
**Resilient floor coverings —
Specification for floor panels/
assembly for loose laying**

*Revêtements de sol résilients — Spécifications des panneaux de
plancher/assemblages pour pose flottante*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 219, *Floor coverings*.

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Resilient floor coverings — Specification for floor panels/assembly for loose laying

1 Scope

This document specifies requirements and test methods for floor panels/assembly for domestic and commercial levels of use, which have surface layers consisting of resilient floor covering.

This document is not applicable to heterogeneous polyvinyl chloride floor panels/assembly for floating installation covered by ISO 10582 or to floor panels/assembly that are subject to frequent wetting, such as bathrooms, laundry rooms and saunas.

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.

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

ISO 10581, *Resilient floor coverings — Homogeneous poly(vinyl chloride) floor covering — Specifications*

ISO 10582, *Resilient floor coverings — Heterogeneous polyvinyl chloride floor coverings — Specification*

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

ISO 10577, *Resilient floor coverings — Specification for rubber sheet floor coverings without backing.*

ISO 16581, *Resilient and laminate floor coverings — Determination of the effect of simulated movement of a furniture leg*

ISO 16905, *Resilient floor coverings — Specification for rubber floor covering — Tile/Plank*

ISO 19322, *Resilient floor coverings — Specification for floor coverings based on thermoplastic polymers*

ISO 24011, *Resilient floor coverings — Specification for plain and decorative linoleum*

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 24342, *Resilient and textile floor-coverings — Determination of side length, edge straightness and squareness of tiles*

ISO 24346, *Resilient floor coverings — Determination of overall thickness*

ISO 26986, *Resilient floor coverings — Expanded (cushioned) poly(vinyl chloride) floor covering — Specification*

EN 651, *Resilient floor coverings — Polyvinyl chloride floor coverings with foam layer — Specification*

EN 652, *Resilient floor coverings — Polyvinyl chloride floor coverings with cork-based backing — Specification*

EN 655, *Resilient floor coverings — Tiles of agglomerated composition cork with polyvinyl chloride wear layer — Specification*

EN 12104, *Resilient floor coverings — Cork floor tiles — Specification*

EN 13845, *Resilient floor coverings — Polyvinyl chloride floor coverings with particle based enhanced slip resistance — Specification*

EN 14565, *Resilient floor coverings — Floor coverings based upon synthetic thermoplastic polymers — Specification*

EN 16776, *Resilient floor coverings — Heterogeneous polyurethane floor coverings — Specification*

CEN/TS 16354, *Laminate floor coverings — Underlays — Specification, requirements and test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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 floor panel

product generally of rectangular form consisting of a compact layer of a substrate and a surface layer of a resilient floor covering

Note 1 to entry: A backing might be included.

3.2 substrate

core material of the floor panel with profiled edges to facilitate assembly at installation

Note 1 to entry: Examples are Medium Density Fibreboard (MDF), High Density Fibreboard (HDF) and Wood Plastic Composite (WPC) either with or without wood fiber.

3.3 surface layer

upper decorative layer(s) of one of the following resilient floor coverings, bonded to the substrate directly or as total product and intended to be on the visible side when the floor is installed:

- linoleum floor covering (ISO 24011);
- rubber floor covering (ISO 10577 and ISO 16905);
- polyvinyl chloride floor covering (ISO 10581, ISO 10582, EN 651, EN 652 and ISO 26986);
- cork floor covering (EN 12104 and EN 655);
- synthetic thermoplastic polymer floor covering (EN 14565 and ISO 19322);
- polyvinyl chloride floor coverings with particle based enhanced slip resistance (EN 13845);
- heterogeneous polyurethane floor covering (EN 16776)

3.4 backing

layer beneath the surface layer on the back of the substrate, e.g. cork, impregnated paper, foam

4 Requirements

4.1 Requirements for the floor panels

All classes of floor panels including the surface layer shall conform to the requirements specified in [Table 1](#) when tested in accordance with the specified test methods.

