



SLOVENSKI STANDARD
SIST EN 17456:2021

01-julij-2021

Lesene talne obloge in parket - Ugotavljanje delaminacije zgornje plasti večslojnih elementov - Preskusna metoda

Wood flooring and parquet - Determination of top layer delamination of multilayer elements - Test method

Holzfußböden und Parkett - Bestimmung der Delaminierung der Decklagen von Mehrschichtelementen - Prüfverfahren

Planchers en bois et parquets - Détermination du décollement de la couche supérieure des éléments contrecollés - Méthode d'essai

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ICS:

79.080	Polizdelki iz lesa	Semi-manufactures of timber
97.150	Talne obloge	Floor coverings

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EUROPEAN STANDARD

EN 17456

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April 2021

ICS 79.080

English Version

Wood flooring and parquet - Determination of top layer delamination of multilayer elements - Test method

Planchers en bois et parquets - Détermination du décollement de la couche supérieure des éléments contrecollés - Méthode d'essai

Holzfußböden und Parkett - Bestimmung der Delaminierung der Decklagen von Mehrschichtelementen - Prüfverfahren

This European Standard was approved by CEN on 12 March 2021.

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Contents	Page
European foreword.....	3
Introduction	3
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 Principle	6
5 Apparatus.....	6
5.1 Conditioning room.....	6
5.2 Water bath.....	6
5.3 Balance.....	6
5.4 Convection drying oven	6
5.5 Sliding calliper	6
5.6 Feeler gauge	6
5.7 Climate chamber or box.....	6
6 Procedure.....	6
6.1 Preparation	6
6.1.1 Sampling.....	6
6.1.2 Conditioning.....	7
6.1.3 Measurement and recording before aging treatment.....	7
6.2 Aging treatment.....	7
6.2.1 General.....	7
6.2.2 Aging treatment AT1 oven drying.....	8
6.2.3 Aging treatment AT2 humid climate storage and re-drying	8
6.2.4 Aging treatment AT3 cold water storage and re-drying.....	8
6.3 Evaluation of delamination	9
7 Calculation and expression of results.....	9
8 Test report.....	9
Annex A (informative) Alternative aging-treatment procedures.....	10
Bibliography.....	11

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European foreword

This document (EN 17456:2021) has been prepared by Technical Committee CEN/TC 175 “Round and sawn timber”, the secretariat of which is held by AFNOR.

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 October 2021, and conflicting national standards shall be withdrawn at the latest by October 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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EN 17456:2021 (E)**Introduction**

This document is one of a series of standards specifying requirements and test methods for wood flooring and parquet.

This document specifies a test method with three aging-treatments to measure the top layer bonding of multilayer parquet with different structures, dimensions and adhesives.

Floor heating systems, low energy or passive houses as well as public areas with heavy exposures represent a potential high stress to wood flooring and parquet elements that require them to withstand the effects of temperature and humidity occurring in practical installation situations.

The test method described in this document simulates these situations. By that the already existing large amount of knowledge about multilayer parquet and values for product characteristics attested by long use and experience is extended for the benefit of producers, installers, dealers and customers. For new products, technical data will have to be verified by testing.

NOTE A Round Robin trial was carried out involving seven international laboratories. The test method is therefore suitable as a yes/no decision for failure in the top layer bonding or poor product quality, but it does not allow quantification. It is possible to use it in conjunction with low limits of allowable delamination.

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1 Scope

This document specifies a test method to determine the top layer delamination of multilayer parquet elements according to EN 13489 with different structures, dimensions and adhesives for internal use as flooring, at the time of the first delivery of the product.

The document specifies a test method with three aging-treatments (AT1, AT2 and AT3) of the test specimens.

The test method described in this document allows to determine a top layer bonding quality, also for parquet used on floor heating, and for the identification of bonding failure.

NOTE 1 For bottom layer of three layers elements the test method is applicable even if the experience is limited.

AT1 is a suitable treatment for the prognosis of multilayer parquets under dry indoor conditions and can be applied for all type of glues of parquets. It can be used for main underfloor heating systems.

AT2 is a suitable treatment for the assessment of multilayer parquets with PVAc-glues for top layer bonding.

AT3 is a suitable treatment for the assessment of multilayer parquets with different type of glues other than PVA-c for top layer bonding.

This document does not apply to the bonding quality of plywood if it is in use in the multilayer parquet construction.

NOTE 2 This document does not allow to estimate the compatibility of use in wet conditions.

2 Normative references (standards.iteh.ai)

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 13756, *Wood flooring and parquet — Terminology*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13756 and the following apply.

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

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

3.1

top layer

finished or unfinished upper wood layer, intended to be the visible side when the floor is installed

[SOURCE: EN 13756:2018, 7.12]

3.2

delamination of top layer

detachment of the top layer of a multilayer construction

EN 17456:2021 (E)

4 Principle

Samples from multi-layer parquet elements are subjected to an aging-treatment according to 6.2. Afterwards the delamination of top layer bonding is assessed according to 6.3. Results are expressed in percent of top layer width according to Clause 7.

5 Apparatus

5.1 Conditioning room

Room or chamber, controlled at a temperature of (23 ± 2) °C and a relative humidity of (50 ± 5) %, in accordance with ISO 554.

5.2 Water bath

Water bath capable to maintain a temperature of (20 ± 2) °C.

5.3 Balance

Balance capable of weighing to the nearest 0,01 g.

5.4 Convection drying oven

Drying oven with internal air circulation and a permanent air exchange for drying at (60 ± 2) °C and (80 ± 2) °C.

