



SLOVENSKI STANDARD
SIST EN 1469:2005

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Natural stone products - Slabs for cladding - Requirements

Natursteinprodukte - Bekleidungsplatten - Anforderungen

Produits en pierre naturelle - Revêtement mural - Exigences

Ta slovenski standard je istoveten z: EN 1469:2004

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ICS:

91.100.15 Mineralni materiali in izdelki Mineral materials and products

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en

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ICS 91.100.15

English version

Natural stone products - Slabs for cladding - Requirements

Pierre naturelle - Produits finis, dalles de revêtement mural
- Spécifications

Natursteinprodukte - Bekleidungsplatten - Anforderungen

This European Standard was approved by CEN on 2 September 2004.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 1469:2004) has been prepared by Technical Committee CEN/TC 246 "Natural stones", the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by August 2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA which is an integral part of this document.

This European Standard is one of a series of standards for specifications of natural stone products which includes the following:

EN 1467:2003, *Natural stone - Rough blocks - Requirements.*

EN 1468:2003, *Natural stone - Rough slabs - Requirements.*

EN 1469:2004, *Natural stone products - Slabs for cladding - Requirements.*

EN 12057:2004, *Natural stone products - Modular tiles - Requirements.*

EN 12058:2004, *Natural stone products - Slabs for floors and stairs - Requirements.*

prEN 12059:2003, *Natural stone products - Dimensional stone work - Requirements.*

Other standards on natural stone are produced by:

CEN/TC 178 Paving units and kerbs

EN 1341, *Slabs of natural stone for external paving - Requirements and test methods.*

EN 1342, *Setts of natural stone for external paving - Requirements and test methods.*

EN 1343, *Kerbs of natural stone for external paving - Requirements and test methods.*

CEN/TC 128 Roof covering products for discontinuous laying and products for wall cladding

EN 12326-2, *Slate and stone products for discontinuous roofing and cladding - Part 2: Methods of test.*

EN 12326-1, *Slate and stone products for discontinuous roofing and cladding - Part 1: Product specification.*

CEN/TC 125 Masonry

EN 771-6, *Specification for masonry units - Part 6: Natural stone masonry units.*

Other standards are relevant to stone aggregates for concrete, roads, railways and armourstone (under study within CEN/TC 154).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This document specifies requirements for slabs of natural stone which are made for use as cladding and ceiling finishes. It does not cover aggregates and artificially agglomerated stony material and does not cover installation for cladding.

NOTE It does not cover roofing slates used as external cladding.

2 Normative references

The following referenced documents are indispensable for the application 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 1925, *Natural stone test methods - Determination of water absorption coefficient by capillarity.*

EN 1936, *Natural stone test method - Determination of real density and apparent density and of total and open porosity.*

EN 12371, *Natural stone test methods - Determination of frost resistance.*

EN 12372, *Natural stone test methods - Determination of flexural strength under concentrated load.*

EN 12407, *Natural stone test methods - Petrographic examination.*

EN 12440, *Natural stone - Denomination criteria.* [SIST EN 1469:2005
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EN 12524, *Building materials and products - Hygrothermal properties - Tabulated design values.*

EN 12670:2001, *Natural stone - Terminology.*

EN 13161, *Natural stone test methods - Determination of flexural strength under constant moment.*

EN 13364:2001, *Natural stones test methods - Determination of breaking load at a dowel hole.*

EN 13373, *Natural stone test methods - Determination of geometric characteristics on units.*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests.*

EN 13755, *Natural stone test methods - Determination of water absorption at atmospheric pressure.*

EN 14066, *Natural stone test methods - Determination of resistance to ageing by thermal shock.*

EN ISO 12572, *Hygrothermal performance of building materials and products - Determination of water vapour transmission properties (ISO 12572:2001).*

NOTE Besides the European Standards for test methods mentioned in this clause, there exist further standards which can be used for scientific examinations, but which are not relevant for the application in practice according to this standard.

