
RS
REVAL STONE

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Limestone is the national stone of Estonia, and this is evidenced by the uses of limestone that have hundreds of years of traditions, from buildings to tombstones. Limestone has proven itself as a durable construction material. Historical, the use of limestone and dolomite goes back over 700 years, as the first evidences of use of these materials originate from that long ago.

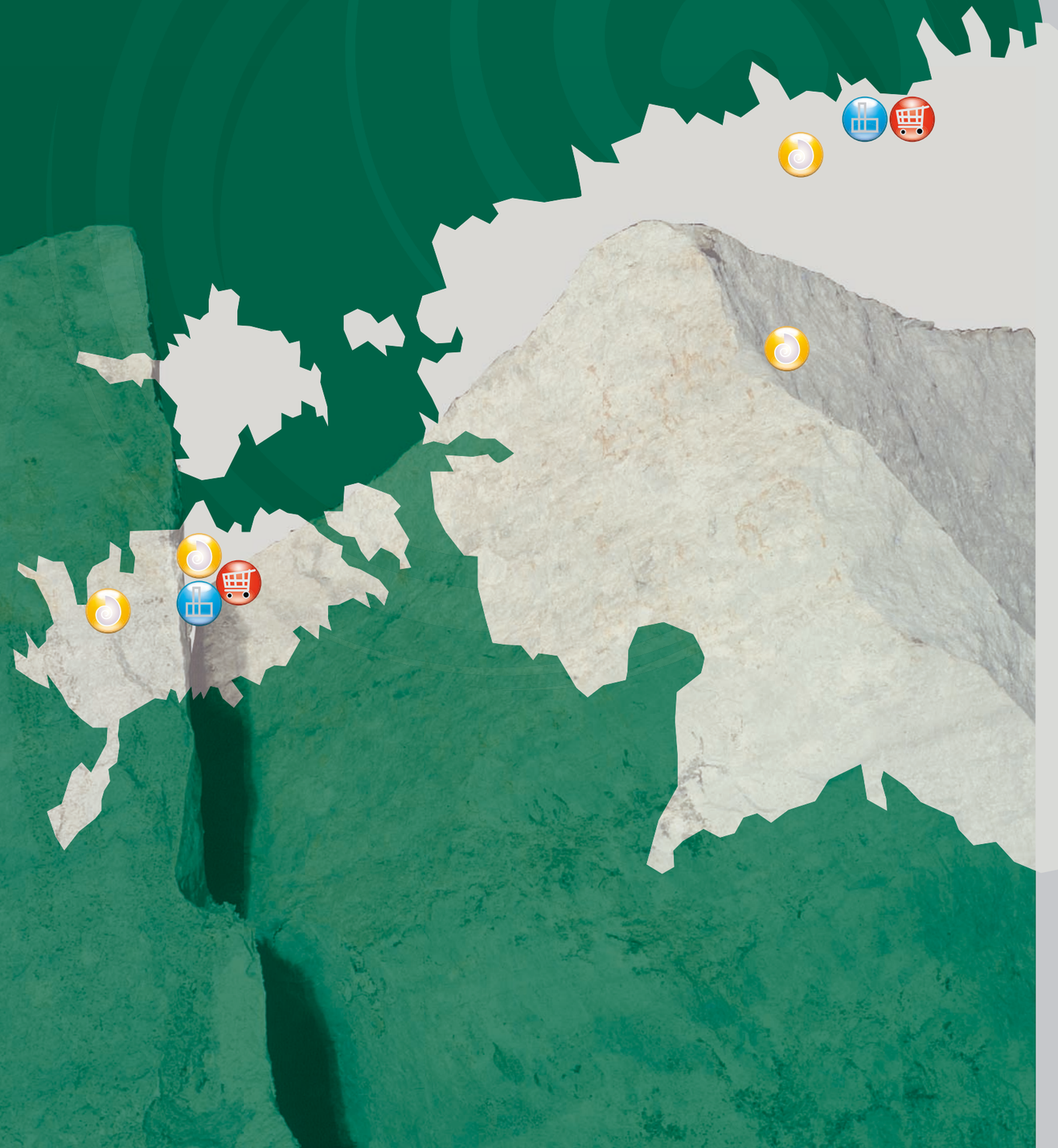
One of the natural stone processing enterprises with the longest traditions in Estonia is Revalstone. The vision of the enterprise is to become the largest manufacturer and seller of finishing materials from Estonian limestone in the Baltic States, Scandinavia and north-western region of Russia. Due to this, we reorganised the base values of the enterprise in year 2007 and the primary effect of this is a change of trademark. Up to here, the goal of the enterprise has been dealing on the local market and the trademark Saare Dolomiit-Väokivi (2002-2007) has worked well for that. The goal for the coming years is to export 20-30% of our production to nearby foreign markets. Due to this, we needed a new trademark that would be strong and understandable on foreign markets.

In October 2007, the new trademark and visual identity of the company was developed and from now on, consumers will know us as Reval Stone. Our mission is to introduce the mining and usage methods of limestone to a wider audience and to carry on the ancient traditions. We promote the use of natural stone as a unique and original option on the construction market.

quarry / Vasalemma, Orgita, Kaarma, Selgase

factory / Tallinn, Kaarma

point of sale / Tallinn, Kaarma



1 Reval Stone Saaremaa central office

2 Pedrini saw

3 Reval Stone factory in Tallinn

4 Reval Stone factory in Saaremaa

5 Quarry in Tallinn

6 Quarry in Saaremaa

references

REVAL STONE

In Estonia

- KUMU Art Museum: dolomite facade, limestone floors and other natural stone works with the total area of 10,000 m²
- Entertainment Centre „Solaris“ dolomite facades with the area of 4,500 m2
- Main building of the Tallinn University: dolomite facade with the area of 700 m²
- Hotel "Euroopa" in Tallinn: dolomite facade with the area of 2,000 m²
- Main building of Estonian Gas in Tallinn: dolomite facade
- National Library in Tallinn: dolomite facade with the area of 5,000 m²
- Haapsalu Culture Centre: dolomite facades with the area 2,500 m²
- Convent of Saint Brigitte in Tallinn: dolomite floors, interior walls, stairs, altar and perimeter fence posts
- Expansion wing of the Presidential palace of the Republic of Estonia: dolomite exterior finishing with the balustrade
- Music Academy: dolomite exterior cornices with the length of 2,400 m, quartzite stairs, floors, support wall
- Kristiine Shopping Centre in Tallinn: dolomite facade;
- Ministry of Foreign Affairs of the Republic of Estonia: dolomite facade with the area of 2,000 m²
- Jaani Church in Viljandi, Jaani Church in Tartu, Valga Church: altar stairs and altar table
- Kuressaare Airport: dolomite facade
- Culture Centre in Kuressaare: dolomite facade
- Shopping Centre in Kuressaare: dolomite facade
- "Audi" dealerships in Kuressaare and in Pärnu: dolomite facades
- Office building at Jõe str. in Tallinn: granite facade
- "City Plaza" business building in Tallinn: granite facade and stairs
- Main building of the Estonian National Bank, in Tallinn: granite facade and limestone interior stairs
- Synagogue in Tallinn: limestone floors
- Hotel "Johani" in Kuressaare: dolomite facade
- Estonia Theatre memorial sculpture in Tallinn: natural stone works
- Spa "Tervise Paradiis" in Pärnu: dolomite floor
- Grand Embassy of the Czech Republic in Tallinn: dolomite facade and perimeter fence
- Kadrioru Palace in Kadriorg, Tallinn: dolomite balcony perimeter/balustrade

In Latvia

- Rumene Manor dolomite stairs and floor, dolomit back terrace, bath-house
- Main building of Riga Hydroelectric Power Station – dolomite exterior facade.
- Commercial building – dolomite stairs and landings. Palasta St. 9, Riga.
- Shopping Centre Driangulas Bastions – dolomite facade. Riga.
- Central office of Hansabanka Saules Akmens – granite interior. Kipsala, Riga.
- Limestone and dolomite facades of private residences. Riga and Jurmala.

In Lithuania

- Reval Hotel LIETUVA – dolomite facade. Ukmerges St., Vilnius.
- Olympic Casino – granite interior. Ukmerges St., Vilnius
- Monastery of Bethlehem – dolomite floor and stairs.
- Dolomite facades of private residences.

references

In Sweden

- Dolomite facade of a private residence. Falsterbo, Malmö.
- Dolomite stairs and floors of private residences.

In Norway

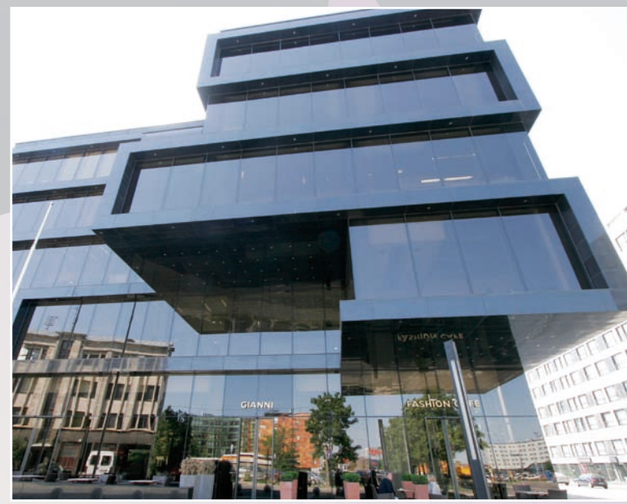
- Dolomite and limestone facades of private residences.

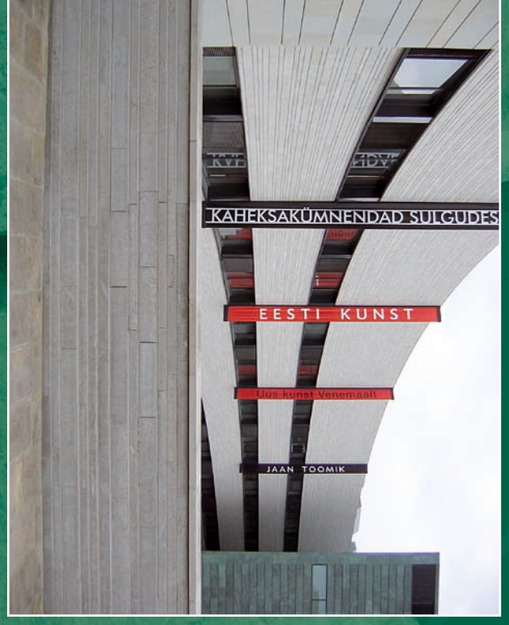
In Finland

- Espoo Library: limestone floors 3,200 m²
- The building of the Bank of Finland – dolomite floor. Helsinki.
- Iitala Store – limestone floor. Tampere.
- Turu Archipelago Central Building – limestone floor. Korpo.

In Russia

- National Library in Petersburg: dolomite facade with the area of 18,000 m²
- Meny metro station in Petersburg: dolomite facade, floors
- Piskarev Cemetery – dolomite enclosure. Saint Petersburg.
- Metro station Tskailovskaya – limestone facade. Saint Petersburg.
- Dolomite facade of a private residence. Parvikha, Moscow.





WALLS and FACADES

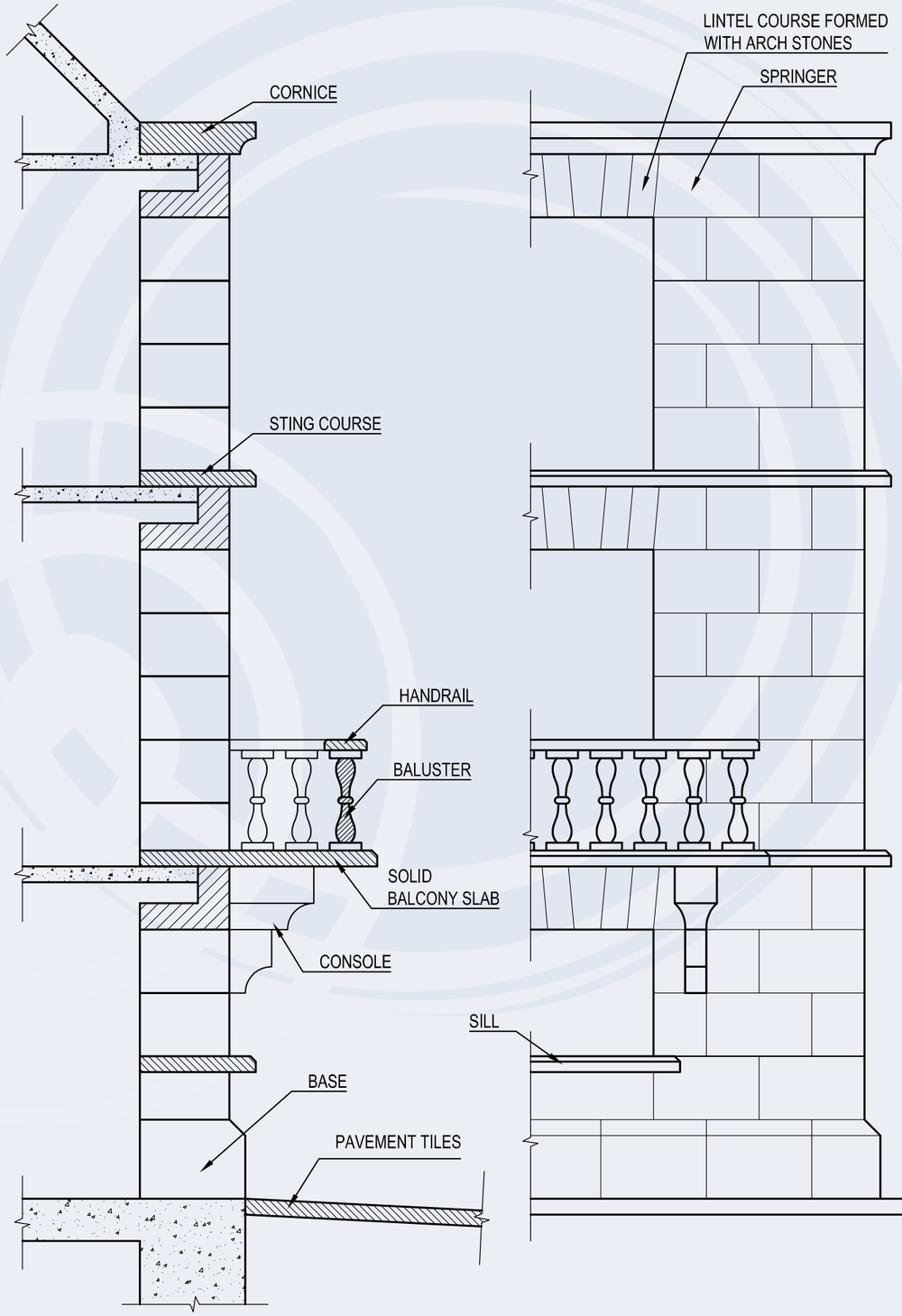
REVAL STONE

walls and facades

Building from stone

Your decision to build from stone means that by choosing our oldest and prestigious way of building, you choose quality and reliability/durability. At the same time it means making an investment whose value is continuously increasing during your lifetime. That also means saving from minimal maintenance costs.
You will get all this, as well as durability, variety of colour, and authenticity of ornamental and natural stone.

We offer several types of solutions for external walls



Stone wall with external insulation

Insulation of external walls has the following advantages:

- saving energy by lessening heat bridges
- good water resistance
- no condensate
- more residential space

1. Facades (classical and modern)

1.1. Self-bearing masonries

1.2. Panel facades

1.3. Panel facades pasted with mixture

Let’s take a look and choose the one most suited to us.We will describe them in detail.

Choice of materials

- Choice of natural stones according to situation and conditions
- Minimum thickness (depth)
- Maximum height of the facade
- Width of joints:
  joints between stones
  deformation joints
- Building masonry:
  anchoring
  the choice and density of anchors per square meter

Suggestion:

- account for natural facade stones already when designing. Redesigning means additional costs.

