



# RWANDA STANDARD

**DRS  
625**

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## Natural stones — Requirements with guidance for use

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Reference number

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Requests for permission to reproduce this document should be addressed to:

Rwanda Standards Board

P.O Box 7099 Kigali-Rwanda

KK 15 Rd, 49

Tel. +250 788303492

Toll Free: 3250

E-mail: [info@rsb.gov.rw](mailto:info@rsb.gov.rw)

Website: [www.rsb.gov.rw](http://www.rsb.gov.rw)

ePortal: [www.portal.rsb.gov.rw](http://www.portal.rsb.gov.rw)

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## Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 625 was prepared by Technical Committee RSB/TC 9, *Civil engineering and building materials*

In the preparation of this standard, reference was made to the following standard:

- 1) PD CEN/TR 17024:2017 Natural stones — Guidance for use of natural stones

The assistance derived from the above source is hereby acknowledged with thanks.

## Committee membership

The following organizations were represented on the Technical Committee on *Civil Engineering* (RSB/TC 9) in the preparation of this standard.

ASTRIK International

CAMOSAG Ltd

Cleaner Production and Climate Innovation Centre (CPCIC)

Consulting Engineering Group (CEG Ltd)

HOSHAN LTD

Independent Experts

NPD Ltd

Rwanda Housing Authority (RHA)

Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA)

Rwanda Transport development Agency (RTDA)

University of Rwanda – College of Science and Technology (UR-CST)

Rwanda Standards Board (RSB) – Secretariat

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# Natural stones — Requirements with guidance for use

## 1 Scope

This Draft Rwanda Standard specifies requirements for natural stones and provides guidance for the application and use of natural stone products.

It applies to natural stone products intended for masonry elements, wall coverings (including tiles), internal floor and stair finishes (including tiles), exterior floor and stair finishes (including paving), as well as massive stone elements.

It does not apply to coatings or staining problems, and does not take into account treatments that could modify the performance characteristics of the materials, nor does it apply to agglomerated stones and aggregates.

## 2 Normative references

The following standards are referred to in the text in such a way that some or all of their content constitutes requirements of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced standard (including any amendments) applies.

RS 517, *Specification for Natural stone masonry units*

RS 537, *Masonry units test methods — Determination of compressive strength*

RS 543, *Masonry units test methods — Determination of water absorption of aggregate concrete, autoclaved aerated concrete, manufactured stone and natural stone masonry units due to capillary action and the initial rate of water absorption of clay masonry units*

RS 522, *Natural stone products — Modular tiles — Requirements*

RS 519, *Natural stone products — Slabs for cladding — Requirements*

RS 533, *Natural stone test methods — Determination of flexural strength under concentrated load*

RS 525, *Natural stone test methods — Determination of water absorption coefficient by capillarity*

RS 529, *Natural stone test methods — Determination of the breaking load at dowel hole*

RS 535 *Natural stone test methods — Determination of flexural strength under constant moment*

RS 531, *Natural stone test methods — Determination of resistance of marble to thermal and moisture cycles*

RS 517, *Specification for Natural stone masonry units*

RS 541, *Natural stone test methods — Determination of resistance to ageing by thermal shock*

RS 526, *Natural stone test methods — Determination of real and apparent density and total porosity*

RS 532, *Natural stone test methods — Determination of abrasion resistance*

RS 534, *Natural stone test methods — Determination of the slip resistance by means of the pendulum*

RS 520, *Slabs of natural stone for external paving — Requirements and test Methods*

RS 521, *Sets of natural stone for external paving — Requirements and test methods*

RS 528, *Natural stone test methods — Denomination criteria*

RS 527, *Natural stone test methods — Determination of petrographic information*

RS 526, *Natural stone test methods — Determination of real and apparent density and total porosity*

RS 524, *Masonry units test methods — Determination of thermal properties*

RS 530, *Natural stone test methods — Determination of geometric characteristics of units*

DRS 629, *Kerbs of natural stone for external paving — Requirements and test methods*

### **3 Terms and definitions**

For the purposes of this standard, the following terms and definitions apply.

