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

Revêtements de sol résilients ou textiles — Détermination de la longueur des bords, de la rectitude des arêtes et de l'équerrage des dalles

Reference number
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Foreword

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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 voluntary nature of standards, 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.

This document was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

This third edition cancels and replaces the second edition (ISO 24342:2007), which has been technically revised. The main changes compared to the previous edition are as follows:

— The Scope has been updated by including planks.

— Clause 5, Apparatus, has been restructured according to the current ISO drafting rules.

— 5.1, Reference plate: tolerance for the angle, has been adjusted to ±0,000 18 rad (0,01°), in analogy to 5.3 and 5.5.

— Clause 9, Calculation and expression of the results, has been updated by including measurement of the average lengths and by specifying the precision of reporting for squareness and straightness.

— Clause 10, Test report, has been updated according to modifications done in clause 9.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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

1 Scope

This document describes methods for determining side lengths, straightness of edges and squareness of resilient or textile floor tiles and planks.

The side lengths, straightness and squareness of resilient or textile floor tiles and planks are important considerations because installed flooring will have an objectionable appearance if these performance criteria are not followed. This can cause the installed tiles/planks to line up unevenly, producing unsightly seams and corners that do not match.

2 Normative references

There are no normative references in this document.

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:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
squareness
measurement of the amount each corner of the tile/plank deviates from 90°, as depicted in Figure 1

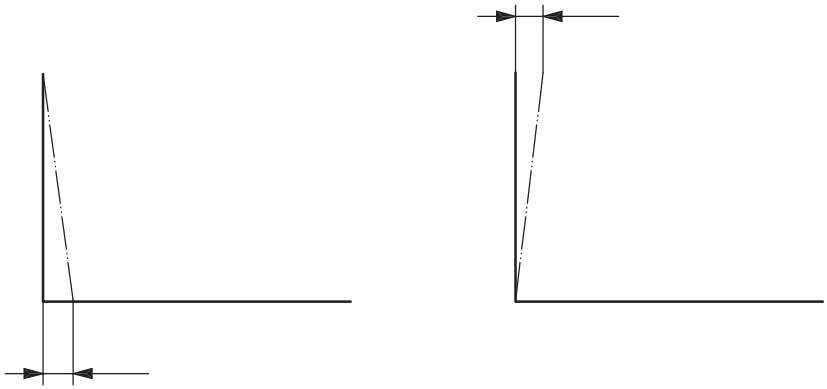


Figure 1 — Definition of squareness

3.2
straightness
property of an edge to be straight, unbent, as depicted in Figure 2

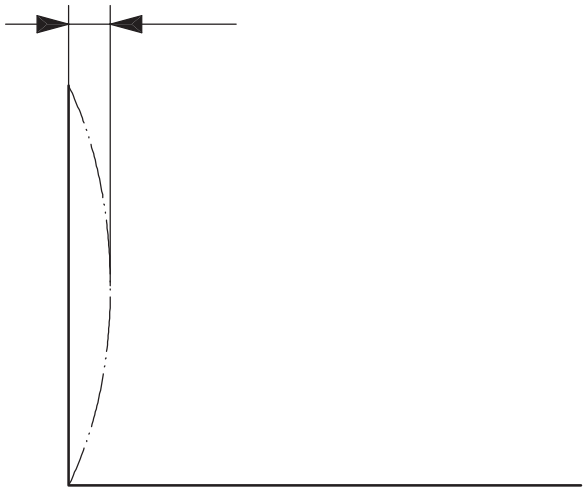


Figure 2 — Definition of straightness

3.3
tile/plank
type of resilient or textile flooring of predetermined shape intended to be used in a modular mode

Note 1 to entry: Tiles are usually square, but can also be rectangular, in which case they are also referred to as e.g. “plank”, “panel”.

