RUSTIKAMEN

Technical manual

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Rustik kamen

I. The most authentic decorative stone

Rustik kamen d.o.o. manufactures the most authentic, environmentally friendly manufactured stone in this region. Rustik kamen is concrete made from Portland cement, lightweight aggregate and colourfast mineral oxide pigments. Made exclusively from natural materials, each stone is carefully coloured by hand and transformed into a premium, entirely unique product. This enables Rustik kamen to achieve a high degree of perfection and authenticity.

Shape and size. Manufactured stone comes in various shapes and sizes. Each shape has a series of moulds made from natural stone, each different. For example, the Garda model has 400 different pieces in 10 m^2 of moulds and is available in 6 different colours.

Weight and thickness. Rustik kamen weighs 25—45 kg/m^2, depending on the model. Rustik kamen is 2—6 cm thick, while Rustik opeka is 1,5—3 cm thick.

Models and relief. We currently offer 14 models of stone cladding, brick and flooring, differing in size and shape. The relief deserves special mention: even the smallest details are visible, which is essential for authenticity.

Patina and shading. We make manufactured stone in 6 basic colours which, like the models, can be mixed (except panel models). Natural stone is characterised by different shades and shadows. We have faithfully reproduced these in the Rustik kamen collection, also matching the grout colours to the stone colours for models with joints.

Finally. Rustik kamen invested expertise, experience, time and resources to perfect and offer a top-quality product that is very easy to install. Our expert instructions and various installation techniques turn the installer into an artist and add value to the building far beyond the investment.

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COMPOSITION

— white cement
— lightweight aggregate
— sand
— various additives
— mineral oxide pigments

CERTIFICATES

— IGH technical specification: HRN EN 771-5:2005
— ISO 9001 - quality management system, CERTIFICATE NO.: CR17557Q/1
— ISO 14001 - environmental management system, CERTIFICATE NO.: CR17557E/2
— CE mark - proof of technical compliance with EU standards and no harm to health or the environment, CERTIFICATE NO.: 111114/RK806

STANDARDS

— HRN EN 772-1:2003 – compressive strength
— HRN EN 772-11:2003/A1:2004 – capillary water absorption
— HRN EN 772-13:2003 – dry bulk density
— HRN EN 772-16:2003/A1:2006/A2:2006 – masonry unit dimensions
— HRN EN 12372:1999/AC:2003 – flexural strength
— HRN B.D.8.011 – freeze/thaw resistance

PHYSICAL AND MECHANICAL PROPERTIES

— compressive strength (N/mm^2): 16,8, normalised
— capillary water absorption (g/m^2s): 1,83, satisfactory
— dry bulk density (kg/m^3): 1232
— shape and dimensions: units of various shapes and sizes with an irregular/profiled surface
— freeze/thaw resistance: withstands 50 freeze/thaw cycles without flaking, disintegration or damage
— water absorption (%): 16,0
— flexural strength (N/mm^2): 4,9

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Rustik kamen
Product advantages
II. and possibilities

1. **LIGHTWEIGHT**

Rustik kamen wall cladding, installed with all required materials including adhesive and grout (for jointed models), weighs 40-65 kg/m^2, compared with 600-700 kg/m^2 for natural stone. This makes it ideal for cladding lightweight structures such as thermal insulation, render, load-bearing panels and mobile structures. Bonding Rustik kamen to vertical surfaces requires no additional reinforcement, anchoring or foundations, even at considerable heights.

2. **BREATHABLE**

Rustik kamen guarantees the use of only top-quality natural materials and a breathable product. Walls clad with Rustik kamen breathe, stay dry and naturally release condensation. In this way Rustik kamen enhances the properties of external thermal insulation.

3. **FIRE RESISTANCE**

Experiments with density and porosity achieved a balance between resistance and thermal changes, making Rustik kamen ideal for covering and protecting any type of thermal insulation. Under sudden climate-related temperature changes, it takes a long time to heat up and cool down. In a fire-resistance test, EPS clad (protected) with Rustik kamen showed no damage or deformation after one and a half hours of exposure to an open flame at 900 °C.

4. **SMALL THICKNESS**

Rustik kamen products are 3-7 cm thick and brick slips 1,5-3 cm. Their much smaller thickness than natural stone does not impair aesthetics, function or technical properties. It considerably reduces the space needed compared with natural stone of equivalent properties.

5. **FROST RESISTANCE**

Rustik kamen provides a 30-year product warranty regardless of the installation climate. Tests and practical examples show resistance to low temperatures: our first installations, made 15 years ago, show no damage to this day. Micropores are a main reason for frost resistance. They leave enough space for absorbed water to expand when it freezes in winter, preventing damage.

6. **COLOUR FASTNESS**

Only quality, colourfast mineral oxide pigments are used in Rustik kamen. Due to natural chemical processes in the stone, weathering takes 2 to 6 months to produce its final natural colour.

7. **ECO-FRIENDLY PRODUCT**

Rustik kamen products are made of natural materials. Only a few centimetres thick, they look like robust, much thicker natural stone. This helps reduce large-scale extraction of natural stone and protect the environment. Rustik kamen promotes natural materials while paying utmost attention to energy efficiency.

8. **PRACTICAL AND FAST**

Rustik kamen products are easy to install, and quantities can be calculated easily with minimal waste. Only basic building tools are needed. Boxed packaging makes it easy to carry the product to the installation area or scaffolding.

9. **AUTHENTIC AND NATURAL**

Mould-making technology, a superb natural look and manual production give the product the appearance of fine stonemasonry. Each product also has corner units that give walls a 3D effect, making them look like solid load-bearing natural stone walls.

10. **EXTENSIVE DESIGN POSSIBILITIES**

Rustik kamen products make it easy to create different design styles. Excellent technical properties, adapted to the latest building materials and systems, make it highly sought after for a modern look with strong character. Rustik kamen lets you create a unique design and express your personal vision of living and creativity.

11. **RICH IN SHADES THAT RECALL TIMES PAST**

Meticulous colouring makes Rustik kamen unique. Beyond faithfully imitating natural stone relief and texture, we pay special attention to colour. Its colour is durable, natural and authentic, suggesting stone that has been there for centuries. Typical rust and moss tones evoke the past and create a rustic effect that new dressed stone cannot provide. Such authentic colour requires exclusively manual colouring, making every stone unique.

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1. Basic information

This basic technical information and details are based on experience at various building sites and the use of manufactured decorative stone over the past 20 years. These are basic guidelines; every client, architect or installer may choose the solution they consider appropriate. Each building has many details that cannot all be foreseen. We therefore recommend professional inspection and advice for the details of each building.

Our staff check every order and delivery to ensure the packed model, colour and quantity match the label and accompanying documents. Boxes must arrive intact, with no visible damage. When goods are delivered by a carrier, the customer must inspect them on receipt, record any damage or irregularity with the driver and notify Rustik kamen d.o.o. Irregularities may be reported within 7 days; thereafter goods are deemed delivered in proper condition.

Rustik kamen accepts no claims for goods installed in part or in full.

Store goods on site where vehicles or machinery cannot damage them. Keep adhesive and grout protected from adverse weather, as excess moisture may harden the material.

Temperature and humidity changes affect manufactured stone as a result of its production process. Slight dark shading may occur naturally, as in natural stone. Order enough stone for all planned surfaces at once, since natural shades may vary slightly between batches. During installation, use stone from several boxes or pallets to provide more choice of shapes, arrangement and lighter or darker shades. Working with more boxes in front of you makes installation easier and faster and often gives a better-looking result.

Rustik kamen accepts no claims for colour changes caused by years of weathering, such as dust or salt deposits. This is natural: like natural stone, Rustik kamen absorbs such particles, and deposits create new shades and a rustic appearance.

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NOTES

— Rustik kamen does not strengthen the surface to which it is applied.

— When mounting suspended fixtures on Rustik kamen, ensure they are fixed directly to the load-bearing structure or wall.

— Rustik kamen and grout are not waterproof; the surface to be clad must be properly prepared. (See Chapter 3)

— Prevent water entering between the wall and Rustik kamen by using coping slabs, drip edges or waterproofing. (See Chapter 3)

— Do not use Rustik kamen where water constantly collects, runs or drips, or where salt is used to melt ice or snow, without first seeking advice on additional product protection.

