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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

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Submission of Comments

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

English Version

Wood-based panels - Wood veneer floor coverings

Panneaux à base de bois - Revêtements de sol à placage
bois

Holzwerkstoffe - Furnierte Fußbodenbeläge

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 112.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 14354:2024) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14354:2017.

This document includes the following significant technical changes with respect to EN 14354:2017:

- reference to EN 16511 for semi-rigid modular mechanical locked floor coverings (MMF) added in the scope;
- in 3.2 definition of top layer thickness added;
- in 3.3 new definition of the substrate including minimum wood content of the substrate;
- in 3.4 new definition of wood-based panels added;
- in 3.5 new definition of wood-based product added;
- new definitions of surface finishes in 3.12 to 3.15 introduced;
- in 3.16 synonym for reparation and new definition added;
- in 3.21 new definition of sanding to bare wood added;
- in 3.22 new definition of sanding a finishing added;
- in 3.23 new definition of finishing added;
- in 3.24 new definition of refinishing added;
- new definition for maintenance, reparation, renovation and refurbishment in 3.17 – 3.20 introduced;
- in 4.2. explanation regarding creaking added;
- in Table 1 thickness tolerance for elements with pre-attached underlays added and test method added as A.4.6 and A.5.2;
- in Table 1 requirements for internal bond deleted;
- in Table 1 delamination test of top layer with requirements included;
- distinction between general classification requirements in Table 2 and classification requirements for coated and printed surfaces in Table 3 introduced;
- requirements on Brinell hardness in Table 2 modified;
- in Table 2 requirements for thickness swelling modified;
- resistance to chemical agents introduced as general classification requirement in Table 2 for non-film forming coatings and classification requirement in Table 3 for film-forming coatings added;

- abrasion resistance in Table 3 modified;
- castor chair resistance in Table 3 added;
- in Table 3 micro scratch resistance introduced as classification requirement for coated and printed surfaces;
- additional requirements as new Table 4 added;
- new Clause 7 with measures to extend the lifespan added;
- Clause 9 test report modified;
- Annex A integration of measurement of thickness with pre-attached underlay;
- normative references in Annex C modified;
- Annex G “Complementary properties” moved to Table 4 and Annex H “Guide for evaluation of conformity of product quality” deleted;
- new Annex G Topical moisture resistance – Assembled joint added.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

1 Scope

This document defines terms and specifies requirements and test methods for wood veneer floor coverings for internal use.

This document is not applicable to multilayer parquets according to EN 13489 with a top layer thickness $\geq 2,5$ mm and to modular mechanical locked floor covering (MMF) panels with wear resistant top layer according EN 16511.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 322, *Wood-based panels — Determination of moisture content*

EN 438-2:2016+A1:2018, *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called laminates) — Part 2: Determination of properties*

EN 1534, *Wood flooring and parquet — Determination of resistance to indentation — Test method*

EN 13329:2023, *Laminate floor coverings — Elements with a surface layer based on aminoplastic thermosetting resins — Specifications, requirements and test methods*

EN 13442:2023, *Wood and parquet flooring and wood panelling and cladding — Determination of the resistance to chemical agents*

EN 16094:2021, *Laminate floor coverings — Test method for the determination of micro-scratch resistance*

EN 16354, *Laminate floor coverings — Underlays — Specification, requirements and test methods*

EN 17456:2021, *Wood flooring and parquet — Determination of top layer delamination of multilayer elements — Test method*

EN 60454-2, *Pressure-sensitive adhesive tapes for electrical purposes — Part 2: Methods of test (IEC 60454-2)*

EN ISO 4918, *Resilient, textile and laminate floor coverings — Castor chair test (ISO 4918)*

EN ISO 6506-1, *Metallic materials - Brinell hardness test — Part 1: Test method (ISO 6506-1)*

EN ISO 10874, *Resilient, textile and laminate floor coverings — Classification (ISO 10874)*

ISO 48-2, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*

ISO 4760:2022, *Laminate flooring — Topical moisture resistance — Assembled joint*

ISO 48-7, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 7: Apparent hardness of rubber-covered rollers by Shore-type durometer method*

ISO 24334, *Laminate floor coverings — Determination of locking strength for mechanically assembled panels*

ISO 24336, *Laminate floor coverings — Determination of thickness swelling after partial immersion in water*

ISO 24339, *Laminate and textile floor coverings — Determination of dimensional variations after exposure to humid and dry climate conditions*

ASTM D785, *Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

wood veneer floor covering

floor covering consisting of a substrate, with a top layer and possibly a backing

3.2

top layer

upper wood layer with a thickness < 2,5 mm measured according to EN 13647, intended to be the visible side when the floor is installed which can be uncovered or covered with surface treatments

Note 1 to entry: Surface treatments are defined in 3.10 to 3.13.