1.1. Self-bearing masonries

Definition:

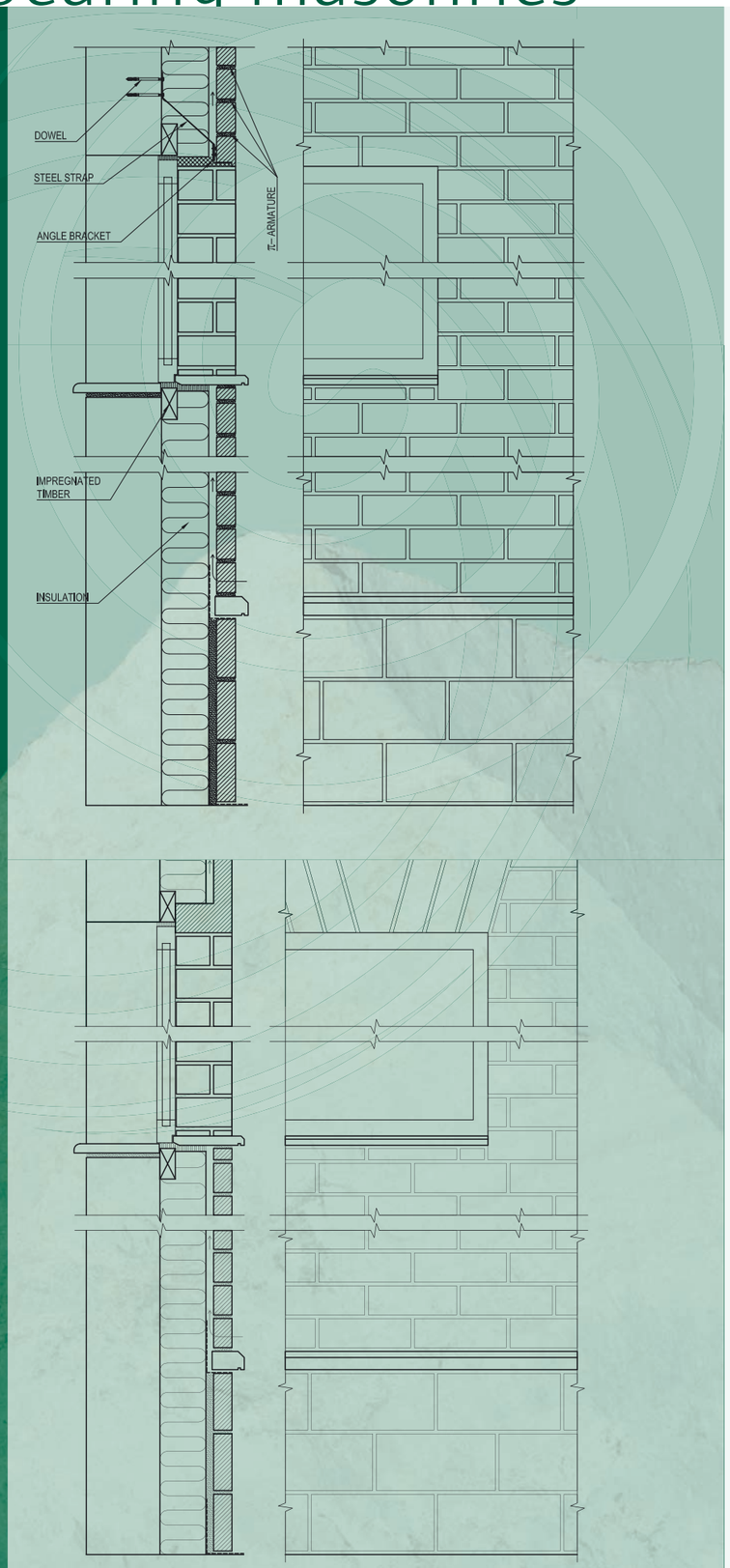
- 3–12 cm cover made of natural stone bricks attached to the building's stable wall construction.
  Galvanized or stainless steel wire anchors can be used as fixing methods (Ø 3–4 mm, 4 pieces per square meter).
- The used fixing method must enable the natural movement of facade stones in deformation conditions created by several factors (wind load, temperature, and other typical local conditions).
- The choice of method is limited by the building's height but not its size, and it depends on the thickness of the stones.
- The width of the joints between stones is usually 8–12 mm.
- In the case of ventilated facades, a 20–40 mm gap must be left between the backside of the facade stone and the building's external construction.

Choice of stones:

- Natural stone bricks are a unique facade material.
- Chosen according to standard EN 771-6:2005 Natural stone masonry unit.
- Brick thickness depends on the material, dimensions, and fixing method of the stone. Fixing method depends on the environment, location, and other factors that the stone wall must be able to resist.

Materials:

- Kaarma dolomite
- Selgase dolomite
- Orgita dolomite
- Reval limestone
- Vasalemma limestone



Qualities of dolomite and limestone masonry stones:

- Compressive strength
- Frost (freeze/thaw) resistance
- Open porosity
- Apparent density

Installation:

- ordinary masonry mixture or, depending on the situation, mixtures based on lime mortar can be used for masonry works

Overlay of the masonry stones in masonry:

- generally it is required that the overlay of the masonry stones must be at least ¼ of the thickness of the stone, and no less than 40 mm.

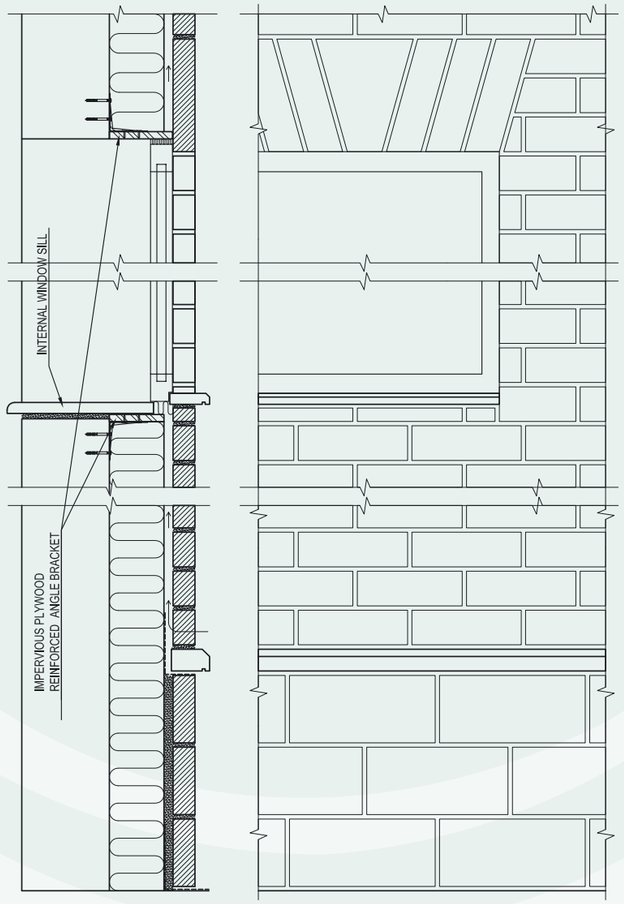
Ventilation gaps in masonry:

- there are vertical joints per each metre in the first or second row of the masonry (depending on the situation) that are generally left open, and in the same manner the upper edge per each floor should, depending on the construction, be left open and ventilated.

- when building a masonry, it is useful to use masonry stones from 3–4 different pallets to disperse different shades.
- masonry stones must not be moved after adhesion.
- temporary disjunctions of masonry works must be gradual.
- mortar splashes must be removed from the surface of the masonry before the mortar has hardened.
- the recommended thickness of joint is 8–12 mm, depending on the dimensions of the chosen stones.
- a 20–40 mm air gap must be left between the external wall and insulation.
- every 3–4th vertical joint of the lower and upper stone row of external wall must be left without mortar in order to provide ventilation.
- external wall will be attached to the bearing structure with stainless steel anchors: Ø 3–4 mm, 4 pieces per square meter
- mortar beds of external wall will be reinforced after the first stone row and below the last row; and, depending on the bridges, multiple times under and on top of the masonry gaps.
- fences and external barriers are isolated from the foundation with moisture insulation.
- the top level of the fence will be protected from weather conditions (for example with cover plates from natural stone).

Newly built masonry:

- When construction works are interrupted, the top level of the masonry that is not yet finished must be protected from rain and moisture.
- In dry and hot weather the masonry must be prevented from drying too quickly.
- Newly built masonry must be protected from hazardous influences, such as wind and horizontal load from scaffolding, rainfall, melting snow, freezing, etc.
- Newly built masonry must be prevented from freezing so that it would not slump, incline, crack or suffer any other damage while thawing.



1.2. panel facades

Definition:

- a thin natural stone cover attached to the building's stable wall construction.

  The thickness of the cover is usually 30–50 mm. Fixings must be from stainless steel, aluminium, or hot-dip galvanized steel.

- There are two fixing methods: either by fixing the tiles on metal frame, or by installing them on anchors that are drilled in the concrete wall.
- Metal fixings that are in direct contact with natural stone must be from stainless steel.
- The used fixing method must enable the minimal natural movement of the facade tiles in different conditions (wind load, temperature, and other conditions).
- The use of the given methods is not limited by the height or size of the building.
- The width of the joints between tiles is usually 8–10 mm.
- Joints may be left open or filled with special elastic and weatherproof joint mixture.
- In the case of ventilated facades, a 20–30 mm gap must be left between the backside of the tile and the building's external construction.

Choice of stones:

- Chosen according to standard EN 1469:2005 Slabs for cladding.
- Dimensions depend on the material of the stone and the fixing method, which in turn depends on the location and the environment the stone wall has to be able to resist.

Suitable materials:

- Kaarma dolomite
- Selgase dolomite
- Orgita dolomite
- Vasalemma limestone

Choice of fixing methods:

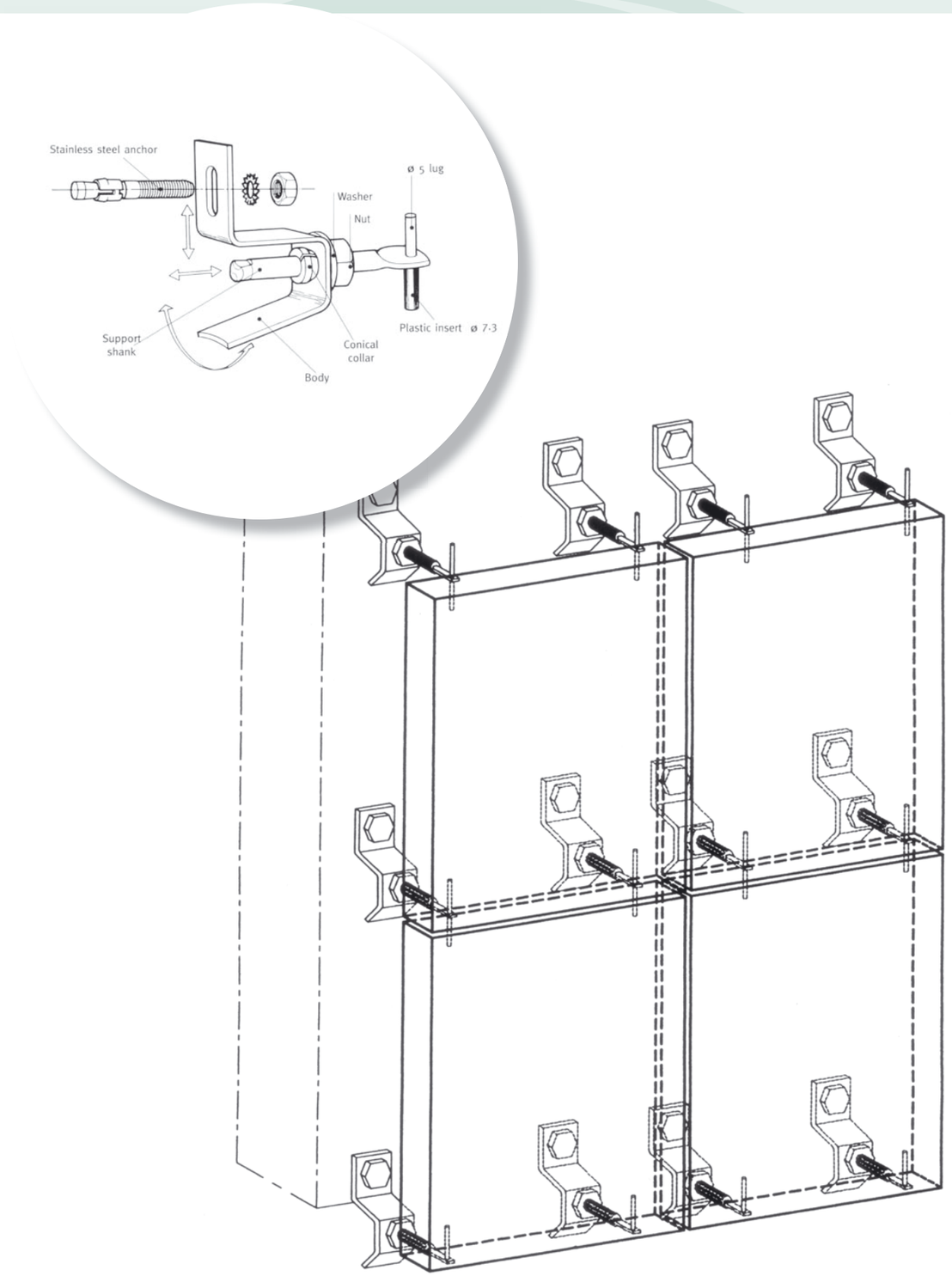
1.2.1. VENTILATED FACADE ON MECHANICAL ANCHORS

1.2.2 VENTILATED FACADE ON HOT-DIP GALVANIZED FRAMES (with insulation) with stainless steel splines

1.2.3 VENTILATED FACADE TYPE "REVAL STONE" ON HOT-DIP GALVANIZED FRAMES (with insulation) with stainless steel clips

1.2.4. VENTILATED FACADE ON MIXTURE ANCHORS

1.2.1. ventilated facade on mechanical anchors:



1.2.2 ventilated facade on hot-dip galvanized frames (with insulation)

with stainless steel splines:

- It is possible to get a panel facade with insulation:
  1. when the panel facade is attached directly to the base wall; or
  2. when the panel facade is attached to a previously insulated wall.

Number of anchors:

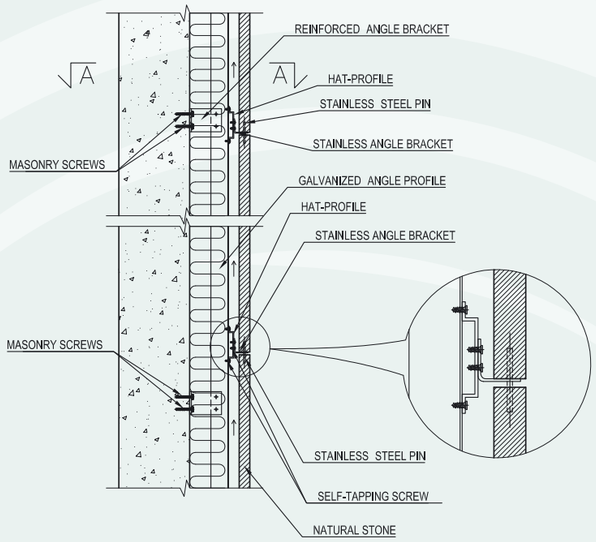
- usually 4 pieces per panel (2 bearing + 2 sustaining)

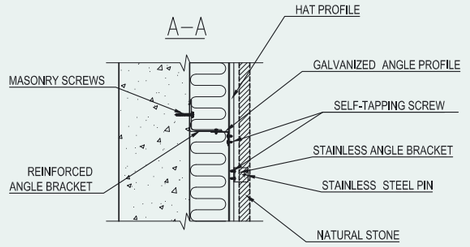
Air gap:

- wider than 20 mm

Gaps for fixing splines:

- Holes in the panel must be 0.5–3 mm bigger than the stainless steel splines, and they must be located 10–20 cm from the corners.
- The axis of the hole must be in the centre of the panel thickness and about L/5 away from the corner.
- The thickness of the stone from the edge of the hole to the edge of the panel must be at least 10 mm in the case of a 3 cm panel.
- The depth of the hole must be at least 30 mm in the case of a 5 mm spline, and the spline must extend in the stone for at least 20–25 mm.



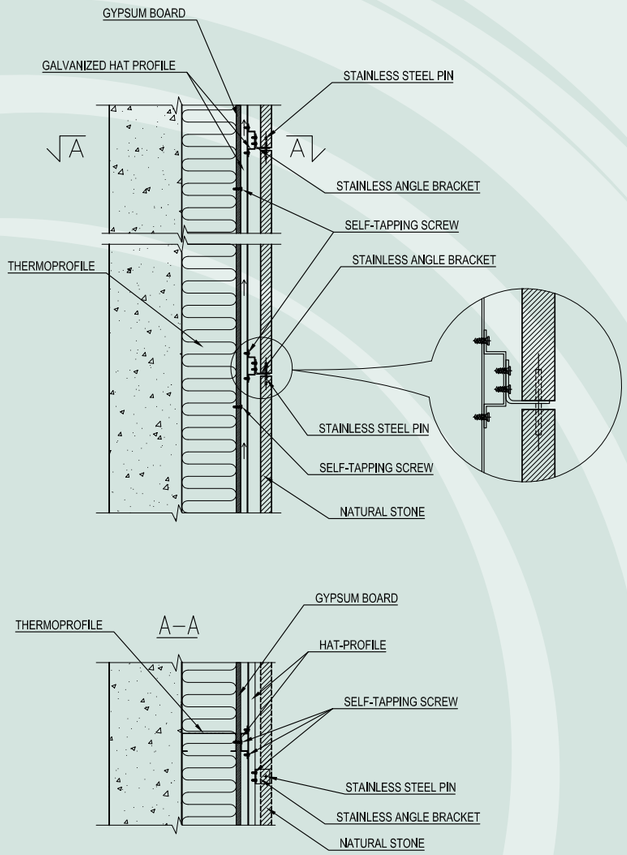


Adjusting splines:
- The hole must be 0.5–1 mm bigger, and before the spline is inserted, the hole is filled with a special mixture or glue.