— Constant, prolonged moisture exposure may cause dark surface stains. These result from a chemical reaction of water, minerals and alkalis in the product. They are not defects and are not grounds for a claim.

— Near the sea, where wind carries large quantities of salt, additional protection is needed, as with any natural material.

— Chlorine and other chemicals may change the colour of Rustik kamen.

IMPORTANT

— Rustik kamen uses only natural materials in production, enabling us to give a 30-year product warranty.

— Immediately after production, while still damp, Rustik kamen is packed in special moisture-resistant boxes with a chemical hardener. Further natural colouring and shading take place there, making the product as authentic as possible.

— This process takes several months and ends only when the stone is unpacked and installed. Initially its shading appears darker, but it lightens with time.

THE LONG DRYING PROCESS IS ESSENTIAL FOR NATURAL STONE COLOUR AND CONTRIBUTES TO PRODUCT AUTHENTICITY.

Note: Rustik kamen is supplied in secure waterproof packaging. In warm weather, condensation and salt deposits may form inside; they do not affect stone quality and quickly disappear once boxes are opened and stone installed.

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2. Calculating material quantities

Rustik kamen models fall into two main groups according to installation technique:

Stone and brick with joints	Stone without joints (panels)

Jointed models are packed and sold with joint spacing already included; other models are sold without gaps between stones. Average joint width is 1,5-2,5 cm for stone and 1-1,5 cm for brick. To install a jointed model without joints, order 15-20% more stone.

This packaging makes quantity calculations simple. Calculate flat units (m^2) for flat surfaces and corner units (m^1) for wall corners, columns, beams, lintels and reveals. No special software formulas are needed to calculate waste.

Products are packed by hand and mostly irregular in shape, so packaging tolerances of +/- 5% are allowed. Order a few percent extra for possible additional cutting.

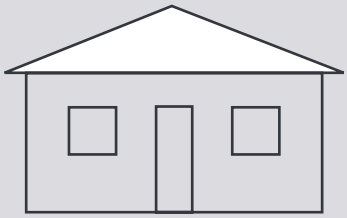
Columns or beams should have sides at least 25 cm wide for an authentic look. Narrower sides can be built out with polystyrene, plasterboard or similar.

1. Add all surfaces to be clad to obtain the total area. 2. Subtract windows, doors and openings to obtain the required flat units in m^2. 3. Add all corner lengths, including windows and doors, to obtain corner units in m^1. 4. Subtract the area covered by corners from the flat-unit quantity: multiply the required corner length by 0,25. Subtract this to obtain the actual flat-unit requirement.

0,25 m^2 = Average wall area covered by 1 m^1 of corner units

1.

Flat
surface area



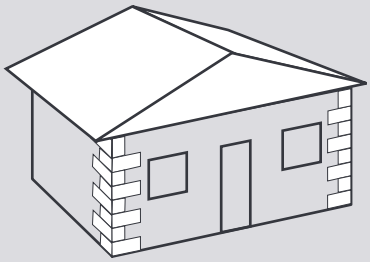
2.

Flat surface area
- Opening area (windows, doors, etc.)

= Required flat units

3.

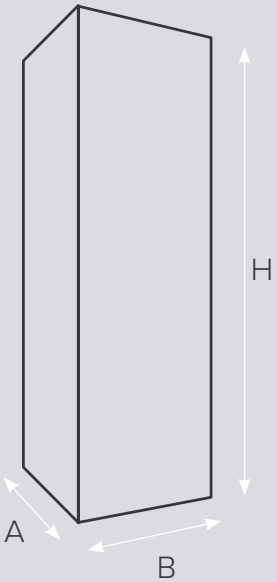
Corner units to order



4.

Required flat units
- Area covered by corner units

= Total flat units to order



MATERIAL CALCULATION FOR ONE COLUMN

A x H x 2 = X m^2 (Area of first two sides)
B x H x 2 = Y m^2 (Area of other two sides)

X + Y = E m^2 (Total column area)

H x 4 = Z m^1 (Corner length to order)

Z x 0,25 = D m^2 (Area covered by corners)

E - D = F m^2 (Flat-unit area to order)

AVERAGE ADHESIVE CONSUMPTION:

Stone
- Stone installation 6-7 kg/m^2
- Corner installation 2-3 kg/m^1

Brick
- Brick installation 5-6 kg/m^2
- Corner installation 1,5-2 kg/m^1

AVERAGE GROUT CONSUMPTION:

Stone
- Standard joint 7-8 kg/m^2
- Full joint 8-10 kg/m^2

Brick
- Standard joint 7-8 kg/m^2
- Full joint 8-10 kg/m^2

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3. Water resistance

Rustik kamen is not a waterproof wall cladding. It is made for low water absorption and high vapour permeability. Substrates must therefore be properly prepared to prevent water entering between the wall and cladding.

Rainwater drainage and waterproofing require careful design and execution. Poorly resolved details can cause moisture ingress into the wall and efflorescence on Rustik kamen.

Common details requiring attention:

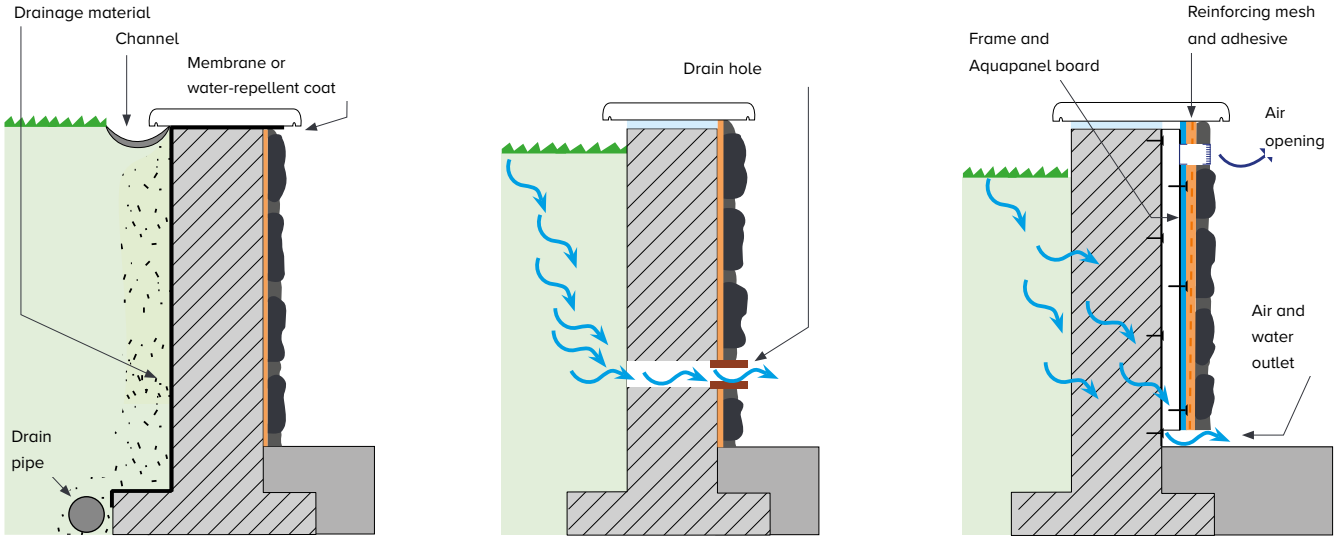
3.1. RETAINING WALLS
3.2. GUTTERS
3.3. TERRACES: PAVING AND PARAPETS
3.4. WALL TOPS WITH A DRIP EDGE
3.5. DOOR AND WINDOW JUNCTIONS
3.6. WALL TOPS PROTECTED WITH COPING SLABS

The following instructions offer preventive solutions based on many years of experience. The best solution for each detail must be specified by the designer, waterproofing manufacturer or a qualified professional.

