BS EN 636:2012+A1:2015

BSI Standards Publication

Plywood — Specifications

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National foreword

This British Standard is the UK implementation of EN 636:2012+A1:2015. It supersedes BS EN 636:2012 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by [A1] 〈A1〉.

The UK participation in its preparation was entrusted to Technical Committee B/541, Wood based panels.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Published by BSI Standards Limited 2015

ISBN 978 0 580 86566 4

ICS 79.060.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2013.

Amendments/corrigenda issued since publication

Date	Text affected
30 April 2015	Implementation of CEN amendment A1:2015

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 636:2012+A1

March 2015

ICS 79.060.10

Supersedes EN 636:2012

English Version

Plywood - Specifications

Contreplaqué - Exigences

Sperrholz - Anforderungen

This European Standard was approved by CEN on 11 August 2012 and includes Amendment 1 approved by CEN on 27 December 2014.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 636:2012+A1:2015) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2015, and conflicting national standards shall be withdrawn at the latest by September 2015.

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This document includes Amendment 1, approved by CEN on 2014-12-27.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1⟩ ⟨A1].

This document supersedes [A1⟩ EN 636:2012 ⟨A1].

[A1⟩ *Deleted text* ⟨A1]

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1 Scope

〈A1〉 This European Standard specifies the requirements for plywood, as defined in EN 313-2, for both general purpose use (non-structural application) and structural application in dry, humid or exterior conditions. It also gives a classification system based on the bending properties.

NOTE 1 This European Standard is referenced in EN 13986 for construction applications.

This standard can be appropriately applied for all plywood, including 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.

NOTE 2 For additional guidance on biological durability and the potential need for preservative treatment, according to application and serviceability, reference can be made to CEN/TS 1099.

The values listed under Clause 4 relate only to product properties; they are not 'characteristic values' and are not to be used in design calculations.

NOTE 3 Characteristic values (i.e. for use in design calculation according to EN 1995–1–1) are given either in EN 12369–2 which is based on the classification system given in this standard or by the manufacturer based on testing according to EN 789, EN 1058 and ENV 1156.

Additional information on supplementary properties for certain applications is also given. 〈A1〉

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 310, *Wood-based panels - Determination of modulus of elasticity in bending and of bending strength*

EN 314-1, *Plywood - Bonding quality - Part 1: Test methods*

EN 314-2, *Plywood - Bonding quality - Part 2: Requirements*

EN 315, *Plywood - Tolerances for dimensions*

EN 318, *Wood based panels - Determination of dimensional changes associated with changes in relative humidity*

EN 322, *Wood-based panels - Determination of moisture content*

EN 323, *Wood-based panels - Determination of density*

EN 324-1, *Wood-based panels - Determination of dimensions of boards - Part 1: Determination of thickness, width and length*

EN 324-2, *Wood-based panels - Determination of dimensions of boards - Part 2: Determination of squareness and edge straightness*

EN 326-1, *Wood-based panels - Sampling, cutting and inspection - Part 1: Sampling and cutting of test pieces and expression of test results*

EN 326-2, *Wood-based panels - Sampling, cutting and inspection - Part 2: Initial type testing and factory production control*

EN 326-3, *Wood-based panels - Sampling, cutting and inspection - Part 3: Inspection of an isolated lot of panels*

EN 335-3:1995, *Durability of wood and wood-based products — Definition of hazard classes of biological attack —Part 3: Application to wood-based panels*

EN 594, *Timber structures - Test methods - Racking strength and stiffness of timber frame wall panels*

EN 596, *Timber structures - Test methods - Soft body impact test of timber framed walls*

EN 635-1, *Plywood - Classification by surface appearance - Part 1: General*

EN 635-2, *Plywood - Classification by surface appearance - Part 2: Hardwood*

EN 635-3, *Plywood - Classification by surface appearance - Part 3: Softwood*

CEN/TS 635-4, *Plywood - Classification by surface appearance - Part 4: Parameters of ability for finishing, guideline*

EN 635-5, *Plywood - Classification by surface appearance - Part 5: Methods for measuring and expressing characteristics and defects*

EN 717-1, *Wood-based panels - Determination of formaldehyde release - Part 1: Formaldehyde emission by the chamber method*

EN 717-2, *Wood-based panels - Determination of formaldehyde release - Part 2: Formaldehyde release by the gas analysis method*