#### **3.1**

##### **order**

all products to be delivered on the basis of the contract

#### **3.2**

##### **order item**

one of a set of products corresponding to one single order

#### **3.3**

##### **contractual sample**

reference sample which forms part of the contract

### 3.4

#### **delivery**

part or all of the order arriving at the same time and at the same place, and giving rise to a delivery order

Note 1 to entry: The documents accompanying the delivery shall state the following:

- reference of the order;
- name and address of the supplier;
- nature and type of the delivered order items;
- date of collection and place of delivery;
- total weight of the load;
- quantity of delivered order items;
- weight of materials packaged in bulk (per packaging unit).

### 3.5

#### **delivery acceptance**

series of operations to verify compliance of the delivery with the contract specification (including quantity, tolerance specifications, appearance, mechanical properties and contractual samples)

### 3.6

#### **packaging unit**

term that designates for instance a pallet, a crate, a bag, a box

Note 1 to entry: Each packaging unit shall carry a marking or label allowing the identification of the batch to which it derives.

### 3.7

#### **batch**

set of packaging units containing one order item in one delivery

Note 1 to entry: A batch necessarily corresponds to a single characterization sheet.

Note 2 to entry: A delivery may include one or several batches.

## 4 General requirements

### 4.1 General principles

To assess whether a stone type is suitable for a particular application, a specific testing programme is described as mentioned in Table 1, which contains a detailed overview of the most useful tests, in particular:

- a) Characterization tests (or identification tests): they are used to determine the intrinsic material properties, independent of its transformation into a finished product and the environment in which it will be used.
- b) Tests relating to performance in use: these tests evaluate the performance of the finished product after manufacturing. Therefore, these tests should as nearly as possible reproduce the physical forces and effects of weathering and contamination that act upon the element in service (taking into account dimensions and surface conditions).
- c) Durability tests: these tests are used to analyse the behaviour of the stone over time and thus make it possible to evaluate the stability of the intrinsic material properties and of the initial performance data after a period of time. Additionally, it is relevant to consider the performance of the same stone type in existing examples of its use under similar climatic conditions, forces and effects of weathering and contamination that act upon the element in service (taking into account dimensions and surface conditions).
- d) Durability tests: these tests are used to analyse the behaviour of the stone over time and thus make it possible to evaluate the stability of the intrinsic material properties and of the initial performance data after a period of time. Additionally, it is relevant to consider the performance of the same stone type in existing examples of its use under similar climatic conditions.

**Table 1 — Examples of stones used in structural applications and related tests**

Stone general application	Product standard	Structural application	Test performance of use	Test method	
Masonry	RS 517	Element in elevation, with no possibility of splash back, Splash course, Window sill, Handrail, String course, Cornice, Pinnacles, Gargoyle, Massive slab for balcony, Plinth	Capillarity	RS 525	
			Compressive strength	RS 537	
Wall cladding	RS 522, RS 519	Internal cladding			
		Mechanically fastened cladding	Resistance to breaking at dowel hole	RS 529	
			Flexural strength	RS 533, RS 535	
		External cladding			
		Mechanically fastened cladding Elevation String course	Resistance to breaking at dowel hole	RS 529	
Flexural strength	RS 533, RS 535				

		Balcony sill Window sill Plinth Horizontal covering	Resistance of marble to thermal and moisture cycles	RS 531
			Thermal shock resistance	RS 541
Wall cladding	RS 522 RS 519	Internal cladding		
		Glued cladding	Apparent density Open porosity	RS 526
		External cladding		
		Glued cladding and tiling Elevation, String course	Apparent density Open porosity	RS 526
		Balcony sill, Window sill Plinth, Horizontal covering	Thermal shock resistance	RS 541
Floor covering	RS 519, RS 522	Interior floors and stairs	Abrasion resistance	RS 532
			Flexural strength	RS 533 RS 535
		Exterior floors and stairs	Abrasion resistance	RS 532
			Slip resistance	RS 534
			Flexural strength	RS 533, RS 535
External Paving	RS 520	Slabs	Abrasion resistance	RS 532
			Flexural strength	RS 533, RS 535
			Slip and skip resistance	RS 534
	RS 521	Setts	Abrasion resistance	RS 532
			Compressive strength	RS 537
			Slip and skid resistance	RS 534
	DRS 629	Kerbs	Abrasion resistance	RS 532
			Flexural strength	RS 533