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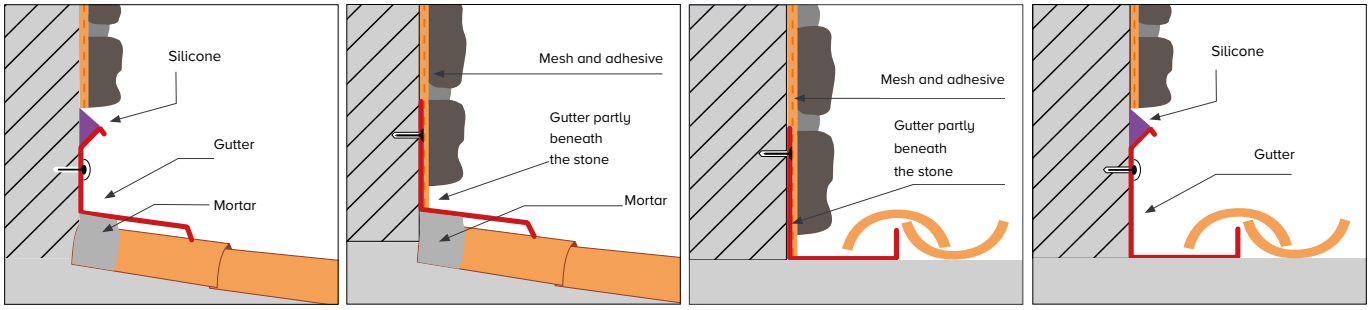
3.1. RETAINING WALLS

Waterproof retaining walls over their full height and length on the soil side; extending the waterproofing over the wall top is recommended. Natural or manufactured stone coping joints cannot provide a reliable seal, allowing water to enter from above. A damp retaining wall may cause serious structural, technical and aesthetic problems. Later repairs are expensive and cannot guarantee a permanent solution.



3.2. GUTTERS

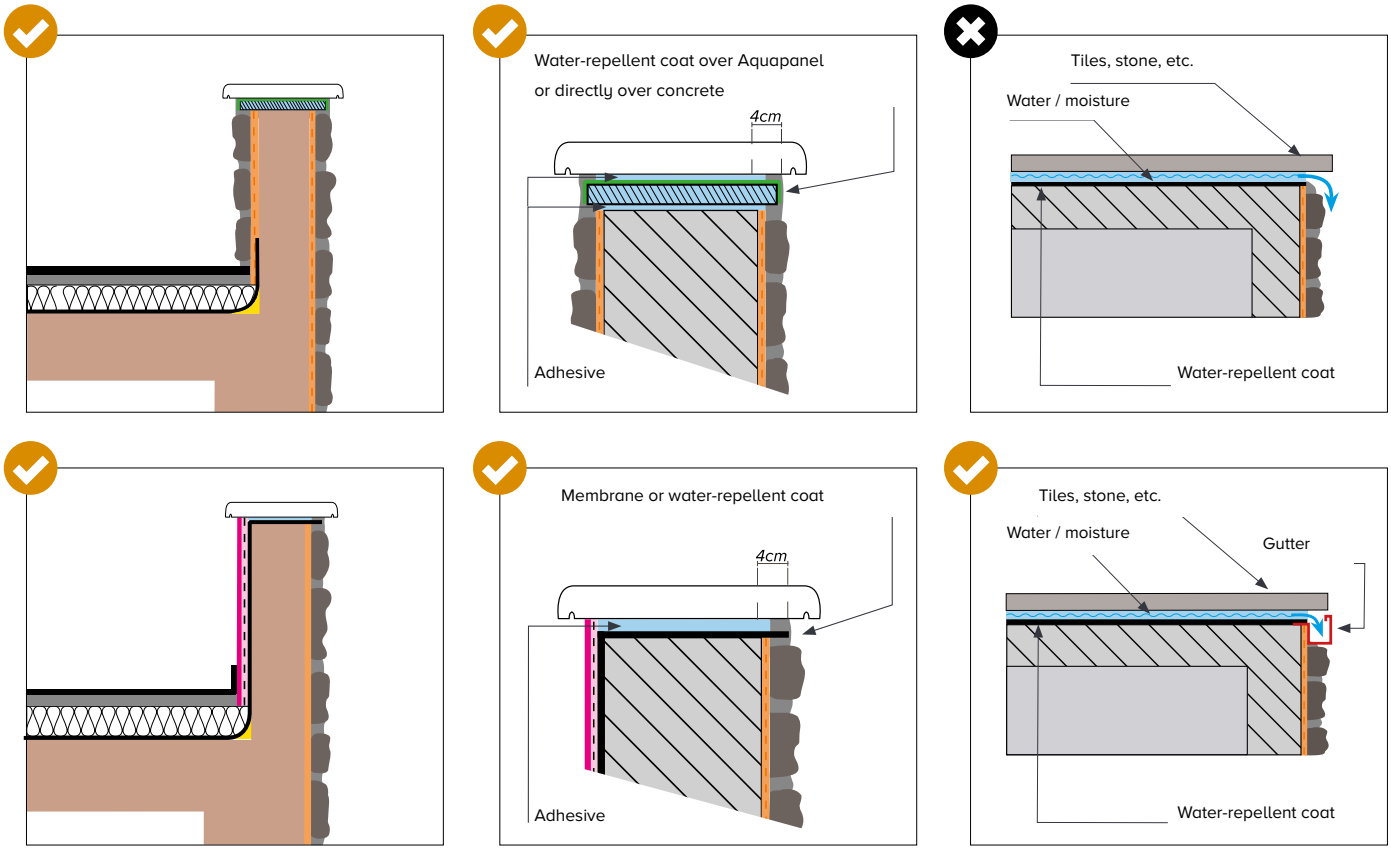
Preventing water ingress and accumulation behind the stone is essential for lasting adhesion. A well-designed drip edge that directs water away is the best solution. Always install drip edges before bonding Rustik kamen.



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3.3. TERRACES: PAVING AND PARAPETS

Terrace waterproofing can become a major problem if not properly executed from the start. Despite excellent modern materials, common mistakes persist: unskilled installers, breaks in waterproofing at horizontal/vertical junctions, or simple carelessness.

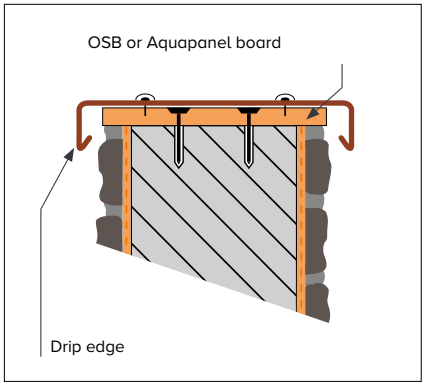


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3.4. WALL TOPS WITH A DRIP EDGE

The wall top is another critical point. We recommend a drip edge projecting far enough from the wall to prevent water running down it or tracking between the wall and Rustik kamen.

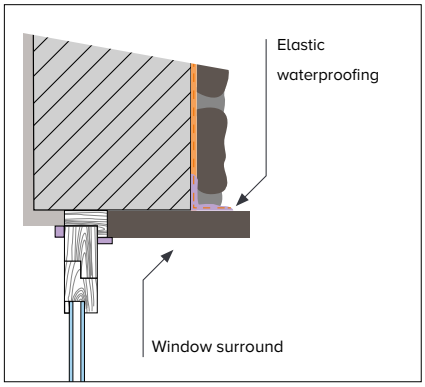
We do not recommend silicone sealants, as they inevitably deteriorate locally over time.



3.5. DOOR AND WINDOW JUNCTIONS

Pay close attention where cladding meets materials around openings: frequent, sudden temperature changes may cause cracks.

We recommend an elastic waterproof material at these joints.

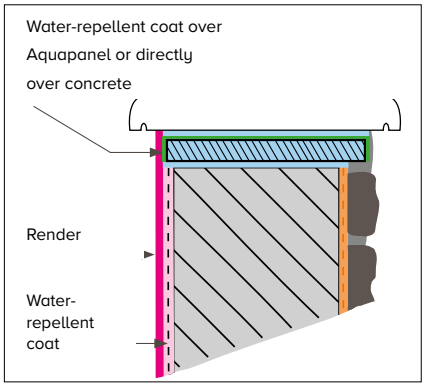


3.6. WALL TOPS PROTECTED WITH COPING SLABS

Rustik kamen coping slabs on wall tops are another critical detail. Proper preparation and execution are essential for long-lasting waterproof protection.







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4. Assessing the substrate

The installer's most important task is to assess whether Rustik kamen can be bonded directly to the substrate or further preparation is needed. Our most common problems over the years have been incorrect substrate assessment and bonding, particularly with panel models.