EN 789, *Timber structures - Test methods - Determination of mechanical properties of wood based panels*

EN 1058, *Wood-based panels - Determination of characteristic 5-percentile values and characteristic mean values*

ENV 1156, *Wood-based panels — Determination of duration load and creep factors*

EN 1195, *Timber structures - Test methods - Performance of structural floor decking*

EN 12369-2, *Wood-based panels - Characteristic values for structural design - Part 2: Plywood*

EN 13446, *Wood-based panels - Determination of withdrawal capacity of fasteners*

EN 13810-1, *Wood-based panels - Floating floors - Part 1: Performance specifications and requirements*

CEN/TS 13810-2, *Wood-based panels - Floating floors - Part 2: Test methods*

EN 13986, *Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking*

EN 14272, *Plywood - Calculation method for some mechanical properties*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
plywood for use in dry conditions
plywood to be used in conditions characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air only exceeding 65 % for a few weeks per year

Note 1 to entry: These conditions correspond with Service Class 1 according to EN 1995–1-1.

Note 2 to entry: Boards of this type are suitable for use in Use Class 1 of EN 335–3.

3.2
plywood for use in humid conditions
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

Note 1 to entry: These conditions correspond with Service Class 2 according to EN 1995–1-1.

Note 2 to entry: Boards of this type are suitable for use in Use Class 1 and 2 of EN 335–3.

Note 3 to entry: This type of plywood is appropriate for protected external applications (e.g. behind cladding or under roof coverings), but 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 humidity of dry conditions.

3.3
plywood for use in exterior conditions
plywood to be used in climatic conditions leading to higher moisture contents than in service class 2

Note 1 to entry: These conditions correspond with Service Class 3 according to EN 1995–1-1.

Note 2 to entry: Boards of this type are suitable for use in Use Class 1, 2 and 3 of EN 335–3.

Note 3 to entry: This type of plywood is capable of withstanding exposure to weathering conditions and liquid water, or water vapour in a damp but ventilated location, under consideration of 9.2.

4 Symbols and subscripts

E modulus of elasticity (defined as stiffness in EN 1995-1-1), in Newton per square millimetre

E class of modulus of elasticity in bending

f strength in Newton per square millimetre

F class of bending strength

m bending

0 in the direction of the grain of the outer layer of plywood

90 perpendicular to the grain of the outer layer of plywood

5 Classification system

All plywood, independent of composition factors (e.g. species, number of plies, thickness of plies) can be classified under this system based on bending properties.

The classification system may be used as an alternative to the full-scale testing as required by EN 789, for the derivation of characteristic values for plywood, by cross-referencing with EN 12369-2 for the characteristic values of each class listed in Tables 1 and 2.

The lower limit values given in Tables 1 and 2 for bending strength and modulus of elasticity in bending correspond to 5 percentile values based on the mean values, determined according to EN 310 and EN 326-2 for individual boards and calculated in accordance with EN 326-1.

These values shall not be used for structural design.

For the determination of the bending properties, see 6.2.

Table 1 — Bending strength classes for plywood

Bending strength		
Class		Lower limit value N/mm^2
$f_{m,0}$ $f_{m,90}$	F 3	5
	F 5	8
	F 10	15
	F 15	23
	F 20	30
	F 25	38
	F 30	45
	F 35	52
	F 40	60
	F 50	75
	F 60	90
	F 70	105
	F 80	120

Table 2 —Modulus of elasticity in bending classes for plywood

Modulus of elasticity in bending		
Class		Lower limit value N/mm^2
$E_{m,0}$	E 5	450
$E_{m,90}$	E 10	900
	E 15	1 350
	E 20	1 800
	E 25	2 250
	E 30	2 700
	E 35	3 150
	E 40	3 600
	E 50	4 500
	E 60	5 400
	E 70	6 300
	E 80	7 200
	E 90	8 100
	E 100	9 000
	E 120	10 800
	E 140	12 600

For a given plywood, the four classes shall be given according to the following sequence:

Strength in length direction/strength in width direction/modulus in length direction/modulus in width direction.

EXAMPLE $f_{m,0}$ = 22,4 N/mm^2, $f_{m,90}$ = 36,9 N/mm^2, $E_{m,0}$ = 2 850 N/mm^2 and $E_{m,90}$ = 4 200 N/mm^2.

The classes are expressed as: F 10/20 E 30/40.

6 General requirements

6.1 Tolerances on dimensions

The tolerances on dimensions shall be as specified in EN 315.