Table 1 — General requirements for the floor panels

Property	Requirement	Test method
Dimensions measured at the surface layer	Maximum deviation from the nominal	
Square panels		
Side length	±0,10	ISO 24342
Rectangular panels		
Width	±0,10	
Length mm	≤0,5	
Overall thickness		
Average	Nominal ±0,25	ISO 24346
Individual values	Maximum deviation from the average ±0,30	
Squareness	mm	ISO 24342
Straightness measured at the surface layer	mm	ISO 24342 ^a
Flatness of the panel		
Length		
Concave/convex	% of the length	Annex A
Width		
Concave/convex	% of the width	
Openings between panels		
Average	mm	Annex B
Individual values	mm	
Height difference between panels		
Average	mm	Annex B
Individual values	mm	
Dimensional variation caused by changes in atmospheric humidity %		Annex C

^a For length >0,5 m, a metal ruler may be used.

4.2 General requirements for the surface layer

All classes of floor panels shall conform to the appropriate requirements as specified below.

4.2.1 Residual indentation

Surface layers in accordance with ISO 24011, ISO 10581, ISO 10582, EN 13845, EN 14565 and EN 16776 shall conform to the respectively residual indentation requirements in these particular standards.

NOTE The residual indentation requirements for EN 651, EN 652, EN 655, EN 12104, ISO 19322 and ISO 26986 are related to the surface or wear layer thickness classes in that same standard, and are specified in [5.2](#).

4.2.2 Colour fastness to artificial light

The colour fastness to artificial light shall be in accordance with the requirements for the surface or wear layer established in the applicable specification standard (as listed in 3.3).

4.2.3 Hardness of a rubber surface layer

The hardness of a rubber surface layer shall comply with the requirements specified in ISO 10577 or ISO 16905.





5 Classification

The classification scheme for resilient floor coverings panels for loose laying is specified in ISO 10874. To classify for a certain use classification, the panels shall conform the relevant requirements for that classification in both 5.1 and 5.2. If not the same level of classification is achieved, the worst result is decisive.

5.1 General classification requirements





The panels shall conform to the requirements of Table 2 for their class, regardless of their surface layer material.

Table 2 — Classification requirements for floor panels

Class	Symbol	Intensity of use	Effect of a furniture leg ^a	Effect of a castor chair ^b	Locking strength		Thickness swelling
		Domestic					
21		Moderate/Light	No requirement	No requirement	No requirement		≤20 %
22		General/Medium					
22+		General					
23		Heavy		No disturbance to the surface other than slight change in appearance and no delaminating shall occur			
		Commercial			Hydroscopic substrate ^c	Other substrates	

^a For panels with a cork surface, the requirements for the furniture leg in EN 655 or EN 12104 shall apply.
^b The product shall be tested with the pre-attached backing or the prescribed underlay by manufacturer. In case no underlay is prescribed, the product shall be tested with an underlay with thickness = (2 ± 0,5) mm and compressive stress CS = (60 ± 10) kPa in accordance with CEN/TS 16354.
^c Only for panels with substrates with hygroscopic properties, e.g. HDF or MDF.

Table 2 (continued)

Class	Symbol	Intensity of use	Effect of a furniture leg ^a	Effect of a castor chair ^b	Locking strength		Thickness swelling
31		Moderate	No damage shall be visible when tested with foot type 0	No disturbance to the surface other than slight change in appearance and no delaminating shall occur	No requirement		≤18 %
32		General			Long side ≥1,0 kN/m	Both sides 1,5 kN/m	
33		Heavy			Short side ≥2,0 kN/m		≤15 %
34		Very Heavy			Both sides ≥3,5 kN/m	Both sides 2,0 kN/m	
Test method			ISO 16581	ISO 4918	ISO 24334	Annex D	ISO 24336

^a For panels with a cork surface, the requirements for the furniture leg in EN 655 or EN 12104 shall apply.