## 4.2 Characterization tests

### 4.2.1 Origin of the stone

The part of the characterization record/sheet reserved to the origin of the stone shall mention, in accordance with RS 528:

- e) the name and the address of the supplier of the stone product;

- f) the commercial name of the stone;
- g) the petrographic nature of the stone according to the standards RS 527,
- h) the place of origin (as precise as possible, e.g. country, city, GPS data);
- i) the macroscopic description of the appearance (colour, texture, etc.).

#### **4.2.2 Petrographic analysis**

Petrographic characterization (see RS 527) allows the determination of the mineralogical composition of the natural stone. Based on this information, the correct geological name of the stone can be deduced. The stone should state the place of origin, the (geological) type and the colour of the stone. In this context, correct petrographic identification of the stone is important and should prevent the use of misleading names. Besides these geological features, a petrographic analysis can also provide useful information concerning the sensitivity of stone in specific conditions (including micro cracking, formation of expansive minerals and oxidation of metallic minerals).

#### **4.2.3 Visual characteristics: reference sample**

Stone is a natural material; its colour, veining and texture can vary. Therefore, the general visual characteristics should be defined by means of a reference sample. A reference sample shall comprise 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 m<sup>2</sup> (typical values are between 0,01 and 0,25 m<sup>2</sup> in plan 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.

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 visual 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 reference sample should come with a characterization record/sheet (see 4.2.1).

The following information should be given on each specimen comprising the sample:

- j) name of the supplier;
- k) commercial name of the stone;
- l) signatures of the contracting parties;
- m) date of signing.

#### 4.2.4 Apparent density

The apparent density (see RS 526) is a property commonly measured for natural stone. It reflects the degree of compactness of the material and allows an assessment of the mass of a given volume. It is expressed in  $\text{kg/m}^3$ . This characteristic may be used to calculate the approximate weight of a stone unit for manual handling, for thermal and sound insulation purposes and for assumed load. For typical values, see Table 2.

**Table 2 — Example of apparent densities**

Type of stone	Apparent density $\text{kg/m}^3$ (RS 526)
Compact limestone	> 2 500
Other limestone	< 2 500
Sandstone	1 900 to 2 700
Slate – shale – schist	2 600 to 3 000
Marble	2 600 to 2 900
Gneiss	2 400 to 2 700
Granite	2 400 to 3 000
Basalt	2 550 to 3 000

#### 4.2.5 Open porosity

The open porosity of a stone (see RS 526) is determined by the ratio of the voids (pores) in the stone, which are interconnected and thus accessible to water. Usually, it is expressed in percentage of volume and it represents the volume of open pores in proportion to the total volume of the stone. For typical values, see Table 3.

**Table 3 — Example of open porosities**

Type of stone	Open porosity volume % (RS 526)
Compact limestone	0,3 to 2
Other limestone	2 to 48
Sandstone	0,4 to 25
Slate – shale – schist	0,1 to 6
Marble	0,1 to 2
Gneiss	0,1 to 2
Granite	0,1 to 2
Basalt	0,1 to 6

Open porosity should not be confused with water absorption, which is expressed as percentage of mass. If the water absorption is determined by impregnation under full vacuum (as the open porosity), the open porosity and the water absorption can be compared using a multiplication coefficient: namely the apparent

compactness of the material (i.e. its apparent density divided by 1 000). Open porosity is calculated using Formula (1).

$$p = \frac{(A_b \times \rho_b)}{1000}$$

where

$p$  is the open porosity, expressed in percentage of volume;

$A_b$  is the water absorption, expressed in percentage of mass;

$\rho_b$  is the apparent density, expressed in kg/m<sup>3</sup>.

For example, a natural stone with a water absorption of 20 % (percentage of mass) and an apparent density of 2 000 kg/m<sup>3</sup> can be characterized by an open porosity of 40 % (percentage of volume).

