MATIERA
la matière au coeur de l'innovation

# CAHIER TECHNIQUE

ORSOL NOVIROC BRIKELIA

# CONTENTS

# 1. RECOMMENDATIONS

### 1.1. Acceptance

Ensure the conformity of the appearance of the products and their packaging upon receipt. If a product does not seem to meet your expectations, please contact your distributor immediately, before using it. The use of the products implies their acceptance.

Read our installation advice carefully so that you are fully aware of all parameters required for correct installation. Keep your purchase invoice and a photograph of the labels on the packages and pallets.

### 1.2. Storage and packaging

The products must be kept in their original packaging and stored on a clean, dry floor until they are ready to be installed. Storing products flat on top of each other is strictly prohibited. The rendering mortar, stone bonding adhesive and joint mortar must be stored in premises protected from the weather and dampness.

### 1.3. Aesthetics

Variations in temperature and humidity, as well as the manufacturing process using natural materials, lead to variations in colour, as is the case with natural stone. In order to obtain a good aesthetic rendering, it is advisable to supply your sites all at once and to mix the contents of the different packages and pallets during their use; this mixture will reinforce the natural appearance of the products by harmonizing the colours and shades.

ORSOL accepts no responsibility for the colour of additions or supplements made at a later stage. Any material added months later cannot be identical to the material already installed, given the natural ageing caused by atmospheric agents and any dust deposits or absorption.

Our products are packaged, still wet, in appropriate containers while the stone hardening and colour fixing processes are underway. The process continues for several months, so the colour will be very dark when it arrives on site and will take on its final hue when the product is exposed to the air.

### 1.4. Efflorescence

Our products are made from natural raw materials that can cause efflorescence. These efflorescences can sometimes have an impact on the appearance of the products by the appearance of more or less concentrated white shades on the surface of the products.

Efflorescence is a deposit of soluble salts that in no way affects the quality or durability of the products; they will gradually dissolve in rainwater and eventually disappear completely as a result of successive natural cleaning.

You can speed up the process by cleaning bleached surfaces with a mixture of diluted white vinegar:
- Wait for the cladding and efflorescence to dry completely before removing them with a soft bristle brush.
- Soak the surface in water before cleaning with a solution of 9 parts water and 1 part white vinegar, scrubbing gently with a soft bristle brush.
- Rinse thoroughly with clean water.

You can also use an efflorescence cleaner.

We recommend waiting until the end of the winter period before carrying out this operation, and repeating it several times until the efflorescence has completely disappeared.

Once the efflorescence has been contained, it is important to waterproof the facings outside periods of frost, damp or direct sunlight.

This is not a manufacturing problem.

### 1.5. Choice of cladding colours

The geographical location and orientation of the wall to be clad has a bearing on the choice of colour for the exterior cladding. As such, for a very sunny environment, we recommend choosing lighter colours. A dark cladding captures more of the sun's rays, which can cause the cladding to expand more in relation to the surface, leading to cracking or delamination.

Colours with a solar absorption coefficient (alpha coefficient) greater than 0.7 are intended for installation on north or east façades or for interior use.

### 1.6. Conformity of photographs

Despite all precautions taken to ensure the most faithful reproduction of our products, slight variations in shade may occur between our documentation, computer media and reality.

### 1.7. Complaints

Complaints about the appearance of the products must be made before installation if there are any apparent defects on delivery and when the products are unpacked.

If a hidden defect is ascertained, our guarantee is limited purely and simply to the replacement of the defective products, to the exclusion of any indemnity relating to ancillary costs such as the removal and re-installation of materials or damages by way of compensation or otherwise.

Our company cannot be held liable for any defects in the products delivered as a result of abnormal conditions of storage, handling or use.

### 1.8. Weight and dimensions

The weights and dimensions stated in our price lists and catalogues are given for information only. They may vary slightly depending on the characteristics of the natural materials used, the manufacturing processes and their intrinsic humidity at the time of measurement.

For wall cladding, the surface area indicated in square metres is as follows:
- Brick slips or cladding elements with joints = net surface area of products (length x width) + width of anticipated joints,
- Cladding elements without joints = net surface area of products (length x width),

### 1.9. Reference documents

The reference documents are industry standards and guides. They provide a framework for the rules of the trade relating to the construction of a structure, thus ensuring its durability and longevity. Standards are available for a fee on the BATIPEDIA website, for example.

### 1.10. Guarantee

ORSOL cladding elements are glued to external or internal vertical walls, in new build or renovation projects, on upper and ground floors.
ORSOL markets a complete system in kit form, comprising:
- NEOMINERAL stones;
- ORFLEX® HAUTES PERFORMANCES STONE BONDING ADHESIVE bonding product (also known as ORFLEX HP);
- ORSOL WALL JOINT jointing mortar (depending on cladding);
- ORSOL waterproof coating (for exterior use)

Only the use of these products will provide a 10-year guarantee on ORSOL cladding.

### 1.11. Technical assistance

ORSOL offers its technical assistance to private individuals, companies, contractors and project managers, to help them get their projects off the ground and master the specific aspects of installing its products. Note: This assistance cannot be assimilated to the design of the work or the acceptance of the surfaces, nor to a control of the implementation rules.

### 1.12. Health and safety

Consult the safety data sheet before using the product.

Consult the safety data sheet for information and advice on handling, storage and disposal.

The safety data sheet contains physical, toxicological, ecotoxicological and other safety-related data.

The most recent versions of the safety data sheets (SDS) for our products are available at www.orsol.fr

Equip yourself with Personal Protective Equipment to work safely.

# 2. DESIGN PROVISIONS

### 2.1. Nature of surfaces

Not all surfaces are suitable for glued installation of wall cladding and require special preparation before installation of the products. The authorised installation height also depends on the nature of the surface and the characteristics of the cladding to be used; see tables A and B.