Joints:
- They are either left open or filled with a special elastic joint filling.

Expansion joints:
- Should be as wide as and in same direction as the panels. They are left open or filled with special joint mastics.

Architectural and constructional joints:
- Joints that are determined by base constructions.
- There should be a joint per each floor when the joints are filled with mixture (for example, up to 10 mm open joints or horizontal joints with special mastic should be 3 m apart).



1.2.3 ventilated facade type "Reval Stone" on hot-dip galvanized frames (with insulation) with stainless steel clips

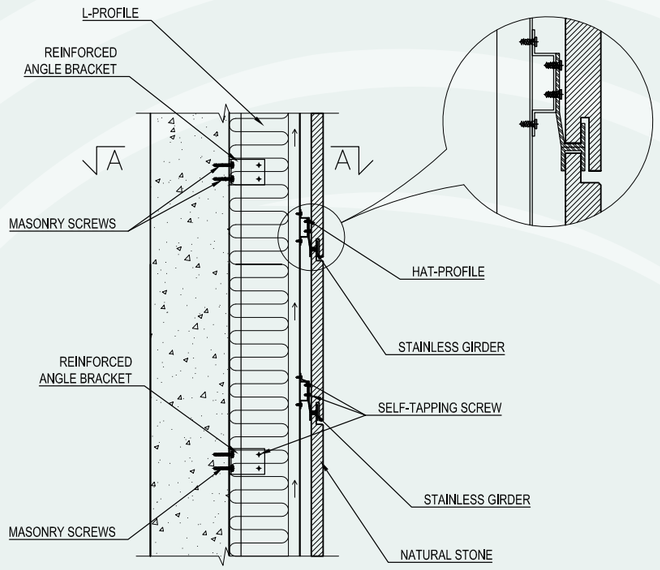
- Panel facade from natural stone that emphasizes horizontal joints and does not need elastic filling joints.

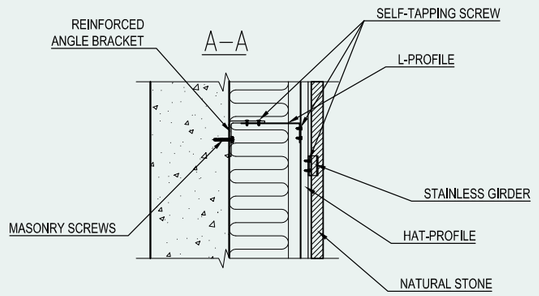
Number of clips:
- usually 4 pieces per panel (2 bearing + 2 sustaining)

Air gap:
- wider than 20 mm

Adjusting clips:
- Clips are adjusted with plastic wedges, using stone glue and mastics for fixing.

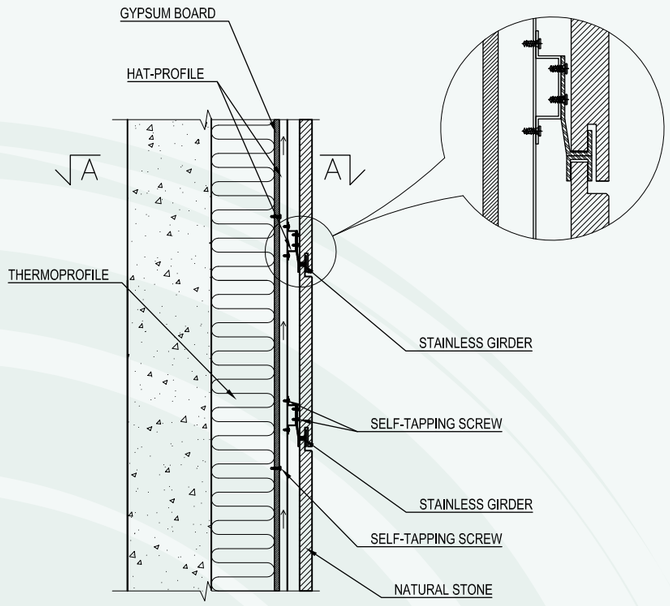
Joints:
- Vertical joints are usually left open and are minimal between stone panels (stone panels are installed right next to each other).
- The width of horizontal joints can be adjusted by the client. The same natural stone is visible through the joint.

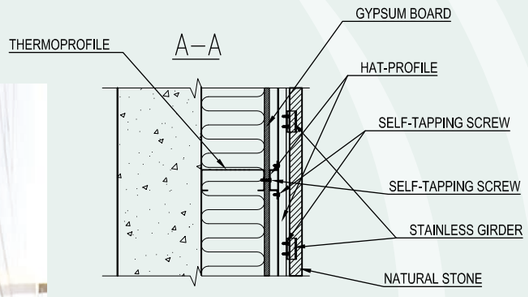




Expansion joints:

- They should be in the same place as the base construction expansion joints (the width depends on the base construction and technical factors). They are either left open or filled with special joint mastics.
- Horizontal expansion joints are needed for every 24 meters. They are determined by technical conditions and the particular situation.





1.2.4. ventilated facade on mixture anchors:

- Natural stone panels are attached to the stable retaining construction with metal anchors that are attached to the retaining wall with special mixtures.
- **Choice of materials:** Depends on the client as well as on base constructions, technical conditions, and the location (wind load, weather conditions, etc).

Suitable materials:

- Kaarma dolomite
- Selgase dolomite
- Orgita dolomite
- Vasalemma limestone

Type of retaining wall:

- concrete is the best option, other variants (hollow brick is not recommended)

Height:

- Preferably up to 28 m, if the joints are filled with mixture.

Requirements for the retaining wall:

- Flatness should not vary more than 2 cm.

Anchors:

- Vertical and horizontal stainless steel anchors whose wall-facing ends are rotated 90°.

Number:

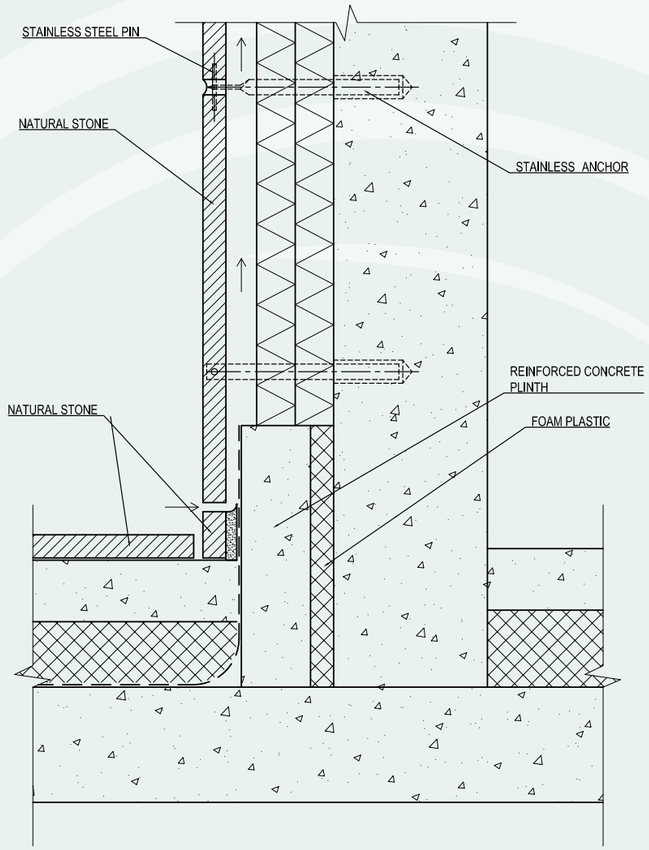
- 4 pieces, 2 of which are bearing and 2 sustaining

Air gap:

- the gap between the back side of the natural stone and the retaining wall or insulation must exceed 2 cm.

Fixing the anchors to the retaining wall:

- special mixtures are used to attach the anchor to the pre-drilled holes in the retaining wall whose diameter is up to 3 cm and depth up to 8 cm.



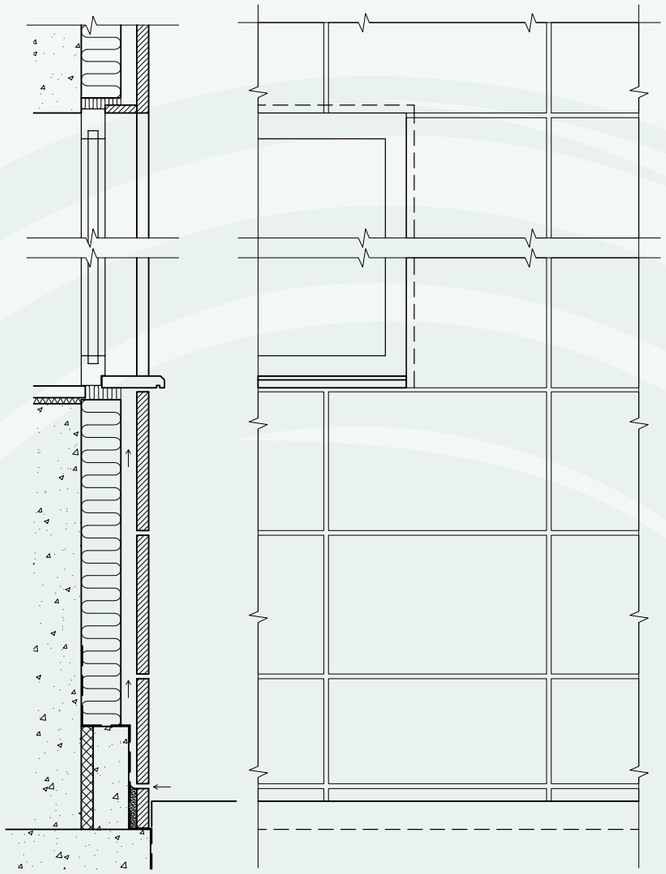


Plate anchor fixing:

- Natural stone panels are attached to the anchors with stainless steel spline that is inserted in the holes that are drilled 10–20 cm away from the corners of the panel. The diameter of the hole must be 0.5–3 mm bigger than the diameter of the spline.

Installation holes must be drilled as follows:

- The axis of the hole must be in the centre of the panel thickness and about L/5 away from the corners.
- The thickness of the stone from the edge of the hole to the edge of the panel must be at least 1 cm in the case of a 3 cm panel.
- The depth of the hole must be at least 30 mm, and it should be 5 mm deeper than the end of the spline that is inserted in the stone.

Adjusting splines:

- splines can be adjusted in both directions, if the hole of the spline is up to 10 mm deeper.
- before inserting the spline the hole is filled with a special mixture or mastic.

Joints:

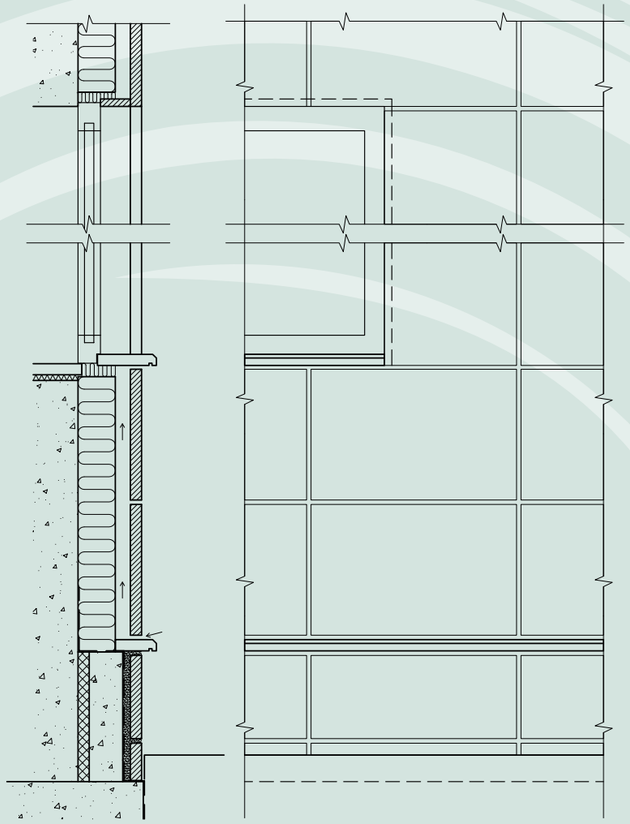
- They might be left open or filled with elastic mastic (for example urethane mastic).
  Do not use mastics that contain silicone oil, these will later leave a thin, dark, oily marks around the edges of the panels.

Expansion joints:

- They should at least run in the same direction as joints, and their width should be as same as or slightly wider than that of the joints.

Distributional or dividable joints:

- In the case of open joints, each joint is also a distributional joint.
- If the joints are filled with mixture, one horizontal joint for each 3 meters or per floor should be left open or be later filled with special mastic.
- Elastic vertical joints should be approximately 6–8 m apart.
- Minimal width of horizontal joints is
  10 mm.
- Minimal width of vertical joints is 8 mm.
- Both are usually filled with elastic urethan-based mastic.



1.3. panel facades pasted with mixture

Definitsioon:
- Covering the internal and external facades with natural stone panels, using glue mixture.

Choice of materials:
- Similar to previous. The dimensions of the panel must take into account the weight of the material, the qualities of the glue mixture, the height of the construction, the fixing method, and the base construction.

Suitable materials:
- Kaarma dolomite
- Selgase dolomite
- Orgita dolomite
- Vasalemma limestone
- Reval limestone

Type of the retain
- Possible options in external conditions: reinforced concrete that is 2–3 months old and plastered with cement mixture, or 3 weeks old masonry with mixed mixture.
- In the interior other retaining wall types can be used, such as plastered surfaces, gypsum walls, lightweight blocks walls, etc, that are in accordance with the technical requirements.

Evenness:
- Generally the retaining wall must be carefully prepared and meet the standards.
  For example: in case of plastered or concrete wall the evenness should be less than +/- 3 mm in the case of a 2 m bar.

Cleanliness:
- The wall to be covered with panels must be clean and previously undercoated with bond dispersion corresponding to the used mixtures. The wall must not be dusty or oily.

Humidity:
- Gluing must be performed on a slightly moist base wall. In hot weather when the humidity is low or the base wall is very porous, it should be slightly moistened before gluing.

Temperature:
- The panels must not be glued on a wall with temperature below +5°C or above +30°C.

Choice of glue mixtures:
- When gluing the facade stones, mixtures should be used that do not stain the stone and that correspond to the technical requirements. Use glue mixtures intended for use with natural stones.

JOINTS
Expansion joints:
- Should be as wide as and located in the same manner as the rest of the facade joints. They should follow the expansion joints of the base construction as closely as possible.

Dividable joints:
- Joints must be at least 5 mm wide, and filled with decay resistant elastic joint mastic that does not stain the stones. It is advisable to create horizontal dividable joints 3 m apart (or one per floor) and vertical joints 6–8 m apart.

Joints:
- Joints are filled with mortar, traditional joint mixture, or other special joint product that corresponds to the technical requirements.
- The width in internal walls is at least 1 mm:
  The width in external walls is at least 2 mm, preferably 5 mm.
  Protection of the top edges of panel facades:
- The top edges of the vertical part of the external facade must be protected in an appropriate manner (cornice, etc) to prevent rain from leaking behind the stones.

REVAL STONE

floors, staircases, skirting boards

2.1. floors

Stone floors:

- are easy to maintain
- are wearproof
- are installed in a traditional way
- also provide a heating and acoustics solution
- offer you a wide choice of natural materials that match all interior design styles

The recommended thickness of the stone is determined by the base construction and the fixing method

- installed on thick mixture
- installed on glue mixture

While 20–80 mm panels installed on the traditional thick mixture require 3–5 cm for installation, only 0.5–1 cm of space is needed by 10 mm panels installed on glue mixture.

This method allows for the replacing of thin flooring materials, such as carpets, parquet, etc.

But also installation on thick mixture has its positive sides:

- base levels do not have to be perfectly even
- perfectly horizontal
- this method is well suited for renovation

2.1.1. floors installed on thick mixture:

- internal and external floors that are finished with natural stone floor panels fixed with cement mixture.

Choice of flooring:
- The chosen stone must be with adequate wear-proof qualities depending on the intensity of use, and also weatherproof in external conditions.
- The thickness of the stone is determined by the strength and dimensions of the stone, and the previous situation.
- Chosen according to standard EN 12058:2004 Slabs for floors and stairs.

Suitable materials:
- Reval limestone (interior)
- Kaarma dolomite
- Selgase dolomite
- Orgita dolomite
- Vasalemma limestone

Standard dimensions:
thickness:
- 2; 3 cm in interior
- 2; 3; 4 cm in exterior, except for roadways.

