Plywood Standards: Useful Definitions

OVERVIEW

Plywood is produced in accordance with national and European standards. These standards ensure an appropriate marketing of the plywood.

1. Classification and specification standards for plywood

EN 313-1
Plywood – Classification and terminology – Part 1: Classification (June 1996)

EN 313-2
Plywood – Classification and terminology – Part 2: Terminology (May 1995). Revision published in 1999.

EN 322
Wood based panels – Determination of moisture content (June 1993). (Confirmed in November 1998).

EN 635-1
Plywood – Classification by surface appearance – Part 1: General (April 1995).

EN 635-2
Plywood – Classification by surface appearance – Part 2: Hardwood (July 1995).

EN 635-3
Plywood – Classification by surface appearance – Part 3: Softwood (July 1995).

ENV 635-4
Plywood – Classification by surface appearance – Part 4: Parameters of ability for finishing, Guideline (December 1996).

EN 635-5
Plywood – Classification by surface appearance – Part 5: Methods for measuring and expressing characteristics and defects (May 1999).

EN 636
Plywood – Specifications (Published in 2003). This European Standard specifies the requirements for plywood for general purposes or structural application in dry, humid or exterior conditions. It also gives a classification system based on bending properties.

EN 12369-2
Wood-based panels – Characteristic values for structural design – Part 2: Plywood (2004).

ENV 14272
Plywood – Calculation method for the determination of some mechanical properties (2002).

2. Test methods specific to plywood

EN 314-1
Plywood – Bonding quality – Part 1: Test methods (June 1993). Revision published in 2004.

EN 314-2
Plywood – Bonding quality – Part 2: Requirements (June 1993).

EN 315
Plywood – Tolerances for dimensions (June 1993). Revision published in 2000.

EN 1072
Plywood – Description of the bending properties for structural plywood. (November 1995).

ENV 1099
Plywood – Biological durability – Guidance for the assessment of plywood for use in different hazard classes (February 1998).

3. General standards applicable to plywood

EN 322
Wood based panels – Determination of moisture content (June 1993). (Confirmed in November 1993).

EN 323
Wood based panels â€±Ã„Ã¬ Determination of density (June 1993) (Confirmed in 1998).

EN 310
Wood based panels- Determination of modulus of elasticity in bending and of bending strength (June 1993) (Confirmed in November 1998).

EN 324-1
Wood-based panels – Determination of dimensionsof boards – Part 1: Determination of thickness, width and length (June 1993). (Confirmed in November 1998)

EN 324-2
Wood-based panels – Determination of dimensions of boards – Part 2: Determination of squareness and edge straightness (June 1993). (Confirmed in November 1998)

EN 717-1
Wood-based panels – Determination of formaldehyde release – Part 1: Formaldehyde release – Part 1: Formaldehyde emission by the chamber method (Published in 2004).

EN 717-2

Wood -based panels – Determination of formaldehyde release – Part 2: Formaldehyde release by the gas analysis method (April 1995).
(Corrigendum published in 2002).

EN 717-3
Wood-based panels – Determination of formaldehyde release – Part 3: Formaldehyde release by the flask method (May 1996).

ENV 1156
Wood-based panels – Determination of duration of load and creep factors (May 1999).

EN 13986
Harmonized standard -Wood-based panels for use in construction – Characteristics, evaluation of conformity and marking. (2004)

EN 318
Wood-based panels – Determination of dimensional changes associated with changes in relative humidity. (Revision published in 2002).

EN 12871
Wood-based panels – Performance specifications and requirements for load bearing boards for use in floors, walls and roofs (Published in 2001).

ENV 12872
Wood-based panels- Guidance on the use of wood bearing boards in floors, walls and roofs (2000).

EN 13879
Wood-based panels – Determination of edgewise bending properties (2002).

EN 13810-1
Wood-based panels – Floating floors – Part 1: Performance specifications and requirements (2002).

DD CEN/TS 13810-2
Wood-based panels – Floating floors – Part 2: Test methods (Published in 2003). Further standardisation at the global level is done within ISO (International Standard Organisation). These standards are in general equivalent to the corresponding European standards.

EN 314-2: 1993 Plywood Bonding Quality, Requirements

EN 636: 2003 Plywood Specifications
There are only two material components in plywood: wood & glue. How these components interact will ultimately define how the plywood performs. These two standards provide a relatively straightforward way of classifying the outcome.

EN 314-2:1993 Plywood Bonding Quality,
Classifies plywood by bonding quality only and gives rise to 3 bond classes dependent upon the intended end use. Bonding quality is determined by the adhesive type and core veneer quality (physical defects such as knot holes and splits). (Bond) Class I: suitable for dry interior use only (Bond) Class II: suitable for use in humid areas or exposure to occasional wetting (Bond) Class III: suitable for unprotected exterior use or exposure to frequent wetting Following exposure to a simulated hostile weather environment, accelerated in a laboratory, plywood is tested to destruction to assess how well the bond has survived the weathering process. Once bonding quality has been established to EN314, assessment to EN636 can begin.

EN 636: 2003, Plywood Specifications,
Classifies plywood by taking into account the bond quality AND the biological durability* of the wood species used in the plywood:
EN636-1: suitable for dry interior use only EN636-2: suitable for use in humid areas or exposure to occasional wetting EN636-3: suitable for unprotected exterior use or exposure to frequent wetting EN314 and EN636 are harmonised standards, so, to achieve EN636 Class II (frequently labelled EN636-2) the bonding quality, as a minimum, must be EN314 Class II. Some plywoods have a bonding quality of EN314 Class III but, because of limited biological durability of the timber species, can only achieve EN636-2. This is precisely the case with softwood plywood. It is worth bearing in mind that, provided the EN314 bonding is Class III to start with, an otherwise EN636-2 plywood can be upgraded to EN636-3 by preservative treatment, to treatment class T3 (DD CEN/TS 1099:2007). Most of the plywood sold in the UK will achieve EN314 Bond Class III yet, when assessed to EN636, will achieve EN636-2, because of limited biological durability of the wood. Exceptions to this might include Tropical Hardwood Throughout Plywood and Marine Grade Plywood, provided no sapwood is present. Sapwood is, however, difficult to eliminate. * Biological Durability means: the natural capacity of the wood to resist the detrimental effects of fungal decay (rot) and beetle.