4 Principle

The surface dimensions of a tile/plank are measured by a contact method at defined positions in each direction. To assess the squareness, each corner of a right-angled tile/plank is fitted into the dihedral angle of a precision square and the maximum gap between the arm of the square and the ends of the tile/plank is measured. The maximum opening between the arm and the edge is measured at defined points along the edge to assess the straightness.

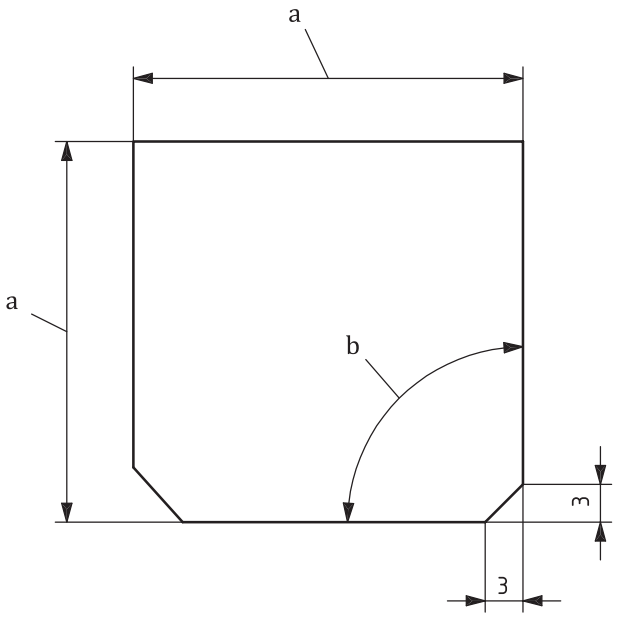
5 Apparatus

5.1 Reference plate

Reference plate, also referred to as a “calibration plate”, made to the target dimensions of the manufactured tile/plank.

The length and width dimensions shall be within 0,02 mm of the specified dimensions of the resilient or textile tiles/planks. The reference plate shall contain at least two sides that are perpendicular to [±0,000 18 rad (0,01°)] one another. These are used to set the squareness gauge to zero (see Figure 3).

Dimensions in millimetres



a Tile target dimension ±0,02 mm.

b 1,570 80 rad ± 0,000 05 rad.

Figure 3 — Reference plate (case of tile)

5.2 Rigid metal or glass plate

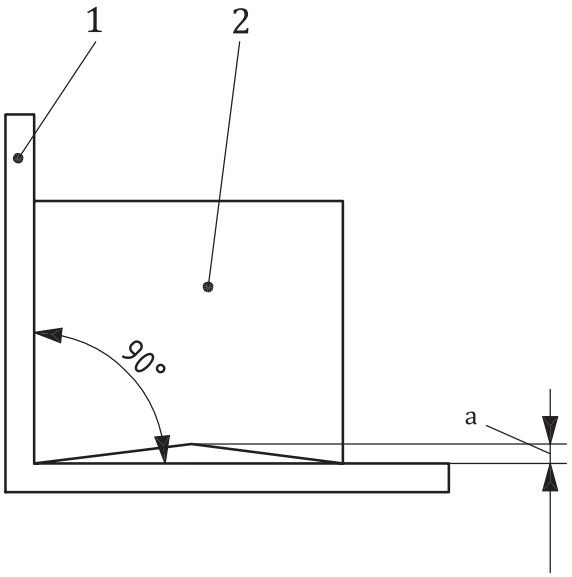
Rigid metal or glass plate shall be squared (or a rectangle) and finished, with dimensions 5 mm to 10 mm less than those of the tile/plank, for the thickness gauge method.

The mass per unit area of the plate shall be approximately 20 kg/m^2.

5.3 Flat bedplate apparatus

Apparatus for measuring the squareness and straightness of floor tiles/planks.