Always install Rustik kamen in accordance with professional rules. The substrate must support 35-60 kg/m^2. Adhesive must withstand stresses between the structure and cladding. We consider thermal stresses between different materials a greater concern than weight.

AVOID

1. Direct bonding to varnished or non-absorbent surfaces without proper preparation.

2. Direct bonding to gypsum or deteriorated plaster without proper preparation.

3. Bonding to skimmed or painted walls without prior preparation.

4. Applying adhesive only to the wall or only to the stone. Apply it to both, ensuring the wall adhesive has not dried before placing the stone. This wet-on-wet method ensures reliable bonding, distributes adhesive evenly between substrate and stone and prevents air pockets that may cause future problems.

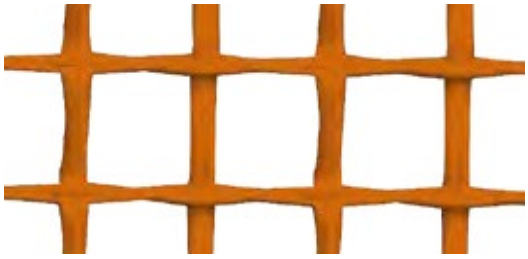
5. Installation at very high or low temperatures. Bonding and hardening depend on the chemical reaction between water and adhesive. Rapid evaporation or freezing reduces this reaction, causing loss of mechanical properties.

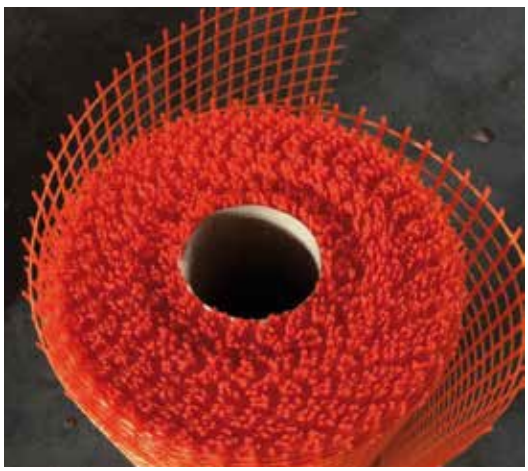
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6. Bonding to highly porous substrates. As in point 5, rapid absorption removes water from the adhesive and prevents the chemical reaction in the cement. Such substrates need additional preparation.

7. Fixing poor substrates with primer or adhesive alone. Priming or a thin adhesive coat cannot stabilise a weak substrate. Thoroughly clean it, remove degraded materials and prepare a sound base able to carry Rustik kamen.

8. Cladding retaining walls without waterproofing. Moisture from soil behind an unprotected wall can cause dark stains, efflorescence and minor or major damage.







WALL ANCHORS 40x40 mm
AVERAGE DENSITY 6.37 anchors/m^2

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5. Substrate: mesh and anchors

1.



For doubtful or weak substrates, we recommend mesh and anchors. Clean the wall and remove loose materials, apply a 2-3 mm adhesive coat, embed the mesh and secure with purpose-designed anchors.

2.



1. Apply at least 2-3 mm of adhesive with a smooth trowel.
— First dampen porous substrates using a sponge.

— Clean dirty surfaces and remove all loose parts.

3.



2. Embed mesh with overlaps of at least 10 cm.

3. Apply another thin coat with a smooth trowel to fully embed the mesh.

4.

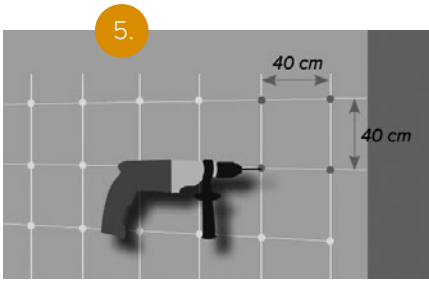


4/5/6. Drill holes every 40 cm horizontally and vertically, averaging 6,37 anchors/m^2. Insert anchors and screws and check correct installation.

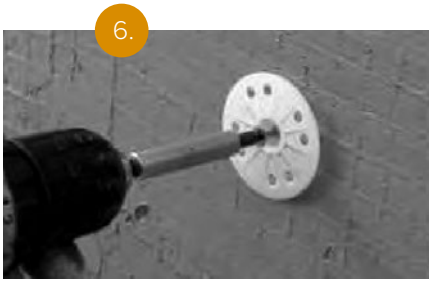
7. Cover visible anchors with adhesive to seal holes against water ingress.

8. Bond Rustik kamen only after the substrate has fully dried and hardened (at least 2 days).

5.



6.



7.



8.



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6. Substrate preparation

Rustik kamen can be installed on rough walls, mechanically sound render and well-prepared insulation. Wood, plasterboard (Knauf), reinforced concrete, aerated concrete (Ytong), weak or damaged plaster, painted walls and treated or protected surfaces need special attention.

These recommendations are based on many tests and 20 years of experience.

1. BRICK

Brick has good mechanical properties for bonding, but direct installation does not protect it from rain penetration and possible serious long-term damage. Rustik kamen is not waterproof, especially when dry-stacked. Porous brick may absorb water from adhesive and impair bonding. Apply waterproof render strong enough to support Rustik kamen.

2. AERATED CONCRETE (YTONG)

Apply a reinforced coat to reduce water absorption: two coats of adhesive recommended by the aerated concrete manufacturer, facade mesh and anchors at no more than 50x50 cm. Cover anchors with adhesive to prevent water ingress. Install Rustik kamen only when fully dry.

3. REINFORCED CONCRETE WALL

A very stable structure, but a demanding bonding substrate.

Pay particular attention to the following:

— Bond only to reinforced concrete at least 3 weeks old.
— If formwork release agent (Oplatan or similar) was used, residue probably remains on the wall. Remove it by sandblasting or washing with a wall degreaser.
— Remove dust or moss with a pressure washer.
— Waterproof reinforced concrete retaining walls on the soil side to prevent stone detachment or continual efflorescence.

— Always apply adhesive to both wall and stone, otherwise the stone may detach.
— Check substrate temperature: concrete retains heat and may overheat and dry the adhesive (or freeze in winter).

4. THERMAL RENDER

Thermal render is breathable and limits heat loss, but its strength supports only light claddings. Rustik kamen is too heavy for direct bonding.

Prepare with two adhesive coats, facade mesh and anchors at no more than 50x50 cm. Seal anchors with adhesive against water ingress. Install RK only after the reinforced base has dried fully.

5. PREMIXED RENDERS

Premixed renders vary in mechanical properties with composition. Read the manufacturer's technical data sheet carefully to decide the required preparation.

Gypsum plaster, mainly used indoors, requires anchoring and reinforcement (see section 5).

Lime or cement render is stronger. Apply adhesive with embedded mesh. If strength is doubtful, add anchors at no more than 50x50 cm, sealing them with adhesive. Install RK only when the reinforced substrate is fully dry.

6. PAINTED WALLS

Chipping painted walls with a hatchet is not reliable preparation. We recommend two methods:

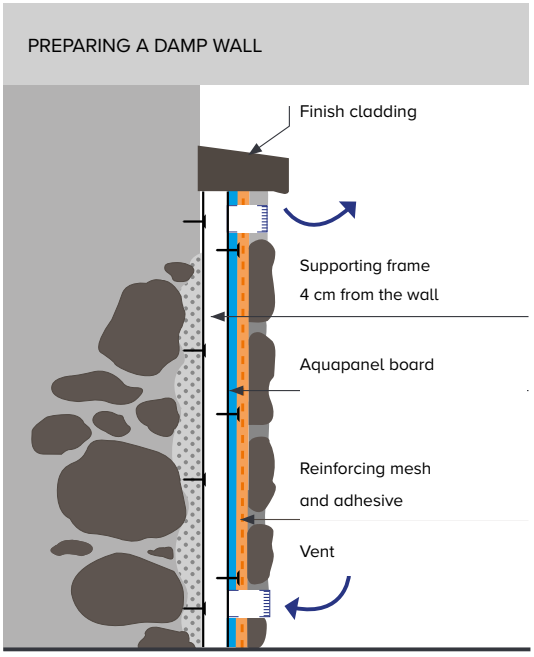
A. Remove all paint down to a sound substrate. Soak the wall with water and scrape softened paint with a spatula; repeat if needed. For oil paint or varnish, heat the area with a suitable

heater or torch and scrape off. Apply a fresh adhesive coat to the cleaned wall. Install RK only when fully dry.