Length, width:
- square-shaped 30x30 cm; 40x40 cm: 50x50 cm; 60x60 cm
- undefined length in the range of 1–2.5 times the width

Preparation of the base:
Bases:
- Concrete slab, concrete floor, concrete slab for floor beams, floor blocks, wooden floors, steel floors, etc.

Installation material:
- variety of options, including sand, cement mixture, and concrete-based mixture
- the choice of installation material depends on the base and the function

Humidity-proof membrane, moisture insulation, and capillary gap:
- a layer that interrupts the bond between the installation material and the base, or between mixture and the layers beneath, preventing the humidity from rising up.

Fixing mixtures:
- washed river or quarry sand, with grain dimensions of 0.08/3 mm
- cement and/or lime that does not stain the stone (test before using)
- use as a layer up to 5 cm

Slope:
External pavement:
- ready-made pavement should have a certain slope to assure drainage (minimal slope 1%)

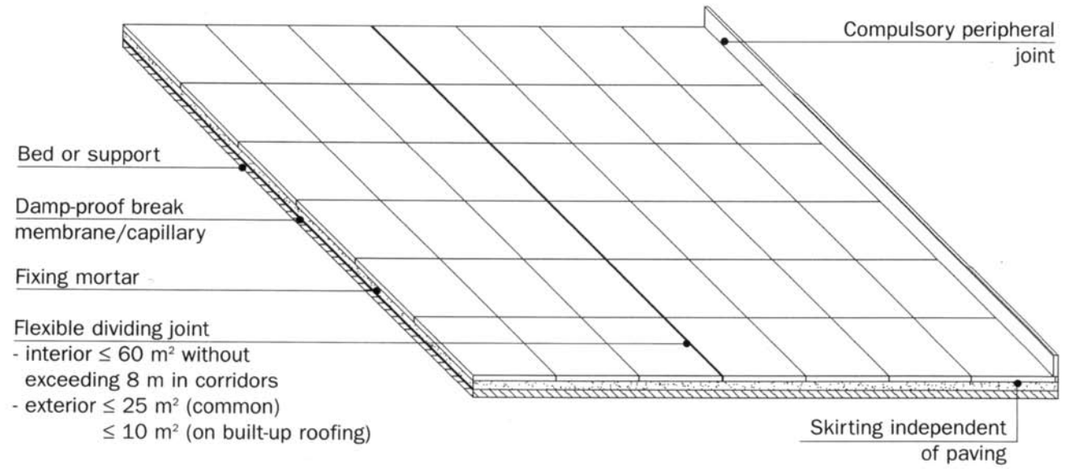
Joints:
Expansion joints
- they must be through the base, fixing mixture, and stone panel.

Dividable joints:
- they must be through the stones and fixing mixture, and filled with elastic mastic.
- also in internal floors, except for heated floors.
- elastic joints should be at least 10 mm in width, and designed for separating approximately 60 m² of floor surface.

External pavement:
- elastic distributional joints should be at least 10 mm in width, and account for approximately 25 m² of floor surface.

Peripheral joints
- at least 3 mm in width for interior and 10 mm in width for exterior
- filled with elastic mastic

Joints:
- joints filled with mortar, strong cement mixture, or ready-to-use joint mixtures
- in internal floors installation without joints is prohibited
- joints should be at least 1–3 mm
- external pavement requires joints at least 3–5 mm in width, depending on the technology.
- internal and external floors that are finished with slate, dolomite, granite, or marble floor slabs and fixed with glue mixture.



2.1.2. floors installed on glue mixture:

Choice of flooring:
- The chosen stone must be with adequate wear-proof qualities depending on the intensity of use, and also weatherproof in external conditions.
- the thickness of the stone is determined by the compression strength, the dimensions of the stone, and the particular situation.
- chosen according to standard EN 12058:2004 Slabs for floors and stairs, or EN 12075:2004 Modular tiles

Suitable materials:
- Reval limestone (interior)
- Kaarma dolomite
- Selgase dolomite
- Orgita dolomite
- Vasalemma limestone

Bases:
- concrete slab, concrete floor, concrete slab for floor beams, floor blocks, wooden floors, steel floors, etc.

Evenness:
- base surfaces must be even (unevenness should not be more than +/- 3 mm per 2 metres).

Slope:
External pavement:
- ready-made pavement should have a certain slope to assure drainage (minimal slope 1%).

Cleanliness:
- base surfaces must be completely clean and dust free, and previously undercoated with bond dispersion corresponding to the used mixtures.

Humidity:
- base surfaces must be dry.

Temperature:
- at least +5º degrees.

Age of the base:
- concrete base must be at least 30 days old.

Choice of fixing mixtures:
- depends on the location and the technical requirements.

Joints:
Expansion joint:
- they must be through the base, fixing mixture, and stone panel.

Dividable joints:
- they must be through the stones and fixing mixture, and filled with elastic mastic.
- also in internal floors, except for heated floors.
- elastic joints should be at least 10 mm in width and they are designed for separating approximately 60 m² of floor surface.

External pavement:
- elastic distributional joints should be at least 10 mm in width and account for approximately 25 m² of floor surface.

Peripheral joints:
- they must be at least 3 mm in width for interior and 10 mm in width for exterior.
- filled with elastic mastic.

Joints:
- joints filled with mortar, strong cement mixture, or ready-to-use joint mixtures.
- in internal floors installation without joints is prohibited.
- joints should be at least 1–3 mm.
- external pavement requires joints at least 3–5 mm in width, depending on the technology.

2.1.3. stone slabs on heated floors:

- internal and external floors that are finished with natural stone floor panels fixed with glue mixture.

Precautions that should be taken:

- **In order to prevent problems arising from the heating of the floor we suggest you follow these instructions:**

- concrete takes at least 2 months to dry when the heating is turned on during the second month.
- it is also advisable to heat the base floor to maximum temperature twice.
- the base must be dry before the installation of the stones.
- peripheral joints must be elastic or open, and their width must be at least 5 mm.
- expansion joints must be accounted for in the floor.
- dividable joints should account for surfaces approximately 40 m² in size (through the width of the stone and mixture).
- heating elements (pipes, cables) are not to be installed into the fixing mixture.

2.2. staircases

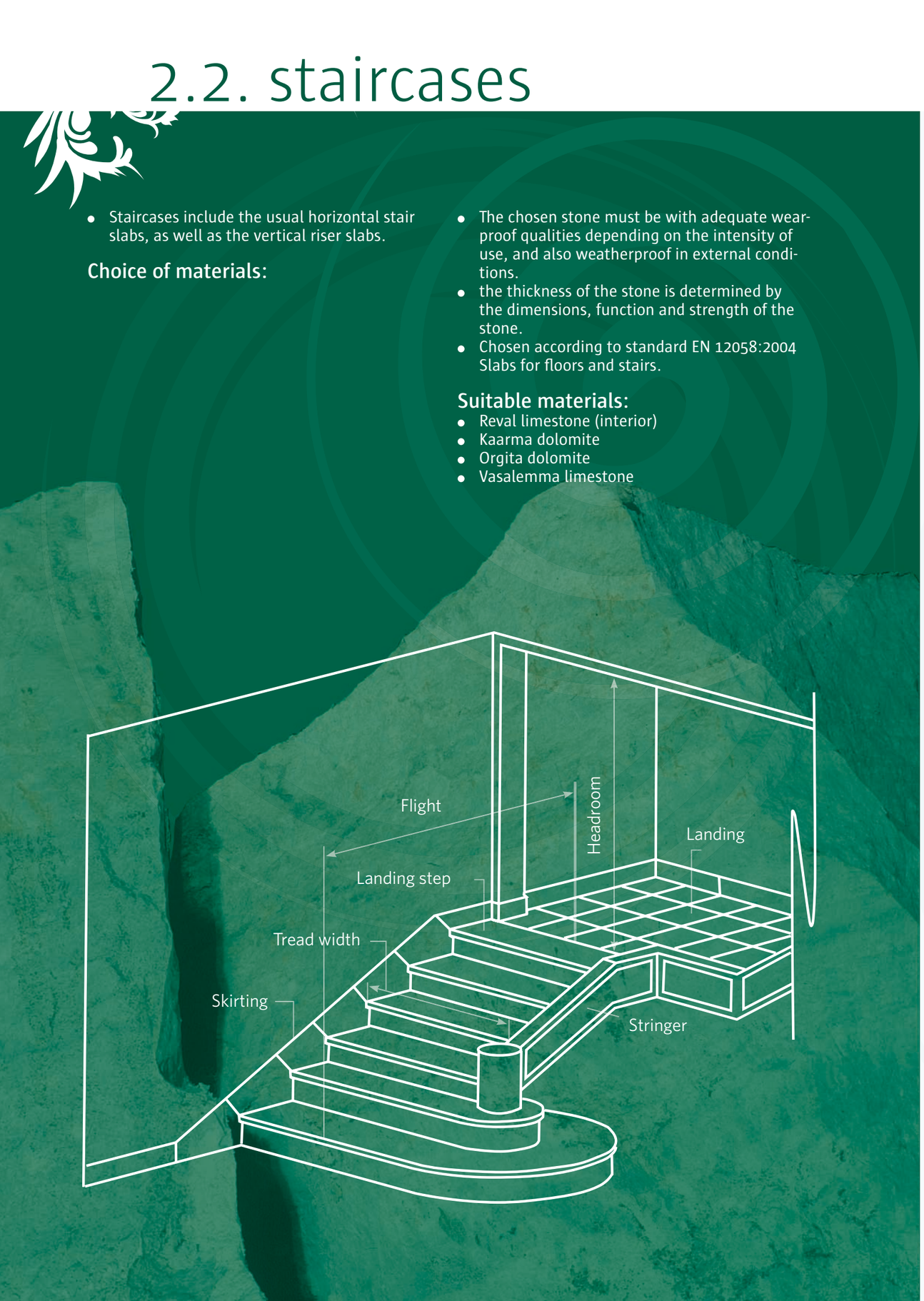
- Staircases include the usual horizontal stair slabs, as well as the vertical riser slabs.

Choice of materials:

- The chosen stone must be with adequate wear-proof qualities depending on the intensity of use, and also weatherproof in external conditions.
- the thickness of the stone is determined by the dimensions, function and strength of the stone.
- Chosen according to standard EN 12058:2004 Slabs for floors and stairs.

Suitable materials:

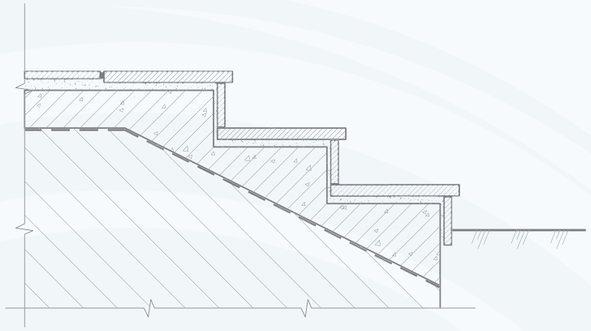
- Reval limestone (interior)
- Kaarma dolomite
- Orgita dolomite
- Vasalemma limestone



2.2.1. staircase installed on thick mixture:

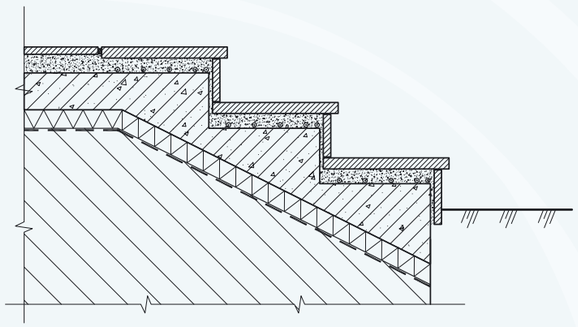
Stairs:

- standard thickness: 2–3 cm, 5–8 cm with various front edge profiles.
- standard width: 30–35 cm in the case of straight stairs.
- standard length: 80–140 cm in the case of straight stairs, up to 200 mm in case of sector stairs.
- on request we can make stairs over 200 cm long.
- it is advisable to apply a non-skid processing to the staircases that are publicly used or in public places.



Riser skabs:

- standard thickness is 2 cm
- height range is 12–21 cm (usually 12–15 cm)

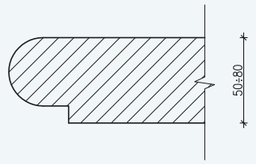


Standard reserves:

- stairs: the thickness of the stair panel + 3 cm for the mixture.
- rises: the thickness of the riser panel +2 cm for the mixture.

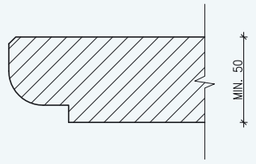
Fixing mixture:

- washed river or quarry sand, with grain dimensions of 0.08/3 mm.
- cement and/or lime that does not stain the stone (test before using).
- mixture proportions: 350 kg cement per 1 m³ dry sand.



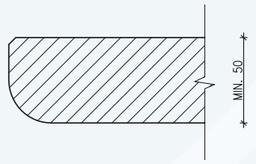
Installation of handrails: (balustrades)

- handrails should be fixed/installed into the cement base.
- in a place where the fixing passes through the stair panel, a soft/flexible joint must be made.



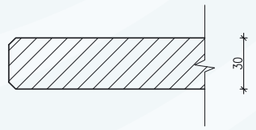
Joints:
Horizontal joints between the riser and stair slabs:

- the width exceeds or is equal to 1 mm.
- the joints are filled with joint mixtures that do not stain the stone.
- vertical joints can be put together in internal staircases or left minimal (1–2 mm).

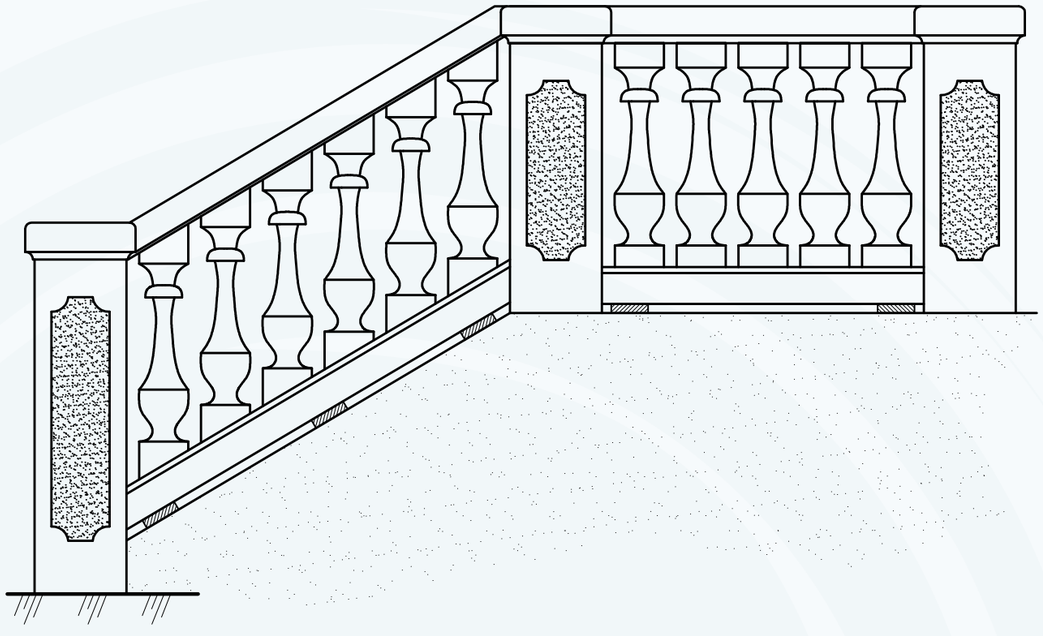


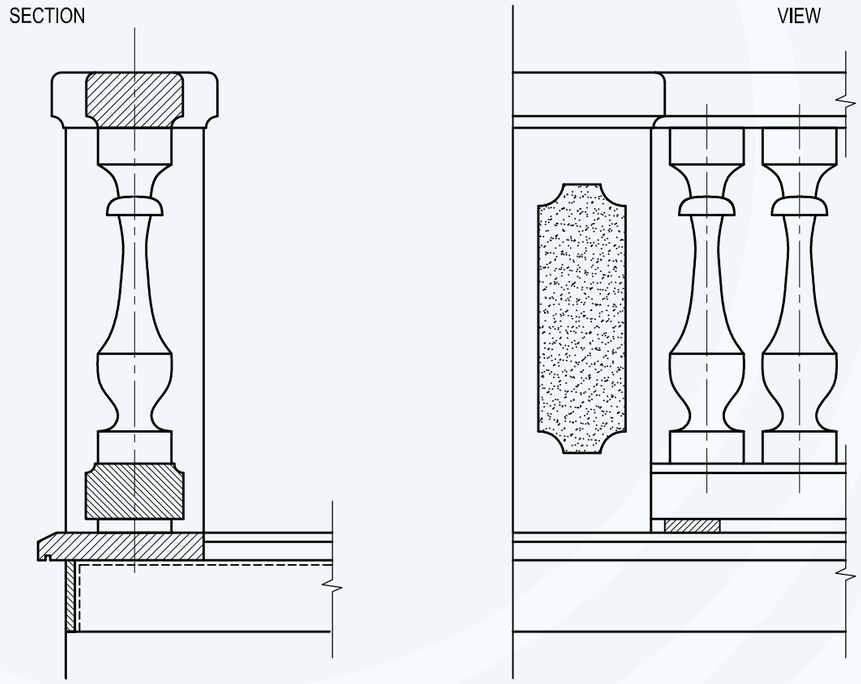
Dividable joints:

- filled with elastic mastic joint fill



staircase installed on thick mixture:





2.3. skirting board

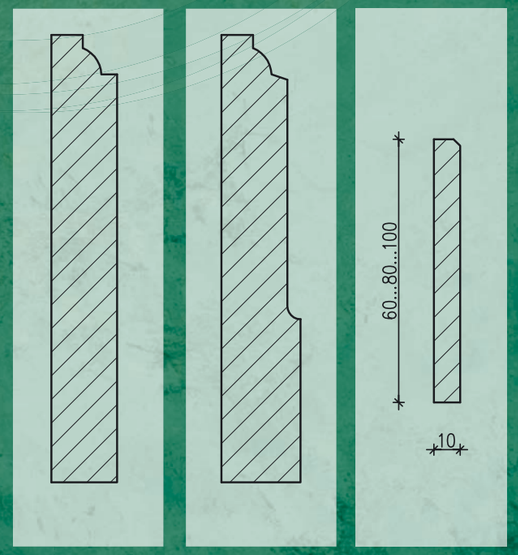
- a stone strip that is fixed to the lower side of the wall with thick mixture or glued with tiling mixtures or mastic to protect the floor from staining during use or cleaning.