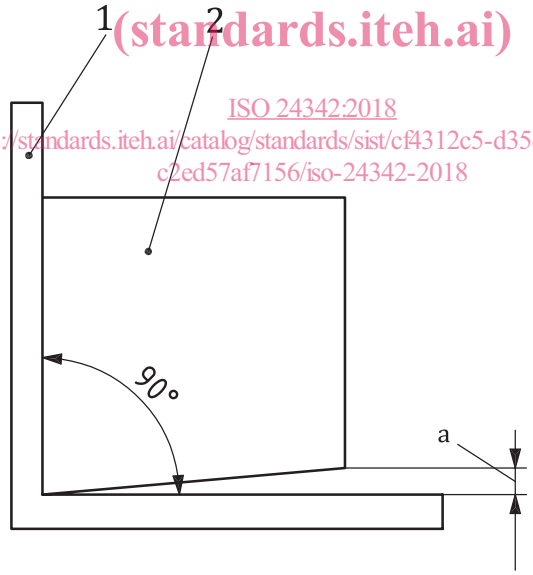
This apparatus shall be an "L" shaped steel device having an angle of 1,570 80 rad (90°) with a tolerance of ±0,000 18 rad (0,01°), as shown in Figures 4 and 5 with the length of both reference strips larger than the largest dimension of the tile/plank. To measure the side length, place a dial gauge (5.4) on the flat bedplate as shown in Figure 6.



Key

1 measuring tool
2 tile/plank
a Maximum length of gap.

Figure 4 — Apparatus and position of tile/plank for measuring straightness



Key

1 measuring tool
2 tile/plank
a Out of squareness.

Figure 5 — Apparatus and position of tile/plank for measuring squareness

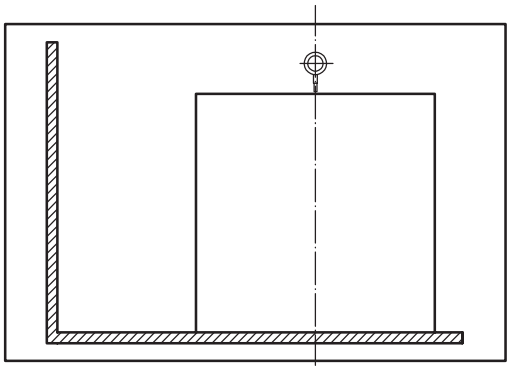


Figure 6 — Apparatus for measuring side length

5.4 Dial gauge, calliper gauge and/or thickness gauges

Use a dial gauge, a sliding calliper gauge or equivalent device having an accuracy of 0,05 mm to measure the length of the tiles/planks up to 610 mm. Alternatively, use a set of thickness gauges in steps of 0,05 mm, which can be easily inserted at any point between the "L" shaped steel device (5.3) and the edge of the tile/plank.

5.5 Movable dial gauges apparatus

Movable dial gauges apparatus containing two fixed index strips according to Figure 7.

A horizontal index strip shall be mounted parallel to and just inside the lower edge of the bedplate (5.3). It shall be 38 mm ± 3 mm greater in length and a minimum of twice the thickness of the largest resilient or textile tile/plank to be tested. A second index strip shall be mounted 1,570 80 ± 0,000 18 rad (90° ± 0,01°) to the horizontal index strip. The lower end of this index strip shall be 3,1 mm ± 0,25 mm above the right end of the horizontal index strip and is used to locate one corner of the sample tile/plank. The length of the second index strip shall be maximum 10 mm.

The four dial gauges are mounted allowing for measurement of various tiles/planks side lengths while remaining within 10 % of the corner of the tile/plank edge (for the two corner gauges and one squareness gauge) or within the central 10 % of the tile/plank edge (for the centre gauge only). Dial gauges may report measurements using electrical or mechanical means, but they shall be graduated to read 0,02 mm and have a stem travel greater than 6 mm. The contact foot of the dial gauge stem shall be flat, 12,7 mm to 19,1 mm in diameter and exert a total force of not more than 1,0 N. Dial gauges shall be securely positioned so that when the reference plate (5.1) is in place, the contact foot is extended approximately 50 % of its full travel.