B. Reinforce and anchor the wall. Apply two adhesive coats, embed facade mesh and anchor at no more than 50x50 cm. Cover anchors with adhesive. Install RK when fully dry. At a free wall edge, wrap adhesive and mesh around the corner, extending 10 cm onto the adjacent wall and securing with anchors.

7. DAMP WALLS

RK is breathable but does not remove damp. A suitable system allows safe installation. Remove loose plaster from very damp walls and repair with moisture-resistant render.
Build a separate wall at least 4 cm away, clad with thin cement boards (Aquapanel). Apply two adhesive coats with mesh to the boards. Install RK only after drying fully. Leave ventilation openings at the bottom so moisture from the inner wall can escape.



8. IMPREGNATED WALLS

Chemically protected or impregnated walls are often non-absorbent. Test by bonding one stone and trying to remove it after a few days. If it holds firmly, use wet-on-wet bonding; otherwise reinforce and anchor the substrate.

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9. INTERIOR GYPSUM PLASTER

This substrate is highly absorbent. Apply deep primer 24 hours before bonding RK. Test by bonding a stone and trying to remove it after a few days. If it holds firmly, proceed with wet-on-wet bonding.

10. PLASTERBOARD WALLS (KNAUF)

Plasterboard partitions on metal or timber frames may carry RK's weight but not the stresses after adhesive drying, causing cracks. Behaviour depends on many factors: temperature, water in grout, wall dimensions and frame construction, so not every situation can be predicted.

Most problematic situations:
— Walls longer than 5 m
— Low-temperature installation with prolonged drying
— Grout with high water content
— Very full, wide joints

A reinforced adhesive coat improves stress resistance.
Divide walls longer than 5 m using a false column or similar. In cold periods, heat the room to 15-20 °C to speed drying.

For painted plasterboard, fix a new board over it with suitable screws, or reinforce with two adhesive coats and mesh, secured with anchors.

11. FIREPLACES, BARBECUES AND CHIMNEYS

These can be clad provided the substrate does not exceed 80 °C, the maximum for adhesive and grout (the standard limits the external cladding to 60 °C). We do not recommend cladding the inside of fireplaces or barbecue fireboxes.

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12. INSTALLATION OVER WATERPROOFED WALLS

Waterproofing is there for a reason: anchors would damage it and cannot be used. Many coatings provide effective waterproofing and good RK adhesion. Specify Rustik kamen at design stage so the appropriate waterproofing is selected in advance.

13. VENTILATED FACADES

Ventilated facades with aluminium frames fixed to the load-bearing structure and clad with Aquapanel are suitable for Rustik kamen. Use wet-on-wet bonding.

14. TIMBER STRUCTURES AND SUBSTRATES

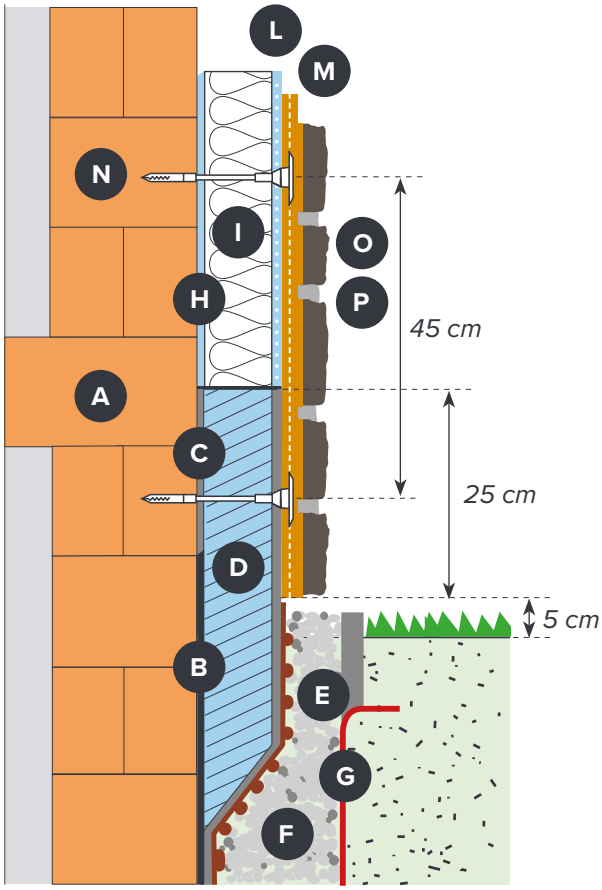
Wood moves constantly. RK requires a stable surface or one with matching expansion and contraction. We recommend a substrate separated from the timber structure, achieved in either of these ways:

A. Cement-board false wall (ventilated facade)
B. External thermal insulation

15. RK CLADDING OVER THERMAL INSULATION

Energy-efficiency requirements have led to more and better insulation. After years of research with RÖFIX, Rustik kamen offers a guaranteed ETICS system for installing its cladding.

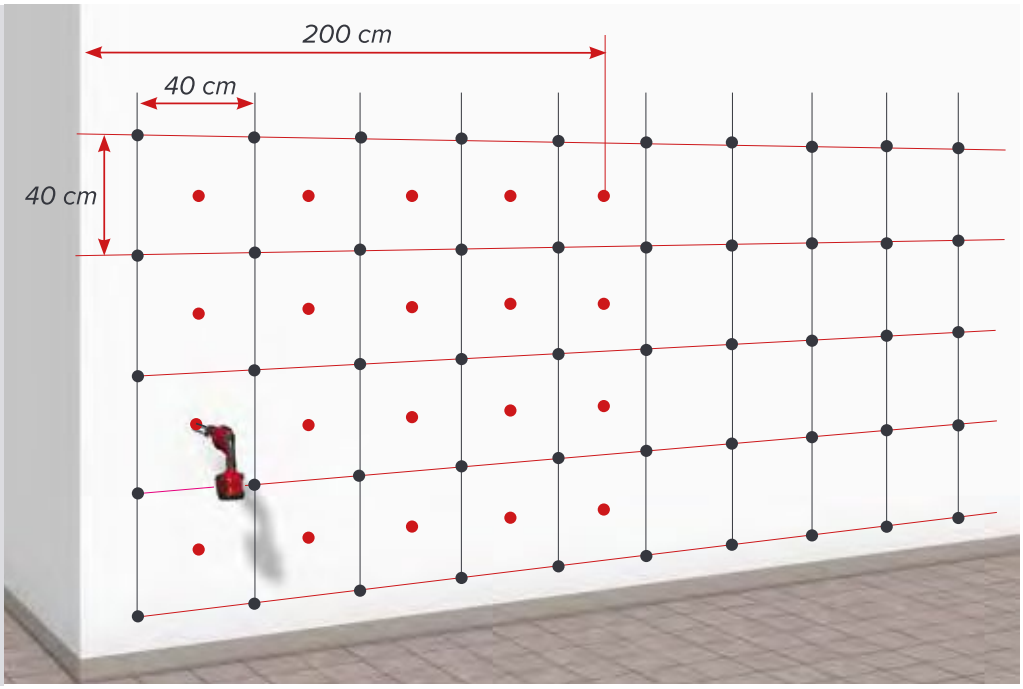
When designing buildings partly or fully clad with RK, account for technical and aesthetic requirements. Stone averages 3-6 cm thick and brick 2-3 cm; this matters at window and door frames, sills, surrounds and drip edges.



GENERAL LAYER BUILD-UP

A. Load-bearing wall
B. Foundation waterproofing
C. Waterproof adhesive
D. XPS insulation
E. Dimpled membrane
F. Drainage material
G. Geotextile
H. Adhesive mortar
I. Facade insulation board
L. I. Reinforcement mesh and adhesive
M. II. Reinforcement mesh and adhesive
N. Anchor (dowel)
O. Rustik kamen cladding
P. Grout

ANCHORING / DOWELLING PLAN



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7. Adhesive

ADHESIVE PREPARATION

Mix a 25 kg bag with about 7 L clean water for bonding, or 7,5 L for substrate preparation. Use an electric mixer until smooth and creamy. Rest 5-10 minutes, remix for 1-2 minutes. Add a little water if thinning is needed.