Dimensions:
- common heights: 60; 80; 100 mm
- thicknesses: 10; 15; 20 mm

Base surface:
- base surface must be clean and free from all residual substances that may distend or react on fixing mixtures (plaster, wood, insulation, etc).

Suggested reserves:
- When installing the skirting board, allow for the thickness of the board + 5–10 mm for fixing mixture.

Joints:
- The joint between the skirting board and floor panels is filled with elastic joint mastic.
- joints: the width exceeds or is equal to 1 mm.
- joints are filled with joint mixtures.
- expansion and dividable joints are filled with elastic joint mastic.



REVAL STONE

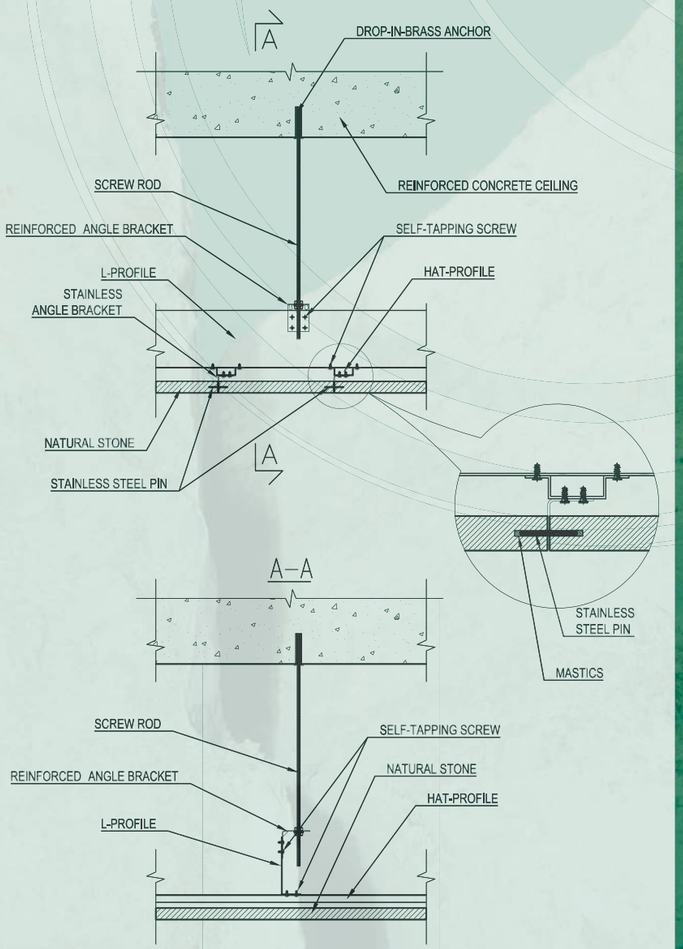
suspended ceilings
from natural stone panels

2.4. suspended ceilings

- It is possible to install suspended ceilings, either of different shapes or modulated, from natural stone panels to non-insulated or insulated ceilings.

Choice of materials:

- the chosen stone must correspond to the technical requirements depending on the location, in external conditions the stone must also correspond to the local weather conditions.
- the thickness of the stone (3–4 cm) is determined by the dimensions, function, density, and compression strength of the stone.



Installing to ceilings:

- installed to ceilings with brass anchors and stainless steel thread battens.

Plate anchor fixing:

- Natural stone panels are attached to the anchors with stainless steel splines that are inserted in the holes drilled 10–20 cm away from the corners of the panel. The diameter of the hole must be 0.5–3 mm bigger than the diameter of the spline.

Installation holes must be drilled as follows:

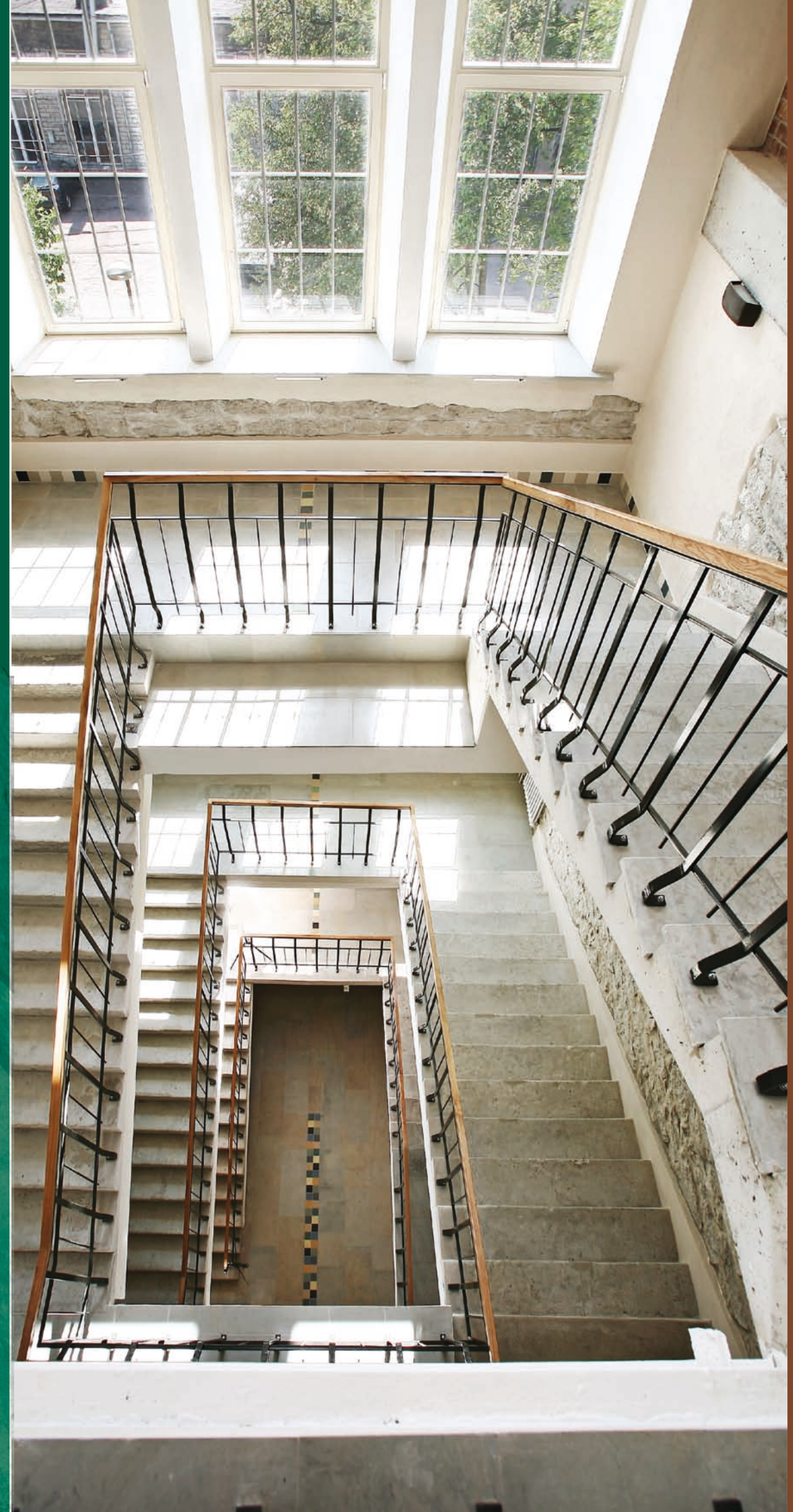
- The axis of the hole must be in the centre of the panel thickness, and about L/5 away from the corners.
- The thickness of the remaining stone from the edge of the hole to the edge of the panel must be at least 10 mm in the case of a 3 cm panel.
- The depth of the hole must be at least 30 mm, and it should be 5 mm deeper than the end of the spline inserted in the stone.

Adjusting splines:

- splines can be adjusted in both directions when the hole of the spline is up to 10 mm deeper.
- before inserting the spline, the hole is filled with a special mixture or mastic.

JOINTS:

- They may be left open or filled with elastic mastic (for example urethan mastics, but not mastics that contain silicone oil, these will later leave a thin, dark, oily marks around the edges of panels).



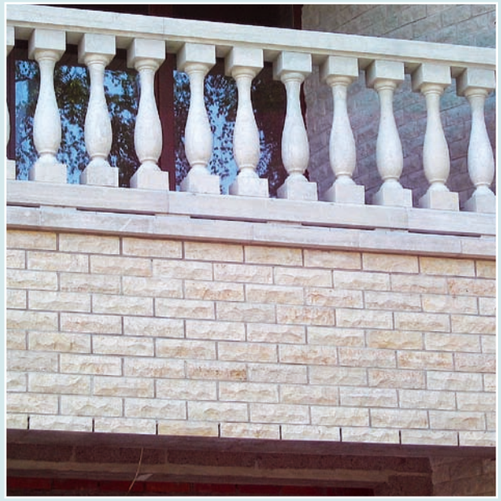
REVAL STONE

uses

Uses

P: possible uses	Honed	Roug graund	Polished	Antic	Bush-ham.	Split	Chiseled	Tooled	Scabbled
KAARMA	P				P				
ORGITA	P				P				
REVAL	P		P	P	P				
VASALEMMA	P		P						
SELGASE	P				P				
GASELL	P		P						

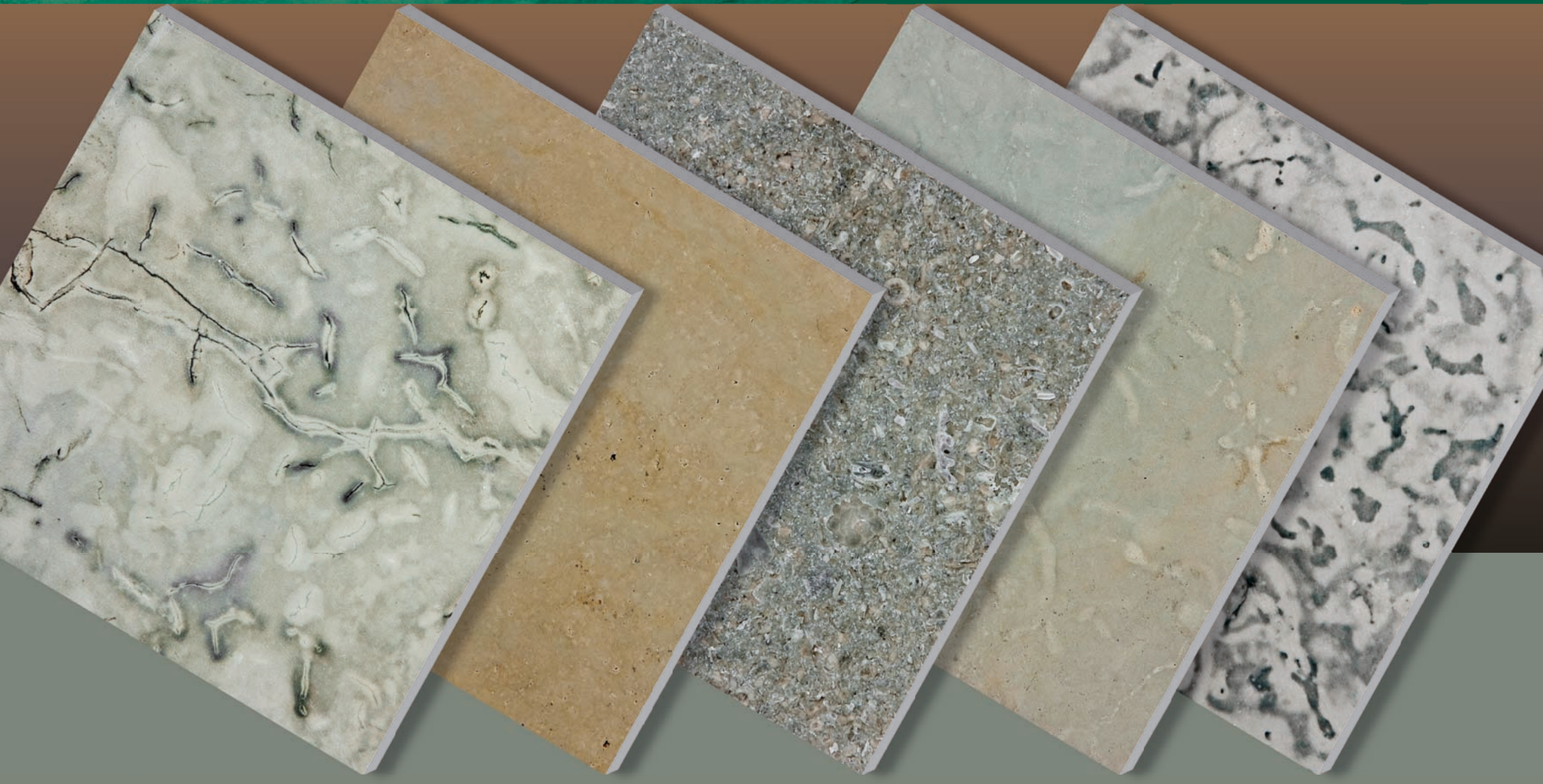
P: possible uses	Split-face outside	Facade cove-rings outside	Facade cove-rings inside	Rock face	Floorings and stains inside	Floorings and stains outside	Sawn and splitted inside	Sawn and splitted outside	Pavings and fences	Fireplaces
KAARMA	P	P	P	P		P	P	P	P	P
ORGITA	P	P	P	P	P	P	P	P		P
REVAL	P		P	P	P		P			P
VASALEMMA		P	P		P		P			P
SELGASE	P	P	P	P	P		P	P		P
GASELL			P		P					P








STONES



stones

Kaarma

Orgita mix

1. **Material:** Kaarma dolomite
2. **Source:** Kaarma quarry, Saaremaa, Estonia
3. **Producer:** Saare Dolomiit-Väokivi Ltd.
4. **Surface:** sawn/worked
5. **Physical characteristics:**

	Properties/characteristics	Test method in accordance with	KAARMA dolomite
1	Flexural strength, MPa	EN 12372	8,3
2	Breaking load at a dowel hole, N	EN 13364	1450
3	Water absorption at atmospheric pressure, %	EN 13755	8,9
4	Water absorption by capillarity, $g/m^2s0,5$	EN 1925	89,537
5	Apparent density, kg/m^3	EN 1936	2220
6	Open porosity, %	EN 1936	21,9
7	Frost resistance, cycles	EN 12371	48
8	Thermal shock resistance (change of mass), %	EN 14066	0,06
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	170/135
10	Abrasion resistance, mm	EN 14157	19,5
11	Slip resistance dry/wet	EN 14231	68,1/57,9
12	Pressure strenght/sesistance	Mpa EN 1926:1999	48

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Orgita blue

1. **Material:** Orgita dolomite
2. **Source:** Orgita quarry, Estonia
3. **Producer:** Saare Dolomiit-Väokivi Ltd.
4. **Surface:** honed/worked
5. **Physical characteristics:**

	Properties/characteristics	Test method in accordance with	ORGITA dolomite
1	Flexural strength, MPa	EN 12372	16,3
2	Breaking load at a dowel hole, N	EN 13364	2000
3	Water absorption at atmospheric pressure, %	EN 13755	4,8
4	Water absorption by capillarity, g/m²s0,5	EN 1925	16,561
5	Apparent density, kg/m3	EN 1936	2390
6	Open porosity, %	EN 1936	15,7
7	Frost resistance, cycles	EN 12371	48
8	Thermal shock resistance (change of mass), %	EN 14066	0,08
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	210/170
10	Abrasion resistance, mm	EN 14157	24,5
11	Slip resistance dry/wet	EN 14231	61,5/51,2
12	Pressure strenght/resistance	Nr. RTE 1627/02	65

