



**SLOVENSKI STANDARD**  
**SIST-TS CEN/TS 1099:2008**  
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**SIST ENV 1099:2000**

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Plywood - Biological durability - Guidance for the assessment of plywood for use in different use classes

Sperrholz - Biologische Dauerhaftigkeit - Leitfaden zur Beurteilung von Sperrholz zur Verwendung in verschiedenen Gebrauchsklassen

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Contreplaqué - Durabilité biologique - Guide d'utilisation dans les différentes classes d'emploi

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English Version

## Plywood - Biological durability - Guidance for the assessment of plywood for use in different use classes

Contreplaqué - Durabilité biologique - Guide d'utilisation  
dans les différentes classes d'emploi

Sperrholz - Biologische Dauerhaftigkeit - Leitfaden zur  
Beurteilung von Sperrholz zur Verwendung in  
verschiedenen Gebrauchsklassen

This Technical Specification (CEN/TS) was approved by CEN on 14 July 2007 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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## Foreword

This document (CEN/TS 1099:2007) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

This document supersedes ENV 1099:1997.

Compared to ENV 1099:1997 the following changes have been made:

- “hazard class” has been replaced by “use class” in accordance with EN 335-1:2006;
- Clause 2 and the Bibliography have been updated;
- the deliverability has been changed from ENV to CEN/TS. No technical changes have been made.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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## 1 Scope

This document gives guidance on the selection of plywood for use in the different use classes as defined in EN 335-1.

The guidance given takes into account the natural durability classification for solid timber (see EN 350-2) together with other factors specific for plywood.

It does not consider durability against chemico-physical factors, such as weathering, nor does it consider the biological durability of the adhesive.

Guidance on precautionary measures for use is also given.

## 2 Normative references

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

EN 313-2:1999, *Plywood — Classification and terminology — Part 2: Terminology*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 313-2:1999 apply.

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## 4 Precautionary measures for use

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### 4.1 Rules for selection

Plywood should be selected according to the relevant use classes of its end use situation and taking into account any risk from perceived hazards likely to occur.

Five use classes have been identified as being representative of the various conditions the material is likely to meet. These five classes are defined in EN 335-1 and their applications for plywood in EN 335-3.

The risk of biological attack can differ for different end-uses within the same use class.

If the use class cannot be determined accurately or when different parts of the same plywood panel are exposed to different use classes, selection should be made with regard to the most severe of the probable use classes.

When a plywood component would be difficult to replace, or the consequences of its failure would be serious, it is advisable to use more durable plywood than that normally appropriate for the use class of the end use situation.

### 4.2 Use of treated plywood

With some preservative products, a risk of excessive leaching exists<sup>1)</sup>. If the specified preservative product is leachable, it is essential that the panel is covered, or otherwise protected, after treatment and during transport and construction, as well as in service.

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1) Leaching to a level where the conferred durability is compromised.

In addition to the natural biological durability of the plywood or durability conferred through preservative treatment, other factors which can affect the performance of plywood and which should be considered during development of specifications include building practice during construction, quality of maintenance, the type and integrity of surface coatings applied and the compatibility between treatments and coatings.

### 4.3 Installation principles

Plywood should be installed and maintained in such a way that the conditions in-service are no more severe than those appropriate to the specified material.

The moisture content of plywood is influenced by the gradients of temperature and water vapour between the two faces and the permeability of any surface coatings applied to the faces.

Where plywood intended for dry end use has become wet during installation, it should be allowed to dry thoroughly before the components or structures are sealed.

In use classes 2 and 3 where there is a risk of wetting, but which can be minimised through design, it is important to incorporate in that design suitable detailing and adequate ventilation to ensure that a build-up and subsequent retention of water does not occur.

Special attention should be paid to protecting plywood edges, e.g. by applying a low permeability finish.

## 5 Influence of plywood composition on biological durability

The characteristics of natural durability and treatability of solid wood are set out in EN 350-2 and EN 460. These can be used as guidance for estimating the durability and treatability performance of plywood.

If the plywood contains more than one wood species, the species having the lowest natural durability should be used to indicate the expected durability level of the untreated plywood and that being the most resistant to treatment should be used to indicate treatability.