Use wet-on-wet bonding. Trowel sufficient adhesive over the flat back of the stone and onto the wall. Press the stone into place, moving left and right until fully seated with a suction effect. If it slides, the adhesive is too thin.

Position stones evenly and correctly: after about 15 minutes they cannot be moved or removed. Lightly dampen porous substrates to prevent rapid water absorption from adhesive.

Note:
Do not install below 5 °C or above 35 °C. Above 25 °C, dampen the substrate: direct sunlight can make it much hotter. Wetting cools it and prevents rapid water loss from adhesive. Protect from rain, which can wash out or dilute adhesive and cause immediate or early detachment. In cold weather, ensure temperatures stay above 0 °C for the next 24 hours. Use thickening adhesive promptly; adding water does not delay the chemical reaction and reduces bonding quality.

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8. Wet-on-wet bonding



IMPORTANT!
Wall-only bonding, typical for tiles, gives insufficient adhesion; the stone will detach over time.

1. Spread adhesive over the entire stone back with a masonry trowel,
not a notched tiling trowel. Do not spot-bond: concentrated adhesive spots can cause cracking, especially with panel models.



2. Trowel a thin coat onto the wall area where
the stone will be placed, ensuring wet-on-wet bonding.



3/4/5. Press and gently move the stone until excess adhesive
squeezes out, creating a secure suction bond. Move corner units vertically (up/down), flat units horizontally (left/right).

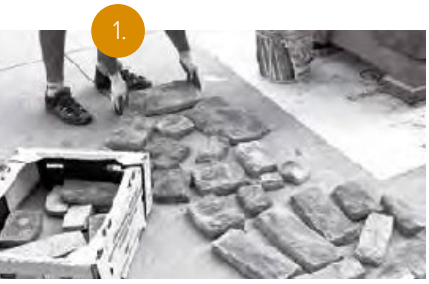
Do not strike the stone with a fist or rubber mallet.
Use only sideways or vertical movements.





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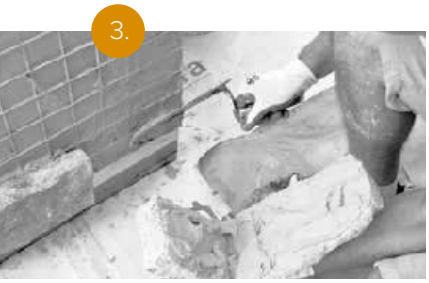
9. Bonding method



1. MIX THE STONES
Do not use just one box or pallet. Before bonding, lay out stones from several boxes or pallets on the floor to see the available choice and balance shapes, colours, shading and relief.



2. MARK THE WALL
Use a building pencil to mark horizontal lines 20 to 30 cm apart to guide correct installation.



3/4/5. START WITH CORNERS
Work from bottom to top, starting with larger pieces and using smaller ones higher up. Alternate short and long legs in a zigzag pattern for authenticity. Always bond wet-on-wet. Then fill larger gaps with smaller stones.



6/7/8. CUTTING AND SHAPING
For best results, stone may need cutting or shaping with a hammer or angle grinder. Hide cut faces (downwards below

eye level, or upwards above eye level).

Pieces broken in transport can be used for cutting and shaping.



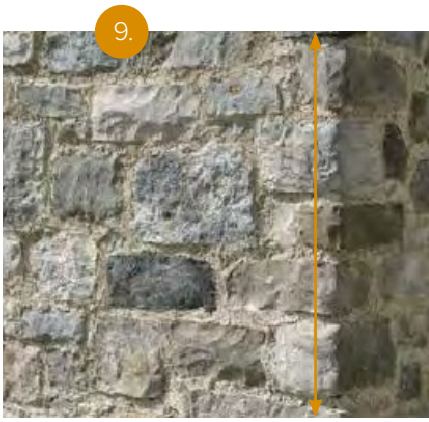
9. LEVELLING THICKNESS WITH ADHESIVE
If a thinner stone affects the appearance, apply a little more adhesive to equalise thickness.

This also helps align corner units into a straight corner.







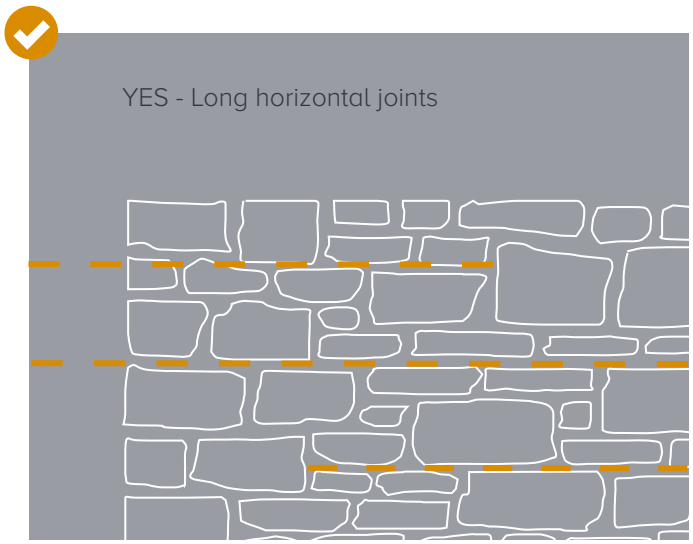


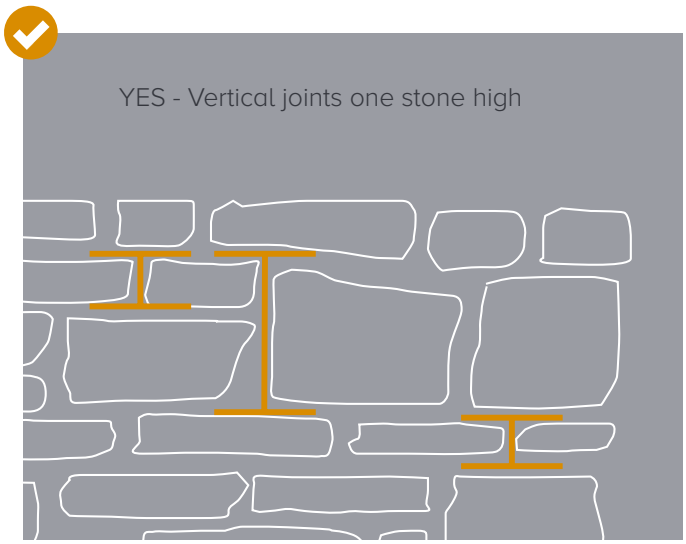
ALWAYS work with clean hands to avoid adhesive stains. Immediately remove adhesive with a sponge and water.

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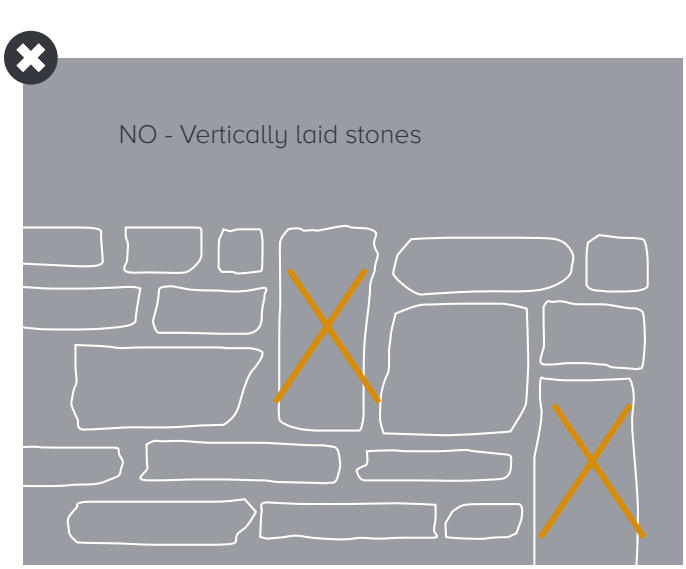
9.1. LONG HORIZONTAL LINES

Although stone is now mainly decorative, logical laying principles still apply. Horizontal joints are essential for authenticity; their length varies with model and style. Vertical joints must never exceed one stone's height.