3.3

substrate

core material of the wood veneer floor covering, consisting of wood-based panel or wood-based product, made of wood or wooden components for at least 75 % in mass

3.4

backing

layer opposite to the top layer

3.5

wood veneer floor covering element

smallest single item identified as the complete product, shaped and machined on its sides to the appropriate dimensions

Note 1 to entry: The element is provided with a suitable system allowing the elements to be assembled together at installation.

3.6

cup

curvature, concave or convex, of the element across the width of the face

3.7

lipping

difference in height, at the edge, between the upper faces of two adjacent and assembled elements when laid on a flat surface

3.8

deviation from edge straightness

concavity or convexity of the edge of the element along the length between the two ends of the element

3.9

wear layer

layer on which wearing occur

3.10

film-forming coating

coating that form a continuous, perceivable and measurable film $\geq 20 \mu\text{m}$

Note 1 to entry: These products could be lacquers for example.

3.11

non film forming coating

coating $< 20 \mu\text{m}$ thickness

Note 1 to entry: These are products are containing oil, wax, oil-wax combination and soap as defined in EN 13756.

3.12

partly coloured surface

surface of the wood that is partly changed by technical surface treatment processes, whereby the natural wood grain remains visible

Note 1 to entry: Partly colouring, staining and reactive staining are examples for technical surface treatments.

3.13

printed surface

surface with a décor that is printed and protected by film forming coating

3.14

underlay

resilient layer between the substrate and floor covering added to obtain specific properties

Note 1 to entry: It is also possible to have combinations of underlays and underlay materials as underlays, as well as combinations of underlays with films or coatings (e.g. vapour barriers).

Note 2 to entry: The underlay can be profiled or textured.

[SOURCE: EN 16354]

3.15

maintenance

process of retaining the appearance of the face and its treatment either by cleaning, reoiling, rewaxing, refreshing or application of specialist products

[SOURCE: EN 13756:2018, 12.3, modified – “relacquering” deleted]

3.16

reparation

repair

process of replacement or reinstallation of damaged elements or parts of elements to renew the appearance or return to the original functional characteristics

[SOURCE: EN 13756:2018, 12.2]

3.17

renovation

process of renewing the appearance by sanding and coating without modifying the installation

Note 1 to entry: The process of sanding the finishing or sanding down to the bare wood depends on the product characteristics (thickness of the top layer, presence of printing, etc.).

[SOURCE: EN 13756:2018, 12.1, modified – Note 1 to entry has been added.]

3.18

refurbishing

refurbishment

process by which an item, during its expected service life, is restored to a useful condition for the same purpose and may change the appearance and performance

Note 1 to entry: Refurbishing does not include remanufacture after the expected service life.

Note 2 to entry: Refurbishing can include activities such as repair, rework, replacement of worn parts.

3.19

wood-based panel

solid wood panel, laminated veneer lumber (LVL), plywood, oriented strand board (OSB), resin-bonded particleboard, cement-bonded particleboard or fibreboard

[SOURCE: EN 13986:2004+A1:2015]

3.20

wood-based product

product made of wood or wooden components for at least 75 % in mass

3.21

sanding to bare wood

sanding down to the wood top layer prior to applying a finishing coat

Note 1 to entry: This operation reduces the wood top layer thickness.

3.22

sanding a finishing

sanding of the finishing without touching the wood top layer prior to applying a finishing coat

3.23

finishing

surface treatment with filler, paint, lacquer, oil, wax or impregnating agent to protect, change the colour or highlight the decorative characteristics

[SOURCE: EN 13756:2018, 7.23, modified – last sentence deleted]

3.24

refinishing

process of retaining the appearance of the face by reoiling, rewaxing, relacquering or revarnishing, and if necessary sanding a finishing, within the expected service life

4 Requirements

4.1 General

All wood veneer floor coverings shall comply with the general requirements given in Table 1 and Table 2. Wood veneer floor coverings with film-forming coating and printed surfaces shall comply with the classification requirements given in Table 3. The values given in this Table take account of uncertainties due to variations in the application of finishes and of those described in the test method in Annex D and Annex E.

4.2 General requirements

The nominal dimensions shall be declared by the manufacturer at a given humidity.

The wood used for the top layer are hardwood or softwood species and shall be free from decay and insect attack. Variations of colour can occur under the influence of light.

Uncovered surfaces will change their natural appearance depending on the level of use. A surface treatment is necessary to protect the veneer surface after installation.

Low use frequency combined with climate changes may lead to slight creaking effects on floated installed wood veneer floor covering.