6.2 Mechanical characteristics

6.2.1 General purpose (non-structural application)

Bending properties shall be determined on small test pieces in accordance with EN 310 and calculated according to EN 326-1.

5 percentile values are determined from minimum of 30 panels of the same product type according to EN 326-2.

The bending properties are expressed according to Clause 5.The 5 percentile values shall be at least equal to the lower limit of the classes given in Tables 1 and 2.

6.2.2 Structural application

In addition to 6.2.1, the characteristic values of the mechanical properties shall be either:

— Determined according to EN 1058, from EN 789 test results. Provided that the mechanical properties of all the wood species involved in an untested composition have been derived from single species plywood panels, in accordance with EN 1058 and EN 789, the extrapolation of these test results to this untested composition shall be made using EN 14272.

or:

— Derived by cross-referencing with EN 12369-2 for the characteristic values of each class listed in Tables 1 and 2.

If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the performance standard EN 12871 also should be considered. This might result in additional requirements to be complied with.

6.3 Formaldehyde release [1)]

6.3.1 Classification

For use in construction, refer to EN 13986.

For use in non-constructional applications, the following applies:

— formaldehyde release of plywood for exterior use may be not determined. In this case, information shall be given that it shall be used only for exterior application;

— plywood for internal use shall be tested and classified into one of two classes: E 1 or E 2.

The test requirements for initial type testing and factory production control/continuous surveillance are specified in Table 3 for E 1 products and Table 4 for E 2 products.

Table 3 — Definition of formaldehyde class E 1

Initial type testing[a]	Test method	EN 717–1
	Requirement	Release ≤ 0,124 mg/m^3 air
Factory production control	Test method	EN 717–2
	Requirement	Release ≤ 3,5 mg/m^2 h or ≤ 5 mg/m^2 h within 3 days after production

[a] For established products, initial testing may also be done on the basis of existing data with EN 717–2 testing, either from factory production control or from external inspection.

1) In certain Member States, only wood-based panels of class E1 are allowed.

Table 4 — Definition of formaldehyde class E 2

Initial type testing	either	Test method	EN 717–1
		Requirement	Release > 0,124 mg/m^3 air
	or	Test method	EN 717–2
		Requirement	Release > 3,5 mg/m^2 h to ≤ 8 mg/m^2 h or > 5 mg/m^2 h to ≤ 12 mg/m^2 h within 3 days after production
Factory production control		Test method	EN 717–2
		Requirement	Release > 3,5 mg/m^2 h to ≤ 8 mg/m^2 h or > 5 mg/m^2 h to ≤ 12 mg/m^{2}h within 3 days after production

NOTE 1 Boards of Class E 1 can be used without causing an indoor air concentration greater than 0,1 ppm formaldehyde in conditions according to EN 717–1.

The test requirements do not apply to plywood to which no formaldehyde containing material were added during production or in post-production processing. These may be classified E 1 without testing.

NOTE 2 Example of such plywood is uncoated, coated or overlaid plywood glued with resins emitting either no formaldehyde or negligible amounts of formaldehyde after production as e.g. isocyanate, vinylic or phenolic glue.

6.3.2 Conditioning of test pieces

6.3.2.1 Factory production control

For factory production control by gas analysis, a test may be carried out within three days of production. A value of ≤ 5 mg/m^2 (release class E 1) or ≤ 12 mg/m^2 (release class E 2) gives an indication that the plywood will probably conform to the values given in Tables 3 and 4 after conditioning for four weeks. The manufacturer has to ensure this correlation.

6.3.2.2 External control

The test pieces shall be conditioned for four weeks at (20 ± 2) °C and (65 ± 5) % relative humidity before testing.

7 Requirements for plywood for use in dry conditions

7.1 Bonding quality

The bonding quality shall comply with the requirements of bonding class 1 of EN 314-2.

7.2 Biological durability

Plywood shall be appropriate for prevailing climatic conditions. The potential risk of attack is outlined in Hazard (Use) Class 1 of EN 335-3.

NOTE Guidance on factors affecting durability and on precautionary measures which might be considered necessary can be found in CEN/TS 1099.

8 Requirements for plywood for use in humid conditions

8.1 Bonding quality

The bonding quality shall comply with the requirements of bonding class 2 of EN 314-2.