#### 4.2.6 Water absorption

##### 4.2.6.1 General

Water absorption reflects the ability of the stone to retain water in its pores due to capillary forces. This property should be taken into consideration for building applications where the natural stone could come in contact with water.

For some stone types used in external applications, water absorption can be a useful indicator for susceptibility to frost damage. Internal applications, such as wall and floor coverings of bathrooms, kitchen worktops and tile floorings may also come into contact with water. For these applications, it should be taken into account that high water absorption can lead to:

- n) a change in visual appearance in humid conditions;
- o) a greater susceptibility to staining;
- p) absorption of dirt in the surface texture.

Besides being determined by impregnation under full vacuum, water absorption can be determined by the following two methods: water absorption by capillarity or by immersion at atmospheric pressure. For typical values, see Table 4.

**Table 4 — Example of water absorptions**

Type of stone	Water absorption (RS 525) % (percentage of mass)
Compact Limestone	0,1 to 0,8

Other Limestone	0,8 to 21
Sandstone	2 to 11
Slate – Shale – Schist	< 0,1 to 2
Marble	< 0,1 to 0,7
Gneiss	< 0,1 to 0,8
Granite	< 0,1 to 0,8
Basalt	< 0,1 to 2,5

#### 4.2.7 Modulus of elasticity

The modulus of elasticity of a material may be expressed as the static modulus of elasticity or the dynamic modulus of elasticity.

The static modulus of elasticity characterizes the state of deformation generated in a material in response to an applied load.

The dynamic modulus of elasticity characterizes the response of the material to applied vibration. It is often calculated from the results of a resonance frequency test and sound speed propagation test. The main advantage of this method is its non-destructive character. In the field of natural stone, the dynamic modulus of elasticity is usually employed as an indicator for possible weathering of the material by comparison of reference values.

#### 4.2.7 4.2.8 Thermal expansion coefficient

Like all common materials, natural stone is subjected to dimensional deformation under the influence of temperature change. Such deformations are characterized by the coefficient of thermal expansion (see RS 524) and are expressed in millimetre per millimetre per degree Celsius (mm/mm/°C), see Table 5.

**Table 5 — Example of thermal expansion coefficients**

Type of stone	Thermal expansion coefficient (RS 524) mm/mm/ °C
Compact limestone	$3 \times 10^{-6}$ to $6 \times 10^{-6}$
Other limestone	$3 \times 10^{-6}$ to $7 \times 10^{-6}$
Sandstone	$2 \times 10^{-6}$ to $7 \times 10^{-6}$
Slate - shale - schist	$3 \times 10^{-6}$ to $10 \cdot 10^{-6}$
Marble	$3 \times 10^{-6}$ to $6 \times 10^{-6}$
Gneiss	$5 \times 10^{-6}$ to $8 \times 10^{-6}$
Granite	$5 \times 10^{-6}$ to $9 \times 10^{-6}$
Basalt	$9 \times 10^{-6}$ to $10 \times 10^{-6}$

Dimensional deformation should be considered when natural stone units might be exposed to large temperature fluctuations (e.g. cladding, external exterior paving, frameworks of fire places, underfloor heating etc.) and where expansion is constrained. In such cases, their dimensions should be defined having consideration for location, type and size of expansion joints provided.

## **4.3 Tests relating to performance in use**

### **4.3.1 Resistance to breaking load at dowel hole**

RS 529 specifies a test method to determine the breaking load at the dowel hole in natural stones used for cladding or lining in buildings, fixed by mechanical anchor systems. The dowel holes shall be drilled using non-percussive equipment.

This test defines the breaking load, as that load, which when applied to a pin within a dowel hole, perpendicularly to the slab surface, that leads to a break (failure) of the stone. This breaking load is not only dependent upon the nature of the stone, but also on the slab thickness, the position of the dowel hole (distance from the edge of the hole to the face where the fracture occurs) in the slab and the orientation of any bedding plane within the stone. Using this breaking load, the dimensions of the stone slabs and their anchor system can be calculated, also the number and positions of the anchors per slab.