Stone Pole Laboratorio – Certificate nr.2C 14/06
VTT Technical Reserch Centre of Finland

Orgita yellow

1. **Material:** Orgita dolomite
2. **Source:** Orgita quarry, Estonia
3. **Producer:** Saare Dolomiit-Väokivi Ltd.
4. **Surface:** honed/worked
5. **Physical characteristics:**

	Properties/characteristics	Test method in accordance with	ORGITA dolomite
1	Flexural strength, MPa	EN 12372	16,3
2	Breaking load at a dowel hole, N	EN 13364	2000
3	Water absorption at atmospheric pressure, %	EN 13755	4,8
4	Water absorption by capillarity, g/m²s0,5	EN 1925	16,561
5	Apparent density, kg/m3	EN 1936	2390
6	Open porosity, %	EN 1936	15,7
7	Frost resistance, cycles	EN 12371	48
8	Thermal shock resistance (change of mass), %	EN 14066	0,08
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	210/170
10	Abrasion resistance, mm	EN 14157	24,5
11	Slip resistance dry/wet	EN 14231	61,5/51,2
12	Pressure strenght/resistance	Nr. RTE 1627/02	65

Stone Pole Laboratorio – Certificate nr.2C 14/06
VTT Technical Reserch Centre of Finland

Selgase mix

1. **Material:** Orgita dolomite
2. **Source:** Orgita quarry, Estonia
3. **Producer:** Saare Dolomiit-Väokivi Ltd.
4. **Surface:** honed/worked
5. **Physical characteristics:**

	Properties/characteristics	Test method in accordance with	ORGITA dolomite
1	Flexural strength, MPa	EN 12372	16,3
2	Breaking load at a dowel hole, N	EN 13364	2000
3	Water absorption at atmospheric pressure, %	EN 13755	4,8
4	Water absorption by capillarity, g/m²s0,5	EN 1925	16,561
5	Apparent density, kg/m3	EN 1936	2390
6	Open porosity, %	EN 1936	15,7
7	Frost resistance, cycles	EN 12371	48
8	Thermal shock resistance (change of mass), %	EN 14066	0,08
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	210/170
10	Abrasion resistance, mm	EN 14157	24,5
11	Slip resistance dry/wet	EN 14231	61,5/51,2
12	Pressure strenght/resistance	Nr. RTE 1627/02	65

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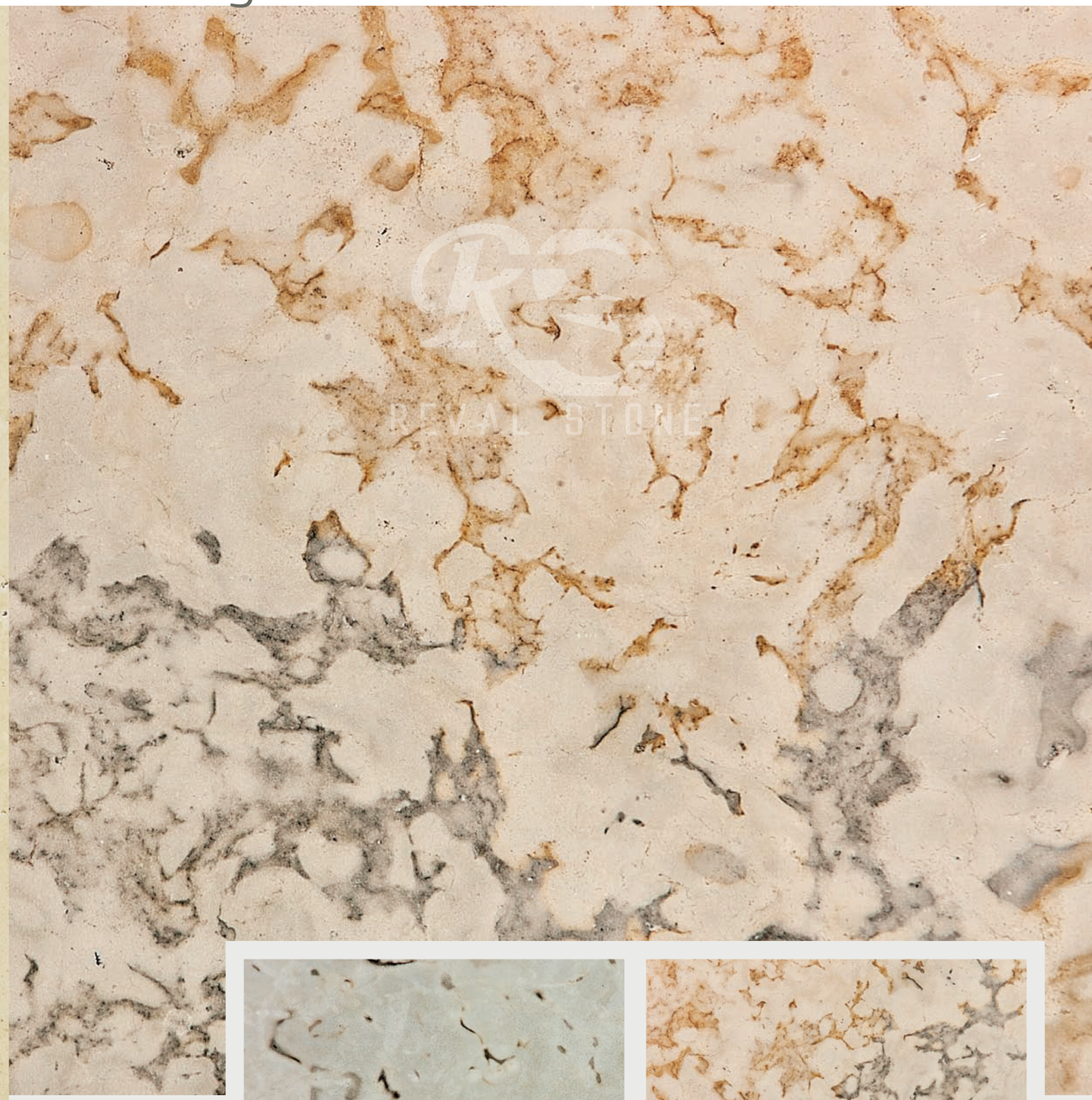

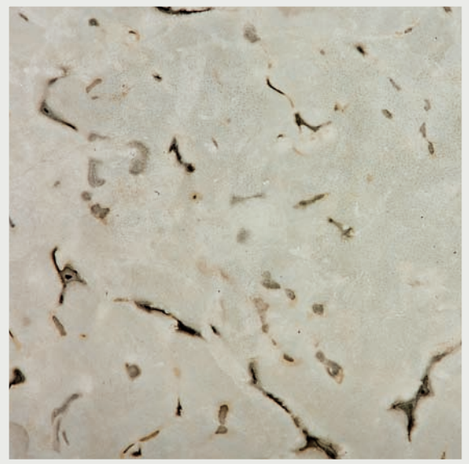

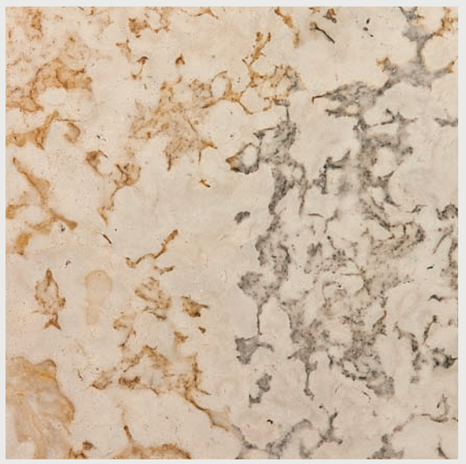

Selgase blue

1. **Material:** Selgase dolomite
2. **Source:** Selgase quarry, Estonia
3. **Producer:** Saare Dolomiit - Väokivi Ltd.
4. **Surface:** honed/worked
5. **Physical characteristics:**

	Properties/characteristics	Test method in accordance with	SELGASE dolomite
1	Flexural strength, MPa	EN 12372	10,4
2	Breaking load at a dowel hole, N	EN 13364	1300
3	Water absorption at atmospheric pressure, %	EN 13755	7,8
4	Water absorption by capillarity, g/m²s0,5	EN 1925	61,329
5	Apparent density, kg/m3	EN 1936	2230
6	Open porosity, %	EN 1936	21,7
7	Frost resistance, cycles	EN 12371	48
8	Thermal shock resistance (change of mass), %	EN 14066	0,08
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	175/137
10	Abrasion resistance, mm	EN 14157	20,5
11	Slip resistance dry/wet	EN 14231	67/56,2

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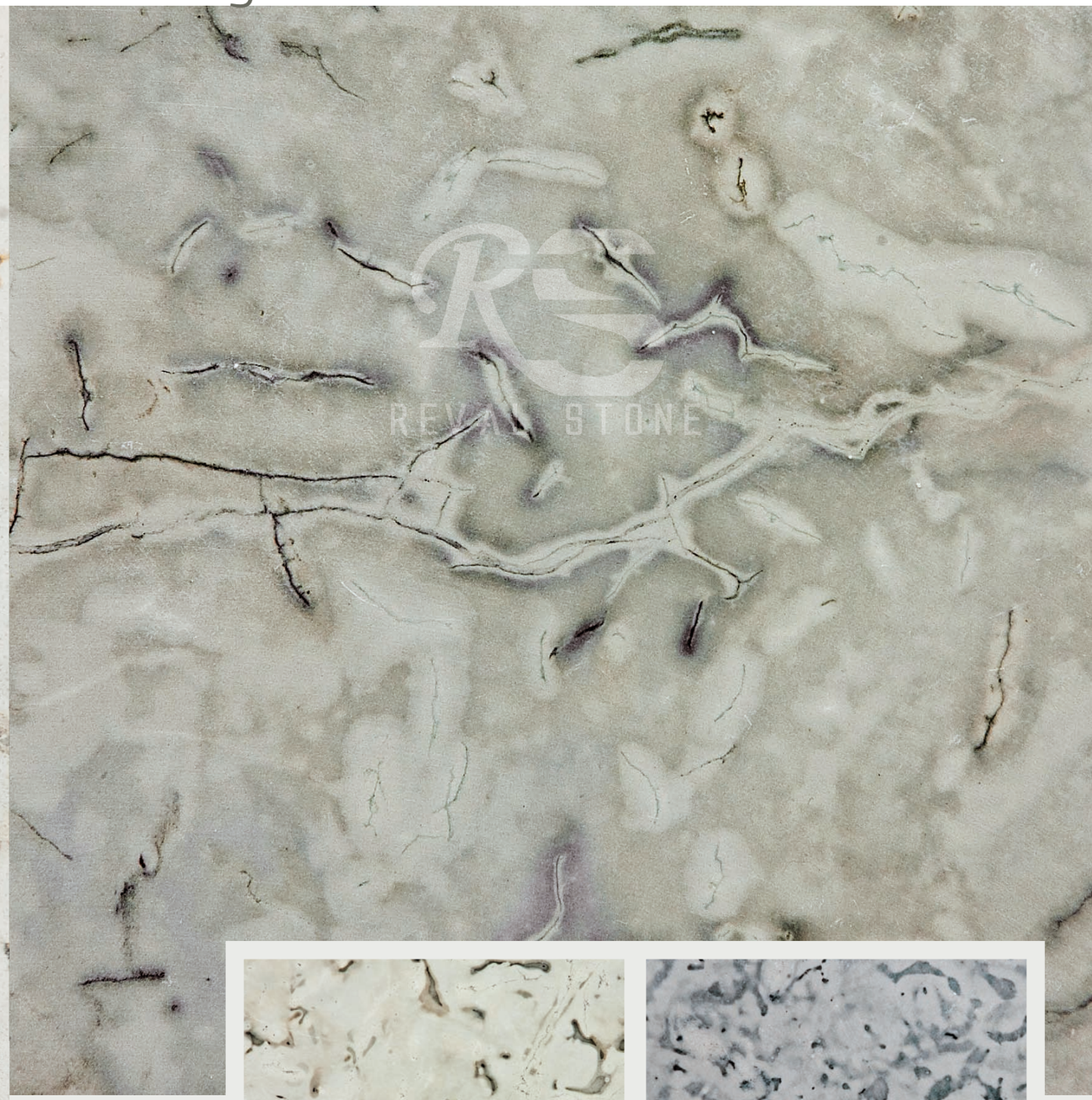
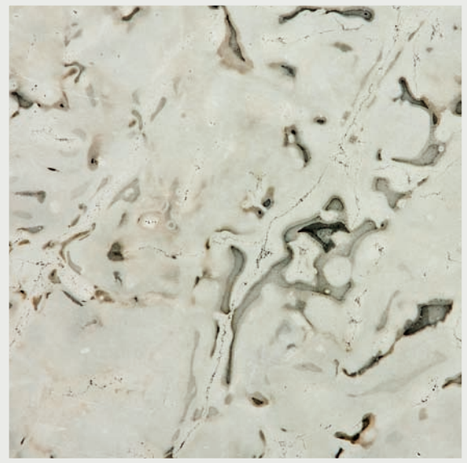
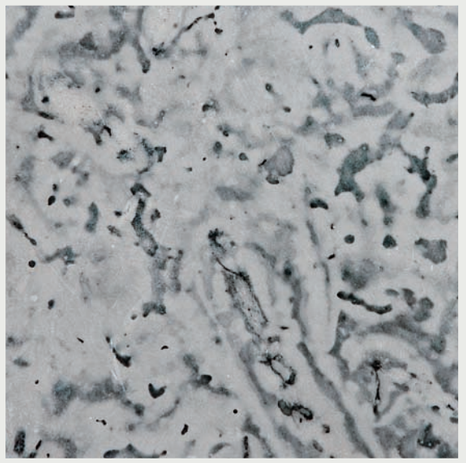