3 Terms and definitions

For the purpose of this document the terms and definitions given in EN 12670:2001 and the following apply.

3.1

slab for cladding

slab cut to size which forms a wall covering and ceiling finishes for outside or inside use, fixed to a structure either mechanically or by means of mortar or adhesives

NOTE Mortar as defined in EN 998-1.
Adhesives as defined in EN 12004.

3.2

dimensions of slabs for cladding

the length l , width b and thickness d are the dimensions of a slab for cladding. They are given in the stated sequence in millimetres (see Figure 1)

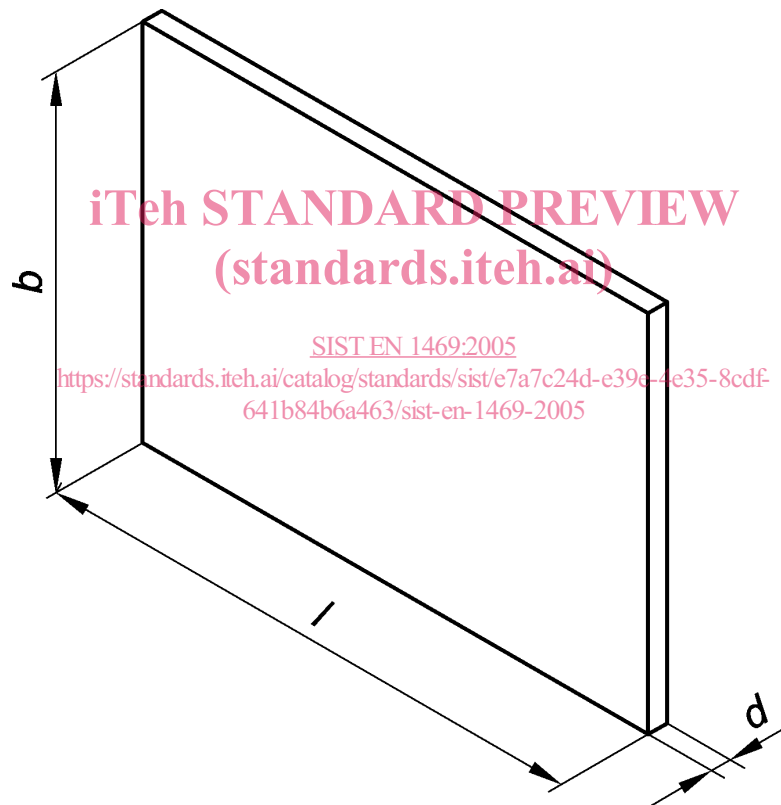


Figure 1 — Dimensions of a slab for cladding

4 Requirements

4.1 Requirements for geometric characteristics

4.1.1 General

All measurements shall be carried out in accordance with EN 13373 and all measured values of individual units shall fall within the required tolerances.

4.1.2 Requirements for thickness

The thickness shall not deviate from the nominal thickness by more than given in Table 1.

Table 1 — Tolerances on the nominal thickness

Nominal thickness in mm	Tolerance
More than 12 Up to and including 30	± 10 %
More than 30 Up to and including 80	± 3 mm
More than 80	± 5 mm

Stricter tolerances may be declared by the manufacturer. This is particularly important when the edges of the slabs will be visible.

NOTE If the slab is to be fixed by adhesive or a thin mortar bed, stricter tolerances may be needed.

The required thickness of slabs shall result from a structural analysis or similar procedure which takes into account the technical and physical properties of the stone and the intended application.

For natural cleft/riven faces, Table 1 does not apply and the tolerances on thickness shall be declared by manufacturer.

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4.1.3 Requirements for flatness

The deviation from flatness of the surface (except for natural cleft faces) shall not exceed 0,2 % of the slab length, and shall not exceed 3 mm. For natural cleft faces, the tolerance on flatness shall be declared by manufacturer.

