



## (BS) EN 636:2012+A1:2015

### Plywood - Specification

This gives the requirements for plywood for general purpose use and for structural (load bearing) applications in dry, humid and exterior conditions. It also gives a classification based on bending properties.

Amendment 1: 2015 makes the following modifications to EN 636: 2012

- a. The scope now clarifies that the standard includes overlaid and coated plywood, but it does not cover materials or processes used for overlaying or coating. Neither does it cover any materials or processes applied in relation to enhancement of biological durability.

- b. Clause 12 Marking:

- (i) Panels marked within the European Economic Area for construction applications shall be marked according to EN 13986 plus

The number of this standard (EN 636) and the conditions of use:

EN 636-1 dry conditions

EN 636-2 humid conditions

EN 636-3 exterior conditions

The letter corresponding to the panels intended application:

"S" for structural (load bearing)

"NS" for general purpose (non-structural)

The commercial name or botanical name of the wood species in the plywood

- (ii) Other panels - a new requirement to be marked giving the commercial name or botanical name of the wood species in the plywood.

- c. Annex B has been introduced giving guidance on the application of the use class system given in EN 335:2013 in relation to the biological agencies that can attack plywood. This useful guidance was originally given in EN 335-3:1995 but was removed when EN 335 -1, -2 and -3 were all merged into a single document, EN 335:2013.



**It is important to note that some earlier modifications made to EN 636:2003 which appear in EN 636:2012+A1:2015 will not yet have been changed in EN 12369-2:2011. This will occur when EN 12369-2 is reviewed in 2016.**

These are:

- a. New classes introduced to Table 1 EN 636:2012 for bending strength, F35: and Table 2 for modulus of elasticity, E35.
- b. Changes to the lower limit values in Table 2 - modulus of elasticity.

The values listed in EN 636:2012+A1:2015 relate to product properties and are not characteristic values for use in design calculation. Such characteristics are given by the manufacturer based on testing and expression of results according to EN 789, EN 1058 and EN 1156. Values given in EN 12369-2 can also be used for characteristic values in design.

| <b>Definition of plywood classes for dry, humid and exterior conditions<br/>(Biological durability)</b>   |  |
|---|--|
| <b>Plywood Class</b>  | <b>Service Class Description</b>   |
| <b>EN 636-1</b><br>Plywood for use in dry conditions.   | Service Class 1 in Eurocode 5: - Plywood to be used in conditions characterised by a moisture content in the material corresponding to a temperature of 20°C and relative humidity of the surrounding air only exceeding 65% for a few weeks per year. Panels of this type are suitable for use in Class 1 of EN 335.  |
| <b>EN 636-2</b><br>Plywood for use in humid conditions including protected external applications. It is also capable of resisting exposure to the weather for short periods. Use in interior applications where the humidity rises above that given for dry use is also acceptable. | Service Class 2 in Eurocode 5: - Plywood to be used in conditions characterised by a moisture content in the material corresponding to a temperature of 20°C and relative humidity of the surrounding air only exceeding 85% for a few weeks per year. Panels of this type are suitable for use in Use Classes 1 & 2 of EN 335. This plywood is appropriate for protected external applications e.g. behind cladding or under roof coverings, but it is also capable of resisting weather exposure for short periods e.g. when exposed during the construction. It is also suitable for interior situations where the service moisture condition is raised above the humidity of dry conditions. |
| <b>EN 636-3</b><br>Plywood for use in exterior conditions including liquid water or water vapour in damp but ventilated locations.  | Service Class 3 in Eurocode 5: - Plywood to be used in climate conditions leading to a higher moisture content than in service class 2. Panels of this type are suitable for use in USE Classes 1, 2 & 3 of EN 335. It is capable of withstanding exposure to weather conditions and liquid water or water vapour in a damp but ventilated location, under consideration of its biological durability.   |



## The Engineered Wood Association

Using American Engineered Wood Products in the UK and EU

[www.apawood-europe.org](http://www.apawood-europe.org)

- For EN 636-1 plywood, the panels must be appropriate for the prevailing climatic conditions with the risk of attack being outlined in use class 1 of EN 335.
- For EN 636-2 panels, the plywood must be appropriate for the prevailing climatic conditions. The risk of attack is outlined in use class 2 of EN 335.
- For EN 636-3 plywood, the panel must be appropriate for the prevailing climatic conditions with the risk of attack being outlined in use class 3 of EN 335. In this use class, the performance will be compromised if suitable preservative treatment and/or relevant surface and edge coating is not applied and if the panels are not properly maintained and installed.
- Guidance on the factors affecting durability and on precautionary measures which may be considered as necessary can be found in CEN/TC 1099

### Other information

Other aspects of the panel's properties also referenced in this standard deal with mechanical characteristics, formaldehyde release, bond quality etc. and the relevant European standards are given. Details of factory production control and marking, identification and documentation are also covered.

An important aspect is the provision of a classification system based on the bending properties of the panel. This system is independent of the panel's composition factors. This tabulates values corresponding to the 5 percentile values for bending strength (F) and bending modulus (E). These are based on the mean values determined according to EN 310: Wood-based panels - Determination of modulus of elasticity in bending and of bending strength and EN 326-2 for individual panels and calculated in accordance with EN 326-1.

Four classes can be given in the sequence:

- Strength in length direction
- Strength in width direction
- Modulus in length direction
- Modulus in width direction

For example: F10/20 E30/40 (obtain values from the tables in clause 5 of EN 636)

These values cannot be used for structural design. They may be used with EN 12369-2: Wood-based panels - Characteristic values for structural design - Plywood, to obtain characteristic values for design purposes.