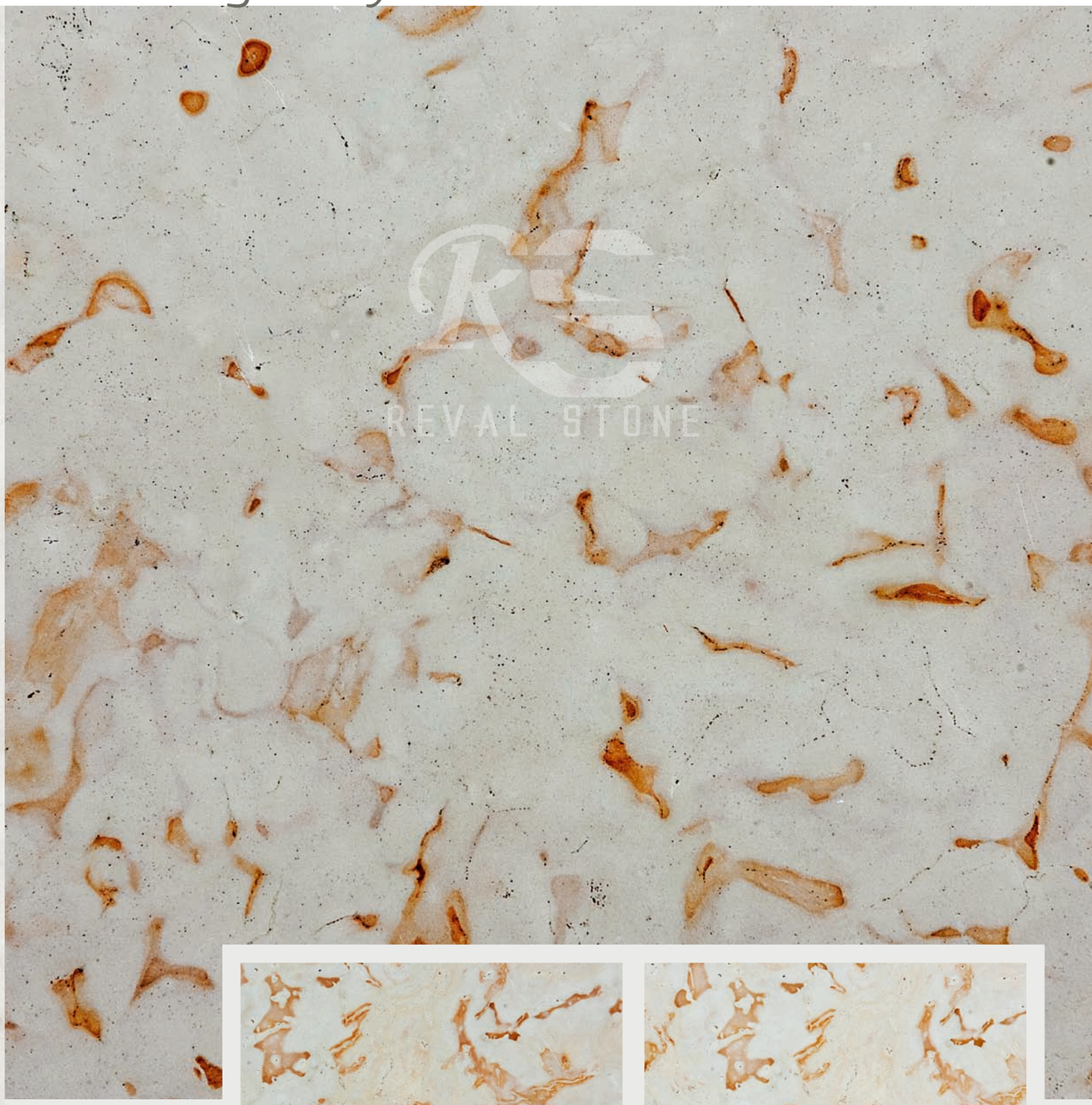


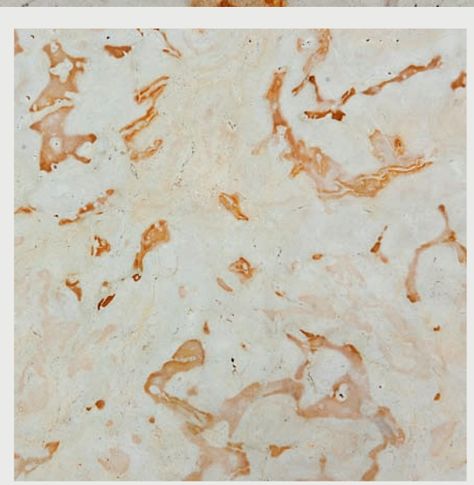
Selgase yellow

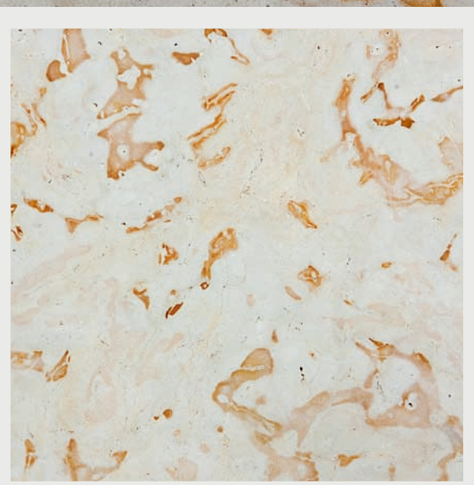
1. **Material:** Selgase dolomite
2. **Source:** Selgase quarry, Estonia
3. **Producer:** OÜ Saare Dolomiit - Väokivi Ltd.
4. **Surface:** honed/worked
5. **Physical characteristics:**

	Properties/characteristics	Test method in accordance with	SELGASE dolomite
1	Flexural strength, MPa	EN 12372	10,4
2	Breaking load at a dowel hole, N	EN 13364	1300
3	Water absorption at atmospheric pressure, %	EN 13755	7,8
4	Water absorption by capillarity, g/m²s0,5	EN 1925	61,329
5	Apparent density, kg/m3	EN 1936	2230
6	Open porosity, %	EN 1936	21,7
7	Frost resistance, cycles	EN 12371	48
8	Thermal shock resistance (change of mass), %	EN 14066	0,08
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	175/137
10	Abrasion resistance, mm	EN 14157	20,5
11	Slip resistance dry/wet	EN 14231	67/56,2

Stone Pole Laboratorio – Certificate nr.4C 14/06





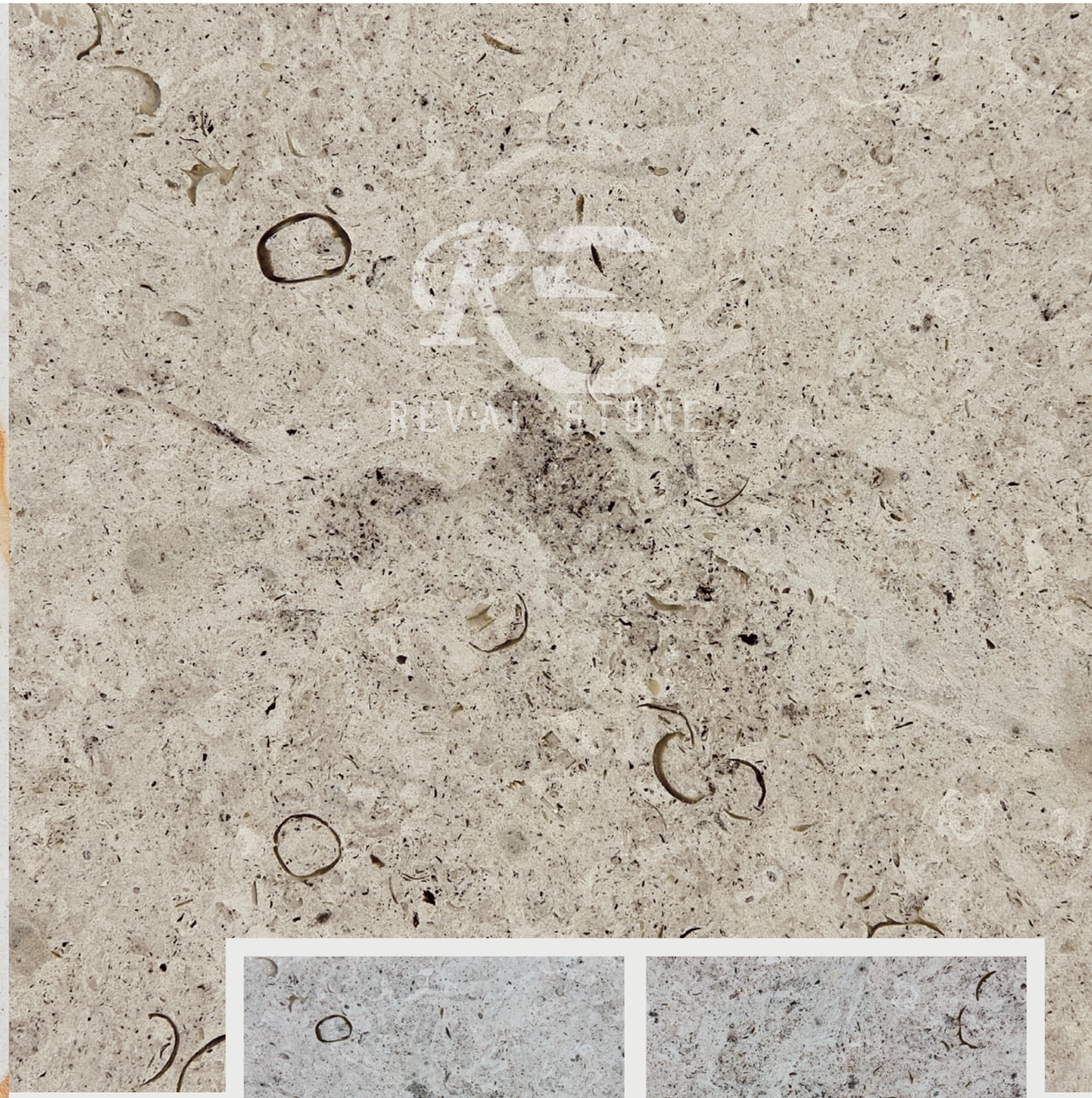


Reval

1. **Material:** Selgase dolomite
2. **Source:** Selgase quarry, Estonia
3. **Producer:** Saare Dolomiit - Väokivi Ltd.
4. **Surface:** honed/worked
5. **Physical characteristics:**

	Properties/characteristics	Test method in accordance with	SELGASE dolomite
1	Flexural strength, MPa	EN 12372	10,4
2	Breaking load at a dowel hole, N	EN 13364	1300
3	Water absorption at atmospheric pressure, %	EN 13755	7,8
4	Water absorption by capillarity, g/m²s0,5	EN 1925	61,329
5	Apparent density, kg/m3	EN 1936	2230
6	Open porosity, %	EN 1936	21,7
7	Frost resistance, cycles	EN 12371	48
8	Thermal shock resistance (change of mass), %	EN 14066	0,08
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	175/137
10	Abrasion resistance, mm	EN 14157	20,5
11	Slip resistance dry/wet	EN 14231	67/56,2

Stone Pole Laboratorio – Certificate nr.4C 14/06

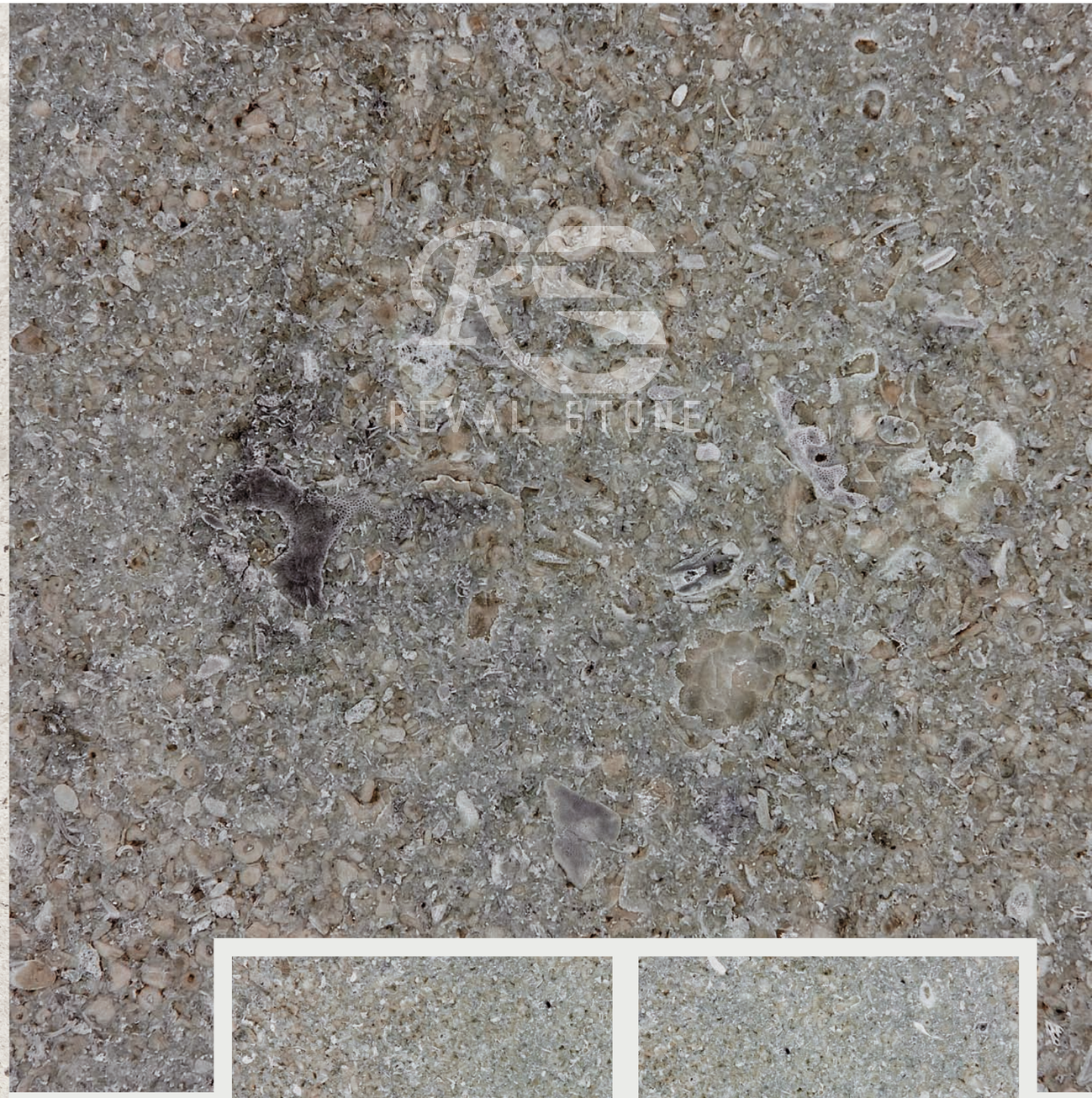


Vasalemma

1. **Material:** Reval limestone
2. **Source:** Reval quarry, Estonia
3. **Producer:** Saare Dolomiit-Väokivi Ltd.
4. **Surface:** honed/worked
5. **Physical characteristics:**

	Properties/characteristics	Test method in accordance with	REVAL limestone
1	Flexural strength, MPa	EN 12372	17,4
2	Breaking load at a dowel hole, N	EN 13364	
3	Water absorption at atmospheric pressure, %	EN 13755	0,9
4	Water absorption by capillarity, g/m²s0,5	EN 1925	1,654
5	Apparent density, kg/m3	EN 1936	2650
6	Open porosity, %	EN 1936	2,6
7	Frost resistance, cycles	EN 12371	48
8	Thermal shock resistance (change of mass), %	EN 14066	0,04
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	255/203
10	Abrasion resistance, mm	EN 14157	19,5
11	Slip resistance dry/wet	EN 14231	55,7/35,6
12	Pressure strenght/resistance	EN 1926:1999	101

Stone Pole Laboratorio – Certificate nr.3C 14/06
Centre of Building Test protocol 428/2000

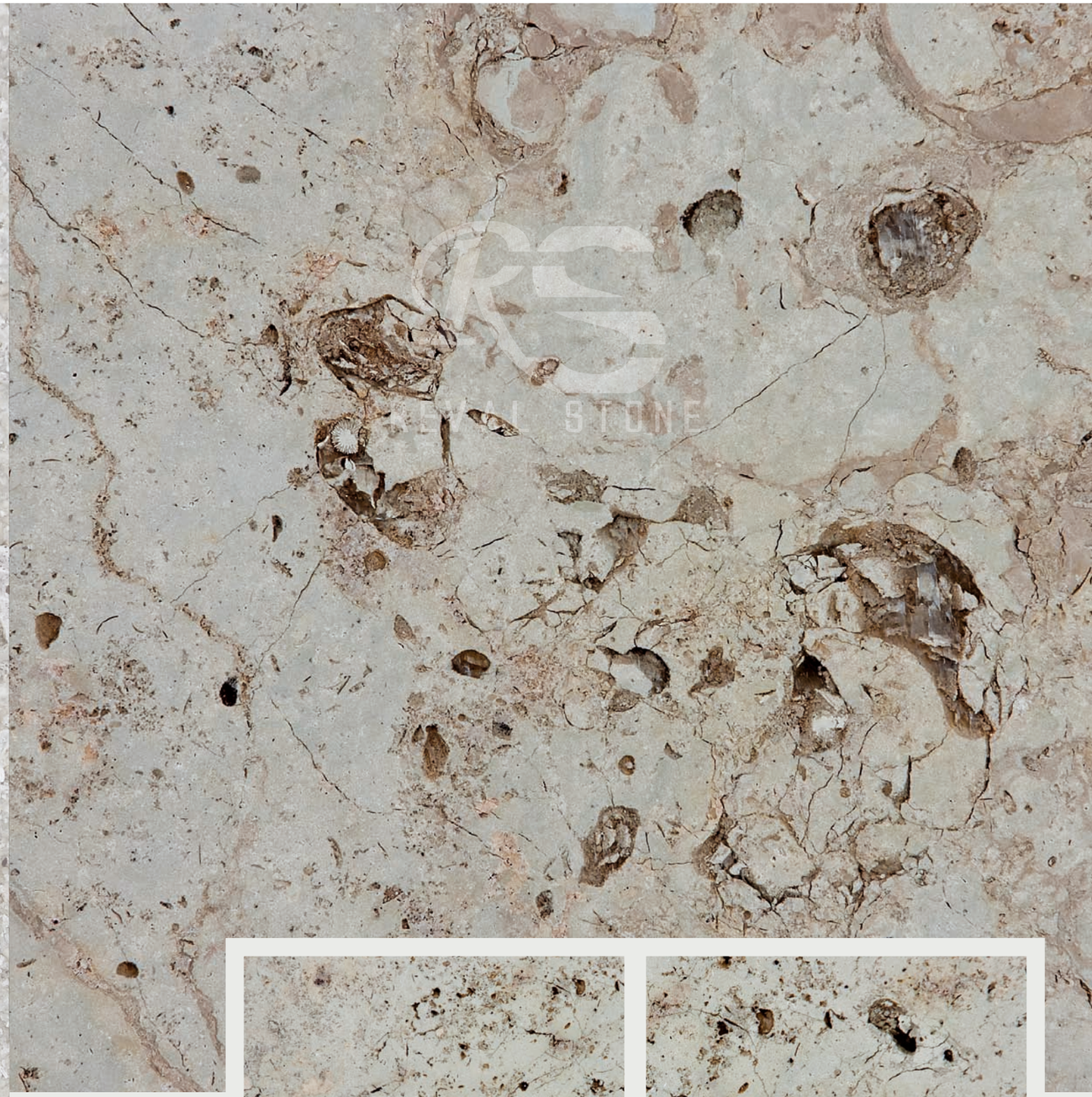


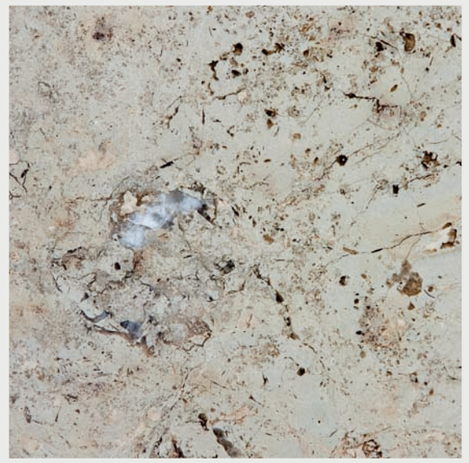
Gasell

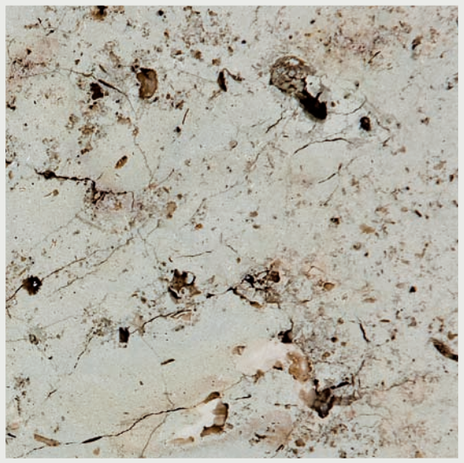
1. **Material:** Vasalemma limestone
2. **Source:** Vasalemma quarry, Estonia
3. **Producer:** Saare Dolomiit - Väokivi Ltd.
4. **Surface:** honed/worked
5. **Physical characteristics:**

