



SLOVENSKI STANDARD
SIST EN 87:1998
01-november-1998

Črna in bela keramična ploščica za tla in stene - Definicije, razvrščanje, lastnosti in označevanje

Ceramic floor and wall tiles - Definitions, classification, characteristics and marking

Keramische Fliesen und Platten für Bodenbeläge und Wandbekleidungen - Begriffe, Klassifizierung, Anforderungen und Kennzeichnung

ITeH STANDARD PREVIEW

Carreaux et dalles céramiques pour sols et murs - Définitions, classifications, caractéristiques et marquage

[SIST EN 87:1998](https://standards.iteh.ai/catalog/standards/sist/f15ccf71-ec2b-488d-94ed-890224408650/sist-en-87-1998)

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EUROPEAN STANDARD

EN 87:1991

NORME EUROPEENNE

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July 1991

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classifications, dimensions, designations

English version

Ceramic floor and wall tiles - Definitions,
classification, characteristics and marking

Carreaux et dalles céramiques pour sols et murs - Définitions, classification, caractéristiques et marquage	Keramische Fliesen und Platten für Bodenbeläge und Wandbekleidungen - Begriffe, Klassifizierung, Anforderungen und Kennzeichnung
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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

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REPUBLIKA SLOVENIJA
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO
Urad RS za standardizacijo in meroslovje
LJUBLJANA

SIST. EN 87
PREVZET PO METODI RAZGLASITVE

FOREWORD

This European Standard was drawn up by the Technical Committee CEN/TC 67 'Ceramic tiles' the Secretariat of which is held by UNI.

This European Standard was adopted by CEN on the strength of its acceptance by the following Member countries:

Austria
Belgium
Denmark
Finland
France
Germany
Greece
Iceland
Ireland
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1. Scope

This European Standard gives definitions, classification, characteristics and marking requirements for ceramic tiles generally used for floor and wall surfaces. Ceramic tiles also include mosaics, factory slabs, pavers and components for swimming pools, as well as the corresponding accessories (edge, corner and skirting tiles and beads and other pieces).

This standard applies to tiles of the best commercial quality (first quality) unless otherwise specified in the relevant product standard.

2. References

Apart from this European Standard other standards relating to ceramic tiles are as follows:

- 2.1 Product standards for each group of products (see table 2).
- 2.2 Standards for test methods for the determination of characteristics (see table 3).
- 2.3 ISO standards to which reference is made in the standard are as follows:

ISO 1803 'Tolerances for building – Vocabulary'
ISO 1006 'Modular co-ordination – Basic module'.

3. Definitions

3.1 **ceramic tiles.** Thin slabs made from clays, silica, fluxes, colourings and other mineral raw materials, generally used as coverings for floors, walls or facades. They are prepared by grinding, sieving, mixing, moistening, etc., and are shaped by pressing, extruding, casting or other processes, usually at room temperature. They are then dried and subsequently fired at a high temperature.

Tiles can be glazed (GL), unglazed (UGL) or engobed and are incombustible and unaffected by light.

3.2 **glaze.** A vitrified covering which is practically impermeable.

3.3 **engobe.** A clay-based covering with a matt finish which can be permeable or impermeable.

3.4 **once-fired.** Glazed before firing.

3.5 **twice-fired.** Glazed after a first firing then fired a second time.

3.6 **extruded tiles (shaping A).** Tiles whose body is shaped in the plastic state in an extruder, the column obtained being cut into tiles of predetermined lengths.

3.6.1 **split tiles (spaltplatten).** Formed as double tiles which are separated after firing to obtain single tiles. They can be glazed or unglazed and have characteristic parallel ridges on the back.

3.6.2 **quarry tiles.** Tiles that are cut in succession from a single extruded column, are either pressed or not pressed and are sometimes glazed.

3.7 **dust pressed tiles (shaping B).** Tiles formed from a body reduced to powder or small grains and shaped in moulds at high pressure. They may be glazed or unglazed.

3.8 **cast tiles (shaping C).** The body is cast into a mould or on to a porous refractory batt which absorbs the water. They can be glazed or unglazed.

3.9 **water absorption (E).** The water absorption (% by mass) measured in accordance with EN 99.

3.10 **coordinating size.** The size of a coordinating dimension (see ISO 1803).

3.11 **nominal size.** The size used to describe the product.

3.12 **work size.** The size of a tile specified for manufacturing to which the actual size has to conform within specified permissible deviations.

3.13 **actual size.** The size obtained by measuring a tile in accordance with EN 98.

3.14 **tolerance.** The difference between the permissible limits of size.

3.15 sizes

NOTE. These are only defined for rectangular tiles. If the sizes of non-rectangular tiles are required, they are defined by the smallest rectangle into which they will fit.

3.15.1 **modular sizes.** This covers tiles and sizes based on M (see ISO 1006/1 where $M = 100$ mm), 2M, 3M, and 5M and also their multiples or subdivisions, except for tiles with a surface area of less than 9000 mm².

NOTE. The most important examples of modular sizes are listed in the individual product standards. A general definition of dimensions is given in table 1.

3.15.2 **non-modular sizes.** The sizes commonly sold in CEN countries, excluding those that are based on M.

4. Classification

Ceramic tiles are divided into groups according to their method of manufacture and their water absorption (see 3.9 and table 2). The groups do not presuppose the usage of the products.

4.1 **Methods of manufacture.** See 3.6 (extruded tiles), 3.7 (dust pressed tiles) and 3.8 (cast tiles).