On interior walls, permitted surfaces are located outside of areas that accommodate the shower tray, bath and water points.

| Supports | Preparation of surfaces | Cladding WITHOUT joint | Cladding WITH joint | Brick slips |
|---|---|---|---|---|
| **Concrete walls** | - | ≤ 6 m | ≤ 6 m | ≤ 16 m |
| **Cement-based plasters** | | | | |
| **Bare clay bricks - cement bonded** | WITH primer | | | |
| **Plasterboard** | | ≤ 3 m * | ≤ 3 m * | ≤ 6 m * |
| **Bare clay bricks - gypsum bonded** | | | | |
| **Other partitions (CTBH/CTBX) or un-coated masonry walls** | | | | |
| **Old tiles<br>Old paint<br>Plaster tiles** | Contact us | | | |

** For heights greater than those shown, please contact us*

**Table A - Surface preparation and indoor installation height**

| Surfaces ** | Preparation of surfaces | Cladding WITHOUT joint | Cladding WITH joint | Brick slips |
|---|---|---|---|---|
| **Rt3 - Reinforced concrete walls** | - | Refer to Table C | ≤ 18 m | ≤ 21 m |
| **Rt3 - Standard aggregate concrete blocks or bricks** | Refer to paragraph 4.5. | | | |
| **Rt3/Rt2 - Light-aggregate concrete blocks, bonded bricks** | | | | |
| **Rt1 - Cellular concrete blocks** | Contact us | ≤ 6 m | ≤ 9 m | ≤ 9 m |
| **External thermal insulation or cladding panel for ventilated façades** | Cladding 40 kg/m2<br>Contact us for a detailed implementation study | | | |
| **Other surfaces (new or renovation)** | Contact us | | | |

*** Rt1, Rt2, Rt3 : Tear strength of the surface of the masonry elements to be rendered*
*These characteristics are supplied by the manufacturer of the masonry elements and are available in the Technical Data Sheets for the products*

**Table B - Surface preparation and outdoor installation height**

| Installation height | 9 m | 12 m | 18 m |
|---|---|---|---|
| **Products** | CAUSSE on backing mesh<br>INFINITY - INCERTO<br>ROCA on backing mesh | CUBIK<br>OLYMPE | GAÏA - PORTLAND<br>ROCKY MOUNTAIN<br>TAHOE - YOSEMITE |

**Table C - Exterior installation height for cladding without joint**

### 2.2. Orientation of façades

The use on façades of dark-coloured facing elements with a solar radiation absorption coefficient greater than 0.7 is limited to façades and zones of façades permitted in NF DTU 52.2 P1-1-2 referred to below.

Above a façade height of 6 m, and within a limit of 28 m, the installation of dark-coloured facing elements is limited to the following structures for façades facing south-east to west:
- parts of the façade one storey high, located above a balcony or loggia when only the tiled parts are located above;
- concrete wall or rendered façade with facing limited to window frames, aprons or fascias;
- decorative strips on the façade, provided that the width of these strips does not exceed 50 cm and that they do not represent more than 20% of the façade.

For BRICK SLIP products, given their small dimensions, the limit value for the solar absorption coefficient is increased from 0.7 to 0.9. In addition, the joints between the slips must be filled with a low modulus of elasticity mortar ≤ 8,000 MPa.

Note: the solar absorption coefficients are given in Table 5 for each shade.

### 2.3. Building elevation

Glued installation on external walls is limited to buildings at altitudes of less than 900 m (for installations above this level, please contact us).

### 2.4. Installation in seismic zones

Exterior application on Rt3 surfaces is possible throughout mainland France and for all categories of building size, up to a limit of 47 kg/m².

Note 1: for cladding with a mass per unit area greater than 47 kg/m², please contact us.
Note 2: for export, please contact us.

# 3. PROVISIONS FOR INDOOR INSTALLATION

### 3.1. Conditions of use

Installation of the products should be at temperatures between +5°C and +30°C, away from direct sunlight. During implementation, the walls must not be hot (≥ +35°C).

In cold, damp weather, it may take several days for the base coat and the cladding adhesive to dry. These products must be applied without risk of frost within 24 hours of application.

### 3.2. Condition of the surface

Surfaces must be solid and cohesive; they must be clean, free from efflorescence, saltpetre, plaster, earth, paint, formwork stripper or any other product that may prevent the plaster from adhering.

The maximum flatness tolerances are 5 mm under the 2 m straight edge and 2 mm under the 0.20 m steel rule.

### 3.3. Cleaning of surfaces

Dry sand and remove dust by brushing and vacuuming.

### 3.4. Preparation before installation of the cladding

Distribute a sufficient quantity of cladding elements close to the work area, choosing them from different packs and pallets to give you a good choice of stones.

To achieve a satisfactory visual appearance, the cladding elements must be installed in accordance with the recommended layout for each cladding (see technical data sheets of the products).

Using a chalk line or marker, draw level lines every 30 cm or so to check that the laying is horizontal. Always start laying from the bottom and from one end of the wall; if the wall has corners, always start by laying them, alternating short and long sides from one row to the next.

Make sure the back of the cladding elements is clean, brush and dust to improve adhesion. To cut the elements, use a material disk or a diamond disk.

### 3.5. Preparation of the surface

For interior installations, the following surfaces must be covered with a primer before the cladding elements are laid:
- plasterboard and hydro H1 plasterboard;
- uncoated, cement-bonded or gypsum-bonded brick tiles;
- wood panels (plywood: CTBX or chipboard: CTBH);
- cellular concrete blocks.

PRIMOMUR primer is applied undiluted with a wool roller or brush at a rate of 150 to 300 g/m2 to cover the entire surface. Allow to dry until transparent in the evening, 2 to 4 hours before covering. If it takes longer than 72 hours to dry, apply a new coat.

### 3.6. Bonding of the cladding

The bonding is applied with ORFLEX® HAUTES PERFORMANCES STONE BONDING ADHESIVE.