Table 1 — General requirements

Characteristics	Requirements	Test methods
Moisture content H (dispatch from manufacturer)	$4 \% \leq H_{\text{average}} \leq 10 \%$ and $H_{\text{max}} - H_{\text{min}} \leq 3 \%$	EN 322
Thickness t of an element	$t_{\text{max}} - t_{\text{min}} \leq 0,50 \text{ mm}$ $t_{\text{average}} - t_{\text{nominal}} \leq \pm 0,50 \text{ mm}$	Annex A
with pre-attached underlay	$t_{\text{max}} - t_{\text{min}} \leq 0,80 \text{ mm}$ $t_{\text{average}} - t_{\text{nominal}} \leq \pm 0,50 \text{ mm}$	
Length l of the top layer in the same package	$l \leq 1\,500 \text{ mm}$: $l_{\text{max}} - l_{\text{min}} \leq 0,50 \text{ mm}$ $l > 1\,500 \text{ mm}$: $l_{\text{max}} - l_{\text{min}} \leq 0,30 \text{ mm/m}$ $l_{\text{mean}} \leq 1 \text{ mm}$	
Width w of the top layer in the same package	$w_{\text{max}} - w_{\text{min}} \leq 0,20 \text{ mm}$ $w_{\text{average}} - w_{\text{nominal}} \leq 0,1 \text{ mm}$ $w_{\text{mean}} \leq 0,5 \text{ mm}$	
Length l and width w of squared elements $l = w$	$l_{\text{average}} - l_{\text{nominal}} \leq 0,10 \text{ mm}$ $w_{\text{average}} - w_{\text{nominal}} \leq 0,10 \text{ mm}$ $l_{\text{max}} - l_{\text{min}} \leq 0,20 \text{ mm}$ $w_{\text{max}} - w_{\text{min}} \leq 0,20 \text{ mm}$	
Deviation of squareness	$q_{\text{max}} \leq 0,20 \text{ mm}$	
Deviation from edge straightness of the top layer s	$s_{\text{max}} \leq 0,30 \text{ mm/m}$	
Cup f_w in width direction	$ f_{w \text{ max}} \leq 0,20 \%$ $ f_{w \text{ average}} \leq 0,15 \%$	
Lipping p	$p_{\text{max}} \leq 0,15 \text{ mm}$	Annex B
Opening between elements	$\leq 0,20 \text{ mm}$	
Adhesion of the lacquer ^a	$\leq \text{class 2}$	Annex F
Surface soundness ^b	$\geq 1,00 \text{ N/mm}^2$	EN 13329:2023, Annex D
Top layer bonding	$D_{\text{t average}} \leq 1 \%$ $D_{\text{t max}} \leq 5 \%$	EN 17456:2021, Procedure AT1
^a Not applicable for non film forming coatings or unsealed surfaces.		
^b For products with HDF-substrate.		

5 Classification requirements

5.1 General

Wood veneer floor coverings shall be classified as suitable for different levels of use, according to the performance requirements specified in Table 2, when tested with the methods given therein. Classification shall conform to the scheme specified in EN ISO 10874 (levels 21, 22, 23, 31, 32, 33). The use classification defined in the Table 2 had been fixed on the basis of the material and the linked test methods.

Table 2 — General classification requirements

Class	21	22	23	31	32	33	Test method
Symbol							
Level of use	Domestic			Commercial			
	Moderate	General	Heavy	Moderate	General	Heavy	
Resistance to indentation	≥ 10 N/mm ²	≥ 20 N/mm ²		≥ 25 N/mm ²	≥ 30 N/mm ²	≥ 35 N/mm ²	EN 1534
Thickness swelling	20 %		18 %			15 %	ISO 24336
Locking strength “f _{0,2} ” ^a	NO				Length ≥ 1,0 kN/m Short side ≥ 2,0 kN/m		ISO 24334
Resistance to chemical agents ^b	Classification code 4						Class 21 to 31 tested according to EN 13442 procedure D Class 32 to 33 tested according to EN 13442 procedure C

^a For mechanical assembly systems only (assembly systems without glue).

^b Valid for non film forming coatings (only oiled, waxed or oiled/waxed surfaces).

5.2 Classification requirements for elements with film-forming coating

The additional classification requirements for elements with film-forming coating are given in Table 3. For the use of this table the producer shall declare which abrasion resistance test method is to be used (Annex D or Annex E).