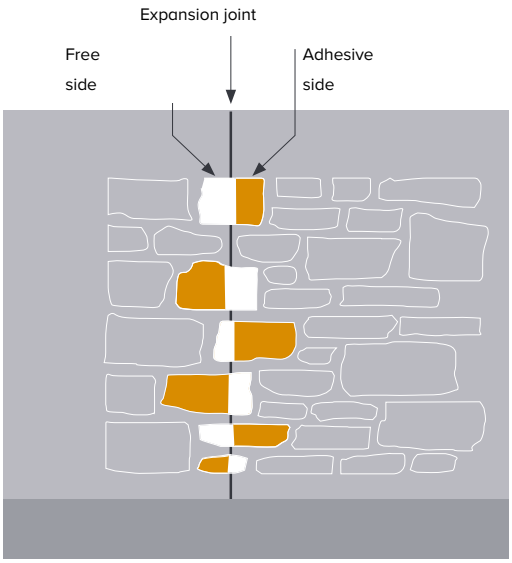
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9.2. PANEL MODELS

Quick large and Quick ledge are panel models. Like other products, they are handmade, so edges are less precise than tiles and may need minor corrections during installation. The same rules apply, but panels are faster to lay side by side while keeping level. Mark horizontal lines to guide and speed the work. Uneven edges can be trimmed with an angle saw.

9.3. CORNER JOINTS

Building corners experience the greatest stresses and need a different approach. Apply adhesive only to the long leg of the corner unit. When stresses arise between the two wall faces, one leg remains free, preventing the unit from cracking. The joint may crack, but it is easy to repair; a cracked corner unit must be replaced.



9.4. INSTALLATION TIME

Time depends on model and experience. A skilled installer lays 5-7 m^2/day of dry-stacked Garda, or 7-10 m^2/day of Garda and other jointed models including grouting. Brick with grouting: 10-12 m^2/day; panels: 12-15 m^2/day.

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10. Grout

RUSTIK KAMEN GROUT

RK grout is a natural material with 2 components (A+B), in several colours for indoor and outdoor joints. Easy to apply, it gives an authentic look suited to all stone cladding styles.

GROUT PREPARATION

Put component A (binder) in a plastic bucket of about 20 L. Gradually add 4.2-4.8 L water and mix electrically to a smooth cream. Add component B (sand), mix until uniform, wait 5-8 minutes and remix for 1-2 minutes.

APPLICATION

Cut the grout bag tip to a 1.5-2 cm opening. Fill and gently squeeze into joints. Grout should flow easily; if not, add a little water and remix. Avoid spilling onto stone. Natural grout colour may vary with temperature, moisture, wind and drying time. Avoid grouting only half a wall, as shade differences may show.

FINISHING

Wait 60-90 minutes for slight hardening. Drying depends on temperature and humidity. Touch the joint: if no water comes out and it crumbles slightly, it is ready. Finish with a joint-width wooden strip, narrow spatula or rubber gloves, depending on the desired style.

NOTE

Do not use RK grout below 5 °C or above 35 °C.

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11. Grouting method



1/2/3. Cut the bag tip to the joint width, 1.5-2 cm.

4. Mix only what you can use before drying. Working time is 30-40 min. Grout must be neither too thick nor too thin.



5. Fill the bag. Hold it with one hand and twist with the other to squeeze out the material.

6. Insert the tip at 45 degrees and gently fill joints. Allow to firm up before finishing. NEVER clean with a wet sponge: it stains the stone, often invisibly at first but clearly once the grout dries.

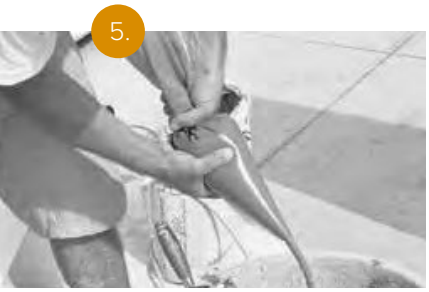


7/8. Touch to test: a dry finger and slightly crumbly grout indicate readiness for finishing.

9. Run a wooden stick over joints, lightly pressing in grout; excess will fall away.

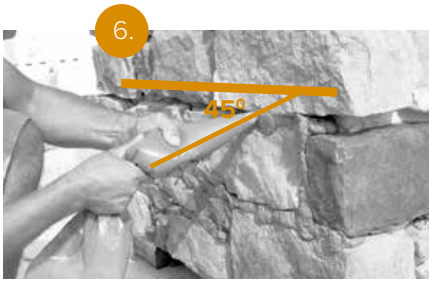


10. Once all joints are finished, sweep the wall with a natural brush to remove small grout particles for a clean finish.



NOTE! Joint colour depends on finish, temperature, the drying stage when worked, and rain or ice within 48 hours. Streaks and patches may appear (see illustration).













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12. FINISHING

The appearance and finishing of joints are crucial to the authenticity of a Rustik kamen wall.

The aesthetic and practical role of joints is often underestimated. Attention usually focuses on stone shape, style and colour, but joints are central to the overall wall appearance.

Joints have a major effect on the finished manufactured-stone wall. Look at historic buildings nearby and emulate their joint colour and style for the most authentic RK result.

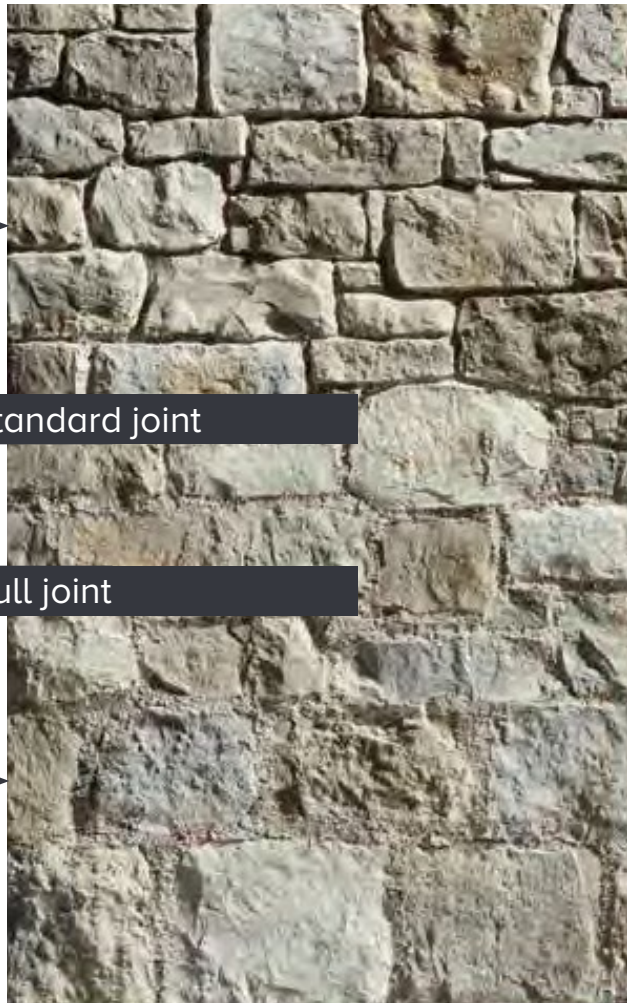
A contrasting joint highlights stone shape and relief; matching its colour creates a harmonious wall.