The product is prepared in accordance with its technical data sheet by mixing the powder with the indicated quantity of water and blending with a slow-speed electric mixer until a soft, homogeneous, lump-free paste is obtained.

| Type of cladding | Cladding WITHOUT joint | Cladding WITH joint | Brick slips |
|---|---|---|---|
| **Comb** | U9 | U9 | U6 |
| **Gluing method** | Double | Double | Single |
| **Consumption (kg/m2)** | 7 to 8 | 6 | 3.5 |

**Table 1 - Indoor powder consumption**

During installation, regularly check that the bonding product is evenly distributed and a transfer of at least 70% of the surface. This verification is carried out after a cladding element has been lifted off the wall: the grooves in the bonding product are crushed and the latter is distributed over the back of the cladding. With single-layer gluing, the transfer of the bonding product to the board is checked regularly during installation.

*3.6.1. Brick slips*

The slips are laid using single-layer gluing.
- the bonding product is applied to the wall in small areas (between 1 and 2 m2) using a stainless steel trowel or smoothing tool, then levelled with a U6 notched trowel;
- the slips are placed on the grooves of the fresh bonding product and pressed firmly to obtain a bonding plan without air entrapment and good crushing of the grooves;
- the installation is carried out with crossed joints, offset (max. 1/3 – 2/3) or straight horizontally or vertically;
- a joint space of at least 6 mm between each slip is made using wedges, cross spacers or line.

Drying time before reapplication: at least 24 hours.

*3.6.2. Stone and panel elements*

The elements are laid using double-layer gluing.
- the bonding product is applied to the wall in small areas (between 1 and 2 m2) using a stainless steel trowel or smoothing tool, then levelled with a U9 notched trowel;
- a layer of bonding product is also applied to the entire back of the cladding using a smooth spatula or trowel, to form a layer 1 to 2 mm thick;
- the cladding is placed on the grooves of fresh bonding product and pressed firmly with a slight lateral movement to obtain a bonding plan without air entrapment and to make the bonding product flow back around the perimeter of each cladding element;
- a joint space is created between each cladding element in accordance with the technical data sheet for the chosen cladding, with a minimum defined below:
    - o cladding elements with filled joints: minimum spacing 10 mm;
    - o cladding elements with unfilled joints: spacing of approx. 2 mm to allow the stone bonding adhesive to flow back.

Drying time before reapplication: at least 24 hours.

### 3.7. Jointing of cladding elements

Jointing should be carried out no earlier than 24 hours after bonding of the cladding elements. The jointing between the cladding elements is carried out with ORSOL WALL JOINT.
The product is prepared in accordance with its technical data sheet by mixing the powder with the indicated quantity of water and blending with a slow-speed electric mixer until a soft, homogeneous, lump-free paste is obtained.
If batches of different dates are used, they should be mixed proportionally to avoid any differences in colour after drying.

| Products | Minimum powder consumption (kg/m²) | Products | Minimum powder consumption (kg/m²) |
|---|---|---|---|
| **ORIGINAL BRICK / OLD SCHOOL BRICK** | 5.7 | **BRECY** | 2.5 |
| **CHROMATIK BRICK** | 4 | **CAUSSE / GRANIT / MANOIR / MEULIERE / ROCA / NOVIROC** | 6.25 |
| **BRIQUETTE** | 19.5 | **MIXTO** | 8 |

*The amount of required jointing compound may vary according to the thickness of the joint and its width, given by the layout of the elements.*

**Table 2 - Consumption of jointing compound**

Fill the jointing bag with ORSOL WALL JOINT and pass the nozzle over the joint so as to apply a continuous, even bead of excess mortar, avoiding any spillage onto the cladding elements.
Compact the mortar with a cat's tongue trowel or a jointing tool to ensure a good fill. Do not cover the face of

### 3.8. Finishing and cleaning

*3.8.1. Finishing*

Two finishes are possible, depending on the installed collection and the desired aesthetic effect; they are applied as soon as the surface of the joint is firmed up:
- brushed: use a narrow soft steel brush to avoid scratching the surface of the facing, then finish with a bristle brush;
- smooth: use a damp (but not waterlogged) large-pored sponge trowel, or a jointing blade.

*3.8.2. Cleaning*

The cladding elements are cleaned with a damp but not runny sponge and clean water as the joint progresses, and before the mortar has fully set. The use of acidic products is not recommended to avoid damaging the aesthetic face of the cladding.
When the joint is hard, complete the cleaning with a brush or dry cloth.

### 3.9. Treatment of singular points

The treatment of singular points (starts, stops, corners, etc.) is illustrated in chapter 5.

### 3.10. Use near a heat source

Neomineral cladding is non-combustible and perfectly suited for use near wood-burning stoves.

*3.10.1. Specific case of use behind or next to a heat source*

The installation of wood-burning or pellet-burning stoves and flues is governed by DTU 24.1, which limits the maximum surface temperature in habitable or occupied rooms to +50°C.

If there is no manufacturer's recommendation, or if the flue is not standardised, the safety distance between the hot surface and the finished wall (laid cladding) is calculated as 3 times the nominal diameter of the flue, with a minimum of 37.5 cm (DTU 24.1 P1/A1).

This distance can be reduced to 1.5 times the diameter of the flue, with a minimum of 20 cm, by using radiation protection panels, while ensuring maximum safety.

*3.10.2. Specific case of use un chimney cladding*

Flue cladding for open and closed fireplaces is governed by DTU 24.1, which limits the maximum surface temperature in habitable or occupied rooms to +50°C.

If compliance with the DTU is not confirmed in the case of existing cladding, it is advisable to take the necessary steps to ensure compliance with the maximum temperature recommendations for the surface of the cladding.

In both of the above configurations, cladding can only be installed in compliance with the DTU, i.e. a minimum distance from the heat source and/or a maximum temperature for the surface.

The stone bonding adhesive or joint mortar (if jointed) must dry for 72 hours before the heat source is turned on.