Choice of plywood for a particular application should be made with due consideration given to the characteristics of adhesive type, wood species and lay up and the required life expectancy. The behaviour of plywood subjected to biological attack can differ from that of solid wood.

The behaviour of plywood under different moisture regimes is affected by the wood species comprising the plies, and the nature and content of the adhesive used. The equilibrium moisture content of plywood made from a single wood species can differ from that of solid wood of the same species under the same conditions.

Specific factors for consideration are indicated in Annex A.

## 6 Use of plywood in different use classes

### 6.1 General

In order to select suitable plywood, reference should be made to EN 350-2 to establish the natural durability classification of the constituent wood species against the various biological organisms associated with the hazard class in which the plywood will be used.

### 6.2 Wood-destroying fungi

Table 1 is based on EN 460 and gives guidance, where natural durability levels are insufficient, on the need for preservative treatment.

**Table 1 — Wood-destroying fungi — Guidance on the application of natural durability classes of wood species to plywood used in various use classes**

Use class for plywood <sup>b</sup>	Durability class of wood species used in the plies <sup>a</sup>				
	1	2	3	4	5
1	O	O	O	O	O
2	O	O	O	(O)	(O)
3	O	O	(O)	(x)	(x)
4	O	(O)	(x)	x	x
5	O	(x)	(x)	x	x

<sup>a</sup> Sapwood of all species is regarded as belonging to durability class 5.

<sup>b</sup> The use of plywood is only recommended in use class 4 and use class 5 if adequately modified (see EN 335-3:1995, Annex A and product standards).

**Key**

O natural durability sufficient

(O) natural durability is normally sufficient but, under certain end uses, treatment can be advisable (see EN 460:1994, Annex A)

(x) preservative treatment is normally advisable but, in certain end uses, natural durability can be sufficient (see EN 460:1994, Annex A)

x preservative treatment necessary

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**6.3 Insects and marine organisms** [SIST-TS CEN/TS 1099:2008](https://standards.iteh.ai/catalog/standards/sist/1d49374c-808b-4315-b29c-51c1f8e31e0a/cen-1099-2007)

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Natural durability ratings for plywood against insect and marine bore attacks, based on the rating for constituent wood species given in EN 350-2, are given in Table 2.

Wood destroying insects and marine organisms are universally present throughout Europe. Specific end-use situations and local conditions should be taken into account when assessing this risk for selection of suitable plywood or the need for preservative treatment.



Table 2 — Scheme for assigning natural durability rating of plywood for the various organisms

Organisms	Natural durability of wood species		
	Durable		Susceptible
Hylotrupes	D <sub>Hy</sub>		S <sub>Hy</sub> /SH <sub>Hy</sub>
Anobium	D <sub>A</sub>		S <sub>A</sub> /SH <sub>A</sub>
Lyctus	D <sub>L</sub>		S <sub>L</sub>
	Durable	Moderately durable	Susceptible
Termites	D <sub>T</sub>	M <sub>T</sub>	S <sub>T</sub>
Marine organisms	D <sub>Ma</sub>	M <sub>Ma</sub>	S <sub>Ma</sub>
<p><b>Explanation of abbreviations:</b>  D durable — M moderately durable — S susceptible — SH the heartwood is also known to be susceptible</p> <p><b>Subcripts:</b>  A Anobium — Hy Hylotrupes — L Lyctus — Ma Marine organisms — T Termites</p> <p>Veneer thickness can result in a modification to the natural durability and thus affect the ratings which can be modified as follows:</p> <p>a) in case of veneer thicknesses &gt; 3 mm, Table 2 shall be used as shown;</p> <p>b) in case of veneer thicknesses &gt; 1,5 mm and ≤ 3 mm, change Table 2 as follows:  S<sub>Hy</sub>/SH<sub>Hy</sub> to D<sub>Hy</sub></p> <p>c) in case of veneer thicknesses ≤ 1,5 mm: use b) but, due to the limited thickness of the veneer, risk by Hylotrupes bajulus need not to be taken into account, and change Table 2 as follows:  S<sub>A</sub>/SH<sub>A</sub> to D<sub>A</sub>  S<sub>L</sub> to D<sub>L</sub></p> <p>NOTE Table 2 is based on Annex B of EN 350-2:1994.</p>			