British Standards Institution (BSI)

British Standards

BS 476:— Fire tests on building materials and structures
-7:1997 Method of test to determine the classification of the surface spread of flame of products
BS 648:1964 Schedule of weights of building materials
BS 1202:1974 Specification for nails
BS 1282:1975 Guide to the choice, use and application of wood preservatives
BS 3177:1995 Method for determining the permeability to water vapour of flexible sheet materials used for packaging
BS 4072:— Wood preservation by means of copper/chromium/arsenic compositions
BS 5250:1995 Code of practice for control of condensation in buildings
BS 5268 Structural use of timber
-2:1996 Part 2. Code of practice for permissible stress design, materials and workmanship
-3:1998 Part 3. Code of practice for trussed rafter roofs
-5:1989 Part 5. Code of practice for the preservative treatment of structural timber
BS 5534-1:1997 Code of practice for slating and tiling. Part 1. Design
BS 5589:1989 Code of practice for preservation of timber
BS 5707:1997 Preparations of wood preservatives in organic solvents
BS 6399:— Loadings for buildings.
-1:1996 Part 1. Code of practice for dead and imposed loads
-2:1997 Part 2. Code of practice for wind loads
-3:1988 Part 3. Code of practice for imposed roof loads
BS 6566-7:1985 (1991) Plywood. Part 7. Specification for classification of resistance to fungal decay and wood borer attack
BS 8103-3:1996 Structural design of low-rise buildings. Part 3. Code of practice for timber floors and roofs for housing
BS 8217:1994 Code of practice for built-up felt roofing

European Standards

BS EN 314-2:1993 Plywood. Bonding quality. Part 2. Requirements
BS EN 318:1993 Fibreboards. Determination of dimensional changes associated with changes in relative humidity
BS EN 320:1993 Fibreboards. Determination of resistance to axial withdrawal of screws
BS EN 335-3:1996 Hazard classes of wood and wood-based products against biological attack. Part 3. Application to wood-based panels.
BS EN 350-2: 1994 Durability of wood and wood-based products. Natural durability of solid wood. Part 2. Guide to natural durability and treatability of selected wood species of importance in Europe
BS EN 460: 1994 Durability of wood and wood-based products. Natural durability of solid wood. Guide to the durability requirements for wood to be used in hazard classes
BS EN 635:— Plywood. Classification by surface appearance
-1:1995 General
-3:1995 Softwood
BS EN 636-1, -2 and -3:1997 Plywood specifications. Requirements for plywood for use in dry, humid and exterior conditions
BS EN 789:1996 Timber structures. Test methods. Determination of mechanical properties of wood-based panels
BS EN 1058:1996 Wood based panels. Determination of characteristic values of mechanical properties and density
BS EN 1084:1995 Plywood. Formaldehyde release classes determined by the gas analysis method
DD ENV 1099:1998 Plywood. Biological durability. Guidance for the assessment of plywood for use in different hazard classes
DD ENV 1995-1-1:1994 Eurocode 5: Design of timber structures. General rules and rules for buildings
prEN 12369:1998 Wood-based panels. Characteristic values for estimated products
prEN 12871-1:1997 Wood-based panels. Structural roof decking on joists. Part 1. Performance specifications. *Draft for public comment*
prEN 12871-2:1997 Wood-based panels. Structural roof decking on joists. Part 2. Performance requirements. *Draft for public comment*
prEN 12871-3:1997 Wood-based panels. Structural roof decking on joists. Part 3. Performance test method. *Draft for public comment*

International Standard

ISO 834:1975 Fire-resistance tests. Elements of building construction

Appendix A: Examples of U-value calculations for roofs

Within the building industry, the U-value is adopted for indicating the level of thermal resistance. Since the U-value is a measure of heat loss, the lower the U-value the higher the resistance to the passage of heat and the more energy efficient the construction is. Building material manufacturers provide energy efficiency values for their products in terms of thermal conductivity (λ). This varies slightly over the range of species groups used in the ply make-up, but a nominal value of 0.115 W/mK may be used for American plywood with minimal error. To determine U-values (U), the reciprocal of the thermal resistance (R) must be calculated. Thermal resistance values for the range of available plywood thicknesses are provided in Table A1 for convenience, or they may be calculated simply by dividing the thickness of material (L) by the material's thermal conductivity (λ).

Table A1 Thermal resistance values for a range of plywood thicknesses

Panel thickness		Thermal resistance
inches	mm equivalent	R (m^2K/W)
1/4	6.4	0.06
5/16	7.9	0.07
3/8	9.5	0.08
7/16	11.1	0.09
15/32	11.9	0.10
1/2	12.7	0.11
19/32	15.1	0.13
5/8	15.9	0.14
23/32	18.3	0.16
3/4	19.1	0.17
7/8	22.2	0.19
1	25.4	0.22
1 1/8	28.6	0.25

The two examples on the next page outline a typical calculation for pitched and flat roofs.