## 4. PROVISION FOR OUTDOOR INSTALLATION

### 4.1. Conditions of use

A waiting period of two months after completion of the shell for buildings up to R+3 and three months beyond must be observed before any work is carried out.

Installation of the products should be at temperatures between +5°C and +30°C, away from rain, dry wind or direct sunlight. The surface walls must not be hot (≥ +35°C), frozen, thawing or soaked.

In cold, damp weather, it may take several days for the base coat and the cladding adhesive to dry. These products must be applied without risk of frost within 24 hours of application.

### 4.2. Conditions of the surface

Masonry surfaces must be solid and cohesive; they must be clean, free from efflorescence, saltpetre, plaster, earth, paint, formwork stripper or any other product that may prevent the plaster from adhering.

Excessively protruding rough masonry overplus must be levelled.

The maximum flatness tolerances are 5 mm under the 2 m straight edge and 2 mm under the 0.20 m steel rule.

**4.3. Cleaning of surfaces**

Wash with a high-pressure jet. In the case of a reinforced concrete wall, the surface must be cleaned with a high-pressure jet of at least 300 bar, or sanded and then dusted using a high-pressure jet.

**4.4. Preparation before installation of the cladding**

Distribute a sufficient quantity of cladding elements close to the work area, choosing them from different packs and pallets to give you a good choice of stones.

To achieve a satisfactory visual appearance, the cladding elements must be installed in accordance with the recommended layout for each cladding (see technical data sheets of the products).

Using a chalk line or marker, draw level lines every 30 cm or so to check that the laying is horizontal. Always start laying from the bottom and from one end of the wall; if the wall has corners, always start by laying them, alternating short and long sides from one row to the next.

Make sure the back of the cladding elements is clean, brush and dust to improve adhesion. To cut the elements, use a material disk or a diamond disk.

**4.5. Preparation of the surface**

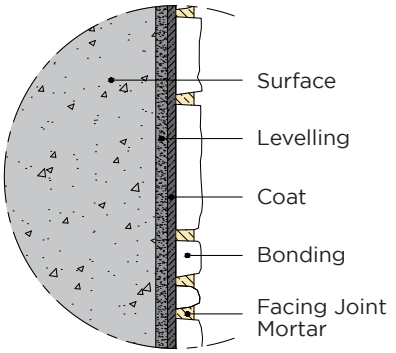
For exterior installations, the following surfaces must be prepared before the cladding elements are laid:
- masonry walls made of standard aggregate concrete blocks or bricks (high tear strength: Rt3);
- masonry walls in lightweight aggregate concrete blocks or bonded brick walls (high tear strength: Rt3 or average: Rt2);

*4.5.1. Masonry walls made of standard aggregate concrete blocks or bricks (Rt3);*

The surface is waterproofed using PREPABASE rendering mortar.

The rendering mortar is prepared in accordance with its technical data sheet by mixing the powder with the indicated quantity of water and blending with a slow-speed electric mixer until a soft, homogeneous, lump-free paste is obtained.
- on cement blocks (precast, agglomerate, rubble stone, etc.): the rendering mortar is applied to the surface in a single coat 10 to 12 mm thick;
- on brick: the rendering mortar is applied to the surface in 2 passes (fresh on fresh). It must be allowed to firm up between the 2 passes;
    * the 1st pass must be at least 7 mm thick
    * the 2nd pass should be 3 to 5 mm thick
- consumption: 17 kg/m² of powdered product. The mortar is levelled using a straight edge.

Drying time before further treatment: 21 days

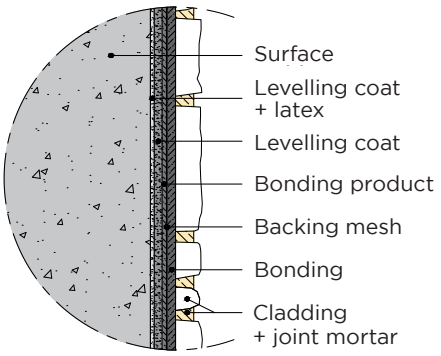



*4.5.2. Masonry walls in lightweight aggregate concrete blocks or bonded or thin-joint brick walls (Rt3/Rt2);*

**Waterproofing of the surface**

The surface is waterproofed with 2 coats with PREPATECH rendering mortar.
The rendering mortar is prepared in accordance with its technical data sheet by mixing the powder
with the indicated quantity of water and blending with a slow-speed electric mixer until a soft, homogeneous, lump-free paste is obtained.
- moisten the masonry at least 30 minutes before application (damp surface but not dripping). Proceed in this way as progress is made;
- 1st technical bonding coat: spray a 5 to 7 mm thick coat of rendering with LATEX resin over the entire surface of the surface; level with a notched ruler;
- allow to dry for 24 to 48 hours;
- 2nd coat of rendering: apply a coat of rendering 8 to 10 mm thick over the entire surface of the surface to achieve a total even thickness of at least 15 mm. This layer is levelled and compacted, but not floated;
- consumption: 24 to 28 kg/m² of powdered product for the 2 coats. Drying time before further treatment: 21 days.

Note: LATEX resin is added to the mixing water at a rate of 0.3 to 0.5 L per 25 kg bag of rendering mortar.




**Reinforcement of the surface**

The surface is reinforced with ORFLEX® HAUTES PERFORMANCES STONE BONDING ADHESIVE.
- apply a coat of stone bonding adhesive, adjusting the thickness using a U6 or V6 notched trowel;
- press the fibreglass backing mesh into fresh furrows, overlapping the strips by 10 cm;
- consumption: 2.5 to 3 kg/m2 of powdered product.

Drying time before further treatment: 24 hours and up to 28 days max.