### **4.3.2 Rupture energy**

The rupture energy test is carried out to determine the extent to which a stone element can withstand impact before breaking. The impact resistance is determined by a 1 kg steel ball falling from a measured height onto a horizontal slab laid upon sand.

This characteristic is relevant for applications where the impact of a hard body is typical of the possible loads in service. It mostly concerns floor coverings.

### **4.3.3 Sensitivity to staining**

#### **4.3.3.1 General**

Here, it should be distinguished between intrinsic staining, which is due to the reaction of certain constituents of the stone with the environment or associated construction products, and external (or accidental) staining, which is caused by unexpected contact with materials that can create stains on the surface of the stone.

If a national requirement exists for this characteristic, this test should be carried out only on the basis of special requirements.

#### **4.3.3.2 Determination of sensitivity to accidental staining**

As a consequence of their acid or alkaline nature, or simply because of their viscosity (greasy nature), numerous products – in various degrees and depending of the stone type - are potential staining agents. The staining can result either from a chemical attack of the product upon certain constituents of the stone (e.g. acid products on a limestone), or the penetration of a liquid through the pores of the surface (e.g. oil-bearing products). The test is carried out according to the relevant applicable standards. This test can be helpful in selecting a stone according to its application. It can also be helpful in deciding whether a protection system might be suitable.

### 4.3.3.3 Determination of sensitivity to changes in appearance produced by thermal cycling

It is important to emphasize that staining is a problem which is related to the aesthetic quality of the material. Consequently, the result of the test is difficult to convert into objective criteria to define whether or not it is acceptable. The test is carried out according to the relevant applicable standard. This test can be helpful in selecting a stone according to its place of use.

### 4.3.4 Slip resistance

The slip resistance of floors, stairs and paving is a primary requirement for their safe use. Slipping is one of the main causes of work accidents. Requirements for slip resistance are subject to national regulations and differ from country to country.

Slipperiness is influenced by the following factors:

- a) surface characteristics of the material (e.g. roughness, porosity);
- b) contamination of the surface (e.g. water or other liquids, dust, leaves);
- c) material and profile of the soles and heels of the footwear;
- d) surface changes in use (e.g. wear, polishing);
- e) maintenance (e.g. coating, cleaning);
- f) frequency and nature of joints;
- g) dimension of stone elements.

## 4.4 Durability tests

### 4.4.1 Frost resistance

Frost resistance is undoubtedly the most important durability characteristic for external applications. A stone type with low frost resistance used outside will be subjected to rapid degradation and damaged elements might often have to be replaced.

The assessment of this characteristic in a laboratory is very complex for the following reasons:

- a) The term “natural stone” includes a large number of stone types of various natures and with very variable properties. Depending on the stone type, the porosity can for example range from values of nearly zero to values of about 50 % (percentage of volume). Also the compressive strength can vary strongly from a few MPa to more than 300 MPa.
- b) Natural stone is one of the few construction materials used for a wide variety of exterior applications: paving, plinths, masonry etc. and can therefore be exposed to different levels of frost action.

Consequently, to take into account this enormous variability, a frost resistance test contains one or more variable parameters (degree of water impregnation, number of cycles, etc.).

- c) The frost resistance of a natural stone in practical use depends on the climatic conditions, the position and orientation of the elements (horizontal or vertical) and different water saturation.

#### **4.4.2 Determination of abrasion resistance**

This characteristic should only be tested for flooring and paving. It is intended to assess the behaviour of the stone in response to mechanical abrasion, due to friction in use. Requirements for abrasion resistance depend on the practical use (place of installation, type and density of traffic, frequency of pedestrians). Safety regulations and therefore, requirements are generally subjected to national regulations.

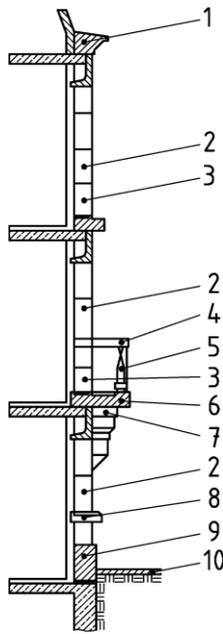
A stone having relatively low resistance to abrasion can suffer rapid degradation of the surface in heavily trafficked areas: loss of texture, changes in colour, reduction in thickness, etc.

#### **4.5 Suitability for the intended use**

The suitability of the stones for use depends upon their purpose within the structure.

Figure 1 to Figure 3 show examples for the use of natural stone.

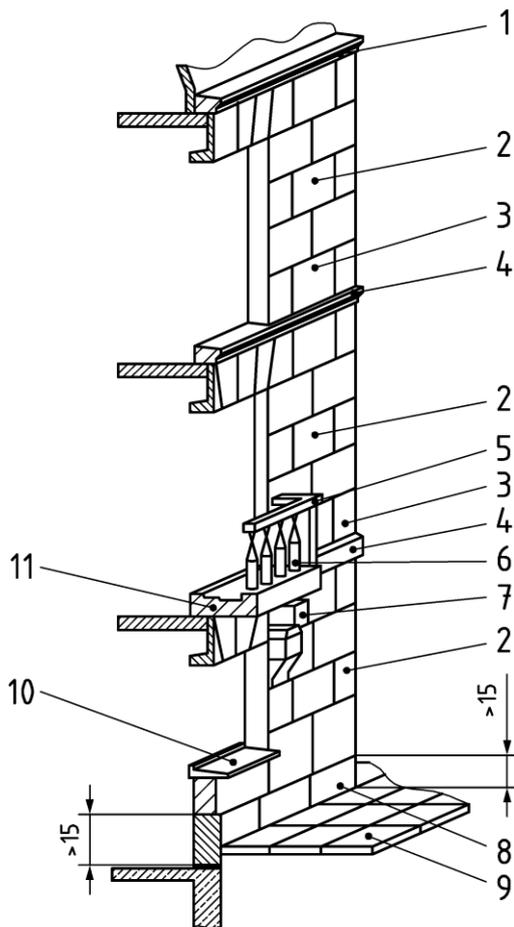
All dimensions in centimetre



**Key**

- 1 cornice
- 2 elevation
- 3 spatter course
- 4 handrail
- 5 baluster
- 6 massive balcony slab
- 7 corbel
- 8 window sill
- 9 plinth
- 10 paving