8.2 Biological durability

Plywood shall be appropriate for prevailing climatic conditions. The potential risk of attack is outlined in Hazard (Use) Class 2 of EN 335-3.

NOTE Guidance on factors affecting durability and on precautionary measures which might be considered necessary can be found in CEN/TS 1099.

9 Requirements for plywood for use in exterior conditions

9.1 Bonding quality

The bonding quality shall comply with the requirements of bonding class 3 of EN 314-2.

9.2 Biological durability

Plywood shall be appropriate for prevailing climatic conditions. The potential risk of attack is outlined in Hazard (Use) Class 3 of EN 335-3. In this class, the performance of most plywood will be compromised if suitable preservative treatment and/or relevant surface and edges coating is not applied and if the panels are not properly maintained and installed.

NOTE Guidance on factors affecting durability and on precautionary measures which might be considered necessary can be found in CEN/TS 1099.

10 Supplementary properties

For certain applications, information on some supplementary properties might be required. Some of these supplementary properties are listed in Table A.1. On request, this information should be provided by the supplier.

These properties shall be determined according to the European Standards listed in Table A.1. If there is no European Standard available, the method used shall be fully described in the test report.

11 Verification of compliance

11.1 General

Verification of compliance with this European Standard shall be carried out using the test methods listed in Table 5.

11.2 External control

External control of the factory, if any, shall be carried out according to EN 326-2.

Inspection of isolated lots shall be carried out according to EN 326-3.

In the case of formaldehyde release determined by the method described in EN 717-2 however, for both external control and inspection of isolated lots of panels the respective requirements set out in 6.3 shall be the arithmetic mean value of at least three boards. Additionally, no individual board shall exceed an upper tolerance limit of + 10 %.

11.3 Factory production control

Factory production control shall be carried out according to EN 326-2.

The properties listed in Table 5 shall be controlled using at least the frequencies of testing given in Table 5. Sampling shall be carried out at random. Alternative test methods and/or unconditioned test pieces may be used if a valid correlation to the specified test methods can be proven (see EN 326-2).

The frequencies of testing given in Table 5 are related to a production under statistical control.

Each requirement relating to formaldehyde release shall be met by the 95 percentile value based on test values of individual boards. The 95 percentile value shall be equal to or less than the respective tabulated values given in Tables 3 or 4.

Table 5 — Minimum frequencies of testing for each factory

Property	Test method	Minimum frequency of testing
Dimensional tolerances	EN 324–1 EN 324–2	One panel per 8 h or per shift.
Bending properties — non-structural panels — structural panels	EN 310	Two panels per month whatever the lay-up. One panel per 1 000 panels produced, but not more than one per shift.
Density — structural panels	EN 323	One panel per 1 000 panels produced, but not more than one per shift.
Bonding quality	EN 314–1	For plywood for use in dry, humid or exterior conditions, one pair of glue-lines per every 10 000, 5 000 or 2 000 pairs of glue-lines produced respectively, whatever the lay-up of the panel, but not more than one per shift.
Formaldehyde release	EN 717–2	One panel per week[a].

[a] Certain types of plywood release little or no formaldehyde. In these cases, the test interval may be increased. However, it remains the responsibility of the manufacturer to ensure compliance with the declared formaldehyde class.

12 Marking, identification and documentation

12.1 Boards marketed within the European Economic area for construction applications

[A1] Boards produced in conformity with this European Standard and marketed in any of the territories of the EEA for use in construction as defined in the Construction Products Regulation (n°305/2011) shall be marked according to the requirements of EN 13986.

Complementary, each board or package shall be clearly marked by the manufacturer by indelible direct printing with the following information:

- the number of this European standard (EN 636) and the conditions of use (−1 for use in dry conditions, −2 for use in humid conditions, −3 for use in exterior conditions)

- the letter corresponding to the intended application “S” for structural application or “NS” for general purpose (non-structural application)

- the commercial name or botanic name of the wood species in the plywood. [A1]

12.2 Other boards

In the case of other boards produced in conformity with this European Standard, each panel or package shall be clearly marked by the manufacturer by indelible direct printing with at least the following information in this sequence:

— the name (or logo) or code of the manufacturer;

— the number of this European Standard (EN 636) and the conditions of use (−1 for use in dry conditions, −2 for use in humid conditions or −3 for use in exterior conditions);

— [A1] the commercial name or botanic name of the wood species in the plywood; [A1]

— the letter corresponding to the intended application: “S” for structural application or “NS” for general purpose (non-structural application);

— the formaldehyde release class ;

and optionally:

— the nominal dimensions in millimetres;

— the bending strength and modulus classes;

— the quality mark and the certification body, if any;

— the batch number, or the production week and year.