**4.6. Bonding of the cladding**

The bonding is applied with ORFLEX® HAUTES PERFORMANCES STONE BONDING ADHESIVE.
The bonding product is prepared in accordance with its technical data sheet by mixing the powder with the indicated quantity of water and blending with a slow-speed electric mixer until a soft, homogeneous, lump-free paste is obtained.

| Type of cladding | Cladding WITHOUT joint | Cladding WITH joint | Brick slips |
|---|---|---|---|
| **Comb** | DL20 | U9 | U6 |
| **Gluing method** | Double | Double | Double |
| **Consumption (kg/m²)** | 8 to 10 | 7 to 8 | 6 |

**Table 3 - Outdoor powder consumption**

During installation, regularly check that the bonding product is evenly distributed and a transfer of at least 90% of the surface. This verification is carried out after a cladding element has been lifted off the wall: the grooves in the bonding product are crushed and the latter is distributed over the back of the cladding. The bonding product transfer test must be recorded in a report with photographs in accordance with NF DTU 52.2.

*4.6.1. Brick slips*

The slips are laid using a single-layer gluing on exterior walls
- the bonding product is applied to the wall in small areas (between 1 and 2 $m^2$) using a stainless steel trowel or smoothing tool, then levelled with a U6 notched trowel. Preferably, the grooves are drawn horizontally to avoid the possibility of water migrating behind the cladding;
- the back of the slips is also covered with glue using a smooth spatula or trowel, so as to form a layer of 1 to 2 mm (except for indoor application which is allowed with single-layer gluing);
- the slips are placed on the grooves of the fresh bonding product and pressed firmly to obtain a bonding plan without air entrapment and good crushing of the grooves;
- the installation is carried out with crossed joints, offset (max. 1/3 – 2/3) or straight horizontally or vertically;
- a joint space of at least 6 mm between each slip is made using wedges, cross spacers or line.

Drying time before reapplication: at least 24 hours.

*4.6.2. Stone and panel elements*

The elements are laid using double-layer gluing.
- the bonding product is applied to the wall in small areas (between 1 and 2 $m^2$) using a stainless steel trowel or smoothing tool, then levelled with a U9 notched trowel. Preferably, the grooves are drawn horizontally to avoid the possibility of water migrating behind the cladding;
- a layer of bonding product is also applied to the entire back of the cladding using a smooth spatula or trowel, to form a layer 1 to 2 mm thick;
- the cladding is placed on the grooves of fresh bonding product and pressed firmly with a slight lateral movement to obtain a bonding plan without air entrapment and to make the bonding product flow back around the perimeter of each cladding element;
- a joint space is created between each cladding element in accordance with the technical data sheet for the chosen cladding, with a minimum defined below:
    - o cladding elements with filled joints: minimum spacing 10 mm;
    - o cladding elements with unfilled joints: spacing of approx. 2 mm to allow the stone bonding adhesive to flow back.

Drying time before reapplication: at least 24 hours.

**4.7. Jointing of cladding elements**

Jointing should be carried out no earlier than 24 hours after bonding of the cladding elements. The jointing between the cladding elements is carried out with ORSOL WALL JOINT.
The product is prepared in accordance with its technical data sheet by mixing the powder with the indicated quantity of water and blending with a slow-speed electric mixer until a soft, homogeneous, lump-free paste is obtained.
If batches of different dates are used, they should be mixed proportionally to avoid any differences in colour after drying.

Consumption: refer to Table 2.

Fill the jointing bag with ORSOL WALL JOINT and pass the nozzle over the joint so as to apply a continuous, even bead of excess mortar, avoiding any spillage onto the cladding elements.
Compact the mortar with a cat's tongue trowel or a jointing tool to ensure a good fill. Do not cover the face of the stones with jointing mortar.

**4.8. Finishing and cleaning**

*4.8.1. Finishing*

Two finishes are possible, depending on the installed collection and the desired aesthetic effect; they are applied as soon as the surface of the joint is firmed up:
- brushed: use a narrow soft steel brush to avoid scratching the surface of the facing, then finish with a bristle brush;
- smooth: use a damp (but not waterlogged) large-pored sponge trowel, or a jointing blade.

Joints must be protected from rain until the mortar has completely dried.

*4.8.2. Cleaning*

The cladding elements are cleaned with a damp but not runny sponge and clean water as the joint progresses, and before the mortar has fully set.
When the joint is hard, complete the cleaning with a brush or dry cloth.

**4.9. Protective treatment**

Apply ORSOL waterproof coating no earlier than 24 hours after the cladding has been applied. The application is carried out by spraying over the entire surface of the facing.
- apply from the bottom up in 2 "wet-on-wet" coats; allow 30 minutes between the two coats;
- do not overload, remove excess with absorbent paper before drying.

**4.10. Treatment of singular points**

The treatment of singular points (starts, stops, corners, etc.) is illustrated in chapter 5.

**4.11. Maintenance**

The protective treatment must be renewed every 10 years (5 years for aggressive environments: urban, industrial, etc.).

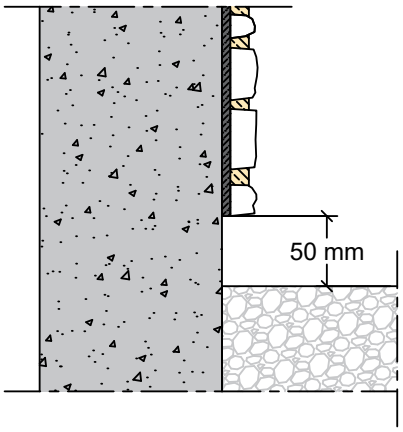
Moss, algae and lichen can develop on northern exposures or in humid regions ("green pollution"). These developments pose no structural danger to the structure, but can damage the aesthetics of the cladding.
- without proliferation of "green pollution": dry cleaning with tools (brush or broom) with soft bristles (straw) to avoid damaging the elements;
- with proliferation of "green pollution": scrape off and remove moss, algae, fungus or lichen deposits, then apply a façade cleaner;
- 24 hours at the earliest after cleaning and treatment, apply a water-repellent product as defined in §4.9.