**Figure 1 — Massive natural stone façade (cross-section view)**

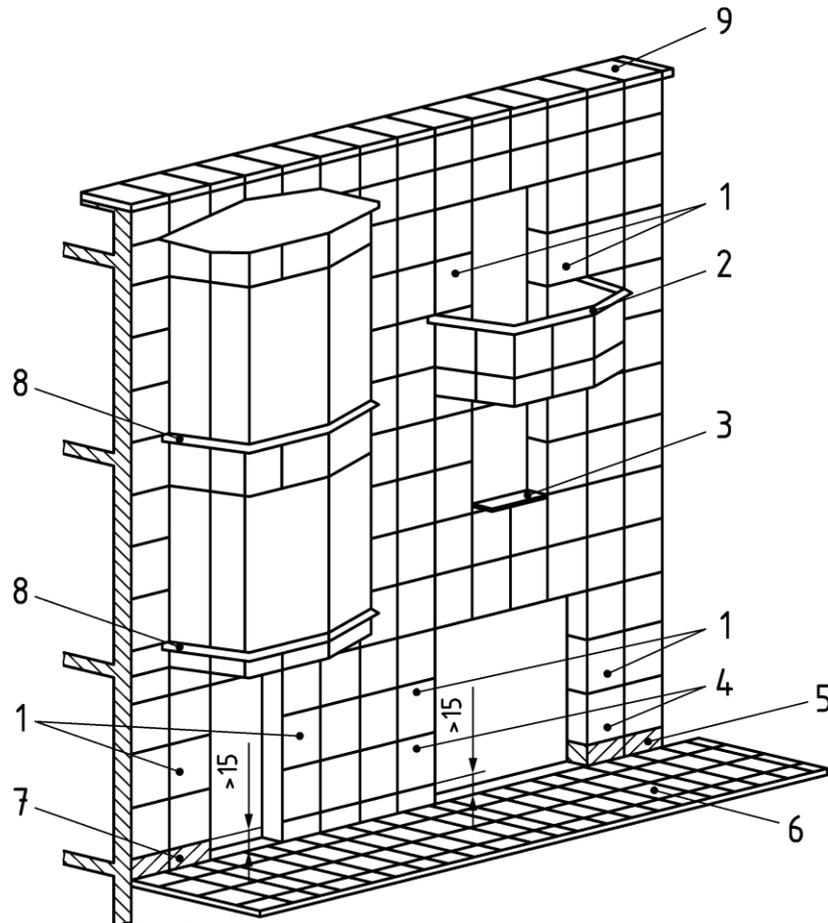


### Key

- 1 cornice
- 2 elevation
- 3 spatter course
- 4 string course
- 5 handrail
- 6 baluster
- 7 corbel
- 8 plinth
- 9 paving

10 window sill

Figure 2 — Façade in massive natural stone (perspective view from outside)



**Key**

- 1 elevation
- 2 balcony cornice
- 3 window sill
- 4 plinth
- 5 void < 15 cm
- 6 paving
- 7 void

8 ledge

9 parapet coping

NOTE The construction details (projection, dripstone, join) are not shown on the scheme.

**Figure 3 — Façade in massive natural stone (front view)**

## **5 Delivery acceptance**

### **5.1 Conditions of delivery acceptance**

#### **5.1.1 General**

Except in the case of specific contractual arrangements, the acceptance conditions are as follows.

#### **5.1.2 Objective of the delivery acceptance process**

Delivery acceptance concerns:

- a) state of the packing, when needed;
- b) labelling;
- c) materials' visual appearance;
- d) quantity;
- e) materials' nature;
- f) geometric characteristics.

#### **5.1.3 Location**

Unless otherwise agreed, the delivery acceptance process is done:

- at the delivery location when the transportation is at the supplier's cost;
- at the supplier's office when the transportation is at the customer's cost.

#### **5.1.4 Date**

The supplier informs the customer of the availability of the merchandise. The date of delivery

acceptance is then mutually agreed on within a specified period (e.g. maximum of 12 working days).

Beyond this period, the order is deemed to “conform”.

### 5.1.5 Staff and equipment for delivery acceptance

All the means for checking the geometric characteristics and the handling, as well as the staff necessary for the acceptance process, is provided by the customer. Opening of the packaging is the responsibility of the customer and should be carried out in the presence of the supplier or their representative.

## 5.2 Proceedings of delivery acceptance process

### 5.2.1 General

The delivery acceptance process is carried out by the customer or their representative and if required or agreed in the presence of the supplier or their representative.

### 5.2.2 Evaluation of the delivered quantity

The delivered quantities can be evaluated by means of weighing, measuring or counting. The relation between the evaluation method and the marketing unity (kg, m<sup>3</sup>, m<sup>2</sup>, m, and unit) shall be defined in the contract.

### 5.2.3 Sampling

A random sampling from a total number of packaging units T is carried out.

The number of samples depends on the number of items in the package and knowledge about the variability in the properties of interest. For example the number of sampling units SU can be:

- SU = 1 when  $1 < T \leq 5$
- SU = 2 when  $5 < T \leq 10$
- SU = 3 when  $10 < T \leq 30$

If the batch is over 30 packaging units, it is split up into multiples of 30 plus a complementary set (for example: 66 packaging units correspond to 3 sets: 2 sets of 30 plus one set of 6).

For a given product, the number N of items of each of the selected SU packaging units are taken into account to carry out a drawing of K items:

#### Example for this number K equals:

- K = N: all the items if  $N \leq 4$
- K = 3, if  $4 < N \leq 20$

- $K = 5$ , if  $20 < N \leq 100$
- $K = 7$ , if  $100 < N \leq 300$
- $K = 10$ , if  $300 < N \leq 600$
- $K = 15$ , if  $N > 600$

#### 5.2.4 Testing of the material's nature

A visual comparison is carried out between the contractual sample and a sample taken from the order item in accordance with 5.2.