NOTE 1 Further documents, if requested, will be provided by the manufacturer.

NOTE 2 In case of cut-size panels, where the first purchaser is the user of the product and where he agrees that marking (other than on the package) is unnecessary, the marking of such individual panels in the package need not be undertaken.

Annex A
(normative)

Supplementary properties

Table A.1 lists the main supplementary properties together with the appropriate references.

Table A.1 — Supplementary properties

Physical properties	Test method	
— Dimensional changes	EN 318	
— Moisture content	EN 322	
— Density	EN 323	
Mechanical properties	**Test method**	
— Tension properties	EN 789	
— Shear properties	EN 789	
— Compression properties	EN 789	
— Resistance to withdrawal of fasteners	EN 13446	
Performance properties	**Test method**	**Reference document**
— Flooring	EN 1195	EN 12871
— Floating floors	CEN/TS 13810–2	EN 13810–1
— Wall	EN 594 and EN 596	EN 12871
— Roofing	EN 12871	EN 12871
— Duration of load and creep factors	ENV 1156	
Other properties	**Test method**	**Reference document**
— Classification by surface appearance	EN 635–5	EN 635–1
— Ability for finishing		EN 635–2
		EN 635–3
		CEN/TS 635–4

NOTE For certain applications, information on additional properties not specified in Table A.1 can be required. More information about the corresponding test methods (or tabulated values) can be found in EN 13986.

Annex B
(informative)

A1 Durability of wood and wood-based products - Definition of Use classes of biological attack- Application to plywood

B.1 General

This annex gives guidance on the application of the use class system, as defined in EN 335:2013, to plywood in relation only to the biological agencies that can attack plywood over duration sufficient to result in deterioration.

As a result of the different compositions and methods of production of plywood in a given environment, the equilibrium moisture content and risk of biological attack can differ from those of the solid wood from which the panels are made.

Moisture content helps to classify the risk of attack by the various biological agents which affect the durability of structural and non-structural wood components

B.2 Use class1

In this environment, plywood have moisture content no higher than that which would result from exposure to an air temperature of 20° C and a relative humidity of 65 % for practically the whole of their service life. They may therefore be regarded as being dry, and thus the risk of attack by disfiguring fungi or wood-destroying fungi is insignificant.

Attack by wood-destroying insects, including termites, is possible but the frequency and importance of this risk depends upon the geographical region.

If national standards do not specify the risk of insect attack, local or national experts should be consulted for advice on the risk of insect attack

B.3 Use class 2

In this environment, the moisture content of a plywood panel, either in the whole or only in part, can occasionally attain or exceed that which would result from exposure to an air temperature of 20° C and a relative humidity of 90 %. The moisture content can therefore occasionally increase to a level which can allow the growth of wood-destroying fungi.

For panels the use of which includes a decorative function, disfigurement can also occur as a result of the growth of surface moulds and staining fungi.

Risk of insect attack is similar to that for use class 1.

B.4 Use class 3

In this environment plywood can frequently have moisture content above 20 % and thus will often be liable to attack by wood-destroying fungi.

For panels the use of which includes a decorative function, disfigurement can also occur as a result of the growth of surface moulds and staining fungi.

Risk of insect attack is similar to that for use class 1

B.5 Use class 4

In this environment plywood have moisture content permanently above 20 % and thus are liable to attack by wood-destroying fungi.

NOTE The use of plywood in this use class is appropriate only if the inherent and/or conferred properties of the boards are adequate.

Risk of insect attack to the above ground or water portion of components is similar to that for use class 1. Termites can be an additional problem in certain geographical regions

B.6 Use class 5

In this environment plywood have moisture content permanently above 20 % and are wholly or partially submerged in salt water. Attack by invertebrate marine organisms is therefore the principal problem. Particularly in warmer waters, organisms such as *Limnoria* spp and *Teredo* spp can cause significant damage. In addition, in this environment plywood are liable to attack by wood-destroying fungi.

NOTE The use of plywood in this use class is appropriate only if the inherent and/or conferred properties of the boards are adequate.

Risk of insect attack to the portion above the water level is similar to that for use class 1. Termites can be an additional problem in certain geographical regions.