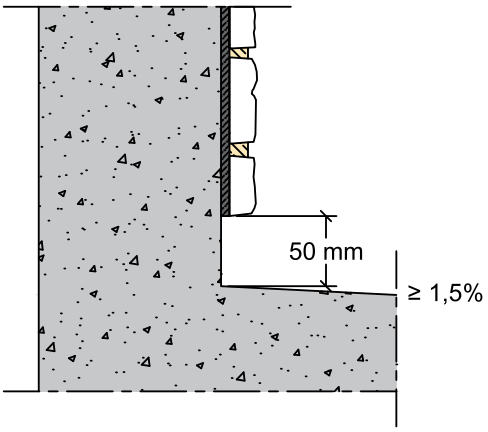
# 5. PROVISIONS FOR TREATMENT OF SINGULAR POINTS

**5.1. Start**

*5.1.1. First row*

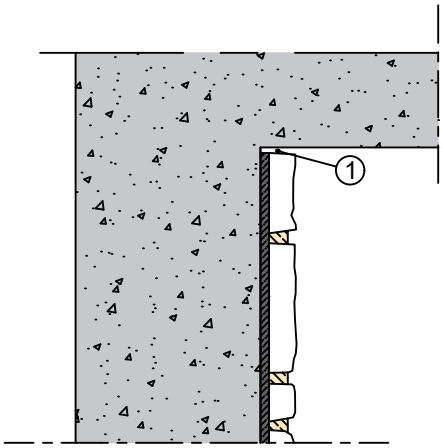
For outdoor installation, there must be a gap of at least 50 mm between the natural ground (or finished floor) and the underside of the 1st row of elements.
A temporary starter rail is installed before the first row of cladding elements is laid to ensure that the installation is horizontal.
For indoor installation, this empty space is not necessary.




*5.1.2. Underside connection and start on balcony or terrace*

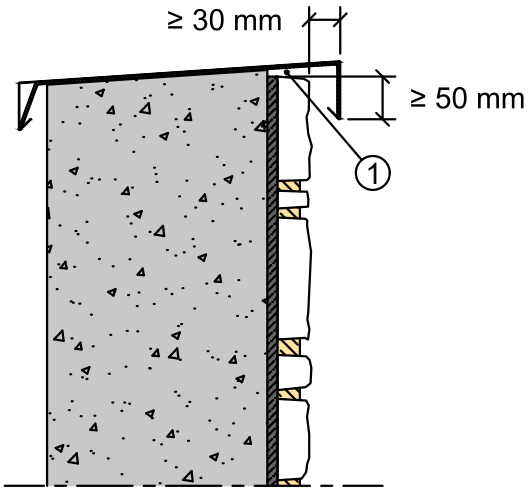
Under no circumstances should the facing come into contact with the underside or the rough or finished floor of a balcony, fascia, terrace or any protrusion on the façade.
On the underside, the cladding elements forming the top row must be adjusted in size (height), leaving a space, either empty or filled with a flexible sealant joint.

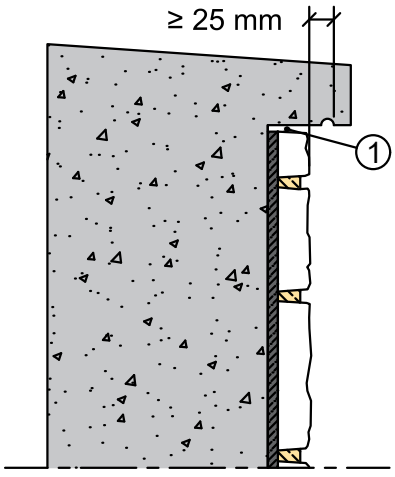



① – space ≥ 5 mm left empty or filled with a flexible mastic joint

**5.2. Top of parapet, top edges of facing**

Parapets are protected by a water-drop covering or by prefabricated elements fitted with a water-drop. In addition, the control joints of the surface on the terrace side must be sealed.
The upper vertical edges must be protected by appropriate devices such as cornices, fascias or aprons. The cladding elements forming the top row must be adjusted in size (height), leaving a space, either empty or filled with a flexible sealant joint, between it and the protective device.



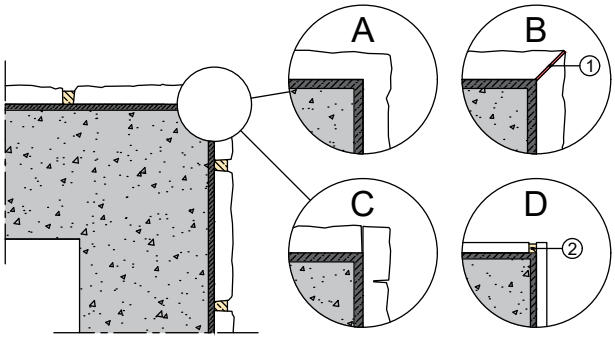




① – space ≥ 5 mm left empty or filled with a flexible mastic joint

**5.3. External angles and lintels**

5.3.1. *External angles*

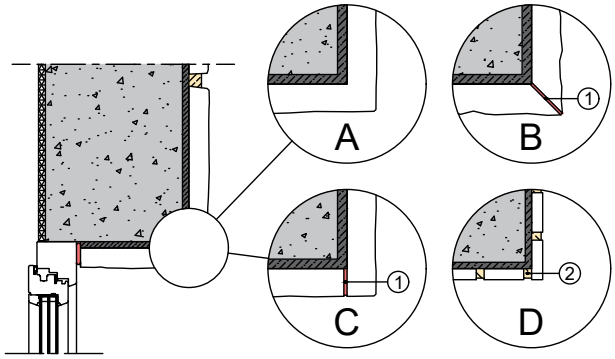
External angles can be treated in three different ways:
- use of corner elements specific to the collection. Corner elements entail a possible risk of cracking of the facing, without compromising the durability of the structure. A vertical control joint in the facing must be less than one metre from the corners of the building;
- use of bevelled straight cladding elements:
    - o make a bevelled assembly cut of a slip, stone or panel adapted to the corner of the wall to be covered
    - o each piece will reconstitute the angle on each side of the edge in a harmonious way
    - o the corner is made leaving a 2 mm gap at the bevelled edge; this gap is filled 24 hours after installation with a tinted PU mastic
- use of straight toothed cladding elements.