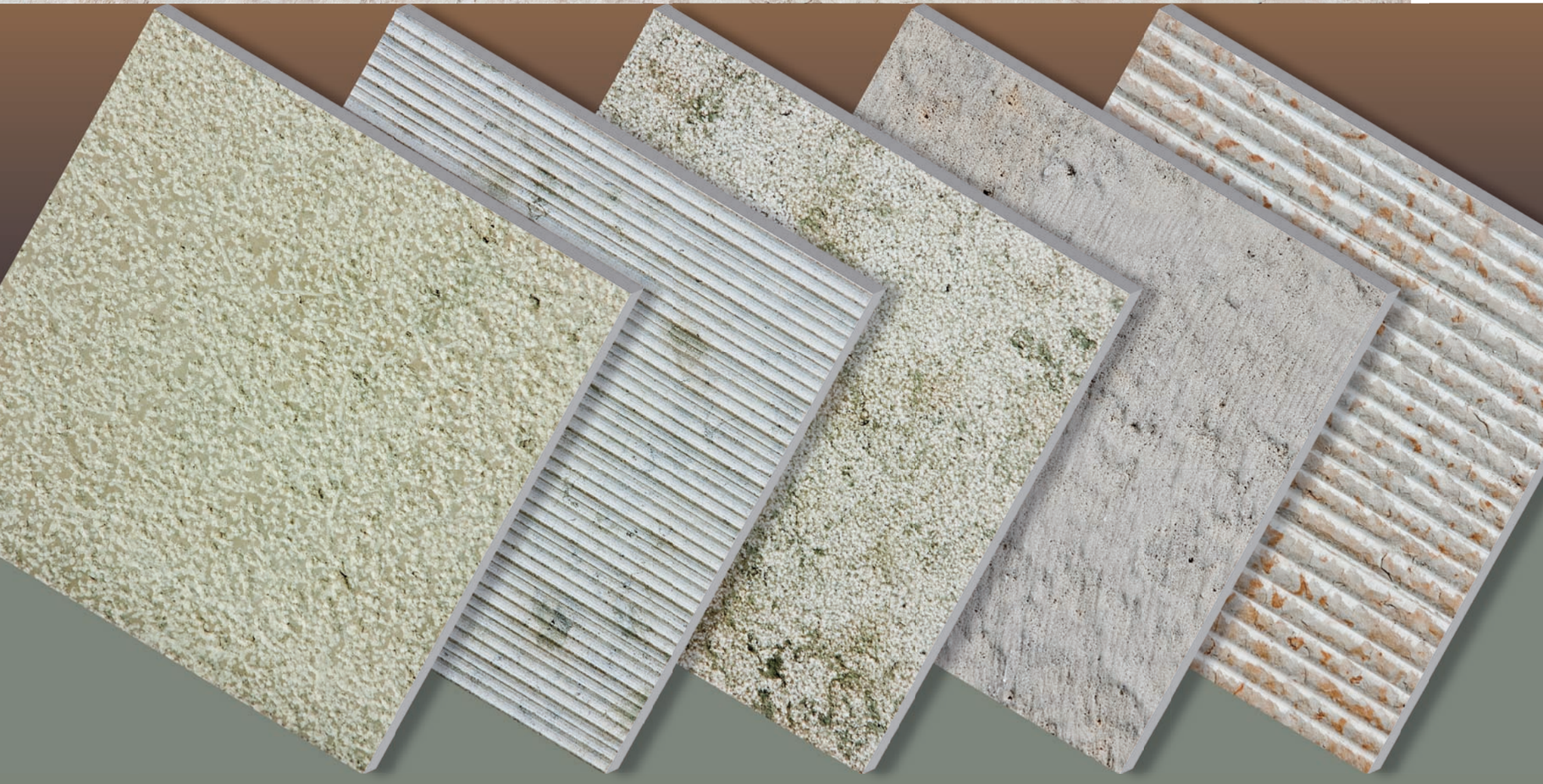
	Properties/characteristics	Test method in accordance with	VASALEMMA dolomite
1	Flexural strength, MPa	EN 12372	16,5
2	Breaking load at a dowel hole, N	EN 13364	2000,0
3	Water absorption at atmospheric pressure, %	EN 13755	2,0
4	Water absorption by capillarity, g/m²s0,5	EN 1925	2,8
5	Apparent density, kg/m3	EN 1936	2600,0
6	Open porosity, %	EN 1936	4,6
7	Frost resistance, cycles	EN 12371	4,8
8	Thermal shock resistance (change of mass), %	EN 14066	0,06
9	Water vapour permeability, μ (dry/wet)	EN 12524 or EN ISO 12572	230/180
10	Abrasion resistance, mm	EN 14157	22,0
11	Slip resistance dry/wet	EN 14231	61/51

Stone Pole Laboratorio – Certificate nr.5C 14/06

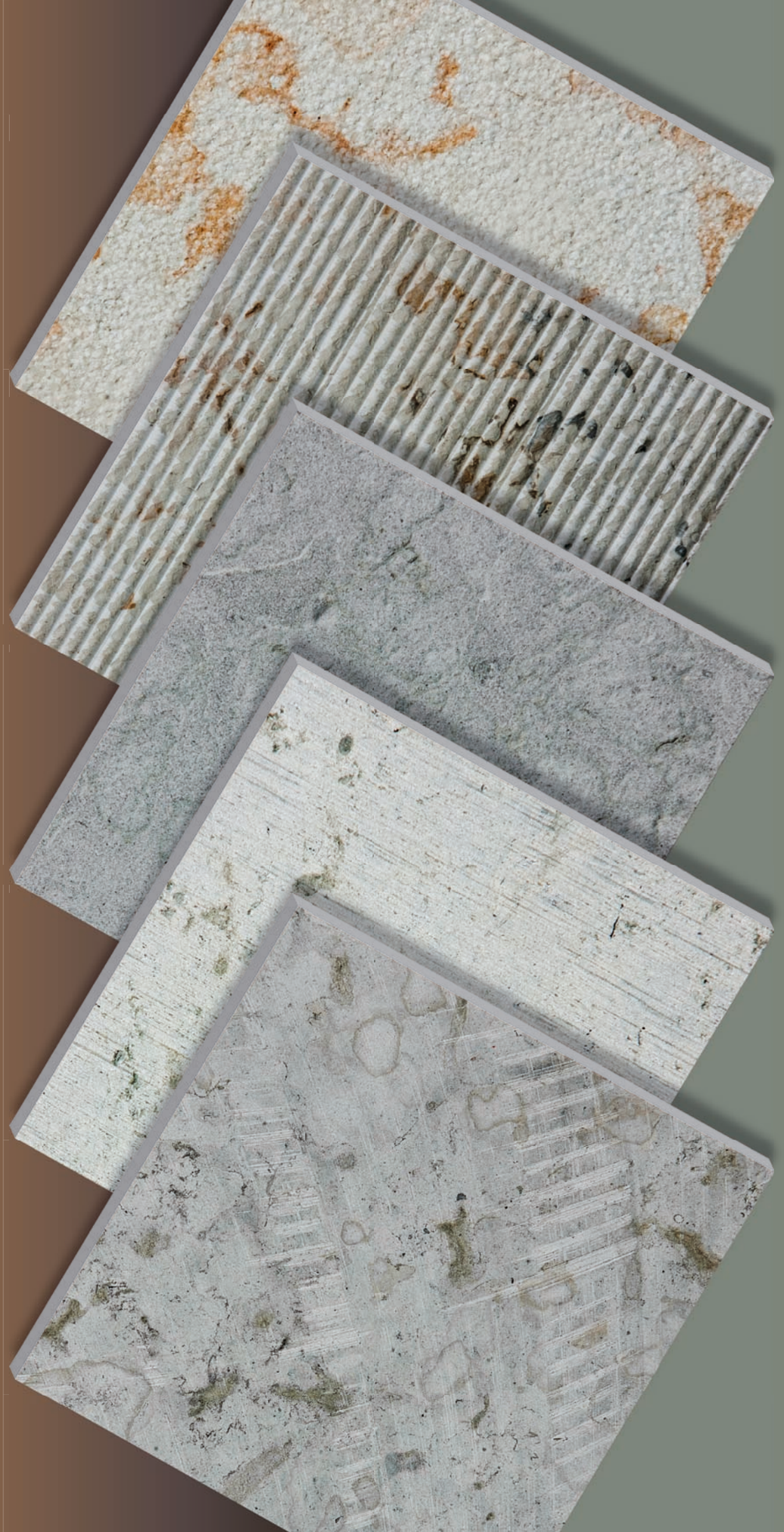








finishes



Selgase mix tooled

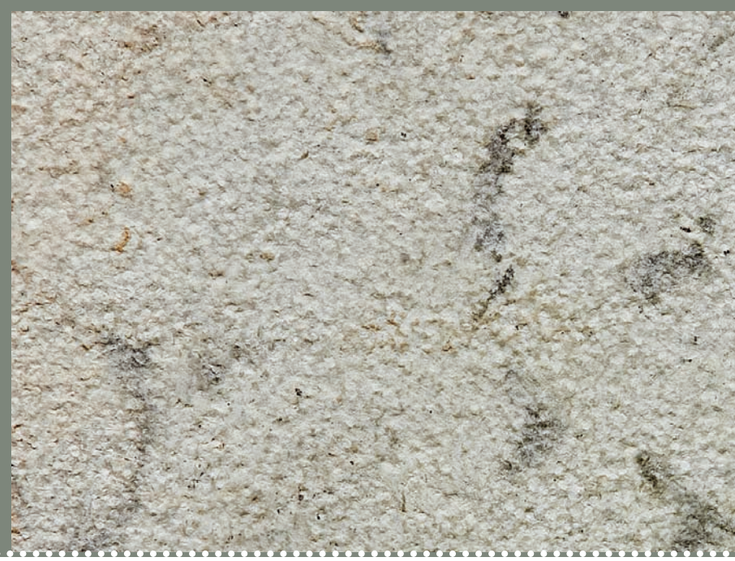
Flat finished composed of fine parallel ribbing, 1 to 2 deep, between which the ridge has a rough split texture.

Selgase yellow tooled

Flat finished composed of fine parallel ribbing, 1 to 2 deep, between which the ridge has a rough split texture.

Selgase bush-hammered

Finish by hitting the stone with a bush-hammer (a special hammer with a grooved head comprised of 16 to 64 teeth) which leaves a rough but consistent grid texture of 1 or 3 mm deep



Reval antique

Antique surface looks weared. Usually the sawn surface is treated with abrasive brushes. Can be also sand-blasted and brushed or flamed and brushed. Generally silky rough surface.

Kaarma tooled

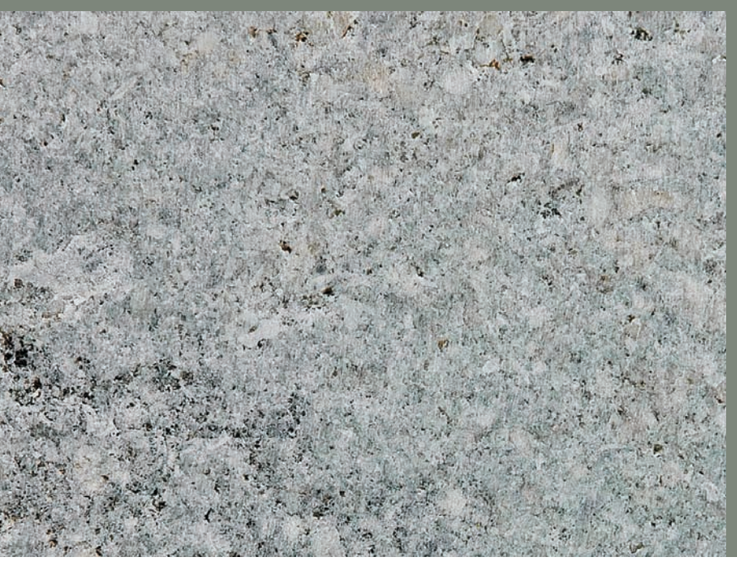
Flat finished composed of fine parallel ribbing, 1 to 2 deep, between which the ridge has a rough split texture.

Selgase yellow bush-hammered

Finish by hitting the stone with a bush-hammer (a special hammer with a grooved head comprised of 16 to 64 teeth) which leaves a rough but consistent grid texture of 1 or 3 mm deep

Orgita bush-hammered

Finish by hitting the stone with a bush-hammer (a special hammer with a grooved head comprised of 16 to 64 teeth) which leaves a rough but consistent grid texture of 1 or 3 mm deep



Vasalemma antique

Antique surface looks weared. Usually the sawn surface is treated with abrasive brushes. Can be also sand-blasted and brushed or flamed and brushed. Generally silky rough surface.

Orgita tooled

Flat finished composed of fine parallel ribbing, 1 to 2 deep, between which the ridge has a rough split texture.

Reval antique

Antique surface looks weared. Usually the sawn surface is treated with abrasive brushes. Can be also sand-blasted and brushed or flamed and brushed. Generally silky rough surface.

Reval clawed

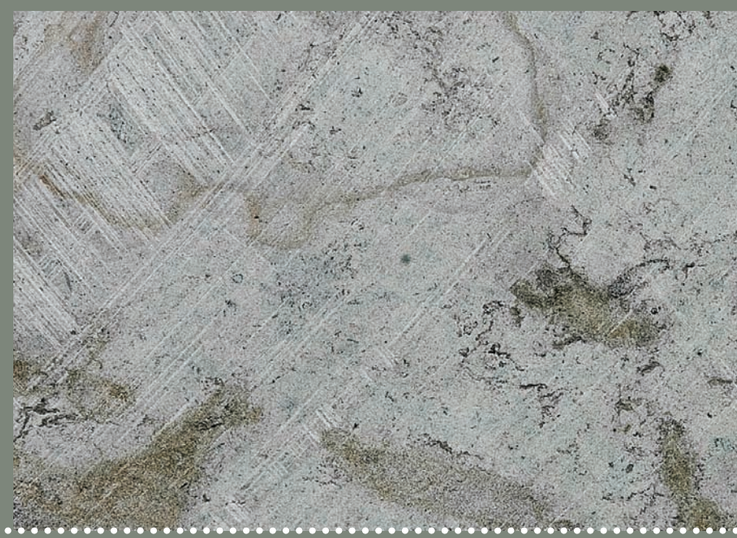
Flat finish made up of grooves, 1 to 5 mm deep, between which the rough split texture remains.

Reval mechanically picked

A bush-hammer fitted with chissels attacks the sawn slab, perpediculary to the surface, giving the finish its characteristic flat profile. The machine´s automatic feed ensures that the textures are parallel and regulary speced.

Reval sawn

Primery surface, may have the stripes or curved tracks from cutting tool.



Reval bush-hammered

Finish by hitting the stone with a bush-hammer (a special hammer with a grooved head comprised of 16 to 64 teeth) which leaves a rough but consistent grid texture of 1 or 3 mm deep

Reval polished

Finish with a smooth: shiny surface reflecting the light, without any visible scratches.

split-face outside

Split-face

Rock-face looking stone finish made by chiselling the edges of the stone.

Natural rock

Selgase mix slite face

Selgase
yellow
splite face

Reval rock

Orgita
mix splite
face

Reval
sawn

Reval
splite face

Kaarma
splite face