4.1.4 Requirements for length and width

The length or width shall not deviate from the nominal size by more than given in Table 2.

Table 2 – Tolerances on length and width

Nominal length or width in mm	< 600	≥ 600
Sawn edges thickness ≤ 50 mm	± 1 mm	± 1,5 mm
Sawn edges thickness > 50 mm	± 2 mm	± 3 mm

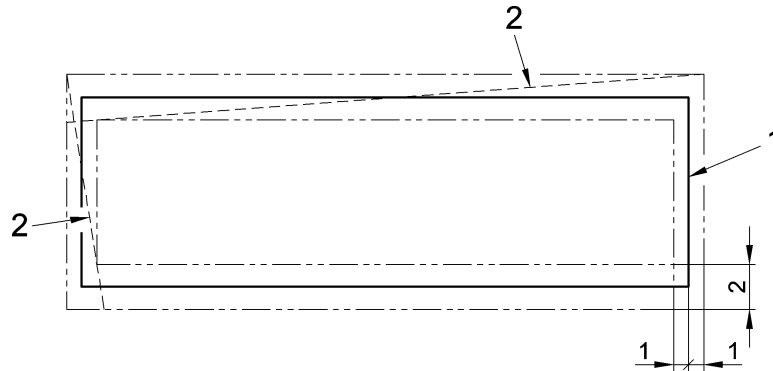
Stricter tolerances may be declared by the manufacturer.

4.1.5 Requirements for angles and special shapes

The permissible tolerance at any point shall be as stated in Table 2 (see Figure 2).

Each slab angle shall be in accordance with the agreed geometry. Pieces of special or irregular shape shall be checked for compliance with the required shape by use of a suitable template, the permissible tolerance at any point shall be as stated in Table 2.

Stricter tolerances may be declared by the manufacturer. This is particularly important when the edges of the slabs will be visible.



Key

- 1 Nominal size
- 2 The slab sides shall fall within the two dotted lines indicating the tolerances of length and width according to Table 2

Figure 2 — Example of tolerances on angles

4.1.6 Requirements for location of dowel holes

The specified location, depth and diameter (shape) of dowel holes shall be as follows:

- Location measured along the length or width of the slab: ± 2 mm
- Location measured along thickness: ± 1 mm (to be measured from the exposed face)
- Depth: $+ 3 / - 1$ mm
- Diameter: $+ 1 / - 0,5$ mm

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Stricter tolerances may be declared by the manufacturer.

For other fixing systems (e.g. slots), specific tolerances shall be declared by the manufacturer.

4.1.7 Commercial sizes of slabs for cladding

Commercial sizes shall be based on the area of the smallest possible circumscribed rectangle measured in square metres accurate to two decimal places.

NOTE For small units it may be necessary to agree a minimum size, for example 0,25 m².

4.1.8 Requirements for surface finish

4.1.8.1 General

Surface finishes shall be carried out uniformly to the edges of the cladding slab.

The surface finishing of some types of stones may typically involve the use of patching, fillers or other similar products for natural holes, faults or cracks; this is to be considered as part of the normal processing. In such cases the type of treatment, as well as the type and nature of additional materials, shall be declared.

4.1.8.2 Requirements for surfaces after surface finishing

Surfaces shall have a regular appearance as a function of the finishing process and shall be worked to meet the specified finish (e.g. making reference to samples, see 4.2.3) on all exposed surfaces.

NOTE 1 Surfaces obtained by grinding are, for example:

- rough ground surfaces obtained, e.g. by means of a grinding disk of grain size F 60;
- medium ground surfaces obtained, e.g. by means of a grinding disk of grain size F 120;
- fine ground surfaces obtained, e.g. by means of a grinding disk of grain size F 220;
- matt finished surfaces obtained, e.g. by means of a grinding disk with grain size F 400;
- highly polished surfaces obtained, e.g. by means of a polishing disk or felt.