① – flexible mastic joint, min. 2 mm
② – MORTIER JOINT MUR min 6 mm joint
A: CORNER CLADDING OR CORNER SLIP
B: BEVELLED CLADDING
C: STRAIGHT TOOTHED CLADDING WITHOUT JOINTS
D: STRAIGHT TOOTHED SLIP WITH JOINTS

*5.3.2. Lintels*

Lintels can be treated in three different ways:
- use of lintel elements specific to the collection;
- use of bevelled straight cladding elements:
    - o make a 45° bevelled assembly cut of a slip, stone or panel
    - o the corner is made leaving a 2 mm gap at the bevelled edge; this gap is filled 24 hours after installation with a tinted PU mastic
- use of specific 1/2 lintels, cut lintels or straight slips.

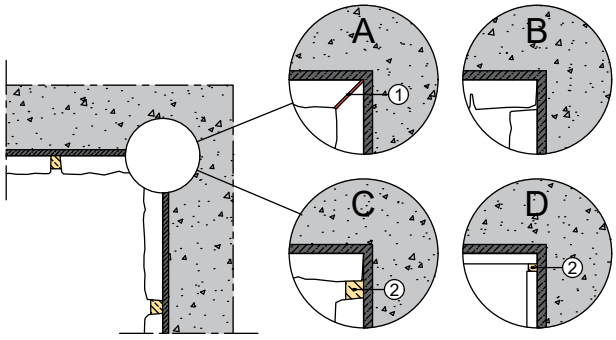



① – flexible mastic joint, min. 2 mm
② – MORTIER JOINT MUR min 6 mm joint
A: CORNER CLADDING OR CORNER SLIP OR LINTEL
B: BEVELLED CLADDING
C: STRAIGHT TOOTHED CLADDING WITHOUT JOINTS
D: STRAIGHT TOOTHED SLIP WITH JOINTS

**5.4. Internal angles**

Internal angles can be treated in three different ways:
- use of bevelled straight cladding elements:
    - o make a bevelled assembly cut of a slip or panel adapted to the corner of the surface to be covered

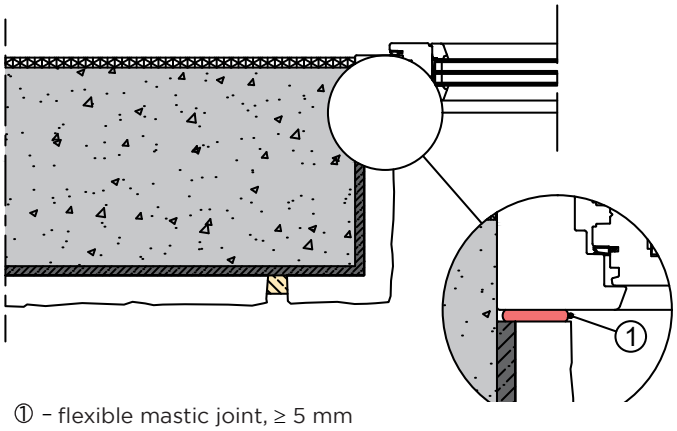
Each piece will reconstitute the angle on each side of the edge in a harmonious way
    - o the corner is made leaving a 2 mm gap at the bevelled edge; this gap is filled 24 hours after installation with a tinted PU mastic
- use of straight cladding elements:
    - o panel elements are crossed over each other
    - o the stone elements and slips are spaced to create a joint




① – flexible mastic joint, min. 2 mm
② – MORTIER JOINT MUR joint
Slip = min. 6 mm Stone elements = min. 10 mm
A: CORNER CLADDING OR CORNER SLIP
B: BEVELLED CLADDING
C: STRAIGHT TOOTHED CLADDING WITHOUT JOINTS
D: STRAIGHT TOOTHED SLIP WITH JOINTS

**5.5. Connection to joinery**

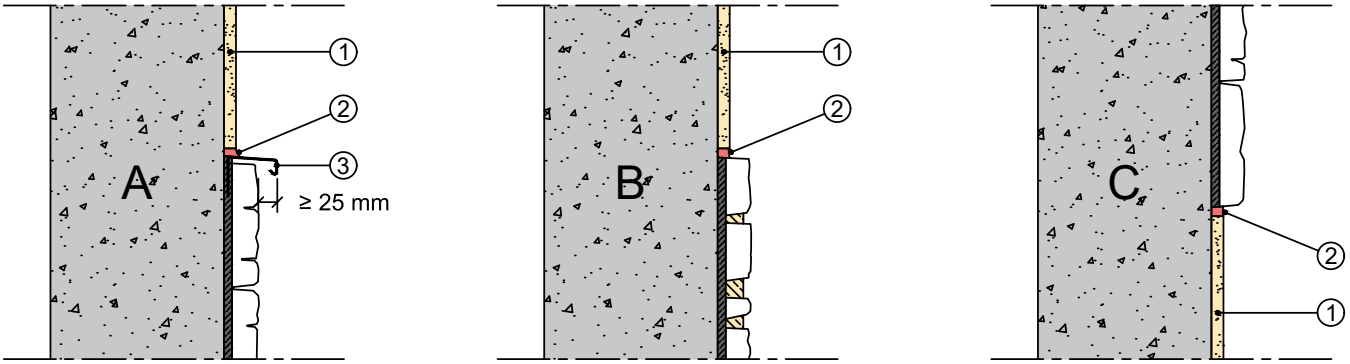
Make a seal with sealant at each stop area and at the junction between the cladding elements and the window frames. Water and airtightness between the frames of the joinery and the shell of the building must be ensured beforehand.