5.5 Sliding calliper

Calliper for measurements to the nearest 0,1 mm with a sufficient length to measure over the whole panel width.

5.6 Feeler gauge

Feeler gauge 0,2 mm thick.

5.7 Climate chamber or box

Climate chamber or box, controlled at a temperature of (23 ± 2) °C and a relative humidity of (95 ± 5) % without condensation.

6 Procedure

6.1 Preparation

6.1.1 Sampling

Cut one test specimen from each of at least five multi-layer parquet elements to a size of:
100 mm length x element width x element thickness.

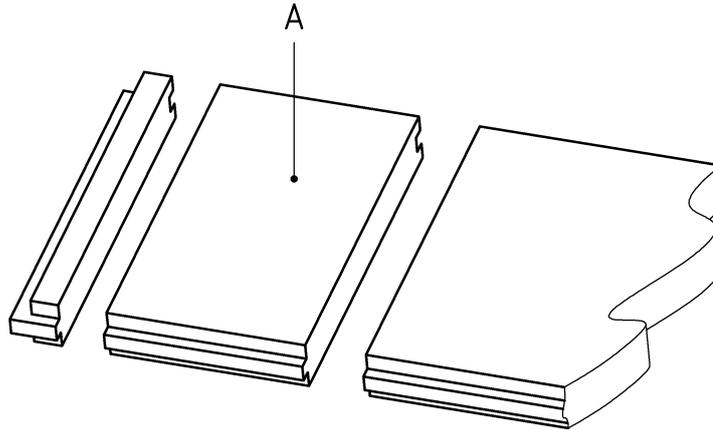
Due to the construction details sample has to contain board ends. Any profile on the short side shall be cut off (see Figure 1).

The long-side profiles shall not be cut off, these profiles shall not be assessed in the trial.

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**Key**

A test specimen

Figure 1 — Example of the specimen preparation after sawing of the tongue and groove

Test specimen shall be without any manufacturing defects (e.g. cracks in the glue line) or knot holes at the cross section.

6.1.2 Conditioning

The test specimen shall be conditioned at a relative humidity of $(50 \pm 5) \%$ and a temperature of $(23 \pm 2) ^\circ\text{C}$ in the conditioning room (5.1), to constant mass prior to measurement.

Constant mass is considered to be reached when the results of two successive weighing operations carried out at an interval of 24 h do not differ by more than 0,1 % of the mass of the element.

6.1.3 Measurement and recording before aging treatment

Proceed as follows with the method of measurement and record the results.

For each test specimen:

- a) one cross section (area with saw cut) shall be marked with an "A" and the other one with a "B" with a water-insoluble pen;
- b) its mass shall be determined with the balance described in 5.3 with an accuracy of 0,01 g and record the result;
- c) its top layer width shall be determined at cross-section "A".

6.2 Aging treatment**6.2.1 General**

The respective test specimens undergo the planned aging-treatment process as described in 6.2.2, 6.2.3 and 6.2.4.

Local authorities may require other aging-treatments, see Annex A.

EN 17456:2021 (E)**6.2.2 Aging treatment AT1 oven drying**

Each test specimen shall be dried in the convection dry oven described in 5.4 for (100 ± 4) h at a temperature of (60 ± 2) °C. The cut edge of the test pieces shall be parallel to the air flow. The arrangement of test specimen shall ensure a constant drying on all sides. The loading of the dry oven shall ensure a reproducible drying process.

NOTE For example, see EN 321:2001, § 6.1.2.1, step 5.

6.2.3 Aging treatment AT2 humid climate storage and re-drying

- a) each test specimen shall be put in a climate chamber or a climate box according to 5.7 with 95 % $(-2/+4)$ relative air moisture content (avoid dew point) at a permanent temperature of (23 ± 2) °C for 72 h. The test specimens shall be put in an upright position. A distance of at least 10mm is to adhere between the test specimens;
- b) after humid climate storage each test specimen shall be stored for 24 h to 48 h at a relative humidity of (50 ± 5) % and a temperature of (23 ± 2) °C in the conditioning room (5.1). The arrangement of test specimen shall ensure a constant drying on all sides;
- c) afterwards each test specimen shall be dried in the convection dry oven described in 5.4 for (8 ± 1) h drying at a temperature of (60 ± 2) °C followed by (16 ± 1) h at a temperature of (80 ± 2) °C. The drying conditions shall comply with 6.2.2.

6.2.4 Aging treatment AT3 cold water storage and re-drying

- a) each test specimen shall be put in the container according to 5.2 for $(6 \pm 0,25)$ h immersion in water with a permanent temperature of (20 ± 2) °C. The test specimens shall be put in an upright position, completely submerged (distance between the upper edge of test piece and the surface of the water shall be 20 mm, at least), with at least 10 mm distance from each other and to the edge of the container. To prevent floating and to secure water contact with the largest possible parts of sample surface the test specimen shall be weighted (e.g. metal nets on the container bottom and for weighting);
- b) after water immersion each test specimen shall be stored for 24 h to 48 h at a relative humidity of (50 ± 5) % and a temperature of (23 ± 2) °C in the conditioning room (5.1). The arrangement of test specimen shall ensure a constant drying on all sides;

NOTE 1 For practical reasons (for example working hours of staff) in laboratory the range for storing the specimen is wide.

- c) afterwards each test specimen shall be dried in the convection dry oven described in 5.4 for (8 ± 1) h drying at a temperature of (60 ± 2) °C followed by (16 ± 1) h at a temperature of (80 ± 2) °C. The drying conditions shall comply with 6.2.2.

NOTE 2 Different specific water absorptions of wood species can influence the test result.