

# PLYWOOD STANDARDS AN EXPLANATION

EN 314-2: 1993 – Plywood — Bonding Quality, Requirements  
EN 636: 2003 – Plywood — Specifications

Are you still confused? There's no need to be.....

Fortunately, 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:

(Specification) *Class I*: suitable for dry interior use only

(Specification) *Class II*: suitable for use in humid areas or exposure to occasional wetting

(Specification) *Class III*: suitable for unprotected exterior use or exposure to frequent wetting

Look familiar? Well it should...

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 larvae (woodworm).

## PLYWOOD STANDARDS EN 636 EN 314

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Recently, there have been some fundamental changes in the terminology used when specifying Plywood. There are two standards, one looks specifically at the wood species and one at the glue line as to how the Plywood performs, the two should be considered together.

### WOOD SPECIES

In terms of the use of Plywood products in the construction sector, the uniform standard for wood based panels, EN 13986, requires that Plywood species must comply with one of the three performance classes within EN 636, and we as a supplier must provide evidence to substantiate such.

The three classes; EN 636-1, EN 636-2, EN 636-3, are based upon moisture resistance as follows:

- Class 1 : Plywood will not break up in interior conditions  
*End use: warm roofs, intermediate floors, timber frame internal and partition walls*
- Class 2 : Plywood will not break up in humid conditions or if to be used externally. Plywood should be treated or covered  
*End use: cold roofs, ground floors and timber frame external walls*
- Class 3 : Plywood will not break up in exterior weather conditions  
*End use: fully exposed service conditions*

### BONDING / GLUE

Changes to the bond quality classifications of Plywood have also been altered. Bonding quality is now divided into three classes also, according to EN 314-1, EN 314-2, EN 314-3, based upon moisture resistance as follows:

- Class 1 : Dry Conditions  
Appropriate for normal interior climate.  
Replacing MR Plywood
- Class 2 : Humid Conditions  
Appropriate for protected external applications, it is capable of resisting weather exposure for short periods of time. Also suitable for interior situations where moisture condition raised above the class 1 level.  
Replacing Type 1
- Class 3 : Exterior Conditions  
Capable of withstanding exposure to weathering conditions and liquid water over sustained periods of time.  
Replacing WBP (Weather and Boil Proof)