① – flexible mastic joint, ≥ 5 mm

**5.6. Connection between finishes**

Areas clad with cladding elements must be finished before any other finishing work. The connection with plaster finishes is made by integrating a water-drop profile or a flexible mastic joint.




① – flexible mastic joint, min. 2 mm
② – MORTIER JOINT MUR joint
③ – protective profile

A - Finishing of all cladding at the bottom
B - Finishing with brick slips or stone elements in the lower section
C – Full cladding finish at the top

**5.7. Controle joints**

The expansion joints in the structural shell and the joints between the structural shell and the infill masonry must be respected and transferred as expansion joints through all the layers of stone bonding adhesive and cladding elements.

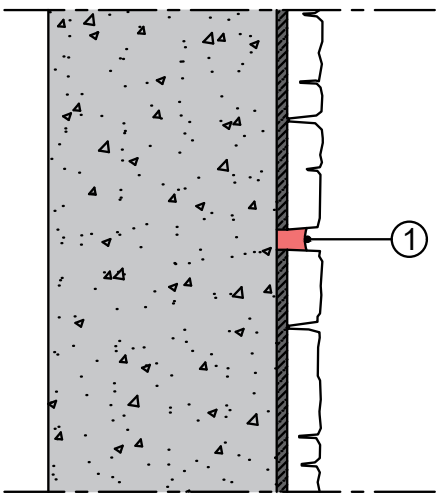
*5.7.1. Cladding elements with filled joints*

ORSOL WALL JOINT is a mortar with a modulus of elasticity of less than 8,000 MPa. Control joints are not necessary.

*5.7.2. Cladding elements with unfilled joints*

They are laid out approximately every 60 m2 (which corresponds to horizontal joints no more than every 6 m and vertical joints no more than every 10 m). This is a completely reserved space, filled during the finishing work with a flexible sealant that does not stain the facing elements. A corrosion-protected metal profile or a PVC profile with a compressible seal can also be used.

The layout of these joints should be discussed with the architect.




① – flexible mastic joint

**Table 4 – Cladding characteristics**

| Typology | Products | Thickness (mm) | Mass per unit area (kg/m²) | Accessories[1] |
|---|---|---|---|---|
| **Brick slips** | BRIQUE CHROMATIK[2] | 14 | 22.2 | OUI |
| | BRIQUE ORIGINE[2] | 15 | 24.5 | OUI |
| | BRIQUE OLD SCHOOL[2] | 15 | 24.5 | NON |
| | BRIQUETTE[3] | 25 | 25.2 | OUI |
| **Cladding elements WITH joint** | BRECY[4] | 20 | 41.7 | OUI |
| | CAUSSE[4] | 30 | 33.3 | OUI |
| | GRANIT[4] | 25 | 30.7 | NON |
| | INFINITY[5] | 28 | 50.4 | NON |
| | MANOIR[4] | 25 | 30.7 | OUI |
| | MEULIERE[4] | 30 | 34 | OUI |
| | MIXTO[4] | 30 | 33.3 | OUI |
| | NOVIROC VRAC[4] | 10 - 40 | 54 | OUI |
| | NOVIROC TREILLIS[4] | 10 - 40 | 54 | OUI |
| | ROCA[4] | 35 | 36.6 | OUI |
| | TERTUS[5] | 30 | 41.1 | NON |
| **Cladding elements WITHOUT joint** | CAUSSE sur treillis[5] | 35 | 43.6 | OUI |
| | CUBIK[5] | 30 | 48.7 | NON |
| | GAÏA[5] | 27 | 40.3 | NON |
| | INCERTO[5] | 35 | 43.6 | NON |
| | OLYMPE[5] | 30 | 48.9 | OUI |
| | PORTLAND[5] | 20 | 31.5 | NON |
| | ROCA sur treillis[5] | 35 | 43.8 | OUI |
| | ROCKY MOUNTAIN[5] | 30 | 46.4 | OUI |
| | TAHOE[5] | 30 | 42.8 | NON |
| | YOSEMITE[5] | 30 | 43.8 | OUI |

*[1] Accessories (corners, lintels, etc.) available from catalogue.*
*[2] The mass per unit area is given for installation with a 10 mm wide joint.*
*[3] The mass per unit area is given for a joint width of between 15 and 20 mm.*
*[4] The mass per unit area is given for an installation with an average joint width of 20 mm.*
*[5] The mass per unit area is given for installation with a 2 mm gap between panels.*

**Table 5 – Solar absorption coefficients of shades**

| Shade | Solar absorption coefficient | Shade | Solar absorption coefficient | Shade | Solar absorption coefficient |
|---|---|---|---|---|---|
| **5 tons** | ~ 0.64 | **Gris cendré** | 0.85 | **Ocre jaune** | 0.62 |
| **Anthracite** | 0.90 | **Gris clair** | 0.72 | **Pierre** | 0.36 |
| **Beige** | > 0.7 | **Gris nuancé** | 0.73 | **Rocaille** | 0.84 |
| **Beige doré** | 0.7 | **Gris panaché** | ~ 0.81 | **Rosé** | > 0.7 |
| **Beige nuancé** | 0.66 | **Gris perlé** | 0.72 | **Rouge** | 0.49 |
| **Bronze** | 0.68 | **Gris rosé** | 0.86 | **Rouge antique** | > 0.7 |
| **Blanc / white** | 0.38 | **Harrigori** | 0.7 | **Rouge cuivré** | 0.75 |
| **Corse rosé** | < 0.7 | **Havane** | 0.68 | **Rouge rosé** | 0.87 |
| **Flammé** | 0.55 | **Ivoire** | 0.36 | **Sépia** | 0.84 |
| **Graphite** | 0.91 | **Naturel** | 0.53 | **Terracotta** | 0.49 |
| **Graphite cérusé** | 0.77 | **Noir / black** | 0.94 | **Terre d'argile** | 0.69 |
| **Gris béton** | 0.73 | **Ocre brun** | 0.75 | **Terre de Sienne** | 0.44 |