In case of doubt, the testing of the origin or the nature of the supplied stone may be carried out by means of a comparison of the petrographic analysis of the contractual sample according to standard RS 527 and the petrographic analysis of the order item.

If this analysis confirms that the supplied stone's nature conforms to that of the contractual sample, the testing expenses are to be paid by the claimant. The delivery of the tested batch is declared to "conform".

If this analysis shows that the provided stone's nature is not in agreement with that of the contractual sample, the testing expenses are chargeable to the supplier. The delivery of the tested batch is declared to "not conform".

#### 5.2.5 Testing of geometric characteristics

The testing of the product's geometric characteristics is carried out according to RS 530 depending on its purpose in order to respond to the prescriptions given in RS 517, RS 519 and RS 522.

Among others, the testing of geometric characteristics concerns:

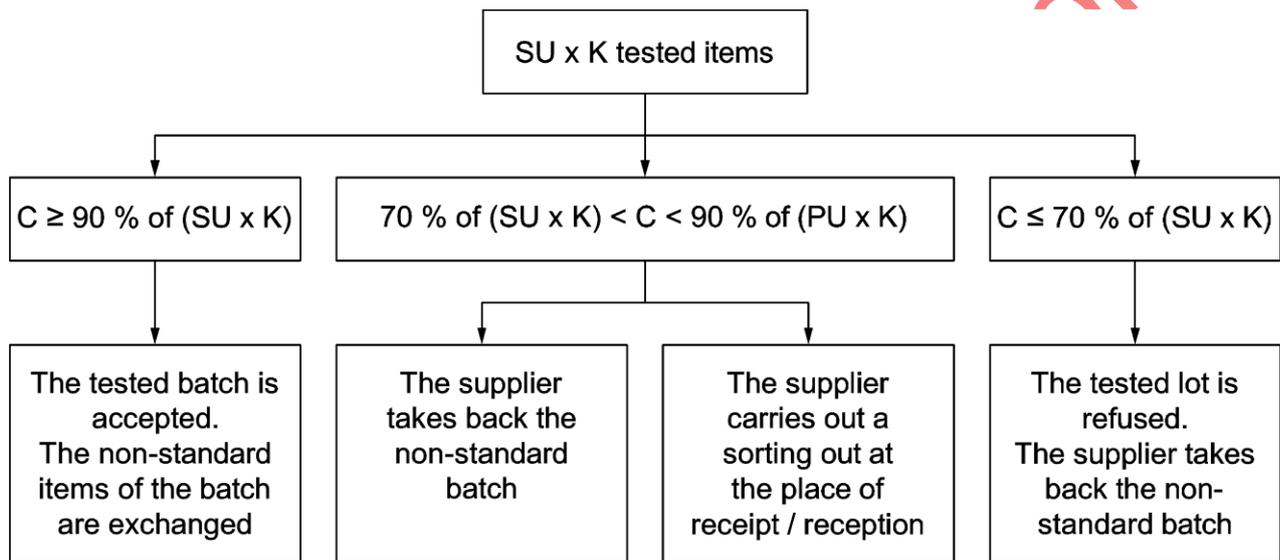
- a) dimensional tolerances;
- b) flatness;
- c) squareness;
- d) straightness of the edges;
- e) conformity of the profiles (round-offs, chamfers, undercuts, etc.);
- f) radius of curves;
- g) location and diameters of the holes.

**5.2.6 Testing of declared performance characteristics**

If any of the declared performance characteristics of the supplied stone are in doubt, additional tests may be carried out. If the test results conform to the declaration of performance of the supplied stone the delivery of the tested batch is declared to “conform”. If the test results do not conform to the declaration of performance of the supplied stone the delivery of the tested batch is declared to “not conform”.

**5.3 Dealing with visual and dimensional non conformities**

In case the delivery demonstrates visual or dimensional nonconformities, such cases may be dealt with in accordance with the guidance provided in Figure 4.



**Key**

SU: number of sampled packaging units

K: number of sampled items

C: number of standard items

**Figure 4 — Flow chart for dealing with visual and dimensional non-conformities**

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