NOTE 2 Surfaces obtained by means of percussion tools are, for example:

- bush hammered surfaces (see EN 12670:2001, 2.3.8)*;
- trimmed surfaces: finish obtained by using pointed chisel and mallet or a grooving machine;
- striated surfaces: finish obtained by using a claw chisel (percussion tool for roughening a surface, with the cutting edge consisting of several teeth of various size) or a ruling machine.

NOTE 3 Surfaces obtained by other finishing operations are, for example:

- flamed finish (see EN 12670:2001, 2.3.22)**;
- sand blasted finish (see EN 12670:2001, 2.3.46)***. [SIST EN 1469:2005](https://standards.iteh.ai/catalog/standards/sist/e7a7c24d-e39e-4e35-8cdf-641b84b6a463/sist-en-1469-2005)
- water jet streamed finish: a matt textured surface finish, accomplished by exposing the surface to a jet of water under pressure;
- machine tooled finish (see EN 12670:2001, 2.3.54)****;
- riven cut finish: rugged surface produced by splitting stone with a guillotine or chisel.

* finish obtained by using a bush hammer (percussion tool for roughening a surface, with a square head and with few pyramidal percussion teeth or points) or a bush hammering machine (machine consisting of feed rolls and a overhanging beam, supporting a pneumatic bush hammer).

** surface texture obtained by thermal treatment of the stone using a high temperature flame.

*** a matt finishing resulting from the impact of sand or other abrasive grains expelled by a sand jet.

**** this term has two different meanings:

- 1) finish resulting from a mechanical surface treatment with tools;
- 2) dressed finish clearly showing tool marks.

4.2 Requirements of natural stone for cladding

4.2.1 General

Due to the natural variations of the stone materials, deviations from the declared values may occur.

Whenever stone processing is likely to change the characteristics of the raw material then this has to be considered when determining the characteristics requested by this standard (e.g. as a consequence of strong bush hammering or flaming of the surface or heating or back reinforcing the slabs, or because of the use of patching, fillers or other similar products for natural holes, faults, cracks and similar).

The following characteristics shall be declared where requested by this standard or with reference to the intended use conditions.

4.2.2 Denomination

The denomination shall always be declared in accordance with EN 12440 (meaning traditional name, petrological family, typical colour and place of origin).

The petrographic name shall be declared in accordance with EN 12407.

4.2.3 Visual appearance

4.2.3.1 General

This characteristic shall always be declared.

The colour, veining, texture, etc. of the stone shall be identified visually, typically by a reference sample of the same stone suitable for providing a general description of visual appearance. The reference sample shall be provided by the supplier.

4.2.3.2 Reference sample, visual inspection and acceptance criteria

A reference sample shall be an adequate number of pieces of natural stone of sufficient size to indicate the general appearance of the finished work. The dimensions of individual pieces shall be at least 0,01 square metres (typical values are between 0,01 and 0,25 square metres in face area but may be more), and shall indicate the range of appearance regarding the colouring, the vein pattern, the physical structure and the surface finish. In particular the reference sample shall show specific characteristics of the stone, such as holes for travertine, worm holes for marble, glass seams, spots, crystalline veins and rusty spots.

The reference sample does not imply strict uniformity between the sample itself and the actual supply; natural variations may always occur.

If the processing of the stone involves the use of patching, fillers or other similar products for natural holes, faults or cracks, then the reference sample shall similarly display the impact of the same on the finished surface.

All the characteristics as shown by the reference sample shall be considered typical of the stone and not as flaws, therefore they shall not become a reason for rejection, unless their concentration becomes excessive and the typical character of the stone is lost.

The name and address of the producer or the supplier, as well as the denomination of the stone in accordance with 4.2.2 above, shall be indicated on the reference sample.

Any comparison between production sample and reference sample shall be carried out by placing the reference sample against the production samples and viewing them at a distance of about two metres under normal daylight conditions and recording any visible differences in the characteristics of the stones (see Figure 3).