B.7 Summary of Use classes for plywood

Table B.1 gives general moisture levels for plywood and a summary of the biological agencies which can attack them in the various use classes.

Table B.1 — Summary of use classes, general moisture levels and attacking biological agencies for plywood

Use class	General service situation	General moisture level	Occurrence of biological agencies					
			Wood-destroying fungi		Wood-disfiguring fungi [d]	Insects		Marine borers
			Basidiomycetes	Soft rot	Blue stain	Beetles [a]	Termites	
1	Above ground, covered (dry conditions)	Dry [b]	-	-	-	U	L	-
2	Above ground, covered (risk of wetting/ humid conditions)	Occasionally increased [c]	U	-	U	U	L	-
3.1 3.2	Above ground, not covered (exterior conditions)	Frequently above 20 %	U	-	U	U	L	-
4	In contact with ground or fresh waters [e]	Permanently above 20 %	U	U	U	U	L	-
5	In salt waters [e]	Permanently above 20 % 20 %	U	U	U	U	L	U

U: Universally present within Europe.

L: Locally present within Europe.

[a] The risk of attack can be insignificant in certain service situations.

[b] Equivalent to a temperature of 20° C and a relative humidity of 65 %.

[c] Can attain or occasionally exceed a moisture content equivalent to that which would result from exposure to an air temperature of 20° C and a relative humidity of 90 %.

[d] Protection against mould fungi may also be considered.

[e] For the use of plywood in these use classes, see the NOTE to B.5 and B.6 respectively.

B.8 Guide for the application to plywood

B.8.1 Introduction

The purpose of this Clause is to facilitate the use of this Annex B by providing:

— information for decision making;

— general considerations related to the durability of wood components made of wood-based panels;

— information on assigning use classes.

B.8.2 General decision making

Select suitable material for the intended end-use environment with reference to the perceived use class. The steps may be summarized as follows:

a) consider the performance required of the component and duration of service life;

b) determine the Use class of the situation in which the wood-component will be used and the biological agencies that threaten it;

c) assess whether the durability of the plywood to be used is sufficient;

d) if not, select for the component a more durable type of panel or choose another solution such as design or preservative protection;

e) it is possible to select for the component a less durable type of panel if an attack by biological agencies is limited and no decomposition is to be expected, as in temporary constructions or vehicles;

f) if preservative treatment is required, establish, for example in consultation with a preservative supplier, the appropriate treatment taking into account the biological agencies, against which protection is necessary, and the inherent structure of the panel.

B.8.3 General precautions

If the use class for a component when in use cannot be determined accurately, or when different parts of the same component are deemed to be in different Use classes, decisions should be taken with regard to the more severe of the possible use classes. In situations where wood-based panel components out of ground contact may permanently accumulate water due to design or surface deposits, it may be necessary to consider that these situations are equivalent to contact with the ground or fresh water. This risk which can vary from insignificant to high, should be avoided if possible. It has been recognized that some components in Use classes 4 and 5 will not be completely in ground or water contact: the part protruding from the ground or water can be liable to attack from additional organisms not normally associated with these use classes.

Where a wood-based panel component is inaccessible or where the consequences of its failure would be particularly serious, it may be more appropriate to consider a more durable panel, a better design or a more intensive preservative treatment than would be usual for the perceived Use class.

For some wood preservatives, a risk of leaching exists if the treated wood-based panel component is not sufficiently protected against weathering after treatment and before being put into service. This applies particularly to components in use classes 1 and 2 that are temporarily exposed to the weather during construction. Under such circumstances and if the specified wood preservative is leachable, it is essential that the wood-based panel component is covered or otherwise protected after treatment and during transport and construction, as well as in service.

Panel handling and building practice during construction, quality of maintenance, type and integrity of applied surface coatings and compatibility between treatments and coatings, are among the factors which can affect the performance of treated panels and which should be considered during the development of the specification. Damage to or incorrect application of surface coatings may lead to an increased rate of deterioration. The practicability of applying effective preservative treatment to specified types of panel should be determined by, for example, consultation with the suppliers of the panels and of the preservatives.

B.8.4 Durability (inherent or conferred) of plywood

The natural durability of plywood can differ from that of the wood species used in their manufacture.

Additional factors contributing to the durability include:

— thickness of plies, structure of the board, binder characteristics and quantity;

— improved durability can be conferred by preservative treatment. 〈A1▌

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