INFill PANELS FOR DOORS AND WINDOWS - SPECIFICATION

Reference 355/2 July 2015
1 Foreword

This specification has been prepared by the British Plastics Federation, The British Board of Agrément and the infill panel manufacturing industry. This revision to the specification is to bring it up to date with modern practices and knowledge.

Infill panels can be made in either monolithic or laminated form from a range of materials. The following materials are commonly used

Facings - Plywood; Hardwood; Mineral fibre; Cement board; Fibre reinforced composite sheet; Thermosetting plastics; Thermoplastic sheets; Steel; Aluminium.

Central cores - Particle board; Blockboard; Polystyrene or polyurethane foam; Cement or gypsum board; Laminates of metal or wood with foamed plastics sheets.

Note. This list of materials is neither exclusive nor exhaustive.

Infill panels can be supplied in sheet form for subsequent cutting to size or pre-cut to a specified size.

Compliance with this specification does not confer immunity from legal or contractual obligations.

2 Scope

The requirements in this specification are for the purposes of component selection, and the declared values of attributes are not necessarily applicable to the finished product of which the infill panel forms a component.
This specification covers white and non-white panels, flat and moulded with or without any glazed inserts, self-coloured, surface coated, surface covered.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the publication referred to applies.

BS 476 Part 7:1997 Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products

BS 3900, Methods of test for paints — Part D8: Determination of colour and colour difference: Principles. (ISO 7724-1)

BS 3900-D9, Methods of test for paints — Part D9: Determination of colour and colour difference: Measurement. (ISO 7724-2)

BS 3900-D10, Methods of test for paints — Part D10: Determination of colour and colour difference: Calculation. (ISO 7724-3)

BS 7722:2010, Surface covered PVC-U profiles for windows and doors — Specification


BS EN 12608:2003, Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors. Classification, requirements and test methods

BS EN ISO 2409:2013, Paints and varnishes. Cross-cut test

EN ISO 11664-1, Colorimetry – Part 1: CIE standard colorimetric observers (ISO 11664-1)

EN ISO 11664-2, Colorimetry – Part 2: CIE standard illuminants (ISO 11664-2)

EN ISO 11664-4, Colorimetry – Part 4: CIE 1976 L*a*b* Colour space (ISO 11664-4)

DD171:1987, Guide to specifying performance requirements for hinged or pivoted doors (including test methods)
4  Terms and definitions

4.1 laminated foil
plastics layer bonded with an adhesive to cover the surface of a panel

4.2 transfer foil
coloured protective surface layer carried on a release medium and bonded to the surface of a panel by the application of heat and pressure

4.3 white
colour of surfaces in the colour range L* ≥ 82 (chromaticity co-ordinate Y ≥ 60), -2.5 ≤ a* ≤ 5, and -5 ≤ b* ≤ 15 when determined in accordance with BS EN ISO 11664-1, -2, -4

4.4 non-white
colour of surfaces for all conditions other than those described in 4.3

5  Tolerances, appearance and finish

Dimensional tolerances and tolerances on appearance and finish shall be declared by the infill panel manufacturer and shall be maintained by a suitable system of documented factory production control.

6  Thermal properties

The manufacturer shall declare the U value of each panel type of all constructions. Where no independent test evidence is available, reference shall be made to BS EN 10077-2.

7  Falling weight impact test

7.1 Test method
Where this attribute forms part of the required specification, representative samples shall be tested generally in accordance with Test Method A10 of DD171: 1987 [Guide to specifying performance requirements for hinged or pivoted doors] supported on three or four sides dependent on the intended use. The energy of the impacts shall be declared by the Manufacturer. The positions of the impacts shall be at the discretion of the tester. Notwithstanding this no impact shall be carried out closer than 50 mm to the edge of a panel and impact positions shall be selected to assess the weakest points of the sample, e.g. at the edges of thermoformed features. The sample tested shall be 1 m x 1 m or the maximum size recommended by the manufacturer if this is less.
7.2 Requirement
When measured in accordance with appendix A10 of DD171 : 1987 no indentation shall exceed a dimension of 1.25 mm. In addition there shall be no visible signs of perforation.

8  Surface performance
The exposed surfaces of infill panels should offer resistance to wear occasioned by their intended use.

8.1  Adhesion of transfer foils or paints
When tested in accordance with BS EN ISO 2409:2013 using adhesive tape, the coating shall conform to classification 0.

Note. Relevant test reports can be cascaded from the skin supplier to the infill panel manufacturer where equivalence can be shown.

8.2  Adhesion of laminated foils
When tested in accordance with BS 7722:2010, Annex C or other equivalent test, there shall be no more than 25mm of peel occurring between bonded foil and panel surface either:

   a) Before the foil stretches and shears; or
   b) When the predetermined maximum load is achieved

Note. Relevant test reports can be cascaded from the skin supplier to the infill panel manufacturer where equivalence can be shown.

8.3  Reaction to fire
When tested in accordance with BS 476 Part 7:1997, the performance of representative test specimens shall be declared.

Individual test results shall only be applied to the particular skin material and skin thickness tested.

Note. Relevant test reports can be cascaded from the skin supplier to the infill panel manufacturer where equivalence can be shown.

9  Resistance to climatic variation

9.1 Test specimen
The test specimen shall be glazed into a PVC-U frame to a minimum area of 1 m² and shall contain moulding and glazing options.

9.2 Testing
When tested in accordance with Clause 10 of BS 8529:2010, the test specimen shall show no signs of cracking, delaminating or blistering.
9.3 Test report
The test report shall contain details of the panel tested, dimensions of test specimen, signs of any cracking, de-lamination or blistering.

10 Colour resistance to weathering
When test specimens are tested in accordance with clause 5.8.1 of BS EN 12608:2003, the change in colour between the unexposed and exposed test specimens for white test specimens shall be ΔE* ≤ 5 and Δb* ≤ 3. For non-white test specimens, including textured finishes, the colour change shall be ΔE* ≤ 4.

Note. Relevant test reports can be cascaded from the skin supplier to the infill panel manufacturer where equivalence can be shown.