4.2 Water absorption groups

4.2.1 Tiles of low water absorption (Group I)
 $E \leq 3\%$.

4.2.2 Tiles of medium water absorption (Group II)
 $3\% < E \leq 10\%$.

Group II is further divided as follows:

(a) $3\% < E \leq 6\%$ (Group IIa)

(b) $6\% < E \leq 10\%$ (Group IIb).

4.2.3 Tiles of high water absorption (Group III)
 $E > 10\%$.

5. Characteristics

Characteristics for different applications of ceramic floor and wall tiles are given in table 3.

6. Marking and specification

6.1 **Marking.** Ceramic tiles and/or their packaging shall be marked as follows:

(a) with the manufacturer's trademark and/or a suitable work's mark and the country of origin;

(b) with their quality;

(c) with a reference to the European/national standards with which they comply;

(d) with the nominal size and work size, modular (M) or non-modular, e.g.

M 100 mm x 100 mm ($W = 98$ mm x 98 mm) or
152 mm x 152 mm ($W = 152.4$ mm x 152.4 mm);

(e) with the nature of the tile surface, i.e. whether glazed or unglazed.

Table 1. General definition of dimensions

Dimensions	Symbol	Modular	Non-modular
Coordinating dimension	C	$W + J$	$N_2 + J$ or $W + J$
Nominal dimension	N_1	$W + J$	—
	N_2	—	$N_2 \approx W$
Work dimension	W	W	W
Joint width	J	J	J

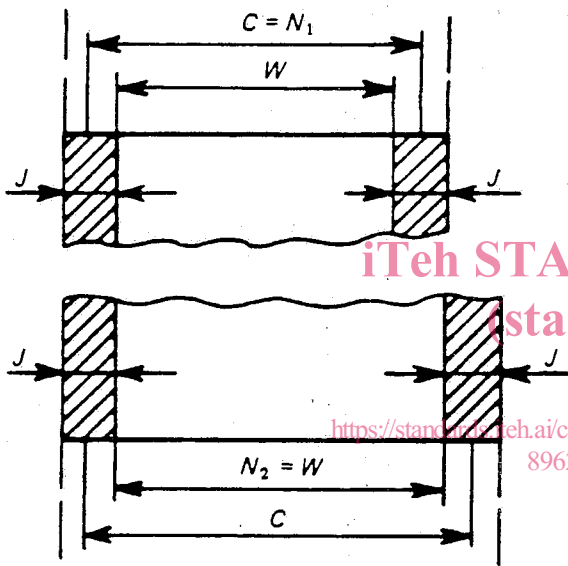


Figure 1. Symbols used to define dimensions

Table 2. Classification of ceramic tiles according to their groups and their specific product standard

Shaping	Water absorption	Group I	Group IIa	Group IIb	Group III
		$E < 3\%$	$3\% < E < 6\%$	$6\% < E < 10\%$	$E > 10\%$
A		Group AI EN 121	Group AIIa EN 186	Group AIIb EN 187	Group AIII EN 188
B		Group BI EN 176	Group BIIa EN 177	Group BIIb EN 178	Group BIII EN 159
C		Group CI ...	Group CIIa ...	Group CIIb ...	Group CIII ...

6.2 Specification. A brief specification shall be supplied which shall include the following:

- (a) the description of the tile, e.g. split, dust pressed etc.;
- (b) the number of the relevant standard, e.g. EN 121;
- (c) the classification as given in this standard (see table 2);
- (d) the nominal size and the work size;
- (e) the nature of the tile surface: whether glazed or unglazed.

7. Ordering, sampling and acceptance conditions

When an order is placed, items such as size, thickness, nature of surface, colour, relief and any special properties shall be agreed by the parties concerned.

Reference shall be made to the individual product standards which deal with the appropriate tolerances, requirements and acceptance conditions for each product group.

Sampling and basis for acceptance are described in a separate standard (EN 163).

Table 3. Characteristics for different applications

	Floors		Walls		Test methods
	Interior	Exterior	Interior	Exterior	
Dimension and surface quality					
(a) Length and width	X	X	X	X	} EN 98
(b) Thickness	X	X	X	X	
(c) Straightness of sides	X	X	X	X	
(d) Rectangularity	X	X	X	X	
(e) Surface flatness (curvature and warpage)	X	X	X	X	
(f) Surface quality	X	X	X	X	
Physical properties					
(g) Water absorption	X	X	X	X	EN 99
(h) Modulus of rupture	X	X	X	X	EN 100
(j) Scratch hardness of surface	X	X	X	X	EN 101
(k) Resistance to deep abrasion of unglazed tiles	X	X			EN 102
(l) Resistance to surface abrasion of glazed tiles	X	X			EN 154
(m) Linear thermal expansion ¹⁾	X	X	X	X	EN 103
(n) Resistance to thermal shock	X	X	X	X	EN 104
(p) Craze resistance of glazed tiles	X	X	X	X	EN 105
(q) Frost resistance ²⁾	X	X	X	X	EN ...
(r) Moisture expansion of unglazed tiles with water absorption, $E > 6\%$	X	X	X	X	EN 155
Chemical resistance					
(s) Resistance to staining of glazed tiles	X	X	X	X	} EN 106 Unglazed tiles
(t) Resistance to household chemicals and swimming pool water cleansers	X	X	X	X	
(u) Resistance to acids ¹⁾	X	X	X	X	} EN 122 Glazed tiles
(v) Resistance to alkalis ¹⁾	X	X	X	X	

¹⁾ Only where particular conditions require.

²⁾ For tiles intended to be used in situations where frost conditions may apply.