Table 3 — Classification requirements for elements with film-forming coating and printed surfaces

Class	21	22	23	31	32	33	Test method
Symbol							
Level of use	Domestic			Commercial			
	Moderate	General	Heavy	Moderate	General	Heavy	
Impact resistance (Elasticity)	EC0	EC1		EC2	EC3		Annex C
Wear resistance ^a	500 revolutions			1 000 revolutions	1 500 revolutions	3 000 revolutions	Annex D
Wear resistance ^b	900 revolutions	1 500 revolutions		2 000 revolutions	4 000 revolutions		Annex D or Annex E
“Castor Chair” resistance ^c				10 000 cycles No damage with type W wheels	15 000 cycles No damage with type W wheels	25 000 cycles No damage with type W wheels	EN ISO 4918 ^d
Resistance to chemical agents	Classification code 3		Classification code 4			Classification code 5	EN 13442:2023, Procedure B
Micro scratch resistance [class]	NO				Gloss level ≥ 7: ≤ MSR-A3 Gloss level < 7 at 60°: I ≤ 1,5 unit change I		EN 16094:2021, Procedure A
^a Film-forming coating except printed surfaces.							
^b Printed surfaces.							
^c No visible damage on the surface of the assembled test area caused by detachment of layers, opening of joints, or crazing. Ignore any flattening or change in appearance, e.g. change in gloss.							
^d Using soft castor wheels W PU (90 ± 5) Shore A. If no underlay is pre-attached or specified, a standard EPS foam of (1,6 ± 0,2) mm thickness, with a CS value of at least 60 kPa(1) and with PC-value of (0,9 ± 0,1) mm shall be used. The three parameters of the foam shall be determined according to EN 16354.							

6 Additional requirements

For additional requirements see Table 4. When any of the characteristics given in Table 4 are requested for specific applications, the floor coverings shall be tested by the methods given therein. The properties stated in Table 4 are considered important for some specific products or applications.

Table 4 — Additional requirements

Property	Requirements	Test method
Water resistance	Qualitative and quantitative ratings to be defined between customer and supplier ^a	Annex G
Resistance of mechanical joints to water leakage	No water leaks through the joints after 24 hours of water exposure	Annex G
Dimensional variations after exposure to humid and dry climate conditions	To be defined between costumer and supplier	ISO 24339
^a Specific maintenance after installation (eg: oil, wax) can increase the results (to be defined between customer and supplier).		

7 Measures to extend the life span

7.1 General

The manufacturer's instructions shall be followed when carrying out the work. It is important to emphasize that any surface treatment carried out after installation may influence or change the original appearance and technical properties.

7.2 Maintenance

Basic cleaning and/or the application of surface treatment techniques can reduce existing signs of use and maintain and improve the appearance and usage properties.

These operations are possible several times.

The process of retaining the appearance of the face and its treatment is done either by cleaning, reoiling, rewaxing, refreshing or application of specialist products.

NOTE This is meant to be done within the expected service life.

7.3 Local repair

Depending on the type of surface treatment, a local repair can be carried out either by replacing elements or by processing the areas to be repaired. When performed properly, no significant reduction of performance or top-layer-thickness is caused. A local repair is possible several times. See also reparation (3.16).

7.4 Renovation and refurbishment

In case the product built-up allows renovation or refurbishment, this can be carried out by appropriate methods (by example: sanding to bare wood, sanding a finishing, brushing if necessary, applying a finishing, and therefore creating a new surface).

This might change properties of the flooring, e.g. structure, coloration, reaction to fire. If, due to deep damage to the wood structure, an excessive amount has to be removed, a new renovation or refurbishment by sanding may no longer be possible.

NOTE 1 For technical reasons, surface structure, stained surfaces, multiple colours, digital printings, bevelled products, etc. will change after renovation and refurbishment since the surface will be sanded and retreated in the renovation and refurbishment process.

NOTE 2 As wood is a hygroscopic material, it is influenced by fluctuations in humidity, as in content of water in the surrounding air, better known as Relative Humidity (RH). Changing of relative humidity influence the moisture content in the wood and potentially lead to deformations and/or squeaking of the wood veneer floor covering element.

8 Marking and packaging

8.1 Marking

Wood veneer floor coverings which comply with the requirements of this standard shall have the following information marked by the manufacturer, either on their packaging, or on a label or information sheet included in the packaging:

- a) product name and number of this document, EN 14354;
- b) surface treatment (covered or uncovered);
- c) level of use and used abrasion test method (EN 14354:— Annex D or Annex E);
- d) wood species of the top layer;
- e) nominal dimensions of one element: thickness × width × length in millimetres;
- f) the number of elements contained in a package;
- g) the area in square metres contained in a package;
- h) manufacturer's or supplier's identification.

8.2 Packaging

The product shall be delivered in packages designed to protect the corners, edges and surfaces of the product, under normal conditions of transport and handling. Installation, cleaning, maintenance instructions and possibilities for refurbishment shall be delivered together with the product.

9 Test report

If a test report is requested, it shall contain at least the following information:

- a) the name and address of the test laboratory;
- b) date of the test;
- c) a reference to this standard;
- d) the product tested;
- e) sampling information, including the description of the underlay used for the test;