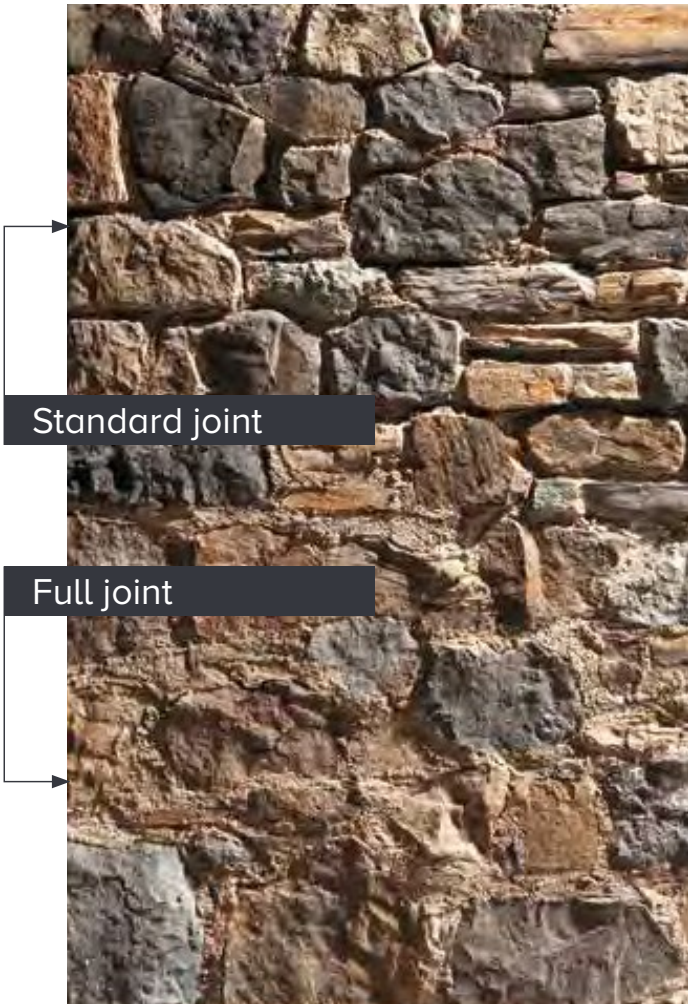
Rustik kamen grout uses natural materials in 5 authentic colours found in historic inland and coastal buildings.

RK grout completes installation technically and aesthetically. It can form neat classic joints or irregular joints typical of very old buildings. It also fills occasional gaps in dry-stacked stone where perfect fitting is impossible.

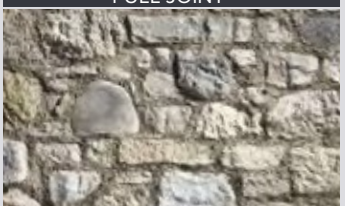
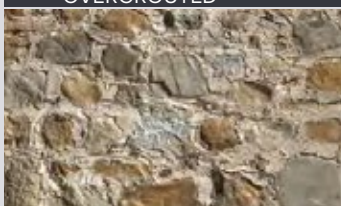
Different techniques create very different, distinctive joints.

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JOINT FINISHES FALL INTO SEVERAL TYPES:

DRY-STACKED	STANDARD JOINT	FULL JOINT	OVERGROUTED
			

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13. Rustik opeka bonding technique®

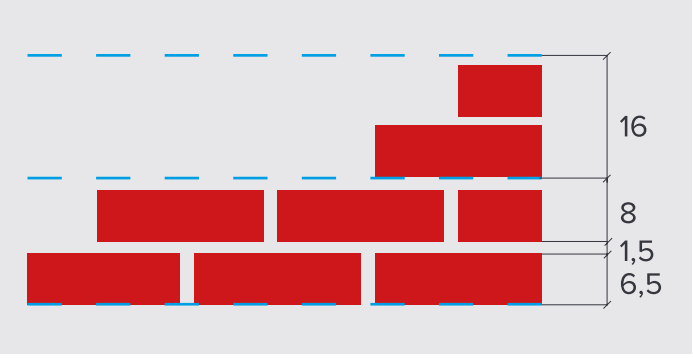
Using the same technology as its stone, Rustik kamen developed two Rustik opeka models. Their properties and uses closely match real brick. They are modelled on northern Europe's most popular brick styles.

Rustik opeka has realistic colours and textures with rustic charm. It complements all Rustik kamen models and offers excellent technical properties and frost resistance.

These properties improve thermal insulation performance and make external insulation more robust and weather-resistant.

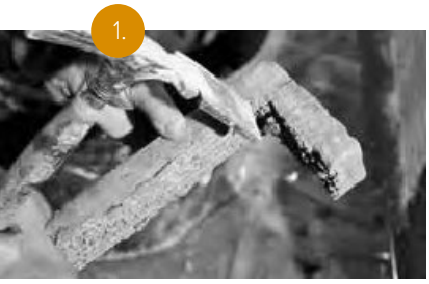
INSTALLING RUSTIK THIN BRICK

Use the same bonding method as for RK, but mark horizontal guides more precisely. Add joint width (1-1.5 cm) to brick height (5.5-6.5 cm) to obtain a course height of 6.5-8 cm. Divide the total course height by the wall height and mark the horizontal guides.



H brick	+	H joint	x 2 =	H guide line
5,5		1 / 1,5	6,5 / 7 x 2	13 / 14
6,5		1,5	8 x 2	16

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1. Remove concrete residues from inside corners before applying adhesive.

2. Trowel adhesive firmly onto the corner back and wall, working wet-on-wet.



3. Press lightly with small up/down movements until suction holds the corner.

4. If needed, cut with an angle saw or break with a hammer.

5. Always apply adhesive to brick back and wall, wet-on-wet.



6. Press and move left/right until excess adhesive escapes and suction holds the brick. Remove excess before placing the next brick.

7. Apply grout with the designated grout bag.



8/9. CHECK READINESS by touching the joint: a dry finger and slight crumbling mean it can be finished. Keep grout workable; in hot weather do not let it harden beyond finishing.



10. Remove excess with a wooden stick. Use the same finishing techniques as for Rustik kamen®.











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14. Cleaning and care

REMOVING DIRT CAUSED BY INSTALLATION

Keep stone clean during installation. Work with clean hands and adhesive-free gloves. Remove adhesive stains immediately with a clean sponge and water. Follow chapter 11 when grouting: incorrect application, cleaning very wet grout or unsuitable tools can permanently stain stone. If cleaning is needed after installation and drying, proceed as follows:

1. Remove hardened residue with a wooden stick.

2. Wet the stone and gently clean stains with a sponge (or dry soft brush) dipped in white vinegar and water, at most 1 part vinegar to 5 parts water.

3. Rinse thoroughly with clean water.

REGULAR MAINTENANCE

Remove dust with a dry soft brush or broom to avoid permanent damage. If needed, clean with water as follows:

1. Thoroughly wet the stone with clean water.

2. Gently brush, using mild detergent and water if necessary. Ensure the detergent contains no bleach or other harsh chemicals.

3. Rinse thoroughly with clean water.

EFFLORESCENCE REMOVAL

If moisture moving outwards causes efflorescence, wait for the ingress to stop. Remove deposits with a soft brush. Treat remaining marks with 5 parts water and 1 part white vinegar, brushing gently, then rinse well. Efflorescence occurs when moisture passes through inadequately waterproofed masonry, evaporates at the surface and deposits dissolved salts as strongly corrosive efflorescence.

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PROTECTING RUSTIK KAMEN

Rustik kamen is durable and highly resistant over time without additional protection.

A protective treatment may be needed only where extra harmful exposure is expected. Like natural stone, Rustik kamen is made of natural materials and is not resistant to chemicals such as salts, chlorine and acids.

— Outdoors:
salt water, wind-borne sea salt, pool chlorine, de-icing salts and chemicals may damage RK.

— Indoors:
in public areas or where special protection and cleaning are needed, use suitable treatments because the material can absorb smoke, oil and liquids. Treatments differ in protection and durability; some alter appearance and physical properties. We recommend silane/siloxane products that keep pores open and preserve breathability.

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15. Warranty

Rustik kamen® is warranted for 30 years from purchase when used according to the manufacturer's instructions.

The warranty applies only to the original purchaser and is not transferable. Defective products will be replaced free of charge.

Rustik kamen® does not cover damage caused by:
— movement of the supporting structure,
— contact with chemicals or paints,
— colour changes caused by airborne pollutants,
— dirt or oxidation.

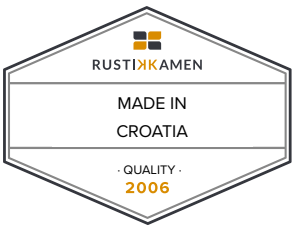
The Rustik kamen® warranty covers manufacturing defects.

The warranty does not cover removal or replacement costs. It is void, and the manufacturer/seller is not liable, where problems arise because the user fails to follow the installation instructions and technical manual* recommendations or does not use the recommended Rustik kamen® adhesive and grout.

**The technical manual is available when purchasing Rustik kamen products or at www.rustik-kamen.hr*









Rustik kamen
Terra 20300

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