^b The product shall be tested with the pre-attached backing or the prescribed underlay by manufacturer. In case no underlay is prescribed, the product shall be tested with an underlay with thickness = (2 ± 0,5) mm and compressive stress CS = (60 ± 10) kPa in accordance with CEN/TS 16354.

^c Only for panels with substrates with hygroscopic properties, e.g. HDF or MDF.

5.2 Classification requirements for the surface layer

5.2.1 General

The surface layer shall be classified in accordance with ISO 10874. The classification depends on the type of floor covering used.

5.2.2 Linoleum surface layer

Floor panels with a linoleum surface layer shall conform to the classification requirements of the surface layer thickness as specified in ISO 24011.

5.2.3 Rubber surface layer

Floor panels with a rubber surface layer shall conform to the classification requirements of the surface layer thickness as specified in ISO 10577 and ISO 16905.

5.2.4 Polyvinyl chloride surface layer

Floor panels with a polyvinyl chloride surface layer shall conform to the classification requirements of the wear layer thickness in combination with the corresponding wear group and residual indentation requirements as specified in ISO 10581, ISO 10582, EN 651, EN 652, and ISO 26986.

5.2.5 Polyvinyl chloride with enhanced slip properties surface layer

Floor panels with a polyvinyl chloride with enhanced slip properties surface layer shall conform to the classification requirements of the nominal thickness in combination with the corresponding wear resistance as specified in EN 13845.

5.2.6 Synthetic thermoplastic polymer surface layer

Floor panels with a synthetic thermoplastic polymer surface layer shall conform to the classification requirements as specified in EN 14565 and ISO 19322.

5.2.7 Cork surface layer

Floor panels with a cork surface layer shall conform to the classification requirements as specified in EN 655 or EN 12104 except the required nominal thickness that shall be as specified in [Table 3](#).

Table 3 — Nominal thickness for cork surfaces

Class	Nominal thickness
21, 22, 22+ and 23	≥2,5 mm
31, 32, 33 and 34	≥3,0 mm

5.2.8 Heterogeneous polyurethane surface layer

Floor panels with a heterogeneous polyurethane surface layer shall conform to the classification requirements as specified in EN 16776.

6 Marking, labelling and packaging

6.1 Marking and labelling

Floor panels manufactured and conforming to this specification shall show the following information clearly on the product and/ or on label or in the package:

- a) the number and date of this document, i.e. ISO 20236;
- b) the manufacturer's or supplier's identification;
- c) the product name;
- d) the colour/pattern and batch number;
- e) the classes/symbols of use level according to ISO 10874;
- f) the successive number of the package if necessary for the installation;
- g) the nominal dimensions of the panels;
- h) the covered floor area and number of panels in the package.

6.2 Packaging

Floor panels shall be delivered in packages designed to protect the corners, edges and surfaces of the product, under normal conditions of transport and handling. The product shall be accompanied by installation, cleaning and maintenance instructions.

Annex A (normative)

Determination of flatness

A.1 Sampling

From the available material, five floor panels shall be taken as specimens.

A.2 Conditioning

The specimens are measured in the received state. For type approval or verification purposes, the specimens shall be stabilized to a constant mass in an atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity. 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 specimens.

A.3 Apparatus

A.3.1 Apparatus for measuring width flatness consisting of a dial gauge accurate to $\pm 0,01$ mm with a rounded tip of radius $\leq 5,5$ mm, installed centrally in relation to three rounded supports with radii ≥ 5 mm.

The supports shall be adjustable along a T-shaped assembly of bars to provide the required gauge length. The measurement, d , shall not be less than the width, w , of the test specimen minus 10 mm. The tip of the gauge in contact with the face of the test specimen shall apply a force of $(1,0 \pm 0,5)$ N. The mass of the apparatus shall not affect the flatness of the test specimen beyond the limit of the accuracy of the gauge. See [Figure A.1](#) for illustration. The instrument shall be set to zero against a suitable reference plate.

A.3.2 A plain rigid surface, at least as long as the floor panel, having a maximum straightness deviation of 0,05 mm over 1 000 mm.