds made with resins of other chemical types, compliance with the test requirements does not necessarily indicate equal performance and confirmation of type grouping by actual service trials is required.

This Part of BS 6566 is applicable to raw plywood for general use as originally manufactured and as defined in BS 6566-2. Plywoods given a preservative treatment as specified in BS 6566-7 have to continue to comply with the relevant bond performance of this Part.

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

## 2 Types of bond

Bonds shall be of the following types as defined in Table 1.

- a) WBP (weather and boil proof);
- b) CBR (cyclic boil resistant);
- c) MR (moisture resistant);
- d) INT (interior).

## 3 Bond performance levels

The plywood shall have an acceptable bond if, when tested in accordance with Appendix A, it has one of the combinations of shear strength and percentage wood failure given in Table 2 for each of the treatments specified in A.5.1 and when the results for all the specimens for each pretreatment from a panel are combined.

Plywood shall comply with this standard if the panels, so tested, comply with the acceptance requirements of Table 1 of BS 6566-3:1985.

Table 1 — Levels of bond type

| Bond type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WBP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>These plywood bonds are required to be highly resistant to weather, micro-organisms, cold and boiling water and wet and dry heat.</p> <p>These requirements are met by the following.</p> <p>a) Veneer plywood bonds made with an adhesive containing phenolic resins (see definition 2602 in BS 6566-2), which after treatment as specified in <b>A.5.1</b> give a level of strength and wood failure as specified in clause 3.</p> <p>b) Veneer plywood adhesive bonds in plywood manufactured with a phenol formaldehyde (PF) adhesive to the standards listed below<sup>a</sup>, marked as indicated, subject to and bearing the mark of the specified quality control authority in the country issuing the standard and for which an assurance of performance has been provided following exposure trials and an assessment of long term usage.</p> <p>NOTE Since there exist no appropriate methods of identifying the precise chemical nature of a fully cured phenolic adhesive plywood glue-line, in cases of dispute and to comply with Trade Descriptions Act requirements the manufacturer of plywood may be required to affirm the compliance of the adhesive used with the definition of phenolic resin.</p> |
| CBR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>These plywood bonds are required to be resistant to weather but may fail under prolonged exposure or other demanding conditions of use. They have a good resistance to boiling water, will withstand cold water for many years and are highly resistant to attack by micro-organisms.</p> <p>These requirements are met by veneer plywood adhesive bonds which after treatment as specified in <b>A.5.1</b> give a level of strength and wood failure as specified in clause 3.</p> <p>This category does not include those plywoods which are manufactured, marked and controlled in accordance with the standards listed below<sup>a</sup>, and for which assurances have been given that they comply with the requirements for WBP.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>These plywood bonds are required to survive full exposure to weather for only a few years. They withstand cold water for a long period of time and hot water for a limited time but fail when exposed to boiling water; they are resistant to attack by micro-organisms.</p> <p>These requirements are met by veneer plywood adhesive bonds which after treatment as specified in <b>A.5.1</b> give a level of strength and wood failure as specified in clause 3.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| INT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>These plywood bonds are required to be strong and durable in dry conditions and to be resistant to cold water, but not to withstand attack by micro-organisms.</p> <p>These requirements are met by veneer plywood adhesive bonds which after treatment as specified in <b>A.5.1</b> give a level of strength and wood failure as specified in clause 3.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p><sup>a</sup> CSA 0121 — M 1978 “Canadian Douglas Fir Plywood”<br/> CSA 0151 — M 1978 “Canadian Softwood Plywood”<br/> Available from the Council of Forest Industries of British Columbia, Tileman House, 131-133 Upper Richmond Road, Putney, London SW15 2TR.<br/> Marked: EXTERIOR<br/> Subject to the Quality Control procedures of the Council of Forest Industries of British Columbia, Vancouver.</p> <p>U.S. Product Standard NBS PS1-83:1983 “Construction and Industrial Plywood”<br/> Available from American Plywood Association, 101 Wigmore Street, London W1H 9AB.<br/> Marked: EXTERIOR or EXPOSURE 1 or EXTERIOR GLUE<br/> Subject to the Quality Control procedures of the American Plywood Association, Tacoma, Washington.</p> <p>SFS 2415 and SFS 2416:1972 “Finnish Birch Plywood”<br/> SFS 4091:1977 “Birch Faced Plywood”<br/> SFS 4092:1977 “Coniferous Plywood”<br/> Available from Finnish Plywood International, P.O. Box 99, Welwyn Garden City, Herts AL6 0HQ.<br/> Marked: EXTERIOR<br/> Subject to the Quality Control procedures of the Technical Research Centre of Finland (VTT).</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |